

## ALM – Interest Rate Risk / Maturity Gap

**Changes in interest rates can significantly affect both, a bank's profitability as well as the value of its 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 exactly the 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, typically vast portions of a bank's assets and liabilities are interest rate sensitive, even if to a different degree.

In this context, one may also keep in mind that most banks require refinancing on an ongoing basis: They tend to borrow short-term, a substantial part of which in form of retail deposits, which are due daily. On the other hand, a bank's lending is usually 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.

Hence, changing interest rates impact the cash flow and income pattern of both, Rate Sensitive Assets (RSAs) as well as Rate Sensitive Liabilities (RSLs), and in consequence a bank's net interest income line. In analyzing both, impact and origin, RSAs and RSLs can be clustered in time buckets. Whereby the difference between the sum of the RSAs and that of the RSLs in each time bucket is referred to as a 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 a 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 tend to change shapes as well. Therefore, as banks usually 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 clear when, for instance, assessing banks which are foremost funded by demand deposits: Whilst not only callable on short-notice, on top respective interest paid for them have a tendency to be fixed (i.e. are non-rate sensitive).

# MATURITY GAP

$\Delta$  INTEREST RATES



INCOME STATEMENT

- $\Delta$  INTEREST INCOME
- -  $\Delta$  INTEREST EXPENSES
- =  $\Delta$  NET INTEREST INCOME

BALANCE SHEET

----->  $\Delta$  EQUITY

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