

## BANK ANALYSIS

### ALM – Interest Rate Risk / Maturity Gap and Earnings Sensitivity

**Interest Rate Risk (IRR) points towards the potential loss from unexpected changes in interest rates. These can significantly impact a bank's profitability but also its market value of equity. As a matter of fact, if a bank's assets and liabilities do not reprice at the exactly same time, then this will result in a change in net interest income. But as a change in interest rates will likely also impact the value of assets as well as the value of liabilities, this will eventually also impact the value of a bank's stockholder's equity. In such constellations, financial institutions typically focus on either the impact on net interest income or the market value of stockholders' equity, but not both. In this section, we will only focus on net interest income.**

The spread risk (also reinvestment risk or refinancing risk) assesses to which extent changes in interest rates have an impact on a bank's cost of funds as well as the return on invested assets, ultimately the impact on a bank's net interest income. – Hence, if all of a bank's funding costs as well as yields on invested assets were fixed, then costs and yields would not change if the interest rate environment shifted. However, this is usually not the case: Instead, at least some of the funding costs and / or yields on invested assets are interest rate sensitive, and will therefore – even though sometimes to a different degree – change in a shifting interest rate environment.

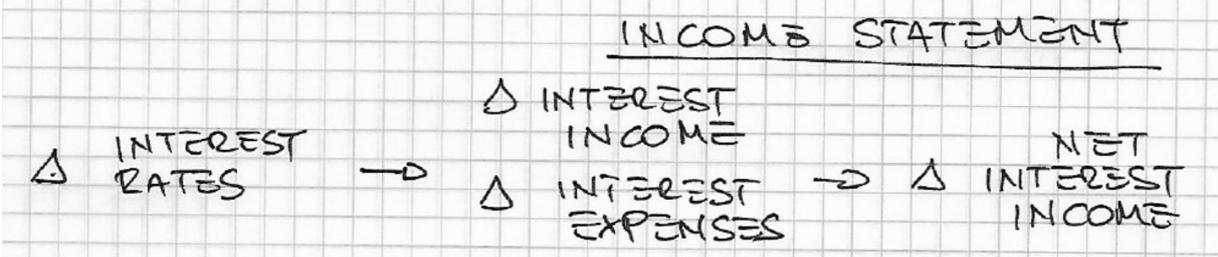
In this context one should also mind the fact that banks usually borrow short term (a substantial or major part in daily due retail deposits) whilst

lending long-term (such as extending 30-year mortgage loans). It is therefore evident that a bank will be required to re-finance itself on an ongoing basis, which naturally embeds an ongoing repricing of its liabilities. On the asset side, however, such re-pricing may not occur as regularly.

Both, Rate Sensitive Assets (RSAs) as well as Rate Sensitive Liabilities (RSLs) are usually clustered in time buckets, whereby each of these time buckets is analyzed individually. The difference between the RSAs and the RSLs in each time bucket is referred to as maturity GAP, or just GAP. – Now, if, for example, in a certain time bucket RSAs were larger than RSLs and interest rates went up, then the GAP were positive and the net interest income in that very time bucket would increase. If, however, the GAP were negative, then an interest increase would negatively impact a bank's net interest income for this time bucket.

In case that a change in interest rates were for the same amount for RSAs as well as for RSLs, then one could easily calculate the impact on the bank's net interest income by simply multiplying the amount of the change of the interest rate with the GAP. However, such parallel shift across the whole yield curve is rare. Instead, the yield curve has a tendency to continuously change its shape. And, as banks tend to borrow short-term and lend long-term, RSAs and RSLs will be impacted differently.

Therefore, whilst the GAP analysis is easy to implement and understand and works well with small changes in interest rates it commonly leads to measurement errors. Besides, demand deposits – in many cases the largest component of a bank's funding base - have a tendency to be rather fixed or non-rate sensitive. Nevertheless, measuring periodic GAPs (ie. the GAP for each time bucket) and along with it the timing of potential income effects from interest rate changes can be a useful analytical tool.



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