Research Department
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FRBSF Weekly Letter

Accounting for Financial Futures

As described in last week's *Letter*, financial futures offer banks a low-cost means of reducing their exposure to interest rate risk and have therefore sparked widespread interest among bankers. Financial futures, however, pose difficult dilemmas for accountants and regulators. These problems will be explored here.

Under traditional accounting conventions, most assets and liabilities are valued at their "book values," that is, they are recorded on the books at their original, or historical, costs. Under this convention, no provision is made in the recorded items for the effect of interest rate changes on actual market values. Book value accounting simply does not convey the information required to assess the effectiveness of financial futures in hedging true (market value) net worth. New accounting guidelines are needed.

Regulators, moreover, are perplexed by financial futures because they find it almost impossible to distinguish between "appropriate" and "inappropriate" uses of financial futures given the limitations of book value accounting. Thus far, efforts to develop a regulatory framework for financial futures have not resolved the dilemma between the desire to promote risk reduction and the concern that futures could just as well pose additional risks. It is doubtful that the regulatory problem can be resolved without first addressing the accounting dilemma.

Book vs. market value

Banks, like other businesses, employ accounting methods based primarily on book value (historical cost). Transactions are entered on the books when they are made, and assets and liabilities are kept at their stated book values until they mature or are paid off. Changes in wealth are recorded in the current period only if there is a transaction, such as a payment of interest or principal, that results in a realized gain or loss. Although book value accounting may provide an objective measure of *currently* realized income, it does *not* provide a picture of unrealized income and hence, of true net worth (i.e., the economic value) of the firm.

Interest rate changes can alter the market values of fixed-rate assets and liabilities substantially without affecting their book values. Banks make loan and deposit contracts that often extend far into the future. Depending on the extent to which these contracts are fixed in nominal dollars, their current market values will vary with unexpected changes in interest rates. For example, the current market value of a newly issued $100,000 30-year fixed rate home mortgage contracted at 12 percent would decline to only $81,350 if mortgage rates were to rise to 15 percent suddenly after the loan had been negotiated. Yet, with book value accounting, its value is kept on the books at $100,000! Thus, if the maturities (technically, durations) of a bank's assets and liabilities are not "hedged" in a general sense, the true net worth of the bank will be altered severely by unexpected changes in market interest rates because the market values of the bank's assets and liabilities will not change by the same amounts.

With book value accounting, such changes in true net worth go unrecorded until the capital gains/losses are actually realized. In the above example, a portion of the effect would be recorded in each subsequent income statement and balance sheet (because the cost of funding the 12-percent asset with shorter duration liabilities would have risen along with the rise in market rates). If the mortgage were kept until maturity, the full effect would not show up for 30 years!

Market value accounting would require that all assets and liabilities be recorded each

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accounting period at their *estimated* market values—in the case of the mortgage, at $81,350. Current income would reflect estimated unrealized capital gains and losses as well as realized payments of principal and interest. Despite difficult conceptual and practical problems with estimating market values, market value accounting would give a measure of the current impact of interest rate risk. While book value accounting eventually gives such a measure, it may take years for the impact to be recorded.

Role of futures

Even when interest rates change unexpectedly, the *market values* of financial futures move fairly predictably with the *market values* of the underlying individual or combined assets and liabilities that they are intended to hedge. It is the fact that the relationships are reasonably predictable that makes financial futures useful in hedging.

In practice, financial futures can be used to hedge either true (market value) net worth or book value net worth and earnings. Economists argue that the relevant consideration is not book value net worth, but true net worth. The problem, however, is that in the short run, changes in true net worth may diverge widely from changes in reported book value net worth. If bankers use futures to hedge true net worth, they may actually *destabilize* reported book value net worth and earnings. The prevalence of book value accounting therefore actually inhibits the use of financial futures in protecting true net worth because bankers fear that the resulting instability in reported earnings will have an adverse effect on their equity values.

Consider some of the distortions that arise because of book value accounting. If the underlying security (securities) and the futures contract are both accounted for at book value and neither is sold in the current period, interest rate changes would show *no effect* on the portfolio's reported net worth when in fact true net worth might have changed dramatically, depending on the effectiveness of the hedge. Moreover, the addition of the futures contract might have *increased or decreased* the true risk of the portfolio, but book value accounting would convey no information on this point.

The book value framework simply does not give the proper information to determine the true interest rate risk of a portfolio or the role of a futures contract in that portfolio. This accounting dilemma can be stated succintly: If the underlying portfolio (or security) being hedged is carried at book value, it is impossible to tell from the accounts whether or not a financial futures contract is effectively hedging that portfolio's (security's) true net worth. This problem persists regardless of the accounting standard that is applied to the futures contract itself.

Proposals

Accounting and regulatory proposals have attempted to deal with financial futures within the overall framework of book value accounting. However, the very fact that there is still no agreement on the proper accounting rules for futures attests to the difficulty of meshing financial futures with book value conventions.

Regulators have declared that, because futures potentially are speculative assets, they should be carried on the books at market value with all realized and unrealized gains or losses reflected in current income, even though the underlying assets being hedged are carried at book value. This convention poses the serious problem that the futures contracts might make a perfect hedge against changes in market values of the underlying assets, and hence a perfect hedge for true net worth, but the fact that the contracts are carried at market value and the underlying assets at book value could easily *increase* the volatility of *reported* earnings and net worth. Since reported earnings seem to affect investors' valuations of bank equities, many bankers either have been reluctant to use financial futures or have

attempted to overcome the problem by keeping two sets of books—one for the regulators and one that synchronizes implied gains/losses on the futures contracts and the underlying assets.

The accounting profession has been more lenient and "creative" than the bank regulators. After several years of debate on the issue, the Financial Accounting Standards Board (FASB) recently put out a package of proposals for comment. Like the regulators, FASB would require open futures contracts to be carried at market value, but with some important exceptions. These involve identifiable hedges in which the futures contracts are matched with identifiable assets, liabilities, firm commitments, or anticipated transactions which themselves are reported on a book value basis. In these instances, changes in the market values of the futures contracts would be offset by adjustments in the (book value) carrying amounts of the hedged items, to the extent that the hedges were effective. Non-offsetting changes in the market values, however, would be treated as speculative gains or losses and would have to be reported as such in the current period. Such a scheme makes sense in a book value framework: it permits effective hedging results to be deferred, but not gains or losses from futures contracts in excess of the market value movements of the hedged items.

A resolution?

Given the difficulties associated with measuring interest rate risk exposure, bank regulators have chosen not to try to circumscribe banks' use of futures too closely. The intent of existing regulations is to forbid banks to use futures to increase their exposure to interest rate risk, and to discourage specific and anticipated hedges (except in securities dealer and mortgage banking operations). However, with most assets and liabilities carried at book value, the measurement problem makes the detection of non-compliance difficult. Consequently, regulators emphasize procedural guidelines to minimize mismanagement of futures transactions. Such guidelines include requiring that bank boards of directors first establish written policies relating futures strategies to asset/liability or securities-dealer strategies. Moreover, regulators expect banks to establish detailed record-keeping systems that provide management and auditors with sufficient information to monitor compliance with those written policies. And, of course, regulators examine banks' actual futures positions periodically to determine whether such positions are in reasonable proportion to whatever estimates of risk exposure the bankers and regulators can agree upon.

The growing interest in financial futures makes the accounting and regulatory problems of pressing importance. Unfortunately, without fairly complete information on the market values of bank assets and liabilities, it is very difficult to determine the interest rate risk of a bank's portfolio. Accordingly, it is also difficult to evaluate whether a futures contract would increase or decrease such risk. Only in the cases where the futures contracts are matched to specific items for which market value estimates are available can the effectiveness of a hedge be determined and accounted for explicitly. But bank portfolios are complex enough that specific hedges are unlikely to reduce overall risk very much.

Given that book value accounting conveys little information on interest rate risk, it is not surprising that regulators claim that they cannot tell in many instances whether banks' futures positions should be characterized as hedges or speculative positions. Until we move closer to an accounting framework that is capable of recording the overall consequences of interest rate risk on the true net worth of institutions, we will continue to have accounting distortions and regulators will continue to be perplexed over banks' use of futures.

Jack H. Beebe and Barbara Bennett

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 11/16/83	Change from 11/9/83	Change from year ago Dollar	Change from year ago Percent
Loans (gross, adjusted) and investments*	163,247	– 698	1,323	0.8
Loans (gross, adjusted) — total#	143,090	– 831	1,583	1.1
Commercial and industrial	43,631	– 681	– 1,745	– 3.8
Real estate	57,492	78	247	0.4
Loans to individuals	25,013	42	1,623	6.9
Securities loans	2,799	– 175	740	35.9
U.S. Treasury securities*	7,692	149	1,173	18.0
Other securities*	12,464	– 16	– 1,434	– 10.3
Demand deposits — total#	43,469	2,031	2,270	5.5
Demand deposits — adjusted	29,780	– 481	1,688	6.0
Savings deposits — total†	66,074	– 182	33,506	102.9
Time deposits — total#	69,421	298	– 29,842	– 30.1
Individuals, part. & corp.	63,847	297	– 25,297	– 28.4
(Large negotiable CD's)	16,959	103	– 18,911	– 52.7
Weekly Averages of Daily Figures	Week ended 11/16/83	Week ended 11/9/83	Comparable year-ago period	
Member Bank Reserve Position				
Excess Reserves (+)/Deficiency (–)	137	19	100	
Borrowings	13	224	14	
Net free reserves (+)/Net borrowed(–)	124	– 205	86	

* Excludes trading account securities.
# Includes items not shown separately.
† Includes Money Market Deposit Accounts, Super-NOW accounts, and NOW accounts.

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