

Bank Asset/Liability Management

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The Two Faces of Market Risk

When bankers confront the issue of *market risk*, they might have either of two approaches in mind. In both, the concern deals with the impact of prospective changes in interest rates. However, two dimensions pertain to this concern: (1) the immediate impact of an interest rate change and (2) the impact over time. Put another way, a change in interest rates will have an instantaneous effect on position market values and thus the aggregate value of the firm. It will also influence future earnings that will be realized over the remaining life of the bank's portfolio items. To appropriately evaluate the efficacy of any hedging program, we need to know which of these concerns the hedge is attempting to address.

Evaluation Hedging Programs. Consider the case of a fairly traditional bank portfolio consisting of longer-duration assets and shorter-duration liabilities. For now, assume a *buy and hold* orientation, whereby maturing assets and liabilities will be replaced, but only upon their expiration at their natural maturity dates. Further, consider each asset to be funded by an associated collection of one or more liabilities. Given the maturity mismatch of these asset/liability pairings, a rise in interest rates will adversely affect net interest margin associated with existing assets, but the resulting net interest margin for any replacement assets and associated liabilities will be uncertain.

It should also be clear that, as longer duration assets have greater interest rate sensitivity than shorter duration liabilities, higher interest rates will foster a lower aggregate market value for the existing portfolio. This price impact will be transitory for the

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starting portfolio, however, as the component financial instruments will necessarily settle to predetermined maturity values – as long as they do not default. Of course, the transitory nature of the impact on the firm's aggregate market value is dependent on holding portfolio components until their natural maturity dates. And while it may make sense to be vigilant in seeking to substitute *better performing* assets or liabilities when such opportunities present themselves, in so doing, the firm transitions from positioning with a known outcome to one of an unknown outcome, effectively

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introducing a new component of market risk into the mix. Put another way, the expectation of improving the resulting net interest margin is one that may not end up being fulfilled.

Altering Your Bank's Risk Profile. In any case, to the extent that banks may wish to alter their market risk profile, the alternatives are (a) to restructure the portfolio, or (b) to use derivative instruments to achieve an analogous result, synthetically. Generally, the former tends to be cumbersome and time-consuming, while the latter allows for a more efficient and immediate adjustment. In using derivatives, however, two distinct hedging objectives might be pursued. One objective could be to seek to mitigate the effects of an interest rate perturbation on portfolio values (i.e., the value-oriented approach), and a second objective could be to focus on prospective net interest margins (i.e., the income-oriented approach). To rephrase, the first would serve to stabilize the market value of the bank's portfolio without necessarily affecting the accrual schedules of the portfolio components, while the second addresses prospective contributions to earnings, without particular consideration of market value changes. The two hedging objectives would likely call for different hedge constructions.

Mitigating Changes in Portfolio Values. With the objective of mitigating changes in portfolio values, the typical approach determines the aggregate interest rate sensitivity of the portfolio and then overlays a derivative position designed to foster a lesser sensitivity of the portfolio and the derivative position, combined, relative to the starting asset/liability portfolio. The presumption underlying this approach is that the bank can correctly measure and monitor interest rate sensitivities of their assets and liabilities, as well as those of their derivative positions. With this capability, the bank can target and achieve virtually any degree of price exposure of its choosing.

With a focus on prospective net interest margin, the hedge would be designed to synthetically extend the maturities of liabilities or, alternatively, to shrink the maturities of assets. In either case, the hedge would serve to adjust the bank's gap position. This hedge process is complicated for institutions that hold positions with

early termination features, such as prepayable loans, where existence of prepayment options fosters the need to make assumptions about the expected schedule of prospective early terminations as a prerequisite for determining appropriate hedge positions.

To the extent that those assumptions are incorrect, the selected hedge positions might turn out to be too large or too small, depending on the direction of the error. In most situations, however, when the objective is to mitigate some existing risk, as opposed to fully eliminating it, this level of imprecision would likely fall within acceptable performance ranges.

It should be appreciated that the hedge construction that derives from this earnings-oriented hedging approach can typically serve to reduce the interest rate sensitivity of the bank as a whole – consistent with the outcome of the previously discussed duration based hedging. Even so, the two respective hedge designs should not be expected to be the same. That is, the duration of the derivative used to affect a synthetic adjustment to asset or liability maturities would likely have a duration that would differ, at least somewhat, from the duration of a derivative intending to fully offset the price effect of an interest rate perturbation on some asset or liability. Moreover, any number of hedge constructions could be orchestrated to yield comparable durations. However, more likely than not, the alternative earnings-oriented hedging would generally involve a more constrained set of hedge choices.

How Much Market Risk to Mitigate. Importantly, whichever approach is taken (value-oriented or income-oriented), hedging positions should not be static. As time passes, assets and liabilities will expire or will be eliminated from the portfolio and replaced. As a consequence, the bank's exposure will change; and so, too, might the bank's risk appetite. Thus, on an ongoing basis, best practice calls for revisiting the question of how much market risk to mitigate. This reassessment deserves to be made both on a periodic basis and also in response to any significant market adjustment.

For both types of hedges to be reflected in the bank's financial statements in a manner consistent with the associated hedging objective,

special hedge accounting would be needed. For the value-oriented hedge, fair value hedge accounting would be the appropriate treatment. Here, the hedger would most likely identify particular assets having an aggregate duration measure equal to that which the bank would want to neutralize. Under certain conditions, a single derivative might serve to hedge this collection of assets, or else at the individual, assets or smaller subsets of assets would require their own hedging relationships, pairing specific assets with specific derivatives or portions of a derivative.

In fair value hedges, balance sheet carrying values of the assets being hedged would be adjusted to reflect the value changes due to the interest rate changes that occurred throughout the hedging horizon. Under hedge accounting, those changes would be reflected in the income statement. Additionally, gains or losses of the hedging derivative, realized and/or unrealized, would also be recorded as earnings in the income statement. With a well-functioning hedge, these two earnings effects should be roughly offsetting.

For the income-oriented approach, the accounting treatment would depend on whether the hedge was conceived as intending to shorten the maturity of the bank's assets or lengthen the maturity of the bank's liabilities.

In the former case, fair value hedging would apply with essentially the same approach as that detailed above; and in the latter case, cash flow hedge accounting would apply. With cash flow hedging, the hedger would have to evaluate the hedge results and make a determination as to the portion of those hedge gains or losses that would be considered to be *effective* versus the portion that would be considered to be *ineffective*.

Effective results would initially be reflected in other comprehensive income, and later reclassified to earnings in the accounting period associated with the earnings impacts being hedged. The ineffective hedge results, on the other hand, would be recorded in earnings on a current basis. In this case, for well-functioning hedges, ineffective earnings amounts should be inconsequential if not immaterial; but regardless of materiality, the application of hedge accounting requires rigorous compliance with the dictates of the accounting procedures specified in section 815 of the Accounting Standard Codification.

The Application of Hedge Accounting. Critically, hedge accounting is permissible only when stringent

prerequisite conditions are satisfied, including the drafting of detailed hedge documentation and devising and satisfying prospective and retrospective effectiveness tests. Given the repetitive nature of most hedging programs, though, addressing these requirements tends to be a one-time concern in that the initial documentation can usually be replicated with little or no adjustments when similar hedges are initiated.

Failure to satisfy these qualifying conditions for hedge accounting would force the default accounting treatment, where derivative gains or losses, realized and unrealized, would have to be reported in current earnings. Under this treatment, the intent of the hedge would not be reflected in the bank's financial statements, and management would likely have to address analysts' concerns about the more exaggerated level of earnings volatility that would likely result relative to the hedge accounting outcome.

Final Thoughts. Having presented these two alternative risk management orientations – one relating to the immediate interest rate effects and the other relating to interest rate effects that will accrue over time - the question remains as to which approach is better. Different bank asset/liability managers with different priorities may make different judgments, but my own preference is for the earnings-oriented approach, which I think lends itself to greater precision, discipline, and predictability.

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