Comprehensive income information: a user's perspective

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Abstract: The goal of this experimental study was to examine whether nonprofessional investors actually use comprehensive income (CI) in their financial calculations and analyses. We assessed how these actors process actuarial gains and losses on defined benefit pension plans as an “other comprehensive income” (OCI) item, and whether the presentation format for CI affects their judgements and decisions, while considering the directional impact of the OCI item (actuarial loss or actuarial gain). Using 125 Canadian MBA students as proxies for nonprofessional investors, we conclude that nonprofessional investors generally do not use CI, are not affected by its presentation format, and are influenced in relatively few of their judgements by the direction of the OCI item’s impact. These findings have important implications for standard setters, who may wish to better conceptualise the CI concept and revisit their current emphasis on CI information.

Keywords: actuarial gains or losses; behavioural accounting; comprehensive income; experimental study; nonprofessional investors; OCI; other comprehensive income; presentation format.

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1 Introduction

Comprehensive income (CI) includes not only the traditional net income figure, but also other comprehensive income (OCI) items pertaining mainly to fair value remeasurements. The first requirement to report CI was issued in the USA in 1997, and the first OCI items to appear in US accounting standards (FASB, 1997) were unrealised gains and losses on investments, net losses related to an additional pension liability, and foreign currency translation adjustments. CI was included in Canadian accounting standards in 2005 and in the International Financial Reporting Standards (IFRSs) in 2007. In Canada, the first OCI items were introduced in the financial instrument and foreign currency accounting standards, which were published in 2005. These OCI items were changes in fair values of available-for-sale financial instruments, gains and losses related to hedge accounting, and unrealised gains and losses on translating financial statements of self-sustaining foreign operations. After Canadian public companies adopted IFRSs in 2011, OCI items grew to include, among others, the impact of the revaluation of property, plant and equipment and intangible assets at fair value, and actuarial gains and losses occurring in defined benefit plans. CI information has therefore been a major change in accounting that has taken place gradually over the last two decades.

Given financial accounting's role of providing useful information (Lee, 2009), it is worth examining whether financial statement users actually use CI information in their decision making process. Although market-based research provides mixed results about the relevance of CI information (e.g., Barton et al., 2010; Kanagaretnam et al., 2009), there is scant research on the actual use of this information by individual financial statement users in their financial statement analysis calculations. This study fills this gap in the literature by examining nonprofessional investors' use of CI, specifically in terms of their treatment of actuarial gains and losses on defined benefit pension plans presented as OCI items. Drawing on the input of a sample of 125 Canadian MBA students as

proxies for nonprofessional investors, we found that nonprofessional investors generally leave CI information out of their financial statement analysis.

Standard setters currently accept two modes of presentation for CI information. The one-statement approach presents net income and OCI items in one single statement of comprehensive income, while the two-statement approach supplies a traditional income statement as well as an additional statement that starts with net income, considers OCI items and presents comprehensive income. Previous research suggests that the accounting information presentation format can influence investors' judgements and decisions (e.g., Maines and McDaniel, 2000; Viger et al., 2008). The current experimental study makes a further contribution to the literature by investigating whether the presentation format for CI information (in one or two income statements) affects nonprofessional investors' judgements and decisions. Our findings clearly show that nonprofessional investors' judgements and decisions are generally not affected by income statement presentation format, but that some of their judgements are influenced by the direction of the impact of the OCI item (actuarial gain or actuarial loss). Nevertheless, it seems that nonprofessional investors pay little attention to CI information. These findings have important implications for standard setters, who may wish to better define the CI concept and revisit their current emphasis on CI information.

Our research offers many contributions. To our knowledge, it is the first experimental study to investigate whether nonprofessional investors actually use CI in their calculations as they analyse financial statements. The evidence we collected complements that of the only experimental study – by Maines and McDaniel (2000) – that examined the impact of CI presentation format on nonprofessional judgements. Our study is also the first to examine the impact of actuarial gains and losses as an OCI item. Overall, it contributes to the debate about the usefulness of CI information by providing timely and relevant information in view of the increased prevalence of OCI items in accounting standards.

Our study differs from Maines and McDaniel (2000) as follows: we compared the impact of presenting CI information in one vs. two performance statements rather than in performance vs. shareholders' equity statements; our OCI items related to the core activities of a manufacturing firm rather than those of a financial services firm; and we also assessed the OCI items' directional impact, an issue not addressed in Maines & McDaniel. However, like these authors, we asked investors to make judgements and decisions. In addition, we asked them to perform the computation of financial ratios. These investigations resulted in new insights into the actual use of CI information.

The remainder of the paper is structured as follows. In the next section, we review the relevant extant research on the usefulness and presentation format of CI information and actuarial gains and losses as an OCI item. The section that follows presents the theory and hypothesis development, followed by a description of our methodology. Lastly, we analyse, discuss and make conclusions about our results.

2 Comprehensive income information

2.1 Usefulness of CI information

The conceptualisation of earnings components is an ambiguous standard-setting issue (Barker, 2004; Rees and Shane, 2012). As the international standard-setting project on

financial statement presentation was underway, financial statement users complained about the lack of a conceptual framework to help them distinguish the underlying economics of net income components from those of OCI components (IASB, 2011). It appears that standard setters not only have a limited knowledge of users' needs in terms of CI information, they also send users contradictory signals about their own perceptions of the importance of this information. On the one hand, they emphasise the use of a reporting format that enhances the visibility of CI and thereby increases investors' use of this information (Maines and McDaniel, 2000). As Acton (2009) explains, the presentation of CI directly on the income statement may influence analysts to consider whether to include it in the computation of ratios. On the other hand, standard setters require the publication of the earnings per share ratio based only on net income. One argument is that reporting CI per share might detract from traditional earnings per share and overemphasise CI (Rees and Shane, 2012). Whether CI actually provides financial statements users with useful information seems debatable.

Market-based research consistently documents the failure of CI to outperform net earnings as a summary measure of firm performance (Rees and Shane, 2012). For instance, Dhaliwal et al. (1999) used Compustat and CRSP data for 11,348 firm-years (1994-1995) and found no evidence that CI is more strongly associated with returns or market value or better predicts future cash flows or income than net income (except in the case of financial firms). Similarly, Cahan et al. (2000) found no evidence of an increase in the incremental value relevance of CI over net income for the 48 firms composing the New Zealand Stock Exchange from 1992 to 1997. Furthermore, Barton et al. (2010) examined the value relevance of a set of summary performance measures including sales, earnings, CI, and operating cash flows for a sample of 19,764 firms around the world for the 1996-2005 period and found that no single measure dominates. Pronobis and Zülch (2012) also found no evidence that CI has superior predictive power for future firm operating performance than net income for a sample of German companies belonging to the major German stock exchange index 'HDAX' in 2009. According to Rees and Shane (2012), these results are not surprising given that CI combines nonrecurring OCI components with more persistent earnings components. Indeed, Jones and Smith (2011) found that OCI items had similar value relevance than special items did for a sample of 236 (Compustat) companies for 1986-2005.

Some researchers adopted a different approach by examining the incremental value relevance of specific OCI components instead of the global CI figure. Early research provided mixed results. For example, while Soo and Soo (1994), Bartov (1997), Louis (2003) and Chambers et al. (2007) found value relevance for foreign currency translation adjustments, Dhaliwal et al. (1999) and O'Hanlon and Pope (1999) did not. More consistent results were found for gains and losses on investment securities, as Dhaliwal et al. (1999), Chambers et al. (2007) and Kanagaretnam et al. (2009) all documented value relevance for this OCI item. According to Kanagaretnam et al. (2009), the mixed evidence provided by early studies may be due to the use of as if methodology to construct an ex-ante measure of OCI items and CI prior to the implementation of SFAS 130 (FASB, 1997). Their study, based on data for Canadian firms cross-listed in the USA from 1998 to 2003, shows that available-for-sale and cash flow hedge OCI components are significantly associated with price and market returns. Contrary to previous research, they also found that aggregate CI is more strongly associated with both stock price and returns compared to net income. However, in line with previous findings, they found that net income is a better predictor of future net income relative to CI. Campbell (2013) also

noted an association between unrealised cash flow hedge gains/losses and subsequent changes in gross profit.

All in all, market-based research provides mixed results on the usefulness of CI information. More importantly, evidence about the actual use of this information by individual financial statement users is very limited (as we explain below, experimental research mainly examined the impact of the CI reporting format on users' judgements and decisions). Anecdotal evidence suggests that CI might be useful, given that, for instance, the CFA Institute, a major user association, supports the preparation of one single statement of comprehensive income (CFA Institute, 2007, 2010) and theoretical models suggest that performance ratios (such as ROE) should use the CI figure as the numerator (Nissim and Penman, 2001, 2003). Nonetheless, there is scant knowledge about the actual use of CI in financial statement analysis. Our study therefore contributes to the literature by investigating whether nonprofessional investors actually use CI in their financial calculations and analyses, thereby enabling us to provide standard setters with relevant feedback about the usefulness of this information. Although information usefulness relates to many aspects of accounting information such as relevance, representational faithfulness, comparability, verifiability, and timeliness (IASB, 2014), the focus of this study is relevance in terms of information that is actually used.

2.2 CI reporting format

Standard setters have historically allowed options in CI reporting format. In the USA, SFAS No. 130 (FASB, 1997) provides three options, i.e., two using performance statements, and one using the statement of changes in shareholders' equity. More specifically, the first option derives total CI from one single CI statement that first presents the components of net income, followed by the OCI items. The second option uses two distinct statements, one corresponding to the traditional income statement, and the second, called statement of comprehensive income, starting with the net income figure to which are added or deducted OCI items to obtain the total CI amount. As mentioned previously, the third option presents OCI items in the statement of changes in shareholders' equity, a less transparent method that has proven to be the method of choice for most US companies (e.g., Bamber et al., 2010; Jordan and Clark, 2002; Lee et al., 2006; Pandit et al., 2006). This corporate behaviour is not without consequences for financial statement users, as experimental research has demonstrated that using a performance statement instead of hiding OCI items in the shareholders' equity has an impact on nonprofessional investors' judgements about management performance (Maines and McDaniel, 2000) and on professional investors' (analysts) valuation judgements (Hirst and Hopkins, 1998). In addition, it appears to significantly reduce earnings management behaviour in financial statement preparers (Hunton et al., 2006).

IFRSs currently allow one or two performance statements (described in the preceding paragraph) and prohibits the presentation of OCI items in the statement of changes in shareholders' equity. In a discussion paper published jointly with the FASB (IASB, 2008) before the adoption of the current standard, the IASB first proposed eliminating any alternative presentation formats and requiring all companies to present CI in one single performance statement. Supporters touted advantages such as greater transparency, consistency, and comparability for users, and easier calculation of financial ratios. Objectors argued that one single statement would undermine the importance of net income by making it a subtotal, and that the presentation of CI as the bottom line would

confuse users. In the end, the IASB relaxed its requirements and allowed the use of either type of approach (IASB, 2011).

These approaches have yet to be examined in the literature. Studies have so far focused on the impact of presenting OCI items in a performance statement or in the statement of changes in shareholders' equity. By investigating the impact of a one-statement vs. a two-statement approach, our study contributes to the ongoing debate on the impact of CI reporting formats and provides further relevant feedback for standard setters.

2.3 Actuarial gains and losses as an OCI item

As mentioned previously, CI is closely tied to fair value measurement and is nothing more than an accounting construct introduced to defer or avoid income statement recognition of valuation changes that would otherwise create volatile net income numbers (CFA Institute, 2010). It is also an accounting proxy for economic income that measures total changes in shareholder value (Wild et al., 2007). It mimics clean surplus income representing the increase in net assets derived from non-owner transactions (Van Cauwenberge and De Beelde, 2007). As newly promulgated accounting standards increasingly adopt balance-sheet and fair value measurement approaches, OCI items have proliferated. Consider, for example, the recently amended IAS 19 *Employee Benefits*, which became effective in 2013 and now requires all companies to totally recognise actuarial gains and losses on the balance sheet and in OCI items.

Before the amendment to IAS 19, companies had the choice to recognise actuarial gains and losses in earnings or to consider them as OCI items. The former option required either the total immediate recognition of actuarial gains and losses or the use of a systematic method to progressively recognise them, in which case a minimum amount determined by the corridor approach had to be recognised. The corridor approach was a very popular method (Morais, 2008) because it enabled preparers to smooth earnings and leave more of any plan deficit off-balance sheet (Glaum, 2009). The second option (OCI recognition) was available only for companies that chose immediate recognition of the total amount of actuarial gains and losses. This policy choice is no longer available, as actuarial gains and losses now have to be totally recognised on the balance sheet and in CI. This is an important issue since off-balance sheet amounts related to pension plans are significant (Wiedman and Weir, 2005). Our study focuses on this particular OCI item.

It is worth noting that evidence of the usefulness of actuarial gains and losses as an OCI item is scarce. In a market-based study, Pronobis and Zülch (2012) found that actuarial gains and losses have no value relevance, but merely add noise for the prediction of subsequent period's net income and CI. Although their study does not directly relate to actuarial gains and losses, Mitra and Hossain (2009) conversely found value relevance for the pension transition adjustments in the initial adoption year of SFAS 158 *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans*. They documented the stock market's negative reaction to the adverse impact of pension transition adjustments (recorded in accumulated CI) on net worth and future cash flows. However, given the lack of research on the impact of actuarial gains and losses as an OCI item on individual financial statement users' judgements and decisions, we contribute to the current body of knowledge by investigating this topic.

Previous CI research focused on the impact of fair value remeasurements of available-for-sale securities on users' judgements and decisions. Given that Hirst and

Hopkins (1998) examined how CI information on non-core activities (remeasurement impact of available-for-sale financial instruments by a manufacturing company) affects analysts' (professional investors) judgements and decisions, and Maines and McDaniel's (2000) studied the impact of CI information related to core activities in the financial service industry (remeasurement impact of available-for-sale financial instruments by an insurance company) on nonprofessional investors' judgements and decisions, the current study takes a different perspective by looking at whether CI information on the core activities of a manufacturing company affects nonprofessional investors' judgements and decisions. Since defined benefit pension and other benefit plans are one component of employees' compensation package, as suggested by the labour economics perspective (Klumpes, 2001), it is reasonable to consider actuarial gains and losses related to these plans as core activities.

In sum, the objective of this research is to examine the use of CI information by nonprofessional users in their financial calculations and analyses and to assess whether the currently available reporting formats affect their judgements and decisions, while considering the directional impact of the OCI item (actuarial loss or actuarial gain).

This study is timely given the increasing inclusion of OCI items in accounting standards and the limited knowledge of how individual users deal with this information. Our research premise is important and consistent with the European Financial Reporting Advisory Group's (EFRAG) recent suggestion that standard setters should consider the effects of accounting standards in due processes (EFRAG, 2011). Our results will provide standard setters with ex post information about the usefulness of CI for nonprofessional users, the impact of alternative financial reporting formats on their judgements and decisions, and relevant ex ante information on future standard-setting projects involving CI. In view of the IASC Foundation's and the IASB's emphasis on the need for greater user participation in the development of IFRSs (IFRS Foundation and IASB, 2010), this study will help give users a voice in standard-setting processes.

3 Theory and hypothesis development

Drawing on a judgement model developed by Hogarth (1987), Maines and McDaniel (2000) provided interesting insights into financial statement users' acquisition and use of information in their decision process. Users must perform three tasks before making an overall judgement about a company's performance or financial situation and arriving at an investment decision. First, they must acquire information by locating and reading specific relevant data carefully enough to be able to recall the information. Second, they must evaluate the information by assessing the data's characteristics and their implications in relation to the firm's performance or financial situation. Third, they must combine the information by assimilating and weighting all its implications before arriving at an overall judgement or decision. Hodge et al. (2004) and Elliot et al. (2007) suggested that these last two tasks (information evaluation and combination) may be combined into one single task of information integration. For our purposes, information acquisition refers to financial statement users reading and remembering CI information, and information integration refers to the judgements and decisions they end up making. As is typically the case in similar experimental papers, acquisition is not considered to be a dependent variable but rather a manipulation check (Elliot et al., 2007).

Our study focuses on nonprofessional investors, who make up a significant proportion of stockholders (Belzile et al., 2006; SIA, 2002). In Canada, 49% of adults directly or indirectly own shares (Litan, 2003). Since nonprofessional investors appear to use financial statements in their investment decisions (Hodge and Pronk, 2006; Brazel et al., 2014), they are an important stakeholder group. Hence, it is worth investigating how financial information affects their judgements and decisions. Although experienced nonprofessional investors (Brazel et al., 2014) are likely to be heavier users of financial statements than less experienced nonprofessionals, the latter group nonetheless uses financial statements to a degree when performing their financial analyses, in addition to relying on analysts.

Nonprofessional investors are not expected to have clear, predefined information needs or to search for information in a focused manner as they make their investment decision (Hodge and Pronk, 2006). In fact, they appear to read financial statement information in the order in which it is presented (Bouwman, 1982; Maines and McDaniel, 2000), evaluating the data in a relatively unstructured manner in light of fuzzy valuation models and lack of clear understanding of various financial statement items and how they all tie together (SRI International, 1987; Maines and McDaniel, 2000). Nonprofessional investors are thus expected to acquire the information related to OCI items regardless of presentation format (one single statement or two distinct statements).

Although the literature has theorised about the use of CI information in financial analysis (e.g., Nissim and Penman, 2001, 2003; Wild et al., 2007), evidence about its actual use by investors in their decision process is limited. Those who helped develop the OCI accounting standard held opposing views about its usefulness (IASB, 2011). Hence, while the extant research indicates that nonprofessional investors acquire CI information (Maines and McDaniel, 2000), there is no specific judgement model suggesting that they integrate it into their ratio analysis. We thus have no a priori expectations about the actual use of CI information, leading us to formulate a research question rather than a hypothesis. Given that one of our objectives is to better understand how nonprofessional investors use CI information, our research question is the following:

RQ: Do nonprofessional investors use CI in their financial calculations and analyses?

As Maines and McDaniel (2000) explain, cognitive psychology research suggests that presentation format can affect the weighting of information items, depending on the level of cognitive costs imposed on the assessors (Russo, 1977). The isolation of comprehensive income information is one example of cognitive costs (Maines and McDaniel, 2000). Isolation refers to whether CI information is clearly isolated or distinguished from other information items in the financial statements. When CI information is not clearly isolated, nonprofessional investors expend greater efforts and incur higher cognitive costs to process all the information provided in order to make a judgement (Maines and McDaniel, 2000). It is thus reasonable to expect higher cognitive costs when CI information is presented in a one-statement format because it would include all revenue and expense line items, net income, OCI items and CI. Conversely, the two-statement format arguably involves lower cognitive costs because OCI items and CI are presented distinctively in a separate statement, and nonprofessional investors are not required to simultaneously process various information items. This theoretical perspective thus suggests that income statement presentation format can affect the use of

CI information, and that nonprofessional investors may weight CI more heavily when it is isolated and presented in a two-statement format.

However, Lipe (1998) suggested that users may give more weight to an item simply for being included in the traditional income statement. If they do, then the presentation format may affect their judgements and decisions. If they do not include CI in their ratio analysis, the presentation format might still affect their judgements about the firm's financial condition and profitability. Regardless of the usefulness of the information, its salience or prominence can affect how users weight it during the decision process (Dreben et al., 1979; Duncan, 1980; Elliott, 2006; Russo, 1977).

This view is consistent with other suggestions that requiring one single statement increases the visibility of CI and its potential use by financial statement users (Acton, 2009; CFA Institute, 2010). Along the same lines, empirical evidence demonstrates that financial statement preparers tend to report OCI items in a separate statement (distinct from the traditional income statement) when OCI items have a significant negative impact, which suggests that managers may strive to highlight the traditional income statement as a measure of performance in these circumstances (Ferraro, 2011). This perspective suggests that nonprofessional investors would weight CI information more heavily when it is presented in a single statement format.

These preceding perspectives imply that behaviour varies according to CI reporting format. However, they have opposite directional effects on nonprofessional investors' judgements and decision, leading to our first hypothesis:

H1: Nonprofessional investors' judgements and decisions are affected by CI presentation format (i.e., single statement vs. two-statements).

According to psychology literature, individuals are negatively biased and tend to weight negative cues more heavily than positive ones (Kahneman and Tversky, 1979; Skowronski and Carlston, 1989; Taylor, 1991; Weber, 1994). This observation also holds true for investment decision processes. Cianci and Falsetta (2008) demonstrated that nonprofessional investors find negative information more relevant than positive information when weighing the decision to invest in a company. Coram (2010) found that negative non-financial performance indicators have a significant downward effect on nonprofessional investors' stock price estimates. We assume that nonprofessional investors weight negative OCI items (actuarial losses) more heavily than positive ones (actuarial gains) in their overall judgements and decisions. Based on prior evidence, we propose the following second hypothesis:

H2: Negative OCI items, compared to positive OCI items, have a downward (upward) effect on nonprofessional investors' investment-related judgements (risk-related judgements) and decisions.

4 Method

4.1 Design and participants

A 2×2 between-subjects experimental design was selected to answer the research question and test our hypothesis. Table 1 presents the design. The financial statements given to participants consisted of one single CI statement or two statements (traditional

income statement and a separate CI statement starting with net income, to which the OCI item was added or subtracted to obtain CI). Each scenario also included a positive (actuarial gain) or negative (actuarial loss) OCI item.

Table 1 Research design

<i>Reporting format</i>	<i>Impact of OCI item</i>	
One single comprehensive income statement	Positive OCI item (actuarial gain) CI > NI	Group 1
	Negative OCI item (actuarial loss) CI < NI	Group 2
Two distinct statements	Positive OCI item (actuarial gain) CI > NI	Group 3
	Negative OCI item (actuarial loss) CI < NI	Group 4

OCI = Other Comprehensive Income; CI = Comprehensive Income; NI = Net Income.

As in prior research, MBA students were used as proxies for nonprofessional investors (Maines and McDaniel, 2000; Frederickson and Miller, 2004; Hodge et al., 2004; Elliott, 2006; Fortin and Berthelot, 2012). In fact, Elliott et al. (2007) established that second-year MBA students enrolled in or having completed a financial statement analysis course make good proxies for nonprofessional investors in tasks relatively low in integrative complexity. Our particular experimental task fulfils this criterion because the participants were not required to adjust the financial statements in any way before proceeding with their analysis and making their judgements and investment decision.

With their instructors' permission, MBA students from two Canadian institutions were approached in class in the summer and fall of 2013. Their participation in the experiment was voluntary. A total of 125 MBA students participated, with the vast majority (92) completing the experimental task in class. The other students (33) who agreed to participate did the experiment at home and mailed in their completed questionnaires. For the most part, the subjects were second-year students. All subjects had taken at least one financial accounting course and completed or nearly completed one financial statement analysis course. They were randomly assigned to groups 1 to 4.

4.2 Research materials

The experimental materials consisted of a set of comparative financial statements for ABC for fiscal 2010–2012, developed and adapted from a Canadian public packaging materials manufacturer. A conventional materiality threshold of about 10% was used to establish the amount of actuarial gain or loss included as an OCI item in 2011 and 2012 (see Appendix).¹ The financial information was kept constant between groups, including net income. Only the CI reporting format differed, along with the direction of the OCI item (actuarial gain or loss).² The single statement groups (1 and 2, see Table 1) received a single CI statement listing net income and CI. The other groups (3 and 4, see Table 1) were given two separate statements, appearing on consecutive pages, one containing the traditional income statement, and the second showing the CI statement.

All participants were given a short description of the company and its P/E ratio average and range in the industry for the last two years. They also received the auditor's report, the complete consolidated financial statements, which differed only in terms of CI statement format and the positive or negative nature of the CI item, and the notes for three fiscal periods. An introductory letter and a four-part questionnaire accompanied the experimental material. All the materials were prepared in English and in French to accommodate the participants' linguistic preferences.

Section 1 of the questionnaire (see Table 2) contained questions about the research question (questions I.1 to I.4) and to test the hypotheses (questions I.5 to I.14). The answers to question I.1 indicate the CI figure's level of usefulness for evaluating the company's financial performance and investment potential. The objective of questions I.2 and I.3 was to assess whether respondents used CI in computing the ROE and ROA ratios, which were selected because of their importance as performance measures in financial analysis models (e.g., Wild et al., 2007). Human capital productivity ratio (question I.4) was used to ascertain whether respondents would include actuarial gains and losses in the total compensation figure when computing the denominator. Elliott et al. (2007) used this ratio to see whether respondents included the stock-based compensation amount disclosed in the notes for this same purpose. H1 and H2 were tested by asking respondents to use a Likert-type scale (0–10) to make 10 financial analysis judgements and decisions (see Table 2, Section 1, questions I.5 to I.14). These questions were selected from prior studies that examined nonprofessional and/or analyst investment judgements and decisions (e.g., Anandarajan et al., 2008; Belzile et al., 2006; Fortin and Berthelot, 2012; Frederickson and Miller, 2004).

Table 2 Questionnaire items

<i>Section 1: Use of CI in financial calculations and analyses and financial analysis judgements and decision</i>				
<i>Q No.</i>	<i>Question</i>	<i>Variable</i>	<i>Response form</i>	<i>Coding</i>
I.1	The fiscal 2012 earnings number that I believe is most useful for evaluating ABC's financial performance and investment potential is	Earnings number most useful for evaluating ABC's financial performance and investment potential	Participant indicated the most useful number	CI = 1 NI = 0 Other = 0
I.2	Compute the 2012 return on equity (ROE) ratio that you will use for ABC in your financial analysis. Clearly indicate the amounts you used in your computation of the numerator and the denominator	Earnings number used in computing ROE	Numerator Denominator Ratio	CI = 1 NI = 0 Other = 0
I.3	Compute the 2012 return on assets (ROA) that you will use for ABC in your financial analysis. Clearly indicate the amounts you used in your computation of the numerator and the denominator	Earnings number used in computing ROA	Numerator Denominator Ratio	CI = 1 NI = 0 Other = 0

Table 2 Questionnaire items (continued)

<i>Section 1: Use of CI in financial calculations and analyses and financial analysis judgements and decision</i>				
<i>Q No.</i>	<i>Question</i>	<i>Variable</i>	<i>Response form</i>	<i>Coding</i>
I.4	Compute the 2012 human capital productivity ratio (total sales/total employee compensation) that you will use in your financial analysis. Clearly indicate the amounts that you used in your computation of the numerator and the denominator	Earnings number used in computing human capital productivity ratio	Numerator Denominator Ratio	CI = 1 NI = 0 Other = 0
I.5	I consider that ABC's overall financial condition is	Overall financial condition	Extremely poor to excellent	0–10
I.6	ABC's profitability is	Profitability	Extremely poor to excellent	0–10
I.7	In terms of volatility, ABC's earnings are	Earnings volatility	Not at all volatile to extremely volatile	0–10
I.8	ABC's growth prospects are	Growth prospects	Extremely poor to excellent	0–10
I.9	ABC's 2012 income as a predictor of future years' income is	Current year's income as a predictor of future years' income	Extremely poor to excellent	0–10
I.10	How risky for a diversified portfolio is an investment in ABC's common stock?	Risk of investing in ABC's stock	Not at all risky to extremely risky	0–10
I.11	Investing in ABC's shares is	Investment attractiveness	Not at all attractive to extremely attractive	0–10
I.12	Assume that the financial information for 2012 has just been publicly released. Indicate what you believe would most likely happen to the stock price of ABC shares	ABC shares' stock price reaction	Extreme decrease to extreme increase	0–10
I.13	On the basis of the information provided, what is the likelihood that you would invest in ABC's common stock?	Likelihood of investing in ABC's shares	No at all likely to 100% likely	0–10
I.14	Please indicate your level of confidence that ABC's stock is a good investment	Level of confidence that ABC's stock is a good investment	Extremely low to extremely high	0–10

Table 2 Questionnaire items (continued)

<i>Section 2: Information acquisition</i>				
<i>Q No.</i>	<i>Question</i>	<i>Variable</i>	<i>Response form</i>	<i>Coding</i>
II.1	Did ABC's financial statements include any "other comprehensive income" items?	Presence of the OCI item	Yes No Do not know	Yes = 1 No or do not know = 0
II.2	If you answered 'Yes' to the preceding question, what was this "other comprehensive income" item?	Nature of the OCI item	Participant wrote the nature of the item	Correct identification = 1 Incorrect identification = 0
II.3	Did the "other comprehensive income item" identified in question 2 increase or decrease earnings?	Income effect of the OCI item	Increase Decrease Do not know	Correct identification = 1 Incorrect identification = 0
<i>Section 3: Importance and understanding of CI</i>				
III.1	Please indicate the importance of comprehensive income in your financial analysis	Importance of CI in participants' financial analysis	Not important to extremely important	0–10
III.2	Compared to net income, how important is comprehensive income in your financial analysis?	Importance of CI vs. net income	Not important compared to net income to extremely important compared to net income	0–10
III.3	Please indicate your level of understanding of the concept of comprehensive income	Participant level of understanding of the CI concept	No understanding to excellent understanding	0–10

After answering Section 1 questions, participants were instructed to put the materials back in the first envelope provided to them and seal it before opening the second envelope, which contained Sections 2–4.

Instructing respondents not to refer to the financial statements, Section 2 (see Table 2) asked them to indicate whether the financial statements included other comprehensive income items (by yes, no or don't know) and the nature of these items and the direction of their impact (increase, decrease or don't know). These questions were included to ensure that the experimental plan was effective and that respondents had acquired the information.

Section 3 consisted of questions designed to gather additional input about the importance of CI in participants' financial analysis and their understanding of the CI concept (see Table 2, Section 3). Participants answered on a Likert-type scale (0–10).

Section 4 (not tabulated) gathered demographic information such as age, gender, business experience, and investment experience (number of years over which they have been actively evaluating and buying/selling equity investments, and if they generally used financial statements to make their investment decisions—scale of 0 to 10 ranging from Never to Sometimes to Always). Other questions included the number of courses

completed to date in their graduate program, the number of accounting or finance courses they had taken in their program (including the current term), their highest level of education completed and their undergraduate major.

As Libby (2005) points out, it is important to establish whether all subjects reasonably understand the effect of an accounting change before investigating their behaviour. The accounting standard on CI was promulgated in Canada in 2005, and all the respondents' MBA accounting courses referred to this concept at the time we conducted our study. In addition, our respondents, who had taken their financial accounting courses from 2012 on, were aware of the newly promulgated accounting standard requiring recognition of total actuarial gains and losses on the balance sheet and as OCI items (IAS 19, *Employee benefits*, effective as of January 1, 2013). Recall that before the promulgation of this amendment to IAS 19, Canadian companies had the opportunity to record actuarial gains and losses either in CI or in earnings. Anecdotal evidence indicates that many companies went with the first option, suggesting that accounting for actuarial gains and losses in CI had already been a trend in Canada for some time.

Our case material was pretested with colleagues, two students, and two former financial analysts. We fine-tuned the material based on their comments.

4.3 *Sample*

The respondents were mainly male (59.2%, or 74/125), with a mean age of 31 years (std. dev. = 8.48). Most had a bachelor's degree in business administration (81.7%, or 98/120) and had completed or were in the process of completing the first half of their graduate program (82.4%, or 103/125), with a mean of 10.45 courses completed or underway (std dev. = 2.11). At the time of the experiment, they had all completed or nearly completed at least one financial accounting and one finance course in their graduate program, while 92 had already completed four such courses. About 19% (24/125) reported previously investing in stocks, indicating, on a Likert-type scale of 0–10 anchored with Never and Always, whether they used financial statements to make these decisions (mean = 6.08, std dev. = 3.50). French was the predominant native language (77.6%, or 97/125). There were no systematic differences in participants' judgements and decisions according to method of administration, i.e., between class vs. home completion and language version (ANOVA tests, not tabulated).

5 **Analysis of results**

5.1 *Participant information acquisition*

In the second section of the questionnaire (see Table 2, Section 2), participants were asked three questions to assess whether they had acquired the information relative to CI. Recall that upon completing the first section of the questionnaire, respondents were asked to insert and seal their answers and the research material in an envelope. Question II.1 asked participants if ABC's financial statements included an "other comprehensive income (OCI) item." The vast majority of participants (85.6%, or 107/125) noticed the OCI item regardless of treatment (one/two statements; gain/loss) (Table 3, Panel A).

However, a higher proportion did so when presented with a loss compared to a gain (93.7% vs. 77.4%, $p = 0.010$, Table 3, Panel A). Hence, results indicate that losses were noted more widely than gains. Question II.2 asked participants to specify the nature of the OCI item. Only 52.3% of the 107 participants who indicated the presence of an OCI item accurately recalled the nature of this item (Table 3, Panel B). Question II.3 asked about the effect of the OCI item on earnings (positive or negative). A majority of the 107 participants who indicated the presence of an OCI item (61.7%, Table 3, Panel B) accurately indicated the income effect of this item (income increasing or decreasing). For these last two questions, there were no significant differences according to reporting format and OCI effect on net income (gain or loss).

To gather information on CI relevance for the participants' decision model, they were asked how important CI was to their financial analysis (see Table 2, Section 3, question III.1). Table 3, Panel C, shows that participants' perceptions of the importance of CI significantly affected the correct identification of the nature and income effect of the OCI item ($p = 0.022$ and 0.067 respectively). However, it did not significantly affect their ability to note the presence of the OCI item per se (not tabulated).

Overall, the above analysis indicates that almost all participants had acquired the information about the presence of the OCI item, and the majority of them adequately recalled its actual impact on income. These results provide the reasonable assurance that the experimental plan was effective and that respondents had acquired the information. Further analyses were performed only with participants who noted the presence of the OCI (107 respondents).

Table 3 Other comprehensive income (OCI) information acquisition statistics

<i>Panel A: Participant indicated presence of OCI items in financial statements (Question II.1)</i>						
<i>Presence of OCI items in financial statements</i>	<i>N = 125</i>	<i>One statement (N = 63)</i>		<i>Two statements (N = 62)</i>		<i>Chi² – p^a</i>
		<i>Expected</i>	<i>Actual</i>	<i>Expected</i>	<i>Actual</i>	
Yes	107	54 (85.7%)	52 (82.5%)	53 (85.5%)	55 (88.7%)	0.326
No	18	9 (14.3%)	11 (17.5%)	9 (14.5%)	7 (11.3%)	
		<i>Gain (N = 62)</i>		<i>Loss (N = 63)</i>		
Yes	107	53 (85.5%)	48 (77.4%)	54 (85.7%)	59 (93.7%)	0.010
No	18	9 (14.5%)	14 (22.6%)	9 (14.3%)	4 (6.3%)	
<i>Panel B: Nature and income effect of the OCI item (Questions II.2 and II.3) when OCI item acknowledged^b</i>						
	<i>N</i>	<i>Yes</i>	<i>No</i>	<i>Percent correct</i>		
Participant accurately indicated the nature of the OCI item	107	56	51	52.3%		
Participant accurately indicated the income effect of the OCI item (gain or loss)	107	66	41	61.7%		

Table 3 Other comprehensive income (OCI) information acquisition statistics (continued)

Panel C: Effect of the importance placed on CI in financial analysis (Question III.1) on identification of the nature and income effect of the OCI item when OCI item acknowledged^c

	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>F test – p^a</i>
<i>Nature of the OCI item</i>				
Correct identification of nature of OCI item	56	5.45	2.44	0.022
Incorrect identification of nature of OCI item/did not know	51	4.27	2.77	
<i>Total</i>	<i>107</i>	<i>4.89</i>	<i>2.65</i>	
<i>Income effect of the OCI item</i>				
Correct identification of income effect	66	5.26	2.73	0.067
Incorrect identification of income effect/did not know	41	4.29	2.45	
<i>Total</i>	<i>107</i>	<i>4.89</i>	<i>2.65</i>	

^aTests are two-tailed.^bThere were no significant differences according to reporting format and OCI income effect (not tabulated).^cParticipants' perception of the importance of CI in their financial analysis (measured on a Likert-type scale of 0–10 anchored at Not Important and Extremely Important) did not have a significant effect on whether OCI items were noted in financial statements ($n = 125$, not tabulated).

5.2 Do nonprofessional investors use CI in their financial calculations and analyses?

Since the research question asks whether nonprofessional investors consider OCI information in their financial calculations and analyses, participants were asked which 2012 earnings number was most useful for evaluating ABC's financial performance and investment potential (Table 2, Section 1, question I.1). They were also invited to compute the return on equity (ROE) and return on assets (ROA) ratios to see which earnings number they would use (Table 2, Section 1, questions I.2 and I.3). Tests were performed for the 107 participants who indicated that they noted the OCI item (none of the participants who failed to note the OCI item actually used CI to compute ratios). Each test had a different number of observations because some participants did not answer one or more of questions I.1 to I.3. Table 4, Panel A shows that few participants used CI in their calculations and analyses. Only 13.2% of participants believed that CI was the most useful earnings number for evaluating the financial performance and investment potential of ABC, while 22.8% and 19.4% used CI to compute ROE and ROA respectively. Nineteen of the 23 participants who used CI to compute ROE also used it to compute ROA, while four did not. These four respondents may have considered that CI is the appropriate figure to use in computing ROE because cumulative actuarial gains/losses are part of equity, but that NI better reflects asset performance. Overall, CI was used by fewer than 23% of the participants who had noted this information, leading us to

conclude that nonprofessional investors do not actually use CI in their financial statement analysis.

In the few cases where respondents used CI information, CI was viewed as the most useful earnings number or was the numerator used to compute ROE when financial statements showed an actuarial loss rather than a gain ($p = 0.015$ and 0.043 respectively, Table 4, Panel A). This result indicates that actuarial losses attract more attention than actuarial gains, an observation also confirmed by the information acquisition analysis above.

Table 4, Panel B, shows that the importance attached to CI in participants' financial analysis, its importance in comparison with net income and participants' level of understanding of the CI concept (Table 2, Section 3, questions III.1 to III.3) all significantly influence the choice of CI as the earnings number most useful for evaluating ABC's financial performance and investment potential. On a Likert-type scale of 0–10, participants who chose CI as the most useful earnings number placed significantly more importance on CI in their financial analysis than those who chose another earnings number (mean = 6.86 and 4.58 respectively). They also reported that CI was important in comparison to net income (mean = 6.07), and their level of understanding of the CI concept was greater than that of other participants (mean = 6.86 compared to 5.61). Responses to questions III.1 to III.3 by participants who used CI in calculating ROE and ROA and those who did not were compared, with similar results (not tabulated). These analyses suggest consistency across responses, which contributes to the validity of our results.

Participants were also asked to compute the human capital productivity ratio (total sales/total employee compensation) of ABC for 2012 (Table 2, Section 1, question I.4). In order to get the employee compensation number, they had to dig into the footnotes. Only one individual took the OCI item into account when computing the denominator (not tabulated). This suggests that respondents do not consider benefit plan actuarial gains or losses to be part of employee remuneration.

Overall, the above results indicate that very few nonprofessional investors use CI in their financial statement analyses. The few who do use it reportedly understand this concept better than others and attach greater importance to it.

5.3 Descriptive statistics and correlations: judgements and investment decisions

Participants were asked to make several judgements following their financial statement analysis, including whether they would invest in ABC shares and their level of confidence in such an investment (Table 2, Section 1, questions I.5 to I.14). Table 5 presents the means pertaining to the ten judgements and investment decision questions for all experimental groups combined (and standard deviations) as well as by reporting format and OCI income effect. A look at the means by reporting format shows that results are similar for both statement formats, except for investment attractiveness, where the variation was widest. The means for OCI income effect vary the most for earnings volatility, investment risk, expected stock price reaction and level of confidence that ABC's stock is a good investment. These results indicate the variables for which there could be a significant difference in relation to H1 and H2 respectively.

Table 4 Most useful earnings number and earnings number used in computing performance ratios

Panel A: Earnings number most useful for evaluating ABC's financial performance and investment potential and earnings number used in computing ROE and ROA (Questions I.1 to I.3) ^a				
	<i>N</i>	<i>Actuarial gain</i>	<i>Actuarial loss</i>	<i>Chi² – p</i>
<i>Earnings number most useful for evaluating ABC's financial performance and investment potential</i>				
Comprehensive income	14	2	12	0.015
Net income or other	92	45	47	
Total	106	47	59	
<i>Earnings number used in computing ROE</i>				
Comprehensive income	23	6	17	0.043
Net income or other	78	39	39	
Total	101	45	56	
<i>Earnings number used in computing ROA</i>				
Comprehensive income	20	7	13	0.333
Net income or other	83	39	44	
Total	103	46	57	
<i>Panel B: Earnings number considered most useful for evaluating ABC's financial performance and investment potential (Question I.1) in relation to CI importance in participants' financial analysis, importance of CI vs. net income, and participant level of understanding of the CI concept (Questions III.1 to III.3)^{b, c}</i>				
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>F test – p</i>
<i>Importance of CI in participants' financial analysis</i>				
Comprehensive income	14	6.86	2.83	0.002
Net income or other	92	4.58	2.52	
Total	106	4.88	2.66	
<i>Importance of CI vs. net income</i>				
Comprehensive income	14	6.07	2.56	0.004
Net income or other	92	4.00	2.40	
Total	106	4.27	2.51	
<i>Participant level of understanding of the CI concept</i>				
Comprehensive income	14	6.86	1.46	0.034
Net income or other	92	5.61	2.09	
Total	106	5.77	2.06	

^aTests were performed for the 107 participants who indicated the presence of the OCI item (none of the others actually used CI in computing ratios). The number of observations for each Chi² test differs since some participants did not answer one or more of questions I.1 to I.3 (see Section 1, Table 2). There were no significant differences in the earnings number chosen according to reporting format (not tabulated).

^bParticipants' opinions were measured on a Likert-type scale of 0–10 anchored as follows (see Section 3, Table 2): Importance of CI in participants' financial analysis, Not Important to Extremely Important; Importance of CI vs. net income, Not Important Compared to Net Income to Extremely Important Compared to Net Income; Participant level of understanding of the CI concept, No Understanding to Excellent Understanding.

^cGroup means and F tests' levels of significance are similar for earnings number used in calculating ROE and ROA (not tabulated).

Almost all the correlations between judgements and decisions (Table 6) are significant. Financial condition, profitability, growth prospects and investment attractiveness are highly correlated (0.38 and more). Current year's earnings as a predictor of future years' earnings is also significantly correlated with these judgements (0.22 to 0.40). Earnings volatility is positively correlated with investment risk (0.17), and the latter is negatively correlated with all the above judgements as well as with investment attractiveness. The correlations among expected stock price reaction, likelihood of investing in ABC shares and level of confidence that ABC's stock is a good investment are all significantly positive (0.24 to 0.61). Overall, the pattern of correlations shows coherence in participants' responses following their financial analysis, which increases the validity of our results.

Only one correlation with reporting format is significant (investment attractiveness), while four correlations with OCI income effect are at least marginally significant at $p \leq 0.10$ (earnings volatility, investment risk, expected stock price reaction and level of confidence that ABC's stock is a good investment). These results indicate that differences according to reporting format are unlikely other than for investment attractiveness (H1), and that a few differences would be possible according to OCI income effect (H2). We now examine results in relation to our two hypotheses.

Table 5 Descriptive statistics on judgements and investment decisions

Variables ^a	Overall		Reporting format		OCI income effect	
	Mean all N = 107	SD all	Mean One statement N = 52	Mean Two statements N = 55	Mean OCI loss N = 59	Mean OCI gain N = 48
Financial condition	7.40	1.09	7.38	7.41	7.41	7.37
Profitability	7.10	1.48	6.92	7.28	7.05	7.17
Earnings volatility	4.00	1.95	4.00	4.00	4.29	3.65
Growth prospects	6.84	1.33	6.77	6.90	6.72	6.98
Current year's earnings as a predictor of future years' earnings	6.56	1.57	6.45	6.67	6.59	6.53
Investment risk	4.18	1.73	4.31	4.06	4.40	3.92
Investment attractiveness	6.11	1.47	6.46	5.77	6.04	6.19
Expected stock price reaction	5.80	1.22	5.67	5.93	5.64	6.00
Likelihood of investing in ABC shares	5.44	2.09	5.48	5.40	5.46	5.41
Level of confidence that ABC's stock is a good investment	5.99	1.66	6.14	5.86	5.73	6.32

^aThe judgements and decisions were measured on a 0–10 Likert-type scale anchored as follows (see Table 2, Section 1, questions I.5 to I.14):

Financial condition, profitability, growth prospects, current year's earnings as a predictor of future years' earnings: Extremely Poor to Excellent; Earnings volatility: Not at All Volatile to Extremely Volatile; Investment risk: Not at All Risky to Extremely Risky; Investment attractiveness: Not at All Attractive to Extremely Attractive; Expected stock price reaction: Extreme Decrease to Extreme Increase; Likelihood of investing in ABC shares: Not at All Likely to 100% Likely; Level of confidence that ABC's stock is a good investment: Extremely Low to Extremely High.

Table 6 Pearson correlations^b ($N = 107$)

<i>Variables^a</i>	1	2	3	4	5	6	7	8	9	10	11
1 Reporting format	1										
2 OCI income effect	-0.03	1									
3 Financial condition	-0.01	0.02	1								
4 Profitability	-0.12	-0.04	0.65	1							
5 Earnings volatility	-0.00	0.16	-0.10	-0.06	1						
6 Growth prospects	-0.05	-0.10	0.50	0.45	0.09	1					
7 Current year's earnings as a predictor of future years' earnings	-0.07	0.02	0.27	0.32	0.05	0.40	1				
8 Investment risk	0.07	0.14	-0.34	-0.39	0.17	-0.35	-0.21	1			
9 Investment attractiveness	0.24	-0.05	0.48	0.40	-0.11	0.38	0.22	-0.31	1		
10 Expected stock price reaction	-0.11	-0.15	0.44	0.46	0.00	0.29	0.12	-0.24	0.46	1	
11 Likelihood of investing in ABC shares	0.02	.01	0.44	0.35	-0.16	0.26	0.38	-0.22	0.45	0.24	1
12 Level of confidence that ABC's stock is a good investment	0.09	-0.18	0.57	0.56	-0.20	0.48	0.25	-0.36	0.61	0.44	0.69

^aReporting format and OCI income effect are binary variables: one statement = 1, two statements = 0; OCI loss = 1, OCI gain = 0.

The judgements and decisions were measured on a 0–10 Likert-type scale anchored as follows (see Table 2, Section 1, questions I.5 to I.14):

Financial condition, profitability, growth prospects, current year's earnings as a predictor of future years' earnings: Extremely Poor to Excellent; Earnings volatility: Not at All Volatile to Extremely Volatile; Investment risk: Not at All Risky to Extremely Risky; Investment attractiveness: Not at All Attractive to Extremely Attractive; Expected stock price reaction: Extreme Decrease to Extreme Increase; Likelihood of investing in ABC shares: Not at All Likely to 100% Likely; Level of confidence that ABC's stock is a good investment: Extremely Low to Extremely High.

^bCorrelations greater (lesser) than 0.24 (–0.24) are significant at the 0.01 level; Correlations greater (lesser) than 0.18 (–0.18) are significant at the 0.05 level; Correlations greater (lesser) than 0.15 (–0.15) are significant at the 0.10 level (two-tailed). Correlations with OCI income effect greater (lesser) than 0.15 (–0.15) are significant at the 0.05 level; Correlations greater (lesser) than 0.13 (–0.13) are significant at the 0.10 level (one-tailed).

5.4 Influence of the CI presentation format (H1)

H1 posits that presentation of CI in a single-income statement is more likely to influence nonprofessional investors' judgements and decisions than the two-statement format. ANOVAs were performed for the nine judgements and the investment decision (Table 2, Section 1, questions I.5 to I.14) with presentation format (one or two statements), OCI income effect (gain or loss), and their interaction. There were no significant differences by format for all judgements (financial condition, profitability, earnings volatility, growth prospects, current year's earnings as predictor of future years' earnings, investment risk, expected stock price reaction, level of confidence that ABC's stock is a good investment – not tabulated) or by format for the investment decision (likelihood of investing in ABC shares – not tabulated), except in the case of investment attractiveness. Investment attractiveness was higher ($p = 0.005$, not tabulated) when participants received one (mean = 6.48) vs. two statements (mean = 5.76). Since only one judgement was significant, we conducted a factor analysis to determine whether there would be a reporting format difference for more comprehensive judgements. This analysis considered the seven financial analysis judgements leading to the judgement about expected stock price reaction. Table 7 shows that two components – which could be called performance and risk – explain 59.2% of the variance. ANOVAs were performed for these two items, with results finding no significant difference by reporting format. This suggests that all participants focused on either net income or CI regardless of presentation format. Considering that, as mentioned previously, very few participants used CI in their financial statement analysis, the former explanation seems more plausible.

Overall, the results do not support H1, leading us to conclude that CI reporting format does not affect nonprofessional investors' judgements and decisions. Regardless of presentation format, some participants seemed more concerned with net income vs. CI, whereas (a few) others focused on CI.

5.5 OCI income effect (H2)

H2 posits that negative OCI items, in comparison to positive OCI items, have a downward (upward) effect on nonprofessional investors' investment-related judgements (risk-related judgements) and decisions (Table 2, Section 1, questions I.5 to I.14). The OCI income effect was observed on four types of judgements ($p \leq 0.10$). Table 8 presents the ANOVA results for two judgements, earnings volatility and level of confidence that ABC's stock is a good investment ($p \leq 0.05$). Earnings volatility was perceived to be higher when an actuarial loss was reported vs. a gain (mean = 4.29 and 3.65 respectively, Table 8, Panel B). Similarly, perceptions of a higher investment risk resulted from a reported actuarial loss vs. a gain ($p = 0.076$, not tabulated). Further, an actuarial loss elicited less confidence in ABC's stock as a good investment compared to an actuarial gain (mean = 5.74 and 6.32 respectively, Table 8, Panel D). The result was similar for expected stock price reaction ($p = 0.066$, not tabulated). An ANOVA with the risk component from the factor analysis also resulted in a significant difference, with higher risk perceived in the loss condition ($p = 0.020$, not tabulated). The performance component from the factor analysis showed no difference according to OCI income effect (not tabulated).

Table 7 Factor analysis

<i>Variables</i>	<i>Components^a</i>	
	<i>Performance</i>	<i>Risk</i>
Financial condition	0.787	
Profitability	0.770	
Growth prospects	0.807	
Current year's earnings as a predictor of future years' earnings	0.580	
Investment attractiveness	0.681	
Earnings volatility		0.878
Investment risk		0.638

^aExtraction method: principal component analysis; rotation method: Varimax with Kaiser normalisation. The two components explain 59.2% of the variance. The item loadings above 0.50 are provided for each component.

Table 8 Two significant ANOVA tests for OCI income effect

<i>Panel A: ANOVA of Earnings volatility (Table 2, Section 1, question I.7)</i>				
<i>Source of variation</i>	<i>Degrees of freedom</i>	<i>Mean square</i>	<i>F value</i>	<i>p^a</i>
Constant	1	1666.7	1940.6	0.000
Reporting format (one or two statements)	1	0.0	0.0	0.500
OCI income effect (gain or loss)	1	10.9	2.9	0.047
Format*OCI income effect	1	0.5	0.1	0.365
Residual	107	2.0		
<i>Panel B: Means for significant OCI income effect coefficient – volatility</i>				
	<i>N</i>	<i>Mean</i>	<i>SD</i>	
Gain	48	3.65	1.66	
Loss	59	4.29	2.13	
<i>Panel C: ANOVA of Level of confidence that ABC's stock is a good investment (Table 2, Section 1, question I.14)</i>				
<i>Source of variation</i>	<i>Degrees of freedom</i>	<i>Mean square</i>	<i>F value</i>	<i>p</i>
Constant	1	3843.2	1414.6	0.000
Reporting format (one or two statements)	1	1.9	0.7	0.204
OCI income effect (gain or loss)	1	9.0	3.3	0.036
Format*OCI income effect	1	0.1	0.0	0.444
Residual	107	1.9		
<i>Panel D: Means for significant OCI income effect coefficient – level of confidence that ABC's stock is a good investment</i>				
	<i>N</i>	<i>Mean</i>	<i>SD</i>	
Gain	48	6.32	1.50	
Loss	59	5.74	1.74	

^aTests are one-tailed.

Overall, the income effect of the OCI item affected perceptions related to risk, expected stock price reaction and confidence in ABC's stock as a good investment, but did not affect performance judgements or the likelihood of investing in ABC shares. This indicates that in some instances, nonprofessional investors weight negative OCI items more heavily than positive ones, providing partial support for H2. However, the fact that performance judgements were not affected by the OCI income effect confirms that CI is not widely used by nonprofessional investors.

5.6 Additional analyses

Additional analyses (Chi² tests or ANOVAs) were performed according to respondents' characteristics, namely gender, age, investment experience (yes or no) and number of graduate finance and accounting courses taken (2 or 4) (not tabulated). No significant differences at $p \leq 0.05$ were found according to these four characteristics in terms of CI use (Table 2, Section 1, questions I.1 to I.3) or the nine judgements and the investment decision (Table 2, Section 1, questions I.5 to I.14).

6 Discussion and conclusion

The objective of this research was to examine nonprofessional investors' use of CI information in their financial calculations and analyses and to assess whether the currently available reporting formats have an impact on their judgements and decisions. The results indicate that very few nonprofessional investors use CI in their financial calculations and analyses, and that the few who do understand the concept better than others and attach greater importance to CI both generally and relative to net income in their financial analysis. Results indicate that some respondents appear to take a conservative approach, using CI where it reduces earnings but NI where the figure is lower than CI. Further, nonprofessional investors' judgements and decisions were generally not influenced by the CI presentation format. Finally, these investors weighted negative OCI items more heavily than positive ones for risk-related judgements, expected stock price reaction and confidence in ABC's stock as a good investment, but not for performance judgements or the likelihood of investing in ABC shares.

Overall, our results coherently indicate that nonprofessional investors do not emphasise CI and are consequently not affected by its reporting format. This is the first study that examined actual use of CI information by individual financial statement users in their financial calculations and analyses. The fact that nonprofessional investors generally ignore this information might be due either to the perceived irrelevance of the information or lack of clear understanding of what CI really means and entails. Both reasons have important standard-setting implications.

On the one hand, nonprofessional investors may actually view CI as considerably less relevant than net income, as suggested by market-based studies (Barton et al., 2010; Cahan et al., 2000; Dhaliwal et al., 1999; Kanagaretnam et al., 2009; Pronobis and Zülch, 2012). They may, in fact, view actuarial gains and losses as useless, as stated in Pronobis and Zülch (2012). Our results align with those of Bartov and Mohanram (2014) suggesting that placement below or above the line matters. In the context of debt extinguishment reporting, they found that the market reacts only when gains/losses from early debt extinguishment are included in income before extraordinary items.

Standard setters may thus want to revisit their position on CI. Additional field tests in user communities may be necessary to assess the usefulness of this information. At the very least, as standard setters move forward to classify an increasing number of items as OCI, they may consider the need to conduct field tests before making a final decision. Given financial statement users' lack of participation in standard setting (Durocher et al., 2007), standard setters must be more proactive in seeking users' views.

On the other hand, as the IASB itself does not clearly distinguish between OCI and other items included in the computation of net income (Rees and Shane, 2012), it would hardly be surprising if the user community finds it difficult to gauge or deal with OCI information and ends up deliberately ignoring it. Campbell et al. (2013) conducted an archival study on the association between unrealised cash flow hedge gains and losses and analyst-forecast errors for future period earnings and found that even sophisticated investors (financial analysts) have difficulty processing this OCI information. As our study suggests, although nonprofessional investors do acquire OCI information, they deliberately ignore it when comes the time to perform their financial analyses.

Moreover, nonprofessional investors mainly acquire financial analysis knowledge from professors in their undergraduate or MBA classes and from the textbooks they use. Given the uncertainties surrounding the nature of OCI items, professors and textbook authors may emphasise net income to the detriment of CI and thereby contribute to a form of socialisation of nonprofessional investors that perhaps downplays the perceived usefulness of CI information. Future research could examine how MBA accounting professors and financial analysis textbooks present and discuss the CI concept. For example, textbooks that suggest computing ratios using net income rather than CI may affect nonprofessionals' behaviour. One fact remains: standard setters must be more specific about the nature and meaning of this concept which, it is worth recalling, has heralded a significant change in financial reporting. Once the theoretical foundations of CI are clearly stated, further effort will be needed to educate the user community about the underlying meaning of CI. As Rees and Shane (2012) indicated, academics can certainly contribute to this debate by studying the theoretical merits of isolating OCI items and identifying the theoretical distinction between OCI and other items.

Our results show that nonprofessional investors' judgements and decisions are not affected by the CI presentation format. Nonprofessional investors generally ignore CI information, regardless of format. Our findings contradict those of Maines and McDaniel (2000), possibly because their study examined the remeasurement impact of available-for-sale financial instruments for an insurance company, while our study focused on the impact of actuarial gains or losses for a manufacturing company. Perhaps unrealised gains on available-for-sale financial instruments relate more clearly to the core activities of a financial institution than actuarial gains or losses relate to the core activities of a manufacturing company. It may also be that nonprofessional investors view pension fund valuation as exogenous to company performance and as a cyclical item (i.e., a reversible systemic risk) and thus rationally ignore it. It is also worth noting that Maines and McDaniel (2000) did not require their respondents to compute ratios but only to make judgements. The fact that our respondents computed ratios might have led them to ponder the specific income number to consider in their analysis, leading them to further scrutinise the information provided. This closer look could have mitigated the influence of the presentation format. Given these mixed findings, additional research is required to assess how nonprofessional investors' judgements and decisions are affected by the presentation format for OCI information on core activities.

As mentioned previously, only one respondent considered the actuarial gain or loss in the computation of the human capital productivity ratio, which suggests that our respondents did not view this OCI item as part of employees' remuneration. This might further indicate that this item is not considered to be part of a manufacturer's core activities, contrary to theoretical insights that view defined benefit plan costs as a component of remuneration (Klumpes, 2001). If so, our study is the first to consider the influence of the reporting format for non-core OCI items on nonprofessionals' judgements and decisions.

Future research could replicate the current study using a sample of professional investors. Although Hirst and Hopkins (1998) examined the impact of the presentation format of an OCI item related to non-core activities (remeasurement impact of available-for-sale financial instruments by a manufacturing company) on analysts' (professional investors') judgements and decisions, no research has yet investigated how this group's judgements and decisions may be affected by OCI items related to core activities. Research into how nonprofessional investors view pension fund valuation in terms of its usefulness in assessing a company would contribute to understanding their use of CI. Further, it would be interesting to know whether nonprofessional investors are aware of research on stock price reaction to financial information and whether they take its results into consideration in their own analysis.

We should mention the following limitations to our study. The respondents were fairly young, with a mean age of about 30. Older nonprofessional investors may have greater resources to invest and more investment experience. Further, real-life investors have access to more information than that provided in this study and conduct more complete analyses (number of ratios computed and number of judgements and decisions made) than those required here. This is a threat to external validity common to experimental studies. We have strived to overcome this limitation by providing our respondents with genuine case materials and asking them to complete realistic tasks.

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Notes

¹As the Appendix shows, the actuarial gain or loss was 11.7% of net income in 2012 and 13.8% of net income in 2011.

²Balance sheet figures were also adjusted to reflect the OCI item's positive or negative value (see Appendix).

Appendix: Excerpts from experimental materials

Panel A: Items from the consolidated (comprehensive) income statements (thousands of US dollars)

	<i>Year ended December 30, 2012</i>	<i>Year ended December 25, 2011</i>	<i>Year ended December 26, 2010</i>
Revenue	670,078	652,063	579,441
Gross profit	199,028	187,764	172,493
Income from operations	104,374	93,787	78,444
Net income	68,140	58,811	51,587
<i>Actuarial gain scenario:</i>			
Other comprehensive income (loss)	7,947	8,137	409
Comprehensive income	76,087	66,948	51,996
<i>Actuarial loss scenario:</i>			
Other comprehensive income (loss)	(7,947)	(8,137)	409
Comprehensive income	60,193	50,674	51,996

Panel B: Items from the consolidated balance sheets (thousands of US dollars)

<i>Actuarial gain scenario</i>	<i>December 30, 2012</i>	<i>December 25, 2011</i>	<i>December 26, 2010</i>
Current assets	299,195	281,531	243,433
Non-current assets	349,203	292,331	264,215
Total assets	648,398	573,862	507,648
Current liabilities	65,028	65,710	54,482
Non-current liabilities	156,104	148,600	150,983
Total liabilities	221,132	214,310	205,465
Total equity	427,266	359,552	302,183
Total equity and liabilities	648,398	573,862	507,648

Appendix: Excerpts from experimental materials (continued)

<i>Panel B: Items from the consolidated balance sheets (thousands of US dollars)</i>			
<i>Actuarial gain scenario</i>	<i>December 30, 2012</i>	<i>December 25, 2011</i>	<i>December 26, 2010</i>
<i>Actuarial loss scenario</i>			
Current assets	299,195	281,531	243,433
Non-current assets	331,771	285,739	264,215
Total assets	630,966	567,270	507,648
Current liabilities	65,028	65,710	54,482
Non-current liabilities	170,840	158,282	150,983
Total liabilities	235,868	223,992	205,465
Total equity	395,098	343,278	302,183
Total equity and liabilities	630,966	567,270	507,648