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# FHLBI Insider

## When portfolio loans are sold, an institution effectively trades a future stream of interest income for current fee income and cash.

Loan sales giveth and loan sales taketh away. For lenders involved in the secondary market, the refinance boom can produce a tremendous surge in profits. Unfortunately, a portion of these profits usually comes at the expense of the existing mortgage loan portfolio. When portfolio loans refinance and are sold, an institution effectively trades a future stream of interest income for current fee income and cash. If these funds are not effectively reinvested, an earnings time bomb may wait when loan sales are insufficient to mask the decline in net interest income.

One possible solution is to redeploy the proceeds from mortgage sales into shorter term and higher yielding commercial or consumer loans. This approach faces a major difficulty: a negative correlation exists between the refinance and the credit cycles. Refinancing activity is highest during periods of falling interest rates. Interest rates generally fall during periods of economic distress, declining credit quality, and reduced loan demand. In other words, refi booms generally aren't the best time to become aggressive commercial or consumer lenders. Tighter credit standards and reduced demand often result in portfolio runoff during these periods.

> *"Of all the mysteries of the stock exchange there is none so impenetrable as why there should be a buyer for everyone who seeks to sell."*
>
> *–John Kenneth Galbraith*
> *Economist*

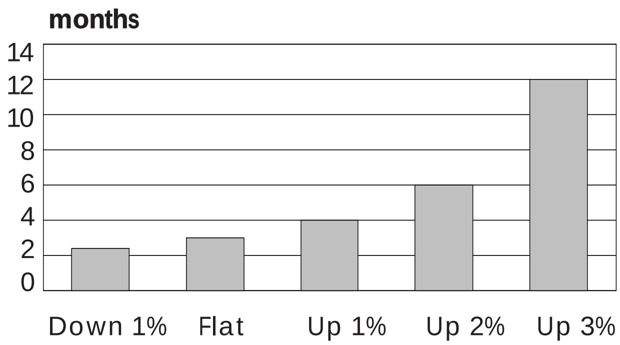
This Insider was written by James B. Eibel, CFA, vice president and senior marketing representative. Back issues of the Insider are available on the Bank's website.

If the commercial and consumer portfolios aren't able to absorb the excess liquidity, then the remaining investment alternatives are securities and mortgages. Market rate mortgages typically yield 40 to 50 basis points over comparable mortgage-backed securities. This yield differential represents "value added" by various financial intermediaries in the securitization process. Mortgage-backed securities have greater liquidity and little or no credit or servicing expenses. For institutions with excess liquidity, excess servicing capacity, and a pipeline of high quality mortgage loans, these enhancements are expensive and unnecessary.

### What about the reduction of loan sale income?

Holding new mortgages can be thought of two ways: simply as a reduction of sale income, or as a strategic deferral of income. Booking new mortgage production will reduce current income while building an annuity of future income. The large yield pickup provided by mortgage loans can enable an institution to overcome the reduc-

**Exhibit 1**
Breakeven period for holding vs. selling
Various rate scenarios




tion in sale income in a relatively short period of time. Consider the case of holding market rate 15 year mortgages yielding 5.5% or selling them for a 1% premium and investing the proceeds at a prevailing fed funds rate of 1.25%, which is the basis for Exhibit 1. The analysis assumes that holding mortgages adds 25 basis points in annual credit and servicing expenses.

During December 2002, a steep yield curve would have enabled a portfolio lender to pick up a net spread of 400 basis points over fed funds.

| | |
|---|---|
| Mortgage yield | 5.50% |
| less | |
| Lower fed funds income | 1.25% |
| Cost of credit/servicing | 0.25% |
| Net spread pick up | 4.00% |

This huge yield pickup would have enabled the lender to recoup the sale premium in a matter of only a few months across a wide variety of interest rate scenarios. If rates were to change less than 1% in either direction, the breakeven period would be less than four months. A steep yield curve makes the opportunity cost of selling mortgages high if short term investments are the only alternative.

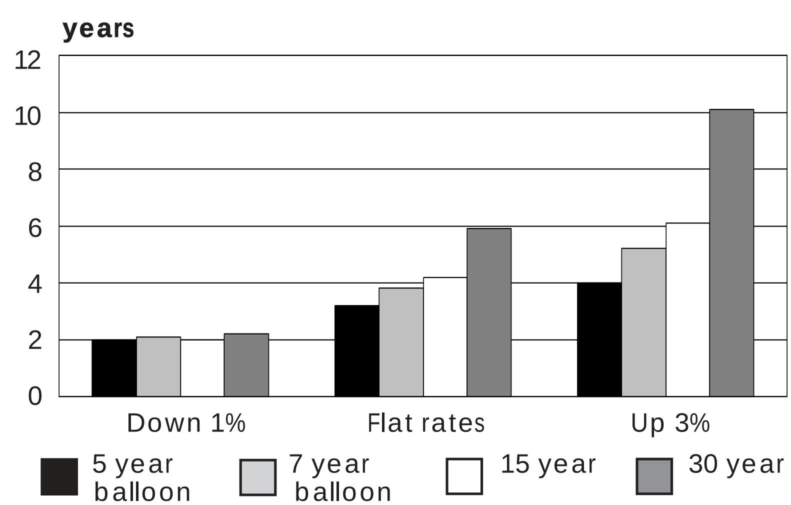
### What about interest rate risk?

Prior to engaging in any investment strategy, it is critical to investigate the potential risks. Historically, credit risk has been negligible for midwestern conforming mortgages. The primary risk is the uncertainty of future cash flows. One method of evaluating this is to consider changes in average life under various interest rate scenarios, as shown in Exhibit 2.

During periods of falling mortgage rates, all fixed rate products are created equal. When interest rates fall, mortgage prepayments overwhelm differences in amortization and maturity. For example, based on December 2002 prepayment expectations, a 1% drop in mortgage rates will shorten the maturity of all fixed rate mortgages to about two years. Exhibit 2 illustrates this.

In a rising rate environment, significant cash flow and average life differences emerge. If mortgage interest rates increase 3%, as shown in Exhibit 2, the constant prepayment rate (CPR) for all products will converge at approximately 6% to 7%. Most market participants consider prepayment speeds at these levels to represent worst case scenarios. Under these circumstances, a six-year average life difference exists between five-year balloons and 30 year mortgages. The higher yield of 30 year mortgages represents the premium for this higher expected cash flow volatility.

**Exhibit 2**
Mortgage average lives



## Should I hedge?

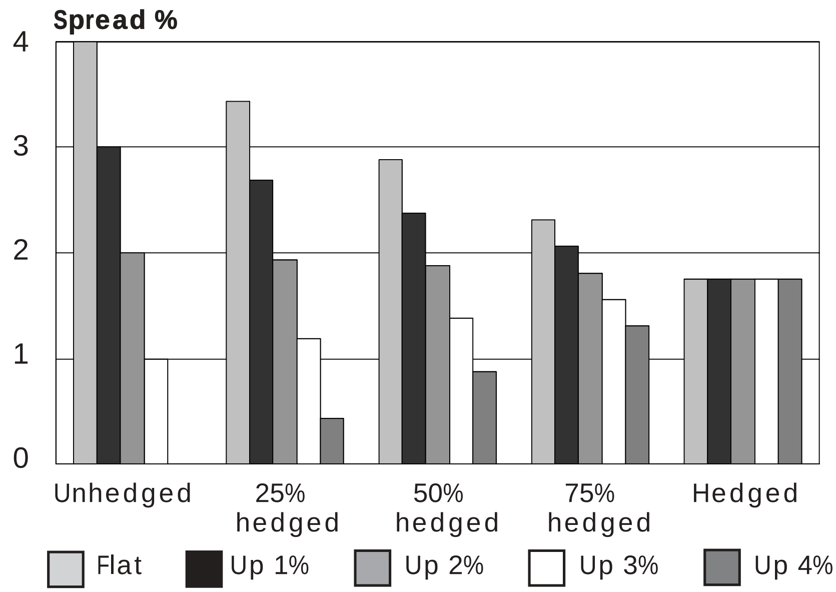
With interest rates at historic lows, many are concerned with the prospect of rising interest rates. If interest rate risk is a concern, FHLBI members always have the option of hedging mortgages with fixed rate borrowings. Varying amounts and terms of fixed rate funding can be added to the funding mix to reduce interest rate risk.

Consider again the case of market rate 15 year fixed rate mortgages. Based on market prepayment expectations in December 2002, 4.2 year average life funding theoretically should have provided a match for the mortgages' expected interest rate risk. Exhibit 3 shows the impact of combining varying amounts of 4.2 year average life match funding from the FHLBI (currently priced at 3.5%) with fed funds to hedge against interest rate changes. The analysis assumes new mortgages will add 25 basis points in annual credit and servicing expenses.

**Exhibit 3**

Spread volatility for different funding structures

Varying the proportion fed funds and fixed rate funding




As discussed previously, simply shifting fed funds into 15 year mortgages would have produced a net 400 basis point yield pick up during December 2002. Exhibit 3 shows this "unhedged" approach to be both the most lucrative and most volatile. While the strategy produced the maximum initial spread, it was also exposed to the full movement of interest rates. For example, if the Federal Reserve had immediately increased interest rates 400 basis points to 5.25%, the strategy would have been reduced to the breakeven

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level. Given the history of Federal Reserve policy, and prevailing futures prices, a near-term 400 basis point rate increase appears improbable.

### A barometer for short rates

The Eurodollar futures curve in Exhibit 4 provides a barometer for market sentiment regarding short term interest rate changes (based on three-month LIBOR). During December 2002, Eurodollar futures prices implied short-term interest rates would remain below the 5.25% level for five years.

For most bankers, memories are more powerful than Eurodollar futures. Fed funds were in the 5.25% range less than two years ago (March 2001). For this reason, an institution may opt to hedge new mortgage investments and rising rates by locking in a portion of the funding cost for a term.

Exhibit 3 illustrates that incorporating fixed rate funding produces a lower but less volatile result than using excess liquidity alone. Consider the case of using 50% fixed rate funding and 50% fed funds ("50% hedged"). While the initial spread pickup is 112 basis points lower than the unhedged strategy (2.88% vs. 4.00%), the impact of rate changes is muted. Exhibit 5 shows that the breakeven fed funds rate for being 50% hedged was 175 basis points higher (7.00% vs. 5.75%) than being unhedged. It has been twelve years since fed funds exceeded the 7% threshold (December 1990). If 575 basis points of interest rate protection are deemed insufficient, more fixed rate funding can always be used to further reduce the exposure to rising interest rates.

This strategy of combining liquidity and FHLBI funding can be customized to meet any risk/return objective. In addition to varying the amount of fixed rate funding, both funding terms and structures can be varied to produce different risk/return payoffs. The flexibility of this approach makes portfolio mortgages the best antidote for excess refi boom liquidity.

If you would like assistance analyzing the potential impact of this funding strategy, please contact the FHLBI marketing department at (800) 442-2568.

**Exhibit 4**

Market rate projections for 3 month LIBOR (based on 12/16/02 Eurodollar futures)

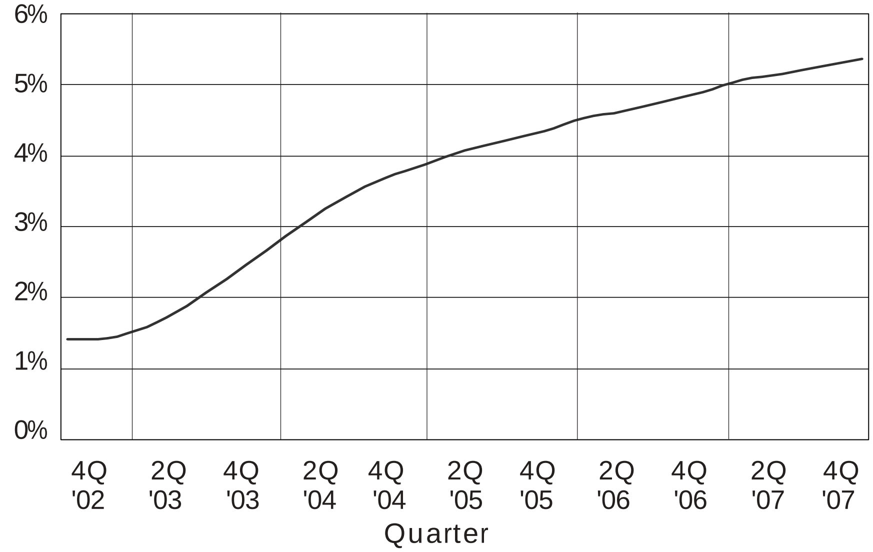


**Exhibit 5**

Funding breakeven thresholds

| Funding strategy | Breakeven rate change | Breakeven fed funds rate | Last date fed funds above breakeven |
|---|---|---|---|
| Unhedged | 4.00% | 5.25% | March 2001 |
| 25% hedged | 4.58% | 5.83% | January 2001 |
| 50% hedged | 5.75% | 7.00% | December 1990 |
| 75% hedged | 9.25% | 10.50% | September 1984 |
| 100% hedged | N/A | N/A | Not applicable |