

Other Comprehensive Income: A Review and Directions for Future Research

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Abstract

Accounting standard setters continue to grapple with conceptual distinctions between components of net income and other comprehensive income (OCI). Bank regulators are dealing with the recommendations of Basel III for Tier 1 Capital, which includes more components of accumulated other comprehensive income (AOCI). Motivated by these standard setting and regulatory debates and changes, I review the literature on the investor and contracting usefulness of comprehensive income, OCI, OCI components, and AOCI. I present ideas for future research, including opportunities arising from Basel III changes to bank regulatory capital.

Keywords: Comprehensive income; Other comprehensive income; Accounting standard setting; Bank regulation; Regulatory capital; Basel III

JEL Classification Codes: M41; M48; G21

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Abstract

Accounting standard setters continue to grapple with conceptual distinctions between components of net income and other comprehensive income (OCI). Bank regulators are dealing with the recommendations of Basel III for Tier 1 Capital, which includes more components of accumulated other comprehensive income (AOCI). Motivated by these standard setting and regulatory debates and changes, I review the literature on the investor and contracting usefulness of comprehensive income, OCI, OCI components, and AOCI. I present ideas for future research, including opportunities arising from Basel III changes to bank regulatory capital.

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1. Introduction

The purpose of this paper is to review research on the investor and contracting usefulness of comprehensive income, other comprehensive income (OCI), and OCI components to enable researchers to provide more evidence on whether distinguishing characteristics exist between OCI and net income. The FASB describes comprehensive income as follows: “A measure of all changes in equity of an entity that result from recognized transactions and other economic events of the period other than transactions with owners in their capacity as owners.”¹ Reporting comprehensive income as a separate item in financial statements was mandated in the U.S. by SFAS 130 for fiscal years beginning after December 15, 1997 (FASB, 1997). OCI includes “revenues, expenses, gains, and losses that under generally accepted accounting principles (GAAP) are included in comprehensive income but excluded from net income.”² In the U.S., OCI includes adjustments for unrealized gains and losses on available-for-sale (AFS) securities and cash-flow hedges, pension-related adjustments, and foreign currency translation adjustments. Table 1 presents the components of OCI as defined by the FASB, while Table 2 presents the components of OCI as defined by the IASB.

OCI has been a contentious item in financial reporting. Opponents of including OCI in net income or a summary performance measure note its volatility and lack of predictability. For example, Schlueter (2010, p. 2), writing a comment letter to the FASB on behalf of Emerson, a large electronics company, states, “Given this volatility and lack of forecast ability, referring to non-owner changes in equity as ‘income,’ which commonly means ‘earnings,’ is confusing at best and potentially misleading.” The FASB notes in SFAS 130 that:

¹ ASC 220-10-10-1.

² ASC Master Glossary. Accessed August 4, 2015 at: <https://asc.fasb.org/link&sourceid=SL7695736-108725&objid=51831223>.

“Some respondents [comment letter writers] indicated that comprehensive income would be volatile from period to period and that that volatility would be related to market forces beyond the control of management. In their view, therefore, it would be inappropriate to highlight that volatility in a statement of performance” (FASB, 1997, p. 21).³

Counter to these arguments for excluding OCI components from a summary performance measure is that even though managers are not likely to directly control market price movements that affect OCI components, managers engage in economic transactions that affect amounts recognized in OCI. Again, the FASB notes:

“Other respondents said that comprehensive income was more a measure of entity performance than it was of management performance and that it was therefore incorrect to argue that it should not be characterized as a performance measure because of management’s inability to control the market forces that could result in that measure being volatile from period to period” (FASB, 1997, p. 21).

OCI and its components may inform investors, creditors, and other users of firm financial statements about microeconomic and macroeconomic conditions. Figure 1 displays fiscal year means of OCI and its components, both unscaled and scaled by total assets, from 2004 to 2014 using the Compustat Industrial Fundamentals Annual file, while Figure 2 displays annual means of OCI and its components, both unscaled and scaled by total assets, from 2004 to 2014 using the Compustat Bank Fundamentals Annual file.⁴ Table 3 presents Pearson correlations between OCI and OCI components. Figures 1 and 2 and Table 3 indicate that variation in OCI adjustments

³ Managers’ concern about performance measure volatility is well documented in the literature (Graham, Harvey, and Rajgopal, 2005), though the capital market consequences of performance measure volatility are still subject to debate (McInnis, 2010).

⁴ Figures 1 and 2 begin in 2004 because this is the first fiscal year with reliable data on OCI components provided by Compustat. Variables are defined in Table 3.

related to AFS securities, pensions, and foreign currency translation appear to drive most of the variation in OCI. Figures 1 and 2 also indicate that OCI experienced a sharp drop in 2008, followed by a sharp increase in 2009, indicative of the market volatility existing during the recent Global Financial Crisis.

The IASB recently released a discussion paper presenting possible conceptual differences between items of OCI and net income (IASB, 2013). As of this writing, there are no officially adopted conceptual differences between items that appear in net income versus those that appear in OCI in consolidated financial reports prepared in accordance with U.S. GAAP or IFRS.⁵ This gap in conceptual standard setting guidance is particularly interesting because similar economic transactions appear to flow to both net income and OCI. Examples include unrealized gains and losses on trading securities (net income) versus AFS securities (OCI) and unrealized gains and losses on fair value hedge instruments (net income) versus cash flow hedge instruments (OCI).

In a paper originally written concurrently with this paper, Rees and Shane (2012) review (primarily) the U.S. standard setting history for items of OCI along with academic research in this area, and offer ideas for future research motivated primarily from a standard setting perspective. My review provides more in depth analysis of specific research findings on OCI and its components, motivated by accounting theory (Ohlson, 1995; 1999) and focused on value- and risk-relevance for investors. In addition, I review the literature on the usefulness of OCI and accumulated other comprehensive income (AOCI) for contracting and provide direction for future research in this area, consistent with a call for such research by Skinner (1999) and the

⁵ In May 2015, the IFRS issued an exposure draft, ED/2015/3, on the Conceptual Framework for Financial Reporting. In this exposure draft, the IFRS recommends including items in OCI when they represent “income or expenses relate[d] to assets or liabilities measured at current values; and...excluding those items from the statement of profit and loss would enhance the relevance of the information in the statement of profit or loss for the period” (IFRS, 2015, p. 15). ED/2015/3 is open for comment until 26 October 2015.

emphasis on the stewardship role of accounting in the latest IFRS Exposure Draft on its Conceptual Framework for Financial Reporting (IASB, 2015). Finally, this review discusses the potential to conduct research on AOCI and Tier 1 Capital for financial institutions, a potentially fruitful area for research following Basel III and its adoption in the U.S. by the Federal Deposit Insurance Corporation (FDIC, 2013a; 2013b).

To conduct this review, I search five major accounting publications on EBSCO using the search term “comprehensive income.”⁶ I read articles addressing comprehensive income as defined by the FASB and eliminate articles that do not address the investor or contracting usefulness of comprehensive income, OCI, or OCI components.⁷

The remainder of the paper is organized as follows. Section 2 discusses research on the investor usefulness of comprehensive income, OCI, and OCI components focusing on value-relevance and risk-relevance. Section 3 discusses research examining the debt and compensation contracting usefulness of comprehensive income, OCI, and OCI components. Each section ends with consideration of areas for future research. Section 4 presents research design suggestions for both investor and contracting usefulness. Section 5 concludes.

2. Investor Usefulness

2.1 Value-Relevance

Value-relevance research examines correlations between comprehensive income, OCI, and OCI components and both prices and returns. Bernard (1995), in his discussion of Ohlson (1995) and Feltham and Ohlson (1995), notes that most empirical work prior to these theoretical

⁶ I search the following journals: *The Accounting Review*, *Journal of Accounting and Economics*, *Journal of Accounting Research*, *Review of Accounting Studies*, and *Contemporary Accounting Research*. In addition, I selectively review pertinent articles from other sources.

⁷ For example, I eliminate articles pertaining to “comprehensive income tax allocation” (Gupta, 1995) and “comprehensive” datasets or variable lists pertaining to accounting concepts other than comprehensive income and OCI (Haw, Hu, Hwang, and Wu, 2004; Liu, Nissim, and Thomas, 2002).

studies took an “information perspective,” analyzing the association between accounting information and prices or returns. Bernard (1995) further indicates that the models produced by Ohlson (1995) and Feltham and Ohlson (1995) enable investors and researchers to take a “measurement perspective,” whereby securities are valued using book value and abnormal earnings based on “clean surplus” accounting.⁸ If one could accurately measure the book value of equity and predict abnormal earnings, one would be able to perform accurate equity valuation. How to best measure the book value of equity and earnings is the subject of accounting standard setting debate. If accounting measures more closely resemble “clean surplus” accounting, equity valuation may be improved because the accounting measures more closely align with the theoretical constructs represented in Ohlson (1995) and Feltham and Ohlson (1995). Comprehensive income, while not a measure of true “clean surplus” earnings, is more closely aligned with “clean surplus” accounting than net income under U.S. GAAP and IFRS because it includes more period-over-period changes in assets and liabilities (in OCI) than does net income. An argument against including the components of OCI in net income is that most of them are either transitory or derive from noisy market price movements that do not truly reflect fundamental changes in a firm’s assets and liabilities.

Ohlson (1999) presents the following three properties of transitory items, two of which must exist to indicate whether a financial statement item is truly transitory: 1) Inability to predict itself; 2) Irrelevancy for forecasting next-period abnormal net comprehensive income; and, 3) Value irrelevance. I discuss research on these properties of comprehensive income and OCI.

⁸ Clean surplus accounting is defined by the following relation from Ohlson (1995): $BookValue_{t-1} = BookValue_t + Dividends_t - Earnings_t$. Some researchers refer to OCI as “dirty surplus” (Landsman, Miller, Peasnell, and Yeh, 2011).

2.1.1 Predictability

Lipe (1986) finds that disaggregating income into its components can provide information to investors, and that the decision usefulness of a component is based on its persistence. Similarly, research separating OCI into its components can inform researchers, standard setters, and regulators about the incremental usefulness of each OCI component. Using data from 46 countries, including the United States, Barton, Hansen, and Pownall (2010) provide descriptive evidence that comprehensive income is the least predictable performance measure of the eight performance measures considered (including net income). Jones and Smith (2011) find that OCI is negatively persistent, while special items have zero persistence for a sample of Compustat firms. The evidence indicates that comprehensive income and OCI are less predictable than net income.

2.1.2 Forecasting Ability

Dhaliwal, Subramanyam, and Trezevant (1999) provide empirical evidence on the predictive ability of net income and comprehensive income for year-ahead cash flow from operations and net income. Using Compustat data from 1994 and 1995, Dhaliwal et al. (1999) estimate pre-SFAS-130 comprehensive income and the components of OCI. They find that net income predicts year-ahead cash flow from operations and net income significantly better than comprehensive income. Kanagaretnam, Mathieu, and Shehata (2009) find that net income is a better (worse) predictor of future net income (future cash flow from operations) than is comprehensive income for a sample of Canadian firms from 1998-2003 that are cross-listed in the U.S. using as-reported data from firms' financial statements. They also find that unrealized gains and losses on AFS securities are significantly positive in predicting future cash flow from operations. Barton et al. (2010) find that comprehensive income has the lowest ability to predict

operating cash flows of the eight performance measures considered, consistent with Dhaliwal et al. (1999). Jones and Smith (2011) find that special items have better predictive power than OCI for future net income and future cash flows using a sample of Compustat firms. Goncharov and Hodgson (2011) find that comprehensive income has lower predictive ability for cash from operating activities, and that net income adjusted to include (separately) revaluation reserves, foreign currency translation adjustments, and unrealized gains and losses on AFS securities is not more predictive of cash from operating activities than is net income for a sample from 16 European countries.

However, it is not clear that comprehensive income, or OCI, should predict operating cash flows or net income better than net income. In addition, these studies do not examine the predictive ability of comprehensive income, or any of the components of OCI, for abnormal net comprehensive income in the sense of Ohlson (1999). Ohlson (1995) and Feltham and Ohlson (1995) indicate that prices are determined by book value and abnormal net comprehensive income, where these amounts are based on “clean surplus” accounting. Thus, why should we expect net income, which is not based on “clean surplus” accounting, to be better predicted by measures of income that more closely approach the notion of “clean surplus” accounting?

Landsman et al. (2011) provide evidence on the predictive ability of what they term “dirty surplus” and “really dirty surplus.” They define “dirty surplus” as estimated OCI calculated using Compustat data. “Really dirty surplus” results from the issuance or reacquisition of equity shares where the fair-value of the shares is not recorded in the financial statements and is estimated using Compustat and CRSP data.⁹ The authors’ results suggest that OCI and “really dirty surplus” do not predict abnormal “very comprehensive income” (net income plus OCI plus

⁹ Examples of these types of transactions noted by the authors are: 1) Firms issuing shares when stock options are exercised; and, 2) Converting bonds into stock.

“really dirty surplus”). However, using Compustat data to estimate OCI instead of actual OCI amounts from financial statements potentially introduces significant measurement error (Chambers, Linsmeier, Shakespeare, and Sougiannis, 2007).

Overall, comprehensive income and OCI appear to have relatively low predictive ability for operating cash flows, net income, or abnormal “very comprehensive income.” More research is needed to understand whether predictive ability varies over time and with macroeconomic conditions. Further, more work on the predictive ability of comprehensive income and OCI for abnormal net comprehensive income would be helpful. Thus, the body of evidence for the predictability and forecasting ability of OCI, as defined by Ohlson (1999), is inconclusive.

2.1.3 Price-Relevance

Price-relevance is defined as the relation between a financial statement item and a firm’s equity market price. Dhaliwal et al. (1999) show that comprehensive income has less explanatory power for stock prices than does net income for a sample of Compustat firms. Cahan, Courtenay, Gronewoller, and Upton (2000) find that financial asset revaluation adjustments, but not foreign currency translation adjustments, are significantly correlated with stock prices for a sample of New Zealand firms from 1992-1997 that were required to report OCI components in a statement of changes in equity beginning in 1995. They fail to find evidence that the coefficients on net income, financial asset revaluations, and foreign currency translation adjustments are significantly different from one another and interpret this result as evidence that components of comprehensive income need not be disclosed separately. The authors do not find evidence that the recognition of financial asset revaluation adjustments and foreign currency translation adjustments in a statement of changes in equity increases the price-relevance of these OCI items.

Kanagaretnam et al. (2009) find evidence that unrealized gains and losses on AFS securities and cash-flow hedges are significantly correlated with stock prices. Correlations are negative for unrealized losses on cash-flow hedges and positive for unrealized gains on cash-flow hedges. In addition, these authors find that comprehensive income better explains stock prices than does net income using a Vuong (1989) test, and a model regressing price on book value per share and net income including unrealized gains and losses on AFS securities has a higher adjusted R^2 than models substituting unrealized gains and losses on cash-flow hedges or foreign currency translation adjustments for unrealized gains and losses on AFS securities.

Goncharov and Hodgson (2011) find that OCI and comprehensive income are price-relevant, but not as price-relevant as net income. None of the three components of OCI examined (revaluation reserves, foreign currency translation adjustments, and unrealized gains and losses on AFS securities) are price-relevant after controlling for net income and book value. These authors find that OCI and comprehensive income are value-relevant for changes in analysts' price targets, but changes in OCI and comprehensive income are not. They also find that revaluation reserves and foreign currency translation adjustments are value-relevant for analysts' price target revisions, while unrealized gains and losses on AFS securities are not.

Finally, Landsman et al. (2011) provide evidence that OCI is price-irrelevant, while "really dirty surplus" is price-relevant, using the market value of equity as the dependent variable in a residual "very comprehensive income" valuation model motivated by Ohlson (1995). This evidence suggests that investors consider OCI to be transitory for valuation purposes, while investors do not consider "really dirty surplus" to be transitory or have insufficient information. In sum, research on the price-relevance of both comprehensive income and OCI provides mixed results, with findings varying with research design choices and sample selection.

2.1.4 Returns-Relevance

Returns-relevance is defined as the relation between a financial statement item and a firm's equity market returns. In an early study, Cheng, Cheung, and Gopalakrishnan (1993) examine a sample of firms from 1972-1989 and find that an estimated version of comprehensive income is inferior to operating income and net income in explaining abnormal returns.¹⁰ Ahmed and Takeda (1995) find that investment security gains and losses, both realized and unrealized, are positively associated with returns for a sample of banks.¹¹ Using as-if estimations of comprehensive income, Biddle and Choi (2006) find evidence suggesting that comprehensive income explains annual returns better than either net income or the change in retained earnings plus common stock dividends using a sample of Compustat firms from 1994-1998.

Dhaliwal et al. (1999) find that comprehensive income has a stronger association with annual returns than does net income using the Vuong (1989) test.¹² The authors find that net income adjusted for unrealized gains and losses on AFS securities has the strongest association with returns of the net income measures adjusted for three OCI items examined, and explains returns better than net income. The authors also find that comprehensive income does not explain returns better than net income for non-financial firms, but find that comprehensive income has incremental explanatory power for returns above and beyond net income for financial firms. The effect appears to be driven by unrealized gains and losses on AFS securities, but could also be

¹⁰ Cheng et al. (1993) measure comprehensive income as the change in retained earnings plus preferred and common dividends.

¹¹ In a recent related study, Evans, Hodder, and Hopkins (2014, p. 14) provide evidence for a sample of commercial banks that "accumulated fair value adjustments for investment securities are positively associated with reported income from those financial instruments in the following period...and that these adjustments also have predictive ability for investment-security-related cash flows in the subsequent period."

¹² Using adjusted-R² values from regressions of long-window returns on accounting variables to examine the value-relevance of accounting variables relies on a specific interpretation of value-relevance. That is, that the value-relevance of accounting variables can be evaluated based on their correlation with the information investors use (Interpretation 4 from Francis and Schipper, 1999). As Francis and Schipper (1999, p. 326-327) state, "Under this view, value relevance is measured by the ability of financial statement information to capture or summarize information, regardless of source, that affects share values."

driven by the magnitude of OCI relative to net income for financial firms versus non-financial firms. These results suggest that the business model of the firm is an important determinant of whether it is appropriate to assess firm performance based on comprehensive income and OCI components.

O'Hanlon and Pope (1999) find little evidence suggesting that OCI components are significantly correlated with returns for a sample of U.K. firms from 1972-1992 using data collected from actual financial statements. Kanagaretnam et al. (2009) find evidence that unrealized gains and losses on AFS securities and cash-flow hedges are significantly correlated with returns for Canadian firms, though unrealized losses on cash-flow hedges appear to be negatively associated with returns. In addition, Kanagaretnam et al. (2009) find that comprehensive income is better at explaining returns than net income using the Vuong (1989) test, and that a model regressing returns on net income including unrealized gains and losses on AFS securities has a higher adjusted R^2 than models substituting unrealized gains and losses on cash-flow hedges or foreign currency translation adjustments for unrealized gains and losses on AFS securities. Louis (2003) finds a negative relation between changes in the cumulative foreign currency translation adjustment and returns using a sample of Compustat manufacturing firms from 1985-2001, calling into question including foreign currency translation adjustments as performance measure components since they are negatively related to firm value.

Chambers et al. (2007) study whether investors in S&P 500 firms from 1994 to 2003 value comprehensive income and OCI components by analyzing the correlation between returns and comprehensive income. A key element of this paper is that the authors are able to compare findings between tests using as-reported comprehensive income in the post-SFAS 130 period and estimates of comprehensive income in the pre-SFAS 130 period with findings from tests using

estimates of comprehensive income in both the pre- and post-SFAS 130 periods to ascertain the effect of measurement error on returns-relevance tests of comprehensive income, OCI, and OCI components. Instead of regressing returns on income measures separately and focusing on differing adjusted-R² values as in Dhaliwal et al. (1999), the authors regress annual returns on both net income and OCI in the same regression and analyze the coefficients on pre- and post-SFAS 130 OCI.¹³ In the specification including estimated OCI in the pre-SFAS 130 period and as-reported OCI in the post-SFAS 130 period, the authors find that the overall effect of OCI is significantly greater than zero and insignificantly different from the theoretically correct value of one, while the coefficient on pre-SFAS 130 OCI is insignificantly different from zero. In the specification including as-if estimations of OCI in the pre- and post-SFAS 130 periods, the authors find no evidence of statistical significance for OCI. Further tests indicate that as-if estimations of OCI are likely subject to significant measurement error, calling into question results from studies employing as-if comprehensive income and OCI estimations.

One puzzling finding from Chambers et al. (2007) is that the coefficient on unrealized gains and losses on AFS securities indicating its relation to returns is exceptionally large, exceeding its theoretically correct value of one, and even exceeding the coefficient on net income. This finding could be consistent with one (or more) of four explanations. First, unrealized gains and losses on AFS securities are more persistent than net income. Second, investors apply a lower discount rate to unrealized gains and losses on AFS securities than net income. Third, the returns-based model used to assess the returns-relevance of OCI components

¹³ Net income and comprehensive income for a given firm are measured as the difference between the firm's net income or comprehensive income and the mean net income or comprehensive income for the sample in a given year.

is incorrectly specified.¹⁴ Fourth, feedback loops could exist in the pricing of unrealized gains and losses on AFS securities (Bloomfield, Nelson, and Smith, 2006), discussed in Section 2.3.

Barton et al. (2010) measure returns-relevance as the adjusted-R² values from country-level regressions of firm annual returns on each of eight firm performance measures, respectively. Based on this measure of returns-relevance, comprehensive income is the most value-relevant performance measure of the eight performance measures considered in only 2 of 46 countries, Luxembourg and Peru. Additional tests indicate evidence that comprehensive income is value-relevant in code-law countries, but not incrementally value-relevant to the other seven performance measures in code-law or common-law countries.¹⁵

Jones and Smith (2011) find evidence that special items and OCI are returns-relevant, but special items are more so. Goncharov and Hodgson (2011) find that OCI and comprehensive income are returns-relevant, but not as returns-relevant as net income. Further, Goncharov and Hodgson (2011) also find that unrealized gains and losses on AFS securities are returns-relevant, while revaluation reserves and foreign currency translation adjustments are not.

Landsman et al. (2011) use hedge returns to examine the usefulness of OCI to investors. Hedge return tests using a Carhart (1997) four-factor model, with portfolios formed by going long in firms in the top 30% of OCI and short in firms in the bottom 30% of OCI, indicate that investors do not misprice OCI. Similar hedge return tests formed using rankings of “really dirty surplus” indicate that investors misprice “really dirty surplus.” The authors attribute the differential results for OCI and “really dirty surplus” to investors being able to correctly assess the persistence of OCI but not the persistence of “really dirty surplus.” However, investors may

¹⁴ Dong, Ryan, and Zhang (2014) indicate that failure to control for the reclassification of realized gains and losses on AFS securities may explain the large coefficient on unrealized gains and losses on AFS securities.

¹⁵ It is unclear from the paper whether the authors use as-reported comprehensive income from financial statements, or as-if estimated comprehensive income in the spirit of Dhaliwal et al. (1999).

not have the requisite information to correctly price firms' issuance and acquisition of equity shares that are not recorded at fair-value and comprise a portion of "really dirty surplus."

Overall, the findings from the literature examining the relations between stock returns and either comprehensive income or OCI appear to depend to some extent on research design. Results are more reliable when as-reported comprehensive income data is used instead of as-if estimates of comprehensive income and are often stronger for financial services firms.

2.1.5 Presentation and Value-Relevance

Prior to the adoption of ASU No. 2011-05 (FASB, 2011, p. 10), firms were required to present comprehensive income "in a financial statement that is displayed with the same prominence as other financial statements."¹⁶ Typically, firms presented comprehensive income in: 1) the statement of changes in equity; 2) a separate statement of comprehensive income beginning with net income, ending with comprehensive income, and not immediately following the income statement; 3) a separate statement of comprehensive income beginning with net income, ending with comprehensive income, and immediately following the income statement; or, 4) a single statement of comprehensive income beginning with revenue and ending with comprehensive income. 3) and 4) are currently allowed under ASU 2011-05 and IAS 1.¹⁷

Hirst and Hopkins (1998) analyze buy-side analysts' abilities to assess firm performance using comprehensive income in the presence of earnings management via the sale and subsequent repurchase of AFS securities. The authors vary the level of earnings management (earnings management or no earnings management) and the presentation method of comprehensive income (no separate statement, presented in a statement of changes in

¹⁶ ASC 220-10-45-8 superseded by ASU 2011-05.

¹⁷ I refer to presentation methods 2)-4) as methods using "performance statements" to present comprehensive income. Description of IAS 1 accessed August 4, 2015 at: <http://www.iasplus.com/en/standards/ias/ias1>.

shareholders' equity, or presented in a statement of comprehensive income beginning with net income and ending with comprehensive income). They find that buy-side analysts are able to detect earnings management and incorporate this knowledge into their stock price judgments only when comprehensive income is presented in a statement of comprehensive income.¹⁸ In addition, they find that buy-side analysts are better able to detect earnings management and incorporate this knowledge into their reporting quality and growth opportunities assessments when comprehensive income is presented in a statement of comprehensive income. These results suggest that investors are able to correctly assess firm performance only when comprehensive income is presented in a performance statement, and that presentation matters to investors.¹⁹

The results in Hirst and Hopkins (1998) are subject to several limitations. First, the analysts used as experimental participants are not experts in analyzing AFS securities. Second, the sample firm in the study is a manufacturing firm, for which AFS securities may be perceived as unimportant or transitory by investors (Maines and McDaniel, 2000). Third, as Lipe (1998) points out, in a "real-world" situation, analysts would consult other analysts if they were unsure how to treat AFS securities transactions in their valuations. Finally, as Lipe (1998) notes, it seems strange that the experimental cell containing earnings management and a statement of comprehensive income contains the lowest "perceived reporting quality." Thus, it is unclear

¹⁸ Maines and McDaniel (2000) fail to find evidence that nonprofessional investors are able to incorporate comprehensive income volatility assessments into their stock-price judgments more when comprehensive income is reported in a performance statement beginning with net income and ending with comprehensive income than when it is reported in a statement of changes in stockholders' equity. This lack of evidence may be driven by the unfamiliarity of valuation tasks to the subjects used in the study. Tarca, Hancock, Woodliff, Brown, Bradbury, and Van Zijl (2008) find that matrix format presentation of OCI items improves experimental participants' ability to accurately extract information.

¹⁹ In addition, only 50% of the participants who received comprehensive income as reported in a statement of changes in shareholders' equity recalled seeing comprehensive income in the financial statements, while 94% of the participants who received comprehensive income as reported in a statement of comprehensive income recalled seeing comprehensive income in the financial statements.

whether investors are assessing the quality of income or the quality of reporting, as one would expect the statement of comprehensive income to be the highest quality presentation format.

Archival evidence indicates that OCI reported in a statement of changes in shareholders' equity is weighted more heavily by investors than OCI reported in a performance statement (Chambers et al., 2007), counterintuitive to Hirst and Hopkins (1998). For individual components of OCI, presentation matters only for the minimum pension liability item, where pension adjustments reported in a performance statement are weighted negatively by investors, and pension adjustments reported in the statement of changes in equity are weighted positively (Chambers et al., 2007). Thus, it is unclear whether clarity in presentation or experience with a presentation method better enables investors to assess firm performance.

Lee, Petroni, and Shen (2006) provide archival evidence using a sample of property-liability insurance firms from 1998. A relatively high proportion of firms in this industry present comprehensive income in a statement of performance. The authors find that insurance companies that manage earnings through sales of AFS securities, and firms with low disclosure quality, are less likely to report comprehensive income in a statement of comprehensive income. These findings indicate that managers believe that investors are better able to detect earnings management when comprehensive income is reported in a performance statement.

The studies examining comprehensive income and earnings management suggest that investors are better able to assess firm performance in the presence of earnings management when comprehensive income and OCI are presented in a statement of comprehensive income. However, evidence on whether and how the value-relevance of OCI and its components varies with presentation method is mixed.

2.2 Future Research – Value-Relevance

Most of the evidence on OCI value-relevance derives from long-window association tests. No studies of which I am aware examine short-window investor responses to OCI news. Recently, firms have begun disclosing statements of comprehensive income in their quarterly press releases. I performed a very brief search on Lexis/Nexis for press releases including a statement of comprehensive income, and discovered that both Royal Dutch Shell PLC and FirstMerit Corporation disclosed comprehensive income in a performance statement for the first quarter of 2011 (RDC, 2011; FMC, 2011). Thus, it appears a short-window study is possible. In addition, the short-window method is suggested by Bamber, Jiang, Petroni, and Wang (2010) to discover whether news is conveyed by the performance statement choice itself.

The FASB and IASB currently allow two methods for presenting comprehensive income in a statement of performance. Do investors place greater valuation weights on, or respond more intensely to, OCI when net income and comprehensive income are presented in one continuous financial statement or in two consecutive statements? Any future study of presentation choice in this area should carefully consider the potentially endogenous relationship between presentation choice and the value-relevance of OCI. Specifically, the factors determining presentation choice may also determine the value-relevance of OCI (Shadish, Cook, and Campbell, 2002).

Bamber et al. (2010) also suggest that studies examining the consequences of presentation method (and the pricing of OCI in general) should explicitly consider recycling adjustments. Dong et al. (2014) is a recent example of a value-relevance study examining recycling adjustments for AFS securities. However, the valuation effects of other components of OCI are likely affected by recycling adjustments as well. How are the findings in prior research affected by the explicit consideration of reclassification adjustments for all OCI components? In

addition, FASB ASC paragraph 810-10-50-1A requires U.S. firms to separately report the parent and noncontrolling interest portions of comprehensive income on the face of the financial statements. FASB ASC paragraph 220-10-45-12 indicates that firms may recognize the tax effects of OCI line items in the same statement as the OCI line items or disclose them in the notes to the financial statements. Do investors price the parent and noncontrolling interest portions of OCI differently? Do investors price the tax effects of OCI components differently if the tax effects are recognized versus disclosed?²⁰ Does the current IFRS grouping of OCI components into components that may be reclassified to net income versus those that may not be reclassified to net income improve investors' understanding of OCI?²¹

2.3 Risk-Relevance

One of the major arguments against requiring firms to report comprehensive income in a statement of performance is that OCI (and therefore comprehensive income) is more volatile than net income and would increase investors' assessments of firm risk (Hirst and Hopkins, 1998). Compared to research examining the relation between equity market prices and OCI, research examining the risk-relevance of OCI is relatively sparse.

Statement of Accounting Concepts No. 8 indicates that decision-useful information helps investors assess “the amount, timing, and uncertainty of (the prospects for) future net cash inflows to the entity” (FASB, 2010, p. 1-2). Researchers follow the FASB conceptual framework and use time-series equity returns volatility as the benchmark for whether OCI component volatilities are associated with total risk for a firm (FASB, 2010; Ryan, 2012; Black, 2014). In

²⁰ I thank Amanda Gonzales for providing this discussion of reclassification of realized gains and losses, the parent and noncontrolling interest portions of comprehensive income, and the tax presentation methods available to managers under current FASB standards.

²¹ Description of IAS 1 accessed on August 4, 2015 at: <http://www.iasplus.com/en/standards/ias/ias1>.

doing so, researchers assume that investors efficiently impound risk-relevant information into equity share prices, and that equity share prices represent investors' future cash flows.

From Easton and Zmijewski (1989), we learn that associations between earnings and returns vary with the persistence of earnings and the firm's exposure to systematic risk in the equity market. Thus, research examining the relation between firm risk and OCI volatility provides evidence on one of the drivers of value-relevance: risk-relevance. In addition, value-relevance does not necessarily imply risk-relevance. Value-relevance is most often measured by the strength of associations between financial statement items and market prices or returns. We observe value-relevance when innovations in OCI, even transitory innovations, result in price movements. Risk-relevance is often measured by the strength of associations between time-series volatilities of financial statement items and the time-series volatility of equity returns. Thus, while price movements result from news about firm fundamentals (value-relevance), the price movements may not cause deviations from the mean return that would cause volatility. Simply put, value-relevance primarily addresses the relation between first moments of financial statement items and investors' returns, while risk-relevance addresses the relation between second moments of financial statement items and second moments of investors' returns.

Maines and McDaniel (2000) analyze how the presentation of comprehensive income affects nonprofessional investors' assessments of the volatility of unrealized gains and losses on AFS securities, and how those assessments of volatility affect the same investors' assessments of stock risk. The authors find that nonprofessional investors are able to extract the volatility of unrealized gains and losses on AFS securities for an insurance company, regardless of how comprehensive income is presented. However, the authors find that investors' stock-risk assessments indicate greater discernment of high versus low volatility of unrealized gains and

losses on AFS securities when comprehensive income is presented in a performance statement than when it is presented in a statement of changes in stockholders' equity. This finding provides evidence that comprehensive income assists investors in assessing the risk associated with unrealized gains and losses on AFS securities, and that this information helps investors assess firm risk when it is presented in a performance statement. The study validates managers' concerns that investors assess firms with higher "perceived volatility" as having greater risk.

Although some managers may have expressed concern that including comprehensive income in a performance statement would highlight volatility in comprehensive income, Lee et al. (2006) fail to find archival evidence that the probability of reporting comprehensive income in a performance statement is decreasing in the volatility of comprehensive income relative to the volatility of net income. This lack of evidence is contrary to the notion that managers may want to "hide" the volatility of comprehensive income in a statement of changes in equity.

Bloomfield et al. (2006) consider whether feedback loops between unrealized gains and losses on AFS securities and returns can cause volatility in equity prices in an experimental markets setting. The authors suggest the following line of reasoning. First, a firm's management invests in AFS securities with returns correlated with the firm's own return. Second, changes in the firm's share price result in changes in the share prices of the correlated investments of the firm, creating unrealized gains and losses. Third, these unrealized gains and losses are reported in financial statements, inducing further correlated price movements between the firm and its correlated investments. A key assumption about this process is that investors fail to correct for this correlation in their pricing functions. Using MBA students as experimental participants, the authors find that price volatility is highest when investment in perfectly-correlated securities is high and when unrealized gains and losses are reported in a statement of comprehensive income.

In her discussion of Bloomfield et al. (2006), Koonce (2006) suggests that the investors in the study may not have had the ability to adjust their valuation decisions based on the correlation structure of investments. Relatedly, investors may not be able to observe the correlation structure of a firm's returns with its investment returns. In addition, Koonce (2006) notes that the investors in the study were not given both comprehensive income per share and net income per share, but instead were given one or the other. As Koonce (2006) points out, this research design choice could be problematic because unsophisticated investors may not adjust earnings per share numbers for unrealized gains and losses prior to making valuation judgments. Koonce (2006) questions the frequency with which feedback loops would occur in reality, citing low investment in correlated securities, low correlations between a firm's returns and its investment returns, and immaterial unrealized gains and losses.

Using bank data from 1971 to 1990, Barth, Landsman, and Wahlen (1995) find the following using a system of fair value accounting: 1) Earnings including unrealized gains and losses on investment securities are more volatile than U.S. GAAP earnings, but the incremental volatility is not priced by investors; 2) Regulatory capital violations occur more often under fair value accounting; 3) Regulatory capital violations under fair value accounting can predict actual regulatory capital violations, but investors do not price the risk of potential violation; and, 4) Investors price interest rate changes, despite the fixed cash flows to investment securities. Given that investors do not appear to price the incremental volatility in fair value earnings or the increased risk of potential regulatory capital violation under the authors' system of fair value accounting, the authors suggest that a more comprehensive system of fair value accounting, "calculated using fair values of all balance sheet accounts...may be a better proxy for economic

risk than historical cost income volatility, but we fail to find this because our proxy for fair value income volatility includes only investment securities” (Barth et al., 1995, p. 588, footnote 17).

Hodder, Hopkins, and Wahlen (2006) examine the relation between returns volatility and income volatility, and the cost of equity capital and income volatility, using three different measures of income (net income, comprehensive income, and full-fair-value income) for a sample of U.S. commercial banks from 1996 to 2004. The authors find that comprehensive income is more volatile than net income. They also find that net income volatility and comprehensive income volatility are positively associated with returns volatility and long-term interest rate beta. However, comprehensive income volatility is significantly negatively associated with equity market beta and net income volatility is insignificantly negatively associated with equity market beta. Incremental comprehensive income volatility (the difference between comprehensive income volatility and net income volatility) is insignificantly positively associated with returns volatility, significantly negatively associated with equity market beta, and insignificantly negatively associated with long-term interest rate beta. Hodder et al. (2006) also find that incremental comprehensive income volatility, a proxy for OCI volatility, does not significantly assist investors in discounting abnormal earnings and is not associated with the implied cost of equity. However, these latter two findings may be unsurprising given that OCI is not included in the measure of abnormal earnings, and measures of implied cost of equity are based on forecasts of earnings and dividends that may not reflect OCI.

Since the business models of non-financial and financial firms are quite different, Khan and Bradbury (2014, 2015) examine the risk-relevance of two samples of non-financial firms. Khan and Bradbury (2015) examine a sample of New Zealand firms and find that approximately two thirds of the firms in their sample have more volatile comprehensive income than net

income, while the percentage is only 58% when comprehensive income excludes property, plant, and equipment revaluation adjustments allowed under IFRS, but not under U.S. GAAP. They fail to find evidence that either incremental comprehensive income volatility or incremental comprehensive income volatility excluding asset revaluations is associated with returns volatility or beta, and fail to find evidence that investors use the information conveyed by these proxies for OCI volatility to discount abnormal earnings. Surprisingly, investors' weight on abnormal earnings is increasing in incremental comprehensive income volatility, but not in incremental comprehensive income volatility excluding asset revaluations, which may indicate a positive price response to positive asset revaluation adjustments underlying asset revaluation volatility. Khan and Bradbury (2014) use a sample of U.S. non-financial firms and perform similar tests to their 2015 paper. They find that incremental comprehensive income volatility is not associated with returns volatility or beta and is not used to discount abnormal earnings. They also provide descriptive evidence suggesting that comprehensive income and all OCI components other than the "other" component are more volatile than net income. However, they provide no evidence on the risk-relevance of OCI components.

Amir, Guan, and Oswald (2010) provide evidence on how changes in accounting standards affecting OCI can also affect real management decisions based on managers' risk preferences. Amir et al. (2010) examine how changes in pension accounting in the U.K. (FRS 17/IAS 19) and the U.S. (SFAS 158) affected the equity/debt security mix in pension portfolios. The accounting standards noted above require firms to recognize the net pension asset/liability on the balance sheet, along with actuarial gains and losses in OCI. The intuition in the study is that the new standards would introduce more volatility in OCI, which could be reduced by increasing the proportion of pension assets invested in debt securities. The authors find evidence

that managers shift from equity to debt securities in their pension portfolios in the periods surrounding the adoption of the new pension accounting standards. However, it is not clear from the results that shifts from equity to debt securities in pension plans reduced the volatility of OCI. Such evidence would be important, given recent events in debt securities markets.

Currently in the literature, we know little about what drives the relation between OCI volatility and firm risk. If managers are concerned that including OCI in a summary performance measure would confuse investors, result in more volatile performance, and yield more volatile returns, we may learn more about OCI volatility and firm risk by examining the volatilities of individual OCI components and how they relate to investors' equity returns volatility.

The analyses performed in Black (2014) are designed to inform this discussion. Black (2014) focuses on the risk-relevance of OCI components instead of all components of comprehensive income (including components of net income) for three reasons: 1) OCI is presented separately from net income under both U.S. GAAP and IFRS; 2) Variation in the risk-relevance of individual OCI components could be causing tests examining only the relation between proxies for OCI volatility and risk to yield insignificant results; and, 3) There is likely to be significant resistance to moving items currently included in net income to OCI. If anything, the trend for summary performance measures is in the opposite direction (FDIC, 2013a; 2013b).

Black (2014) examines whether OCI component volatilities are associated with investors' returns volatility using a sample of bank holding companies from 1998 to 2012. The results indicate that the volatilities of unrealized gains and losses on AFS securities and cash-flow hedges, typically deemed beyond managers' control, are negatively associated with risk, while volatilities of OTTI losses, over which managers have relatively more control, are positively associated with risk. The results are consistent with investors perceiving the volatility of non-

OTTI AFS unrealized gains and losses as relatively less important, less risky, or less risk-relevant, than the volatility of OTTI losses, and perceiving the volatility of OTTI losses as an informative signal about risk. These findings are also consistent with arguments put forward in Badertscher, Burks, and Easton (2014). Badertscher et al. (2014, p. 812) argue that OTTI losses can be perceived as “negative signals about investment strategy or quality,” while non-credit OTTI losses “may be viewed as a less negative signal about investment strategy or quality.”

Also important to consider are recent changes in the treatment of AOCI in the calculation of regulatory capital for banks. Tier 1 Capital is an important summary measure of bank solvency and strength. Prior to 2014 and the adoption of the recommendations of the Basel Committee (Basel III) by the U.S. FDIC, many components of AOCI were excluded from the calculation of Tier 1 Capital (FFIEC, 2012; FDIC, 2013a).²² Following Basel III and the subsequent FDIC adoption of its recommendations for AOCI, several AOCI components previously excluded from Tier 1 Capital are being included in Tier 1 Capital on a gradual basis, beginning with 20% in 2014, 40% in 2015, 60% in 2016, 80% in 2017, and full inclusion in 2018 for the largest U.S. banks (Basel, 2011; FDIC, 2013a).²³

Similar to the standard setting debate surrounding OCI, many of the same factors were mentioned by commenters to the FDIC on the proposed changes to Tier 1 Capital. “Banking organizations of all sizes, banking and other industry groups, public officials (including members of the U.S. Congress), and other individuals strongly opposed the proposal to include most AOCI

²² Prior to Basel III, unrealized losses on AFS equity securities and foreign currency translation adjustments were the only AOCI components included in Tier 1 Capital (FDIC, 2013a).

²³ Other FDIC-supervised financial institutions that are not subject to the advanced approaches rule (typically banks with less than \$250 billion in total assets or less than \$10 billion in foreign balance sheet exposure - <http://www.federalreserve.gov/bankinforeg/basel/advanced-approaches-capital-framework-implementation.htm> accessed August 4, 2015; PWC, 2012) and have not chosen to opt-out of the new requirements will include the required components of AOCI in Tier 1 Capital at 40% in 2015, 60% in 2016, 80% in 2017, and 100% in 2018 (FDIC, 2013b).

components in common equity tier 1 capital,” many on the basis that including more components of AOCI in Tier 1 Capital, especially unrealized gains and losses on AFS debt securities, “could result in volatile capital levels” (FDIC, 2013a, p. 145). The FDIC maintained its position with regard to including more of AOCI in Tier 1 Capital, noting:

“The FDIC believes that the proposed AOCI treatment results in a regulatory capital measure that better reflects FDIC-supervised institutions’ actual risk at a specific point in time. The FDIC also believes that AOCI is an important indicator that market observers use to evaluate the capital strength of an FDIC-supervised institution” (FDIC, 2013a, p. 148-149).

To test the validity of the claims of opponents of FDIC adoption of Basel III, Black (2014) finds that Tier 1 Capital including more components of AOCI, as stipulated by Basel III and the FDIC, is no more volatile than pre-Basel-III Tier 1 Capital, and that the volatilities of the AOCI components new to Tier 1 Capital are not positively associated with risk.

2.4 *Future Research – Risk-Relevance*

2.4.1 Risk-Relevance

Based on the results in Hodder et al. (2006), Khan and Bradbury (2014; 2015), and Black (2014), I recommend five areas for future research on the risk-relevance of comprehensive income, OCI, and AOCI. First, AFS debt securities and cash-flow hedges can be used to hedge interest-rate risk. If these financial instruments are effective (or less effective) at hedging interest-rate risk, how does hedging affect the risk-relevance of OCI? Many of the OCI and AOCI component volatilities in Black (2014) are negatively associated with risk. To what extent do these negative associations reflect hedging activities?

Second, managers often estimate future recycling adjustments for pensions. Does the market respond to managers' estimates of future recycling adjustments? Are some managers better than others at predicting recycling adjustments? Does greater predictive ability for recycling adjustments represent greater expertise or a greater opportunity to manage earnings?

Third, unrealized gains and losses on similar financial instruments are currently recognized in different places in the financial statements. Does the risk-relevance of similar financial instruments (and their associated gains and losses) vary simply by where the gains and losses are recognized (net income versus OCI)?

Fourth, several studies directly or indirectly examine the relation between accounting volatility and earnings management (Lee et al., 2006; Amir et al., 2010). One of the main concerns about reporting comprehensive income in a performance statement is that investors will assess firms as more volatile because other comprehensive income is more volatile than net income. In accordance with Hirst's (2006) discussion of Lee et al. (2006), is the volatility of OCI driven primarily by economic fundamentals, or by managers' financial reporting choices?²⁴ Relatedly, is OCI volatility more "beyond the control of management" than net income volatility (FASB, 1997, p. 21; Bamber et al., 2010)? In addition, firms may very well encourage their executives to explicitly attempt to manage transactions that flow through OCI using hedging strategies. These hedging strategies can be designed to manage levels of gains and losses the firm experiences, or can be designed to manage performance volatility. Even though most firms and managers are price takers in the securities and commodities markets in which they participate,

²⁴ Lee et al. (2006) examine "cherry picking," or earnings management through sales of AFS securities. Hirst (2006), in his discussion of Lee et al. (2006), notes several additional research questions that could improve our understanding of the relation between accounting volatility and earnings management. First, how and why does the volatility of OCI differ across firms and over time? Second, were investors, creditors, or regulators "duped" by cherry picking firms' use of the statement of changes in stockholders' equity? Third, why do firms cherry pick, which firms do it, and is cherry picking always suboptimal? Fourth, do some firms get rewarded for cherry picking if objectives more important than reporting transparency are met?

managers regularly make decisions to enter and exit financial markets, which can result in changes to OCI and AOCI. Further, managers also choose the type of hedge employed in a given circumstance (fair value versus cash flow) and the type of security bought or sold (trading versus AFS versus held-to-maturity), which affects OCI and its volatility.

Although an initial attempt was made at examining managerial discretion over OCI in Black (2014), a broader question of whether firms with more volatile performance metrics also have managers who engage more or less in earnings management seems promising to examine. Barton et al. (2010) find that income before extraordinary items and discontinued operations, net income, and comprehensive income are the three most conservative performance measures of the eight performance measures examined, and Goncharov and Hodgson (2011) find that comprehensive income is less conservative than net income. Does the conservatism of various performance measures vary over time?²⁵ A large degree of conservatism in performance measures, or high volatility of conservatism in performance measures, may indicate that the firm's managers are engaging in "big bath" earnings management.²⁶

Fifth, what are the consequences of managers' real actions to reduce performance measure volatility, and how do accounting standards affect these real actions? Amir et al. (2010) indicate that reporting standards can induce managers to engage in real decisions to reduce performance measure volatility. Zhang (2009) provides further evidence that SFAS 133, a U.S. accounting standard for derivatives, reduced ineffective/speculative hedging practices, while Kanagaretnam et al. (2009) find that unrealized gains and losses on cash-flow hedges are

²⁵ Givoly and Hayn (2000) indicate that conservatism is increasing over time for U.S. firms from 1950 to 1998. They also postulate that "increased conservatism... will be associated with increased variability of the earnings series" (Givoly and Hayn, 2000, p. 293). They do not examine the relation between the volatility of conservatism and earnings management.

²⁶ My discussion of conservatism in this section comes from a discussion with Shane Dikolli and ideas discussed between Shane Dikolli and Gerald Lobo.

negatively associated with returns, primarily driven by negative unrealized losses, consistent with “hedging activities [indicating] that firms are proactively managing their risk even when they result in losses” (Kanagaretnam et al., 2009, p. 351; Venkatachalam, 1996). Research could examine the effectiveness of managers’ attempts to reduce performance measure volatility.

2.4.2 Tier 1 Capital and AOCI

As more data becomes available in the post-Basel-III era, and as more banks include more of AOCI in Tier 1 Capital, researchers will be better able to assess the impact of the new Tier 1 Capital calculation requirements. Commenters to the FDIC mention several real effects that may occur due to these changes in regulatory capital rules. The first is that the inclusion of more AOCI components in Tier 1 Capital may result in banks investing “excessively in securities with low volatility” (FDIC, 2013a, p. 146). Second, commenters also assert that banks may attempt to “increase their overall capital levels to create a buffer above regulatory minimums, hedge or reduce the maturities of their AFS debt securities, or shift more debt securities into their HTM [held-to-maturity] portfolio[s]” (FDIC, 2013a, p. 147). Commenters also claim that some of the above strategies may be particularly costly and difficult for small banks and could lead to a decrease in lending (FDIC, 2013a). Finally, commenters also state that the inclusion of the pension-related AOCI amount in Tier 1 Capital may cause some banks to curtail or cancel their defined benefit pension plans (FDIC, 2013a). All of these possibilities remain open to inquiry.

3. Contracting Usefulness

In his discussion of Dhaliwal et al. (1999), Skinner (1999) questions using the association between comprehensive income and returns as an appropriate measure of investor usefulness. He notes that the authors do not provide strong reasons for why comprehensive income would be more associated with returns than is net income, particularly since investors might perceive items

in OCI as transitory.²⁷ Instead of using returns as the benchmark for informativeness, Skinner (1999) suggests that analyzing the contracting uses of comprehensive income could be an informative method for learning about the usefulness of comprehensive income.

Are comprehensive income and OCI useful for contracting purposes? If so, their contracting usefulness may be closely tied to their investor usefulness. Ohlson (1999) indicates that the answer to this question likely depends on whether OCI and the components of OCI 1) inform the principal about an agent's actions and, 2) predict components of OCI and other components of earnings. I identify two contracting uses of comprehensive income from the literature: 1) Debt contracting; and, 2) Compensation contracting.

3.1 Debt Contracting

OCI is useful for debt contracting purposes if it provides useful information to lenders (debt investors) in assessing borrowers' credit quality, consistent with conditions 1) and 2) from Ohlson (1999) noted above. Li (2010) examines the debt contracting uses of OCI. Using bank loan agreements from 1996-2005, Li (2010) provides descriptive evidence on the characteristics of debt covenants.²⁸ While no sample debt covenants are explicitly written on comprehensive income as a measure of earnings, Li (2010) finds that approximately 45% of sample loan contracts have a net worth covenant, and that approximately 90% of the sample loan contracts that have a net worth covenant include AOCI as part of net worth. Thus, OCI items appear to be useful "stock" measures of net worth, but less useful "flow" measures of earnings for debt

²⁷ It should be noted that transitory financial statement line items are not necessarily value-irrelevant. In fact, transitory financial statement items should be valued dollar-for-dollar, or have a valuation multiple of 1. Permanent, or perfectly persistent, financial statement line items should have a valuation multiple equal to $1/r$, where r is the appropriate discount rate.

²⁸ Table 1 of Li (2010) indicates that financial services firms make up a very small (if not zero) percentage of the sample firms. Thus, one should interpret the results with caution, as OCI items, particularly unrealized gains and losses on AFS securities and derivatives classified as cash-flow hedges, may be relatively more important for financial services firms than the firms in Li's (2010) sample. For instance, the FASB standard for derivatives (SFAS 133) issued in June 1998 applied to all entities, but included many bank-specific references (FASB, 1998).

contracting purposes. Goncharov and Hodgson (2011) provide evidence suggesting that comprehensive income, since it includes OCI, reverses some of the conservatism inherent in net income, resulting in a less conservative performance measure. If conservatism is a characteristic of information useful for contracting, comprehensive income may be less useful than net income.

Ohlson (1999, p. 159) indicates that OCI “flows,” if transitory, should be excluded when valuing equity and forecasting future earnings, while the “stocks” of these items, reflected in AOCI, “might well be relevant for purposes of forecasting and valuation.” Specifically, Ohlson (1999) indicates that forecasting irrelevance and value irrelevance imply that an item is transitory; if these conditions hold, OCI “flow” items may not be useful for debt contracting purposes. However, Ohlson (1999) also indicates that the same OCI items may be useful indicators of stockholders’ wealth because of their effects on the book value of equity through AOCI. Li’s (2010) descriptive evidence is consistent with these “stock” measures being useful for debt contracting purposes. Lenders assess future payouts from lending, and the net worth of the borrower appears to be an important component in assessing the actions of a borrower over time and the ability of a borrower to repay a loan. As the FDIC is requiring large banks in the U.S. to recognize an increasing portion of AOCI in Tier 1 Capital, regulators appear to value the inclusion of the “stock” measure in banks’ primary net worth metric (FDIC, 2013a; 2013b).

3.2 Compensation Contracting

Biddle and Choi (2006) find that net income is superior to comprehensive income in explaining executive cash compensation, implying that comprehensive income (and thereby OCI) is less useful than net income for compensation contracting. Bamber et al. (2010) find that CEOs with strong equity incentives and low job security are more likely to report comprehensive

income in a statement of changes in shareholders' equity.²⁹ In addition, the authors use a small sample of firms that change their comprehensive income reporting method during 1998-2001 and find evidence that the propensity to change from reporting comprehensive income in a performance statement to reporting comprehensive income in a statement of changes in shareholders' equity is increasing in the CEO's change in equity incentives and decreasing in changes in the CEO's job security. In other words, the CEO's equity incentives and job security induce reporting choices that the FASB and IASB seem to perceive as suboptimal. The results, along with those from Lee et al. (2006) who find that earnings management and disclosure quality are related to presentation choice, indicate that managers' contracting incentives are important determinants of the presentation of comprehensive income and OCI.

3.3 *Future Research – Contracting Usefulness*

I discuss five areas of potential research on contracting usefulness. First, I discuss the relation between the persistence of comprehensive income and its contracting usefulness. The intuition behind this relation in the debt contracting setting is that the use of comprehensive income, and thereby OCI, in debt contracts should increase in the persistence of comprehensive income (and OCI) (Li, 2010). As comprehensive income and OCI are featured more prominently in the financial statements than they once were, are debt contracts more likely to include comprehensive income, and thereby OCI, in debt covenants? Is the use of comprehensive income, and thereby OCI, in debt contracts increasing in persistence? Does the lower conservatism of comprehensive income relative to net income mitigate its contracting usefulness (Goncharov and Hodgson, 2011)?

²⁹ Job security is measured as the sum of two indicator variables. The first indicates whether the CEO is also the chairman of the board of directors. The second indicates whether the percentage of outside directors sitting on the firm's board is less than the sample median.

Second, Baber, Kang, and Kumar (1999) provide insights on the relation between compensation and earnings levels and changes, and between compensation and returns. Their analyses could be applied to examining the relation between changes in executive pay and both levels of and changes in comprehensive income (and thereby OCI). If comprehensive income is more (less) persistent than net income, one should observe a stronger (weaker) convex relation between changes in current compensation and changes in comprehensive income than the relation documented between changes in compensation and earnings changes in Baber et al. (1999). If comprehensive income is more (less) persistent than earnings before extraordinary items, one should observe a more (less) negative relation (after some comprehensive income persistence threshold is reached) between changes in current compensation and the level of comprehensive income than the relation documented between changes in compensation and earnings levels in Baber et al. (1999).

The third area for future contracting research is the relation between compensation awards and managers' comprehensive income reporting choices. Many firms indicate in their proxy statements that compensation committees have discretion in awarding pay to executives, even after explicit performance targets for pay are established. In addition, the evidence on managers' comprehensive income presentation choices from Bamber et al. (2010) suggests that managers act as if they believe that compensation committees could reduce discretionary awards to executives when comprehensive income is volatile. The evidence from Lee et al. (2006) is less definitive on the relation between managers' reporting choices and comprehensive income volatility. Do compensation committees reduce discretionary awards to executives when comprehensive income is volatile, as hypothesized by Lee et al. (2006)? Are managers held responsible for comprehensive income in compensation contracts? Yen, Hirst, and Hopkins

(2007) indicate that compensation contracting incentives were unlikely to be a motivating factor driving interested parties to write comment letters in response to the initial exposure draft on comprehensive income in 1996 because no new information was required to be disclosed in financial reports. However, Yen et al. (2007) allow for the possibility that comprehensive income could affect contracts in the future due to increased financial statement emphasis over time.

Chambers et al. (2007) discuss arguments for and against evaluating managers using comprehensive income. The authors indicate that evaluating managers using comprehensive income imposes discipline on managers, who should be held responsible for all value-creating or value-destroying activities of the firm, including those reflected in OCI, such as unrealized gains and losses on AFS securities. Conversely, the authors indicate that using OCI to evaluate managers could be unfair, as managers could be evaluated for economic events that are beyond their immediate control, such as security price and exchange rate fluctuations. No study of which I am aware provides direct evidence on whether executives are evaluated using comprehensive income, or are paid based on these evaluations. In addition, no study of which I am aware provides direct evidence on what types of firms evaluate their executives using comprehensive income and OCI. Executives of financial firms may be likely candidates for comprehensive-income- and OCI-based evaluation (Dhaliwal et al., 1999). However, are there specific types of non-financial firms that have significant amounts of OCI line items (Jones and Smith, 2011; Khan and Bradbury, 2014; 2015)? Moreover, can we observe a significant positive correlation between OCI items and executive pay for executives of non-financial firms?³⁰ Does this correlation vary over time?

³⁰ I thank Shane Dikolli for this suggestion. The evidence in Biddle and Choi (2006) suggests a significant relation between comprehensive income and executive pay for non-financial firms.

Fourth, the results from Bamber et al. (2010) imply that managers' reporting choices vary with compensation contracting variables. Given the results from Bamber et al. (2010) and the implications of Ohlson (1999), under what circumstances are OCI components informative about manager effort? Under what circumstances do OCI components have high predictive ability for themselves or for other components of comprehensive income (Jones and Smith, 2011)?

Fifth, Baber et al. (1999) discuss a "horizon problem" induced by using accounting numbers in executive compensation contracts. The horizon problem arises "because accounting earnings do not incorporate the long-run consequences of current investment decisions," as when managers "discount earnings realized beyond their anticipated tenure with the firm." The authors argue that "capital markets properly value expected cashflows over an infinite horizon..., and therefore, the horizon problem is not likely to be an issue when security returns are used to evaluate performance" (Baber et al., 1999, p. 462, footnote 4). The implication is that market measures of performance better reflect the expected value of investors' cash flows, and thus should be better measures of executive performance.

Following this intuition, if comprehensive income, which includes several measures of fair value gains and losses not included in net income, better reflects the expected value of investments than net income, it may be a better measure of executive performance than net income. Taking this argument to its limit, increasing the use of fair value accounting in performance measures would make them more useful for performance evaluation because the measures will better reflect the expected value of investments. Full-fair-value accounting, as in Hirst, Hopkins, and Wahlen (2004), Hodder et al. (2006), and Blankespoor, Linsmeier, Petroni, and Shakespeare (2013) would be more useful for performance evaluation than either

comprehensive income or net income.³¹ Lambert's (2010, p. 292) discussion of Kothari, Ramanna, and Skinner (2010) provides a similar idea. He states: "Stock price is more forward-looking and 'fair value' oriented than accrual accounting. That is, the conservative nature of accounting numbers is viewed to be a disadvantage of the numbers, not an advantage. In fact, in industries where accounting is more conservative, compensation is less accounting oriented (e.g., in high tech industries)."

Conversations with compensation experts indicate that an increasing number of firms are compensating their executives using performance awards based on stock returns, a forward-looking performance measure. Do firms use performance measures that are more "forward-looking" in compensation contracts to address the horizon problem noted above? If so, what factors drive this use? Do firms using more "forward-looking" performance measures to evaluate their executives have better governance, performance, or other unique characteristics, since these firms' boards of directors appear to understand the horizon problem discussed above?

4. Research Design

4.1 *Econometric Techniques*

With very few exceptions, the results discussed in this paper are average effects or associations between the explanatory and response variables from ordinary-least-squares (OLS) regressions. Insights from results generated using OLS regression are limited when associations between dependent variables (prices, returns, or compensation) and independent variables (OCI components and their volatilities) vary by firm, industry, across time, or across the distributions

³¹ Critics of fair value accounting contend that fair value accounting may deepen financial crises and lead to asset fire sales. However, examining a sample of banks during the most recent financial crisis, Badertscher, Burks, and Easton (2012, p. 59) provide evidence suggesting "that fair value losses had minimal effect on regulatory capital." Further, Badertscher et al. (2012, p. 59) provide "mixed evidence that banks sold securities in response to capital-depleting charges...[and find that] the sales that potentially resulted from the charges appear to be economically insignificant, as there was no industry- or firm-level increase in sales of securities during the crisis."

of the variables under examination. For instance, is the relation between OCI components and returns the same for firms with high returns versus firms with low returns? Are firms with relatively high or low levels of OCI the primary drivers of results currently in the literature? To address these issues, researchers could sort on either returns, OCI components, or both and then perform the standard OLS estimations. Alternatively, techniques such as quantile regression and various forms of robust regression are available and easily implementable (Jann, 2010; Leone, Minutti-Meza, and Wasley, 2014). Black (2014) provides an example of these techniques when examining the relation between returns volatility and OCI component volatility.

Further, the data generating processes that drive returns, compensation, and OCI may occur simultaneously and relatedly. In addition, it is difficult to obtain a convincing set of control variables in any estimation involving returns or compensation, since much of the variation in these variables is difficult to observe. Recent papers by Larcker and Rusticus (2010) and Gow, Larcker, and Reiss (2015) on instrumental variables and causal inference in accounting research could help guide researchers examining the investor and contracting usefulness of OCI and AOCI to consider endogeneity and address it appropriately.

Managers of many firms do not report OCI, or report OCI only sporadically due to their firms' business models (the OCI transaction choice). In addition, and as noted by Bamber et al. (2010), managers choose the format in which to present OCI and its components (the OCI presentation choice), which may or may not affect its perception and pricing in the market. Thus, self-selection is a problem prevalent in this literature on at least two fronts. The Heckman (1979) self-selection procedure could be employed to address the OCI transaction and OCI presentation choices. In addition, matching firms that do not report OCI (or specific OCI components) to those that report OCI (or specific OCI components) using propensity score matching

(Armstrong, Jagolinzer, and Larcker, 2010) or other techniques may yield more precise insights into relations between OCI components and value, risk, and compensation.

4.2 *Research Setting*

4.2.1 Multi-Period Analysis

Although studies that examine relations between long-window firm returns and OCI components may capture some of the multi-period nature of these relations, the effects usually presented are average effects often limited to only one industry (i.e., banks) and assumed to be constant over time. When securities, derivatives, pension, and foreign currency transactions and decisions are made, they are often made when managers are attempting to implement their firms' strategies over and considering multiple financial reporting periods. For instance, when making a decision on whether or not to use a cash-flow hedge, managers also consider the duration of the hedge contract and what percentage of a cash inflow or outflow to hedge if some (non-zero) amount of overall risk exposure is desirable for the firm. Moreover, assumptions underlying the pension adjustments that flow through OCI and managers' classifications of securities types (trading versus AFS versus held-to-maturity) may change over time. Thus, a dynamic, multi-period analysis that relates firm strategy to its transactions, and then to its OCI reporting, could yield new insights into how firm strategy, manager horizon, and changes in strategy and horizon affect OCI reporting, and through OCI reporting, the value and risk of the firm and manager pay.

4.2.2 Sample Selection

Many of the findings noted above derive from large publicly available datasets often used in accounting and finance, such as Compustat, CRSP, and ExecuComp. However, an opportunity exists to learn more about how OCI relates to firm value and manager compensation by examining firm disclosures in greater detail, perhaps sacrificing generalizability for internal

validity. For example, more work is needed on the relation between compensation and OCI. In addition to examining large-scale, average associations between executive pay and OCI (or OCI components), researchers could study the proxy statements of publicly traded firms to examine how executives are evaluated and subsequently compensated. For instance, it may be the case that CFOs are the managers most likely to be evaluated based on transactions that affect OCI since the CFO likely oversees financial instruments, derivatives, and foreign currency translation adjustments. Or, it could be the case that specific division managers are evaluated using OCI. Survey evidence for lower-level employees may also be fruitful, as firm disclosures regarding division manager and lower-level employee pay may not be available. Are managers and employees evaluated differently using OCI? How do these evaluations affect the decisions managers and employees make with regard to transactions that yield OCI?

In addition, while some work has been done examining industries where OCI transactions are possibly more prevalent (Banking – Hodder et al., 2006; Insurance – Lee et al., 2006), more opportunities exist. In particular, insurance companies could be a particularly fruitful group of companies to examine because of their unique business model, financial reporting, and regulatory environment. Insurance companies engage in securities and derivatives transactions just as banks do. However, the regulatory environment surrounding insurance companies is evolving in difference ways and at different speeds in different parts of the world. In the European Union, Solvency II, a revised regulatory standard, is set for adoption on January 1, 2016.³² In the United States, the National Association of Insurance Commissioners (NAIC) carried out the Solvency Modernization Initiative (SMI) with a roadmap and white paper released in 2012 and 2013. As noted on the NAIC’s website, “the NAIC continues to review

³² Accessed July 24, 2015 at: <https://www.lloyds.com/the-market/operating-at-lloyds/solvency-ii>.

recommendations for implementation.”³³ As accounting standards and regulatory requirements diverge or converge across borders for both banks and insurance companies, more opportunities arise for researchers to examine how companies make accounting choices related to OCI and AOCI in response, subject to the usual difficulties that arise with cross-border research, such as differential enforcement, corporate governance standards, and social norms.³⁴

5. Conclusion

Much work remains to increase our understanding of how investors price, evaluate, and respond to OCI and its components. In particular, the area of risk-relevance seems especially important for further exploration. OCI has changed in its composition and reporting over time for all firms in the global economy, as well as on a firm-specific basis. Further, we do not have a complete understanding of which OCI components are most important in certain industries, and how this importance might vary with microeconomic and macroeconomic conditions. In addition, as managers make decisions that affect OCI and AOCI, and may be incentivized by investors, boards of directors, and lenders to make choices that affect OCI and AOCI, research examining the contracting usefulness of OCI and AOCI would add to our understanding of the importance of these financial statement components. As OCI and AOCI continue to be at the center of both standard setting and bank regulatory debates, additional evidence on these topics may also contribute to important discussions around the world.

³³ Accessed July 24, 2015 at: http://www.naic.org/index_smi.htm.

³⁴ Section 4 greatly benefited from suggestions by the referee and the editor. I thank them both.

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Figure 1 – OCI and OCI Components from the Compustat Industrial Fundamentals Annual File

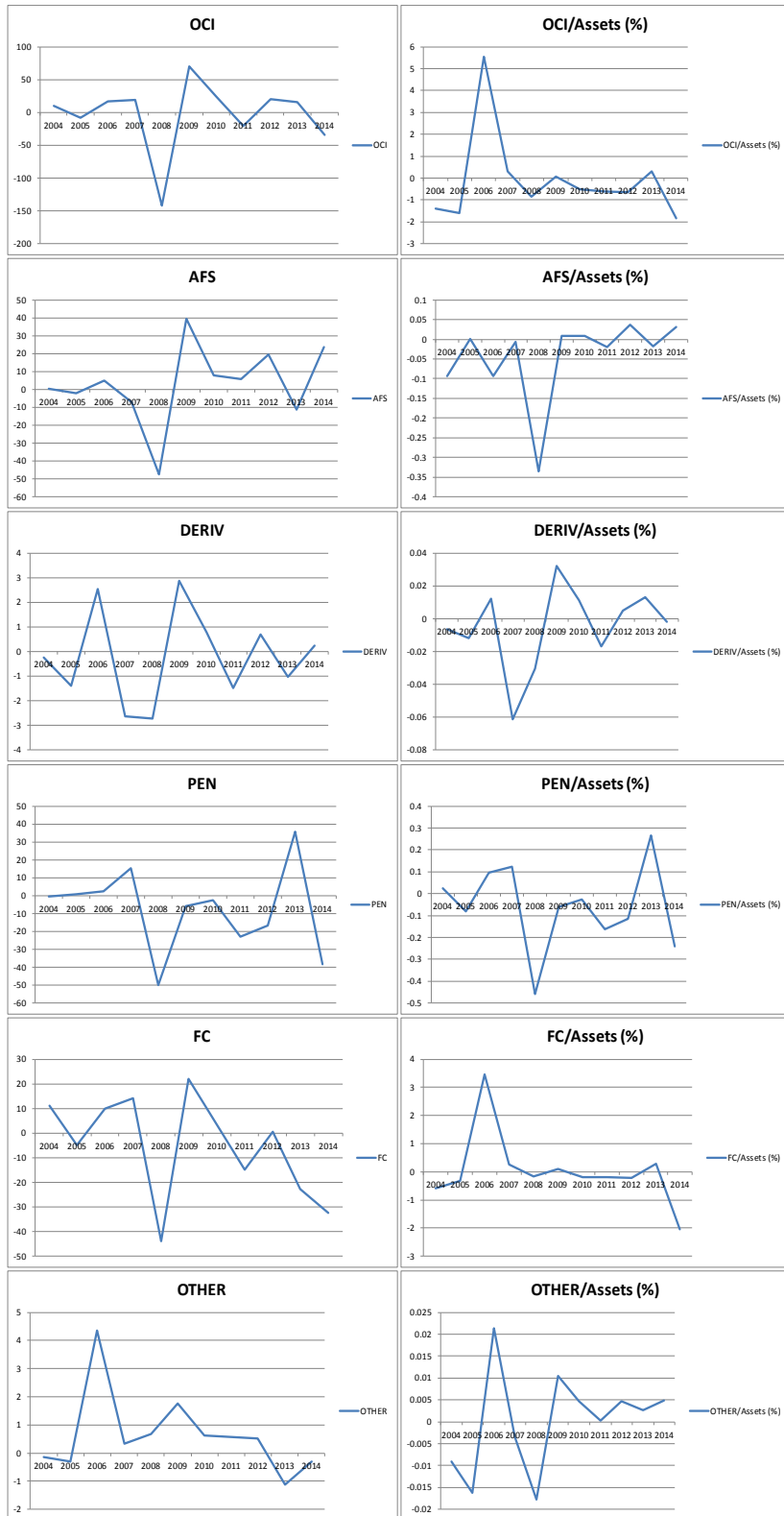


Figure 2 – OCI and OCI Components from the Compustat Bank Fundamentals Annual File

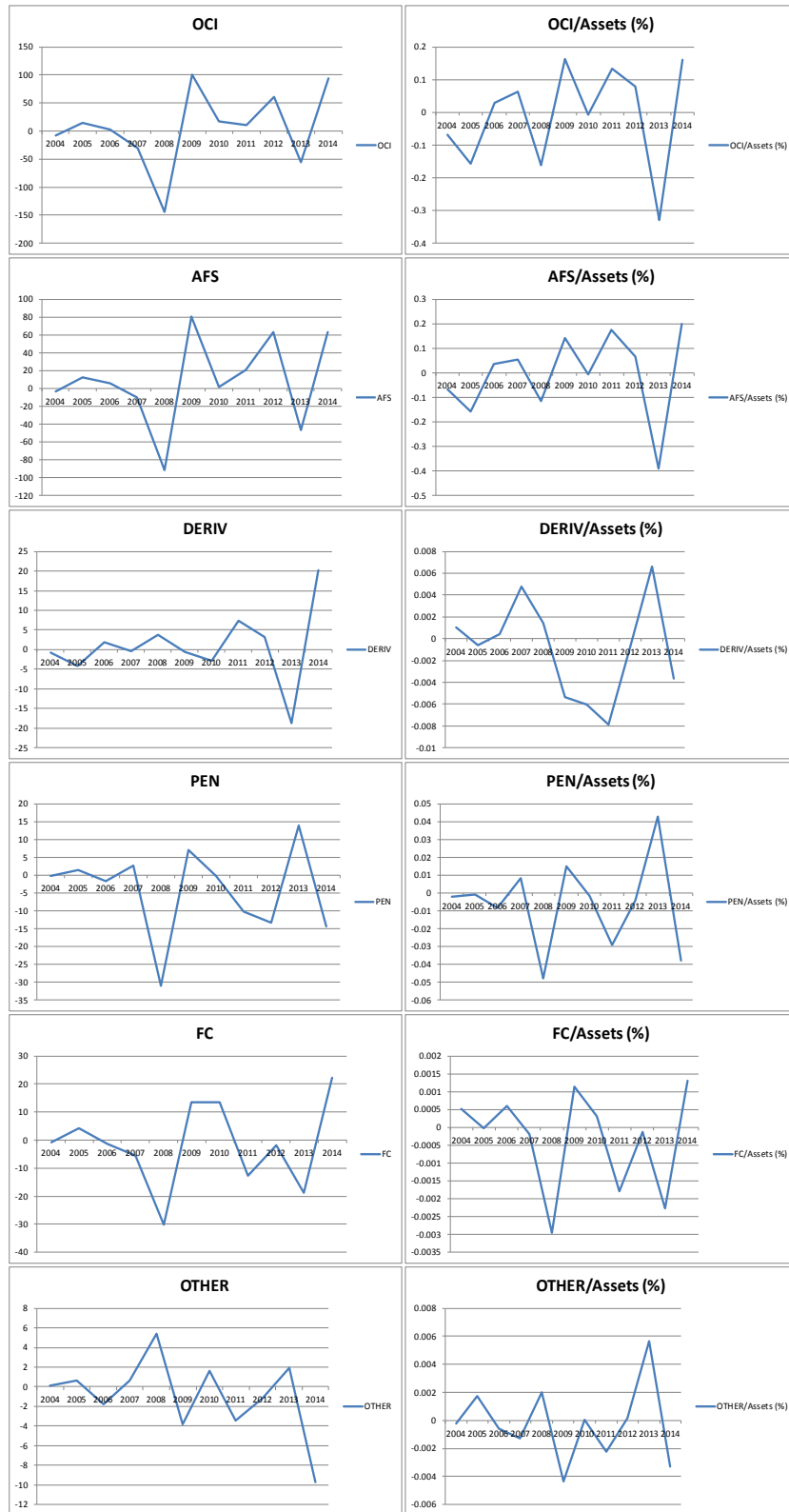


Table 1 – Other Comprehensive Income (OCI) Components under U.S. GAAP

Other Comprehensive Income Component (ASC 220-10-45-10A)	Reference
Unrealized holdings gains and losses on available-for-sale securities.	<i>ASC 320-10-45-1</i>
Unrealized holdings gains and losses that result from a debt security being transferred into the available-for-sale category from the held-to-maturity category.	<i>ASC 830-30-45-12</i>
Amounts recognized in other comprehensive income for debt securities classified as available-for-sale and held-to-maturity related to an other-than-temporary impairment recognized in accordance with ASC 320-10-35 if a portion of the impairment was not recognized in earnings.	<i>ASC 320-10-35</i>
Subsequent decreases (if not an other-than-temporary impairment) or increases in the fair value of available-for-sale securities previously written down as impaired.	<i>ASC 320-10-35-18</i>
Gains and losses (effective portion) on derivative instruments that are designated as, and qualify as, cash-flow hedges.	<i>ASC 815-20-35-1(c)</i>
Gains or losses associated with pension or other postretirement benefits (that are not recognized immediately as a component of net periodic benefit cost).	<i>ASC 715-20-50-1(j)</i>
Prior service costs or credits associated with pension or other postretirement benefits.	<i>ASC 715-20-50-1(j)</i>
Transition assets or obligations associated with pension or other postretirement benefits (that are not recognized immediately as a component of net periodic benefit cost).	<i>ASC 715-20-50-1(j)</i>
Foreign currency translation adjustments.	<i>ASC 830-30-45-12</i>
Gains and losses on foreign currency transactions that are designated as, and are effective as, economic hedges of a net investment in a foreign entity, commencing as of the designation date.	<i>ASC 830-20-35-3(a)</i>
Gains and losses on intra-entity foreign currency transactions that are of a long-term-investment nature (that is, settlement is not planned or anticipated in the foreseeable future), when the entities to the transaction are consolidated, combined, or accounted for by the equity method in the reporting entity's financial statements.	<i>ASC 830-20-35-3(b)</i>

Table 2 – Other Comprehensive Income (OCI) Components under IFRS

Other Comprehensive Income Component http://www.iasplus.com/en/standards/ias/ias1	Reference
Changes in revaluation allowance for property, plant, and equipment and intangible assets.	<i>IAS 16, IAS 38</i>
Remeasurement changes in a net defined benefit asset or liability.	<i>IAS 19</i>
Exchange rate differences arising from translating functional currencies to presentation currency.	<i>IAS 21</i>
Unrealized gains and losses on available-for-sale securities.	<i>IAS 39</i>
Gains and losses on effective portion of cash flow hedge instruments.	<i>IAS 39, IFRS 9</i>
Unrealized gains and losses on equity investments chosen to be presented in OCI.	<i>IFRS 9</i>
Adjustments related to changes in credit risk of a financial liability measured at fair value through net income.	<i>IFRS 9</i>
Correction of errors and changes in accounting policy required to be recognized outside of net income.	<i>IAS 8</i>

Table 3 – Correlation Statistics: OCI and OCI Components

Sample	<i>AFS</i>	<i>DERIV</i>	<i>PEN</i>	<i>FC</i>	<i>OTHER</i>	Variable Measurement
Compustat Industrial Fundamentals Annual File (N = 72,801)	0.63*	0.22*	0.46*	0.63*	-0.08*	Unscaled
	0.04*	0.01	0.02*	0.77*	0.00	Scaled
Compustat Bank Fundamentals Annual File (N = 7,244)	0.85*	0.11*	0.44*	0.54*	-0.19*	Unscaled
	0.85*	0.05*	0.17*	0.07*	-0.09*	Scaled

Notes:

This table presents Pearson correlation statistics between OCI and OCI components available in the Compustat Industrial Fundamentals Annual File (N = 72,801) and the Compustat Bank Fundamentals Annual File (N = 7,244) from 2004 to 2014. Both samples require non-missing data for each variable. OCI is measured as the difference between comprehensive income and net income (Compustat *NI*); if missing, OCI is the sum of Compustat *CISECGL*, *CIDERGL*, *CIPEN*, *CICURR*, and *CIOTHER*. Comprehensive income is the sum of Compustat *CITOTAL* and *CIMII*; if missing, comprehensive income is the sum of Compustat *CIBEGNI*, *CISECGL*, *CIDERGL*, *CIPEN*, *CICURR*, and *CIOTHER*; if still missing, comprehensive income is the sum of Compustat *NI*, *CISECGL*, *CIDERGL*, *CIPEN*, *CICURR*, and *CIOTHER*. *AFS* is *CISECGL* from Compustat. *DERIV* is *CIDERGL* from Compustat. *PEN* is *CIPEN* from Compustat. *FC* is *CICURR* from Compustat. *OTHER* is *CIOTHER* from Compustat. Unscaled variables are not scaled by total assets (Compustat *AT*); scaled variables are scaled by total assets (Compustat *AT*) and then multiplied by 100. * indicates statistical significance at the 5 percent level.