Impact of low or negative interest rate environment - Banks

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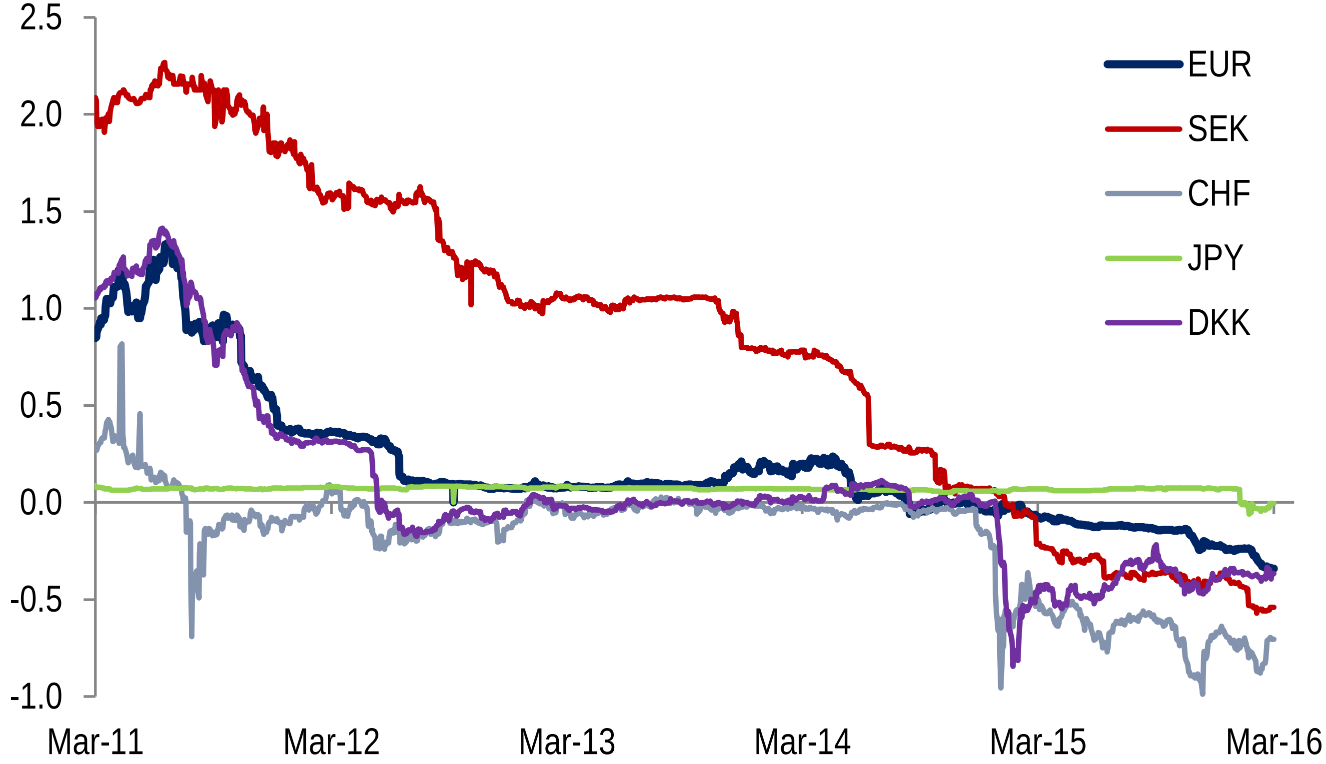
Negative policy rates driving negative yields

- **Negative policy rates are combining with subdued inflation, a mixed global recovery and lower for longer themes.**

Negative overnight rates

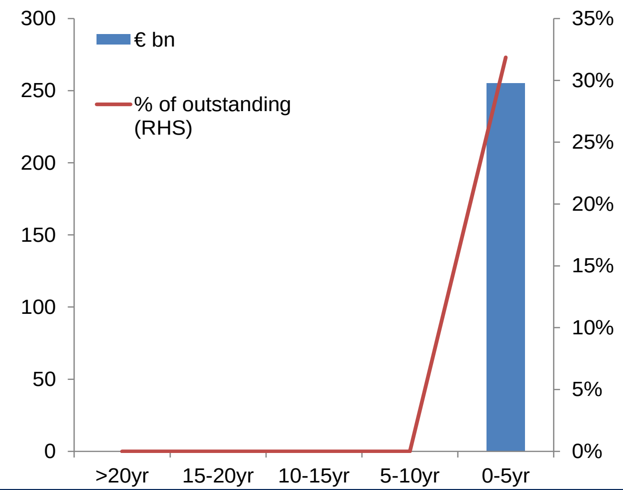


Source: Citi,

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%

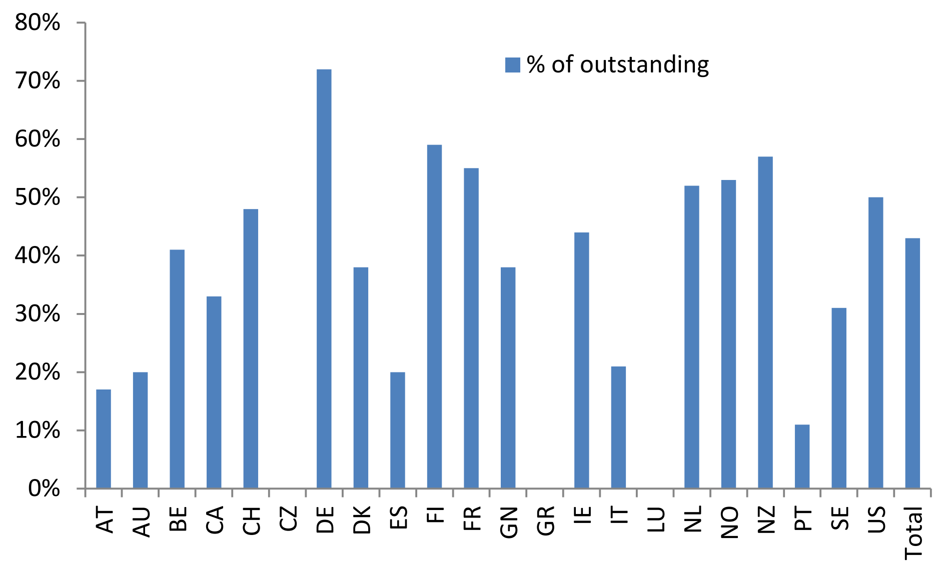
IG corp. bonds trading w. neg. yield



Citi World Govt Bond Index (WGBI)-

		Market Value (USD bn)	% trading negative	Years to Maturity 1	2	3	4	5	6	7	8	9	10
Country	Switzerland	45	100%										
	Japan	4,739	57%										
	Germany	1,165	64%										
	Denmark	103	43%										
	Netherlands	382	57%										
	Finland	98	56%										
	Austria	241	47%										
	France	1,534	47%										
	Belgium	413	40%										
	Sweden	77	44%										
	Ireland	129	42%										
	Italy	1,507	15%										
	Spain	847	11%										
	US	6,712	0%										
	UK	1,227	0%										
	Australia	281	0%										
	Norway	45	0%										
	Canada	318	0%										
Total		19,862	26%	Key	Negative Yield / Positive Yield								

Covered bonds trading w. neg. yield

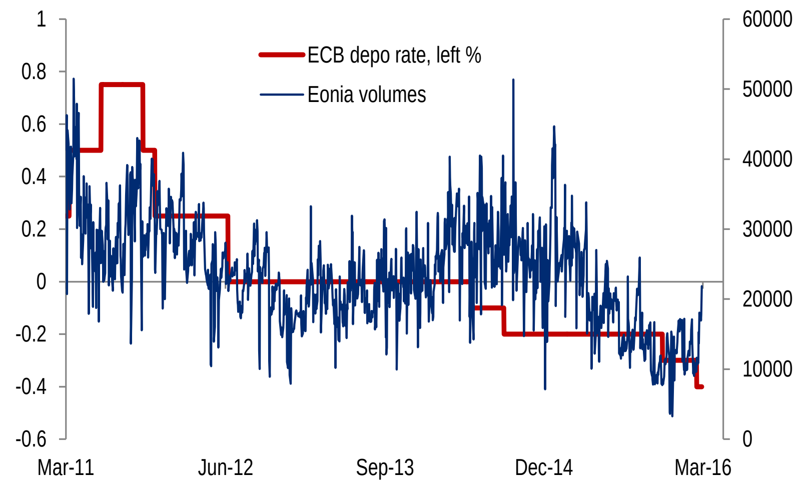


Source: Citi,

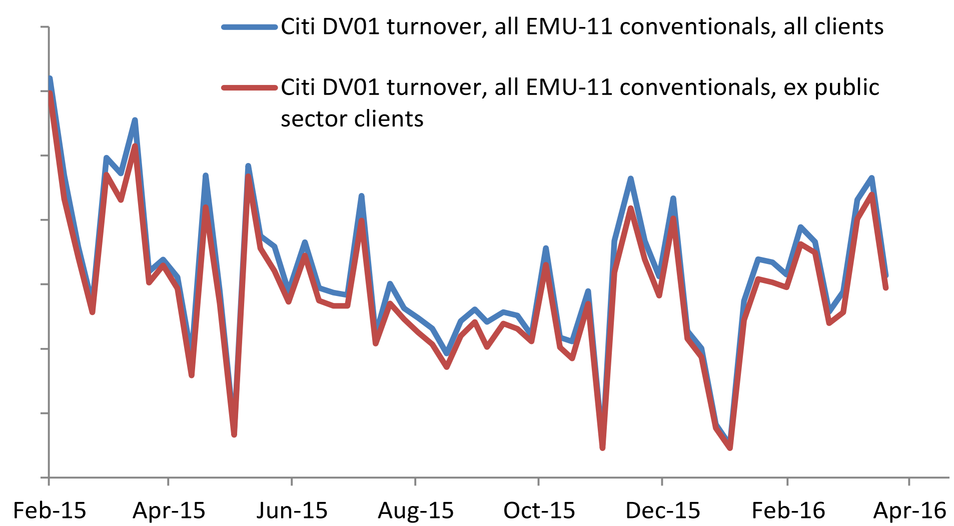
Market liquidity and negative rates

- 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.

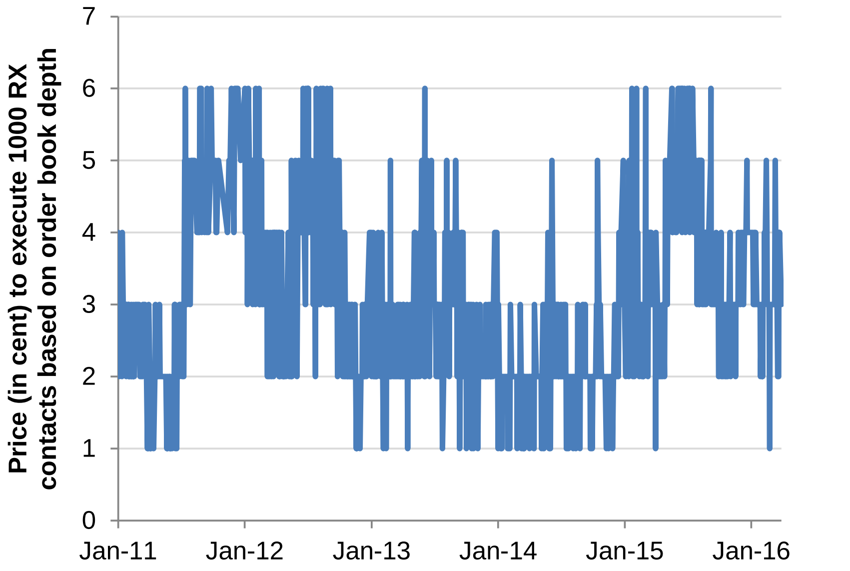
Eonia volumes should move lower again



Bond market turnover not correlated to –Ve rates



Bund future contract liquidity

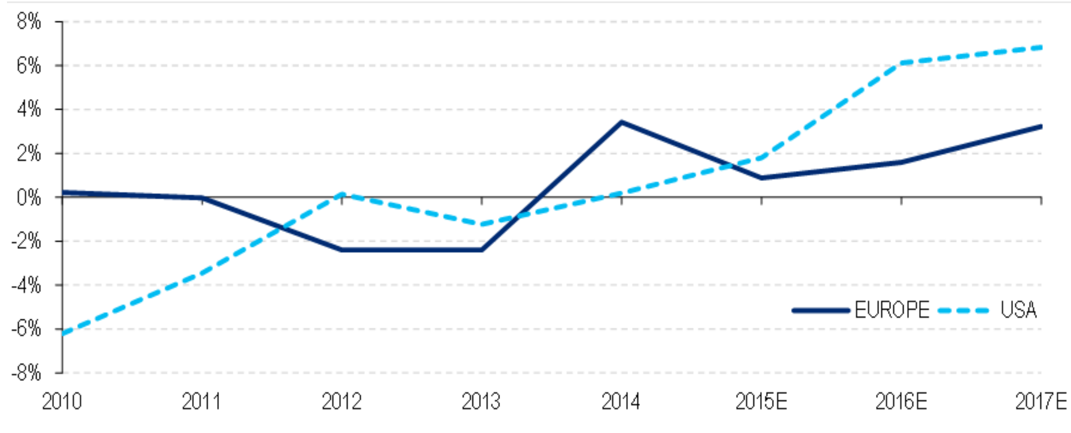


Source: Citi, Bloomberg, Eurex

Bank profitability: the starting point & market expectations

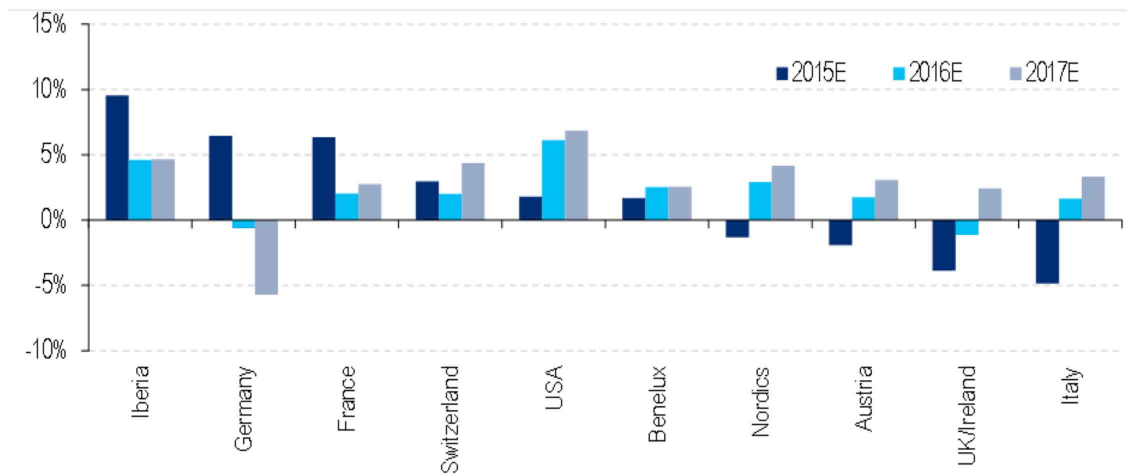
- **Since 2010, EU banks have grown Net Interest Income (NII) above 2% only once (in 2014).**
- **Consensus forecasts are for an increase in EU bank NII growth rates from +1ppt in 2015 to +2ppt in 2016 and almost +4% in 2017. These forecasts look optimistic to Citi bank equity researchers.**

EU and US bank net interest income (NII) growth (YoY%)



- **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.**

Regional breakdown of NII growth (YoY%)



E = Consensus Forecasts   Source: Factset Consensus, Company Reports; Based on Citi covered banks

Bank profits and the importance of NII

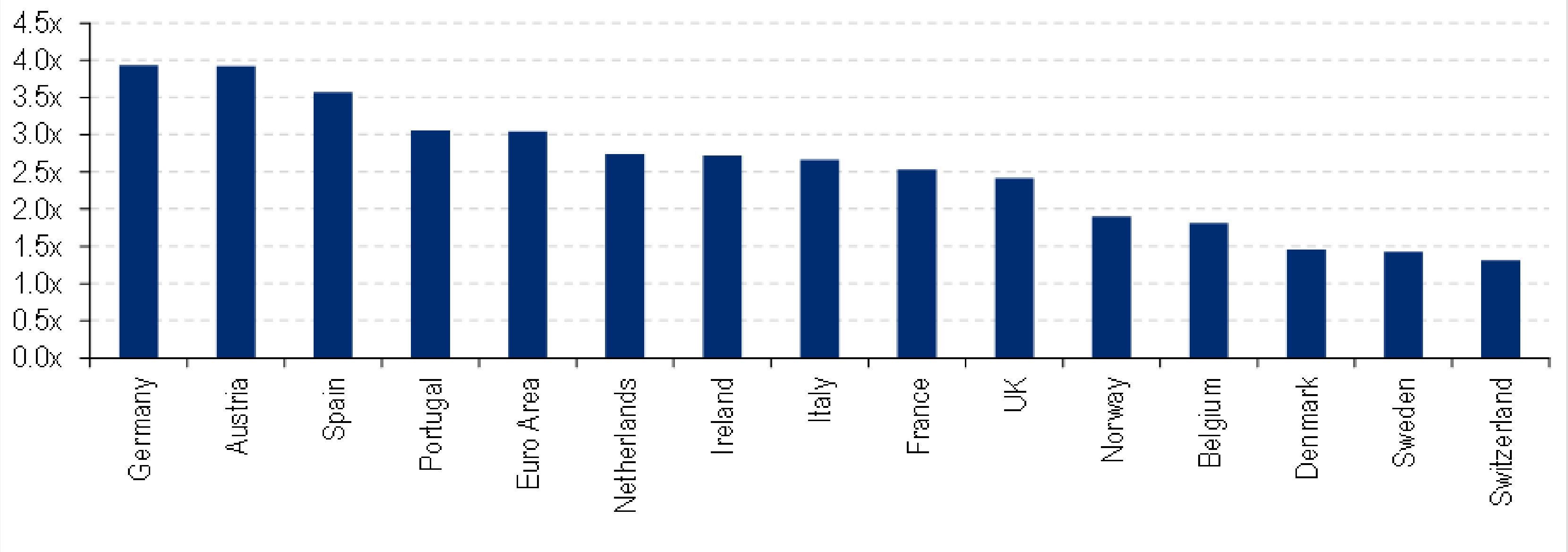
Why is the market so focused on NII growth?

1. **For the typical Euro area bank NII represents 55%-60% of profits.**
2. **Gearing. For a typical Euro area bank ➔ 1% Δ NII ➔ 3%Δ 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: NII ÷ 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

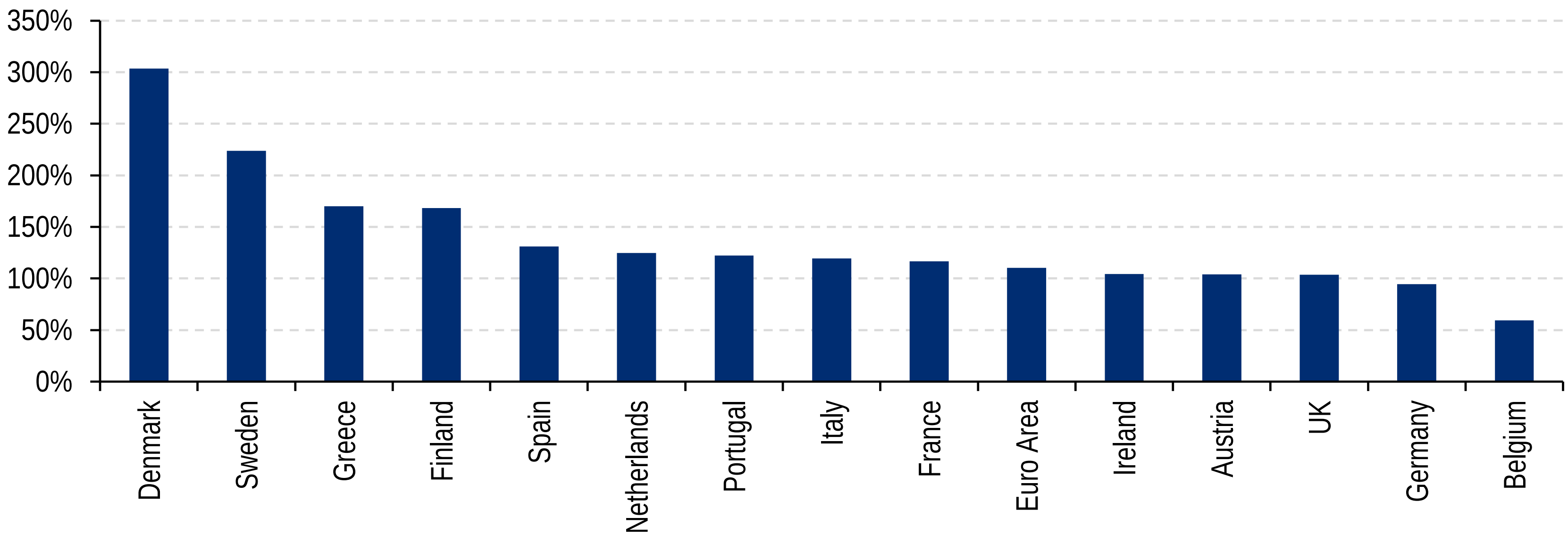
In a low rate environment, markets will be concerned about banks that are overly reliant on deposit income.

•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.

EU banks' domestic loan-deposit-ratio
Higher LDR provides protection



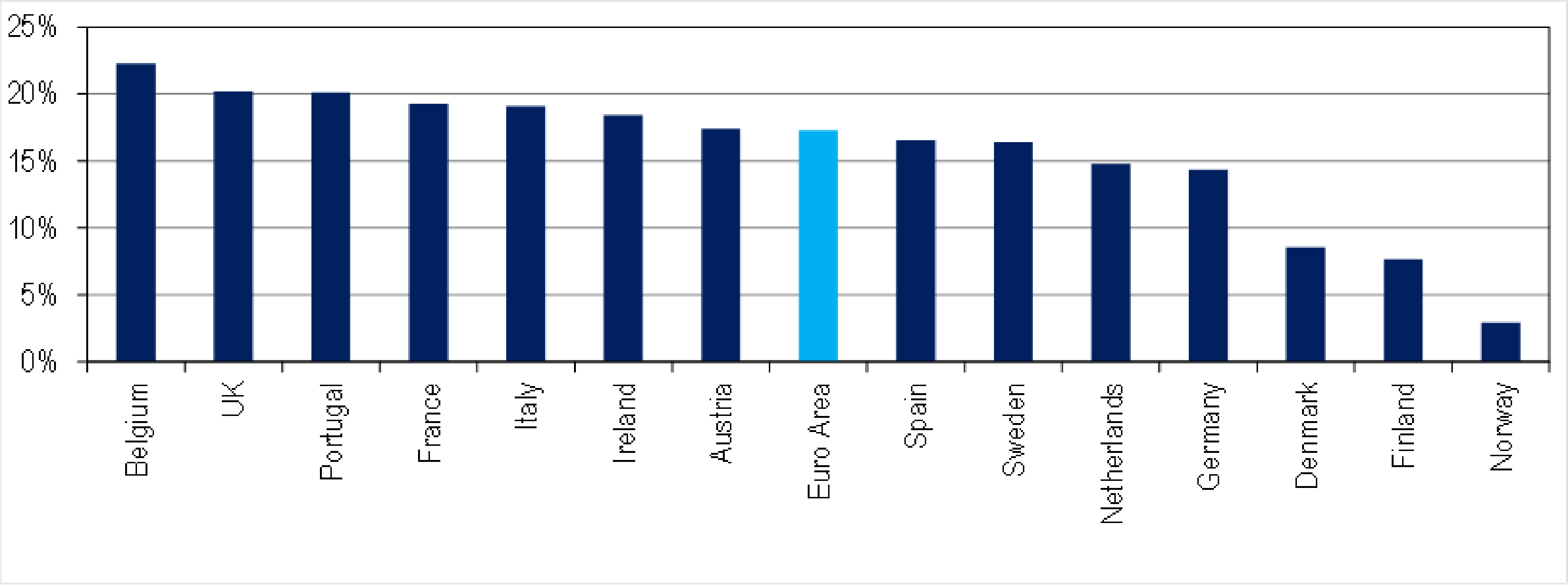
Source: Citi Research; Bottom up based on Citi coverage stocks and for 2017 estimates

The NII challenge (2) Govt bond or central bank exposure

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**
  ➔ 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.**

Central Government or Central Bank Exposure as % of Total Credit Exposure, 1H-15



Source: Citi Research; Bottom up based on Citi coverage stocks and for 2017 estimates

The NII challenge (3) The loan mix challenge

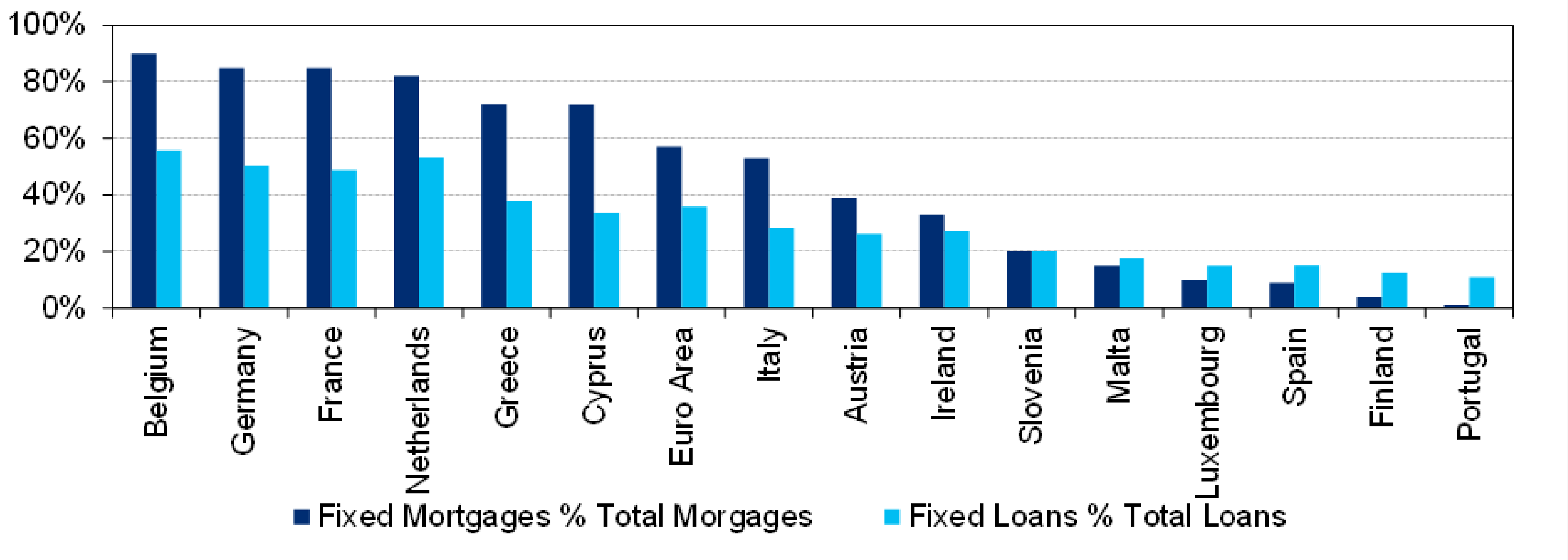
The structure of the loan book influences

•'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.

Euro Area – Fixed Rate Loans % Total *



Source: ECB, European Mortgage Federation * Mortgage data sourced from ECB's Housing Survey (2009) and the EMF (1H15); total loan fixed/floating split is estimated assuming 20% of non-mortgage retail and 20% of corporate/SME loans are fixed across all countries.

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

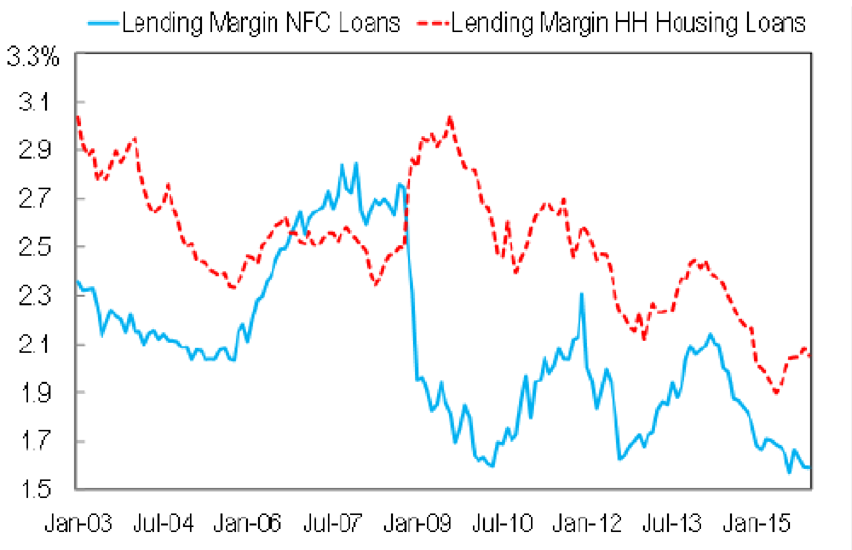
•Switzerland: Introduce a lower bound on Libor based mortgages, higher mortgage rates

•Denmark: clarification of the tax treatment for negative mortgage bond coupons

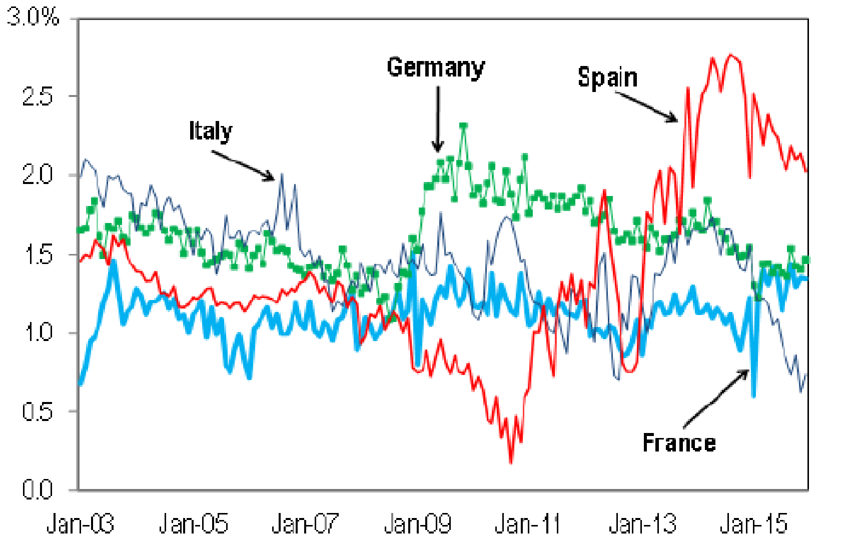
•Sweden: raise lending margins

•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



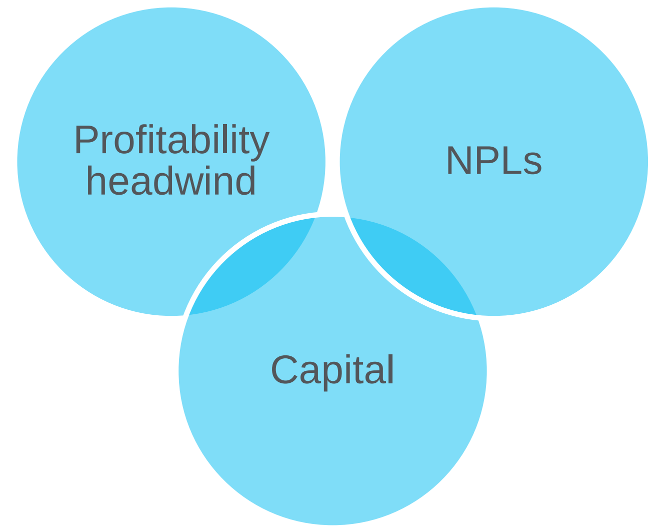
Selected country lending margins to NFCs



Source: ECB, Citi Economics .

Where does this leave Euro area banks?

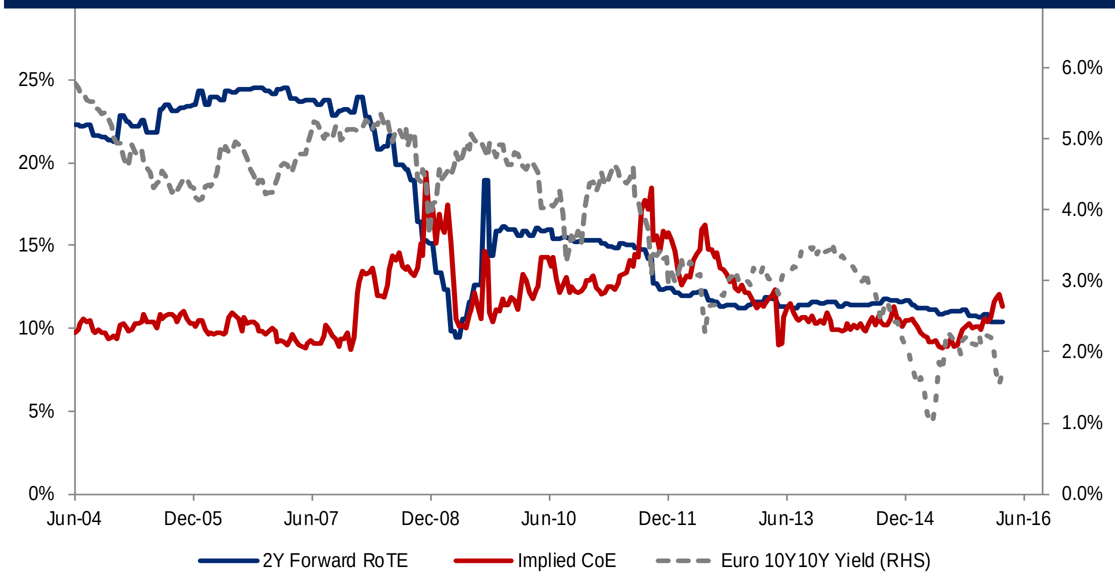
Profitability headwinds combine with capital and NPL concerns = more fragility



•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



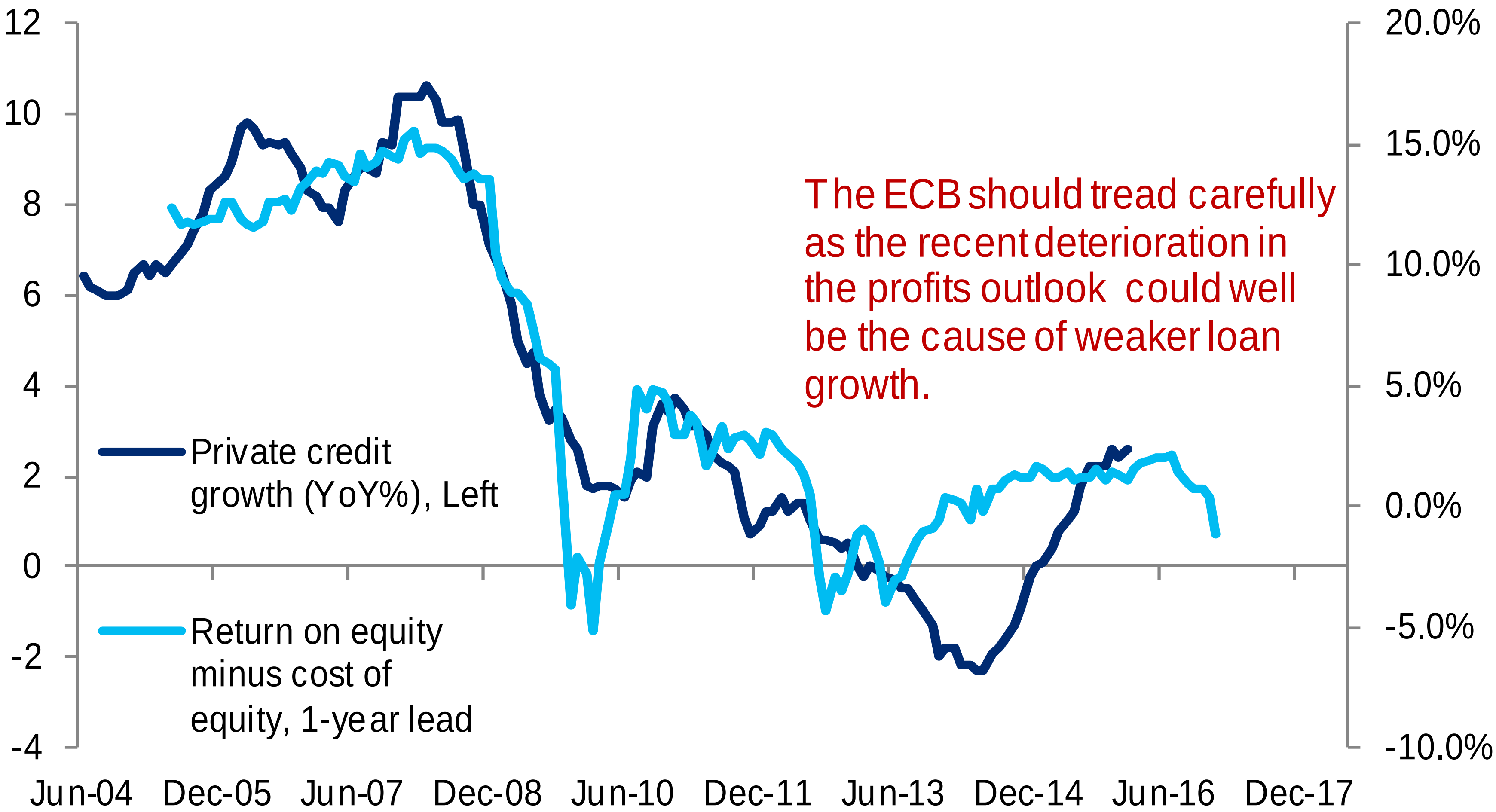
Quarterly NII for Nordic bank (local FX)

	4Q14	1Q15	2Q15	3Q15	4Q15	QoQ %	YoY %
Danske Bank	5,742	5,312	5,515	5,343	5,306	-0.7%	-7.6%
DNB	8,700	8,587	8,728	8,981	9,062	0.9%	4.2%
Nordea	1,356	1,290	1,310	1,272	1,241	-2.4%	-8.5%
SE Banken AB	5,010	4,946	4,632	4,683	4,677	-0.1%	-6.6%
SHB	6,883	6,916	7,019	6,834	6,971	2.0%	1.3%
Swedbank	5,809	5,719	5,704	5,811	5,759	-0.9%	-0.9%

Source: Company Reports; * Excluded SKr80m one-offs due to Swiss settlement; ^Danske NII excludes DKr77m 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.



Source: ECB, Citi Economics

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