Returns Volatility and Other Comprehensive Income Components

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Abstract:

I examine whether other comprehensive income (OCI) component volatilities are associated with returns volatility for banks. I predict that OCI component volatilities have associations with returns volatility that vary in strength, and that inferences regarding the usefulness of OCI can be improved by analyzing associations between OCI component volatilities and returns volatility. I use returns volatility as the measure of total risk for a bank, consistent with the FASB's conceptual framework, and disaggregate OCI into its four primary components: available-for-sale (AFS) securities adjustments; cash-flow hedge adjustments; pension-related adjustments; and foreign currency translation adjustments. Using hand-collected data, I further disaggregate AFS securities adjustments and cash-flow hedge adjustments into their unrealized and recycled subcomponents. I find that volatilities of unrealized (recycled) gains and losses on available-for-sale securities and cash-flow hedges are negatively (positively) associated with returns volatility. I also find that associations between volatilities of these unrealized (recycled) gains and losses and returns volatility are more negative (stronger) when OCI is presented in a performance statement. The results indicate that volatilities of unrealized gains and losses, typically deemed beyond managers' control, are negatively associated with risk, while volatilities of recycled gains and losses, over which managers have relatively more control, are positively associated with risk.

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1. Introduction

In this study, I examine whether the volatilities of other comprehensive income (OCI) and its components are associated with information about the variability of investors' equity returns.[1] By examining this research question, I provide evidence on whether OCI and its components provide decision-useful information about the uncertainty, or variability, of investors' future cash flows.

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" (FASB, 2010, p. 1-2). I 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). I assume that investors efficiently impound risk-relevant information into equity share prices. Since OCI and its components are presented separately from net income under U.S. GAAP, I examine whether OCI volatility and OCI component volatilities are associated with returns volatility, controlling for net income volatility.

Prior work hypothesizes a positive association between returns volatility and financial statement line item volatility if the financial statement line item provides decision-useful information about risk. (Hodder et al., 2006; Khan and Bradbury, 2011; 2012). This "risk-relevance" hypothesis is supported for net income volatility and comprehensive income volatility (Hodder et al., 2006; Khan and Bradbury 2011; 2012). However, prior work has documented

[1] Prior work on comprehensive income and OCI focuses primarily on value relevance (Cheng, Cheung, and Gopalakrishnan, 1993; Dhaliwal, Subramanyam, and Trezevant, 1999; O'Hanlon and Pope, 1999; Cahan, Courtenay, Gronewoller, and Upton, 2000; Biddle and Choi, 2006; Chambers, Linsmeier, Shakespeare, and Sougiannis, 2007; Kanagaretnam, Mathieu, and Shehata, 2009; Barton, Hansen, and Pownall, 2010; Goncharov and Hodgson, 2011; Landsman, Miller, Peasnell, and Yeh, 2011, Dong, Ryan, and Zhang, 2013). However, the value relevance of financial statement line items is driven by persistence and risk (Lipe, 1986; Kormendi and Lipe, 1987; Easton and Zmijewski, 1989). Jones and Smith (2011) find that OCI is negatively persistent, while Hodder, Hopkins, and Wahlen (2006) and Khan and Bradbury (2011; 2012) provide mixed evidence on the relation between market-based risk proxies and the difference between comprehensive income volatility and net income volatility (incremental comprehensive income volatility).

statistically insignificant associations ($p > 0.10$) between returns volatility and the difference between comprehensive income volatility and net income volatility, hereafter referred to as incremental comprehensive income volatility (a proxy for OCI volatility) (Hodder et al., 2006; Khan and Bradbury 2011; 2012).[2] I predict that OCI component volatilities have associations with returns volatility that vary in strength, which may explain the lack of an association between OCI volatility and returns volatility. I test this prediction by disaggregating OCI in two ways.

First, I disaggregate OCI into its four primary or most frequently reported components: available-for-sale (AFS) securities adjustments; cash-flow hedge adjustments; pension-related adjustments; and foreign currency translation adjustments.[3] I also include an "other" category for other OCI items reported by SNL Financial. AFS securities adjustments and cash-flow hedge adjustments derive primarily from changes in the fair values of AFS securities and cash-flow hedges. I classify these two components as "fair value" components. For the bank holding companies in my sample, these "fair value" components are the two largest and most reported OCI components, on average.

Pension-related adjustments arise primarily from differences between the projected benefit obligation and plan assets, differences between the expected and actual return on plan assets, prior service costs or credits, and transition assets or obligations. Foreign currency translation adjustments arise from the consolidation process, hedges of net investments in foreign companies, and gains and losses on long-term, within-firm foreign currency transactions. Since pension-related adjustments, foreign currency translation adjustments, and other OCI adjustments arise from a mixture of management estimates, actuarial assumptions, and the mechanical application of consolidation rules, I classify these components as "accounting

[2] I use the term "statistically significant" ("statistically insignificant") to indicate statistical significance (or lack thereof) of a result at the 0.10 level using a two-tailed test unless I indicate otherwise.
[3] Appendix A lists OCI components (ASC 220-10-45-10A).

calculation" components. For the bank holding companies in my sample, these components are the three smallest and least reported OCI components, on average. I predict that associations between both "fair value" and "accounting calculation" component volatilities and returns volatility will be positive if the volatilities of OCI components generally reflect information also affecting investors' equity returns volatility. I also predict that OCI component volatilities' associations with returns volatility will vary by component.

I examine the relations between returns volatility and both "fair value" and "accounting calculation" OCI component volatilities using a sample of 2,264 annual bank holding company observations from 2002-2012 (the full sample). I find that the "fair value" component volatilities are not associated with returns volatility. For the "accounting calculation" components, I find that pension-related component volatility is negatively associated with returns volatility, though this negative association becomes statistically insignificant when I examine only observations with non-zero pension-related volatility. Foreign currency translation adjustment volatility is positively associated with returns volatility. I also find that OCI component volatilities have statistically distinct associations with returns volatility and are jointly significant in explaining variation in returns volatility.

The "fair value" OCI component volatilities may not appear to be associated with returns volatility because they are driven by the volatilities of both re-measurement (unrealized) gains and losses and realized (recycled) gains and losses that are transferred from accumulated other comprehensive income (AOCI) to net income.[4] Volatilities of unrealized and recycled gains and losses on AFS securities and cash-flow hedges may reflect information also influencing investors' equity returns, in which case I would expect positive relations between unrealized

[4] An example of a reclassification adjustment occurs when an unrealized gain on an AFS security from a prior period is reclassified to net income from AOCI upon sale of the AFS security.

subcomponent volatilities and returns volatility. Alternatively, volatilities of unrealized gains and losses may represent short-term fluctuations in the fair values of AFS securities and cash-flow hedges unrelated to risk, while volatilities of recycled gains and losses may represent sales of AFS securities or settlements of, cancellations of, or cessations of hedge accounting for cash-flow hedge contracts unrelated to risk. I predict that associations between unrealized subcomponent volatilities and returns volatility are different from associations between recycled subcomponent volatilities and returns volatility, but make no directional prediction.

In my second approach, I hand-collect the unrealized and recycled OCI subcomponents related to AFS securities and cash-flow hedges from Forms 10-K and 10KSB (sec.gov) for a subsample of 898 observations and calculate their volatilities (the recycling sample).[5] I find that the volatilities of unrealized gains and losses on AFS securities and cash-flow hedges are negatively associated with returns volatility, while the volatility of recycled gains and losses for AFS securities is positively associated with returns volatility.[6]

In sensitivity tests of approaches one and two, I rely on prior research that indicates financial statement users interpret OCI differently based on its presentation (Chambers et al., 2007; Hirst and Hopkins, 1998; Maines and McDaniel, 2000; Hirst, Hopkins and Wahlen, 2004; Hunton, Libby, and Mazza, 2006). I compare observations that use either of the performance statement presentation methods currently allowed under U.S. GAAP to observations that do not.[7]

[5] I collect recycling data for only AFS securities and cash-flow hedge derivatives for three reasons. First, most banks provide a separation of the unrealized and realized portions of the AFS securities and cash-flow hedge derivative components of OCI. Second, many firms provide insufficient information to determine the following: (1) the amounts recycled to net income from the pension-related AOCI item; and (2) The amounts capitalized to an asset from the pension-related AOCI item. Third, there are relatively few instances of reclassification adjustments from foreign currency translation adjustments and the "other" category to net income.

[6] The volatility of recycled gains and losses for cash-flow hedges is positively associated with returns volatility with p-values ranging from 0.101 to 0.121 depending on the estimation employed.

[7] Following SFAS 130 (FASB, 1997), firms presented OCI in either a performance statement or in the statement of changes in equity. For fiscal years beginning after December 15, 2011, the option to present OCI in the statement of changes in equity was eliminated (FASB, 2011). Under current U.S. GAAP, a performance statement either begins

As prior work in this area provides mixed results regarding which presentation method investors understand better, I predict that associations between returns volatility and OCI component volatilities vary with presentation, but do not make a directional prediction.

I find no evidence that presentation affects associations between primary OCI component volatilities and returns volatility. However, when I disaggregate “fair value” component volatilities into their unrealized and recycled component volatilities, I find that OCI presentation affects the joint association between OCI component and subcomponent volatilities and returns volatility. I find that the positive (negative) associations between “fair value” recycled (unrealized) subcomponent volatilities and returns volatility are stronger (more negative) when OCI is presented in a performance statement.

Overall, I find evidence consistent with the prediction that associations between OCI component volatilities and returns volatility vary in strength. I find that these associations also vary in sign. The results indicate that the volatility of unrealized gains and losses, typically deemed beyond managers’ control, is negatively associated with firm risk. On the other hand, the volatility of realized gains and losses, over which managers have relatively more control, is positively associated with firm risk.

The remainder of the paper is organized as follows: Section 2 motivates and presents the hypotheses. Section 3 presents sample information. Section 4 discusses research design and results. Section 5 discusses robustness checks. Section 6 concludes.

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with revenue and ends with comprehensive income, or begins with net income and ends with comprehensive income. If a firm begins its performance statement with net income, the performance statement must immediately follow the income statement (ASC 220-10-45-1C).

2. Hypothesis Development

2.1 Returns Volatility, Comprehensive Income Volatility, and OCI Volatility

I follow the FASB conceptual framework and use investors' equity returns volatility as the benchmark for whether OCI component volatilities are associated with total risk for a firm. Returns volatility and OCI component volatilities may be directly associated with each other, or each may be associated with the information that drives the variability of equity returns. I assume that information about returns volatility is also information about the uncertainty of investors' future cash flows. Statement of Accounting Concepts No. 8 indicates that information that is decision-useful helps investors assess "the amount, timing, and uncertainty of (the prospects for) future net cash inflows" (FASB, 2010, p. 1-2). The conceptual framework also indicates that information about a firm's return to investors and "the variability and components of that return also is important, especially in assessing the uncertainty of future cash flows" (FASB, 2010, p. 4). Thus, if the volatility of an OCI component is positively associated with returns volatility, the OCI component reflects risk-relevant information.

Some opponents of the current labeling of OCI as part of an income or performance measure (comprehensive income) cite the volatility of OCI items as a reason that OCI items should not be referred to as "income," as this reference could be "confusing at best and potentially misleading" (Emerson, 2010, p. 2). One of the primary concerns about the exposure draft preceding SFAS 130 (Reporting Comprehensive Income) was that investors would draw incorrect inferences about firm risk based on the incremental volatility in OCI.[8] In the Background Information and Basis for Conclusions section of SFAS 130, the FASB noted the concerns of several commenters on the standard:

[8] Concerns about OCI volatility may arise due to incremental OCI volatility beyond that of net income, or because the current accounting standards for OCI allow firms to recognize fair value changes for "only selected economic assets, liabilities, and derivatives" (Hirst and Hopkins, 1998, p. 53).

"Some respondents 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 financial performance" (FASB, 1997, p. 21).

On the other hand, "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).

As noted in Graham, Harvey, and Rajgopal's (2005) report of survey results, "a few CFOs state that the market becomes more skeptical of underlying cash flows when earnings are volatile. Even if two firms have the same underlying cash flow volatility, executives believe that the firm with the more volatile earnings would be perceived as riskier" (Graham et al., 2005, p. 49). Managers also appear to believe that a firm with more volatile OCI could be assessed as "riskier" (FASB, 1997).

In prior work, the volatility of a financial statement line item has been measured as the firm-specific, time-series standard deviation of the item.[9] For a sample of bank holding companies from 1996 to 2004, Hodder et al. (2006) provide evidence that comprehensive income (net income plus OCI) is more volatile than net income. Khan and Bradbury (2011) and Khan

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[9] For example, Barth, Landsman, and Wahlen (1995) estimate annual historical cost and fair value income per share volatilities by computing the standard deviations of these measures over the five-year period immediately preceding the observation of stock price at the end of the year for the years 1976-1990. Hodder et al. (2006, p. 352) estimate annual net income, comprehensive income, and full fair-value income volatilities by dividing each item by average total assets and calculating standard deviations of these measures "over five rolling five-year periods, each ending with years 2000-2004." Lee, Petroni, and Shen (2006, p. 681) estimate the relative volatility of comprehensive income as "the standard deviation of total comprehensive income divided by the standard deviation of net income using data from 1994-2001."

and Bradbury (2012) confirm this result for a sample of U.S. non-financial firms from 2005 to 2010 and a sample of New Zealand non-financial firms from 2003 to 2008. These authors hypothesize that if the volatilities of comprehensive income and OCI capture risk exposure, these volatilities should be positively associated with returns volatility. Hodder et al. (2006) and Khan and Bradbury (2011, 2012) each find a significant positive relation between comprehensive income volatility and returns volatility, suggesting that comprehensive income is risk relevant. As a proxy for OCI volatility, these authors deduct the volatility of net income from the volatility of comprehensive income and arrive at incremental comprehensive income volatility, a proxy for OCI volatility.[10] Hodder et al. (2006) and Khan and Bradbury (2011; 2012) find that incremental comprehensive income volatility is not significantly related to returns volatility.

2.2 Returns Volatility and OCI Component Volatilities

I extend Hodder et al. (2006) and Khan and Bradbury (2011; 2012) in three ways. First, I consider both OCI volatility and OCI component volatilities. OCI component volatilities inform investors as to why summary performance measures, like comprehensive income, may be more or less volatile in a given fiscal period. The analyses in Hodder et al. (2006) and Khan and Bradbury (2011; 2012) constrain the associations between returns volatility and OCI component volatilities to be the same for all OCI components. OCI component volatilities could have correlations with returns volatility that vary in strength, which could confound inferences from analyzing only the association between OCI volatility and returns volatility.[11] Second, I consider

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[10] The variances, and thereby the standard deviations, of net income and OCI are not necessarily additive (Hodder et al., 2006, footnote 19, p. 360). Hodder et al. (2006, footnote 11, p. 351) indicate that the variance of comprehensive income is equal to: $\sigma_{CI}^2 = \sigma_{NI}^2 + \sigma_{OCI}^2 + 2Cov(NI, OCI)$. Hodder et al. (2006) calculate OCI volatility indirectly as $\sqrt{\sigma_{CI}^2} - \sqrt{\sigma_{NI}^2}$ and assume that $Cov(NI, OCI)$ is equal to zero in their study. They provide some evidence consistent with this assumption for their sample of bank holding companies. For my sample, untabulated Pearson (-0.00, p = 0.83) and Spearman (-0.07, $p < 0.05$) correlation statistics between NI and OCI indicate that the covariance term in the expression above may not be equal to zero.

[11] Net income, a component of comprehensive income, may also have component volatilities with differing associations with risk. Lipe (1986) provides evidence that disaggregation of net income (a component of

additional factors that are associated with returns and may also be associated with returns volatility: size, growth opportunities, and firm performance. Third, I directly calculate OCI volatility (and OCI component volatilities), as opposed to using a calculated proxy for OCI volatility.

I examine bank holding companies because many, if not all, of the possible items that can be reported in OCI under U.S. GAAP are present for banks and because my empirical tests use the returns volatility model from Hodder et al. (2006). The primary components of OCI for most banks are AFS securities adjustments, cash-flow hedge adjustments, pension-related adjustments, and foreign currency translation adjustments. These components derive from a diverse set of economic events, management estimates, and mechanical accounting rule applications. I group these components into those that derive primarily from fair value changes ("fair value" OCI components) and those that derive primarily from a mixture of management estimates, actuarial assumptions, and mechanical applications of consolidation rules ("accounting calculation" OCI components). I predict that the distinct natures of these primary OCI components cause variation in the strength of their associations with returns volatility.

Associations between "fair value" component volatilities and returns volatility will be positive if the volatilities of the fair values of AFS securities and cash-flow hedge instruments generally reflect information also affecting investors' returns volatility. For the bank holding companies in my sample, these "fair value" components are the two largest and most reported OCI components, on average.

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comprehensive income) provides incremental information to investors, and that this information varies with the persistence of net income components. Jones and Smith (2011) compare the value relevance, persistence, and predictive ability of special items (a net income component) and OCI. They find that special items and OCI are value relevant, that special items are not persistent and OCI is negatively persistent, and that special items have relatively better predictive ability for net income and cash flows than OCI. As my study is designed to inform the ongoing debate regarding the separation of OCI from net income, I provide evidence on whether OCI and its components are useful for risk assessment.

Pension-related adjustments arise from differences between the projected benefit obligation and plan assets, differences between the expected and actual return on plan assets, prior service costs or credits, transition assets or obligations, and amortization adjustments. Foreign currency translation adjustments arise from the consolidation process, hedges of net investments in foreign companies, and gains and losses on long-term, within-firm foreign currency transactions. I also include a category for "other" OCI components collected by SNL Financial. Pension-related adjustments, foreign currency translation adjustments, and other OCI adjustments arise from a heterogeneous mixture of management estimates, actuarial assumptions, and mechanical applications of consolidation rules. For the bank holding companies in my sample, these components are the three smallest and least reported OCI components, on average.

In Hypothesis 1, I follow prior research using the "risk-relevance" hypothesis and predict positive associations between returns volatility and OCI component volatilities. In Hypothesis 2, I compare OCI component volatilities' relative associations with returns volatility.

H1: OCI component volatilities are positively associated with returns volatility.

H2: OCI component volatilities have different associations with returns volatility.

2.3 Returns Volatility and OCI Unrealized and Recycled Subcomponent Volatilities

The volatilities of unrealized and recycled gains and losses on AFS securities and cash-flow hedges may be associated with information simultaneously influencing investors' equity returns volatility, in which case I would expect positive relations between both unrealized and recycled subcomponent volatilities and returns volatility. Alternatively, associations between unrealized subcomponent volatilities and returns volatility could reflect "transitory" fluctuations in the fair values of AFS securities and cash-flow hedges that are not related to the risk of the firm (Dong et al., 2013), while associations between recycled subcomponent volatilities and returns volatility could reflect fluctuations in sales of AFS securities or settlements of, cancellations of, or cessations of hedge accounting for cash-flow hedge contracts that are not related to the risk of the firm (Lee et al., 2006).

I predict that associations between unrealized subcomponent volatilities and returns volatility are different from associations between recycled subcomponent volatilities and returns volatility, but make no directional prediction.

H3: Unrealized OCI component volatilities differ from the volatilities of their recycled OCI counterpart volatilities in their associations with returns volatility.

3. Sample Selection

My initial sample consists of all U.S. bank holding company observations available on SNL Financial from 1998 to 2012. I begin the sample in 1998 since SFAS 130 is applicable for fiscal periods beginning after December 15, 1997 (FASB, 1997). Early research on OCI estimated OCI and its components using Compustat data (Dhaliwal et al., 1999). However, subsequent research suggests that using as-if estimates of OCI introduces measurement error (Chambers et al., 2007). For this reason, I use OCI data only from the post-SFAS-130 period and calculate rolling five-year standard deviations of OCI and OCI components beginning with 1998. Thus, the first estimation year included in the empirical tests is 2002.

Table 1 presents sample selection criteria. The sample from the post-SFAS-130 period (1998-2012) includes 10,034 bank-year observations from 757 banks. Eliminating observations prior to 2002, I obtain 7,828 observations from 754 banks. Requiring data for firm financial characteristics, comprehensive income components and their rolling five-year standard deviations, and primary regression control variables from SNL Financial per Hodder et al. (2006), I arrive at a sample of 6,962 bank-year observations from 728 banks. Including only observations with 20 months of returns from CRSP to calculate rolling five-year returns volatility, I arrive at a sample of 2,264 bank-year observations from 298 banks (the full sample). Robustness tests that require data for "performance variables" – comprehensive income, lagged comprehensive income, annual stock returns, lagged annual stock returns, and lagged stock price – reduce the sample to 2,229 observations from 298 banks.

I also use the EDGAR database at sec.gov to access forms 10-K and 10KSB for bank holding companies to collect OCI recycling and presentation variables for a subsample of 898 observations from 121 banks (the recycling sample). Robustness tests that require data for comprehensive income, lagged comprehensive income, annual stock returns, lagged annual stock returns, and lagged stock price reduce the sample to 893 observations from 121 banks. I search for the word "comprehensive" to find the table presenting comprehensive income and OCI. I collect net-of-tax amounts recycled from AOCI to net income, along with the net-of-tax change in AOCI unrelated to recycling (i.e., the unrealized gain or loss) for AFS securities and cash-flow hedge derivatives. I also collect OCI presentation data and create an indicator variable equal to one when the bank presents OCI using one of the two currently allowed performance statement presentations (ASC 220-10-45-1C), zero otherwise.

Table 2 presents descriptive statistics for bank financial characteristics and regression variables used in the empirical tests.[12] All variables are described in Appendix B. Compared to descriptive statistics presented in Table 1 and Table 2 of Hodder et al. (2006), the banks in my full sample are larger based on average total assets, $AVGAT$ (31,584 million vs. 15,746 million), book value of equity, BVE (2,794 million vs. 1,294 million), and market value of equity, MVE

[12] In Table 2, *AFS / OCI*, *DERIV / OCI*, *PEN / OCI*, *FC / OCI*, and *OTHER / OCI* are based on 2,246 observations because *OCI* is equal to zero for 18 observations from the full sample. *AFSUGL / OCI*, *AFSRECY / OCI*, *DERIVUGL / OCI*, and *DERIVRECY / OCI* are based on 897 observations because *OCI* is equal to zero for one observation from the recycling sample.

(3,439 million vs. 2,882 million), and similar based on deposits scaled by average total assets, DEP (79% vs. 79%), and OCI scaled by average total assets, OCI (0.01% vs. (1.149% - 1.133% = 0.02%)).[13] Compared to the sample in Hodder et al. (2006), the banks in my sample are more volatile based on rolling five-year standard deviations of net income, σNI (0.55 vs. 0.26), comprehensive income, σCI (0.65 vs. 0.39), and OCI, σOCI (0.24 vs. (0.394 – 0.260 = 0.13)). Average comprehensive income volatility is greater than average net income volatility in my sample (0.65 vs. 0.55), confirming results from prior work (Hodder et al., 2006; Khan and Bradbury, 2011; 2012).[14] In addition, the importance of directly computing OCI volatility is illustrated by the average difference between σCI and σNI, $\sigma CI - \sigma NI$ (0.10), versus average OCI volatility calculated directly, σOCI (0.24).[15]

Table 3 presents Pearson and Spearman correlation statistics for the primary regression variables. In this table only, I discuss statistical significance at the 0.05 level. I find significant positive Pearson and Spearman correlations between σCI and returns volatility (σRET), measured as the firm-specific rolling five-year standard deviation of monthly CRSP returns from year *t-4* to year *t*, consistent with Hodder et al. (2006). I find a significant positive Pearson correlation between σOCI and σRET, but an insignificant negative Spearman correlation between σOCI and σRET. The Pearson and Spearman correlations between incremental comprehensive income volatility, $\sigma CI - \sigma NI$, and σRET are significantly negative, again illustrating the difference between incremental comprehensive income volatility and OCI

[13] Firms appear to be increasing in size over my sample period based on average total assets and book value of equity. Since my sample period is 2002-2012, and that in Hodder et al. (2006) is 1996-2004, the increase in firm size over time likely explains the differences in these variables between the two samples.

[14] An untabulated variance ratio test indicates that comprehensive income scaled by average total assets is significantly more volatile than net income scaled by average total assets.

[15] Pearson (0.70, $p < 0.05$) and Spearman (0.60, $p < 0.05$) correlations between $\sigma CI - \sigma NI$ and σOCI suggest that these measures are not interchangeable. A t-test indicates that $\sigma CI - \sigma NI$ is significantly less than σOCI on average ($t = -22.89$, $p < 0.01$). Moreover, it is possible to obtain negative values of $\sigma CI - \sigma NI$, as indicated by the minimum value for $\sigma CI - \sigma NI$ in Table 2 (-0.65).

volatility. I find significant positive Pearson and Spearman correlations between three out of five OCI component volatilities ($\sigma DERIV$ – the cash-flow hedge component volatility, σFC – the foreign currency translation adjustment component volatility, and $\sigma OTHER$ – the "other" component volatility) and σRET, consistent with H1.

OCI volatility (σOCI) appears to be primarily driven by volatility in AFS securities adjustments (σAFS), as indicated by the large Pearson (0.97) and Spearman (0.91) correlations and the smaller correlations between σOCI and the other primary OCI component volatilities ($\sigma DERIV$, σPEN, σFC, and $\sigma OTHER$). σAFS is driven primarily by volatility in unrealized gains and losses on AFS securities ($\sigma AFSUGL$), as indicated by large Pearson (0.94) and Spearman (0.95) correlations.[16] Thus, subsequent multivariate estimations of the relation between returns volatility and OCI volatility may be driven primary by the volatility of unrealized gains and losses on AFS securities. I also find that σRET is significantly positively correlated with the recycled subcomponent volatilities for AFS securities ($\sigma AFSRECY$) and cash-flow hedges ($\sigma DERICRECY$) (Pearson and Spearman). However, I find insignificant positive Pearson correlations between σRET and the volatilities of unrealized gains and losses on AFS securities ($\sigma AFSUGL$) and cash-flow hedges ($\sigma DERIVUGL$), a significant negative Spearman correlation between σRET and $\sigma AFSUGL$, and an insignificant positive correlation between σRET and $\sigma DERIVUGL$. These correlations indicate that associations between returns volatility and "fair value" OCI subcomponent volatilities vary based on whether gains and losses are unrealized or recycled, and provide support for H3.

[16] I also find that *σDERIV* may be driven largely by volatility in unrealized gains and losses on cash-flow hedges (*σDERIVUGL*), as indicated by large Pearson (0.97) and Spearman (0.96) correlations.

4. Research Design and Results

4.1 Returns Volatility, Comprehensive Income Volatility, and OCI Volatility

In this section, I compare results using my full sample to results from Hodder et al. (2006). I investigate whether net income volatility (σNI), comprehensive income volatility (σCI), and incremental comprehensive income volatility ($\sigma CI - \sigma NI$) are associated with returns volatility. I then relax the assumption of variance additivity between net income and OCI and directly calculate OCI volatility (σOCI). Following Hodder et al. (2006), I estimate equation (1) using panel OLS regression with firm-clustered standard errors.

$$\sigma RET_{it} = \beta_0 + \beta_1 \sigma CI\ COMPONENT_{it} + \beta_2 EXP_{it} + \beta_3 GAP_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \quad (1)$$

σRET_{it} represents returns volatility for firm *i* in year *t*. $\sigma CI\ COMPONENT_{it}$ is the firm-specific rolling five-year standard deviation of either σNI_{it} or σCI_{it} calculated using fiscal years *t-4* through *t*. I include two control variables, EXP_{it} and GAP_{it}, similar to Hodder et al. (2006). EXP_{it} represents firm *i*'s total exposure to derivatives in year *t*, proxied by total derivatives exposure from SNL Financial. GAP_{it} represents firm *i*'s exposure to interest rate changes in year *t*, proxied by the absolute value of the difference between interest-sensitive assets and interest-sensitive liabilities scheduled to be re-priced within one year, per SNL Financial. I expect these control variables to be positively associated with returns volatility (Hodder et al., 2006). The model includes year fixed effects. All continuous independent variables are scaled by average total assets from SNL Financial.

Table 4, Columns (1) and (2) present the results of estimating equation (1). The signs of the coefficients on the two control variables, EXP_{it} and GAP_{it}, are consistent with Hodder et al. (2006) in each estimation, although the coefficients on GAP_{it} in the estimations in this paper are significant, while those in Hodder et al. (2006) are not. Consistent with Hodder et al. (2006), I find significant positive associations between σRET_{it} and both σNI_{it} and σCI_{it}. Thus, both σNI_{it} and σCI_{it} appear to be risk-relevant based on their associations with returns volatility.[17]

Next, I estimate equation (2) to investigate the incremental risk relevance of OCI, controlling for net income volatility.

$$\sigma RET_{it} = \beta_0 + \beta_1 \sigma NI_{it} + \beta_2 \sigma OCIProxy_{it} + \beta_3 EXP_{it} + \beta_4 GAP_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \quad (2)$$

$\sigma OCIProxy_{it}$ equals incremental comprehensive income volatility, $\sigma CI_{it} - \sigma NI_{it}$, or OCI volatility, σOCI_{it}, calculated using rolling five-year standard deviations over fiscal years *t-4* through *t*. Since my study concerns the risk-relevance of OCI components, rather than a comparison of the risk-relevance of net income, comprehensive income, and full fair value income as in Hodder et al. (2006), I do not collect data to estimate full fair value income volatility.[18] Thus, equation (2) is not comparable with Hodder et al. (2006) because I do not include a measure of full fair value income volatility minus comprehensive income volatility (incremental full fair value income volatility).

Table 4, Columns (3) and (4) present the results of estimating equation (2). β_2 is interpreted as the incremental relevance of OCI volatility for returns volatility, controlling for net income volatility. I find that incremental comprehensive income volatility, $\sigma CI_{it} - \sigma NI_{it}$, is not significantly associated with returns volatility, consistent with Hodder et al.'s (2006) model

[17] Estimating equation (1) for the recycling sample, I find results similar to those in Table 4, Columns (1) and (2), except that the coefficient on GAP_{it} is positive and insignificant.
[18] I examine whether including the volatility of full fair value income minus comprehensive income in my empirical tests changes my primary inferences in Section 5.1.

which also includes incremental full fair value volatility.[19] OCI volatility calculated directly (σOCI_{it}) is also not significantly associated with returns volatility.[20]

4.2 Returns Volatility and OCI Component Volatilities

My first hypothesis predicts OCI component volatilities ($\sigma OCI\ COMPONENT_{it}$) are positively associated with returns volatility. I test H1 by calculating firm-specific rolling five-year OCI component volatilities over fiscal years *t-4* to *t* for the "fair value" OCI components ($\sigma AFS_{it} -$ AFS securities component volatility and $\sigma DERIV_{it}$ – cash-flow hedge component volatility) and the "accounting calculation" OCI components (σPEN_{it} – pension-related component volatility, σFC_{it} – foreign currency translation adjustment volatility, and $\sigma OTHER_{it}$ – "other" component volatility) and estimate equation (3).

$$\sigma RET_{it} = \beta_0 + \beta_1 \sigma AFS_{it} + \beta_2 \sigma DERIV_{it} + \beta_3 \sigma PEN_{it} + \beta_4 \sigma FC_{it} + \beta_5 \sigma OTHER_{it} + \beta_6 \sigma NI_{it} + \sum_j \delta_j\, CONTROLS_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \tag{3}$$

Table 5, Columns (1)-(3) present the results of estimating equation (3) using the full sample. Column (1) is the primary specification and uses the control variables from Hodder et al. (2006) (EXP_{it}, GAP_{it}, and year fixed effects). Column (2) adds controls for firm size and growth opportunities (MVE_{it} and BTM_{it}). Column (3) adds the performance controls (CI_{it}, CI_{it-1}, $ANNRET_{it}$, $ANNRET_{it-1}$, and $PRICE_{it-1}$). I find that the "fair value" component volatilities (σAFS_{it} and $\sigma DERIV_{it}$) are not significantly associated with returns volatility in Columns (1)-(3). Of the "accounting calculation" component volatilities, pension-related volatility (σPEN_{it}) is significantly associated with returns volatility, but its association is unexpectedly negative.

[19] This finding is also consistent with Khan and Bradbury (2011; 2012) who examine samples of non-financial firms from the U.S. and New Zealand.
[20] Estimating equation (2) for the recycling sample (as in Table, 4, Columns (3) and (4)), I find significant negative coefficients on $\sigma CI_{it} - \sigma NI_{it}$ and σOCI_{it} and an insignificant positive coefficient on GAP_{it}.

Foreign currency translation adjustment volatility (σFC_{it}) is significantly positively associated with returns volatility.

A given firm may not have each component of OCI each year. Thus, I investigate whether the effects of OCI component volatilities in Table 5, Columns (1)-(3) are driven by observations that have non-zero values of OCI component volatilities. To do this, I estimate the specification in Table 5, Column (1) five additional times, each time restricting the sample to non-zero observations for a given OCI component volatility. I find that the significant negative association between pension-related volatility and returns volatility is no longer significant when I restrict the sample to observations with non-zero (positive) values of pension-related volatility. Thus, observations with zero values of pension-related volatility at least partially drive the initially-documented, significant negative relation between pension-related volatility and returns volatility. When I restrict the sample to observations with non-zero (positive) values of foreign currency translation adjustment volatility, I still find a positive significant association between foreign currency translation adjustment volatility and returns volatility. Inferences for the other primary OCI component volatilities are unaffected.

Table 5, Columns (4)-(6) presents the results of estimating equation (3) using the recycling sample. The results are similar to the full sample results in Columns (1)-(3) except that in Columns (4) and (5), I find negative and significant associations between the volatility of AFS securities adjustments (σAFS_{it}) and returns volatility. Thus, Table 5 provides no evidence in support of H1 for AFS securities adjustments, cash-flow hedge adjustments, pension adjustments, or "other" adjustments. Only the results for foreign currency translation adjustment volatility support H1.[21]

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[21] I examine whether OCI component volatilities reinforce or dampen each other's associations with returns volatility by examining each possible combination of two OCI component volatilities. For example, I estimate

My second hypothesis predicts OCI component volatilities have different associations with returns volatility. To test H2, I perform two joint hypothesis tests using the estimation results for equation (3) in each column. First, I test whether OCI component volatilities have different relative correlations with returns volatility by performing an F-test of coefficient equality ($\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5$) and find evidence in support of H2 for each column of Table 5. For example, in Table 5, Column (1), this F-test yields an F-statistic equal to 5.06, $p < 0.01$. Then, I test whether OCI component volatilities have different relative correlations with returns volatility and that these relative correlations are different from zero ($\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$). Again, I find evidence in support of H2 in each column of Table 5. For example, in Table 5, Column (1), this F-test yields an F-statistic equal to F = 4.28, $p < 0.01$. The results from Table 5 suggest that associations between returns volatility and OCI component volatilities vary not only in strength but also in sign.[22]

4.3 Returns Volatility and OCI Unrealized and Recycled Subcomponent Volatilities

"Fair value" OCI components are composed of their unrealized and recycled subcomponents. The correlation matrix in Table 3 indicates σAFS_{it} and $\sigma DERIV_{it}$ are probably driven by volatility in their unrealized subcomponents, $\sigma AFSUGL_{it}$ and $\sigma DERIVUGL_{it}$. I estimate equation (4) including the "fair value" unrealized and recycled subcomponent volatilities and the "accounting calculation" component volatilities.

$\sigma RET_{it} = \beta_0 + \beta_1 \sigma AFS_{it} + \beta_2 \sigma DERIV_{it} + \sigma NI_{it} + \beta_7 EXP_{it} + \beta_8 GAP_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it}$ to see if $\sigma DERIV_{it}$ reinforces or dampens the association between σAFS_{it} and σRET_{it}. I find little evidence that OCI component volatilities significantly reinforce or dampen each other's associations with returns volatility using this modification of the "all OCI components" model presented in Table 5, Column (1).

[22] To examine whether negative relations between returns volatility and OCI component volatilities occur only for bank holding companies, I examine relations between returns volatility and OCI component volatilities for a sample of non-financial firms from the Compustat/CRSP intersection from 2002 to 2012. I find significant negative associations between returns volatility and the following: $\sigma CI_{it} - \sigma NI_{it}$, σOCI_{it}, $\sigma DERIV_{it}$, σPEN_{it}, σFC_{it}, and $\sigma OTHER_{it}$, indicating that negative associations between returns volatility and OCI component volatilities do not occur only for bank holding companies.

$$\sigma RET_{it} = \beta_0 + \beta_1 \sigma AFSUGL_{it} + \beta_2 \sigma AFSRECY_{it} + \beta_3 \sigma DERIVUGL_{it} + \beta_4 \sigma DERIVRECY_{it} + \beta_5 \sigma PEN_{it} + \beta_6 FC_{it} + \beta_7 OTHER_{it} + \beta_8 \sigma NI_{it} + \sum_j \delta_j \, CONTROLS_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \tag{4}$$

Table 6, Columns (1)-(3) present the results of estimating equation (3). Column (1) is the primary specification and uses the control variables from Hodder et al. (2006) (EXP_{it}, GAP_{it}, and year fixed effects). Column (2) adds controls for firm size and growth opportunities (MVE_{it} and BTM_{it}). Column (3) adds the performance controls (CI_{it}, CI_{it-1}, $ANNRET_{it}$, $ANNRET_{it-1}$, and $PRICE_{it-1}$). I find that the volatilities of the unrealized gains and losses on AFS securities and cash-flow hedges ($\sigma AFSUGL_{it}$ and $\sigma DERIVUGL_{it}$) are significantly negatively associated with returns volatility, while the volatility of recycled gains and losses on AFS securities ($\sigma AFSRECY_{it}$) is significantly positively associated with returns volatility.[23] I also find that the volatility of recycled gains and losses on cash-flow hedges ($\sigma DERIVRECY_{it}$) is positively associated with returns volatility at the 0.115 level in Column (1), the 0.121 level in Column (2), and the 0.101 level in Column (3).[24] I test whether unrealized OCI subcomponent volatilities ($\sigma AFSUGL_{it}$ and $\sigma DERIVUGL_{it}$) differ from recycled OCI subcomponent volatilities ($\sigma AFSRECY_{it}$ and $\sigma DERIVRECY_{it}$) in their associations with returns volatility using F-tests for coefficient equality ($\beta_1 = \beta_2$ and $\beta_3 = \beta_4$) in each column. Both F-tests provide support for H3

[23] Net income is significantly positively associated with returns volatility in each column in Table 6. Since recycled gains and losses on AFS securities and cash-flow hedges are part of net income, I examine whether $\sigma AFSRECY_{it}$ and $\sigma DERIVRECY_{it}$ are positively associated with σNI_{it} by estimating $\sigma NI_{it} = \beta_0 + \beta_1 \sigma OCI\ COMPONENT_{it} + \beta_2 EXP_{it} + \beta_3 GAP_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it}$. I find that $\sigma AFSRECY_{it}$ is significantly positively associated with σNI_{it}, while $\sigma DERIVRECY_{it}$ is insignificantly positively associated with σNI_{it}. The lack of association between $\sigma DERIVRECY_{it}$ and σNI_{it} may be driven by the relatively small number of non-zero values for $\sigma DERIVRECY_{it}$ (165) compared to $\sigma AFSRECY_{it}$ (799).

[24] If one-tailed t-tests were used, the p-values would be 0.0575, 0.0605, and 0.0505.

in each column. For example, in Column (1), the test of $\beta_1 = \beta_2$ yields an F-statistic equal to 5.67, $p < 0.05$; the test of $\beta_3 = \beta_4$ yields an F-statistic equal to 3.53, $p < 0.10$).[25]

The evidence from Table 6 suggests that volatility in unrealized gains and losses of "fair value" OCI components is negatively associated with risk, while volatility in recycled gains and losses of "fair value" OCI components is positively associated with risk, similar to net income volatility.[26, 27, 28]

4.4 Returns Volatility, OCI Component Volatilities, and Presentation

Prior to 2012, firms presented OCI in the statement of changes in equity, in a performance statement beginning with net income and ending with comprehensive income, or in a performance statement beginning with revenue and ending with comprehensive income. In 2012, the FASB eliminated the option to present OCI in the statement of changes in equity

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[25] I also find evidence in support of H2 using the coefficients from the estimation of equation (4) in Table 6, Column (1)-(3) to perform F-tests of $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7$ (Column (1): F = 3.33, $p < 0.01$; Column (2): F = 3.31, $p < 0.01$; Column (3): F = 3.40, $p < 0.01$) and $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$ (Column (1): F = 4.15, $p < 0.01$; Column (2): F = 4.18, $p < 0.01$; Column (3): F = 4.60, $p < 0.01$).

[26] I examine whether OCI component and subcomponent volatilities reinforce or dampen each other's associations with returns volatility by examining each possible combination of two OCI component volatilities. For example, I estimate $\sigma RET_{it} = \beta_0 + \beta_1 \sigma AFSUGL_{it} + \beta_2 \sigma AFSRECY_{it} + \sigma NI_{it} + \beta_7 EXP_{it} + \beta_8 GAP_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it}$ to see if $\sigma AFSRECY_{it}$ reinforces or dampens the (insignificant) negative association between $\sigma AFSUGL_{it}$ and σRET_{it}. I find that $\sigma AFSRECY_{it}$ ($\sigma DERIVRECY_{it}$) reinforces the negative association between $\sigma AFSUGL_{it}$ ($\sigma DERIVUGL_{it}$) and σRET_{it}, while $\sigma AFSUGL_{it}$ ($\sigma DERIVUGL_{it}$) reinforces the positive association between $\sigma AFSRECY_{it}$ ($\sigma DERIVRECY_{it}$) and σRET_{it}, consistent with Table 6, using this modification of the "all OCI components" model presented in Table 6, Column (1). I also find that $\sigma AFSUGL_{it}$ reinforces the positive relation between σFC_{it} and σRET_{it}. However, the combined effects of (1) $\sigma AFSUGL_{it}$ and $\sigma AFSRECY_{it}$ and of (2)$\sigma DERIVUGL_{it}$ and $\sigma DERIVRECY_{it}$ each dampen the positive relation between σFC_{it} and σRET_{it} to the point of statistical insignificance, consistent with Table 6, Columns (1)-(3).

[27] To examine whether the associations between "fair value" OCI unrealized and recycled subcomponent volatilities and returns volatility arise in certain sample years, I re-estimate equation (4) from Table 6, Column (1) on an annual basis (excluding year fixed effects). The negative (positive) association between $\sigma AFSUGL_{it}$ ($\sigma AFSRECY_{it}$) and returns volatility derives primarily from the years 2008 to 2012 (2005, 2009 to 2012). The negative (positive) association between $\sigma DERIVUGL_{it}$ ($\sigma DERIVRECY_{it}$) and returns volatility derives primarily from the years 2002, 2003, 2005, and 2012.

[28] To examine whether the associations between "fair value" OCI subcomponent volatilities and returns volatility are sensitive to adjusting net income volatility to exclude recycling adjustments that transfer gains and losses from OCI to net income, I exclude recycling adjustments from net income and re-estimate equation (4) from Table 6, Column (1). My inferences are unchanged.

(FASB, 2011).[29] Prior research indicates financial statement users interpret OCI differently based on its presentation. Maines and McDaniel (2000) find that investors are better able to distinguish between high versus low volatility of unrealized gains and losses on AFS securities when OCI is presented in a performance statement than when it is presented in the statement of changes in equity.[30] Chambers et al. (2007) provide evidence, using realized returns as a dependent variable, that investors weight OCI most heavily when it is presented in a statement of changes in equity, the predominant presentation method in their sample of S&P 500 firms from 1998-2003, though for individual components, presentation method matters only for the pension component of OCI.

To examine whether the results in Tables 5 and 6 are sensitive to OCI presentation, I estimate equation (5) using the recycling sample for which I have also collected OCI presentation data.

$$\begin{aligned}\sigma RET_{it} = \beta_0 &+ \beta_1 \sigma AFS_{it} + \beta_2 \sigma DERIV_{it} + \beta_3 \sigma PEN_{it} + \beta_4 \sigma FC_{it} + \beta_5 \sigma OTHER_{it} + \beta_6 PRES_{it} \\ &+ \beta_7 \sigma AFS_{it} * PRES_{it} + \beta_8 \sigma DERIV_{it} * PRES_{it} + \beta_9 \sigma PEN_{it} * PRES_{it} \\ &+ \beta_{10} \sigma FC_{it} * PRES_{it} + \beta_{11} \sigma OTHER_{it} * PRES_{it} + \beta_{12} \sigma NI_{it} \\ &+ \sum_j \delta_j \, CONTROLS_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \qquad (5)\end{aligned}$$

[29] For fiscal years beginning after December 15, 2011 (FASB, 2011), comprehensive income and OCI may be presented in a performance statement in one of two forms, per ASC 220-10-45-1C: “A single continuous statement of comprehensive income or in a statement of net income and statement of other comprehensive income.” If option two is elected, ASC 220-10-45-1B requires that the statement of other comprehensive income “be presented immediately after the statement of net income.” In the empirical tests in this study, the presentation indicator variable equals one only when the firm uses either of the two currently allowed presentation methods. Thus, if the firm presents other comprehensive income in a performance statement that does not immediately follow the income statement, the indicator variable is set equal to zero.

[30] Bloomfield, Nelson, and Smith (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. Using MBA students as experimental participants, the authors find that price volatility is highest when firm investment in perfectly-correlated securities is high and when unrealized gains and losses are reported in a statement of comprehensive income. Koonce (2006) suggests that the subjects in Bloomfield et al. (2006) may not have had the ability to adjust their valuation decisions based on the correlation structure of investments. In addition, investors may be unable to observe the correlation structure of a firm’s returns with its investment returns. Further, Koonce (2006) questions the frequency with which feedback loops would occur in real-world settings, citing insufficient investment in correlated securities, low correlations between a firm’s returns and the returns on its investments, and immaterial amounts of unrealized gains and losses as potential threats to the external validity of the study.

$PRES_{it}$ is an indicator variable equal to one if the bank reports OCI in either a single statement of comprehensive income or in a separate statement of other comprehensive income immediately following the income statement. This coding approach aligns with current FASB guidance for OCI presentation (ASC 220-10-45-1C). If the interactions between OCI component volatilities and presentation in equation (5) are significantly different from zero, presentation affects associations between OCI component volatilities and returns volatility. I also test whether presentation affects the joint association between OCI component volatilities and returns volatility using an F-test for the joint significance of the interactions terms in equation (5) ($\beta_7 = \beta_8 = \beta_9 = \beta_{10} = \beta_{11} = 0$). Table 7, Columns (1)-(3) present the results of estimating equation (5). Column (1) is the primary specification and uses the control variables from Hodder et al. (2006) (EXP_{it}, GAP_{it}, and year fixed effects). Column (2) adds controls for firm size and growth opportunities (MVE_{it} and BTM_{it}). Column (3) adds the performance controls (CI_{it}, CI_{it-1}, $ANNRET_{it}$, $ANNRET_{it-1}$, and $PRICE_{it-1}$). I find no evidence that presentation affects individual or joint (i.e., Column (1): F = 0.61, p > 0.10) associations between OCI component volatilities and returns volatility for any estimation in Table 7.[31]

Next, I estimate equation (6) for the "fair value" OCI subcomponent volatilities ($\sigma AFSUGL_{it}$, $\sigma AFSRECY_{it}$, $\sigma DERIVUGL_{it}$, and $\sigma DERIVRECY_{it}$) and expand the estimation of equation (5) to include these subcomponent volatilities in equation (6).

$$\begin{aligned}\sigma RET_{it} = \beta_0 &+ \beta_1 \sigma AFSUGL_{it} + \beta_2 \sigma AFSRECY_{it} + \beta_3 \sigma DERIVUGL_{it} + \beta_4 \sigma DERIVRECY_{it} \\ &+ \beta_5 \sigma PEN_{it} + \beta_6 \sigma FC_{it} + \beta_7 \sigma OTHER_{it} + \beta_8 PRES_{it} + \beta_9 \sigma AFSUGL_{it} * PRES_{it} \\ &+ \beta_{10} \sigma AFSRECY_{it} * PRES_{it} + \beta_{11} \sigma DERIVUGL_{it} * PRES_{it} \\ &+ \beta_{12} \sigma DERIVRECY_{it} * PRES_{it} + \beta_{13} \sigma PEN_{it} * PRES_{it} + \beta_{14} \sigma FC_{it} * PRES_{it} \\ &+ \beta_{15} \sigma OTHER_{it} * PRES_{it} + \beta_{16} \sigma NI_{it} \\ &+ \sum_j \delta_j \, CONTROLS_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \end{aligned} \tag{6}$$

[31] The coefficient estimates for σAFS_{it}, $\sigma DERIV_{it}$, σPEN_{it}, σFC_{it}, and $\sigma OTHER_{it}$ in Table 7, Columns (1)-(3) are consistent with Table 5, Columns (4)-(6).

Table 8, Columns (1)-(3) present the results of estimating equation (6). Column (1) is the primary specification and uses the control variables from Hodder et al. (2006) (EXP_{it}, GAP_{it}, and year fixed effects). Column (2) adds controls for firm size and growth opportunities (MVE_{it} and BTM_{it}). Column (3) adds the performance controls (CI_{it}, CI_{it-1}, $ANNRET_{it}$, $ANNRET_{it-1}$, and $PRICE_{it-1}$). I find that associations between the volatilities of unrealized gains and losses ($\sigma AFSUGL_{it}$ and $\sigma DERIVUGL_{it}$) and returns volatility are significantly more negative when OCI is presented in a performance statement in Columns (1) and (2).[32] I also find that associations between the volatilities of recycled gains and losses ($\sigma AFSRECY_{it}$ and $\sigma DERIVRECY_{it}$) and returns volatility are significantly stronger when OCI is presented in a performance statement in Columns (1)-(3).[33] The coefficient on $\sigma DERIVRECY_{it} * PRES_{it}$ is large relative to the other coefficient estimates (i.e., Column (1): β_{12} = 75.11). Since some banks may not report cash-flow hedge adjustments in OCI in a given year, or in several consecutive years, it is possible that the large coefficient on $\sigma DERIVRECY_{it} * PRES_{it}$ is driven by a relatively small group of observations with non-zero values of $\sigma DERIVRECY_{it}$ that report OCI in a performance statement. Of the 272 observations (out of 898) with $PRES_{it}$ = 1, 56 have non-zero values of $\sigma DERIVRECY_{it}$, potentially explaining why β_{12} is relatively large.[34] I also find consistent evidence in all three columns in Table 8 that presentation affects the joint association

[32] In Column (6), the coefficients on $\sigma AFSUGL_{it} * PRES_{it}$ and $\sigma DERIVUGL_{it} * PRES_{it}$ are also negative, but are statistically insignificant.

[33] $\sigma AFSUGL_{it}$ and $\sigma DERIVUGL_{it}$ in Table 8, Column (1)-(3) are significantly negatively associated with returns volatility, similar to Table 6, Column (1)-(3). $\sigma AFSRECY_{it}$ in Table 8, Columns (1)-(3) is positively associated with returns volatility at the 0.125, 0.125, and 0.174 levels using two-tailed tests. These p-values would be 0.0625, 0.0625, and 0.087 using one-tailed tests. $\sigma DERIVRECY_{it}$ in Table 8, Columns (1)-(3) is positively associated with returns volatility at the 0.150, 0.163, and 0.141 levels using two-tailed tests. These p-values would be 0.075, 0.0815, and 0.0705 using one-tailed tests. In addition, F-tests presented at the bottom of Table 8, Columns (1)-(3) consistently indicate that both $\sigma AFSRECY_{it} + \sigma AFSRECY_{it} * PRES_{it}$ ($p < 0.01$) and $\sigma DERIVRECY_{it} + \sigma DERIVRECY_{it} * PRES_{it}$ ($p < 0.05$) are significantly associated with returns volatility.

[34] Of the 272 observations (out of 898) with $PRES_{it}$ = 1, 99 have non-zero values of $\sigma DERIVUGL_{it}$, 263 have non-zero values of $\sigma AFSRECY_{it}$, and 272 have non-zero values of $\sigma AFSUGL_{it}$, mitigating concerns about the stability of the coefficients on $\sigma DERIVUGL_{it} * PRES_{it}$, $\sigma AFSREC_{it} * PRES_{it}$, and $\sigma AFSUGL_{it} * PRES_{it}$.

between OCI component volatilities and returns volatility from F-tests of $\beta_9 = \beta_{10} = \beta_{11} = \beta_{12} = \beta_{13} = \beta_{14} = \beta_{15} = 0$ (i.e., Column (1), F = 2.28, p < 0.05).

The results indicate that the volatility of unrealized gains and losses, typically deemed beyond managers' control, is negatively associated with risk, while the volatility of realized gains and losses, over which managers have relatively more control, is positively associated with risk.

5. Robustness Checks

In Sections 5.1-5.3, I explore the sensitivity of my inferences using alternative estimations of equation (6) from Table 8, Column (1) since this model links most closely with prior work per its control variables (Hodder et al., 2006), includes both the "fair value" subcomponent volatilities and "accounting calculation" component volatilities, and allows associations with returns volatility to vary with presentation. In Section 5.4, I examine the sensitivity of my inferences using alternative measures of σAFS_{it} and $\sigma DERIV_{it}$ to estimate equation (5) from Table 7, Column (1) since this model links most closely with prior work per its control variables (Hodder et al., 2006), includes all primary OCI component volatilities (σAFS_{it}, $\sigma DERIV_{it}$, σPEN_{it}, σFC_{it}, and $\sigma OTHER_{it}$), and allows associations with returns volatility to vary with presentation. In Section 5.5, I examine whether negative associations between volatilities of unrealized gains and losses ($\sigma AFSUGL_{it}$ and $\sigma DERIVUGL_{it}$) and σRET_{it} are driven by negative correlations between debt and equity market returns volatilities. In Section 5.6, I examine whether positive associations between volatilities of recycled gains and losses ($\sigma AFSRECY_{it}$ and $\sigma DERIVRECY_{it}$) and σRET_{it} are likely to reflect earnings smoothing.[35]

[35] I do not further investigate the negative association between pension-related volatility and returns volatility because I previously demonstrated that the significance of this relation is statistically insignificant when I consider only observations with non-zero pension-related volatility (σPEN_{it} > 0 for 502 out of 2,264 observations).

5.1 Additional Control Variables

Firm-specific characteristics other than derivatives exposure (EXP_{it}) and interest-rate gap (GAP_{it}) could be driving associations between OCI component volatilities and returns volatility. I address this concern in five ways. First, I include firm fixed effects in equation (6) from Table 8, Column (1). I use caution when interpreting these results because the large number of estimated parameters reduces the degrees of freedom in the model significantly and increases the probability of a multicollinearity problem. The coefficients on $\sigma AFSUGL_{it}$ and $\sigma DERIVUGL_{it}$ are negative and insignificant. However, F-tests indicate that both $\sigma AFSUGL_{it} + \sigma AFSUGL_{it} * PRES_{it}$ and $\sigma DERIVUGL_{it} + \sigma DERIVUGL_{it} * PRES_{it}$ are significantly associated with returns volatility. Since the coefficients on $\sigma AFSUGL_{it} * \ PRES_{it}$ and $\sigma DERIVUGL_{it} * \ PRES_{it}$ are negative and significant, I still conclude that the volatilities of unrealized gains and losses on available-for-sale securities and cash-flow hedges are negatively associated with returns volatility, and the associations between the volatilities of these unrealized gains and losses are more negative when OCI is presented in a performance statement.

Second, I control for returns volatility over the years *t-9* to *t-5* to control for autocorrelation in returns volatility.[36] Requiring an additional five years of returns (at least 20 additional monthly returns) reduces my recycling sample from 898 to 529 observations. I find a positive significant coefficient on $\sigma DERIVRECY_{it}$, a negative insignificant coefficient on σPEN_{it}, and do not find that associations between volatilities of unrealized and recycled gains and losses on cash-flow hedges are affected by OCI presentation, though the coefficient on $\sigma DERIVRECY_{it} * \ PRES_{it}$ is positive and significant at the 0.108 level. All other inferences are unchanged.

[36] I do not control for returns volatility over the years *t-5* to *t-1* because of the significant overlap such a control variable would have with the dependent variable, σRET_{it}, which is calculated over the years *t-4* to *t*.

Third, I control for incremental full-fair-value income volatility ($\sigma(FFVI_{it} - CI_{it})$), using a full-fair-value income measure based on full-fair-value balance sheet changes (Blankespoor, Linsmeier, Petroni, and Shakespeare, 2013). My inferences are unchanged.

Fourth, I include the covariance of net income with each OCI component and subcomponent (e.g., $COV(NI, AFS)$) to control for the possibility that covariances of net income with OCI components and subcomponents may be causing negative associations between returns volatility and unrealized gains and losses on AFS securities and cash-flow hedges. I find a positive significant coefficient on $\sigma DERIVRECY_{it}$, a negative significant coefficient on $\sigma OTHER_{it}$, a negative insignificant coefficient on $\sigma AFSUGL_{it} * PRES_{it}$ (p = 0.128), and an insignificant F-statistic testing $\sigma AFSRECY_{it} + \sigma AFSRECY_{it} * PRES_{it} = 0$ (F = 2.71). All other inferences are unchanged.

Fifth, I control for liquidity using the rolling five-year average of the daily price impact of a trade (Amihud, 2002; Lang and Maffett, 2011) and the rolling five-year average of the bid-ask spread (Gow, Taylor, and Verrecchia, 2013). These liquidity controls are included because the negative relations between returns volatility and the volatilities of unrealized gains and losses on AFS securities and cash-flow hedges may reflect a relation between returns volatility and investors' trading liquidity. In the same model, I control for bank leverage using the rolling five-year average of total liabilities to average total assets (x 100) because investors in more levered banks may be more sensitive to OCI volatility than investors in less levered banks given the potential positive relation between risk and leverage (Khan and Bradbury, 2012). I find a positive significant coefficient on $\sigma AFSRECY_{it}$, a negative insignificant coefficient on $\sigma DERIVUGL_{it} * PRES_{it}$, a positive insignificant coefficient on $\sigma DERIVRECY_{it} * PRES_{it}$ (p = 0.133), and a positive and significant F-statistic testing $\sigma OTHER_{it} + \sigma OTHER_{it} * \ PRES_{it} = 0$ (F = 5.70). All other inferences are unchanged.

5.2 *"Over Controlling"*

Next, I examine whether my inferences are altered by removing control variables proposed by Hodder et al. (2006) because including total derivatives exposure (EXP_{it}), interest rate gap (GAP_{it}), and year fixed effects may "over control" for information that drives associations between OCI component volatilities and returns volatility. Removing EXP_{it} and GAP_{it} from, and keeping year fixed effects in, equation (6), I find a negative insignificant coefficient on $\sigma DERIVUGL_{it}$ and a positive significant coefficient on σFC_{it}. All other inferences are unchanged. Removing year fixed effects from, and keeping EXP_{it} and GAP_{it} in, equation (6), I find a negative insignificant coefficient on $\sigma DERIVUGL_{it}$ and a negative insignificant coefficient on $\sigma DERIVUGL_{it} * PRES_{it}$. I also find a positive significant coefficient on $PRES_{it}$, likely due to time-clustering in the presentation variable that is controlled when year fixed effects are included in the model. All other inferences are unchanged. Removing EXP_{it}, GAP_{it}, and year fixed effects from equation (6), I find negative insignificant coefficients on $\sigma DERIVUGL_{it}$ and $\sigma DERIVUGL_{it} * PRES_{it}$ (p = 0.119). I find that $\sigma DERIVUGL_{it} + \sigma DERIVUGL_{it} * PRES_{it}$ is insignificantly different from zero (F = 2.54). I again find a positive significant coefficient on $PRES_{it}$. All other inferences are unchanged.

5.3 *Alternative Variable Construction*

Finally, I explore whether alternative constructions of returns volatility and OCI component volatilities affect my inferences. Instead of using the volatility of total returns (σRET_{it}), I use the volatility of excess returns, calculated as the rolling five-year standard deviation of the bank's monthly return from CRSP minus the monthly return on five-year U.S.

Treasury bonds from the CRSP U.S. Treasury and Inflation Indexes dataset. I find that $\sigma OTHER_{it} + \sigma OTHER_{it} * PRES_{it}$ is significantly different from zero (F = 2.79). All other inferences are unchanged. Since I use rolling five-year standard deviations of OCI components as proxies for OCI component volatilities, it is possible that abnormal OCI amounts in a given year could affect OCI component volatilities for five sample years. To address this problem, I calculate OCI component volatilities using all post-SFAS 130 observations from 1998-2012. I then estimate equation (4) from Table 6, Column (1) without year fixed effects instead of equation (6) from Table 8, Column (1) because firms were only permitted to report OCI in a performance statement for fiscal years beginning after December 15, 2011 (FASB, 2011). I find a positive significant coefficient on $\sigma DERIVRECY_{it}$ and a negative insignificant coefficient on σPEN_{it}. All other inferences remain unchanged.

5.4 Alternative Measures of σAFS_{it} and $\sigma DERIV_{it}$

When hand-collecting the data for unrealized and recycled gains and losses on AFS securities and cash-flow hedges, I occasionally encounter observations where $AFSUGL + AFSRECY$ or $DERIVUGL + DERIVRECY$ are not equal to AFS and $DERIV$ reported by SNL Financial. I re-estimate equation (5) from Table 7, Column (1) with volatilities calculated using my hand-collected data, where $AFS = AFSUGL + AFSRECY$ and $DERIV = DERIVUGL + DERIVRECY$ instead of AFS and $DERIV$ from SNL Financial. I find a negative coefficient on σAFS_{it} significant at the 0.15 level. All other inferences remain unchanged.

5.5 Debt and Equity Market Returns Volatilities

Negative associations between debt and equity market returns volatilities could explain negative associations between σRET_{it} and both $\sigma AFSUGL_{it}$ and $\sigma DERIVUGL_{it}$ because both $\sigma AFSUGL_{it}$ and $\sigma DERIVUGL_{it}$ are tied to the debt market. Most banks hold large amounts of

AFS debt securities as a proportion of their total AFS portfolios.[37] In addition, cash-flow hedges are often used to protect against interest-rate risk associated with forecasted transactions. I perform two tests to examine whether debt and equity market returns volatilities are negatively associated. First, I examine Pearson and Spearman correlations between σRET_{it} for my full sample and rolling five-year standard deviations of monthly returns on five-year U.S. Treasury bonds from the CRSP U.S. Treasury and Inflation Indexes dataset. I find positive significant Pearson and Spearman correlations equal to 0.09. Second, I examine the Pearson and Spearman correlations between rolling five-year standard deviations of monthly value-weighted S&P 500 returns from the CRSP Index File on the S&P 500 from WRDS between 2002-2012 and rolling five-year standard deviations of five-year U.S. Treasury bond returns over the same time period. I find positive insignificant Pearson (0.28) and Spearman correlations (0.11). Thus, it appears that negative associations between debt and equity market returns volatilities are unlikely to explain negative associations between volatilities of unrealized gains and losses and returns volatility.

5.6 Earnings Smoothing

Recycled gains (losses) simultaneously decrease (increase) OCI and increase (decrease) net income. Net income volatility is positively associated with returns volatility. Correlations in Table 3 and results mentioned in footnote 23 indicate that volatilities of recycled gains and losses are positively associated with net income volatility, although the association is stronger between $\sigma AFSRECY_{it}$ and σNI_{it} than between $\sigma DERIVRECY_{it}$ and σNI_{it}. Thus, positive associations between σRET_{it} and both $\sigma AFSRECY_{it}$ and $\sigma DERIVRECY_{it}$ could be the result of earnings

[37] I confirm this statement by obtaining AFS securities data for 1,799 of my 2,264 observations from the Bank Regulatory – Bank Holding Companies dataset on WRDS and calculating *AFSMIX* = (*AFSDEBT* / *AFSTOTAL*) * 100. I find that the mean (median) of the rolling five-year average of *AFSMIX* is 97.38% and 99.17% for these 1,799 observations.

smoothing, though managers have relatively less control over cash-flow hedge recycling because cash-flow hedge contracts typically hedge cash flows several years in the advance, while managers can sell AFS securities at any time. Using my recycling sample, I test for earnings smoothing in three ways.

First, prior work documents that negative associations between net income before recycled gains and losses and recycled gains and losses provide evidence of earnings smoothing (Lee et al., 2006). Since OCI recycled gains and loss are the opposite sign of recycled gains and losses recognized in net income, I test for the presence of earnings smoothing by examining whether *positive* associations exist between $NI + AFSRECY$ ($NI + DERIVRECY$) and $AFSRECY$ ($DERIVRECY$). I find an insignificant positive Pearson correlation between $NI + AFSRECY$ and $AFSRECY$ (0.02), a significant positive Spearman correlation between $NI + AFSRECY$ and $AFSRECY$ (0.09), and significant positive Pearson and Spearman correlations between $NI + DERIVRECY$ and $DERIVRECY$ (Pearson = 0.08, Spearman = 0.08). Second, if recycled gains and losses are used to smooth earnings, the volatility of net income should be less than the volatility of net income before recycled gains and losses. I compare the standard deviation of NI to the standard deviations of both $NI + AFSRECY$ and $NI + DERIVRECY$ and find no evidence that NI has a smaller standard deviation than either $NI + AFSRECY$ (F = 1.02) or $NI + DERIVRECY$ (F = 1.00). Third, I use two-sample t-tests and find that σNI is not less than either $\sigma(NI + AFSRECY)$ (t = 0.76) or $\sigma(NI + DERIVRECY)$ (t = 0.18). Overall, the evidence for earnings smoothing is either weak or non-existent for my sample.

6. Conclusion

I examine whether OCI components are associated with returns volatility for banks. I predict that OCI component volatilities have associations with returns volatility that vary in strength, and that inferences regarding the usefulness of OCI can be improved by analyzing associations between OCI component volatilities and returns volatility. I use returns volatility as the measure of total risk for a bank, consistent with the FASB's conceptual framework, and disaggregate OCI into its four primary components: AFS securities adjustments, cash-flow hedge adjustments; pension-related adjustments; and foreign currency translation adjustments. I find some evidence that pension-related OCI volatility is negatively associated with returns volatility, but this evidence weakens considerably when examining only observations with non-zero pension-related volatility. I also find some evidence of a positive association between foreign currency translation adjustment volatility and returns volatility, but the significance of this evidence is significantly dampened when "fair value" subcomponent volatilities are included in the same model as foreign currency translation adjustment volatility. I find no evidence of significant associations between the other primary OCI component volatilities and returns volatility.

Using hand-collected data, I further disaggregate AFS securities adjustments and cash-flow hedge adjustments into their unrealized and recycled subcomponents. I find evidence that the volatilities of unrealized (recycled) gains and losses on AFS securities and cash-flow hedges are negatively (positively) associated with returns volatility. I also find that the associations between the volatilities of these unrealized (recycled) gains and losses and returns volatility are more negative (stronger) when OCI is presented in a performance statement. The results indicate that the volatility of unrealized gains and losses, typically deemed beyond managers' control, is negatively associated with risk, while the volatility of realized gains and losses, over which managers have relatively more control, is positively associated with risk.

The results are robust to a variety of alternative empirical approaches. The negative associations between volatilities of unrealized gains and losses and returns volatility do not appear to be driven by negative associations between debt and equity market returns volatilities. The positive associations between volatilities of recycled gains and losses and returns volatility do not appear to be driven by earnings smoothing. The results are relevant for accounting standard setters seeking to understand potential characteristics that distinguish OCI components from net income and the relation between OCI volatility and the variability of investors' returns.

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Appendix A – Other Comprehensive Income (OCI) Components

Other Comprehensive Income Component (ASC 220-10-45-10A)	Reference	Variable
Unrealized holdings gains and losses on available-for-sale securities	ASC 320-10-45-1	*AFS*
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.	ASC 830-30-45-12	*AFS*
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 Section 320-10-35 if a portion of the impairment was not recognized in earnings.	ASC 320-10-35	*AFS*
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.	ASC 320-10-35-18	*AFS*
Gains and losses (effective portion) on derivative instruments that are designated as, and qualify as, cash flow hedges.	ASC 815-20-35-1(c)	*DERIV*
Gains or losses associated with pension or other postretirement benefits (that are not recognized immediately as a component of net periodic benefit cost).	ASC 715-20-50-1(j)	*PEN*
Prior service costs or credits associated with pension or other postretirement benefits.	ASC 715-20-50-1(j)	*PEN*
Transition assets or obligations associated with pension or other postretirement benefits (that are not recognized immediately as a component of net periodic benefit cost).	ASC 715-20-50-1(j)	*PEN*
Foreign currency translation adjustments	ASC 830-30-45-12	*FC*
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.	ASC 830-20-35-3(a)	*FC*
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.	ASC 830-20-35-3(b)	*FC*

Appendix B – Variable Definitions

Variable Name	Description	Source(s)
Bank Financial Characteristics		
AVGAT	Average total assets in millions	SNL Financial
GROSSLOANS	Total gross loans in millions, scaled by average total assets, x 100	SNL Financial
NETLOANS	Total net loans in millions, scaled by average total assets, x 100	SNL Financial
DEP	Total deposits in millions, scaled by average total assets, x 100	SNL Financial
BE	Total common equity in millions	SNL Financial
MVE	Year-end price multiplied by common shares outstanding (in millions), supplemented with CRSP Monthly price and share data	SNL Financial CRSP MSF
NETINT	Net interest income in millions, scaled by average total assets, x 100	SNL Financial
LLP	Provision for loan losses in millions, scaled by average total assets, x 100	SNL Financial
RGL	Realized gains and losses on securities in millions, scaled by average total assets, then multiplied by 100	SNL Financial
CI	Comprehensive income in millions, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
NI	Net income in millions, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
OCI	Total other comprehensive income in millions, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
AFS	Available-for-sale securities adjustments in millions, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
AFSUGL	*AFS* excluding AFS recycled items. Hand-collected data obtained from firm form 10-K and 10KSB on sec.gov.	SNL Financial SEC (sec.gov)
AFSRECY	*AFS* recycled items in millions, scaled by average total assets, x 100. Hand-collected data obtained from forms 10-K and 10KSB on sec.gov.	SEC (sec.gov)
DERIV	Cash-flow hedge adjustments in millions, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
DERIVUGL	*DERIV* excluding AFS recycled items. Hand-collected data obtained from firm form 10-K and 10KSB on sec.gov.	SNL Financial SEC (sec.gov)
DERIVRECY	*DERIV* recycled items in millions, scaled by average total assets, x 100. Hand-collected data obtained from forms 10-K and 10KSB on sec.gov.	SEC (sec.gov)
PEN	Pension-related adjustments in millions, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
FC	Foreign currency translation adjustments in millions, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
OTHER	Pref. dividend adjustments plus other items of OCI in millions, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
Returns Volatility		
σRET	Rolling five-year standard deviation of raw monthly stock returns (RET) x 100, requiring at least 20 monthly returns for each five-year period. Zero-return months excluded.	CRSP MSF
Comprehensive Income Component Volatilities and Control Variables		
σCI	Rolling five-year standard deviation of *CI*	SNL Financial
σNI	Rolling five-year standard deviation of *NI*	SNL Financial
σOCI	Rolling five-year standard deviation of *OCI*	SNL Financial
σAFS	Rolling five-year standard deviation of *AFS*	SNL Financial
σDERIV	Rolling five-year standard deviation of *DERIV*	SNL Financial

σPEN	Rolling five-year standard deviation of *PEN*	SNL Financial
σFC	Rolling five-year standard deviation of *FC*	SNL Financial
σOTHER	Rolling five-year standard deviation of *OTHER*	SNL Financial
EXP	Total derivatives exposure, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
GAP	One-year cumulative repricing gap, equal to the absolute value of interest-sensitive assets minus interest-sensitive liabilities schedules to reprice within one year in millions, scaled by average total assets, x 100. Missing values set equal to zero.	SNL Financial
BTM	Book-to-market ratio (*BVE* / *MVE*)	SNL Financial CRSP MSF
PRICE_1	Lagged end-of-the year stock price, first from SNL Financial, supplemented by CRSP MSF.	SNL Financial CRSP MSF
CI_1	Lagged *CI*.	SNL Financial
ANNRET	Annual stock return from CRSP MSF. Four monthly returns required. Zero-return months excluded.	CRSP MSF
ANNRET_1	Lagged *ANNRET*.	CRSP MSF
OCI Unrealized and Realized Component Volatilities and Presentation Variables		
σAFSUGL	Rolling five-year standard deviation of the change in AFS securities excluding recycled items in millions, scaled by average total assets, x 100. Hand-collected data obtained from forms 10-K and 10KSB on sec.gov.	SEC (sec.gov)
σAFSRECY	Rolling five-year standard deviation of AFS recycled items in millions, scaled by average total assets, x 100. Hand-collected data obtained from forms 10-K and 10KSB on sec.gov.	SEC (sec.gov)
σDERIVUGL	Rolling five-year standard deviation of the change in cash-flow hedging instruments excluding recycled items in millions, scaled by average total assets, x 100. Hand-collected data obtained from forms 10-K and 10KSB on sec.gov.	SEC (sec.gov)
σDERIVRECY	Rolling five-year standard deviation of DERIV recycled items in millions, scaled by average total assets, x 100. Hand-collected data obtained from forms 10-K and 10KSB on sec.gov.	SEC (sec.gov)
PRES	Indicator variable equal to one if the firm presents OCI in a performance statement consistent with ASC 220-10-45-1C ; zero otherwise. Hand-collected data obtained from forms 10-K and 10KSB on sec.gov.	SEC (sec.gov)

Table 1 – Sample Selection Criteria

Sample Requirements	**Obs**	**Banks**
Post-SFAS-130 (fiscal year beginning after December 15, 1997).	10,034	757
Observations from 2002-2012 from SNL Financial (observations with data from year *t-4* to year *t*, post-SFAS-130).	7,828	754
Data for bank financial variables, CI components and their standard deviations, and primary control variables from SNL Financial.	6,962	728
Data for measure of five-year returns volatility (*σRET*) from the CRSP MSF. At least 20 returns required. **FULL SAMPLE.**	2,264	298
Data for *CI*, *CI_1*, *ANNRET*, *ANNRET_1*, and *PRICE_1* (Performance Controls).	2,229	298
Hand-collected data for AFS recycling, DERIV recycling, and OCI presentation variables. **RECYCLING SAMPLE.**	898	121
Hand-collected data for AFS recycling, DERIV recycling, and OCI presentation variables and Performance Controls.	893	121

Table 2 – Descriptive Statistics

VARIABLE	N	MEAN	STD	MIN	P25	P50	P75	MAX
AVGAT	2,264	31,584.33	192,815.55	42.70	695.21	1,568.32	5,111.81	2,443,068.00
GROSSLOANS	2,264	70.28	15.40	4.87	62.84	70.89	79.05	343.04
NETLOANS	2,264	69.12	15.28	4.85	61.68	69.74	77.83	336.30
DEP	2,264	79.09	11.75	22.52	72.34	79.51	85.53	302.42
BVE	2,264	2,793.63	15,990.17	-64.41	58.78	134.18	528.45	218,188.00
MVE	2,264	3,439.09	16,857.02	0.07	57.71	182.38	778.96	238,020.70
NETINT	2,264	3.40	0.73	0.90	2.99	3.36	3.76	7.95
LLP	2,264	0.59	0.80	-1.22	0.15	0.31	0.73	7.10
RGL	2,264	0.00	0.31	-9.17	0.00	0.01	0.06	1.12
CI	2,264	0.62	1.17	-11.20	0.39	0.85	1.21	5.55
NI	2,264	0.60	1.13	-8.02	0.41	0.85	1.16	5.77
OCI	2,264	0.01	0.29	-3.49	-0.10	0.01	0.12	2.99
AFS	2,264	0.02	0.27	-3.37	-0.08	0.01	0.12	2.97
DERIV	2,264	0.00	0.04	-0.45	0.00	0.00	0.00	0.69
PEN	2,264	0.00	0.04	-0.67	0.00	0.00	0.00	0.22
FC	2,264	0.00	0.02	-0.39	0.00	0.00	0.00	0.26
OTHER	2,264	-0.01	0.06	-0.63	0.00	0.00	0.00	0.49
σRET	2,264	9.50	4.68	3.05	6.36	8.26	11.22	43.84
σCI	2,264	0.65	0.77	0.04	0.24	0.39	0.74	13.00
σNI	2,264	0.55	0.76	0.01	0.14	0.26	0.63	13.14
σCI - σNI	2,264	0.10	0.18	-0.65	0.00	0.07	0.16	2.07
σOCI	2,264	0.24	0.23	0.00	0.12	0.19	0.29	2.35
σAFS	2,264	0.22	0.22	0.00	0.10	0.17	0.27	2.30
σDERIV	2,264	0.02	0.04	0.00	0.00	0.00	0.01	0.38
σPEN	2,264	0.01	0.03	0.00	0.00	0.00	0.00	0.30
σFC	2,264	0.00	0.02	0.00	0.00	0.00	0.00	0.26
σOTHER	2,264	0.02	0.05	0.00	0.00	0.00	0.00	0.48
EXP	2,264	46.80	336.05	0.00	0.00	0.32	5.55	5,285.21
GAP	2,264	6.92	10.16	0.00	0.00	1.00	10.99	52.04
BTM	2,264	1.03	1.09	-19.34	0.55	0.80	1.19	14.96
PRICE_1	2,264	27.56	59.98	0.05	9.95	17.34	27.81	1,368.80
CI_1	2,260	0.63	1.24	-15.41	0.40	0.86	1.24	5.55
ANNRET_1	2,248	2.94	35.02	-93.47	-16.95	2.58	22.09	275.36
AFS / OCI	2,246	0.85	8.86	-311.62	0.85	1.00	1.00	222.11
DERIV / OCI	2,246	0.15	7.42	-84.50	0.00	0.00	0.00	325.44
PEN / OCI	2,246	-0.02	1.21	-44.29	0.00	0.00	0.00	10.13
FC / OCI	2,246	0.01	0.45	-7.20	0.00	0.00	0.00	17.71
OTHER / OCI	2,246	-0.11	5.78	-214.07	0.00	0.00	0.00	12.11
ANNRET	2,232	4.41	36.05	-93.47	-16.09	3.98	23.09	313.03
AFSUGL	898	0.02	0.30	-3.06	-0.08	0.02	0.13	1.72
AFSRECY	898	0.00	0.18	-0.57	-0.02	0.00	0.00	2.55
DERIVUGL	898	0.00	0.06	-0.51	0.00	0.00	0.00	0.69
DERIVRECY	898	0.00	0.03	-0.46	0.00	0.00	0.00	0.30
σAFSUGL	898	0.24	0.23	0.00	0.11	0.18	0.30	1.83
σAFSRECY	898	0.07	0.14	0.00	0.01	0.03	0.08	1.16
σDERIVUGL	898	0.02	0.05	0.00	0.00	0.00	0.01	0.35
σDERIVRECY	898	0.01	0.02	0.00	0.00	0.00	0.00	0.25
PRES	898	0.30	0.46	0.00	0.00	0.00	1.00	1.00
AFSUGL / OCI	897	0.37	11.22	-308.11	0.48	0.98	1.14	50.91
AFSRECY / OCI	897	0.16	3.56	-24.23	-0.10	0.00	0.09	53.84
DERIVUGL / OCI	897	1.58	45.73	-48.56	0.00	0.00	0.00	1,367.84
DERIVRECY / OCI	897	-0.99	28.96	-867.16	0.00	0.00	0.00	3.42

Table 3 – Correlation Statistics for Primary Regression Variables

Note: Pearson (above the diagonal) and Spearman (below the diagonal) correlation statistics. * indicates statistical significance at the 5% level based on two-tailed tests.

VARIABLE	*σRET*	*σCI*	*σNI*	*σCI - σNI*	*σOCI*	*σAFS*	*σDERIV*	*σPEN*	*σFC*	*σOTHER*	*EXP*	*GAP*	*σAFSUGL*	*σAFSRECY*	*σDERIVUGL*	*σDERIVRECY*	*PRES*
σRET		0.50*	0.52*	-0.07*	0.04*	0.04	0.08*	-0.09*	0.04*	0.06*	0.02	0.07*	0.03	0.26*	0.02	0.07*	0.16*
σCI	0.56*		0.97*	0.15*	0.26*	0.26*	0.08*	-0.00	0.06*	0.03	-0.01	0.04*	0.39*	0.35*	0.04	0.02	0.06
σNI	0.60*	0.82*		-0.08*	0.10*	0.10*	0.06*	-0.02	0.03	-0.00	-0.02	0.04*	0.20*	0.31*	0.02	0.02	0.09*
σCI - σNI	-0.14*	0.15*	-0.34*		0.70*	0.70*	0.09*	0.06*	0.13*	0.12*	0.01	-0.00	0.70*	0.20*	0.07*	0.02	-0.09*
σOCI	-0.03	0.28*	-0.06*	0.60*		0.97*	0.12*	0.09*	0.25*	0.19*	0.05*	-0.04	0.91*	0.56*	0.08*	0.05	-0.09*
σAFS	-0.06*	0.23*	-0.09*	0.57*	0.91*		0.04*	0.05*	0.18*	0.08*	0.02	-0.02	0.94*	0.56*	-0.01	-0.04	-0.07*
σDERIV	0.09*	0.14*	0.11*	0.09*	0.18*	0.08*		0.08*	0.16*	0.00	0.15*	-0.07*	-0.01	-0.05	0.97*	0.61*	-0.06
σPEN	-0.18*	-0.03	-0.06*	0.09*	0.14*	0.09*	0.15*		0.03	-0.06*	-0.02	-0.05*	0.02	-0.04	0.03	0.01	-0.01
σFC	0.05*	0.07*	0.08*	0.06*	0.09*	0.01	0.35*	0.19*		0.06*	0.20*	-0.07*	0.11*	0.07*	0.19*	0.32*	-0.08*
σOTHER	0.12*	0.13*	0.13*	0.07*	0.14*	0.01	0.17*	0.00	0.12*		0.03	-0.05*	0.04	0.19*	-0.03	-0.01	-0.01
EXP	0.11*	0.10*	0.11*	0.01	0.12*	0.02	0.59*	0.21*	0.40*	0.18*		-0.09*	0.06	0.01	0.22*	0.03	-0.07*
GAP	0.06*	-0.03	-0.03	-0.03	-0.06*	-0.03	-0.10*	-0.07*	-0.16*	-0.13*	-0.14*		0.04	0.00	0.01	-0.06	0.06
σAFSUGL	-0.07*	0.24*	-0.10*	0.62*	0.86*	0.95*	0.08*	0.09*	0.05	-0.06	0.06	-0.05		0.65*	-0.02	-0.06	-0.08*
σAFSRECY	0.12*	0.24*	0.24*	0.03	0.29*	0.36*	0.03	0.06	0.01	0.05	0.13*	-0.08*	0.40*		-0.06	-0.03	-0.01
σDERIVUGL	0.03	0.15*	0.07*	0.14*	0.21*	0.09*	0.96*	0.10*	0.33*	0.18*	0.54*	-0.04	0.08*	0.03		0.66*	-0.04
σDERIVRECY	0.10*	0.17*	0.11*	0.06	0.17*	0.09*	0.59*	0.11*	0.31*	0.16*	0.40*	-0.08*	0.07*	0.13*	0.62*		-0.05
PRES	0.18*	0.02	0.07*	-0.11*	-0.17*	-0.13*	-0.06	-0.04	-0.13*	-0.04	-0.02	0.07*	-0.12*	0.04	-0.01	0.04	

Table 4 – Returns Volatility, Comprehensive Income Volatility, and OCI Volatility

$$\sigma RET_{it} = \beta_0 + \beta_1 \sigma CI\ COMPONENT_{it} + \beta_2 EXP_{it} + \beta_3 GAP_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \quad (1)$$

$$\sigma RET_{it} = \beta_0 + \beta_1 \sigma NI_{it} + \beta_2 \sigma OCIProxy_{it} + \beta_3 EXP_{it} + \beta_4 GAP_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \quad (2)$$

Note: The table presents the results of estimating equations (1) and (2) using the full sample. $\sigma CI\ COMPONENT_{it}$ equals σNI_{it} or σCI_{it}. $\sigma OCIProxy_{it}$ equals $\sigma CI_{it} - \sigma NI_{it}$ or σOCI_{it}. Variables are defined in Appendix B. All estimations include year fixed effects and a constant term, which are not presented for the sake of brevity. Regression coefficients are presented above t-statistics calculated based on standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels based on two-tailed tests.

Dependent Variable =	***σRET***			
Model =	**Equation (1)**		**Equation (2)**	
PARAMETER	**(1)**	**(2)**	**(3)**	**(4)**
σNI	2.40***		2.38***	2.42***
	(4.94)		(4.92)	(5.00)
σCI		2.23***		
		(4.55)		
σCI - σNI			-1.20	
			(-1.10)	
σOCI				-0.85
				(-0.94)
EXP	0.00**	0.00**	0.00*	0.00**
	(2.06)	(2.39)	(1.92)	(1.98)
GAP	0.03*	0.03*	0.03*	0.03*
	(1.79)	(1.81)	(1.78)	(1.74)
YEAR FE	YES	YES	YES	YES
N	2,264	2,264	2,264	2,264
R^2	0.43	0.42	0.43	0.43

Table 5 – Returns Volatility and OCI Component Volatilities

$$\sigma RET_{it} = \beta_0 + \beta_1 \sigma AFS_{it} + \beta_2 \sigma DERIV_{it} + \beta_3 \sigma PEN_{it} + \beta_4 \sigma FC_{it} + \beta_5 \sigma OTHER_{it} + \beta_6 \sigma NI_{it} + \sum_j \delta_j \, CONTROLS_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \tag{3}$$

Note: The table presents the results of estimating equation (3). Columns (1)-(3) present results using the full sample. Columns (4)-(6) present results using the recycling sample. In Columns (1) and (4), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) and interest rate gap (GAP_{it}). In Columns (2) and (5), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) interest rate gap (GAP_{it}), firm size (market value of equity - MVE_{it}), and book-to-market ratio (BTM_{it}). In Columns (3) and (6), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) interest rate gap (GAP_{it}), firm size (market value of equity – MVE_{it}), book-to-market ratio (BTM_{it}), comprehensive income (CI_{it}), lagged comprehensive income (CI_{it-1}), annual stock return ($ANNRET_{it}$), lagged annual stock return ($ANNRET_{it-1}$) and lagged price ($PRICE_{it-1}$). All estimations include year fixed effects, and a constant term. Control variables, year fixed effects, and the constant term are not presented for the sake of brevity. Regression coefficients are presented above t-statistics calculated based on standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels based on two-tailed tests.

Dependent Variable =			σRET			
Model =			**Equation (3)**			
PARAMETER	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
σAFS	-0.60	-0.57	-0.22	-2.29*	-2.26*	-1.53
	(-0.61)	(-0.60)	(-0.28)	(-1.69)	(-1.70)	(-1.29)
σDERIV	1.33	1.66	1.28	-3.58	-2.64	-1.61
	(0.36)	(0.46)	(0.43)	(-0.90)	(-0.69)	(-0.47)
σPEN	-14.21***	-13.81***	-12.92***	-14.81**	-14.81***	-14.15***
	(-4.21)	(-4.25)	(-4.46)	(-2.58)	(-2.63)	(-2.85)
σFC	9.31*	10.29**	13.44**	11.03**	12.01**	15.10**
	(1.81)	(2.11)	(2.40)	(2.21)	(2.27)	(2.54)
σOTHER	-5.17	-4.48	-3.09	-3.69	-3.63	-2.20
	(-1.48)	(-1.29)	(-0.92)	(-0.63)	(-0.62)	(-0.37)
σNI	2.35***	2.31***	1.50***	2.92***	2.89***	1.91***
	(4.90)	(4.92)	(3.58)	(6.56)	(6.58)	(5.02)
EXP and GAP	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES
MVE and BTM	NO	YES	YES	NO	YES	YES
PERFORMANCE CONTROLS	NO	NO	YES	NO	NO	YES
(H2) F-stat ($\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5$)	5.06***	5.42***	6.03***	3.54***	3.61***	4.26***
(H2) F-stat ($\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$)	4.28***	4.51***	5.08***	3.41***	3.52***	4.36***
N	2,264	2,264	2,229	898	898	893
R^2	0.45	0.45	0.51	0.44	0.45	0.49

Table 6 – Returns Volatility and OCI Unrealized and Recycled Subcomponent Volatilities

$$\sigma RET_{it} = \beta_0 + \beta_1 \sigma AFSUGL_{it} + \beta_2 \sigma AFSRECY_{it} + \beta_3 \sigma DERIVUGL_{it} + \beta_4 \sigma DERIVRECY_{it} + \beta_5 \sigma PEN_{it} + \beta_6 FC_{it} + \beta_7 OTHER_{it} + \beta_8 \sigma NI_{it} + \sum_j \delta_j \, CONTROLS_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \quad (4)$$

Note: The table presents the results of estimating equation (4) using the recycling sample. In Column (1), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) and interest rate gap (GAP_{it}). In Column (2), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) interest rate gap (GAP_{it}), firm size (market value of equity - MVE_{it}), and book-to-market ratio (BTM_{it}). In Column (3), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) interest rate gap (GAP_{it}), firm size (market value of equity – MVE_{it}), book-to-market ratio (BTM_{it}), comprehensive income (CI_{it}), lagged comprehensive income (CI_{it-1}), annual stock return ($ANNRET_{it}$), lagged annual stock return ($ANNRET_{it-1}$) and lagged price ($PRICE_{it-1}$). All estimations include year fixed effects, and a constant term. Control variables, year fixed effects, and the constant term are not presented for the sake of brevity. Regression coefficients are presented above t-statistics calculated based on standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels based on two-tailed tests.

Dependent Variable =		σRET	
Model =		**Equation (4)**	
PARAMETER	**(1)**	**(2)**	**(3)**
σAFSUGL	-5.13***	-5.06***	-3.87***
	(-3.15)	(-3.24)	(-2.90)
σAFSRECY	7.62*	7.55*	6.69*
	(1.86)	(1.87)	(1.71)
σDERIVUGL	-9.62**	-8.38**	-7.19**
	(-2.27)	(-2.20)	(-2.14)
σDERIVRECY	20.55	19.47	19.64
	(1.59)	(1.56)	(1.65)
σPEN	-12.89***	-12.88***	-12.42***
	(-2.65)	(-2.69)	(-2.93)
σFC	6.19	7.31	10.27
	(0.79)	(0.91)	(1.28)
σOTHER	-5.76	-5.69	-4.22
	(-1.19)	(-1.18)	(-0.89)
σNI	2.62***	2.59***	1.66***
	(6.56)	(6.54)	(4.88)
EXP and GAP	YES	YES	YES
YEAR FE	YES	YES	YES
MVE and BTM	NO	YES	YES
PERFORMANCE CONTROLS	NO	NO	YES
(H3) F-stat ($\beta_1 = \beta_2$)	5.67**	5.82**	4.61**
(H3) F-stat ($\beta_3 = \beta_4$)	3.53*	3.36*	3.57*
N	898	898	893
R^2	0.47	0.48	0.52

Table 7 – Returns Volatility, OCI Component Volatilities, and Presentation

$$\sigma RET_{it} = \beta_0 + \beta_1 \sigma AFS_{it} + \beta_2 \sigma DERIV_{it} + \beta_3 \sigma PEN_{it} + \beta_4 \sigma FC_{it} + \beta_5 \sigma OTHER_{it} + \beta_6 PRES_{it} + \beta_7 \sigma AFS_{it} * PRES_{it} + \beta_8 \sigma DERIV_{it} * PRES_{it} + \beta_9 \sigma PEN_{it} * PRES_{it} + \beta_{10} \sigma FC_{it} * PRES_{it} + \beta_{11} \sigma OTHER_{it} * PRES_{it} + \beta_{12} \sigma NI_{it} + \sum_j \delta_j \, CONTROLS_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \quad (5)$$

Note: The table presents the results of estimating equation (5) using the recycling sample. In Column (1), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) and interest rate gap (GAP_{it}). In Column (2), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) interest rate gap (GAP_{it}), firm size (market value of equity - MVE_{it}), and book-to-market ratio (BTM_{it}). In Column (3), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) interest rate gap (GAP_{it}), firm size (market value of equity - MVE_{it}), book-to-market ratio (BTM_{it}), comprehensive income (CI_{it}), lagged comprehensive income (CI_{it-1}), annual stock return ($ANNRET_{it}$), lagged annual stock return ($ANNRET_{it-1}$) and lagged price ($PRICE_{it-1}$). All estimations include year fixed effects, and a constant term. Control variables, year fixed effects, and the constant term are not presented for the sake of brevity. Regression coefficients are presented above t-statistics calculated based on standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels based on two-tailed tests.

Dependent Variable =		***σRET***	
Model =		**Equation (5)**	
PARAMETER	**(1)**	**(2)**	**(3)**
σAFS	-2.18*	-2.15*	-1.93
	(-1.75)	(-1.74)	(-1.60)
σDERIV	-3.83	-2.70	-1.81
	(-0.97)	(-0.74)	(-0.54)
σPEN	-11.88**	-11.87**	-12.18**
	(-2.00)	(-2.04)	(-2.31)
σFC	11.27**	11.92**	15.82***
	(2.35)	(2.35)	(2.93)
σOTHER	-2.75	-2.69	-1.25
	(-0.44)	(-0.43)	(-0.20)
PRES	0.27	0.22	-0.34
	(0.57)	(0.47)	(-0.76)
*σAFS * PRES*	-0.22	-0.29	1.34
	(-0.18)	(-0.25)	(1.18)
*σDERIV * PRES*	0.64	-0.40	-0.61
	(0.10)	(-0.07)	(-0.09)
*σPEN * PRES*	-12.33	-12.41	-8.48
	(-1.34)	(-1.37)	(-1.01)
*σFC * PRES*	-2.94	-0.70	-7.04
	(-0.51)	(-0.11)	(-0.83)
*σOTHER * PRES*	-3.75	-3.98	-4.54
	(-0.99)	(-1.05)	(-1.33)
σNI	2.90***	2.87***	1.82***
	(6.54)	(6.56)	(4.43)
CONTROLS	YES	YES	YES
YEAR FE	YES	YES	YES
MVE and BTM	NO	YES	YES
PERFORMANCE CONTROLS	NO	NO	YES
F-stat ($\beta_7 = \beta_8 = \beta_9 = \beta_{10} = \beta_{11} = 0$)	0.61	0.50	0.74
F-stat ($\beta_1 + \beta_7 = 0$)	1.67	1.82	0.15
F-stat ($\beta_2 + \beta_8 = 0$)	0.21	0.20	0.13
F-stat ($\beta_3 + \beta_9 = 0$)	7.78***	7.81***	6.86**
F-stat ($\beta_4 + \beta_{10} = 0$)	0.89	1.42	0.49
F-stat ($\beta_5 + \beta_{11} = 0$)	1.39	1.47	1.09
N	898	898	893
R^2	0.45	0.45	0.49

Table 8 – Returns Volatility, OCI Unrealized and Recycled Subcomponent Volatilities, and Presentation

$$\begin{aligned}\sigma RET_{it} = \beta_0 &+ \beta_1 \sigma AFSUGL_{it} + \beta_2 \sigma AFSRECY_{it} + \beta_3 \sigma DERIVUGL_{it} + \beta_4 \sigma DERIVRECY_{it} + \beta_5 \sigma PEN_{it} + \beta_6 \sigma FC_{it} \\ &+ \beta_7 \sigma OTHER_{it} + \beta_8 PRES_{it} + \beta_9 \sigma AFSUGL_{it} * PRES_{it} + \beta_{10} \sigma AFSRECY_{it} * PRES_{it} \\ &+ \beta_{11} \sigma DERIVUGL_{it} * PRES_{it} + \beta_{12} \sigma DERIVRECY_{it} * PRES_{it} + \beta_{13} \sigma PEN_{it} * PRES_{it} \\ &+ \beta_{14} \sigma FC_{it} * PRES_{it} + \beta_{15} \sigma OTHER_{it} * PRES_{it} + \beta_{16} \sigma NI_{it} \\ &+ \sum_j \delta_j \, CONTROLS_{it} + \sum_{10} \gamma_{2002-2011} + \varepsilon_{it} \qquad (6)\end{aligned}$$

Note: The table presents the results of estimating equation (6) using the recycling sample. In Column (1), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) and interest rate gap (GAP_{it}). In Column (2), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) interest rate gap (GAP_{it}), firm size (market value of equity - MVE_{it}), and book-to-market ratio (BTM_{it}). In Column (3), $CONTROLS_{it}$ includes derivatives exposure (EXP_{it}) interest rate gap (GAP_{it}), firm size (market value of equity - MVE_{it}), book-to-market ratio (BTM_{it}), comprehensive income (CI_{it}), lagged comprehensive income (CI_{it-1}), annual stock return ($ANNRET_{it}$), lagged annual stock return ($ANNRET_{it-1}$) and lagged price ($PRICE_{it-1}$). All estimations include year fixed effects, and a constant term. Control variables, year fixed effects, and the constant term are not presented for the sake of brevity. Regression coefficients are presented above t-statistics calculated based on standard errors clustered at the firm level. ***, **, and * indicate statistical significance at the 0.01, 0.05, and 0.10 levels based on two-tailed tests.

Dependent Variable =	σ*RET*		
Model =	**Equation (6)**		
PARAMETER	**(1)**	**(2)**	**(3)**
σAFSUGL	-4.19***	-4.14***	-3.49**
	(-2.71)	(-2.79)	(-2.40)
σAFSRECY	5.95	5.93	5.23
	(1.55)	(1.55)	(1.37)
σDERIVUGL	-8.76*	-7.21**	-7.02**
	(-1.96)	(-1.99)	(-2.16)
σDERIVRECY	15.41	14.08	16.14
	(1.45)	(1.41)	(1.48)
σPEN	-10.45**	-10.45**	-10.89**
	(-2.03)	(-2.07)	(-2.35)
σFC	7.69	8.57	11.44*
	(1.13)	(1.23)	(1.69)
σOTHER	-4.34	-4.29	-2.83
	(-0.83)	(-0.83)	(-0.55)
PRES	0.53	0.48	-0.03
	(1.03)	(0.97)	(-0.06)
*σAFSUGL * PRES*	-3.87*	-3.84*	-2.21
	(-1.83)	(-1.84)	(-1.15)
*σAFSRECY * PRES*	7.09***	6.89***	6.47***
	(2.75)	(2.77)	(2.78)
*σDERIVUGL * PRES*	-14.02*	-15.54**	-8.22
	(-1.94)	(-2.33)	(-1.13)
*σDERIVRECY * PRES*	75.11**	77.06**	49.27*
	(2.20)	(2.31)	(1.69)
*σPEN * PRES*	-9.20	-9.32	-5.69
	(-1.14)	(-1.16)	(-0.75)
*σFC * PRES*	-2.93	-1.04	-4.49
	(-0.27)	(-0.09)	(-0.31)
*σOTHER * PRES*	-3.12	-3.24	-3.99
	(-0.85)	(-0.89)	(-1.16)
σNI	2.61***	2.59***	1.66***
	(6.57)	(6.55)	(4.47)
CONTROLS	YES	YES	YES
YEAR FE	YES	YES	YES
MVE and BTM	NO	YES	YES
PERFORMANCE CONTROLS	NO	NO	YES
F-stat ($\beta_9 = \beta_{10} = \beta_{11} = \beta_{12} = \beta_{13} = \beta_{14} = \beta_{15} = 0$)	2.28**	2.45**	2.13**
F-stat ($\beta_1 + \beta_9 = 0$)	10.22***	10.57***	8.71***
F-stat ($\beta_2 + \beta_{10} = 0$)	6.99***	7.18***	6.82***
F-stat ($\beta_3 + \beta_{11} = 0$)	8.91***	8.87***	4.35**
F-stat ($\beta_4 + \beta_{12} = 0$)	6.22**	6.56**	5.16**
F-stat ($\beta_5 + \beta_{13} = 0$)	6.98***	6.99***	5.84**
F-stat ($\beta_6 + \beta_{14} = 0$)	0.09	0.21	0.13
F-stat ($\beta_7 + \beta_{15} = 0$)	2.51	2.57	2.35
N	898	898	893
R^2	0.49	0.49	0.53