

Negative Interest Rates: Issues and Unanswered Questions

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The views represented in these slides are those of the presenter and do not necessarily reflect those of the Swiss National Bank. This presentation is based on the forthcoming 18th Geneva Report on the World Economy 2016 by Laurence Ball, Patrick Honohan, Joseph Gagnon, Signe Krogstrup and Torsten Slok.

Outline

- The Frequency and Costs of the Lower Bound and Policy Options
- Experiences with Negative Rates in Five Countries
 - Monetary Policy Transmission
 - Where is the Lower Bound?
 - Adverse Effects on Financial Markets and Institutions
- Challenges and Unanswered Questions

Frequency of the Lower Bound

- $i = r + \pi^e$
- Lower neutral real rates and lower inflation since 1980s: The liquidity trap has become a widespread reality.

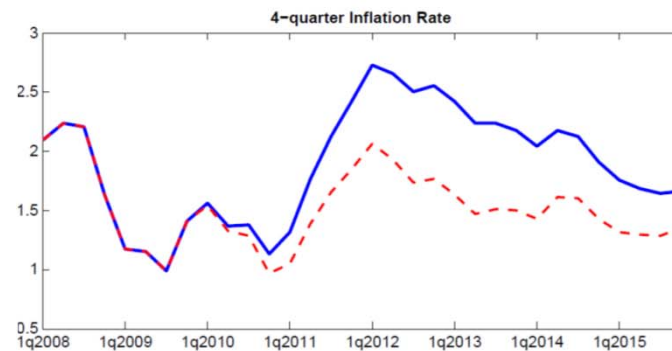
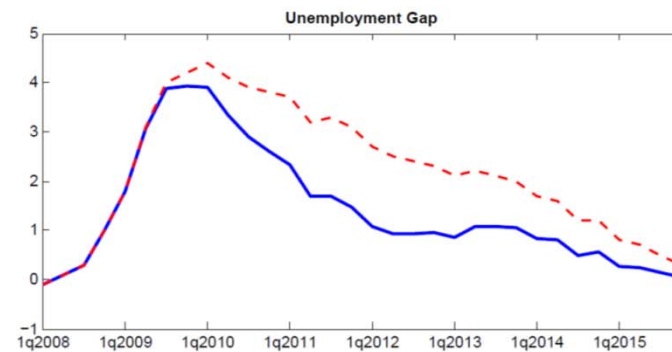
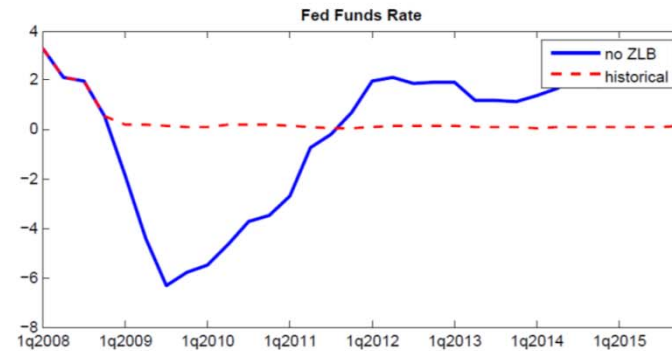
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Australia	11.1	13.5	15.8	12.1	12.0	16.0	16.9	15.0	13.2	17.2	12.6	8.5	5.8	4.8	7.1	7.5	6.2	5.0	4.8	5.0	6.3	4.3	4.8	3.2	5.3	5.5	6.3	6.7	4.3	3.7	4.8	4.3	3.0	2.5	2.5	2.0	
Canada													6.8	4.0	5.7	5.8	3.0	4.3	5.0	4.8	5.8	2.3	2.8	2.8	2.5	3.3	4.3	4.3	1.5	0.3	1.0	1.0	1.3	1.3	1.3	0.8	
Denmark	11.0	11.0	10.0	7.0	7.0	7.0	7.0	7.0	7.0	8.5	9.5	9.5	6.3	5.0	4.3	3.3	3.5	3.5	3.0	4.8	3.3	2.9	2.0	2.0	2.3	3.5	4.0	3.5	1.0	0.8	0.8	0.0	0.0	0.0	0.0	0.0	
Euro Area	7.5	7.5	5.0	4.0	4.5	4.0	3.5	2.5	3.5	6.0	6.0	8.0	8.3	5.8	4.5	3.0	2.5	2.5	2.5	3.0	4.8	3.3	2.8	2.0	2.0	2.3	3.5	4.0	2.5	1.0	1.0	1.0	0.8	0.3	0.1	0.1	
Japan	7.3	5.5	5.5	5.0	5.0	5.0	3.0	2.5	2.5	4.3	6.0	4.5	3.3	1.8	1.8	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.8	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1
Sweden	10.0	11.0	10.0	8.5	9.5	10.5	7.5	7.5	8.5	10.5	11.5	8.0	10.0	5.0	7.0	7.0	6.0	4.5	4.5	3.2	4.0	4.5	4.5	3.0	2.0	1.5	2.5	3.5	2.0	0.5	0.5	1.9	1.1	0.8	0.0	-0.4	
Switzerland	3.0	6.0	4.5	4.0	4.0	4.0	4.0	2.5	3.5	6.0	6.0	7.0	6.0	4.0	3.5	1.5	1.0	1.0	1.0	0.5	3.5	1.8	0.8	0.3	0.8	1.0	2.0	2.8	0.5	0.3	0.3	0.0	0.0	0.0	0.0	-0.8	
United Kingdom	14.0	14.4	10.0	9.1	9.5	11.4	10.9	8.4	12.9	14.9	13.9	10.4	6.9	5.4	6.1	6.4	5.9	7.3	6.3	5.5	6.0	4.0	4.0	3.8	4.8	4.5	5.0	5.5	2.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
United States	12.9	12.1	8.5	9.4	8.1	7.8	5.9	6.8	8.7	8.3	7.0	4.0	3.0	3.0	5.5	5.5	5.3	5.5	4.8	5.5	6.5	1.8	1.3	1.0	2.3	4.3	5.3	4.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	

- Can become more frequent (if lower future real rates).

Cost of the Lower Bound

Simple macro model gives quantification for the US:

- $r^* = 1\%$ and $\pi^e = 2\%$:
- i will hit zero often - when unemployment exceeds NAIRU by 1.1 %-points
- Figure: The severe recession of 2008, $i^* = -6\%$
- Too high real rates: The trap

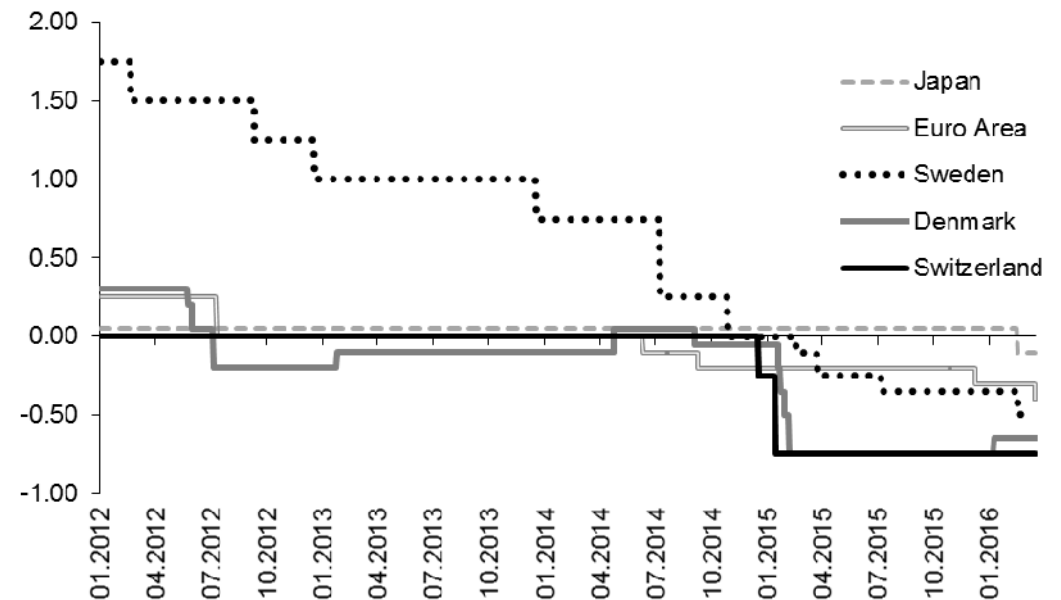


What Can Central Banks Do? The Geneva Report 2016

- Alternative monetary policy tools to loosen at the lower bound:
 - **Negative interest rates**
 - QE
 - Forward guidance
- Each tool has distinct advantages, limitations and risks which vary across countries.
- Limits to such tools: Consider measures to prevent the lower bound?
 - Raise the inflation target.
 - Do future cashless economies have lower bounds?

Negative Rates: Experiences in Five Countries So Far

- Danmarks Nationalbank, July 2012
- ECB, July 2014
- Swiss National Bank, January 2015
- Sveriges Riksbank, February 2015 (2009)
- Bank of Japan, January 2016



Transmission to Market Interest and Exchange Rates

- Transmission to money markets has been swift.
- Transmission to capital market rates has been swift, in some cases strong. This suggests important expectational effects.
- Transmission to exchange rates has worked as in normal times:
 - Japan
 - Sweden
 - Denmark

Partial Transmission to Bank Interest Rates

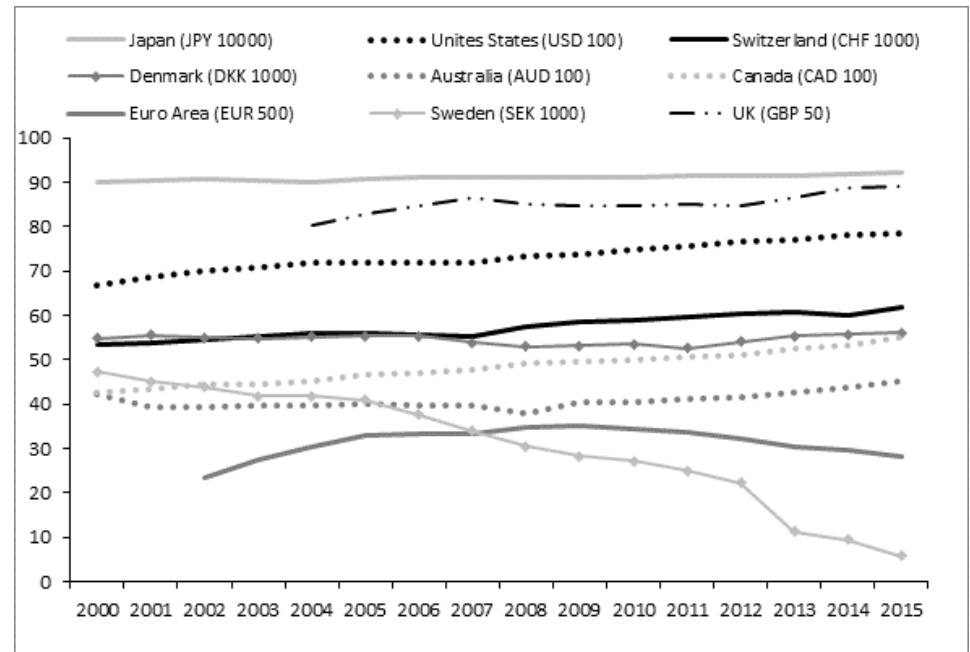
- Deposit rates:
 - Transmission to interbank, institutional and corporate deposits.
 - No transmission to retail deposits.
 - **Can retail deposit rates go negative?**
- Lending rates:
 - In the euro area, Denmark and Sweden, bank lending rates have declined.
 - In Switzerland, long-term bank mortgage rates have increased.
 - **What drives the cross-country variation?**

Transmission to the Real Economy

- Have negative rates boosted inflation and growth?
- Monetary policy as usual: Real rates and international interest differentials matter, not the level of the nominal rate *per se*.
- Is there anything special about negative nominal rates?
 - Money illusion, could go both ways.
 - Sending negative signals that increase risk aversion?
- Empirically: Recent cuts into negative barely reduced real rates. No counterfactual.
 - Credit growth has generally picked up.

Where is the Lower Bound?

- Lower bound is due to risk of a large scale shift into cash. No direct evidence as of yet.
- Estimated variable costs of storing cash low - up to 50 bps.
- Suggestive of important fixed cost of setting up cash storage capacity.



Ratio of the value of the largest denomination of bank notes outstanding to total outstanding bank notes in selected countries, year-end. Note: The denomination of the largest outstanding banknote is in parenthesis after country labels. Sources: National central banks.

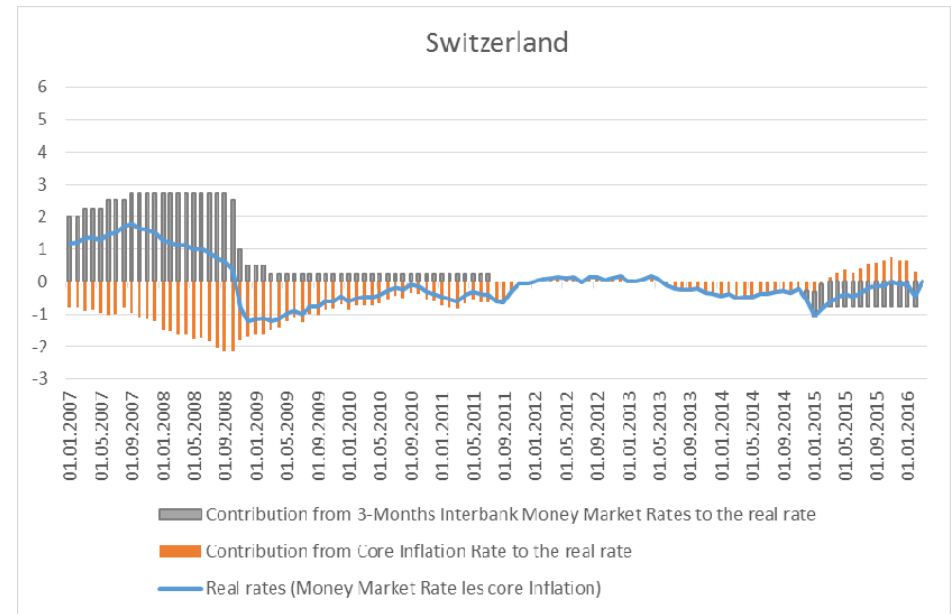
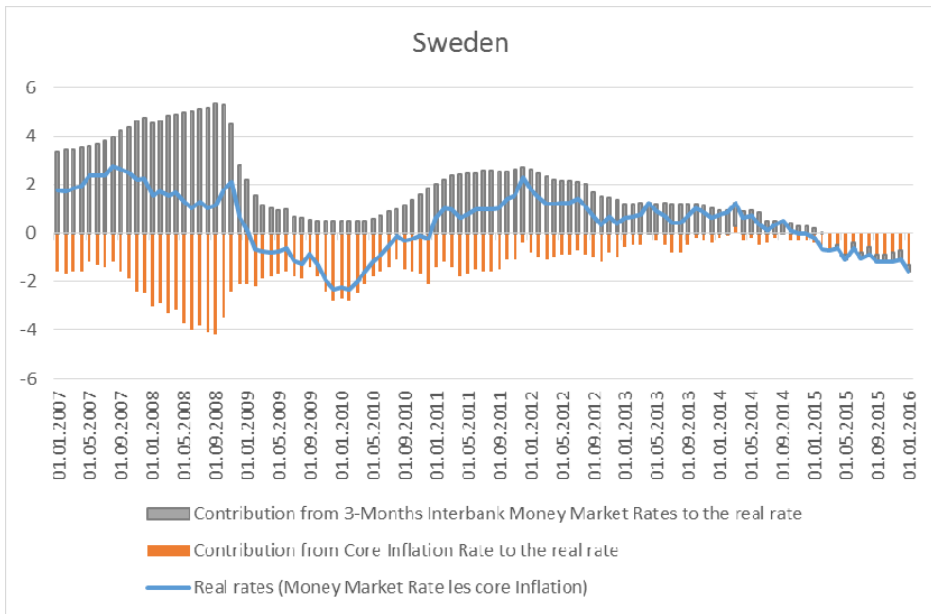
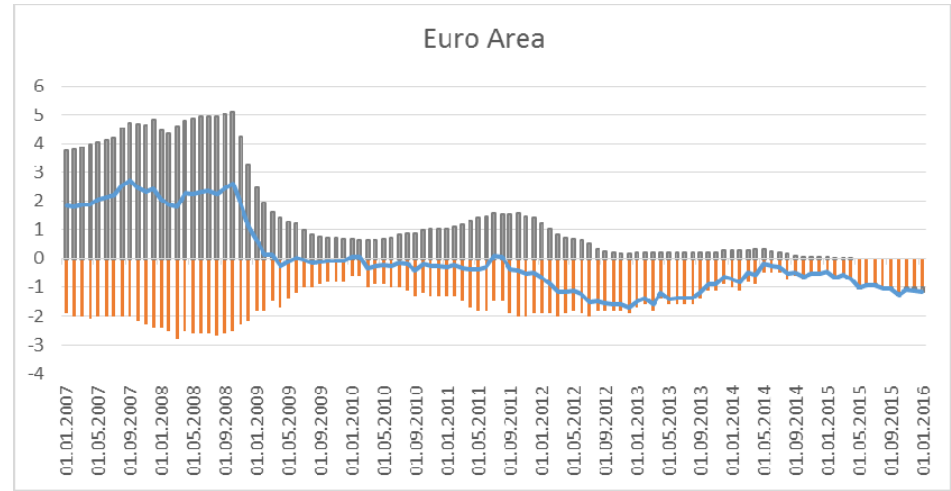
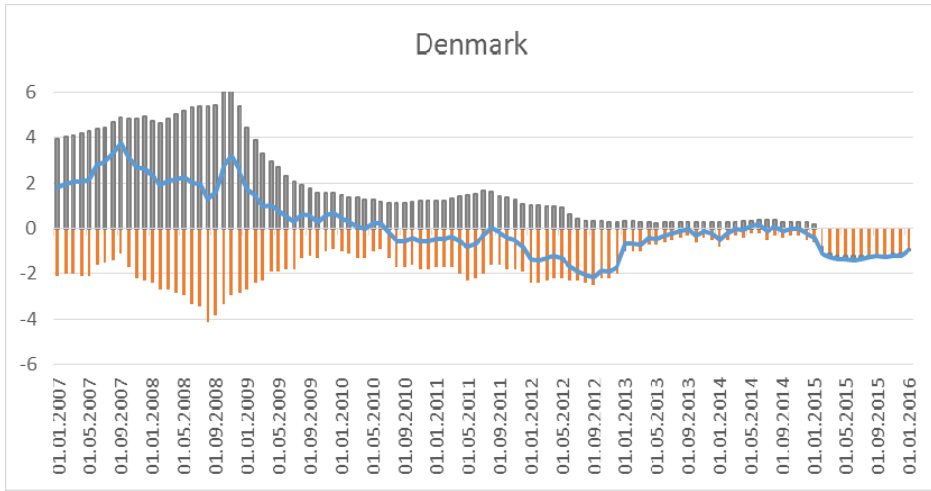
Concerns about Negative Side Effects

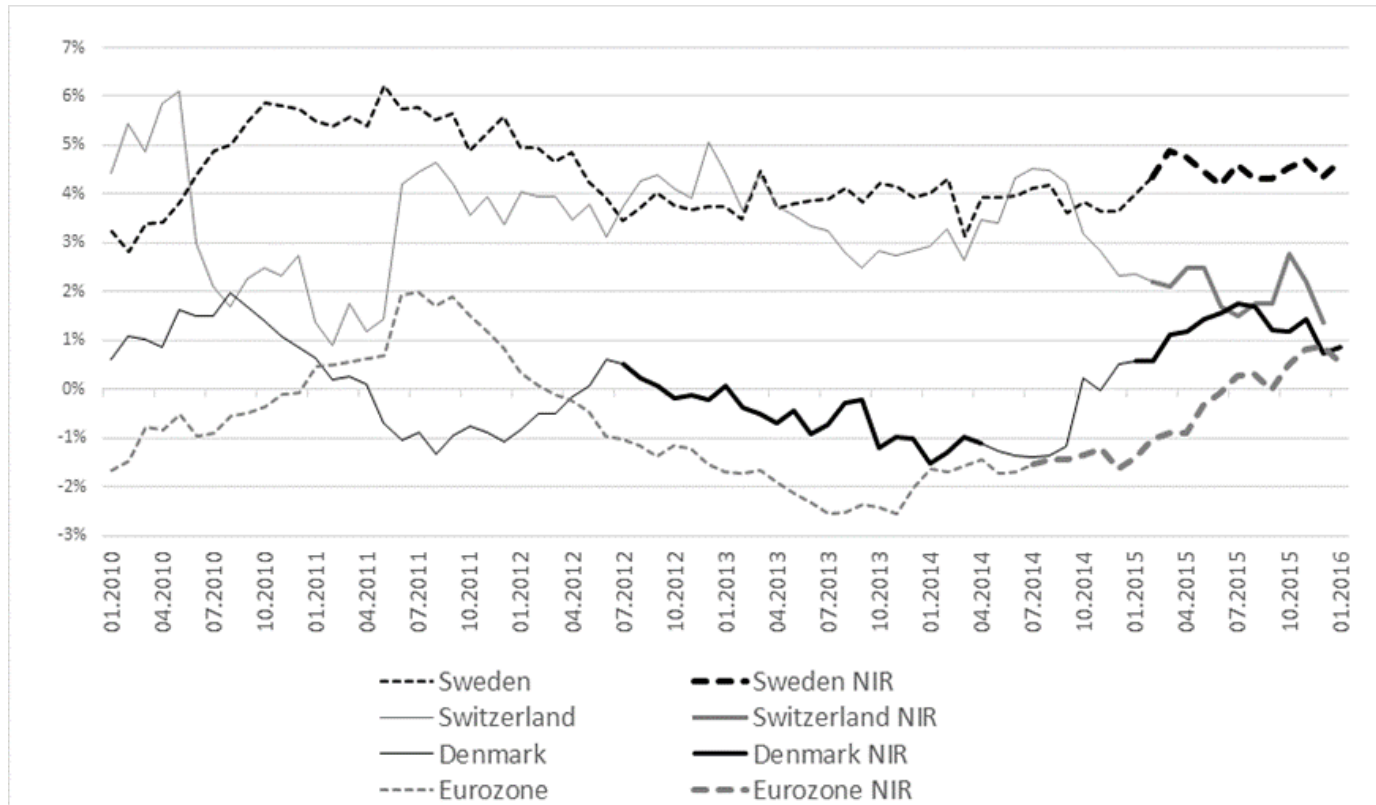
- Bank profitability: Concerns about narrowing margins, exacerbated by the deposit rate rigidity. But: No evidence of reduced profits yet.
- MMMF industry: "Breaking the Buck". Has not materialized. Will new regulation work?
- Insurance and pension funds: Related to business models (nominal return targets) and low interest rate environment, not to NIR *per se*.
- Financial market infrastructures: Can trading systems and markets deal with NIR? Largely yes, but cross country variation.

Challenges and Unanswered Questions

- Negative rates offer additional firepower, but how much?
 - Where is the lower bound? Rates can likely go lower, but is it enough?
 - Are there reasons to expect cross country variation in the lower bound?
 - To what extent are other tools needed at the lower bound?
- Can the lower bound be pushed further down?
 - Fees for taking out cash?
 - Buiter-Kimball propose decoupling cash from electronic money.
 - Future cashless economies and the absence of a lower bound
- The central bank communication challenge
 - Probably the most important challenge of negative rates is the public lack of understanding and acceptance.

Appendix





Year-on-year growth in private domestic credit in percent.

Source: IMF International Financial Statistics, line 32D (line 22D for Sweden).