Impact of low or negative interest rate environment - Banks

ECB Bond Market Contact Group, 7th April 2016

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Negative policy rates driving negative yields

- Negative policy rates are combining with subdued inflation, a mixed global recovery and lower for longer themes.
Negative yields in the bond universe

- In Germany, 64% of the WGBI benchmark trades negative. Even in Italy, 15% of the benchmarks trades negative.

- Similarly for covered bonds universe, 43% of Euro benchmark trades negative, 20% of the Spanish universe trades negative.

- 7% of the IG Corp universe trades negative with the bulk trading at 0-2%

### Citi World Govt Bond Index (WGBI)

<table>
<thead>
<tr>
<th>Country</th>
<th>Market Value (USD bn)</th>
<th>% trading negative</th>
<th>Years to Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>45</td>
<td>100%</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>47.39</td>
<td>57%</td>
<td>2</td>
</tr>
<tr>
<td>Germany</td>
<td>1.165</td>
<td>64%</td>
<td>3</td>
</tr>
<tr>
<td>Denmark</td>
<td>1.03</td>
<td>43%</td>
<td>4</td>
</tr>
<tr>
<td>Netherlands</td>
<td>382</td>
<td>57%</td>
<td>5</td>
</tr>
<tr>
<td>Finland</td>
<td>98</td>
<td>36%</td>
<td>6</td>
</tr>
<tr>
<td>Austria</td>
<td>241</td>
<td>47%</td>
<td>7</td>
</tr>
<tr>
<td>France</td>
<td>1,534</td>
<td>47%</td>
<td>8</td>
</tr>
<tr>
<td>Belgium</td>
<td>413</td>
<td>40%</td>
<td>9</td>
</tr>
<tr>
<td>Sweden</td>
<td>77</td>
<td>44%</td>
<td>10</td>
</tr>
<tr>
<td>Ireland</td>
<td>129</td>
<td>42%</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>1,507</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>847</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>5,712</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>1,227</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>281</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>45</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>318</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19,862</strong></td>
<td><strong>26%</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Covered bonds trading w. neg. yield

- % of outstanding

Source: Citi,
Market liquidity and negative rates

- Negative policy rates have seen money market volumes fall but not collapse. Repo market liquidity impacted but market functioning is normal.
- We find little correlation with EMU-11 bond trading volumes. But investor base less active, more concentrated.
- SSA has become 2-tier market
- Variation in Bund Futures liquidity is a regular phenomenon but seems to have little to do with negative rates.

Bond market turnover not correlated to –Ve rates

Bund future contract liquidity

Source: Citi, Bloomberg, Eurex
Bank profitability: the starting point & market expectations

- Since 2010, EU banks have grown Net Interest Income (NII) above 2% only once (in 2014).

- Consensus forecasts are for an increase in EU bank NII growth rates from +1ppt in 2015 to +2ppt in 2016 and almost +4% in 2017. These forecasts look optimistic to Citi bank equity researchers.

- Among Euro countries, Italy has the weakest forecast 2015 NII growth (-5% yoy). Consensus forecasts for a rebound in 2016-17 (+7 to +9ppt vs 2015 growth rate) look optimistic.

- Citi expect Italian banks’ NII to decrease by c2% in 2016 YoY due to further margin compression, limited loan growth and lower reinvestment yields, partly offset by lower funding costs.

E = Consensus Forecasts  Source: Factset Consensus, Company Reports; Based on Citi covered banks
Bank profits and the importance of NII

Why is the market so focused on NII growth?

1. For the typical Euro area bank NII represents 55%-60% of profits.
2. Gearing. For a typical Euro area bank \( \Rightarrow 1\% \Delta \text{NII} \Rightarrow 3\% \Delta \text{Profits} \)

- Germany and Austria appear most exposed to this metric, with 2017E NII/profits of c4x, followed by Spain at 3.5x.

- Notice how other negative rate regions’ banks are better protected. Switzerland, for instance, is at the other extreme, at only 1.5x NII/profits due to a high gearing to non-NII revenues. Sweden and Denmark have a similarly low NII/profit multiple reflecting low cost and loan loss ratio.

Gearing effect: \( \text{NII} \div \text{Attributable Profit} \).
For the typical Euro area bank a 1ppt change in NII, all else equal, impact on net profits by c. 3ppt.

Source: Citi Research; Bottom up based on Citi coverage stocks and for 2017 estimates
The NII challenge (1) Loan-deposit ratios

In a low rate environment, markets will be concerned about banks that are overly reliant on deposit income.

• Sensitivity to lower EUR rates is partly driven by gearing to low loan/deposit ratios.
• Non-wholesale deposits are hard to re-price to reflect negative rates.
• In addition, lower reinvestment yield on excess liquidity is a constraint for banks with low LDRs.

• Higher floor risk from negative rates is likely, particularly in the case of Belgium (60% LDR – well below EA average of 110%). Among EA countries, Spain and Netherlands have higher LDRs;
• Notice how the Nordics are the highest in Europe – providing greater protection from negative rates.

Source: Citi Research; Bottom up based on Citi coverage stocks and for 2017 estimates
In a low rate environment, markets are concerned about govt bond or central bank exposures.

- Sensitivity to lower EUR rates will also be driven by gearing to government debt and central bank exposure.

- Higher the exposure to sovereign debt/central bank deposits \(\Rightarrow\) higher the risk of lower NII from reduced re-investment yields.

- Belgium, Portugal, France and Italy appear most at risk on this metric, among EA countries.

- Notice that Nordics once again better insulated.

Source: Citi Research; Bottom up based on Citi coverage stocks and for 2017 estimates
The structure of the loan book influences

• ‘Only’ 1/3 of Euro Area lending is fixed-rate, with the remainder floating off 6M/12M Euribor (periphery) or longer-term rates (Germany, BeNe).

• As rates decline, interest income from floating-rate loans and securities will decline. Banks in Portugal, Finland, Spain, Ireland and Italy are most exposed.

• European mortgages are split between those that are predominantly fixed rate markets (BeNe, Germany, France) and those that are predominantly floating (Ireland, Iberia and Italy). Floating rate mortgages are typically Euribor-linked.
How are banks responding to the business model challenge?

Academic studies lean towards a low rates as a problem for banks

- “A positive relationship between the interest rate structure and bank profitability” and “significant non-linearities”, in particular that “the impact of interest rates on bank profitability is particularly large when they are low”. (The influence of monetary policy on bank profitability (Borio, Gambacorta, Hofmann,) BIS Working Papers No 514, October 2015.)
- “The effective lower bound is, however, likely to move up if interest rates remain, or are expected to remain, negative for a long time”. (BIS Mar-16 quarterly.)

How banks are responding

- Switzerland: Introduce a lower bound on Libor based mortgages, higher mortgage rates
- Denmark: clarification of the tax treatment for negative mortgage bond coupons
- Sweden: raise lending margins
- Europe: pass on negative deposit rates to ‘wholesale depositors’ but not to retail deposits – although some banks are introducing account charges to mitigate the impact. Some discussion of withdrawing central bank reserves

### Euro area lending margins

Source: ECB, Citi Economics
Where does this leave Euro area banks?

Profitability headwinds combine with capital and NPL concerns = more fragility

- It is concerning that Danish banks are seeing NII erosion (with a better economic backdrop compared to the Euro area).
- Swedish banks have been able maintain NII strength but here the backdrop is strong capital positions and GDP growth at 3%+

- Profit erosion has been impacting bank equity prices.
- Our analysts calculate that the implied cost of equity is now above the return of equity.
- Typically that means deleveraging.

Bank Cost of Equity is now above Return on Equity ➔ Deleveraging

Quarterly NII for Nordic bank (local FX)

<table>
<thead>
<tr>
<th></th>
<th>4Q14</th>
<th>1Q15</th>
<th>2Q15</th>
<th>3Q15</th>
<th>4Q15</th>
<th>QoQ %</th>
<th>YoY %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danske Bank</td>
<td>5.742</td>
<td>5.312</td>
<td>5.515</td>
<td>5.343</td>
<td>5.306</td>
<td>-0.7%</td>
<td>-7.8%</td>
</tr>
<tr>
<td>DNB</td>
<td>8.700</td>
<td>8.587</td>
<td>8.728</td>
<td>8.861</td>
<td>9.062</td>
<td>0.9%</td>
<td>4.2%</td>
</tr>
<tr>
<td>Nordea</td>
<td>1.556</td>
<td>1.290</td>
<td>1.310</td>
<td>1.272</td>
<td>1.241</td>
<td>-2.4%</td>
<td>-5.6%</td>
</tr>
<tr>
<td>SE Banken AB</td>
<td>5.010</td>
<td>4.946</td>
<td>4.632</td>
<td>4.683</td>
<td>4.677</td>
<td>-0.1%</td>
<td>-6.6%</td>
</tr>
<tr>
<td>SHB</td>
<td>6.883</td>
<td>6.816</td>
<td>7.019</td>
<td>6.834</td>
<td>6.971</td>
<td>2.0%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Swedbank</td>
<td>5.809</td>
<td>5.719</td>
<td>5.704</td>
<td>5.811</td>
<td>5.759</td>
<td>-0.9%</td>
<td>-0.9%</td>
</tr>
</tbody>
</table>

Source: Company Reports; * Excluded $180m one-offs due to Swiss settlement; *Danske NI excludes DKK77m one-offs.
The risk for the ECB…… is tighter conditions

The gap between banks’ Return on Equity and Cost of Equity has been a leading indicator of credit growth.

Recent developments should concern the ECB Council.

The ECB should tread carefully as the recent deterioration in the profits outlook could well be the cause of weaker loan growth.

Source: ECB, Citi Economics
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