Marking Banks to Market

*Sherrill Shaffer**

The concept of market value accounting (MVA) has generated heated controversy over its potential application to banks. Although many academics and some bankers agree that MVA has theoretical advantages—at least when applied outside the banking industry—other bankers have tended to resist any departure from more traditional accounting methods, citing special factors unique to banks. The issue won't go away, though: recent legislation requires federal banking regulators to develop some form of MVA for banks to use in parallel with traditional methods, and current regulations already require banks to apply MVA to their trading account securities, securities held for sale, and loans held for sale. What are the issues in extending the use of MVA to the rest of the bank's balance sheet, and is it possible to steer a clear course through them?

*Sherrill Shaffer is Assistant Vice President in charge of the Banking and Financial Markets section of the Philadelphia Fed's Research Department.

WHY CONSIDER MARKET VALUE ACCOUNTING?

The impact of any financial decision on the true interests of a bank's owners and regulators derives from its effect on the bank's discounted net present value, which equals the difference between the discounted present value of its assets and that of its liabilities. The discounted present value of a given asset or liability, in turn, is calculated from its expected future cash flows.

MVA, also known as marking to market, is the valuation of an asset, firm, or financial portfolio according to the price for which it would sell. In an idealized world of perfectly competitive markets, perfect information, and risk-neutral buyers and sellers, the selling price would coincide with the discounted present value of the asset or portfolio. Otherwise, an investor could buy or sell the asset and profit from the difference between its price and its present value.

If each individual asset and liability were marked to market, the whole bank's market value would be known as well. However, it is usually easier to think about MVA in terms of an individual asset. For example, suppose a borrower could repay only $900 of a $1000 loan, in a lump sum after one year. If we discount future cash flows at an interest rate of 10 percent, the present value of this loan would be $900/1.10 = $818.18. This would be the price the loan could command in an idealized market,[1] since investing $818.18 today at an interest rate of 10 percent would yield $900 after a year. The loan's market value would fall if the amount repaid declines or is delayed farther into the future or if the interest rate rises. For example, if the $900 repayment occurs after two years rather than one, the present value would equal $900/$(1.10)^2$ = $743.80. If instead the interest rate rises to 12 percent and repayment occurs after one year, the present value would equal $900/1.12 = $803.57.

A contrasting approach, currently used in the commercial banking industry, is called historical cost accounting (HCA). It carries assets and liabilities on the firm's books at their original valuation or book value, even if subsequent changes in interest rates, borrowers' conditions, or other factors have altered the anticipated cash flows or present value of the assets. Adjustments are made to net out any loan loss reserve set up by the bank in anticipation of losses and to remove a bad loan from the books if it is actually charged off.

In the example above, HCA would effectively continue to value the loan at $1000 until the bank adds to its loan loss reserve or charges off some amount. If the bank had correctly anticipated the loss and previously reserved for it, then deducting the reserve from the total loan figure could approximate the impact of credit risk on the loan's market value. However, MVA and HCA would give exactly the same answer only if the bank established a reserve for the full expected present value of the loss, including forgone interest.

Whenever HCA and MVA give different answers, it becomes necessary to ask which measure more closely approximates present value. Mounting evidence points to shortcomings in HCA as a guide for either owners or regulators.

Owners' Interests. To the extent that owners use publicly reported HCA figures to evaluate managers, the latter can have some latitude—or even direct incentive—to make decisions not in the owners' best interests whenever MVA and HCA give different answers.[2]

[1]Of course, the world is not ideal, so the price at which an asset could be sold differs in many instances from its expected present value—for example, if either the buyer or seller lacks good information about the asset's future cash flows, has some monopoly power, requires some premium or additional return to accept risk, or discounts the future at a different rate from the rest of the market. In such instances it is necessary to define whether MVA will be used to mean the present value or the actual price; both definitions can be used, but here I will adopt the latter.

[2]When owners have less information than the managers hired to act on their behalf, an agency problem is said to exist. In this case managers may have an incentive to pursue their own objectives at the expense of owners. (See Mester, 1989, for a discussion of this problem within banks.) Given this problem, a natural question is why owners would evaluate managers largely on the basis of HCA if publicly available data would allow them to derive better approximations of discounted present value; evidence is mixed on

The following example describes such a practice that, despite being discouraged by regulators, was common among savings and loan associations in the 1980s (O'Brien, 1991) and even affected commercial banks in 1991 (Atkinson, 1992).

Suppose that among a bank's assets are two types of securities, each originally worth $100. Suppose further that, after a year, interest rates in the market have fallen, so that the first security can now be sold for $105. Under HCA, the increase in value will not appear on the bank's books unless the security is sold—but selling will forfeit the opportunity for owners to benefit from any further increases in its value. Selling now would improve the bank's publicly reported financial statement under HCA. If investors evaluate the performance of bank management primarily according to the accounting statements, management would have an incentive to sell the security.[3] MVA could benefit owners in this case by removing the distorted incentives.

Conversely, suppose the issuer of the second security fell on hard times and might default. The market price of the security would decline, perhaps to $95. If bank owners knew this, they might want the managers to sell the security and limit their exposure to further losses. But if managers are evaluated under HCA, they would have an incentive to gamble because the decline from $100 to $95 is not reflected on the bank's books unless the security is sold. Therefore, unless the gamble pays off, owners would benefit from MVA in this case as well.

Forms of accounting that encourage such practices are one factor underlying the decline of many bank stock prices below book value in recent decades, and permanently arresting this downward trend requires that we rectify the incentives by adopting more accurate financial reporting (Benston, 1989). MVA, properly implemented, can avoid the problem: both the increase to $105 and the decline to $95 would be reflected on the bank's books, regardless of whether the bank sold or held the securities. In this example, MVA would induce the bank's management to make whatever choices were truly in the best interest of the bank's owners, assuming sufficient competition in the banking industry and in the labor market for managers.

Even some bankers strongly opposed to MVA for regulatory use admit that "mark-to-market portfolio assessment can be a valuable internal management tool" (O'Brien, 1991). Such benefits are one reason current regulations require banks to apply MVA to those securities held in designated trading accounts (see *Recent Steps Toward MVA for Banks*, p. 16), but most bank assets and all liabilities lie outside this category.

Regulatory Concerns. Similarly, MVA could theoretically aid bank regulators. HCA can conceal the point at which a failing bank becomes insolvent, but it cannot change reality for the better; a bank that is weak or insolvent remains so whether the books reflect it or not. By the time a bank's net worth reaches zero according to HCA, it is usually negative by MVA—and market value is what the FDIC actually receives if it must liquidate the bank or orchestrate an assisted merger. (If the FDIC must liquidate the bank in the example above, it will receive only $95 from the second security

this point, but—as described in the text—historical behavior suggests that managers tend to act in accordance with HCA rather than MVA. Moreover, Clinch and Magliolo (1991) find evidence that compensation of bank CEOs is positively related to a bank's income from certain discretionary transactions that appear beneficial under HCA but possibly not under MVA.

[3]The sale of securities accounted for the *entire increase* in aggregate bank profits from 1990 to 1991 (Atkinson, 1992). However, at least some of these sales may have been in the best interest of owners, particularly since regulators attempt to discourage the early sale of securities not in designated trading accounts, and any securities in trading accounts must be marked to market. (See *Recent Steps Toward MVA for Banks*, p. 16.)

Recent Steps Toward MVA for Banks

- For years, banks have been required to designate a separate trading account for those securities they do not intend to hold to maturity and to mark such securities to market.
- The FDIC Improvement Act of 1991 requires regulators to develop "methods for institutions to provide supplemental disclosure on estimated fair market value of assets and liabilities, to the extent feasible and practicable."
- The Federal Reserve Board's Supervisory Policy Statement on Securities Activities, developed under the auspices of the Federal Financial Institutions Examination Council, took effect in February 1992. It extends the original trading account requirements by requiring banks to report loans and securities "held for trading" at market value and loans and securities "held for sale" at the lower of cost or market value.[a] In addition, it stipulates that stripped mortgage-backed securities, residuals, and zero-coupon bonds "may only be acquired to reduce an institution's interest rate risk and must be reported in the trading account at market value, or as assets held for sale at the lower of cost or market value."
- The Financial Accounting Standards Board (FASB) is developing a proposal for MVA that would apply to banks as well as to other companies. The proposal has been deferred for further discussion but is scheduled for release during the third quarter of 1992. Other recent actions by FASB that affect banks include Statement 105, requiring disclosure of off-balance-sheet risk, and Statement 107, requiring disclosure of fair (market) value of all financial instruments.

[a]A bank must be well capitalized and have strong earnings and adequate liquidity to be permitted to maintain a trading account. Otherwise, items that do not qualify for its investment portfolio must be designated as "held for sale."

rather than the $100 at which it is valued under HCA.) HCA, by obscuring the true condition, can cause regulators to leave open a failing bank too long and so incur larger losses.[4] The fact that HCA tends to conceal weaknesses also explains why bank managers might prefer it to MVA.

Regulators have responded to this problem in part by increasing the amount of capital banks are required to hold. Capital provides a cushion before the bank becomes insolvent; but when capital itself is measured with error, a larger cushion is needed. MVA could ideally help regulators in at least three ways here.

First, by providing a more accurate measure of true net worth, it can make current capital guidelines and prompt intervention laws more effective and assist regulators in timely closure of failing banks, thereby limiting losses. Second, to the extent that some banks might need to increase their capital under MVA to meet the current minimum requirements, the additional

[4]Even if regulators have enough information to close a failing bank promptly, their actions are legally tied to officially reported capital ratios, and there may be political resistance or even legal challenges to early closure. During the 1980s, substantial losses from failed banks and thrift institutions were made worse by keeping open some institutions after their true net worth had turned negative. Recent federal legislation helps in this regard by authorizing regulators to close banks before their measured net worth actually turns negative, but a more accurate measure of net worth (such as MVA could provide) would help even more.

capital would reduce the probability of failure for those banks by providing a larger cushion to absorb losses. Finally, banks file financial statements more frequently than they are examined, so MVA can improve the timeliness of available information even if regulators have access to all the information required to mark a bank to market during an examination. All three effects would tend to reduce average losses to the federal deposit insurance fund; if the banking industry is ultimately required to bear the full cost of deposit insurance, MVA could reduce the industry's costs as well.

OBJECTIONS IN PERSPECTIVE

Given these apparent benefits of MVA, why would anyone favor HCA? In fact, bankers have raised a number of objections to MVA. Some are easily addressed, but others raise issues that may never be fully resolved.

Liquidation Value. One argument is that MVA measures the current liquidation value of a given asset, improperly incorporating "fire sale" losses and undervaluing the asset. In economic terms, this concern reflects a belief that the market for a quick, forced sale would be imperfectly competitive, so that the sale price would be less than the asset's discounted present value.

Since, as mentioned above, the information needed by owners, managers, and regulators is really the discounted present value, the most useful method of valuation from that standpoint would not incorporate "fire sale" losses. But there is a distinction between the price attainable in a quick, forced sale versus that attainable over a longer period of time. Not all market prices are the same, and problems with one do not invalidate all others. Thus, this objection is really about *implementation* of MVA, not the underlying concept.

For example, in valuing the mortgage portfolio of a large bank, one might want to use observed market prices for similar assets, rather than trying to estimate what the particular bundle could be sold for within a short deadline. Indeed, the FDIC, when it must liquidate a bank, usually sells off the assets slowly enough to receive favorable prices, rather than attempting to sell them all at once.

Volatility. Another objection is that MVA would increase the volatility of reported earnings, thereby raising a bank's total cost of capital in at least two ways. First, so the argument goes, investors in the capital market would demand a higher return to compensate them for the extra risk posed by the volatility. However, if MVA is conceptually correct, as many experts believe, net worth and retained earnings really are volatile, and HCA masks the true volatility. Either investors are being fooled under HCA, in which case we should adopt MVA even if it costs the banks more, or investors see through the smoke screen and are already pricing the risk implied by MVA, in which case a transition to MVA would not cost the banks a higher risk premium. (For an excellent discussion of this point, along with evidence from the Danish experience, see Bernard et al., 1991.)

The other way in which greater volatility could increase the cost of capital is that a bank's reported net worth could fluctuate more under MVA, forcing the bank to hold larger average amounts of capital to ensure that it never falls below the regulatory minimum requirements. But this outcome confers some offsetting benefits, since, as discussed above, higher capital ratios for banks could reduce both their likelihood of failure and the expected cost to the deposit insurance fund.

Both effects point to the fact that volatility imposes real costs. But banks have some control over their own volatility through their investment and lending decisions; therefore, if volatility is accurately measured and if the associated costs are explicitly borne by banks, then banks will have an incentive to choose less volatile portfolios than otherwise. In this respect too, MVA across the entire bank could

ideally encourage safer, sounder banking practices. By contrast, however, applying MVA only to the asset side of the bank's balance sheet, or to some but not all assets and liabilities, could overstate true volatility by failing to reflect certain hedges such as those created by matching the maturities of assets and liabilities or by using futures contracts.

Ultimate Collectibility. A third argument maintains that it is incorrect to devalue an asset on the bank's books if its market price falls today but may recover tomorrow—that is, if the asset's "ultimate collectibility" is not threatened. In terms of the previous example, the second security's price may rebound from $95 to $100 if the issuer can successfully work through its financial problems.[5]

But the initial decline to $95 reflects the market's best current information about the likely pattern of future cash flows and possibility of default. Therefore, this objection assumes, at a minimum, that an individual banker knows more about the value of an asset (including its ultimate collectibility) than the rest of the market. It further assumes that the banker will accurately reveal his unique information and that the resulting value, on average, works out to exactly the original (historical or "book") value! Clearly, that's a lot to swallow.

In fact, for those assets that are *liquid* (i.e., can be sold quickly without incurring the "fire sale" losses discussed above), an individual banker is unlikely to be better informed than the combined market. (Even if bankers are better than others in valuing financial assets, remember that the combined market includes other bankers as well. Also, any banker who *did* know more than the market could make more money by trading the assets than by being a banker.) MVA is the right approach for such assets: a decline in the market price reflects a consensus expectation that the asset's ultimate collectibility—or probable future cash flow—is indeed threatened.

On the other hand, there are certain important types of bank assets that are *illiquid* and for which an individual bank should have a better idea of the true economic value than the rest of the market. Indeed, according to some experts, the very reason why banks exist necessarily precludes any effective secondary market to price commercial loans (Diamond, 1984; Berger et al., 1991). The idea here is that because of its ongoing financial relationship with the borrower, a bank has better information about the prospects of repayment than any other party can acquire. If others could replicate the bank's information, so the story goes, there would be no point in having banks, and so financial markets would be structured very differently.[6]

A major implication of this view is that market value does not correspond reliably to present value for many bank loans, and we can never hope to close this gap beyond a certain point. This conclusion is admittedly bleak—but even if it is true, it still does not imply that HCA is the best alternative, both because it is unlikely that the true value will happen to equal the historical value and because any genuine movement in the direction of present value could improve the incentives and performance of managers and regulators.

[5]One variant of the idea would argue that a loan paid back more slowly than anticipated should not be marked down if full repayment will ultimately occur. But this is clearly wrong, since, as shown in the first example above, the timing of repayment affects the discounted present value—a dollar tomorrow is worth less than a dollar today.

[6]At least two pieces of evidence tend to support this view. First, the recent rapid growth of the commercial paper market shows that those borrowers (such as large, well-known corporations) that can shift away from bank credit have tended to do so. Second, loans to borrowers (such as small business and agricultural borrowers) that cannot easily shift to alternative sources of credit are almost never sold to third parties and thus do not generate an observable market price.

Indeed, the current practice of deducting loan loss reserves from total loans recognizes the need to make some adjustment for credit risk. The issue, then, is not whether perfect present value accounting is possible, but to what extent we can improve on current practice. This issue is one of *feasibility*.

IS MVA FEASIBLE FOR BANKS?

Since many banks are not actively traded on any market, we cannot generally use the stock price as a proxy for the market value of a bank's net worth.[7] Therefore, a careful evaluation of feasibility necessarily involves going through a bank's balance sheet category by category and requires some degree of technical detail. Such detail should never obscure the fact that the goal is to measure the one piece of information that really affects owners and regulators—the net present value of a bank's entire portfolio of assets and liabilities.

The issue, then, is not whether perfect present value accounting is possible, but to what extent we can improve on current practice.

Liabilities. For a few liabilities, such as overnight interbank loans, market value equals book value. Some others, such as large certificates of deposit, trade on active secondary markets and have an observable price. For yet others, the difference between market value and book value either is negligible or can be computed from cash flow data, as illustrated in the first example above. Two major questions affecting this computation are the effective maturity or repricing interval of deposits and unexpected changes in interest rates, since, as shown in the first example, the timing of cash flows and the level of interest rates both affect market value (see also Mengle, 1990, and Morris and Sellon, 1991, for further discussion of this issue).

For instance, demand deposits theoretically have zero maturity, since they are payable on demand. In practice, though, they behave like long maturity accounts during normal economic conditions (see Flannery and James, 1984, for evidence on this point). One might even be tempted to argue that the effective maturity is infinite, since withdrawals by any one depositor tend on average to be offset by new deposits from other sources.

Actually, the effective maturity of deposits is likely to depend on many factors that can change quickly over time, such as the bank's asset quality, net worth, the regulatory climate, deposit insurance, and the bank's overall probability of failure. If a bank weakens, its previously stable deposit base may suddenly run out the door.

More research is needed on these questions before deposits can be precisely valued. In the meantime, though, research has shown that even rough estimates of the effective maturity of deposits, based on publicly available data, can significantly improve our estimates of a

[7]Moreover, the stock price also reflects the value of mispriced deposit insurance, the implicit subsidy of a governmental policy of "too big to fail," the capitalized value of any local monopoly power exercised by the bank, and other regulatory and market distortions, not just the market value of the bank's assets minus liabilities. Therefore, even for an actively traded bank, the stock price is not an ideal measure of economic value from the standpoint of regulators or society.

depository institution's true value (Simonson and Stock, 1991).[8]

Assets. Some assets are likewise easy to mark to market, such as cash and securities (some of which are already marked to market). However, very few banks fail because of such items. The major challenge on the asset side, as noted above, is loans—especially commercial loans, which account for nearly 30 percent of bank loans or 18 percent of bank assets in aggregate (FDIC, 1990).

Because of credit risk, the present value of many loans is less than their book value. In some cases, as with LDC debt, loan sales, and securitized assets such as collateralized mortgage obligations, a secondary market exists—the loans are liquid—and we can observe a market price that should be representative of the expected present value of the particular asset. Such cases usually involve some combination of large borrowers or homogeneous risk characteristics of the assets. For assets without an observable market price, an alternative approach is required.

A Hybrid Approach for Valuing Nontraded Loans. Possibly the best current idea for the nontraded portion of the loan portfolio is to use the book value of loans net of some combination of loan loss reserves (or allowance for loan losses) and nonperforming loans (that is, loans that are past due or not being paid according to schedule) as an estimate of the market value of loans corrected for credit risk (Berger et al., 1991). Adjusting for these factors, which banks already report separately, is a way of valuing the overall loan portfolio rather than individual loans.

Federal regulators require all banks to maintain a loan loss reserve (Mengle, 1990; Walter, 1991). Bank managers add to this reserve each quarter out of current income at levels that are supposed to represent their estimate of future credit losses. In turn, when a loan defaults, that loss is subtracted both from the total loans on the bank's asset statement and from the loan loss reserve.

However, loan loss reserves may not be a good predictor of future loan losses for a given bank, especially since they are set largely at the bank's discretion and are subject to other incentives such as income or tax management goals or conformity to peer group averages (Walter, 1991).[9] Among other things, netting the reserves out of reported net worth creates an incentive for a bank to reduce its reserves relative to known risk, especially if the bank has adverse inside information.[10] Such behavior not only impairs the accuracy of the regulatory measure of market value but also directly reduces safety and soundness. Auditors and regulators monitor each bank's loan loss reserve practices to try to contain this incentive problem (Mengle, 1990), but this monitoring occurs at intervals longer than those at which a bank is required to file financial reports, and the task is essentially as hard as marking the loans themselves to market.

The amount of nonperforming loans is harder for a bank to manipulate and can be broadly verified by examiners. But nonperforming loan figures are not particularly forward-looking: some delinquent loans are subsequently

[8]A simple adjustment based on duration gaps was found to explain more than half of the variation in net worth as measured by more sophisticated techniques designed to avoid the objections raised in footnote 7.

[9]Loan loss reserves are audited by accounting firms and regulators (Mengle, 1990), but the bank retains significant latitude in adjusting their level.

[10]Even though loan loss reserves are currently deducted from reported net worth, they can be counted toward regulatory capital subject to restrictions. Under the multinational Basle Accord on Risk-Based Capital, reserves up to 1.5 percent of risk-weighted assets may be counted as Tier 2 (supplementary) capital, of which up to 10 percent may be counted as Tier 1 capital, through the end of 1992; thereafter, reserves up to 1.25 percent of risk-weighted assets may be counted as Tier 2 capital exclusively.

repaid, while others reflect only the final stages of long-standing problems.

A combination of the two approaches, using both loan loss reserves to embody some forward-looking information and nonperforming loans to reduce the incentive problem, has been shown to forecast future losses and bank failure better than either approach alone (Berger et al., 1991). It minimizes the distortion in loan loss reserves that can occur between examinations or audits and allows a more accurate measure of capital ratios, which legally circumscribe many of the regulators' permissible actions toward the bank. And it avoids the need to estimate a discounted present value for each loan individually, a very time-consuming and expensive undertaking. At a minimum, therefore, this hybrid approach may represent an improvement over pure HCA, even if it does not constitute either present value accounting or MVA in the strictest sense.

A BALANCED PERSPECTIVE

Most of the objections to MVA for banks have some merit—a few have great merit—but we must resist jumping to the attractively simple conclusion that HCA is therefore best. What can we conclude, taking account of all the necessary complications of the issue?

Perhaps the most important finding is that certain practical changes could improve on HCA by yielding measures of a bank's net worth that are closer to present value. One aspect of a better approach is to begin supplemental reporting of MVA for certain items now, while retaining HCA for "official" purposes until a large enough part of the portfolio has been marked to market. This is the approach embodied in last year's federal legislation (see *Recent Steps Toward MVA for Banks*, p. 16). It has the advantages of minimizing the disruption of the changeover, spreading the learning and transition costs over time, avoiding the distorted incentives of marking only part of the portfolio to market, and affording flexibility in the pace and direction of further changes. Another advantage of beginning with supplemental reporting is that it would give bankers and regulators a low-cost opportunity to identify and correct any unforeseen distortions to incentives embodied in the new accounting system.

For the part of a bank's loan portfolio that cannot reliably be marked to market, a hybrid valuation reflecting loan loss reserves and nonperforming loans holds promise as a better approximation of present value than HCA. Such a method could be adopted when we progress to the stage of using MVA for more official purposes and could largely solve many problems that arise from marking to market only part of the balance sheet.

A program of this sort could move in the right direction without incurring the costs of a more radical change. It could give banks' owners and managers a clearer picture of their institution's true financial condition. It could improve the information available to regulators, both by supplementing the five-category examination ratings[11] and—if implemented by the bank rather than by regulators alone—by updating market-value data on the bank more frequently than examinations are conducted. Perhaps more important, it could improve the accuracy of reported capital ratios, which limit many of the legally permissible regulatory actions toward banks. If these benefits lead to a lower cost of deposit insurance, bank owners could eventually participate in such savings.

Market value accounting for banks is a complex issue. Nevertheless, the problems engendered by historical cost accounting are severe enough to make even marginal improvements desirable. Supplementary marking to market, as required by recent federal legislation, is a useful first step.

[11] The current examination procedure rates each bank on a scale of 1 through 5, where 1 is the best rating and 5 the worst.

REFERENCES

Atkinson, Bill. "Bond Sales Pumped Up Bank Profits Last Year," *American Banker* (March 12, 1992), pp. 1, 14.

Benston, George J. "Market-Value Accounting: Benefits, Costs and Incentives," *Proceedings of a Conference on Bank Structure and Competition*, Federal Reserve Bank of Chicago (May, 1989), pp. 547-63.

Berger, Allen N., Kathleen K. King, and James M. O'Brien. "The Limitations of Market Value Accounting and a More Realistic Alternative," *Journal of Banking and Finance* 15 (4/5) (September, 1991), pp. 753-83.

Bernard, Victor L., Robert C. Merton, and Krishna G. Palepu. "Mark-to-Market Accounting for U.S. Banks and Thrifts: Lessons from the Danish Experience," Harvard Business School (October, 1991).

Clinch, Greg, and Joseph Magliolo. "Executive Compensation Effects of Accounting-Oriented Discretionary Transactions in Commercial Banks," University of Pennsylvania, Wharton School (August, 1991).

Diamond, Douglas W. "Financial Intermediation and Delegated Monitoring," *Review of Economic Studies* 51 (July, 1984), pp. 393-414.

FDIC, *Statistics on Banking* (1990).

Flannery, Mark J., and Chris M. James. "Market Evidence on the Effective Maturity of Bank Assets and Liabilities," *Journal of Money, Credit, and Banking* 16 (November, 1984, Part 1), pp. 435-45.

Mengle, David L. "Market Value Accounting and the Bank Balance Sheet," *Contemporary Policy Issues* 8 (April, 1990), pp. 82-94.

Mester, Loretta J. "Owners Versus Managers: Who Controls the Bank?" this *Business Review* (May/June, 1989), pp. 13-23.

Morris, Charles S., and G. H. Sellon, Jr. "Market Value Accounting for Banks: Pros and Cons," Federal Reserve Bank of Kansas City *Economic Review* 76 (March/April, 1991), pp. 5-19.

O'Brien, Jr., Raymond V. "The Continuing Threat of Market Value Accounting," *Bottomline* (November-December, 1991), pp. 6-7.

Simonson, Donald G., and Duane R. Stock. "Duration Mapping of Thrift Institution Value Paths: Tests of Completeness," *Journal of Banking and Finance* 15 (April, 1991), pp. 297-314.

Walter, John R. "Loan Loss Reserves," Federal Reserve Bank of Richmond *Economic Review* 77 (4) (July/August, 1991), pp. 20-30.