Is It Time to Reevaluate Mortgage Products in Your Portfolio?

by Avi Peled, Senior Financial Specialist

Mortgage products have been profitable sources of income for a large number of banks for many years. Banks have gained fees by originating mortgages and interest income by holding mortgages or debt instruments collateralized by mortgages. From 1994 to 2000, mortgage-related assets were about 20 to 21 percent of total commercial bank assets on a national aggregate basis, which is heavily weighted towards the larger banks. However, there were significant increases by year-end 2001, when mortgages were 22.57 percent of total assets, and by year-end 2002, when the percentage was 23.97 percent. Securities collateralized by mortgages as a percent of total assets were in the 7 to 8 percent range from 1994 through 2000. Once again, the last two years have seen significant increases; by year-end 2001, this ratio rose to 9.20 percent and at year-end 2002 to 9.67 percent.

Table 1 shows the growth rates of the components of mortgage loan portfolios from 1995 to 2002. In 2002, all categories, with the exception of junior liens, grew significantly.

Looking at the growth of mortgage-backed securities (MBS) over this period, Table 2 illustrates a large jump in growth rates for MBS in 2001 and a smaller, but still significant, jump in 2002. Concentrations of MBS likewise increased significantly in 2001.

Table 3 shows substantial volatility between appreciation and depreciation of the mortgage-backed investment portion of banks' portfolios. At year-end 2001 and 2002, mortgage-backed securities provided a substantial and increasing part of the appreciation of the total investment portfolio. However, in 1994 and 1999, mortgage-backed securities provided about half the depreciation of the total investment portfolio. Since 1994, there has been a number of years when the MBS part of the investment portfolio provided a significant portion of the total appreciation or depreciation of the investment portfolio across all sizes of banks. In many instances, the percentage appreciation or depreciation of MBS was higher than the percentage of MBS in the investment portfolio. In 1996 and 2000, MBS depreciated while the investment portfolio appreciated, except for banks in the $1 billion to $50 billion asset size category. The con-

Table 1. Growth Rates of Mortgage Loan Portfolios

Year	1st lien	Jr. lien	1 – 4 Family	Multi-Family	Home Equity
1995	10.76	13.49	11.06	11.92	4.68
1996	3.72	13.02	4.77	7.34	7.97
1997	7.85	8.88	7.98	7.98	14.26
1998	7.61	5.80	7.39	3.75	-1.49
1999	10.65	9.40	10.50	22.13	5.82
2000	4.63	23.15	6.86	13.83	24.49
2001	3.35	-3.21	2.44	5.93	20.58
2002	18.97	-15.40	14.47	11.52	37.21

Source: *Commercial Bank Call Reports*

Table 2. Mortgage-Backed Securities Portfolios

Year	Growth Rate		MBS as Percent of	
	Pass-Through	Other MBS	Security Portfolio	Total Assets
1995	5.07	-11.18	40.69	7.60
1996	11.71	-11.00	42.19	7.37
1997	12.51	12.69	44.10	7.62
1998	21.21	24.24	48.07	8.62
1999	-5.12	8.76	43.66	8.16
2000	0.98	-5.20	43.92	7.45
2001	27.51	31.87	53.40	9.20
2002	15.80	6.49	53.29	9.67

Source: *Commercial Bank Call Reports*

Table 3. Percent of Mortgage-Backed Securities Appreciation/Depreciation to Appreciation/Depreciation of the Entire Investment Portfolio, by Total Assets

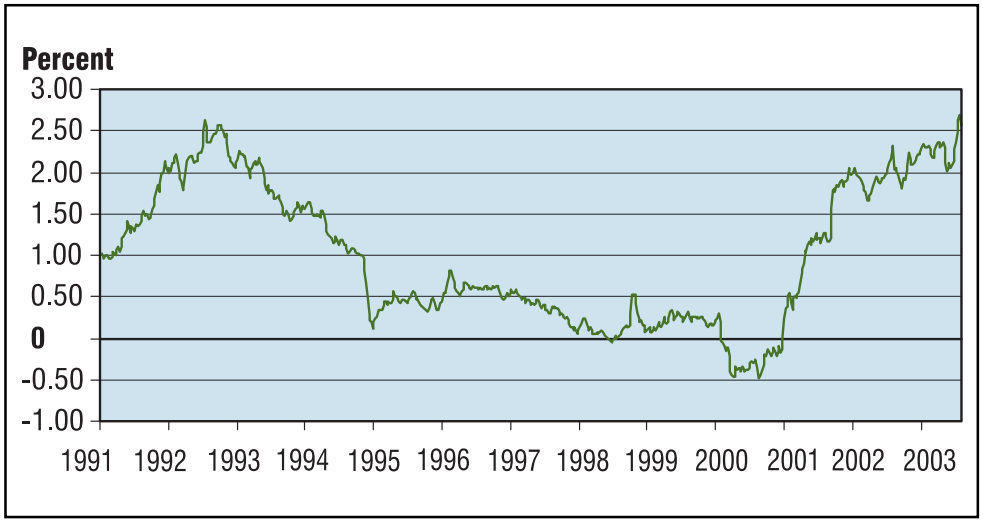
Year	All		Less Than $300 Million		$300 Million - $1 Billion		$1 Billion - $50 Billion		Over $50 Billion	
	% Appr.	% of Port.	% Appr.	% of Port.	% Appr.	% of Port.	% Appr.	% of Port.	% Appr.	% of Port.
1994	48.2 (-)	34.7	37.0 (-)	24.1	49.9 (-)	31.9	65.6 (-)	46.2	43.8 (-)	45.3
1995	20.6 (+)	33.8	4.3 (+)	23.6	10.1 (+)	30.4	24.4 (+)	45.0	81.3 (+)	42.2
1996	-28.9 (*)	35.9	-30.7 (*)	22.9	-15.2 (*)	30.8	8.1 (+)	48.3	-54.8 (*)	45.3
1997	32.8 (+)	40.9	11.2 (+)	22.0	20.2 (+)	31.5	43.2 (+)	47.1	44.9 (+)	53.7
1998	28.6 (+)	43.2	5.7 (+)	23.6	13.3 (+)	33.0	29.9 (+)	49.8	52.9 (+)	54.6
1999	51.4 (-)	39.2	24.1 (-)	21.7	38.0 (-)	31.5	53.5 (-)	49.2	65.7 (-)	45.8
2000	-54.4 (*)	40.4	-22.8 (*)	20.6	-11.8 (*)	29.6	18.4 (+)	47.1	-79.0 (*)	49.0
2001	18.7 (+)	50.4	16.4 (+)	28.3	25.0 (+)	38.8	42.3 (+)	52.0	7.2 (+)	59.4
2002	47.3 (+)	50.4	23.6 (+)	30.1	33.1 (+)	40.0	47.0 (+)	51.7	58.1 (+)	57.2

% Appr: Percent MBS Appreciation/Depreciation of Investment Portfolio Appreciation/ Depreciation
% of Port: Percent MBS amortized value of entire Investment Portfolio amortized value
(*) MBS depreciated, Total Security Portfolio appreciated
(+) Both MBS and Total Security Portfolio appreciated
(-) Both MBS and Total Security Portfolio depreciated

Source: *Commercial Bank Call Reports*

tinual increase in the proportion of MBS in the investment portfolio adds to the concern about the volatility in the change in value of these securities. To put the appreciation/depreciation percentages in context, Table 3 includes columns (labeled % of Port) that contain the percentages that MBS represent of the entire investment portfolio.

Chart 1. Difference between Ten- and Two-Year Treasuries
(Last Difference 2.57% as of 8/6/03)



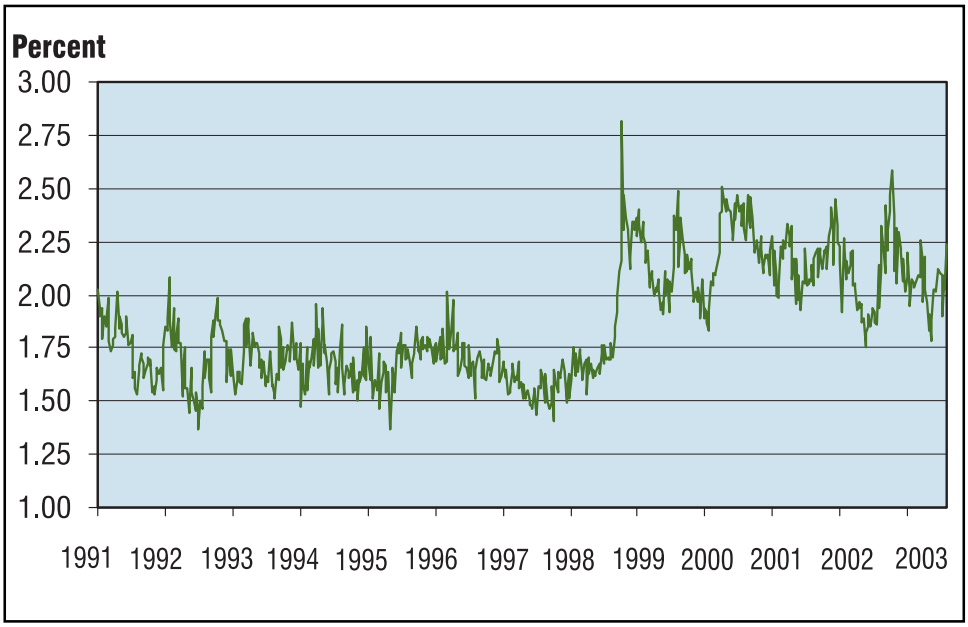
Source: *Federal Reserve Board, H.15 Release*

The Interest Rate Environment and the Shortening of Mortgage Product Durations

Interest rates are now at historic lows when compared to rates over the past 50 years. As the Fed has lowered the Fed Funds and Discount rates on the short end, the yield curve has acquired a very steep shape, as seen by the increasing spread between ten- and two-year treasury notes since 2000 in Chart 1.

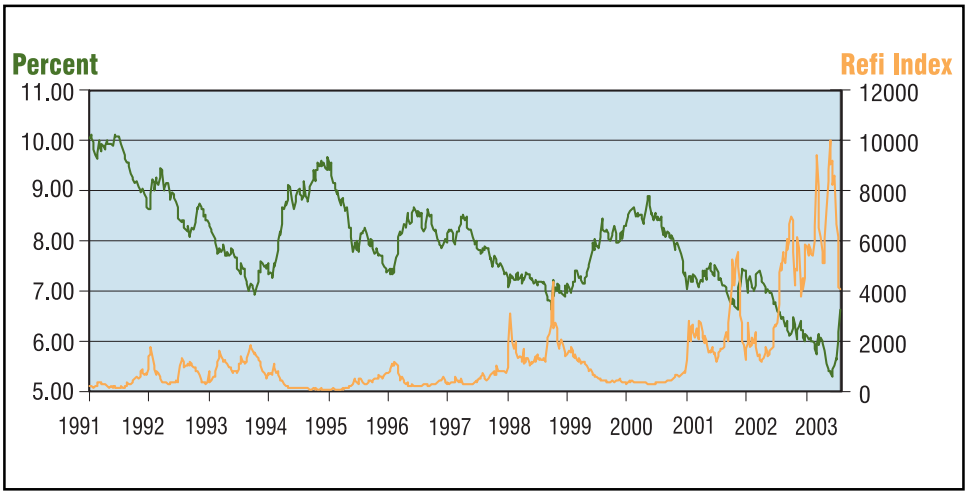
With the continuing falling interest rate environment, until recently the long end of the yield curve also declined. However, mortgage rates have held up better than Treasuries. Chart 2 shows a distinct change, starting in 1999, in the spread between 30-year Fannie Mae mortgage rates and 10-year Treasuries. As the probability of acceleration in the refinancing rate increased, the price of the prepayment option on mortgage products increased for banks, as did the risk.

Chart 2. Difference between 30-Year FNMA Mortgage and 10-Year Treasury
(Last Difference 2.24% as of 7/30/03)



Sources: *Treasury rates from Federal Reserve Board, H.15 Release*
Mortgage rates from Mortgage Bankers Association of America

Chart 3. MBA Refinancing Index
FRM 30-Year Effective Interest Rate
(Last MBA Refi Index 4047.5 and FRM 30-Year Rate 6.64% as of 7/30/03)



Sources: *Mortgage Bankers Association of America*

Chart 3 shows that starting around mid-year 2001, the lowering of longer term rates (in green) meant an extraordinary jump in refinancing volume (in orange) that caused the average duration of mortgage products to plummet and the coupon on new mortgages to decline.

Chasing Yield?

Table 4 illustrates the decline in core deposits as a percentage of assets over the last eleven years, although rapid growth in 2001 and 2002 reversed the steady decline. In 2001, core deposits grew almost twice as fast as assets, but some of this growth was due to commercial banks' acquiring other types of depository institutions' deposits. MMDA and other savings accounts in 2001 and 2002 grew faster than core deposits overall. As a percent of total deposits, MMDA and other savings accounts jumped in the past two years, while time deposits, particularly those under $100,000, declined.

Deposits have flowed to banks as a safe haven from the declining stock market and unease over the poorly performing economy. However, the fact that MMDA and other savings accounts, as a percent of total deposits, grew so substantially over the past two years compared to time deposits may suggest that these new non-transactional elements of core deposits are mostly "parked funds," rather than long term funding. The economic situation has made it harder for banks to find good commercial and industrial lending opportunities. Therefore, many banks have deployed the additional funds in investment securities, particularly mortgage-backed securities, or mortgage loans. However, as interest rates continued to decline and refinancings accelerated, most investors in mortgages or mortgage-backed securities had to reinvest in lower coupon mortgages or securities.

The exceptionally low short-term rates have presented many banks with a pricing challenge on interest-bearing deposit accounts. Many banks are reluctant to lower interest rates on interest-bearing accounts any closer to zero. This reluctance, coupled with refinancings of loans and reinvestment of securities at lower rates, has caused net interest margins to decline at the same time that many banks have experienced credit

Table 4. Growth in and Extent of Core Deposits

Year	Growth				Percent of Assets		Percent of Deposits		
	Core Deposits	MMDA	Other Savings	Total Assets	Core Deposits	MMDA & Sav.	MMDA & Sav.	TD < $100M	TD > $100M
1992	—	—	—	—	62.33	21.33	31.02	25.92	9.34
1993	1.45	0.26	8.72	5.54	59.92	20.93	32.02	24.22	8.33
1994	-0.14	-6.19	-1.94	8.15	55.33	18.49	30.39	25.45	9.05
1995	3.83	11.14	-2.64	7.48	53.45	18.12	30.42	26.99	10.29
1996	4.26	17.75	7.80	6.04	52.54	19.46	32.71	26.12	11.71
1997	4.14	16.13	6.49	8.93	50.23	20.12	34.74	25.54	13.24
1998	6.94	21.98	10.93	8.17	49.66	21.97	38.29	23.89	13.46
1999	0.07	4.79	10.06	5.16	47.26	22.26	40.06	23.24	14.94
2000	6.21	14.37	0.42	8.04	46.46	22.59	40.61	23.06	16.48
2001	9.69	21.98	14.44	4.62	48.71	25.84	45.22	19.82	14.76
2002	7.32	18.80	17.41	6.87	48.91	28.62	50.04	17.53	14.48

Source: *Commercial Bank Call Reports*

quality problems in their loan portfolios. The temptation is to recoup the margin shortfall by buying longer duration assets, assets of lower credit quality, and assets with riskier options. Some investors have combined some of these strategies by purchasing lower quality mortgages or mortgage-backed securities that tend to have longer durations (lower prepayment speeds) than conventional mortgages.

What is Next?

The business press and financial analysts generally appear to be forecasting a period of stable interest rates at their current low levels, followed by a gradual rise in rates as the economy achieves a sustained recovery.

What if the forecasts are wrong? Could the U.S. have a rapid recovery, a surge in economic demand and production, signs of inflation, and rapidly rising interest rates instead? Could all those investors with expectations of slow interest rate rises rush for the exit at once? Would they suffer significant losses? Table 5 on page 6 shows periods of increasing rates in the 10-Year Constant Maturity Treasury and the FHLMC Contract Rate on Commitments for Conventional 30-Year Mortgages. Interest rates, including rates on mortgages, have risen rapidly in the past and there is no reason to suppose they could not do so again in the future. Chart 4 on page 6 shows that some of the rapid interest rate increases were preceded by flat or gradual declining trends.

Mortgage and mortgage-backed securities that now have relatively short durations will see duration extension, probably significant.

It is fairly certain that interest rates will rise sooner or later as the economy revives. At that time, it is also likely that refinancings will slow significantly. Mortgages and mortgage-backed securities that now have relatively short durations will see duration extension, probably significant. What will be the value of these low coupon debt instruments in higher rate environments? As the stock market resumes trend growth, what will happen to all those deposits that banks have received over the past few years? How much of those new core deposits are actually core deposits that will remain in banks? Deciding on the 'duration' of non-maturity deposits for ALM models is difficult enough in normal times. In the current low interest rate environment with so many new "core deposits," the decision becomes even more difficult and even more important. Counting on low-cost core deposits to fund low-coupon mortgage products in a rising-interest rate, recovering economy may involve considerable risks.

Conclusion

ALM committees, CFOs, treasurers,

Table 5. Periods of Increasing Rates for 10-Year CMT and 30-Year Conventional Mortgages

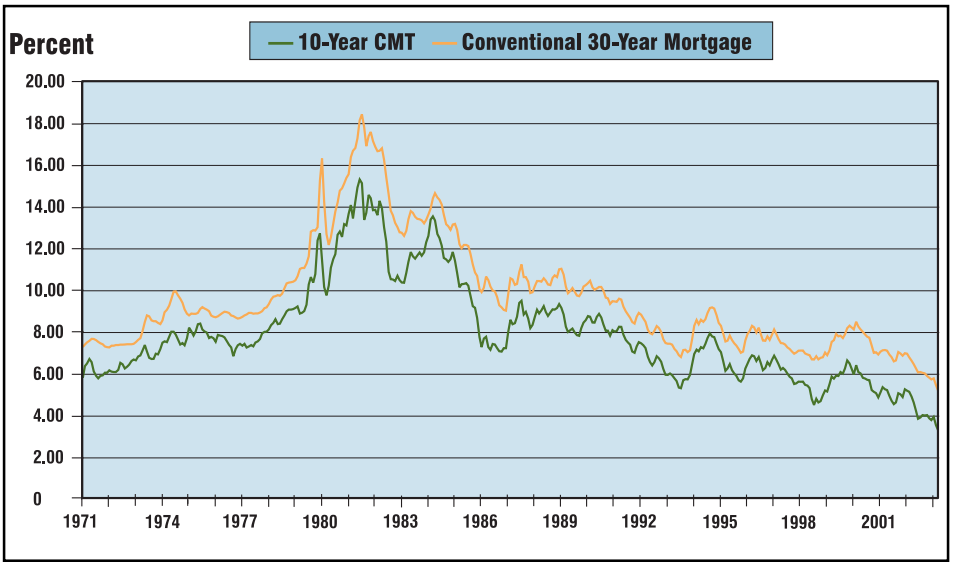
Type	Start	Low	End	High	Total Basis Pt Increase	Months in Cycle	Annualized Basis Pt Increase
Treasury	12/1976	6.87	03/1980	12.75	588	39	181
Mortgage	02/1977	8.67	04/1980	16.33	766	38	242
Treasury	06/1980	9.78	09/1981	15.32	554	15	443
Mortgage	07/1980	12.19	10/1981	18.45	626	15	501
Treasury	05/1983	10.38	06/1984	13.56	318	13	294
Mortgage	05/1983	12.63	07/1984	14.67	204	14	175
Treasury	03/1987	7.25	10/1987	9.52	227	7	389
Mortgage	03/1987	9.04	10/1987	11.26	222	7	381
Treasury	10/1993	5.33	11/1994	7.96	263	13	243
Mortgage	10/1993	6.83	12/1994	9.20	237	14	203
Treasury	10/1998	4.53	01/2000	6.66	213	15	170
Mortgage	10/1998	6.74	05/2000	8.52	178	19	112

Source: *Federal Reserve Board, H.15 Release*

investment officers, CEOs, presidents, and Boards of Directors always should be reevaluating their institutions' ALM profiles and the interest rate risks inherent in their balance sheets. However, this may be a particularly good time to consider how portfolios would perform as interest rates rise, using different scenarios to capture the speed at which rates rise. Bank management should be able to answer questions such as the following:

- Are the risks caused by duration extension in mortgages and mortgage-backed securities adequately quantified?
- Are there plans and strategies for different interest rate scenarios?
- Are exit plans for riskier strategies in place and viable in a rapidly changing market?

Chart 4. 10-year CMT and 30-Year Conventional Mortgage Rates



Source: *Federal Reserve Board, H.15 Release*

In times of heightened uncertainty, long-term profitability and earnings stability may be found in the relative safety of a more duration-neutral balance sheet, with strong credit quality and less embedded options risk. Pursuing yield strategies is likely to be riskier. Some banks that have already taken this more conservative approach probably have lost some profits as interest rates continued to decline. However, their long term profitability may be higher by taking action when they did instead of trying to time the market.

This article should not be construed as advocating a specific course of action concerning ALM, investment, and lending strategies. The only certainty is the lack of certainty about the timing of future interest rate movements. Understanding the risks embedded in investment and loan portfolios and funding will provide bankers the best insurance against surprises. ■