We implement a recently established approach to investigate the interest rate risk of banks with extensive engagement in maturity transformation. Therefore, we contribute to the emerging literature challenging modern banking theory’s view on interest rate risk as an inevitable consequence of banks’ maturity mismatch. For our sample, we confirm an exposure of banks’ interest income to changing market rates. We also find evidence for an alignment of banks’ interest expense and sensitivity, which might indicate an implied interest rate risk hedge by their business model. Banks with lower expense sensitivities show significantly higher loan interest income to changing market rates, especially if their difference between interest expense and income is small. Our results shed light on an implicit hedging mechanism within banks’ business models, its incompleteness, the use of interest rate derivatives, and consequences for adequate regulation.

Interest rate risk according to modern banking theory & regulators

1. Evolving literature
   - Understanding of this relationship is important for banks’ intermediate role
   - General: banks lend long and refinance short
   - Result: Maturity mismatch of assets and liabilities

2. Gap Risk (BCBS, 2016)
   - Mismatch of assets and liabilities exposes net interest income to changing interest rates if it is not hedged

What is the relationship of maturity transformation and interest rate risk?

1. All banks with high levels of deposits and high levels of maturity transformation
2. Financial stability and adequate regulation of interest risk

Opposing views on banks’ interest rate risk

Banks’ intermediation role
   - In general, banks lend long and refinance short
   - Result: Maturity mismatch of assets and liabilities

Gap Risk (BCBS, 2016)
   - Maturity transformation actually hedges banks’ net interest income (Drechsler et al., 2021)

Opposing literature
   - Maturity transformation even limits interest rate risk (English et al., 2018)
   - Market power in deposit business stabilizes funding costs (Drechsler et al., 2017)

Evolving literature
   - Maturity transformation even limits interest rate risk (English et al., 2018)
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Supplementary tables

<table>
<thead>
<tr>
<th>Variable</th>
<th>mean</th>
<th>sd</th>
<th>p50</th>
<th>regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expense Beta</td>
<td>0.176</td>
<td>0.068</td>
<td>0.175</td>
<td>$\beta_{\text{Expense}} = \alpha + \beta_{\text{Expense}} \Delta \text{Market Income} + \epsilon$</td>
</tr>
<tr>
<td>Income Beta</td>
<td>0.102</td>
<td>0.074</td>
<td>0.069</td>
<td>$\beta_{\text{Income}} = \alpha + \beta_{\text{Income}} \Delta \text{Market Income} + \epsilon$</td>
</tr>
<tr>
<td>NIM Beta</td>
<td>-0.075</td>
<td>0.078</td>
<td>0.074</td>
<td>$\Delta \text{NIM} = \alpha + \beta_{\text{NIM}} \Delta \text{Expense} + \epsilon$</td>
</tr>
<tr>
<td>ROA Beta</td>
<td>-0.040</td>
<td>0.102</td>
<td>0.041</td>
<td>$\Delta \text{ROA} = \alpha + \beta_{\text{ROA}} \Delta \text{Income} + \epsilon$</td>
</tr>
</tbody>
</table>

Results: Individual beta regressions & sensitivity matching

Test for implementation of sensitivity matching

Expectation: Alignment through supervising maturities of assets

Repricing Maturity: $\alpha + \beta_{\text{reprice}} \Delta \text{Market Income} + \epsilon$

Rising interest rate risk

- Higher expense sensitivities
- Higher repricing maturities
- Lower income sensitivities

Negative signs in regression indicate alignment of expense and income sensitivities:
- $\beta_{\text{Expense}} < 0$
- $\beta_{\text{Income}} < 0$
- $\beta_{\text{NIM}} < 0$
- $\beta_{\text{ROA}} < 0$

Summary

- The interest business still accounts for 70% of operating profits (for banks in our sample)
- However, banks show a relatively stable net interest margin
- The interest business still accounts for 70% of operating profits (for banks in our sample)

Opposing views on banks’ interest rate risk

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