How Should Banks Account for Loan Losses?

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How should banks and other lenders account for the risk that a borrower will default on a loan? This accounting determines when and to what extent a bank recognizes changes in expected credit losses on its income statement and the value at which loans are reported on the bank's balance sheet. Should these amounts differ when the bank's financial reports are prepared for its shareholders and for the banking authorities, or should the authorities manage the numbers directly or indirectly through the capital requirement?

These questions are the source of an ongoing debate among banks and the agencies that regulate them: the Securities and Exchange Commission (SEC), the Financial Accounting Standards Board (FASB), and bank supervisors.[1] The FASB is a private-sector entity delegated by the SEC to set financial accounting standards, called generally accepted accounting principles (GAAP). Bank supervisors have responsibility for setting regulatory accounting principles (RAP). The Federal Deposit Insurance Corporation Improvement Act (FDICIA) mandates that RAP generally follow GAAP but allows exceptions that assist supervisors in performing their duties. However, any such exception must be "no less stringent than generally accepted accounting principles."[2] Bank supervisors are also granted an unusual role in setting GAAP by Section 241 of the Gramm-Leach-Bliley Act of 1999, which mandates that the SEC "shall consult and coordinate comments" with the appropriate federal bank supervisors before "taking any action or rendering any opinion with respect to the manner in which any insured depository institution or depository institution holding company reports loan loss reserves."

Wall and Koch (2000) discuss the philosophy underlying the different positions of the FASB and the SEC versus that of the bank supervisors. The authors conclude that the primary users of financial statements, investors and bank supervisors, are likely to form their own estimates of banks' loan losses. Thus, the philosophy underlying the reported figures may be less important than the transparency of the process

required by the accounting authorities and by the bank supervisors for their respective estimates of loan losses. Nevertheless, the debate over appropriate procedures continues, with Davenport (2004) reporting that the FASB intends to take up the issue again.[3]

This article seeks to answer the question of how the value of loans on a bank's balance sheet should be adjusted for expected credit losses. Underlying the analysis is the assumption that the value most useful to bankers, investors, and bank supervisors is the economic value of loans as of the balance-sheet date. This value is the present (discounted) value of the cash payments the bank expects to receive from the borrowers as a group, which is less than the promised amount, because the bank cannot perfectly predict which loans will default. When loans are recorded at their economic values, there should be no reduction in this amount with an allowance for loan losses because the interest rate charged should be sufficient to cover expected default losses. Our analysis leads us to conclude that even when loans are accounted for at historic cost, under most situations no allowance for loan losses should be made. Loan-loss expense for a period, then, is the loss incurred on loans that defaulted during the period. However, if cash flow expectations change so that loans decrease in value, the decrease is an addition to loan-loss expense.

Present accounting principles are largely based on a system that values assets and liabilities at their historic cost rather than at their current market value.

Although historic-cost GAAP can provide useful information, economic value clearly would be superior if measurement of the numbers were reliable and cost effective. The problem is that the economic values of loans are not readily observable unless the loans are traded in sufficiently liquid markets. Many loans, though, are not traded because of information asymmetry between the bank and potential buyers. A bank's knowledge of its customers includes strengths and weaknesses that may not be apparent from documents that describe the lending situation. This basic attribute of loans results in banks often placing a greater value on a loan than buyers are willing to pay or in buyers discounting loans because they fear the seller may be holding back important negative information (adverse selection). Consequently, loan values and the related losses must be estimated. Both accountants and bank supervisors are concerned about the results of this estimation, but each group has a different perspective on the question.

The accounting authorities' concern is for general-purpose users of financial statements, particularly investors. Investors may pay too much for bank stocks if banks' reported losses are understated, or they may sell their stock too cheaply if the losses are overstated. Thus, the accounting authorities are worried about biased estimates in either direction, particularly when the bias is intentional. The authorities recognize that managers, who prepare the financial statements, sometimes have incentives to use loan-loss accounting to manipulate the numbers reported. In some situations managers have an incentive to understate expected losses in order to boost reported net income and capital in the current period. In other situations managers have an incentive to overstate losses in the current report when earnings are high so that they can understate losses in a later period when other earnings are low, thereby smoothing the reported net income.[4]

In contrast, bank supervisors are concerned about banks being inadequately capitalized and possibly failing. Banks should maintain loan-loss allowances sufficient to cover expected losses and maintain sufficient equity capital to absorb unexpected

losses. Bank supervisors argue that reasonable approaches to estimating loan losses are likely to yield a range of estimates. Given supervisors' focus on safety, they want banks to report a loan-loss allowance that is on the high end of those estimates.

This article considers these somewhat different approaches to banks' loan-loss accounting by reviewing existing GAAP for loan-loss accounting in the following section. The next section compares the economic value of a loan with its reported value under current GAAP. The article then reviews the GAAP "reliability" and "relevance" criteria and analyzes existing GAAP and proposals to value loans and other financial assets and liabilities at their "fair values," particularly with respect to the criteria.[5] We then analyze bank supervisors' concerns about loan-loss accounting. The last section summarizes the results of prior discussion and presents conclusions that are relevant for policy.

Current Accounting Standards

Existing accounting standards as determined by the FASB are specified in its Statements of Financial Accounting Standards (FAS).[6] The two statements most relevant to loan-loss accounting are FAS 5, *Accounting for Contingencies*, and FAS 114, *Accounting by Creditors for Impairment of a Loan.* FAS 5 (paragraph 8) sets two standards, both of which must be met in order to recognize a loss contingency in a firm's financial statement:

a.   Information available prior to issuance of the financial statements indicates that it is probable that an asset has been impaired . . . at the date of the financial statements. It is implicit in this condition that it must be probable that one or more future events will occur confirming the fact of the loss.

b.   The amount of the loss can be reasonably estimated.

FAS 5 defines "probable" as "the event or events are likely to occur" (paragraph 3). "Probable" is generally interpreted as "more likely than not," or having at least a 50 percent chance of occurring.

FAS 114 provides additional guidance on accounting for individual loans that are impaired in terms of both defining impairment and measuring the extent of

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1. These bank supervisors are the Office of the Comptroller of the Currency (OCC), the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation (FDIC), the Office of Thrift Supervision (OTS), and the National Credit Union Administration (NCUA). Although state banking agencies also supervise banks they charter, we are not aware of any that have taken an interest in this issue.

2. Section 121 of FDICIA, codified to 12 *U.S. Code* 1831n(a).

3. The FASB's indication that it would reconsider loan-loss accounting follows the abandonment of a proposal by the American Institute of Certified Public Accountants (AICPA) to provide guidance on the implementation of existing GAAP, according to Davenport (2004). Bank supervisors had recommended abandonment in a letter to the chairman of the AICPA dated October 6, 2003, available at <www.bdbonline.net/pdfs/RegulatorsLetter.pdf>.

4. Managers also might want to manipulate expenses generally to reduce income taxes. However, since 1986 banks may deduct only realized rather than estimated credit losses. See Walter (1991, especially 24–25) for a discussion of the historic role of taxes in determining loan-loss accounting.

5. The FASB explains that by "fair value" it means "an estimated market exit price, that is an estimate of the amount that would have been realized if the entity had sold the asset" (1999, paragraph 12). Fair value includes, but is not limited to, market value because appraisals, models, and present-value calculations may be used when relevant market values are not available.

6. The texts of FAS may be obtained from the FASB's Web site, <www.fasb.org/st/>.

impairment.[7] FAS 114 amends FAS 5 to indicate in paragraph 8 that "a loan is impaired when, based on current information and events, it is probable that a creditor will be unable to collect all amounts due according to the contractual terms of the loan agreement." Several measures of impairment are permitted under FAS 114, including "the present value of expected cash flows discounted at the *loan's effective interest rate,* . . . observable market price, or the fair value of the collateral if the loan is collateral dependent" (paragraph 13, emphasis added). FAS 114 specifies that "the effective interest rate . . . is based on the original contractual rate, not the rate specified in the restructuring agreement" (paragraph 14). This requirement drives a wedge between economic and accounting values because restructured loans usually are riskier than when originally made. Hence, the interest rate GAAP requires tends to be lower than the market rate applicable to such loans, thereby overstating the actual (economic) value of the loans.

The philosophy underlying the reported figures may be less important than the transparency of the process required by the accounting authorities and by the bank supervisors for their respective estimates of loan losses.

The treatment of loans in FAS 5 and FAS 114 does not apply in two special cases. First, if loans have been securitized and are traded in financial markets, they must be accounted for according to FAS 115, *Accounting for Certain Investments in Debt and Equity Securities*. FAS 115 requires classification of debt securities into one of three categories: held to maturity, available for sale, or trading securities. Securities classified as held to maturity are accounted for using historic cost; securities that are available for sale and trading securities are carried at their fair values. Contemporaneous changes in fair value of trading securities are included in current earnings. For securities held for sale, these changes are reported in a supplementary statement of comprehensive income and are included in the income statement only when the changes are realized (for example, the securities are sold).

The second exception to FAS 5 and FAS 114 is loans hedged by a derivative contract. FAS 133, *Accounting for Derivative Instruments and Hedging Activities,* requires that when a derivative is designated as a hedge for a specified asset or liability, the fair-value gain or loss on both the derivative and the hedged item should be recognized. Thus, if a derivative instrument hedges the fair value of a loan, the loan will be reported at its fair value.

Economic and Accounting Values of Loans

The economic value of a loan (or any asset) is the present value of the expected cash receipts.[8] A banker's estimate of the economic value of a loan need not equal the value the banker would report for the asset from a straightforward application of GAAP.[9] The banker would be expected to use all available information, taking into consideration the cost of obtaining and using the information, to estimate the loan's economic value to the bank. However, the banker is allowed to use only a subset of the available information to report the GAAP value of the loan unless default is probable.

The differences between economic and accounting value may be more precisely identified and analyzed by expressing economic value in notational form. In the equations that follow, uppercase letters represent dollar values and information sets, lowercase letters represent rates and probabilities, and subscripts represent a time period.

The basic equation for calculating the economic value at time 0 of any set of cash flows over the interval from time 0 to time N is

(1) $\quad EV_0 = \sum_{t=0}^{N} \left(C_t \left(I_0 \right) / \left(1 + dr \right)^t \right),$

where EV_0 is the economic value of the loan at time 0; $C_t(I_0)$ is the expected cash received at time t, given the information I available at time 0; and dr is the discount rate demanded by investors to compensate for the time value of money, any risks associated with the loan, and the illiquidity of the loan. Equation (1) says that the economic value of an asset at time 0 is the sum of the expected cash flows given the information at time 0, discounted at the appropriate interest rate.

The issues in loan-loss accounting may be illustrated by making two changes in equation (1). First, the expected cash flow at time t may be separated into the promised cash flow less the expected loan losses due to default on the part of the borrower. Second, the promised cash flow may be further separated into promised interest payments and promised principal payments. The economic value of a bullet (or nonamortizing) loan with these modifications to equation (1) is[10]

(2) $\quad EV_0 = \left[\sum_{t=0}^{N} \left(lrP / \left(1 + dr \right)^t \right) + P / \left(1 + dr \right)^t \right]$
$\qquad - \sum_{t=0}^{N} \left(pd_t \left(I_0 \right) * LGD_t \left(I_0 \right) / \left(1 + dr \right)^t \right),$

where lr is the rate of interest paid on the loan; P is the principal value of the loan; $pd_t(I_0)$ is the probability that default will occur at time t, given the information available at time 0; and $LGD_t(I_0)$ is the loss given default at time t, conditional on the information available at time 0.

The first term (inside the square brackets) of equation (2) represents the discounted promised payments on the loan—the discounted value of the promised interest payments on the loan (lrP) plus the discounted value of the promised principal repayment.[11] The second term is the discounted value of the expected loan losses given the information at time 0—the probability that the loan will have defaulted at time $t(pd_t)$ multiplied by the expected loss given default at time $t(LGD_t)$. Equation (2) may be simplified without changing our conclusions by assuming that the value of LGD is constant for every time t and does not change with the arrival of new information.[12]

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7. FAS 114 specifically excludes from its scope "large groups of smaller-balance homogenous loans that are collectively evaluated for impairment" (paragraph 6). Such loans are often called retail loans and include credit card and automobile loans.

8. The economic value of a loan after it has been made also depends on the bank's cost of administering the loan. We do not include a term for this cost in our analysis because doing so would complicate the notation without providing any additional insight on loan-loss accounting.

9. In this section we will assume that the banker would honestly report her best estimate of a loan's value in accordance with GAAP. The following section considers the possibility that other considerations may influence the reported value of a loan in a bank's financial statements.

10. Equation (2) could be easily modified to analyze an amortizing loan (a loan with periodic principal prepayments) at the cost of somewhat more complicated notation. However, doing so would not change our qualitative results.

11. We could allow the discount rate on the loan to vary through time and with the arrival of new information, but doing so would not change our qualitative insights on accounting for credit losses. The issues associated with accounting for time variation in the discount rate are discussed below.

12. We realize that the loss given default could change through time or with changes in information, such as the appreciation or depreciation in the value of collateral. While such changes would affect the magnitude of the difference between economic and accounting values, these changes would not alter our qualitative conclusions.

The economic value of a loan may change from one period to the next as a direct consequence of the passage of time.[13] The value may also change because of the arrival of new information that alters the expected values of the probability of default in future periods. Thus, the economic value of the loan at the start of the next period, period 1, is

$$(3) \quad EV_1 = \left[\sum_{t=1}^{N} \left(lrP / (1+dr)^t \right) + P / (1+dr)^t \right]$$
$$- \sum_{t=1}^{N} \left(pd_t(I_1) * LGD / (1+dr)^t \right).$$

The change due merely to the passage of time is reflected in the change in the period over which the cash flows are summed—from time 0 to time N in equation (2) and from time 1 to time N in equation (3). The new information is reflected by updating the information set used to calculate the probability of default from $pd_t(I_0)$ in equation (2) to $pd_t(I_1)$ in equation (3).

In contrast, accounting values respond to a change in pd_t, and hence accord with economic values, only if a loss is probable, the loan is hedged by a derivative, or the loan has been securitized and is not categorized as held to maturity. Loans that do not meet any of these criteria are hereafter called a "typical loan" in recognition that most loans in banks' portfolios do not meet these criteria. The GAAP value of a loan may differ from its economic value for three important reasons, discussed next.

GAAP value cannot exceed the principal value of the loan. The accounting, or GAAP, value of a typical loan may differ from its economic value both at the time the loan is made and in future periods in part because a loan's maximum GAAP value is its principal value. In contrast, a loan's economic value would be expected to exceed its principal value if the market for loans is less than perfectly competitive. In addition, under GAAP the cost of acquiring the loan and putting it on the books (the initial cost) is almost never capitalized (added to the face value of the loan). The loan's economic value is greater than the face value by the present value of these amounts, which the bank collects over time as part of the borrower's interest payments.

GAAP value does not incorporate all new information about *pd*. In the periods after a loan is first recorded, the GAAP value may differ from the economic value because GAAP permits consideration of changes in the probability of default (*pd*) only if default is probable. This limit on the recognition of changes in default probabilities would result in the GAAP value of a loan being less than its economic value when new information indicates that the probability of default has declined. However, the GAAP value of a loan could be more than its economic value when new information indicates an increase in the probability of default (*pd*) in future periods but the cumulative probability of default remains below 50 percent (is not probable).

GAAP value generally ignores anticipated changes in *pd*. A loan's GAAP value may also differ from its economic value if the hazard rate—the probability of default conditional on the loan not defaulting in a prior period—is not constant through future periods, given the information available at any point in time.[14] A large set of possible alternative variations exists in the probability of default. One common pattern with important regulatory implications is one in which the probability of default is very low for several periods after the loan is made and then increases. For example, experience might indicate that borrowers tend to maintain their promised payments for several years, both because the projects for which they borrowed the funds

take time to fail (if they do) and because they can hide the failure for a while by holding back some of the borrowed funds and then using the funds to meet scheduled interest and principal payments. Experienced bankers probably recognize this pattern of risk and behavior. The contract rate of interest paid on the loan, *lr,* though, is almost never structured to change with expected changes in credit risk during the life of the loan. Rather, the rate is set to compensate the bank for the net present value of expected credit losses over the life of the loan.[15] As a result, in this situation the contract rate of interest will overcompensate for credit risk in some earlier periods and undercompensate for credit risk in some future periods.[16]

Consider the simplest case in which the probability of default increases every period from initiation to maturity. Then, stated in terms of our notation, for some periods from the initiation of the loan at 0 through some later point *M*, the expected loss due to default is less than its average value over the life of the project (assumed to be *N* periods):

$$(4) \quad pd_i(I_0)LGD < \sum_{t=0}^{N} \frac{pd_t(I_0)LGD}{N}$$

for $i \leq M.$ Then in subsequent periods

$$(5) \quad pd_j(I_0)LGD > \sum_{t=0}^{N} \frac{pd_t(I_0)LGD}{N}$$

for $M < j \leq N.$[17] Note that all values of the probability of defaults in equations (4) and (5) are based on the information set I_0. Given that the contract rate on the loan, *lr*, is set at time 0 to compensate the firm for the average loss over the period, the implication is that the bank collects a credit risk premium early in the life of the loan that exceeds the required compensation for default losses for the first *m* periods, but in subsequent periods the credit risk premium will be less than the required compensation.

Although predictable time variation in *pd* drives a wedge between earnings reported on a GAAP basis and earnings based on economic values for individual loans, the wedge often will not be material at the level of portfolios of similar loans. Portfolios often contain loans of varying maturities with the overstatement of earnings on relatively recent loans being more or less offset by understatement on older loans. Indeed, if the portfolio contains approximately equal amounts of loans at every

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13. An exception for which the economic value of the loan does not change arises if the probability of default is constant, the discount rate is constant, and the market for loans is competitive.

14. The interest paid on a loan in any given period compensates for its expected losses in that period—the hazard rate times the expected loss given default.

15. This analysis would not hold if *lr* varied in response to changes in the borrower's credit quality. However, most variable-rate loans do not adjust to changes in the borrower's credit quality but rather in response to changes in a market rate, such as the London Interbank Offer Rate (LIBOR). The primary reason for movement in these market rates is changes in the default-free risk rate. Risk-related movements in that rate are the result of changes in overall credit risk and not to the risk of a specific borrower or loan.

16. This situation is similar to a level payment on a whole-life insurance policy, where the early-period payments exceed the expected death payout in those periods.

17. This formulation assumes that the probability of default is increasing over the entire life of the loan. While we could model more complicated time patterns, doing so would complicate the analysis without adding any important new insights.

Table 1

Comparison of GAAP and Economic Values

Situation	GAAP value	Economic value
A: Value at loan initiation		
Competitive market for individual loans	Loan principal	Loan principal plus the costs of making the loan
Lender has market power	Loan principal	Greater than the loan principal
B: Reported loan value after initiation		
Default is not probable	Loan principal	Economic value
Default is probable	Economic value	Economic value

maturity between origination and maturity, the difference between GAAP earnings and earnings based on economic value would be about zero. Thus, predictable time variation in pd is unlikely to have a material effect on the difference in earnings unless the size of the loan portfolio is significantly increasing or decreasing.

Summary of economic and accounting treatment. The differences between GAAP values and economic values are summarized in Table 1. GAAP requires the reporting of the principal value of the loan in all cases except where default is probable, as shown in panel B. For example, even if new information suggests that the cumulative probability of default over the remainder of a loan's life increased from 1 percent to 49 percent, GAAP would not allow any recognition of the greatly increased probability of default. In contrast, the economic value of the loan at its initiation is likely to be greater than the principal of the loan, as shown in panel A. Thereafter, the economic value of the loan will respond to changes in the discounted value of the promised payment less the discounted value of the expected loan losses, as shown in panel B. Thus, unlike GAAP reported values, the economic value of a loan would decrease in response to new information, suggesting the probability of default had increased from 1 percent to 49 percent.

The differences between the definition of GAAP and economic values for individual loans imply that the two values respond differently to new information and the passage of time if default is not probable, as summarized in Table 2. The GAAP value remains at the principal value of the loan. In panel B, the arrival of new information about the probability of default results in economic value moving inversely with the change in the probability of default.

Panel C of Table 2 summarizes the changes in economic value if the probability of default increases throughout the life of the loan. Absent any news after initiation, the loan's value declines as time proceeds when the probability of default in the period is less than its per-period average probability. Assuming the loan does not default, its value increases later in its life when the average probability of default is above its per-period average amount. Note that panel C gives changes in the economic value of an individual loan and not a portfolio of loans. If a bank's portfolio includes individual loans of approximately equal amounts and maturities, the probabilities of default in any one period tend to average out and be approximately equal among periods.

One overall implication that may be taken from this analysis is that the reported GAAP value is likely to understate the economic value of most banks' portfolios most

Table 2
Comparison of Changes in GAAP and Economic Values[1]

Situation	Change in GAAP value	Change in economic value
A: No new information, probability of default is equal in every remaining period		
No new information, probability of default is equal in every remaining period	No change	No change
B: New information, per-period probability of default is constant over the remaining life of the loan		
New information suggests an increase in the probability of default	No change	Economic value decreases
New information suggests a decrease in the probability of default	No change	Economic value increases
C: No new information, per-period probability of default is increasing over the remaining life of the loan		
Probability of default is less than average probability of default	No change	Economic value decreases
Probability of default is greater than average probability of default	No change	Economic value increases

[1] Comparison of changes in GAAP and economic values assumes that the economic value equals the loan value at initiation, the loan principal is due at maturity, and default is not probable.

of the time. Consider a loan portfolio consisting of the same amount of loans at every possible maturity and the same probability of default on every loan. If the realized probability of default is equal to the portfolio's expected value, the portfolio should be worth more than its principal value because the initial costs of making and booking loans are not capitalized. If the bank can charge a higher-than-competitive interest rate, perhaps because it has market power, the portfolio would be worth even more. The decline in the value of loans when default becomes more likely would be offset by the increase in the value of loans when default becomes less likely. However, GAAP accounting allows recognition of decreases in the value of loans only in cases in which default is probable and does not recognize increases in loan value. Thus, GAAP accounting requires the bank to report its loans at less than their economic value or their principal value even when overall defaults in the portfolio exactly match the bank's expectations.

Analysis of Present and Proposed Accounting Rules
Present accounting principles are largely based on a system that values assets and liabilities at their historic cost rather than at their current market value. Historic-cost accounting reflects an emphasis on providing reliable financial information even if the information is not the most relevant to the problem facing the decision maker. The FASB's move toward use of fair-value accounting, particularly for financial instruments, reflects its belief that fair values could and would be measured sufficiently reliably by managers and be audited effectively by independent public accountants and, consequently, would provide more relevant information to decision makers. This section begins by discussing the concepts of "relevance" and "reliability" as expressed by the FASB and then shows how present GAAP has systematically selected options that have greater reliability at the cost of decreased relevance. The next subsection considers the issues raised by the FASB's proposed move to fair-value accounting.

Concepts of reliability and relevance. The FASB has published seven statements on Financial Accounting Concepts (FAC) that explain the concepts it seeks to implement in providing guidance on specific accounting issues. In FAC 2, the FASB explains how it evaluates alternative accounting choices: "The better choice is the one that . . . produces from among the available alternatives information that is most useful for decision making" (1980, paragraph 30).[18] Paragraph 15 explains that "the qualities that distinguish 'better' (more useful) information from 'inferior' (less useful) information are primarily the qualities of *relevance* and *reliability*" (emphasis in original). Paragraphs 60 and 61 employ an analogy to medical drugs to distinguish the two qualities. A drug is reliable if the contents of the bottle conform to the formula shown on the label. A drug is relevant if it is effective, that is, if it cures or alleviates the underlying condition. The analogy, though, is incomplete. In many instances the choice is between a reliable drug of limited curative value (historic cost) and a drug that might be effective if it were reliable (fair value based on actual market values) but would most likely be harmful if it were believed to be reliable but actually was unreliable (fair value based on management's subjective estimates). The problem is that financial statements are the responsibility of a firm's management, who provide the estimates of market values.[19] Although managers sometimes have an incentive to underestimate economic values, more typically they may be expected to overestimate these values because their performance evaluations and compensation often are heavily influenced by reported values.

Recognizing larger expected loan losses in financial statements does not give banks added resources to absorb losses.

Present GAAP rules. GAAP often encompasses a trade-off between reliability and relevance, using values based on historic costs to measure some items and economic values to measure others. Contemporary loan-loss accounting reflects such a mix, with loans recorded at historic cost but with the loan-loss allowance based on estimated market values under certain conditions. Both the use of historic cost to record loans (excluding the initial cost) and the conditions placed on the use of market values serve to increase the reliability of the financial statements.

The analysis of the economic values presented here indicates that a loan should be expected to have a positive economic value to the bank at the time the loan is made whenever the relevant market is not perfectly competitive. Even when the market is perfectly competitive, the loan's value to the bank is greater than the amount the borrower receives because the interest payments include amounts that compensate the bank for its operating costs and return on capital. However, current accounting principles require that the loan be recorded at the amount loaned to the borrower, with initial operating costs (for example, acquisition, credit check, and administration) charged off as current-period expenses. Although the loan amount is a historical number that tends to understate the loan's economic value to the bank, it has the advantage of having been measured reliably and inexpensively. In contrast, the loan's economic value when it is initiated is an estimate that must be made by the preparer of the financial statements—the bank's management.

If loans were not recorded at historic cost, a bank could increase its reported net income merely by making additional loans near the close of the accounting period and recognizing its management's expectations of the discounted profits from the new loans as additional loan value and current-period income. Not only might such profits never be realized, but also such an accounting procedure would create an incentive for some managers to book new loans solely to record estimated and overoptimistic

profits. This situation is more likely to occur when managerial bonuses depend on recorded profits or when managers want to offset losses that must be recognized.[20]

As described earlier, loan-loss accounting requires recognition of estimated losses in certain circumstances, particularly when a loss is probable (FAS 5). This requirement should discourage (but probably does not prevent) banks and other lenders from adjusting their estimates of expected losses as a tool for smoothing net income.[21] Absent this rule, given a sufficiently large portfolio of loans, a bank could materially reduce and later increase reported net income by making changes in expected probabilities of default or loss-given-default of a magnitude that would be difficult, if not impossible, for any outside party to disprove or even verify. Although the requirement that a loss be probable still requires the use of an estimate, it limits the application to those loans that are or soon will clearly be in distress. Moreover, the common practice of banks working with distressed borrowers further reduces the opportunity for a banker to assert incorrectly that a loss is probable on a loan with elevated risk. As a part of the loan workout, the bank often will relax terms that the borrower may have difficulty meeting. For example, the bank may lower interest payments but require additional collateral. These changes reduce the expected loss to the bank and thus tend to reduce the probability of default to less than probable, thereby obviating the loan's being written off or down.

Another FAS 5 requirement increases the reliability of reported losses. FAS 5 maintains that the probability of a loss must be based on information that is known or knowable as of the financial statement date. Although reliability is not the primary reason for these requirements, they increase reliability by requiring that losses be based solely on past events and not in anticipation of future events.[22] However, because an asset's economic value is based on all available information (including the present value of future events that have a non-negligible but less than 50 percent probability of occurring), as described earlier, this GAAP rule tends to overstate some loan values.

When a bank expects that default losses in a portfolio of loans are not constant over time but will, say, increase, to be consistent with GAAP, a bank should recognize that the early-period loan interest payments include compensation for expected future losses. To account for this situation, a bank should record that portion as a deferred credit in the liability section of the balance sheet, with an offsetting reduction of loan-interest revenue. When the higher loan loss is incurred as expected, the accounting entry would reduce (debit) this deferred credit. But this accounting is almost never done because it involves difficult-to-make estimates and cumbersome bookkeeping

18. The decisions are presumably made by "present and potential investors and creditors and other users making rational investment, credit, and similar decisions" (FAC 2 1980, paragraph 22).

19. Although independent public accountants review management's estimates, their role is not to provide substitute estimates but rather to verify that management's estimates were derived by the consistent application of generally accepted procedures and that the numbers presented conform to GAAP.

20. This situation occurred when Enron adopted fair-value accounting for a substantial portion of its activities, as shown in Benston (2005). Overvaluation to obtain bonuses is also given by the FDIC (2000) as an example of the accounting abuses at Pacific Thrift and Loan Company.

21. Note that if banks' use of the allowance for loan losses were substantially eliminated, as our analysis leads us to suggest, this form of income smoothing would be obviated.

22. The primary reason for this requirement in FAS 5 is that GAAP is concerned with the measurement of periodic net income. The intent is that current income should reflect only those events that occurred during or before the reporting period and that expenses incurred to earn the income should be reported (matched) in the same period.

entries. Furthermore, when loan portfolios are stable, the credits and debits tend to wash out because overstatements of current-period loan-loss expense approximately equal overstatements of current-period interest-income revenue.

Fair-value accounting. The FASB's interest in implementing fair-value accounting for financial instruments dates back at least to 1991, with FAS 107, *Disclosures about Fair Value of Financial Instruments.* FAS 115, *Accounting for Certain Investments in Debt and Equity Securities* (enacted in 1993), requires the inclusion of fair values in the balance sheet and income statement (rather than only disclosure in footnotes) for securities not held to maturity for which reliable market prices could be determined by reference to securities regularly traded on recognized securities exchanges. FAS 133, *Accounting for Derivative Instruments and Hedging Activity* (enacted in 1998), expresses the FASB view forcefully: "*Fair value* is the most relevant measure for *financial instruments* and the only relevant measure for derivative instruments" (emphasis in original).[23] The primary benefit of fair-value accounting, according to the FASB, is discussed in its *Preliminary Views*:

> The major conceptual advantage of fair value as a measurement attribute is that because it is a market-based notion, it is unaffected by:
>
> a. *The history of the asset or liability*. Fair value does not depend on the date or cost at which an asset or liability is acquired or incurred.
> b. *The specific entity that holds the asset or owns the liability.* Fair value is the same no matter which entity has an asset or liability if both entities have access to the same markets and, for a liability, if they have the same credit standing.
> c. *The future of the asset or liability.* That is, fair value does not depend on the intended disposition of an asset or liability. (1999, paragraph 3)

Thus, fair values are measured as values in exchange, the amounts for which an asset can be sold or a liability extinguished. These exit values necessarily understate the values to investors in companies that do not expect to dispose of their assets. For these "going concerns," the value of assets is their value in use, that is, their present values. If assets could be sold for more than their value in use (including additional value from related business and net of transactions costs), they should and usually would be sold. Hence, assets that are kept would almost always have greater values in use than in exchange, and fair values understate the economic value of those assets to the owners of an enterprise.

Application of fair values to loan-loss accounting. If loans could be reported reliably at fair value, where fair value is value in use, there would be no need for a loan-loss provision or allowance. The fair value of the loan portfolio would be reported as an asset, and the change in the fair value of the portfolio, positive or negative, would be recognized on the income statement. The problem with applying fair value is that no market exists for many loans because banks obtain information about borrowers' credit quality that cannot be credibly conveyed to potential buyers of the loan. As a consequence, potential loan buyers are concerned about adverse selection, which here means the possibility that the seller is selling a particular loan because the seller has adverse private information about the loan. The result is that the market for selling some types of loans either breaks down or exists only because the seller retains part of the credit risk. A market for the full transfer of credit risk does not exist because banks place a greater value on the loan than potential buyers are willing to pay.

The problem of information asymmetry arises even in cases in which a market exists for low-risk standardized loans, such as the market for mortgage loans. The contracts between mortgage originators and securitizers impose penalties on the originators if the credit losses exceed some specified minimum amount (Frame 2003). Consequently, a bank may choose to hold rather than securitize such loans. Since loans that are securitized are reduced by a discount reflecting investors' concerns about adverse selection, application of those prices to value loans that are retained understates their value to the firm because such loans are not subject to this concern.

Fair values of loans held by a bank could be approximated, however, by taking account of changes in such observable variables as changes in market rates of interest that apply to loans of a given kind. For example, if the interest rate on conventional mortgage loans with similar terms (such as down payment and maturity) changed, loan values could be determined by discounting the expected cash flows by the current interest rate. (See the sidebar on page 32 for additional discussion of this issue.)

Analysis of Bank Supervisors' Position

The comparison of economic value and reported accounting values in the second section suggests that adherence to existing accounting principles will result in reported values that are generally less than the loans' economic value (with some important exceptions).[24] Thus, even though loan losses reported in accordance with GAAP reflect only probable losses, net loan values on average will be conservative, as desired by the bank supervisors. Nevertheless, bank supervisors continue to press the case for even more conservative valuations.[25] Are the supervisors seeking valuations that are excessively conservative?

Even though reported loan valuations are conservative on average, they are not conservative in all cases. As we mentioned earlier, one important exception can occur when the expected probability of default (pd) is low in the first few periods after the loan is made but increases substantially over time. A portfolio of these loans will appear very profitable in the early years and only later will reflect large losses. Consequently, financial statements based on current GAAP could materially overstate profits and loan values if these types of loans are a large and rapidly growing part of a bank's asset portfolio, assuming that these overstatements are not offset by the GAAP understatement of economic values when loans are initially recorded. Supervisors may reasonably be concerned that allowing a bank to expand its loan

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23. The expression of an interest in fair-value accounting in FAS 133 is not surprising, given the difficulty in a hybrid historic-cost and fair-value environment to fairly present the financial position of a firm that uses derivative contracts to hedge. The problem is determining how to account for positions when an instrument valued at fair value is hedging a financial position valued at historic cost. A substantial portion of FAS 133 is devoted to methods of reconciling the two valuations. The problem of fairly presenting a firm's position is eliminated, at least conceptually, if both the position and the hedge were recorded at their fair values.

24. We discuss the exception of nonconstant probability of default next. Changes in the market discount rate could also result in changes in economic values that are not recognized in accounting net income. However, the effect of GAAP's not recognizing the effect of unexpected changes in market interest rates on the values of fixed–interest rate loans affects many assets and liabilities and is not directly related to loan-loss accounting. We discuss this situation in the sidebar on page 32.

25. Bank supervisors have acknowledged existing GAAP, which mandates recording a loss only when it is probable, as the basis for regulatory accounting. However, they argue that the existing rules provide room for recognizing the inherent imprecision in loan-loss estimates, and they would prefer a bias towards overstating the allowance for loan loss (see AICPA 2003).

Fair-Value Accounting for Interest Rate Changes

Loan-loss accounting recognizes that some borrowers will not fully honor the promised interest and principal payments. However, loan-loss accounting does not and is not intended to recognize changes in loan value due to interest rates. Thus, the question arises as to whether banks should recognize changes in the fair value of loans due to interest rate changes.

The biggest obstacle to fair-value accounting for loan losses is that of estimating cash flows. The bank has valuable information about future cash flows from most types of loans that cannot be readily verified by third parties. In contrast, the most important determinant of fair value for interest rate changes—changes in market interest rates—are routinely collected by several parties, including the Federal Reserve, and these data are widely available.

Although fair-value accounting to adjust asset values for interest rate changes does not face the same fundamental problem as loan-loss accounting, fair value for rate changes is not problem-free. One problem is that if this accounting were limited to financial assets, it would likely be misleading because banks may use both liabilities and derivative contracts to hedge interest rate exposures, such as funding long-term, fixed-rate loans with long-term, fixed-rate deposits. Requiring a bank to measure assets but not liabilities by adjusting for changes in interest rates would typically be less informative about the bank's financial condition than merely reporting assets and liabilities at historic cost. Moreover, many banks measure and hedge their interest rate exposure at the level of portfolios of financial claims or even at the bankwide level. Thus, fair-value accounting should apply the effect of rate changes to all interest rate–sensitive instruments in a bank's portfolio. Although doing so adds complexity, it does not raise insurmountable or even difficult conceptual problems for developing reliable fair-value measures.

More difficult problems with applying fair-value accounting for interest rate changes arise from estimating concurrent, related changes in the cash flows. Cash flows may change when many financial contracts offer options to one or both parties, where the value of the option depends in part on interest rate changes. For example, residential mortgage loan contracts often give the borrower the option to prepay the loan at no extra charge, an option that increases in value as interest rates decline. Another way in which cash flows may change is that banks may administer the rates charged on certain loans and paid on certain liabilities rather than allow the rates to change automatically in response to changes in market rates. An example of such a loan contract is a small-business loan for which the rate varies with changes in a bank-determined prime rate. We next discuss these two cases.

Options Whose Value Depends in Part on Interest Rates

A bank's portfolio may contain both stand-alone options contracts and a variety of other types of financial contracts that embed options whose value depends in part on interest rates. The value of most stand-alone options can be reasonably reliably measured without any conceptual problems because market prices exist for many types of interest rate options contracts. Some contracts, such as options on Treasury securities, trade on exchanges while others, such as options on interest rate swaps, trade in over-the-counter markets where price quotes are frequently available. Moreover, even where market prices are unavailable, values can be calculated using models that depend solely on readily observable data.[1]

The more difficult options-related problem is that of options embedded in other contracts, such as loans that allow the borrower to prepay part or all of the loan principal at no charge. While the value of these options is largely determined by interest rates, interest rates are not the sole determinant of when the options are exercised. The holders of the options may rationally exercise (or fail to exercise) the options for reasons that are unrelated to interest rates. For example, mortgage borrowers may fail to exercise their option to prepay a mortgage loan and

refinance it with lower-cost debt because their credit quality has declined to the point where they cannot obtain another loan. Additionally, some borrowers, especially consumers, may fail to exercise options because, considering the cost of evaluating the situation and the transactions costs of refinancing, the perceived gain is simply too small to matter.

If an embedded interest rate option is a significant part of a financial instrument's value, market participants may be expected to develop sophisticated quantitative models to value the options. The values obtained from these models could be supplemented by judgmental adjustments based on factors outside the model. However, the starting point in estimating value will almost always come from a quantitative model, given the complexity of valuing interest rate options. The valuations obtained from these quantitative models could be used to provide reliable estimates of embedded options' value for financial accounting.

One potential problem with relying on model estimates is that from time to time managers will want to adopt a new model that they perceive is more accurate. If management could change models every period without disclosing the change, the reliability of the valuations could be compromised. However, informative disclosures about the changes in the models are possible precisely because the estimates come from quantitative models. The bank could be required to disclose that the model used to prepare the financial statements has changed, what values would have been reported under the prior model, the monetary effect of the changes, and the rationale for the change if it has a material impact on loan values.

Administered Rates

The rate paid on a substantial fraction of bank loans and deposits varies through time, with the rate determined by the bank and not directly by financial markets. The primary examples are loans to consumers and small businesses based on the prime rate, such as a rate of prime plus 1 percent. A bank may base its prime rate on the published industry average, but in many cases the bank's prime rate is whatever the bank says it is. Similarly, the bank sets the rate it will pay on deposits held in the form of negotiable-orders-of-withdrawal accounts (interest-bearing checking accounts) and money market deposit accounts. The bank may set these rates at whatever level it deems appropriate.

One way of valuing these accounts is to estimate expected future interest rates and take account of the potential gain to the bank from its administration of the rate charged on loans and paid on deposits. However, deposit and loan accounts with such floating-rate features typically also provide the bank's customers with the option of withdrawing their deposits or repaying their loan at par. Thus, at any given time the par value of the loan or deposit reflects an implicit market transaction, wherein the bank sets the rate at a level it finds acceptable and customers indicate their willingness to accept the rate by maintaining the deposit or loan relationship. Moreover, this continual implicit recontracting suggests that the bank earns economic rents not as a result of the bank's and customers' initial decisions to enter into the contracts or as a result of likely future rate changes. Rather, the bank earns its rents in each period as customers maintain their loans or deposits with the bank even though the difference between the bank's administered rate and market rates on comparable instruments may have moved in ways that are favorable to the bank. This analysis suggests that loans and deposits with administered rates should be valued at par, with any gains or losses due to rate changes recognized as they are realized.

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1. Models to value interest rate options are not free from error, but their consistent application can yield valuations that tend to reduce opportunities for earnings manipulation.

portfolio without recognizing the likely increase in loan losses in future periods could result in an overstatement of the bank's current reported profitability and of the value of equity (retained earnings). If banks are allowed to recognize interest intended to cover future loan losses as current income, the bank can experience greater growth while remaining within the supervisor's capital adequacy standards, and the book value of equity will overstate the amount of equity available to absorb losses that may emerge in the loan portfolio.

A market for the full transfer of credit risk does not exist because banks place a greater value on the loan than potential buyers are willing to pay.

Supervisors may also be concerned about the GAAP limitation of information that can be used to determine the probability and amount of default. FAS 5 specifies that a loss expense may be recorded only if it is "probable that one or more future events *will* occur confirming the fact of the loss" (paragraph 8b, emphasis added). Losses that result from a possible (less likely than not) change in macroeconomic conditions from expansion to recession are not accounted for. GAAP does not take account of that risk.

Thus, bank supervisors have some legitimate concerns that should be addressed. To the extent that their goal is merely to make loan-loss accounting more conservative, however, the supervisors' use of loan-loss accounting is inappropriate and, from a bank-safety perspective, ineffective. How a bank accounts for loan losses does not change the cash flow it receives from loans, which is determined by borrowers' payments. Recognizing larger expected loan losses in financial statements does not give banks added resources to absorb losses. The loan-loss provision and allowance are merely entries in financial statements. If bank supervisors want more capital relative to assets, they should require it.

If loan-loss accounting is to influence the viability of a bank, it must be through its influence on the bank's investment, funding, and dividend policies. Higher reported loan losses will indeed reduce a bank's reported earnings and equity capital. This reduction may induce a bank to undertake some combination of issuing new equity capital, reducing its dividends, and reducing the growth rate of its risky assets—conservative actions that it otherwise might not undertake. Each of these measures will reduce the probability that a bank will become insolvent. But it is the changes in dividends, equity issuance, or investment policies, and not the change in reported loan losses, that reduce the risk of insolvency.

Nevertheless, if supervisors believed that loan-loss accounting were a more efficient method of obtaining their supervisory goals, they could replace GAAP with the more stringent RAP accounting for loan losses. However, this substitution would be a poor way to deal with this problem because the difference between RAP and GAAP could create confusion for investors. Furthermore, the problem could be dealt with more effectively by adjusting bank capital requirements. Bank supervisors could require risky banks to increase their equity (by reducing dividends or issuing capital) and demand a reduction in the growth rate of risky assets through capital adequacy requirements. Thus, the principal safety and soundness benefits that the supervisors might derive indirectly from higher GAAP loan-loss allowances could be obtained directly with their existing powers.[26]

Bank supervisors and others might object that, absent an allowance for loan losses and a provision for estimated loan-loss expense, relatively more and less risky loans will appear to be the same on the balance sheet. But this outcome merely reflects economic reality, as the following example illustrates.

Consider two investments that a bank might make—a $100,000 risk-free government bond or a $100,000 risky loan, each of which matures in five years. Each promises quarterly interest payments, with the principal repaid at maturity. The interest rates on the bond and the loan are 4 percent and 12 percent, respectively. (For purposes of this illustration, assume that the return on capital is included in operating expenses, no income taxes exist, and no operating expenses are required for the bond investment.) On the loan, 5 percent of the yield is compensation to the bank for operating expenses. Thus, the bank gets an additional 3 percent over the bond rate and operating expenses to compensate it for expected losses given default (assuming the market is perfectly competitive, the bank is risk neutral, and no associated additional benefits or costs exist). Through years one, two, and three the loan does not default and the expectation that the borrower might default does not change.

Hence, in each of these years, if the bank invested in the government bond, it would record $4,000 as interest income. For the loan, it would record interest income of $12,000 less $5,000 of operating expenses, or a net of $7,000, in each year. At the end of the first three years, the bond and the loan have the same economic and accounting value—$100,000. But in the middle of year four the borrower declares bankruptcy and the loan defaults, and the bank can recover, say, only $40,000 after collection costs. If it had invested in the government bond, it would have recorded in that year and the following year $4,000 as interest income. But, because it invested in the loan, in year four it records $6,000 as interest income, $2,500 in operating expenses (for a half year), and $60,000 in net loan losses, or a reduction in net income of $56,500. Thus, the two net income streams from these assets are very different. The government bond earns $4,000 a year over the five years. The annual earnings (losses) from the loan are $7,000, $7,000, $7,000, $(56,500), and $0 for the loan. However, assuming the bank collects on the loan at the start of year five, it will have $40,000 in the last year with which it can invest in an interest-earning asset, reduce its liabilities, or both.

A bank supervisor's position might be that the bank should have increased its allowance for loan losses for the possible loss by reducing its interest income by, say, $3,000 a year and putting this amount into a contra-asset account (allowance for loan losses). A securities regulator might say that this accounting procedure would warn readers of the bank's financial statement that the loan might default. And when default did occur, the accounting would soften the blow in year four by $10,500, the accumulated amount in the allowance for loan losses through mid–year four. This procedure would be bad accounting, however, because it would misrepresent objectively determined economic reality and would be a very poor way to warn financial statement readers of the loan risk. First, the economic value of the risky loan and riskless bond are equal at the end of the first, second, and third years.[27] This situation exists because the risky loan promises a higher return (risk premium) that compensates the bank for the additional possible (expected) cost of default. If the loan does not default in a particular period, then the bank has earned the risk premium for that period. Second, should the loan default, the bank suffers the loss at that time, not earlier. Third, the variability of the loan's income stream is a reality that should not be hidden, but its variance can be reduced if the bank holds a portfolio of loans such that about the same percentage defaults in any one year.

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26. See Wall and Koch (2000) for a further discussion of this issue.
27. The value of the risky loan remains at par as the credit risk premium earned in each year exactly equals the required premium to cover the possibility that the loan would default in that year.

Synthesis and Policy Conclusions

Useful financial information is both relevant and reliable, and these qualities are interrelated. We have previously shown that GAAP based on historical data, which initially are derived from market transactions, emphasizes the reliability of reported data. Economic-value estimates, by contrast, could be more relevant for investment and supervisory decisions, but only if the valuations can be trusted, since the estimates are subject to managerial discretion and manipulation.

If loan-loss accounting is to influence the viability of a bank, it must be through its influence on the bank's investment, funding, and dividend policies.

The FASB has begun a process that may lead to loans being carried on banks' books at their fair, or estimated market, value, which would incorporate all available public information about a loan's value to a bank. This change could produce more relevant loan valuations if these valuations can be validated by independent public accountants. The problem is that estimates of market value by management are required because most types of bank loans either do not trade in liquid markets or trade only to the extent the seller (explicitly or implicitly) retains a substantial part of the credit risk. However, such estimates may not be reliable, given the many incentives management may have to adjust loan valuations so that the bank can attain its target equity capital and earnings. Hence, the FASB's move toward replacing historical costs with fair values is likely to result in banks (and other lenders) reporting untrustworthy numbers that also fall short of the desired value-in-use numbers.

Bank supervisors are important users of financial statements. Unlike investors, though, they have an asymmetric loss function: Overstated loan values may increase the probability of a bank's failing and increase the loss to the FDIC in the event of failures, but understated loan values impose no cost to supervisors. Thus, supervisors would prefer that loans be valued at the lower end of the range of reasonable estimates calculated using all available information (net of costs). However, supervisors do have other mechanisms that may be used to reduce the probability of a bank failure due to loan losses, such as requiring banks to hold sufficient capital to absorb those losses.

Our analysis of present GAAP, the proposed moves to fair-value accounting, and supervisors' preferred approach reveals significant weaknesses in loan valuation and accounting. However, such accounting difficulties are not unique to loans. Indeed, the economic value to an enterprise of many assets, such as buildings, equipment, and intangibles, rarely can be reliably measured. The approach that has been taken in accounting is to base financial statements on numbers that can be reliably measured without creating an opportunity for the reporting firm's management to overstate earnings. One important qualification is that economic values not based on verifiable actual market transactions do not replace historic costs unless the economic values are lower. This approach limits management's opportunities to report inflated values for their firm's earnings and assets but also provides for disclosure of the more relevant fair values when economic value has declined.[28]

We conclude that using the lower of historic cost or economic value for valuing the credit risk of loans is the most appropriate procedure for both investors and bank supervisors. In most cases this approach would result in values similar to those currently required by GAAP. However, using economic value for loans when these are less than historic cost would change the criteria for recognizing loan losses in several important ways. First, this procedure would require use of the full range of increases in the probability of default, even when a loss is still less than probable. Second, the

procedure would also recognize that reported income might be overstated for rapidly growing loan portfolios for which the hazard rate is expected to increase rather than remain constant over time. Although the traditional GAAP matching concept requires deferral of a portion of interest income during those periods when expected probabilities of default are low until the periods in which the probabilities of default are expected to increase, this deferral rarely is made (perhaps because this economic property of loans has not been recognized or has been neglected).

While the application of the lower of historic cost or economic value to loans would prevent managers from accelerating the reporting of uncertain future earnings to the current period, it could provide them with a tool for deferring current income to future periods. Managers who sought to defer income, perhaps to smooth reported income, could adjust downward their estimates of individual loans' fair value to reduce current income. The underestimate of individual loan values could then be reversed in a subsequent period when the manager sought to report higher income. One mechanism for reducing managers' ability to manipulate reported net income would be to apply the lower-of-cost-or-economic-value rule to portfolios of similar loans rather than to individual loans. If this rule were applied at the portfolio level, the manager would have to make the case that the economic value of the entire portfolio was below its historic-cost value, a more difficult task to the extent that new loans have a positive net present value and some loans have appreciated in value as a result of lower expected future losses. Furthermore, applying the lower-of-cost-or-economic-value rule to a portfolio of related loans rather than to the entire loan portfolio is appropriate because banks report disaggregated results by portfolios of similar loans. Because applying this rule to loan portfolios is likely to understate (and certainly does not overstate) loan amounts, bank supervisors should be pleased.

Valuation of loan portfolios net of loan losses using a lower-of-historic-cost-or-economic-value rule would provide the most relevant adequately reliable measure of loan value. Unlike current GAAP, this rule does not require a reduction in loan portfolios' value when their value is already understated by historic cost. Unlike fair value, our recommended valuation method is less reliant on prices or estimates that are likely to be systematically biased. Finally, unlike the bank supervisors' preferred position, our rule would lead to loans that are less understated and would provide procedures that are less likely to be abused to facilitate earnings management. Supervisors may object that higher loan-loss allowances provide a valuable cushion to absorb unexpected losses and reduce the probability of bank failure. If they believe that banks would be undercapitalized without loan-loss reserves, supervisors have other tools to force banks to hold more capital. Indeed, capital serves to protect creditors (particularly depositors and the FDIC) from all sorts of losses, including losses on securities, real estate, derivatives, foreign exchange, and operations. Loan-loss accounting, therefore, should return to its original function (providing useful information to investors) and not be unnecessarily distorted to accomplish other goals.

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28. The FASB's move towards requiring fair-value accounting based on estimates, appraisals, and pricing models, if adopted, would alter the traditional approach.

REFERENCES

American Institute of Certified Public Accountants (AICPA). 2003. In Re: Proposed statement of position—allowance for credit losses (SOP), October 6. <www.aicpa.org/download/acctstd/cmtltr_recd/clsl/cl279.pdf> (December 2, 2005).

Benston, George J. 2005. Fair-value accounting: A cautionary tale from Enron. Emory University, Goizueta Business School, unpublished paper, March.

Davenport, Todd. 2004. A switch to FASB keeps loan-loss issue on track. *American Banker* 169, no. 125: 1, 4, 8.

Federal Deposit Insurance Corporation (FDIC). Office of Inspector General. 2000. *Material loss review—the failure of Pacific Thrift and Loan Company, Woodland Hills, California*. Audit Report No. 00-022, June 7. <www.fdicig.gov/reports00/00-022.pdf> (December 2, 2005).

Financial Accounting Standards Board (FASB). 1999. Preliminary views on major issues related to reporting financial instruments and certain related assets and liabilities at fair value. Financial Accounting Series No. 204-B, December 14. <www.fasb.org/draft/pvfvalu1.pdf> (December 2, 2005).

Frame, Scott W. 2003. Federal Home Loan Bank mortgage purchases: Implications for mortgage markets. Federal Reserve Bank of Atlanta *Economic Review* 88, no. 3:17–31.

Wall, Larry D., and Timothy W. Koch. 2000. Bank loan-loss accounting: A review of theoretical and empirical evidence. Federal Reserve Bank of Atlanta *Economic Review* 85, no. 2:1–19.

Walter, John R. 1991. Loan loss reserves. Federal Reserve Bank of Richmond *Economic Review* 77, no. 4:20–30.