

ALM – Interest Rate Risk / Maturity Gap

Changes in interest rates can significantly affect both, a bank's profitability as well as its value of equity. The concept of the Maturity Gap (M-GAP) focuses on the impact on a bank's net interest income.

A bank's net interest income position will be affected, if in a changing interest rate environment interest rate-sensitive assets and liabilities do not reprice at the exactly same time. This is what the M-GAP concept is dealing with.

The spread risk (i.e. reinvestment risk or refinancing risk) estimates the impact of interest rate changes on a bank's funding costs as well as on the return on invested assets: Ultimately, the impact on a bank's net interest income. Evidently, changes in interest rates would have no impact on this position, if a bank's funding costs as well as yields on invested assets were all fixed. However, on every bank's balance sheet typically vast portions of assets and liabilities are interest rate sensitive, even if to a different degree.

In this context, one may also keep the issue of a bank's ongoing refinancing in mind: Banks tend to borrow short-term, a substantial part of which in daily due retail deposits. On the other hand, a bank's lending is rather long-term (e.g. 30-year mortgage loans). Therefore, by refinancing itself on an ongoing basis, a bank is naturally exposed to a constant repricing of its funding base, its liabilities. On the asset side, however, such repricing may not occur quite as regularly or only with delay.

To further analyze changing interest rates on a bank's net interest income line, in a first step Rate Sensitive Assets (RSAs) as well as Rate Sensitive Liabilities (RSLs) are clustered in time buckets. The difference between the sum of the RSAs and that of the RSLs in each time bucket is referred to as this respective cluster's M-GAP. – Now, if, for example, in a certain bucket the sum of the RSAs is larger than that of the RSLs, then the M-GAP is positive. If interest rates went up, because of the M-GAP being positive, then the net interest income in that bucket would increase. If, however, the M-GAP were negative, then an interest increase would diminish a bank's net interest income for this time bucket.

Applying the M-GAP concept is straightforward, in particular if the interest rate change were (in percentage terms) the same amount across all RSAs as well as RSLs: In this case, one could easily calculate its impact on the bank's net interest income by multiplying the change of the interest rate with the respective M-GAP. – However, in reality parallel shifts across the whole yield curve are rare: Instead, yield curves often change shapes. Therefore, as banks tend to borrow short-term and lend long-term, the impact on RSAs and RSLs differ across the yield curve's maturity spectrum.

The M-GAP concept is relatively easy to implement, to understand and works particularly well if changes in interest rates are small. However, limits in applying M-GAP become visible when, for instance, assessing banks which are foremost funded by demand deposits: Whilst not only callable short-notice, on top their respective interest paid have a tendency to be fixed (i.e. are non-rate sensitive).

MATURITY GAP

Δ INTEREST RATES



INCOME STATEMENT

- Δ INTEREST INCOME
- - Δ INTEREST EXPENSES
- = Δ NET INTEREST INCOME

BALANCE SHEET

-----> Δ EQUITY

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