

Geneva Report 18

What Else Can Central Banks Do?

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Available at www.icmb.org

Frequency and Cost of ZLB



- $j^{avg} = r^* + \pi^e$
- Lower neutral real rates and lower inflation since 1980s:
The lower bound constraint has become frequent 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	5.2	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	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
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	3.5	3.5	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	0.4	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	5.5	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



Policy Implications / Structure of Report

- Focus of Report: What can central banks do to meet their mandates when constrained by ZLB?
- Unconventional monetary policy necessary in future
 - Negative interest rates (NIR)
 - Quantitative easing (QE) (incl. helicopter money)
 - Forward guidance on policy or inflation
- Policies to reduce the incidence of the ZLB
 - Raising the inflation target
 - Periodic re-examination of inflation targets
- Long view: Monetary policy in post-cash economies

The Risk of Hitting the Zero Bound: United States

Kiley and Roberts, “Monetary Policy in a Low Interest Rate World,” Brookings Panel on Economic Activity, March 2017

Simulations of leading macro models, including the Fed’s FRB/US model, assuming a Taylor rule with a 2% inflation target.

Results: Going forward, US will spend 30-40% of the time with interest rates at the zero lower bound. This outcome will reduce the average level of output by one or two percent.

The high risk of hitting the zero bound can be seen with a simple exercise...

(1) The Risk of Hitting the ELB

Under current policy, how deep a downturn is needed to push interest rates to zero?

Following K-R, assume a Taylor-Yellen policy rule:

$$i = r^* + \pi^* + (1.5)(\pi - \pi^*) + y$$

Also following K-R, assume $\pi^* = 2$ and $r^* = 1 \Rightarrow$

$$i = (1.5)\pi + y$$

Assume a simple Phillips curve with anchored expectations (in spirit of FRB/US?):

$$\pi = 2 + (0.25)y$$

Substitute the Phillips curve into the policy rule \Rightarrow

$$i = 3 + (1.375)y$$

The interest rate hits zero if

$$y = -3/(1.375) = -2.2$$

So, the ELB will bind if output falls 2.2 percent below potential.

By Okun's Law, this means unemployment rises 1.1 pts above its natural rate.

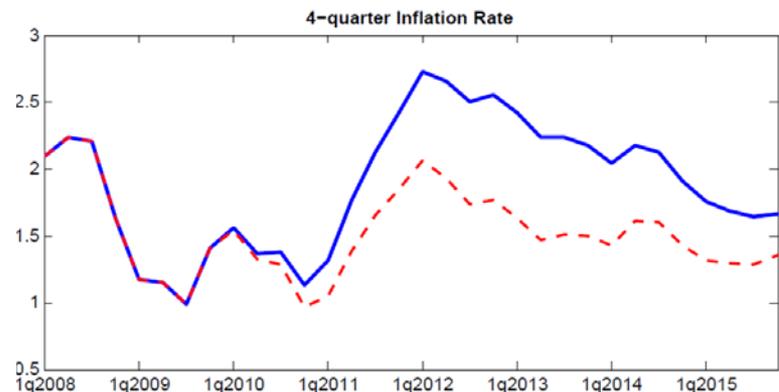
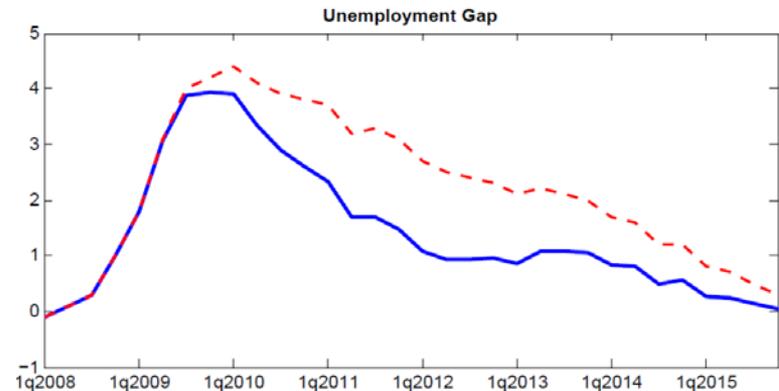
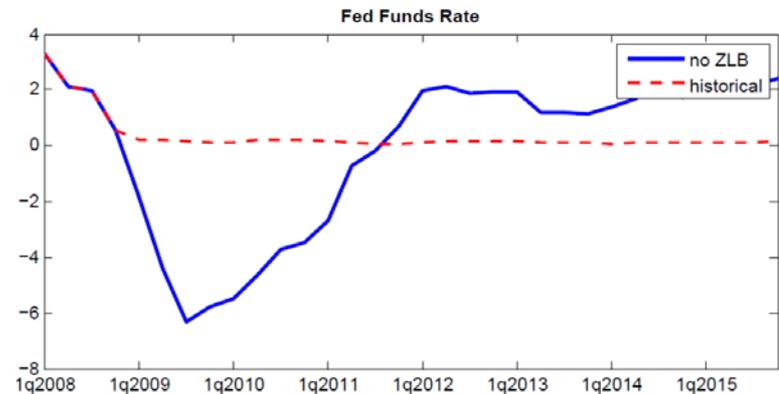
Therefore, a Great Recession is not needed for the ELB to constrain policy. That will happen in moderate and even mild recessions. (The unemployment rate exceeded the CBO natural rate by more than 1.1 points in 7 of the last 8 recessions, including the mild recession of 2001.)

This analysis supports K-R's conclusion that, under current policy, the ELB will often bind, reducing the average level of output significantly.

Cost of ZLB

Simple macro model gives quantification for the US:

- $r^* = 1\%$ and $\pi^e = 2\%$:
- i will hit zero often - whenever unemployment exceeds NAIRU by 1.1pp
- Figure: The severe recession of 2008, $i^* = -6\%$



The Case for a Higher Inflation Target

$$i^* = r^* + \pi^*$$

If $r^* = 1.0$, then

$$\pi^* = 2.0 \Rightarrow i^* = 3.0$$

$$\pi^* = 4.0 \Rightarrow i^* = 5.0$$

Geneva Report simulations:

If the Fed's inflation target had been 4% entering the Great Recession, total output losses over 2009-2015 would have been lower by about ten percent of annual GDP. Interest rates would have left the zero bound in 2011Q3 instead of 2015Q4.

Costs of Higher Inflation?

No credible research finds major welfare costs of 4 percent inflation.

The cost in New Keynesian models (relative price variability) has been debunked by Nakamura and Steinsson (2016).

After Paul Volcker “conquered” the double-digit inflation of the 1970s, inflation settled at about 4% in the mid-1980s. Volcker did not seek further disinflation. In public opinion polls, “the concern about inflation disappeared rapidly once inflation dropped below 5%” (Fischer, 1996).

Relevance for Emerging Economies?

In the US, the inflation target should be at least 4%.

In EME's, r^* might be higher. That suggests a lower inflation target would be acceptable.

On the other hand, EME's may face larger shocks. That suggests a higher target is needed.

Ukraine: medium-term target is 5%. (Key policy rate is currently 13%.)

Poland: target is 2.5%. (Reference rate is currently 1.5%).