

# Fair Values, Performance Reporting, and Bank Analysts' Risk and Valuation Judgments

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February 20, 2002

We very much appreciate the analysts who generously contributed their time and effort to this study and the helpful comments of two anonymous reviewers, Denny Beresford, Linda Bamber, Mike Bamber, Leslie Hodder, Vicky Hoffman, Marllys Lipe, Laureen Maines, Mary Lea McAnally, Molly Mercer, Don Moser, Mark Nelson, Rick Tubbs, the participants at Emory University's 2001 Behavioral Financial Reporting Conference, the 2001 Big Ten Research Conference, and workshop participants at the Austin Society of Financial Analysts, the University of Texas Brownbag Series, the Boston Accounting Research Colloquium, University of Georgia, Washington University, University of Minnesota, University of Pittsburgh, Northwestern University, and Texas A&M University. We are grateful for the research assistance of D. Craig Nichols and Alex Yen. Funding for this research came from the Center for Business Measurement and Assurance Services at the University of Texas at Austin.

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### **ABSTRACT**

In this paper, we provide evidence on how different ways of reporting performance affect industry-specialist professional analysts' perceptions of the risk and value of a firm. In particular, we investigate whether the measurement and reporting of unrealized gains and losses on financial instruments systematically affects commercial bank equity analysts' investment risk assessments and valuation judgments. In an experiment with 80 buy side analysts that specialize in banking and financial institutions, we vary whether a bank is exposed to or hedged against interest rate risk across three different performance reporting regimes—full fair value accounting with all fair value changes reported in a separate statement of performance, piecemeal fair value accounting with some fair value changes reported in a separate statement of performance, and piecemeal fair value accounting with some fair value changes reported in the statement of changes in equity. When fair value changes are measured and reported on a piecemeal basis, we find no investment risk or valuation judgment differences across performance reporting regimes. Although we find that the analysts' investment risk judgments are influenced by the banks' risk management strategies, their valuation judgments are not. Only when fair value changes are measured completely and tied to performance (i.e., full fair value accounting) do analysts' valuation judgments distinguish between banks with different levels of risk. Our ex ante evidence informs accounting standard setters as they evaluate whether to move to full fair value accounting for all financial instruments, and assess the degree to which differences in comprehensive income measurement and reporting affect the information analysts obtain from financial statements. The study also contributes to the archival research literature and the experimental research literature concerned with financial performance, risk, and fair value accounting.

**KEY WORDS:** Fair value, performance reporting, financial analysts, behavioral finance  
**DATA AVAILABILITY:** Contact the authors

## **Fair Values, Performance Reporting, and Bank Analysts' Risk and Valuation Judgments**

### **I. INTRODUCTION**

This study investigates how different fair value performance measurement and reporting regimes affect sophisticated investors' assessments of equity risk and value. Equity valuation is generally characterized as a function of expected future profitability and the non-diversifiable risk inherent in expected future profitability (e.g., Beaver 1997, Ohlson 1995). In a market comprised of risk-averse investors, firm values should decrease in expected risk and increase in expected profitability, all else equal. To help investors assess profitability, risk, and therefore value, financial reporting is intended to provide relevant and reliable information about the amounts, timing, and uncertainty of expected future cash flows (FASB 1978).

Historical-cost-based financial statements, however, typically do not explicitly link current-period financial performance and current-period changes related to key business risks.<sup>1</sup> For example, under historical cost accounting, financial instruments that contain interest rate risk (i.e., any fixed rate financial instruments recognized at historical cost) do not trigger recognized gains/losses that reflect movements in interest rates. Fair value-based accounting information has the potential to be more informative than historical costs about performance, risk, and their interactive effects, especially if fair value measurements are based on observable (or reliably estimable) market prices, which should jointly reflect expected future cash flows and risk. Measurement and reporting of income based on fair values should therefore be particularly relevant to investors in firms with substantial exposure to systematic risks that affect fair values, such as banks exposed to interest rate risk.<sup>2</sup> In this case, fair value accounting for all financial instruments that contain interest rate risk will trigger gains/losses when interest rates move, providing a clearer link between performance and the risk factors that affect firm performance.

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<sup>1</sup> Notable exceptions include credit risk that should be reflected in the allowance for bad debts, and underwriting risk that should be reflected in insurers' loss reserves.

<sup>2</sup> Obviously, banks are almost wholly comprised of financial instruments, some of which contain interest rate risk. Indeed, the evolution toward more complete recognition of fair values was triggered (in part) by the U.S. thrift crisis, which may have been exacerbated by the lack of recognition of the effects of both interest rate risk and credit risk on thrifts' historical cost-based financial statements.

The Financial Accounting Standards Board (FASB) is currently considering a proposal to require recognition of *all* financial assets and liabilities at fair value, including comprehensive recognition of fair value gains/losses in an explicit statement of performance.<sup>3</sup> The Joint Working Group (JWG, 2000) of international accounting standard setters supports the FASB's efforts to require full fair-value recognition of all financial instruments. The JWG asserts that fair values provide superior information because they (a) reflect economic conditions or events in the period in which they take place and (b) provide a better basis for analysis and prediction because they impound future expectations into the financial instrument's value on the financial statement date (JWG 2000, 151).

Although the FASB's proposal has the potential to make financial statements more informative about the joint effects of risk and performance, three sets of frictions diminish the potential benefits of full fair value performance measurement. First, the proposal to require financial-statement recognition of financial instruments' fair values will not provide new information about fair values. Because fair values of financial assets and liabilities are currently reported in the notes, some argue that sophisticated investors likely already reflect such information in risk and value judgments, particularly if the fair values are related to core operations (e.g., banks). Therefore, a shift to full fair-value accounting should not change sophisticated investors' risk and value judgments.<sup>4</sup> Second, opponents of the shift toward fair value accounting assert that fair value estimates are potentially unreliable. These objections imply that sophisticated investors might ignore fair value gains/losses. Third, capital markets research (e.g., Barth 1994) documents the value relevance of the differences between financial instruments' fair values and the historical cost amounts recognized in the balance sheet. However, in a sample of commercial banks, Barth, Landsman and Wahlen (1995) do not find evidence that the market prices as incremental risk the implications of fair value *changes*. Thus, it is not clear, *ex ante*, whether full fair value accounting in a

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<sup>3</sup> Currently, only derivative financial instruments and certain types of investment securities are required to be recognized at fair value in the balance sheet (FASB 1993 and 1998). The remaining financial assets and liabilities are generally carried at historical cost with fair-value information disclosed in the notes to the financial statements, in accordance with Statement of Financial Accounting Standards (SFAS) No. 107 (FASB 1991). In February 2001, the [FASB] affirmed its ultimate goal of requiring essentially all financial assets and liabilities to be measured at fair value in the financial statements (FASB 2001).

<sup>4</sup> Of course, a shift to full fair value accounting could alter sophisticated investors' judgments if they expect full fair value accounting will affect GAAP-based contractual constraints such as regulatory capital requirements.

statement of performance will lead to more informed assessments of risk and value, even for companies in industries in which fair values are centrally related to core operations.

In this paper, we report the results of an experiment designed to test whether differences in how commercial banks measure and report fair value gains and losses in income are associated with systematic differences in bank-industry-specialist analysts' risk assessments and valuation judgments. In designing our experiment, we independently vary two factors. First, we vary whether a bank is exposed to or hedged against interest rate risk. Second, we construct three alternative ways to report bank performance: (1) full fair value accounting with gains and losses on *all* financial assets and liabilities recognized in a separate statement of performance (analogous to the standard now being considered by the FASB); (2) piecemeal fair value reporting in which fair value gains and losses on available-for-sale securities are recognized in a statement of performance, but fair value gains and losses on all other financial instruments are disclosed in the notes (consistent with the FASB's recommendation in SFAS 130); and (3) piecemeal fair value reporting in which fair value gains and losses on available-for-sale securities are recognized in the statement of changes in equity, but fair value gains and losses on all other financial instruments are disclosed in the notes (consistent with fair value reporting under SFAS 107 and SFAS 115).

We assume that, all else equal, bank analysts will distinguish between the high and low risk bank, and therefore assess a higher (lower) share value for the low risk (high risk) bank.<sup>5</sup> Under the null hypotheses, bank analysts' judgments of risk and value will be invariant across the three different reporting regimes, because all three regimes provide equivalent sets of information. Under the alternative hypotheses, we predict that bank analysts' risk and value judgments will be affected by the fair-value reporting regime. Specifically, under full fair value measurement with gains/losses explicitly reported in a performance statement, we predict bank analysts will make more informed risk and value assessments, leading to significantly different risk and value judgments between the high and low risk bank. Under piecemeal

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<sup>5</sup> To develop our predictions, we make the general assumption that bank analysts construct value estimates that are increasing in expected future profitability and decreasing in expected risk. We do not attempt to make precise normative predictions about the point estimates of risk and value that analysts should assess because of the inherent and unobservable heterogeneity in analysts' valuation models. We therefore cannot comment on whether our sample of bank analysts over- or under-react to risk and performance information for the high or the low risk bank.

fair value reporting, we predict the links between risk, performance and value will be less clear, and therefore analysts' assessment of risk and value of the low and the high risk bank will *less* different than under the full fair value reporting regime.

We find that, as predicted, bank analysts assess significantly higher risk and lower share value for the exposed bank than for the hedged bank when fair value gains and losses on *all* financial assets and liabilities are recognized in a statement of performance. We also find that under piecemeal recognition of fair value gains and losses, bank analysts assess significant differences in *investment risk* across exposed and hedged banks. However, under piecemeal recognition of fair value gains and losses, we find that analysts' *valuation judgments* do not distinguish between exposed and hedged banks. These results suggest that, under piecemeal and full fair value accounting, bank analysts are aware of the different interest rate risk levels of the high-risk and low-risk banks, but that they are more likely to price such risk in their valuation judgments when the fair value gains and losses from interest rate risk are linked to financial performance through a full fair value performance statement.

This is the first study to jointly consider risk and valuation judgments in the context of alternative fair value reporting regimes. As such, the study contributes to three areas of literature. First, we provide *ex ante* evidence that is likely to be relevant to the FASB and IASB as they further develop their fair-value accounting proposals. Consistent with Ryan's (1997) call for expanded fair value reporting, we demonstrate circumstances in which analysts are more likely to incorporate fair value information into their judgments. Specifically, our data support the position that comprehensive recognition of fair value enhances the usefulness of financial reporting.

Second, we contribute to existing capital-markets research evidence on the value relevance of fair value information. Specifically, Barth, Landsman, and Wahlen (1995) find that incremental volatility in fair value net income relative to historical cost net income of banks is not priced as incremental risk. They suggest that their results can be explained if: a) banks hedge interest rate risk, or b) investors do not use fair value gains and losses disclosed in the notes to the financial statements when assessing banks' income volatility and risk; however, these explanations are not directly testable with existing archival data

sources. Although our study was not designed to rule out the former explanation (i.e., we explicitly control for it), our findings suggest that the latter may have merit. The valuation judgments of the bank analysts in our study did not distinguish between high and low risk banks when fair value gains and losses were reported in footnotes. Consistent with the suggestion in Libby, Bloomfield and Nelson (forthcoming), our study leverages the comparative advantage of experiments to control for competing explanations in previous archival research studies.

Finally, we provide new evidence relevant to research on comprehensive income measurement and reporting, and the recognition versus disclosure debate. In particular, the research design in this study addresses Lipe's (1998) concerns about the generalizability of the findings in Hirst and Hopkins (1998). Both studies find that performance reporting format influences the valuation judgments of analysts, and conclude that transparent reporting of comprehensive income in a performance statement is associated with more informed judgments. The current study finds that when analysts expect to find value-relevant information in the financial statements, they will seek and use it whether it is in the statement of changes in equity or in a performance statement. However, when the information is incomplete in its relation to overall performance, note disclosure of the missing components is not a perfect substitute for recognition in a performance statement.

The remainder of the paper is organized as follows. In Section II, we review the current state of reporting fair value information and proposals to expand the reporting model to include more fair value information. Then, we describe a model of how analysts are expected to use these data under different reporting regimes. We describe our experiment and the results in sections III and IV and provide a summary and conclusion in Section V.

## **II. BACKGROUND AND PREDICTIONS**

### **Current and Proposed Reporting Environment**

Valuation of equity securities involves jointly estimating expected future outcomes (e.g., dividends, earnings, cash flows) and the risk associated with those outcomes. Traditional historical-cost-based

financial statements do not immediately map changes in risk or uncertainty into financial performance. For example, under historical cost accounting, recognized asset and liability values are not periodically adjusted to reflect changes in underlying economic risk or uncertainty, and therefore do not paint a complete portrait of the important determinants of performance. With the goal of providing more complete value-relevant information to financial statement users, accounting standards have increasingly incorporated fair values into financial reports.

To date, the evolution toward fair value-based accounting standards has created a piecemeal collection of disclosed and recognized fair values and no clear or complete linkage between fair value changes and performance reporting. For example, SFAS 107 (FASB 1991) requires note disclosure of fair values of financial assets and liabilities, but does not require a measure of performance that reflects current-period gains and losses in these financial instruments. SFAS 115 (FASB 1993) expands the financial-statement recognition of fair values, but only for a limited set of financial instruments. In addition, under SFAS No. 130 (FASB 1997), firms are allowed to report the limited set of fair value gains and losses in three different places, again obscuring the linkage between risk and performance.<sup>6</sup> Regulatory disclosures (e.g., interest-rate gap tables and market risk disclosures) reveal the degree to which banks are exposed to changes in interest rates and other market factors, but typically do not provide measurement or disclosure of the impact of these factors on current performance.<sup>7</sup>

During the public deliberation of SFAS 130, representatives from commercial banks repeatedly asserted that reporting piecemeal-fair-value-based comprehensive income and its components in statement of performance would be misleading because it misrepresents banks' true economic risk and performance (Hirst, Hopkins, and Yen 2002; SFAS 115, ¶93). For example, banks that hedge interest rate risk by matching the rates and maturities of financial assets and liabilities would report comprehensive income that reflects fair value gains and losses for only available-for-sale marketable securities. Fair

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<sup>6</sup> Unrealized gains and losses on trading securities are reported in the income statement; those on available-for-sale securities are included in comprehensive income, which tends to be reported in the statement of changes in equity; and those on held-to-maturity securities are disclosed in the notes to the financial statements.

<sup>7</sup> For a more detailed discussion of regulatory disclosures of fair values and risk measures, see Hodder 2001; Hodder, Koonce, and McAnally 2001; and Hodder and McAnally 2001.

value gains and losses on all other financial assets (e.g., loans) and liabilities (e.g., deposits) are currently excluded from both net and comprehensive income. Therefore, many banks suggested that recognizing only one component of the interest rate risk management strategy would cause financial statement users to overestimate volatility in hedged banks' performance and to be misled about their interest rate risk management strategy.<sup>8</sup>

Despite the purported problems with the current model of fair value reporting, empirical research shows that the *levels* of cumulative fair value gains and losses (disclosed in the notes to the financial statements under SFAS 107) are associated with stock prices (e.g., Barth 1994; Nelson 1996; and Barth, Beaver, and Landsman 1996). However, Barth, Landsman, and Wahlen (BLW, 1995) show that the market does not appear to price fair value *changes* as incremental risk. BLW posit that their results may be due, in part, to users failing to link the disclosures of risk, fair values, and performance. This argument is consistent with well-established results in psychology that show that how information is displayed influences the likelihood and manner in which it is used (Payne, Bettman, and Johnson, 1993). Faced with limited cognitive resources and demands on their time, even sophisticated financial-statement users are likely to trade-off effort and accuracy in their use of fair value disclosures.

In response to dissatisfaction with this piecemeal recognition of fair values, the FASB is currently developing accounting standards that reflect full fair value accounting for all financial instruments (FASB 1999, par. 334). Consistent with the recommendation of the Joint Working Group of Standard Setters (2000), the Board has indicated that its preference is to require recognition of all fair value gains and losses in a statement of performance. Our study is designed to provide standard setters with *ex ante* evidence on the potential effects of such reporting.

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<sup>8</sup> Partly in response to these arguments, the final version of SFAS 130 allowed firms to report comprehensive income in any of the primary financial statements. Although the location of a disclosure may seem like a minor issue, two of the Board's members dissented in the issuance of the standard on the grounds that allowing entities to disclose items of other CI in the statement of changes in equity "will do little to enhance their visibility and will diminish their perceived importance" (FASB 1997, p. 10). This assertion is consistent with the opinions of analysts in Brown (1997) who indicated that the information contained in the SCE is not very useful.

## Context and Predictions

### *Context*

We investigate the effects of fair-value measurement and reporting in a setting in which bank-industry-specialist buy-side analysts provide investment risk assessments and stock price judgments for a commercial bank.<sup>9</sup> The analysts possess equivalent sets of information about cumulative fair value gains and losses; however, the measurement and reporting of current-period fair value gains and losses are independently varied. To allow for directional predictions in this setting, we assume that interest rates rise just before year-end, thereby triggering fair value losses (gains) on fixed rate financial assets (liabilities).

To evaluate the extent to which fair-value reporting conveys information about financial performance and risk, we vary whether the bank has elected to take on a high degree of interest-rate risk (i.e., the bank is exposed) or a low degree of interest rate risk (i.e., the bank is hedged). The exposed bank's fixed rate assets have longer maturities than its fixed rate liabilities (banks commonly lend or invest at longer maturities and borrow at shorter maturities), resulting in a higher degree of interest rate risk. In a rising rate environment, the exposed bank will experience relatively large *net* fair value losses on its financial assets (i.e., large fair value losses on its fixed rate assets, partially offset by only modest fair value gains on its fixed rate liabilities).<sup>10</sup> In contrast, the hedged bank has the same financial assets as the exposed bank, but it matches the assets with amounts and maturities of fixed-rate liabilities with similar duration and term structure. Therefore, increases or decreases in interest rates lead to offsetting economic gains and losses for the hedged bank.

We vary the bank's performance reporting to compare the effects of full fair value reporting against

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<sup>9</sup> We specify a single setting and a particular user group to facilitate exposition and precise predictions. In addition, including industry-expert analysts in this study provides the strongest possible test of the effects of financial reporting measurement and format on financial-statement user judgments.

<sup>10</sup> We limit our investigation to the risk associated with an adverse change in interest rates (i.e., resulting in net financial losses). Although normative models define risk as variability across the domains of gains and losses, research in psychology and applied fields suggest that people primarily perceive risk as the potential for loss. For example, in medicine, risk is commonly perceived as the possibility of some adverse outcome (Kleinbaum et al., 1982). Even in financial contexts, professional analysts and bond traders perceive risk as being the potential for monetary loss (Heisler 1994, Olsen 1997). See Hodder, Koonce and McAnally (2001) for a general discussion of risk perception and evidence that risk perceptions are not symmetric across gains and losses.

existing fair value reporting standards. In this study, we consider three representative cases that are currently allowed by GAAP or are currently being considered by standard setters: (1) full fair value accounting with gains and losses on *all* financial assets and liabilities recognized in a separate statement of performance (analogous to a standard now being considered by the FASB and the IASB); (2) piecemeal fair value reporting in which fair value gains and losses on available-for-sale securities are recognized in a statement of performance, but fair value gains and losses on all other financial instruments are disclosed in the notes (consistent with the FASB's recommendation in SFAS 130); and (3) piecemeal fair value reporting in which fair value gains and losses on available-for-sale securities are recognized in the statement of changes in equity, but fair value gains and losses on all other financial instruments are disclosed in the notes (consistent with fair value reporting under SFAS 107 and SFAS 115). We now describe our predictions.

### ***Risk and Valuation Judgments under Full Fair Value Reporting***

Our first prediction establishes the baseline judgments against which the current piecemeal reporting standards can be compared. In this case we ask the fundamental question: Will analysts' risk and valuation judgments differ between exposed and hedged banks when a full fair-value (FFV) reporting regime is in place? Research in psychology suggests that providing or formatting information to make key components of the decision environment more salient may help users overcome information-processing deficiencies (Fiske and Taylor 1991). In addition, clearer presentation of information increases the likelihood that the information will be used (Hirst, Jackson, and, Koonce 2002; Russo, 1977; Sanbonmatsu et al. 1997) and that judgments and decisions will be unbiased (Johnson et al. 1988).

Under FFV reporting, the bank's performance statement will display as part of other comprehensive income the fair value gains and losses on *all* financial instruments. Given the context described in the preceding section, the exposed bank's current-period performance statement will include significant fair-value losses, reflecting in current financial performance the present value of the effect of the increase in interest rates. In contrast, the hedged bank will report fair-value gains and losses that approximately

offset, resulting in fair value income that approximates historical cost income. In this context, full fair value reporting should provide the clearest and most salient linkage between fair values, bank risk and performance. Therefore, our baseline expectation is that the *most informed* judgments will occur under FFV reporting (i.e., FFV reporting will allow separation of analysts' risk and valuation judgments across the high and low risk banks). Specifically, if analysts' valuation judgments are directly related to performance assessments and inversely related to risk assessments, the following alternative-form hypothesis should hold:

H<sub>1</sub>: Under FFV reporting, analysts will judge the risk (value) of a bank exposed to interest rate risk to be greater than (less than) that of a hedged bank.

### ***Format Predictions: Risk and Valuation Judgments under Piecemeal Fair Value Reporting***

Financial statement presentation of fair values currently consists of incomplete recognition of both fair-values in the balance sheet and fair-value gains and losses in the statement of performance. In our context, this piecemeal-reporting regime will result in reported net income and comprehensive income amounts that are identical across the two interest-rate risk conditions (i.e., exposed versus hedged). In particular, the exposed and hedged banks have identical amounts of fixed-rate available-for-sale securities that trigger other-comprehensive-income recognition of incremental unrealized fair value losses when interest rates rise. The cumulative unrealized gains and losses on all other financial assets and liabilities are reported (along with the cumulative gains and losses of available for sale securities) in the notes to the financial statements.

During the public-comment period for SFAS 130, over half of the responding money-center banks stated that reporting comprehensive income under piecemeal fair value accounting would mislead investors (Hirst, Hopkins, and Yen 2002). Many of these respondents predicted that asset-liability hedged banks would be penalized because piecemeal fair value accounting would make these banks appear to be exposed (i.e., only unrealized gains/losses on trading and available-for-sale securities would be captured in comprehensive income), resulting in investors believing that the hedged bank is riskier than its asset-liability mix warrants. In addition, the identical performance reporting for the hedged and exposed banks

could result in identical risk and stock-price judgments assigned to the two types of banks.

Notwithstanding the banks' concerns, an approach to risk and valuation fixated on reported-income is likely for only unsophisticated investors and novice analysts. Experienced bank analysts should understand the piecemeal nature of current fair value reporting standards, and adjust their risk and stock-price estimates for elements of risk and value that are not included in reported net income or comprehensive income. Indeed, the model developed by Maines and McDaniel (2000) and the results of prior research (Anderson 1988; Bouwman et al. 1987; Hunton and McEwen, 1997) suggest that analysts will use a directed search strategy in a risk-assessment and valuation task. Because interest-rate risk is a central determinant of performance in the banking industry, even under PFV reporting, banking analysts should seek out relevant, interest-rate-risk-related information. Therefore, we expect analysts' risk and value judgments to reflect the different risk and valuation implications inherent in the exposed and hedged risk management strategies, leading to the following alternative-form hypothesis:

H<sub>2</sub>: Under PFV reporting, analysts will judge the risk (valuation) of a bank exposed to interest rate risk to be greater than (less than) that of a hedged bank.

Will banking industry analysts be affected by reporting format in a manner similar to the generalist analysts who participated in Hirst and Hopkins (1998)?<sup>11</sup> The comments summarized by Lipe (1998) and the framework described by Maines and McDaniel (2000) suggest that format should not affect analysts' investment-related judgments when the fair value gains and losses are related to the company's core operations. That is, regardless of whether the PFV changes are reported in a performance statement or the SCE, analysts who specialize in financial institutions ought not to be misled by the biased data. This suggests that there will not be an interaction between reporting format and the banks' hedging position, leading to the following alternative-form hypothesis:

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<sup>11</sup> The second hypothesis predicts a main effect for the bank's hedging position across all PFV reporting conditions. Hirst and Hopkins (1998) also demonstrated a main effect (for a company's earnings management efforts) across PFV reporting conditions. However, the main effect in Hirst and Hopkins was qualified by a significant interaction between earnings-management behavior and PFV-reporting format. In particular, they showed that analysts were more likely to discover marketable-securities-based earnings management (i.e., cherry picking) when comprehensive income was reported in a statement of performance. In contrast, Hirst and Hopkins (1998) found that when analysts were presented with comprehensive income reported in a statement of owners' equity, they were less likely to undo the effects of earnings management in their valuation judgments.

H<sub>3</sub> Under current PFV reporting regimes, experienced bank analysts' risk and valuation judgments will not be affected by whether the reporting of fair value gains and losses is in a performance statement or the SCE.

### ***Measurement Predictions: Piecemeal versus Full Fair Value Reporting***

The preceding hypotheses suggest that industry-specialist analysts' risk and valuation judgments will differentiate between the hedged and exposed banks, regardless of where the fair value gains and losses are reported. However, these hypotheses do not address whether analysts will, across the FFV and PFV regimes, equally integrate the fair value information into their judgments. Prior research suggests that fundamental financial-statement classification (Hopkins 1996) and reported income numbers (Hirst and Hopkins 1998; Hopkins, Houston and Peters 2000; Maines and McDaniel 2000) systematically influence analysts' investment-related judgments, even when footnote information facilitates adjustment. This finding is consistent with the robust psychological tendency for decision makers to use summary statistics and revision heuristics when faced with uncertain outcomes (Tversky and Kahneman 1982).

Prior research on financial managers, bankers, and MBA students indicates that users of financial statements will use an anchoring-and-adjustment revision heuristic to attempt to integrate uncertain, environmental-liability information into their investment-related judgments (Kennedy, Mitchell, and Sefcik 1998). We predict that analysts will use a similar strategy when trying to integrate supplemental fair value information with the incomplete, PFV performance measures. Of course, analysts can obtain value-relevant fair value information from either a performance statement or the SCE—but it is more costly to process and integrate the note information on other sources of fair value gains and losses because it is not typically presented in an easily used format.<sup>12</sup>

Interestingly, the results of this anchoring-and-adjustment process should not be symmetric between the cases when the bank is hedged and exposed. If a bank is known to hedge interest rate risk, banking analysts should understand the incomplete measure of comprehensive income under PFV, and should also know that reported net income will approximate fair-value based income because of the offsetting gains

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<sup>12</sup> For example, SFAS 107 disclosures provide cumulative unrealized gains and losses at period end, not the current period effect on performance of changes in such amounts.

and losses from the hedge. In this case, there is little incremental benefit to engaging in the effortful process of integrating fair value change information into the reported profitability information. Therefore, in the case of the hedged bank, there should be little difference between analysts' risk and valuation judgments in the PFV and FFV regimes.

In contrast, banking analysts analyzing an interest-rate-risk exposed bank will need to substantially adjust the PFV net income and comprehensive income information to incorporate current-period fair value gains and losses. Therefore, we expect analysts to recognize the risk and seek to understand the impact of interest rate risk on performance and value. However, it is precisely in this setting that the anchoring-and-adjustment phenomenon is most likely to hold (Tversky and Kahneman 1982; Kennedy, et al. 1998). Because of the substantial revision required for net income and comprehensive income, analysts presented with PFV information for an exposed bank are likely anchor on the reported performance measure and insufficiently adjust for the performance implications of changes in fair value. In our setting, this should result in analysts providing different risk and valuation judgments for the exposed bank in the PFV and FFV cases. This discussion results in the following alternative-form hypotheses.

H<sub>4</sub>: Differences in risk and valuation judgments between hedged and exposed banks will be greater under a FFV reporting regime where all fair value gains and losses are reported in a performance statement than under a PFV reporting regime where some fair value gains and losses are reported in a performance statement and the remainder are provided in SFAS 107 note disclosures.

H<sub>5</sub>: For a hedged bank, a FFV reporting regime where all fair value gains and losses are reported in a performance statement will not result in differential risk or valuation judgments compared to a PFV reporting regime where some fair value gains and losses are reported in a performance statement and the remainder are provided in SFAS 107 note disclosures.

The overall predictions are summarized in figure 1.

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INSERT FIGURE 1 ABOUT HERE

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### **III. EXPERIMENT**

To investigate the effects of performance measurement and reporting on equity analysts' risk and stock price judgments, we designed and conducted a 2 X 3 between-subjects experiment. Participants

were 80 buy-side equity-security analysts and portfolio managers.<sup>13</sup> All participants were recruited individually from the *2000 Association for Investment Management and Research Membership Directory* (AIMR 2000) on the basis of their self-reported industry specialization (banking) and job descriptions. After securing their agreement to participate, the materials were distributed via overnight mail.

On average, the study participants had 12 years of experience as financial analysts (73% are CFAs). They spend an average of 51% of their time on equity-security analysis and another 34% on portfolio management. On average, they manage an \$876 million portfolio (median \$100 million), which includes 52 companies (median 40). In addition to the companies in their portfolios, on average these analysts follow another 92 (median 40) companies. On average, their employers have \$24 billion (median \$4.3 billion) of assets under management.

### **Procedure**

We provided participants with background information about a bank (including an overview of its risk management strategy), industry average price-earnings ratios (15x) and ranges (10-20x), a description of the interest rate environment, summary historical financial information, and a stylized press release (as disseminated by Bloomberg Financial Services) reporting the bank's annual earnings. The press release also included the current year's comparative financial statements, a summary of significant accounting policies, and a summary of significant risks including relevant footnote and MD&A disclosures regarding liquidity risk, credit risk, interest rate risk, and fair values. After reviewing these materials, participants were asked to assess the risk of the bank and to provide an estimate of the value of the bank's common stock. Participants also were asked to provide a description of the manner in which they determined the stock value. Following these questions, analysts assessed various types of risks faced by the bank, responded to a series of questions about the financial information in the case, several manipulation check questions, and provided demographic information. Appendices A-D include detailed descriptions of the financial accounting information included in the materials.

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<sup>13</sup> We received responses from 89 individuals. Because of the criticisms of prior research designs, we decided (prior to data collection) to only include responses from individuals who actively perform equity security analysis. Nine individuals indicated that they spent zero percent of their time performing equity security analysis and were eliminated from the sample.

## **Materials and Independent Variables**

To create materials representative of a typical commercial bank, we first created a model of the prototypical bank's financial statements based on the financial statements for the years 1997 to 1999 for 11 of the 100 largest U.S. banks (measured based on total assets) as of year end 1999. The largest sample bank was Bank One (5<sup>th</sup> largest overall) and the smallest was National City Bancorporation (100<sup>th</sup> largest overall). As a starting point, we created a composite balance sheet, income statement, and statement of owners' equity using the average account balances over the sample of 33 bank-years.

We then simulated the prototypical bank's financial statements over a six-year span, using a set of baseline assumptions about asset and liability growth rates, credit losses, dividend payouts, tax rates, and non-interest income and expense items. These assumptions were applied equally across all conditions. Analysts were presented with the bank's financial statements for the last three years of the simulation together with summary footnote and MD&A disclosures as part of the press release described earlier.<sup>14</sup>

### ***Interest Rate Risk***

The first independent variable is the relative level of the bank's interest rate risk. To trigger variation in interest rate risk, we varied the extent to which the bank matched maturities of interest rate sensitive assets (loans and investment securities) and liabilities (deposits, federal funds, and short-term and long-term liabilities). In the *low-risk* (hedged) condition, the bank matched the maturities of interest rate sensitive assets and liabilities, lending and borrowing at fixed rates over 5 years. By matching maturities each year, the low-risk bank had relatively small interest rate risk "gaps" (i.e., measures of exposure based on the net differences between interest rate sensitive assets and liabilities maturing at different times). Following an upward movement in rates, the low-risk bank experienced fair value losses on its interest earning assets, but roughly equivalent fair value gains on its interest bearing liabilities.

In the *high-risk* (exposed) condition, the bank did not match the maturities of interest rate sensitive assets and liabilities. The high-risk bank's loans and investment securities earned fixed rates over 5 years

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<sup>14</sup> To simulate the footnote and MD&A disclosures in the instrument, we followed the relevant footnote and MD&A disclosures of these 11 banks in 1999.

(exactly equivalent to the low-risk bank), but it borrowed funds at fixed rates over one year maturities. By not matching maturities, the high-risk bank had relatively large interest rate risk “gaps” each year.<sup>15</sup> Following an upward movement in rates, the high-risk bank experienced relatively large fair value losses on its interest earning assets, but only modest gains on its interest bearing liabilities.

In the early years of the simulation, we assumed that interest rates were steady, varying a few basis points up or down each year. This assumption enabled us to hold the effects of interest rate risk constant across both the high and low-risk banks during the first two years included in the instrument. However, we introduced an interest rate shock (i.e., a 50 basis point increase in the Fed Funds target rate) at the end of the final year of the simulation. This interest rate shock triggered fair value losses that totaled roughly -\$19.2 million on the interest rate sensitive assets for *both* the high- and low-risk bank. However, the shock also triggered fair value gains of \$19.0 million on interest sensitive liabilities for the low-risk bank, thereby offsetting almost all of the fair value losses. On the other hand, the high-risk bank experienced fair value gains of only \$7.1 million, leaving a net fair value loss of nearly -\$12.1 million (before tax effects). This loss is roughly 40% of net income before tax and, thus, a significant figure.

In sum, we varied the interest rate risk of the bank by manipulating whether the bank hedged its interest rate sensitive assets and liabilities.<sup>16</sup> Because interest rates were held steady until the end of the current year, prior year results were identical across the banks. The year-end interest rate increase had no effect on reported net income of the banks, but generated considerable differences in the fair value gains and losses on each bank’s financial instruments.

### ***Performance Measurement and Reporting Format***

We vary the reporting of the effects of interest rate risk on performance measurement in three ways. In the Piecemeal Fair Value in the Statement of Changes in Equity (PFV-SCE) condition, fair value gains and losses on investment securities are recognized in the statement of owners’ equity, with fair value

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<sup>15</sup> For the high-risk bank, we repriced (i.e., applied the currently prevailing interest rates to) roughly 20% of the interest rate sensitive assets and 100% of the interest sensitive liabilities each year. By contrast, for the low risk bank, we repriced 20% of both the interest rate sensitive assets and liabilities each year.

<sup>16</sup> Along with a description of the banks’ hedging strategies (which varied across high and low risk conditions), we described both liquidity risk and credit risk factors of the bank. Those were held constant.

gains and losses on all other financial assets and liabilities disclosed in footnotes (consistent with prevailing practice under SFAS 107 and SFAS 115). In the PFV-Income Statement (PFV-IS) condition, fair value gains and losses on investment securities are recognized in a separate statement of comprehensive income that follows the income statement, with fair value gains and losses on all other financial assets and liabilities disclosed in footnotes (consistent with a recommendation in SFAS 130). This condition is identical to the PFV-SCE condition except that comprehensive income and its components are reported in a performance statement. Finally, in the Full Fair Value in the Income Statement (FFV-IS) condition, fair values of *all* financial assets and liabilities are recognized on the balance sheet and fair value gains and losses on all the financial instruments are recognized in a separate statement of comprehensive income that follows the income statement (consistent with proposals being considered by the FASB and IASB). This condition reports comprehensive income in a performance statement (as in the PFV-IS condition) and recognizes fair value gains and losses for *all* financial instruments (unlike either of the PFV conditions).

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INSERT FIGURE 2 ABOUT HERE

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In all conditions, the financial information available to analysts is equivalent. Analysts' seeking to adjust reported net income to reflect fair value gains and losses on any or all interest rate sensitive financial assets and liabilities can do so. Figure 2 demonstrates the equivalence of reported net income figures across all risk, measurement, and format conditions. Figure 2 also demonstrates how various performance measures (net income, comprehensive income, and full fair value income) vary across risk, measurement, and format conditions.<sup>17</sup>

## IV. RESULTS

### Manipulation and Other Checks

The critical manipulation in this study is the bank's interest-rate-risk exposure (i.e., exposed versus

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<sup>17</sup> We chose not to collect data for the FFV-SCE cells after carefully considering the benefits and costs of gathering the additional data. The theory underlying our PFV format predictions also predicts a lack of format effects across FFV contexts. However, we wanted to conduct our format tests in the same PFV measurement regime as Hirst and Hopkins (1998) and Maines and McDaniel (2000). Because these *ex ante* expectations are identical between the PFV and FFV contexts, we decided that the study would obtain very little incremental benefit from recruiting 33% additional bank-specialist analysts.

hedged). To determine whether analysts understood the bank's risk management strategy, we asked several questions in the post-experiment questionnaire. First, we asked participants to indicate the extent to which the bank was exposed to interest rate risk at December 31, 20X3. Using a 15-point scale (endpoints labeled 1: "interest rate risk is completely hedged" and 15: "interest rate risk is completely exposed"), analysts indicated that the high-risk bank (11.97) was more exposed to interest rate risk than the low-risk bank (7.57) ( $t = 7.118, p = .000$ ). To ensure that analysts believed that the banks' interest rate exposures would not change in the future, we also asked for their perceptions of the banks' exposures two to three years hence. Analysts used a 15-point scale (endpoints labeled 1: "interest rate risk will be completely hedged" and 15: "interest rate risk will be completely exposed"). Participants responded that the high-risk bank (10.28) would be more exposed to interest rate risk than the low-risk bank (7.72) ( $t = 3.208, p = .002$ ). Taken together, these findings suggest that analysts recognized the difference in interest rate risk across the low- and high-risk bank and that analysts did not expect it to change in the near future.

We also asked participants to assess the banks' market risk (defined as the possibility that changes in future market rates or prices will make positions less valuable). A 15-point scale (endpoints labeled 1: "much lower than the average bank" and 15: "much higher than the average bank" with a midpoint of 8: "equal to the average bank") was used to gather the responses. Analysts considered the high-risk bank (11.13) to be relatively riskier than the low-risk bank (8.29) ( $t = 6.33, p = .000$ ). This held true in each of the format conditions (all  $p$ 's < .01).<sup>18</sup>

We also asked participants to recall the amount of the change in the Federal Funds Target Rate included in our materials. Ninety-five percent of the analysts correctly indicated that the rate increased by 50 basis points, suggesting that analysts understood the level of increase in interest rates across all conditions.<sup>19</sup> Finally, an important correlated omitted factor in fair value research is the potential for different levels of fair-value reliability between financial-statement recognition versus disclosure in the

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<sup>18</sup> In addition, participants judged the liquidity and credit risk of the banks. Credit risk did not vary across risk conditions ( $F = .408, p = .5251$ ). Liquidity risk was judged higher for the high risk bank than the low risk bank ( $F = 3.854, p = .053$ ).

<sup>19</sup> Two analysts indicated that interest rates decreased by 50 basis points and two analysts indicated that rates increased by 100 basis points. One analyst did not answer this manipulation check question.

notes. Analysis (i.e., 2 x 3 ANOVA) of analysts' responses to a question about the perceived reliability of fair value information reveals no significant differences in perceived reliability across the six reporting conditions (all  $p$ 's > .360). Taken together, these data suggest that analysts understood the critical manipulation in the study and that we controlled for an important correlated omitted factor (i.e., potentially different perceived levels of fair value reliability).

### **Hypothesis Tests**

Our hypotheses predict systematic differences in analysts' risk and valuation judgments. We conduct our tests using two different dependent measures that capture analysts' risk perceptions: relative investment risk and price-earnings (PE) multiples. Table 1 reports descriptive statistics and tests of analysts' assessments of the investment risk of the bank relative to that of an average bank of equivalent size. Analysts provided their relative risk assessments on a 15-point scale (endpoints labeled 1: "much lower than the average bank" and 15: "much higher than the average bank"). Table 2 reports descriptive statistics and tests of analysts' assessments of the multiple with which they would capitalize the bank's earnings (i.e., a price-earnings multiple based on the bank's trailing net income, which was identical across conditions).<sup>20</sup> Finally, Table 3 reports descriptive statistics and tests of analysts' valuation judgments. All hypothesis tests are conducted using planned comparisons.

### ***Full Fair Value Hypothesis***

H<sub>1</sub> is our baseline prediction that the *most informed* judgments will occur under FFV reporting. In the context of analysts' investment risk judgments, this yields the straightforward prediction that analysts will perceive the interest-rate exposed bank to be riskier than the interest-rate hedged bank. As reported in Panels A and B of Table 1, analysts' investment risk assessments for the interest-rate exposed bank (10.85) are higher in the FFV regime than the investment risk assessments for the interest-rate hedged bank (7.09) in the FFV regime ( $t = 4.06, p = .000$ ). In addition, the results reported in Panels A and B of Table 2 suggest that analysts' average PE judgments for the interest-rate exposed bank (11.19) are lower

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<sup>20</sup> Holding trailing earnings (and all else) constant, price-earnings multiples should be inversely related to risk.

in the FFV regime than their PE judgments for the interest-rate hedged bank (13.89) in the FFV regime ( $t = 3.02, p = .001$ ).

Panel A of Table 3 reports descriptive statistics for analysts' valuation judgments. Panel B of Table 3 suggests that analysts' average stock-price judgments for the interest-rate exposed bank (11.25) are lower in the FFV regime than their stock-price judgments for the interest-rate hedged bank (14.10) in the FFV regime ( $t = 4.64, p = .000$ ). Taken together, the findings suggest that analysts' investment risk, PE ratio, and stock price assessments are reliably different under full-fair value performance reporting, supporting  $H_1$ . The results also establish analysts' judgments under full fair value reporting of the effects of changes in interest-rates on the financial performance of each bank and provide a baseline against which to compare judgments provided in the current piecemeal reporting regime.

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INSERT TABLES 1, 2 AND 3 ABOUT HERE

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### ***Reporting Format Hypotheses—PFV-SCE versus PFV-IS***

$H_2$  and  $H_3$  focus on the two piecemeal fair value measurement conditions, PFV-IS and PFV-SCE. These two treatments measure performance identically (and incompletely) but present it in different financial statements.  $H_2$  predicts that bank analysts will not be misled by the incomplete fair-value performance reporting (i.e., only gains and losses related available for sale securities are recognized in comprehensive income) and *will* distinguish between the interest-rate exposed and hedged banks.  $H_3$  predicts that when fair value gains and losses are reported on a piecemeal basis, bank analysts' risk and valuation judgments *will not* be influenced by whether the gains and losses are reported in the SCE or in the IS.

The descriptive statistics and test of  $H_2$  reported in Panels A and B of Table 1 suggest that analysts' investment risk judgments were significantly higher across the two interest-rate-exposed PFV conditions (9.31) than the two interest-rate-hedged PFV conditions (7.28) ( $t = 3.29, p = .001$ ). This result also held within each of the individual PFV conditions (both  $p$ 's < .066). In contrast, Table 2 indicates that analysts' PE ratios were not significantly different ( $t = 1.01, p = .158$ ) across the two interest-rate-exposed

(12.68) and two interest-rate-hedged (13.32) conditions. Not surprisingly, the stock price data in Table 3 mirror the analysts' PE data. Although the high-risk bank is valued less (\$12.86) than the low-risk bank (\$13.69), but the difference is significant only at the  $p = .106$  level ( $t = 1.26$ ).

H<sub>3</sub> predicts that bank-industry-specialist analysts' risk and valuation judgments will not be affected by comprehensive income reporting format. As reported in Panel B of Tables 1, 2 and 3, analysts' investment risk assessments ( $p = .862$ ), PE ratio assessments ( $p = .571$ ), and stock-price judgments ( $p = .462$ ) are not different between the PFV-IS and PFV-SCE conditions across levels interest-rate exposure. These results also hold between the PFV-IS and PFV-SCE conditions, when they are compared within the high and low-risk conditions (all  $p > .310$ ).

Thus, as a whole in the PFV conditions, analysts perceived significantly different levels of investment risk across the two banks, and comprehensive-income reporting format did not influence these judgments (cf., Lipe 1998). Interestingly, when fair value gains and losses were reported on a piecemeal basis, bank analysts' PE ratio estimates and valuation judgments did not distinguish between the two banks. As expected, comprehensive-income reporting format did not influence these judgments, either.

#### ***Measurement Hypotheses—PFV-IS versus FFV-IS***

H<sub>4</sub> and H<sub>5</sub> focus on the full fair value (FFV-IS) cells and the piecemeal fair value cells where fair value gains and losses are reported in a performance statement (PFV-IS). Thus, across both measurement conditions, we hold constant the format of fair value gain and loss reporting (i.e., in a performance statement) and vary the bank's interest-rate-risk exposure (exposed versus hedged) and the completeness of financial-statement recognition of fair values (FFV-IS or PFV-IS).

H<sub>4</sub> predicts that there will be a significant interaction between interest-rate exposure and fair-value measurement for the investment risk, PE ratio, and stock price judgments in the FFV-IS and PFV-IS cells. In particular, the interaction will be driven by differential reaction to the interest-rate exposed FFV-IS condition compared to the interest-rate exposed PFV-IS condition. Performance statement reporting in the exposed FFV-IS condition more clearly and completely reveals the extent of the interest-rate risk taken by

the banks. This allows bank analysts to more easily gauge the financial impact of the bank's risk management strategy and to incorporate that assessment into their stock prices. Per  $H_5$ , no differences are expected across the low-risk FFV-IS and PFV-IS conditions as the more complete performance measurement in the FFV-IS conditions does little more than confirm that the bank is hedged.<sup>21</sup>

Panel B of Table 1 indicates that the interaction for the investment risk variable is in the predicted direction and is significant ( $t = 1.94, p = .028$ ). The difference in investment risk across the high and low risk FFV-IS conditions is significant (10.85 versus 7.09;  $t = 4.06, p = .000$ ) as is the difference across the high-risk FFV-IS and the high-risk PFV-IS conditions (10.85 versus 8.90;  $t = 2.18, p = .016$ ). Consistent with  $H_5$ , the low-risk bank's perceived investment risk was not influenced by the measurement of performance (FFV-IS: 7.09 versus PFV-IS: 7.60;  $t = 0.57, p = .571$ ).

Panel B of Table 2 indicates that the interaction for the analysts' PE ratio assessments is in the predicted direction and is significant ( $t = 1.53, p = .065$ ). The difference in PE ratios across the high and low risk FFV-IS conditions is significant (11.89 versus 13.89;  $t = 3.14, p = .001$ ) as is the difference across the high-risk FFV-IS and the high-risk PFV-IS conditions (11.19 versus 12.70;  $t = 1.81, p = .037$ ). As predicted, the low-risk bank's PE ratios were not influenced by the measurement of performance (FFV-IS: 13.89 versus PFV-IS: 13.60;  $t = 0.35, p = .726$ ).

Finally, Panel B of Table 3 indicates that the interaction for the analysts' valuation judgments also is in the predicted direction and is significant ( $t = 1.54, p = .069$ ). The difference in price across the high and low risk FFV-IS conditions is significant (\$11.25 versus \$14.10;  $t = 3.02, p = .002$ ) as is the difference across the high-risk FFV-IS and the high-risk PFV-IS conditions (\$11.25 versus \$13.06;  $t = 1.98, p = .026$ ). As predicted, the low-risk bank's prices were not influenced by the measurement of performance

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<sup>21</sup>  $H_4$  assumes that FFV-IS disclosure of fair value gains and losses for the high-risk bank reveals that the bank is riskier than perceived in the PFV conditions. We based that prediction, in part, on the general tendency of humans to underassess risk in conditions of incomplete information (Slovic et al, 1980; and comments by Kinney reported in Schrand and Elliott 1998) and, in part, on the design of the materials—the unrecognized fair value losses in the high risk PFV-IS condition were significant in relation to both net income and PFV comprehensive income. Further evidence that this was the case in our materials comes from analysts' evaluation of the volatility of CI across the three high-risk conditions. Using a 15-point scale (labeled 1: low volatility and 15: high volatility), the perceived CI volatility of the high-risk bank was identical in the two PFV conditions (PFV-IS = 9.13, PFV-SCE: 9.22;  $p = .937$ ), but the CI volatility of the high-risk bank in the FFV-IS condition was significantly higher (mean 11.35; compared with PFV-IS,  $t = 2.18, p = .032$ , two-tailed).

(FFV: \$14.10 versus PFV-IS: \$13.92;  $t = 0.20$ ,  $p = .844$ ).

### *Supplemental Analysis*

Payne et al. (1993) suggest that analysts' information processing strategies will adapt to the various decision contexts in which they perform fundamental analysis. To assess whether our analysts' processing of fair value information is affected by banks' relative interest-rate exposure, we asked analysts to recall the location of three financial-statement items: unrealized gains and losses on available-for-sale securities, unrealized gains and losses on loans and deposits, and comprehensive income. Participants were asked to choose from a list of alternative locations and were allowed to indicate that they could not remember the location. Because these questions were asked late in the post-experiment questionnaire, and because certain correct answers could be generated based on an understanding of current GAAP, we consider the data indicative but not direct evidence of analysts' information acquisition processes.

Across all conditions, 74 percent of the analysts correctly recalled the location where comprehensive income was disclosed. Interestingly, only 25 percent recalled correctly in the low-risk PFV-SCE condition. This is the condition where it is least likely that a bank analyst would seek the unrealized gains and losses on AFS security data: they are not in a performance statement and, by virtue of the bank being hedged, there is little to gain by analyzing them. In the other five conditions, recall accuracy ranged from 73 percent to 93 percent.

Across all conditions, 68 percent of the analysts correctly recalled where the unrealized gains and losses on available-for-sale securities had been reported. The best recall was in the high-risk FFV-IS condition (85 percent) and the worst was in the low-risk PFV-SCE condition (42 percent). The other cells ranged from 60 percent to 80 percent correct. These results suggest that when data are both relevant and reported in a performance statement, they are attended to. When the data are less relevant and reported outside a performance statement, they are less likely to be sought and evaluated.

Finally, across all conditions, only 53 percent of analysts correctly recalled where the unrealized gains and losses on deposits and loans were reported. The best recall was in the High-Risk FFV-IS

condition (85 percent). The other cells ranged from 31 to 58 percent correct. These data are highly suggestive that analysts considered the fair value gains and losses on these other instruments costly to process when they were reported outside a performance statement. Taken together, these data are consistent with analysts using a directed search strategy that is contextually affected by the banks' relative interest-rate-risk exposure (Payne et al. 1993, Maines and McDaniel 2000).

## V. CONCLUSIONS

We examine how fair-value reporting systematically affects industry-specialist analysts' use of risk and performance information in equity security analysis. In our experiment, we independently vary the level of a bank's interest rate exposure (exposed versus hedged) and the bank's fair-value reporting regime. The three reporting regimes we examine are: (1) full fair value accounting with gains and losses on *all* financial assets and liabilities recognized in a separate statement of performance; (2) piecemeal fair value reporting in which fair value gains and losses on available-for-sale securities are recognized in a statement of performance, but fair value gains and losses on all other financial instruments are disclosed in the notes; and (3) piecemeal fair value reporting in which fair value gains and losses on available-for-sale securities are recognized in the statement of changes in equity, but fair value gains and losses on all other financial instruments are disclosed in the notes.

We find that across all performance-reporting format and measurement conditions, bank analysts distinguish between the exposed and hedged banks in terms of investment risk judgments. However, predictably different valuation judgments emerged across the exposed and hedged banks only under the full-fair-value-recognition regime, and did not emerge across the exposed and hedged banks under piecemeal-reporting regimes. We attribute the latter finding to the difficulty even experienced bank analysts face in estimating the financial impact of known risk differences. In contrast to the findings reported in Hirst and Hopkins (1998), we also found that analysts' investment risk and valuation judgments were not differentially influenced across piecemeal reporting formats.

This study contributes to three areas related to fair-value information, performance reporting, and risk. First, we provide evidence that should be useful to standard setters as they consider new accounting

standards and evaluate existing rules. For example, we provide *ex ante* evidence suggesting that even the most sophisticated financial intermediaries may benefit from financial statement recognition and clear and complete performance reporting related to fair values. In addition, in relation to the continuing evaluation of existing standards, our results suggest that the concerns raised by bankers during the comprehensive income Exposure Draft public-comment period appear to be overstated: piecemeal reporting of fair value gains and losses does not mislead bank analysts evaluating a fully hedged bank.

Our second contribution is that we extend research by Barth, Landsman, and Wahlen (1995), who find that volatility in imputed fair value income is not associated with a reduced price-earnings multiple for a sample of banks. Our results suggest that two factors may explain their findings: (1) low power tests due to uncontrolled asset-liability hedging by banks and (2) the effect of reporting format on the use of fair value information. Consistent with the former factor, we find that fair value gains and losses on available for sale securities are not perceived by analysts to be incrementally value relevant in a piecemeal reporting regime where the bank is asset-liability hedged on all financial instruments. These results suggest that an archival study that controls for differences among banks' hedging strategies could detect value relevance for fair value gains and losses. Related to the latter factor, we find that fair value measurement and performance-reporting format affects the extent to which analysts' valuation judgments impound risk information for the hedged and unhedged banks. In particular, we find that analysts' investment-risk judgments differentiated between the hedged and exposed banks regardless of measurement and format, but that analysts' stock price judgments only reflected a similar differentiation when fair value changes were clearly reflected in a statement of performance (i.e., a disclosure regime that does not currently exist).

Finally, we contribute to the literature on performance-reporting format by addressing the limitations of Hirst and Hopkins (1998) as discussed in Lipe (1998) and Maines and McDaniel (2000). In so doing, we extend prior research by examining risk and value judgments of specialists in the commercial bank industry, a context in which comprehensive income and interest-rate risk are important elements of core operations. We find that in a context where comprehensive income is measured on a piecemeal basis,

bank analysts' judgments are not influenced by comprehensive income report format. However, we also provide evidence that current piecemeal reporting regime may be inadequate in its ability to convey the value-relevant information associated with banks that choose to not hedge their interest rate risk. When comprehensive income was measured on a full fair value basis and reported in a statement of performance, bank analysts were better able to adjust their valuation judgments for the risky bank's interest rate risk exposure.<sup>22</sup> These results suggest that financial-statement measurement and reporting format may be an important contextual input in investment-related judgments and decisions, even for industry-specialist analysts.

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<sup>22</sup> Our finding that analysts do not fully integrate note-based fair value information may be exacerbated in natural settings. For example, a recent survey of almost 2,000 analysts by the Association for Investment Management and Research indicates that 83 percent wished that stock options were expensed in the statement of performance and that one-third explicitly ignore stock-option-related expense information in the footnotes (Alpert 2002).

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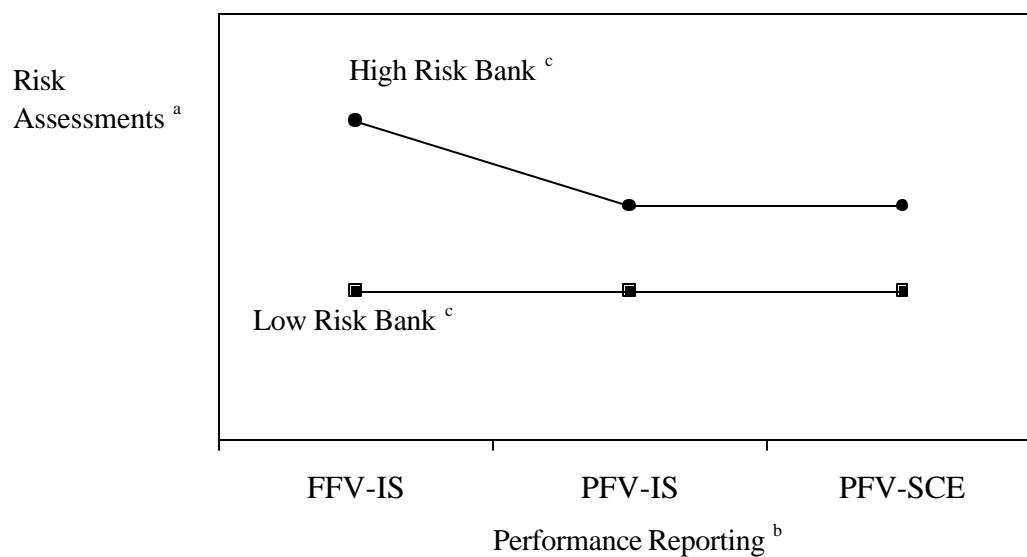
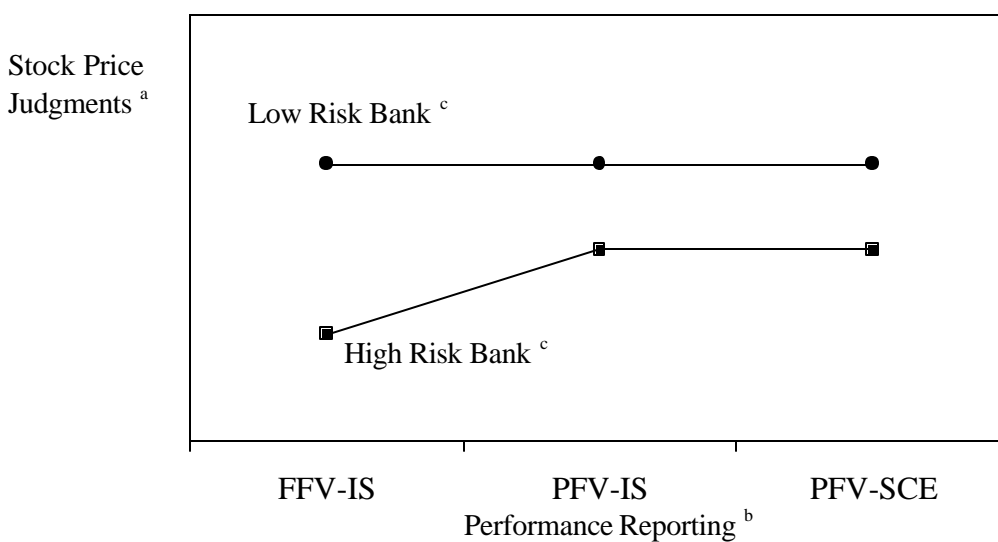
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**FIGURE 1**

*Predicted Analyst Risk Assessments and Common Stock Price Judgments by Interest Rate Risk and Performance Reporting Conditions*

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**Panel A: Analysts' Risk Assessments****Panel B: Analysts' Stock Price Judgments**

**Figure 1 Notes:**

- <sup>a</sup> Analysts assess risk and estimate the price of a commercial bank's common stock after receiving information about the bank, a summary of its significant risks (including an interest-rate sensitivity gap analysis) and a description of the interest-rate environment. All participants receive a press release that includes an income statement, balance sheet, statement of changes in equity, and a summary of significant accounting policies (including SFAS 107 and SFAS 115 fair value disclosures). Except for information related to the two independent variables, all other information was held constant in the design of the experiment.
- <sup>b</sup> Except for reported net income, the only comprehensive income items included in the materials were unrealized gains and losses from interest-rate changes on fixed rate financial assets and liabilities. In conformity with SFAS 130, the financial statements in the PFV-SCE (PFV-IS) conditions included explicit display of comprehensive income in the Statement of Changes in Equity (on the same page as the Income Statement) and, in conformity with SFAS 115, only included changes in the fair values of available-for-sale marketable securities as a component of other comprehensive income. The financial statements in the FFV-IS conditions included explicit display of comprehensive income on the same page as the Income Statement and included changes in the fair values of all financial assets and liabilities in the calculation of other comprehensive income. A detailed description of the experimental materials is included in the Appendix A.
- <sup>c</sup> We also vary the bank's exposure to interest rate risk. In the LOW risk conditions, the bank matched the maturities of the interest rate sensitive assets and liabilities, lending and borrowing at fixed rates over five years. In the HIGH risk conditions, the bank's loans and investment securities earned fixed rates over 5 years (exactly equivalent to the LOW conditions), but borrowed funds at fixed rates with one-year maturities.

**FIGURE 2**  
*Performance Measures Included in Experiment*

**Panel A: LOW Risk Conditions (in millions):**<sup>a</sup>

(Shaded figures were explicitly reported in statements of performance in the experimental materials; other numbers were calculable from the materials.)

Income Measure:	FFV-IS			PFV-IS			PFV-SCE		
	20X3	20X2	20X1	20X3	20X2	20X1	20X3	20X2	20X1
Reported Net Income	20.3	18.6	16.7	20.3	18.6	16.7	20.3	18.6	16.7
Reported Comprehensive Income <sup>b</sup>	20.2	18.9	16.5	16.7	18.9	16.4	16.7	18.9	16.4
Full Fair Value Income <sup>c</sup>	20.2	18.9	16.5	20.2	18.9	16.5	20.2	18.9	16.5

**Panel B: HIGH Risk Condition (in millions):**<sup>a</sup>

(Shaded figures were explicitly reported in statements of performance in the experimental materials; other numbers were calculable from the materials.)

Income Measure:	FFV-IS			PFV-IS			PFV-SCE		
	20X3	20X2	20X1	20X3	20X2	20X1	20X3	20X2	20X1
Reported Net Income	20.3	18.6	16.7	20.3	18.6	16.7	20.3	18.6	16.7
Reported Comprehensive Income <sup>b</sup>	12.1	20.1	15.3	16.7	18.9	16.4	16.7	18.9	16.4
Full Fair Value Income <sup>c</sup>	12.1	20.1	15.3	12.1	20.1	15.3	12.1	20.1	15.3

Notes:

<sup>a</sup> In the LOW risk conditions, the bank matched the maturities of the interest rate sensitive assets and liabilities, lending and borrowing at fixed rates over five years. In the HIGH risk conditions, the bank's loans and investment securities earned fixed rates over 5 years (exactly equivalent to the LOW conditions), but borrowed funds at fixed rates with one-year maturities.

<sup>b</sup> The financial statements in the FFV-IS conditions included explicit display of comprehensive income on the same page as the Income Statement and included changes in the fair values of all financial assets and liabilities in the calculation of other comprehensive income. In conformity with SFAS 130, the financial statements in the PFV-SCE (PFV-IS) conditions included explicit display of comprehensive income in the Statement of Changes in Equity (on the same page as the Income Statement) and, in conformity with SFAS 115, only included changes in the fair values of available-for-sale marketable securities as a component of other comprehensive income. A detailed description of the experimental materials is included in Appendix A.

<sup>c</sup> Full fair value income equals net income adjusted for changes in fair values of *all* of the bank's financial assets and liabilities. These figures were reported as CI in the FFV conditions. In the PFV conditions, FFV income could be derived from the financial statements and the notes thereto.

**TABLE 1**  
*Analysis of Investment Risk Judgments by Bank Risk and  
Performance Reporting Measurement and Format Conditions*

**Panel A: Mean [Median] Investment Risk Judgments (Standard Deviation)<sup>a</sup>**

<i>Interest rate exposure</i> <sup>b</sup>	<i>Performance Reporting Measurement and Format</i> <sup>b</sup>			Row data
	FFV-IS	PFV-IS	PFV-SCE	
High Risk (Exposed)	10.85 [10.00] (2.15) <i>n</i> = 13	8.90 [9.00] (2.97) <i>n</i> = 15	9.83 [10.50] (2.41) <i>n</i> = 12	9.81 [10.00] (2.63) <i>n</i> = 40
Low Risk (Hedged)	7.09 [7.00] (2.21) <i>n</i> = 13	7.60 [7.00] (2.04) <i>n</i> = 15	6.89 [7.00] (2.70) <i>n</i> = 12	7.22 [7.00] (2.10) <i>n</i> = 40
Column data	8.97 [8.50] (2.87) <i>n</i> = 26	8.25 [8.50] (2.59) <i>n</i> = 30	8.36 [8.00] (2.70) <i>n</i> = 24	

**Panel B: Planned Comparisons for Tests of Hypotheses**

<i>Contrast</i>	<i>d.f.</i>	<i>t-Statistic</i>	<i>Probability</i>
H <sub>1</sub> : Main effect for interest exposure (across FFV)	74	4.06	.000 <sup>c</sup>
H <sub>2</sub> : Main effect for Risk (across PFV conditions)	74	3.29	.001 <sup>c</sup>
High vs. Low risk (PFV-SCE)	74	3.06	.002 <sup>c</sup>
High vs. Low risk (PFV-IS)	74	1.15	.066 <sup>c</sup>
H <sub>3</sub> : Main effect for PFV-IS vs. PFV-SCE (across interest exposure)	74	0.17	.862
PFV-SCE vs. PFV-IS (Low risk)	74	0.78	.440
PFV-SCE vs. PFV-IS (High risk)	74	1.02	.310
H <sub>4</sub> : Interaction between Measurement and Risk (across performance statement conditions)	74	1.94	.028 <sup>c</sup>
FFV-IS High risk vs. FFV-IS Low risk	74	4.06	.000 <sup>c</sup>
FFV-IS High risk vs. PFV-IS High risk	74	2.18	.016 <sup>c</sup>
H <sub>5</sub> : FFV-IS Low risk vs. PFV-IS Low risk	74	0.57	.571

<sup>a</sup> Immediately after providing their stock price judgments, analysts to assessed the risk of an investment in the bank's common stock relative to that of an average bank of equivalent size (15-point scale with endpoints labeled 1: much lower than the average bank and 15: much higher than the average bank).

<sup>b</sup> Refer to Figure 1 for a description of the independent variables.

<sup>c</sup> One-tailed.

**TABLE 2**  
*Analysis of Price-Earnings Judgments by Bank Risk and Performance Reporting Measurement and Format Conditions*

**Panel A: Mean [Median] Price-Earnings Judgments (Standard Deviation)<sup>a</sup>**

<i>Interest rate exposure</i> <sup>b</sup>	<i>Performance Reporting Measurement and Format</i> <sup>b</sup>			Row data
	FFV-IS	PFV-IS	PFV-SCE	
High Risk (Exposed)	11.19 [11.50] (1.81) <i>n</i> = 13	12.70 [12.00] (1.86) <i>n</i> = 15	12.65 [12.00] (3.26) <i>n</i> = 12	12.20 [12.00] (2.39) <i>n</i> = 40
Low Risk (Hedged)	13.89 [14.00] (2.05) <i>n</i> = 13	13.60 [13.80] (2.03) <i>n</i> = 15	12.97 [12.30] (2.01) <i>n</i> = 12	13.51 [13.25] (2.01) <i>n</i> = 40
Column data	12.54 [12.25] (2.34) <i>n</i> = 26	13.15 [12.55] (1.96) <i>n</i> = 30	12.81 [12.05] (2.65) <i>n</i> = 24	

**Panel B: Planned Comparisons for Tests of Hypotheses**

<i>Contrast</i>	<i>d.f.</i>	<i>t-Statistic</i>	<i>Probability</i>
H <sub>1</sub> : Main effect for interest exposure (across FFV)	74	3.02	.001 <sup>c</sup>
H <sub>2</sub> : Main effect for interest exposure (across PFV conditions)	74	1.01	.158 <sup>c</sup>
High vs. Low risk (PFV-SCE)	74	0.35	.363 <sup>c</sup>
High vs. Low risk (PFV-IS)	74	1.12	.133 <sup>c</sup>
H <sub>3</sub> : Main effect for PFV-IS vs. PFV-SCE (across interest exposure)	74	0.57	.571
PFV-SCE vs. PFV-IS (Low risk)	74	0.75	.459
PFV-SCE vs. PFV-IS (High risk)	74	0.06	.953
H <sub>4</sub> : Interaction between Measurement and interest exposure (across performance statement conditions)	74	1.53	.065 <sup>c</sup>
FFV-IS High risk vs. FFV-IS Low risk	74	3.14	.001 <sup>c</sup>
FFV-IS High risk vs. PFV-IS High risk	74	1.81	.037 <sup>c</sup>
H <sub>5</sub> : FFV-IS Low risk vs. PFV-IS Low risk	74	0.35	.726

<sup>a</sup> At the end of the first packet of materials, analysts provided their estimate of the bank's PE ratio based on trailing net income. We explicitly instructed analysts that "even if you did not use an earnings-multiple-based approach to arrive at your stock price estimate, please provide a PE ratio that you believe is appropriate for estimating the value of [the bank's] common stock." Analysts should assign a higher PE ratio to the bank with lower perceived risk, all else equal.

<sup>b</sup> Refer to Figure 1 for a description of the independent variables.

<sup>c</sup> One-tailed.

**TABLE 3**  
*Analysis of Price Judgments by Bank Risk and Performance Reporting Measurement and Format Conditions*

<b>Panel A: Mean [Median] Price Judgments (Standard Deviation)<sup>a</sup></b>				
<i>Interest rate exposure</i> <sup>b</sup>	<i>Performance Reporting Measurement and Format</i> <sup>b</sup>			Row data
	FFV-IS	PFV-IS	PFV-SCE	
High Risk (Exposed)	11.25 [11.75] (1.98) <i>n</i> = 13	13.06 [12.38] (2.09) <i>n</i> = 15	12.60 [12.25] (3.25) <i>n</i> = 12	12.34 [12.25] (2.66) <i>n</i> = 40
Low Risk (Hedged)	14.10 [14.00] (2.44) <i>n</i> = 13	13.92 [14.00] (2.07) <i>n</i> = 15	13.40 [12.94] (1.97) <i>n</i> = 12	13.82 [13.75] (2.13) <i>n</i> = 40
Column data	12.68 [12.75] (2.61) <i>n</i> = 26	13.49 [12.94] (2.09) <i>n</i> = 30	13.00 [12.69] (2.87) <i>n</i> = 24	

**Panel B: Planned Comparisons for Tests of Hypotheses**

<i>Contrast</i>	<i>d.f.</i>	<i>t-Statistic</i>	<i>Probability</i>
H <sub>1</sub> : Main effect for interest exposure (across FFV)	71	4.64	.000 <sup>c</sup>
H <sub>2</sub> : Main effect for interest exposure (across PFV conditions)	74	1.26	.106 <sup>c</sup>
High vs. Low risk (PFV-SCE)	74	0.81	.209 <sup>c</sup>
High vs. Low risk (PFV-IS)	74	0.98	.165 <sup>c</sup>
H <sub>3</sub> : Main effect for PFV-IS vs. PFV-SCE (across interest exposure)	74	0.74	.462
PFV-SCE vs. PFV-IS (Low risk)	74	0.56	.580
PFV-SCE vs. PFV-IS (High risk)	74	0.49	.626
H <sub>4</sub> : Interaction between Measurement and interest exposure (across performance statement conditions)	74	1.54	.069 <sup>c</sup>
FFV-IS High risk vs. FFV-IS Low risk	74	3.02	.002 <sup>c</sup>
FFV-IS High risk vs. PFV-IS High risk	74	1.98	.026 <sup>c</sup>
H <sub>5</sub> : FFV-IS Low risk vs. PFV-IS Low risk	74	0.20	.844

<sup>a</sup> Analysts estimated the price of a company's common stock immediately after receiving information about the bank. All subjects received background information that included the a description of the company's liquidity, credit and market risks (including an interest-rate gap analysis) and an earnings-announcement press release that included an income statement, balance sheet, statement of changes in equity, and a summary of significant accounting policies (including SFAS 107 and SFAS 115 data).

<sup>b</sup> Refer to Figure 1 for a description of the independent variables.

<sup>c</sup> One-tailed.

## APPENDIX A

### *Description of Experimental Materials*

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The experiment follows a 3x2 between-subjects design. The primary dependent variables are equity bank analysts' risk assessments and stock-price judgments for a hypothetical bank after the Federal Open Markets Committee of the Federal Reserve Board increased the Federal Funds Target Rate by 50 basis points (i.e., 0.50%). The independent variables include the interest-rate risk borne by the bank (LOW and HIGH) and the reporting format of fair value income (FFV-IS, PFV-IS, and PFV-SCE). In addition to general descriptive information about the bank and hypothetical current market conditions, the experimental materials include a full set of income statements, balance sheets, and statements of changes in equity. The materials also include notes to the financial statements that summarize the company's significant accounting policies and provide SFAS 107 and SFAS 115 fair value information. Significant features of the experimental materials are described in the following paragraphs.

#### *Interest Rate Risk*

The background information included at the beginning of the case materials describes the bank's exposure to liquidity, credit, and market (i.e., interest rate) risk. The descriptions of liquidity and credit risk are identical across all conditions and indicate that the bank faces generally favorable, low-risk conditions. The description of market risk varies according to interest-rate condition and includes a comprehensive table that provides detail about the bank's interest-rate repricing gap. Panels A and B of Appendix B include the gap tables provided in the LOW and HIGH conditions, respectively.

#### *Reporting Format of Fair Value Income*

*FFV-IS Conditions:* Materials in this condition present, on the same page, an Income Statement (included in Panel A of Appendix C) and a Statement of Comprehensive Income (illustrated in Panel B of Appendix C). Fair value income in this condition includes changes in fair values for *all* financial assets and liabilities. See Figure 2 for the income amounts reported in the FFV-IS conditions.

*PFV-IS Condition:* Materials in this condition present, on the same page, an Income Statement (included in Panel A of Appendix C) and a Statement of Comprehensive Income (illustrated in Panel B of Appendix C). The format of this statement is identical across the PFV-IS conditions, except other comprehensive income conforms to current GAAP and includes only "unrealized gain (loss) on investment securities." See Figure 2 for the income amounts reported in the PFV-IS conditions.

*PFV-SCE Condition:* Materials in the PFV-SCE condition include income statement information on a single page (i.e., *only* Panel A of Appendix C). Comprehensive income information is displayed in the statement of changes in equity. The CI information in the statement of changes in equity is the same as that presented in the Statement of Comprehensive Income in the PFV-IS conditions. See Figure 2 for the income amounts reported in the PFV-SCE conditions.

#### *Fair Value Information*

In the notes to the annual earnings press release, the materials include SFAS 107 and SFAS 115 fair-value information. Panels A and B of Appendix D provides this information for the LOW and HIGH risk conditions, respectively.

**APPENDIX B**  
*Excerpts from Experimental Materials: Table of Interest-Rate Repricing Gap<sup>a</sup>*

**Panel A: Low Risk Conditions**

<i>(\$ in thousands, at amortized cost)</i>	<b>One Year or Less</b>	<b>One to Five Years</b>	<b>Total</b>
Loans	\$ 302,516	\$ 710,066	\$ 1,012,582
Investment securities	\$ 57,138	\$ 328,552	\$ 385,690
Deposits	\$ (217,808)	\$ (871,233)	\$ (1,089,041)
Short term borrowings	\$ (229,935)	\$ 0	\$ (229,935)
Long term borrowings	\$ 0	\$ (134,040)	\$ (134,040)
Repricing gap	\$ (88,089)	\$ 33,345	\$ (54,744)

**Panel B: High Risk Conditions**

<i>(\$ in thousands, at amortized cost)</i>	<b>One Year or Less</b>	<b>One to Five Years</b>	<b>Total</b>
Loans	\$ 302,516	\$ 710,066	\$ 1,012,582
Investment securities	\$ 57,138	\$ 328,552	\$ 385,690
Deposits	\$ (871,233)	\$ (217,808)	\$ (1,089,041)
Short term borrowings	\$ (229,935)	\$ 0	\$ (229,935)
Long term borrowings	\$ 0	\$ (134,040)	\$ (134,040)
Repricing gap	\$ (741,514)	\$ 686,770	\$ (54,744)

Note:

<sup>a</sup> An interest-rate repricing gap table is included in the descriptive information that precedes the 20X3 annual earnings release.

**APPENDIX C***Excerpt from Experimental Materials: Income Statement and Comprehensive Income Statement***Panel A: Income Statement Included in All Conditions <sup>a</sup>**

<b>River Bancorp Consolidated Income Statements</b> (amounts in thousands, except per share figures)	For the Year Ended December 31		
	<b>20X3</b>	<b>20X2</b>	<b>20X1</b>
Interest Income			
Loans	\$ 81,007	\$ 73,732	\$ 66,948
Investments	35,551	32,342	29,376
Total Interest Income	116,558	106,074	96,324
Interest Expense			
Deposits	34,849	31,597	28,891
Borrowings	21,111	19,167	17,477
Total Interest Expense	55,960	50,764	46,368
<b>Net Interest Margin</b>	<b>60,598</b>	<b>55,310</b>	<b>49,956</b>
Provision for Credit Losses	8,300	7,549	6,860
Net Interest Income after Provision for Credit Losses	52,298	47,761	43,096
Noninterest Revenues			
Trading Profits	153	139	127
Realized Securities Gains	1,928	1,753	1,593
Fee-based Revenues	40,795	37,126	33,713
Total Noninterest Revenues	42,876	39,018	35,433
Noninterest expenses	65,272	59,400	53,941
Income before Income Taxes	29,902	27,378	24,588
Provision for Income Taxes	9,569	8,761	7,868
<b>Net Income</b>	<b>\$ 20,333</b>	<b>\$ 18,617</b>	<b>\$ 16,720</b>
<b>Earnings per share</b>	<b>\$ 1.03</b>	<b>\$ 0.96</b>	<b>\$ 0.88</b>
Weighted average common shares outstanding	19,707	19,397	19,105

**Panel B: Comprehensive Income Statement Included in the HIGH/FFV-IS condition <sup>b</sup>****River Bancorp Consolidated Statements of Comprehensive Income**

(amounts in thousands)

	For the Year Ended December 31:		
	<b>20X3</b>	<b>20X2</b>	<b>20X1</b>
<b>Net Income</b>	<b>20,333</b>	<b>18,617</b>	<b>16,720</b>
Other comprehensive income, before tax:			
Unrealized gain (loss) on investment securities	(5,307)	502	(456)
Unrealized gain (loss) on loans	(13,932)	1,318	(1,198)
Unrealized gain (loss) on deposits, federal funds purchased, short term and long term borrowings	7,133	371	(459)
Applicable income tax	3,874	(701)	676
Other comprehensive income (loss), net of tax effects	(8,232)	1,490	(1,437)
<b>Comprehensive Income</b>	<b>\$ 12,101</b>	<b>\$ 20,107</b>	<b>\$ 15,283</b>

## Note:

<sup>a</sup> Because the bank does not classify any of its investment securities as “trading,” reported net income does not include unrealized holding gains on any of the bank’s assets or liabilities. Therefore, the income statements are identical across all six conditions.

<sup>b</sup> See Figure 2 for reported comprehensive income amounts in each condition. The format of this statement is identical in the LOW/FFV-IS and HIGH/FFV-IS conditions. The format of this statement is identical in the HIGH/PFV-IS and LOW/PFV-IS conditions, except other comprehensive income included only “unrealized gain (loss) on investment securities.” The Statement of Comprehensive Income is presented on the same page as the income statement in the four FFV-IS and PFV-IS conditions. Comprehensive income is reported in the Statement of Changes in Equity in the two PFV-SCE conditions.

**APPENDIX D**  
**Excerpts from Experimental Materials: SFAS 107 and SFAS 115 Disclosures Included in the Notes**  
**of the Press Release <sup>a</sup>**

**Panel A: Low Risk Conditions**

(in thousands)	Amortized Cost	Net Unrealized Gains (Losses)	Fair Value	Carrying Value
<b>December 31, 20X3</b>				
<b>Financial Assets</b>				
Cash and other short-term financial instruments	\$ 110,087	\$ 0	\$ 110,087	\$ 110,087
Trading assets	30,525	0	30,525	30,525
Investment Securities	385,690	(5,044)	380,646	380,646
Loans (net)	994,059	(13,241)	980,818	994,059
<b>Financial Liabilities</b>				
Deposits	1,089,041	15,443	1,073,598	1,089,041
Short term borrowing and other short-term financial instruments	229,935	1,810	228,125	229,935
Long term borrowing	134,040	1,055	132,985	134,040
<b>December 31, 20X2</b>				
<b>Financial Assets</b>				
Cash and other short-term financial instruments	\$ 94,879	\$ 0	\$ 94,879	\$ 94,879
Trading assets	27,763	0	27,763	27,763
Investment Securities	350,592	263	350,855	350,855
Loans (net)	904,101	691	904,792	904,101
<b>Financial Liabilities</b>				
Deposits	990,487	(620)	991,107	990,487
Short term borrowing and other short-term financial instruments	209,127	(72)	209,199	209,127
Long term borrowing	121,910	(42)	121,952	121,910
<b>December 31, 20X1</b>				
<b>Financial Assets</b>				
Cash and other short-term financial instruments	\$ 82,194	\$ 0	\$ 82,194	\$ 82,194
Trading assets	25,227	0	25,227	25,227
Investment Securities	318,688	(239)	318,449	318,449
Loans (net)	821,537	(627)	820,910	821,537
<b>Financial Liabilities</b>				
Deposits	900,034	562	899,472	900,034
Short term borrowing and other short-term financial instruments	190,029	65	189,964	190,029
Long term borrowing	110,777	38	110,739	110,777

**Panel B: High Risk Conditions**

(in thousands)				
	Amortized	Net Unrealized Gains (Losses)	Fair Value	Carrying Value
December 31, 20X3	Cost			
<b>Financial Assets</b>				
Cash and other short-term financial instruments	\$ 110,087	\$ 0	\$ 110,087	\$ 110,087
Trading assets	30,525	0	30,525	30,525
Investment Securities	385,690	(5,044)	380,646	380,646
Loans (net)	994,059	(13,241)	980,818	994,059
<b>Financial Liabilities</b>				
Deposits	1,089,041	5,445	1,083,596	1,089,041
Short term borrowing and other short-term financial instruments	229,935	1,150	228,785	229,935
Long term borrowing	134,040	670	133,370	134,040
<b>December 31, 20X2</b>				
<b>Financial Assets</b>				
Cash and other short-term financial instruments	\$ 94,879	\$ 0	\$ 94,879	\$ 94,879
Trading assets	27,763	0	27,763	27,763
Investment Securities	350,592	263	350,855	350,855
Loans (net)	904,101	691	904,792	904,101
<b>Financial Liabilities</b>				
Deposits	990,487	99	990,388	990,487
Short term borrowing and other short-term financial instruments	209,127	21	209,106	209,127
Long term borrowing	121,910	12	121,898	121,910
<b>December 31, 20X1</b>				
<b>Financial Assets</b>				
Cash and other short-term financial instruments	\$ 82,194	\$ 0	\$ 82,194	\$ 82,194
Trading assets	25,227	0	25,227	25,227
Investment Securities	318,688	(239)	318,449	318,449
Loans (net)	821,537	(627)	820,910	821,537
<b>Financial Liabilities</b>				
Deposits	900,034	(180)	900,214	900,034
Short term borrowing and other short-term financial instruments	190,029	(38)	190,067	190,029
Long term borrowing	110,777	(22)	110,799	110,777

## Note:

<sup>a</sup> These tables are identical within each of the HIGH and LOW risk conditions except the “Carrying Value” column reflects fair values in the two FFV-IS conditions.