

Foreign Exchange Interventions As An (Un)conventional Monetary Policy Tool

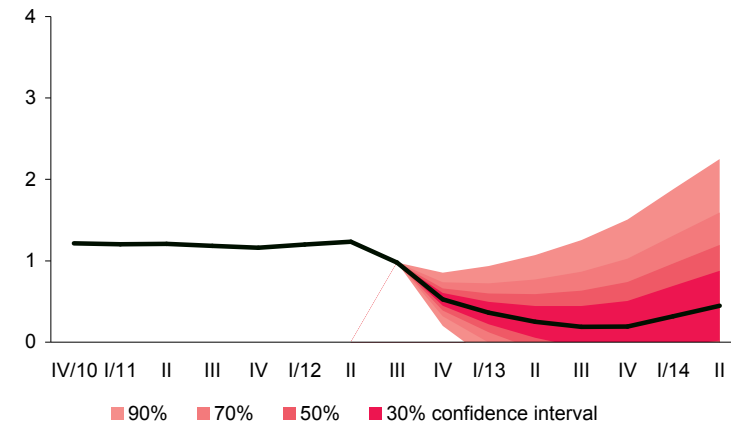
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Orleans, May16-17, 2013

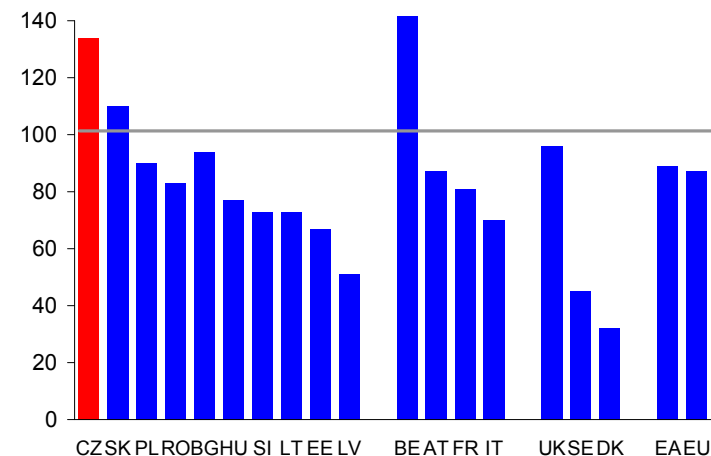
- Central banks face the limits of the standard monetary policy instrument due to long-lasting stagnation.
- Turned their attention to various unconventional MP measures – negative interest rates, liquidity provision (QE), FX interventions.
- Most economies have been hit by liquidity crisis and subsequent credit crunch, but Czech financial system has abundance of liquidity.
 - Ratio of deposits to loans above EU average, total deposits exceed total loans.
 - Excess liquidity absorbed by the CNB using repo tenders.

Interest rate forecast

Consistent with the forecast is a decline in market interest rates, followed by a rise in rates in 2014 (3M PRIBOR in %)



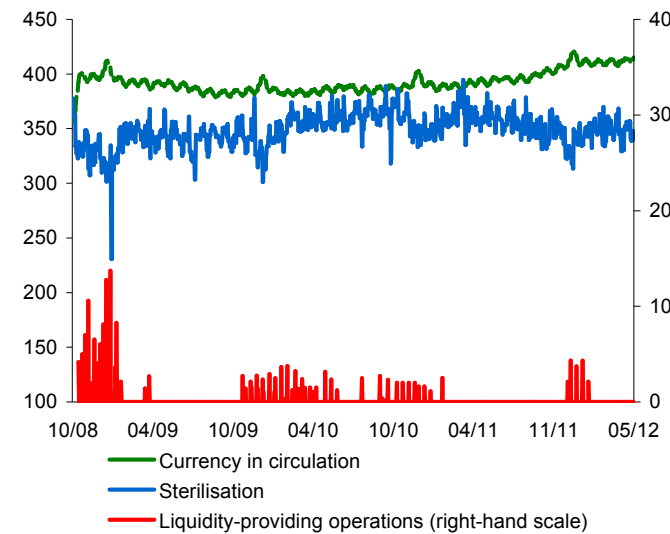
Ratio of deposits to loans granted in selected EU countries (%; end of 2011; deposits/loans to residents)



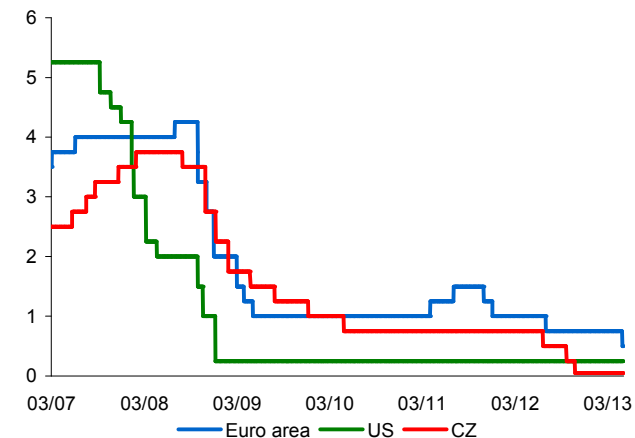
Source: CNB Inflation Report IV/2012; ECB

- In 2008, the CNB introduced liquidity-providing repo operations, but they were used very rarely.
- Experience with negative deposit interest rates is very limited, the consequences in general very unclear.
 - Also potential legal complications with negative rate (penalty interest bound in multiplicative manner to the discount rate).
- Therefore, FX interventions selected by the Board as the most appropriate MP tool when interest rates hit zero.
- 2W repo rate lowered to 0.05 % on November 1, 2012.

Open market operations and currency in circulation (CZK billions)



Monetary policy rates since the start of the financial turbulence (%)



Source: CNB

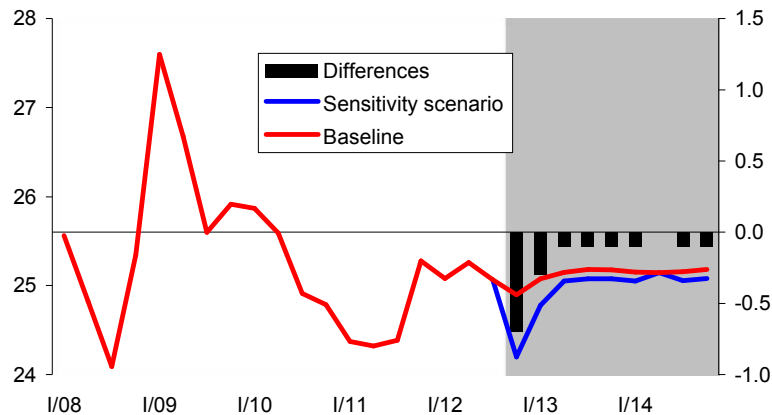
- Trichet (2010): “There are two distinct views on non-standard measures.”
 1. Continuation of standard policy by other means: Nominal rates hit zero, another tool needed to achieve price stability (= approach of Fed & view of the CNB).
 2. “At the ECB, we have a different view of our non-standard measures:” Interest rates used in a standard way to maintain price stability; non-standard measures help restoring a more effective transmission of monetary policy (in this particular case hampered by the financial crisis).

Trichet, J.-C. 2010. “Reflections on the Nature of Monetary Policy Non Standard Measures and Finance Theory.” Speech at the ECB Central Banking Conference, Frankfurt, November 18, <http://www.ecb.europa.eu/press/key/date/2010/html/sp101118.en.html>

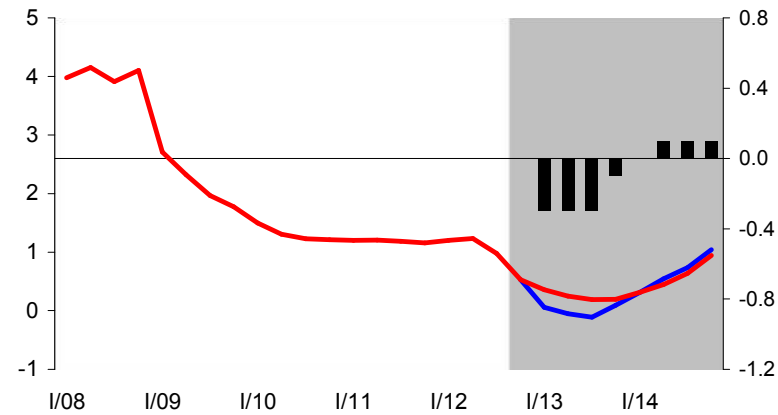
- Inflation targeting used by many central banks as the means of achieving and maintaining price stability (CNB since 1998).
- Under IT, the MP tool is the interest rate – exchange rate is an endogenous variable affecting inflation expectations.
- Are FX interventions compatible with IT? Leaving aside technical and procedural compatibilities, does influencing FX compromise the credibility and goals of the CB?
- MP implicitly reacts to exchange rate shocks under standard conditions:
 - An unexpected appreciation shock tightens the monetary conditions;
 - Interest rate is lowered to ease the conditions again.

The CNB's exchange rate sensitivity scenario (a 3% appreciation shock)

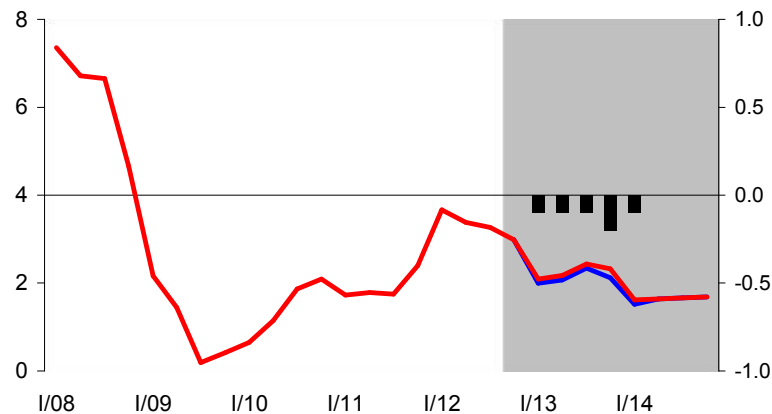
Exchange rate
(CZK/EUR; differences in CZK – right-hand scale)



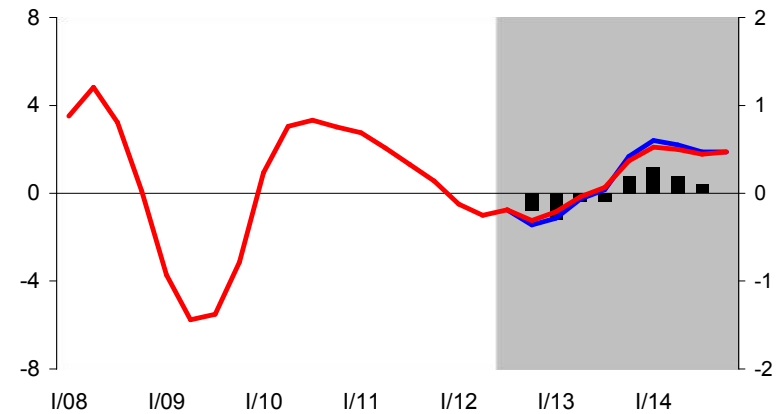
3M PRIBOR
(3M PRIBOR in %; differences in pp – right-hand scale)



CPI inflation
(annual percentage changes; differences in pp – right-hand scale)



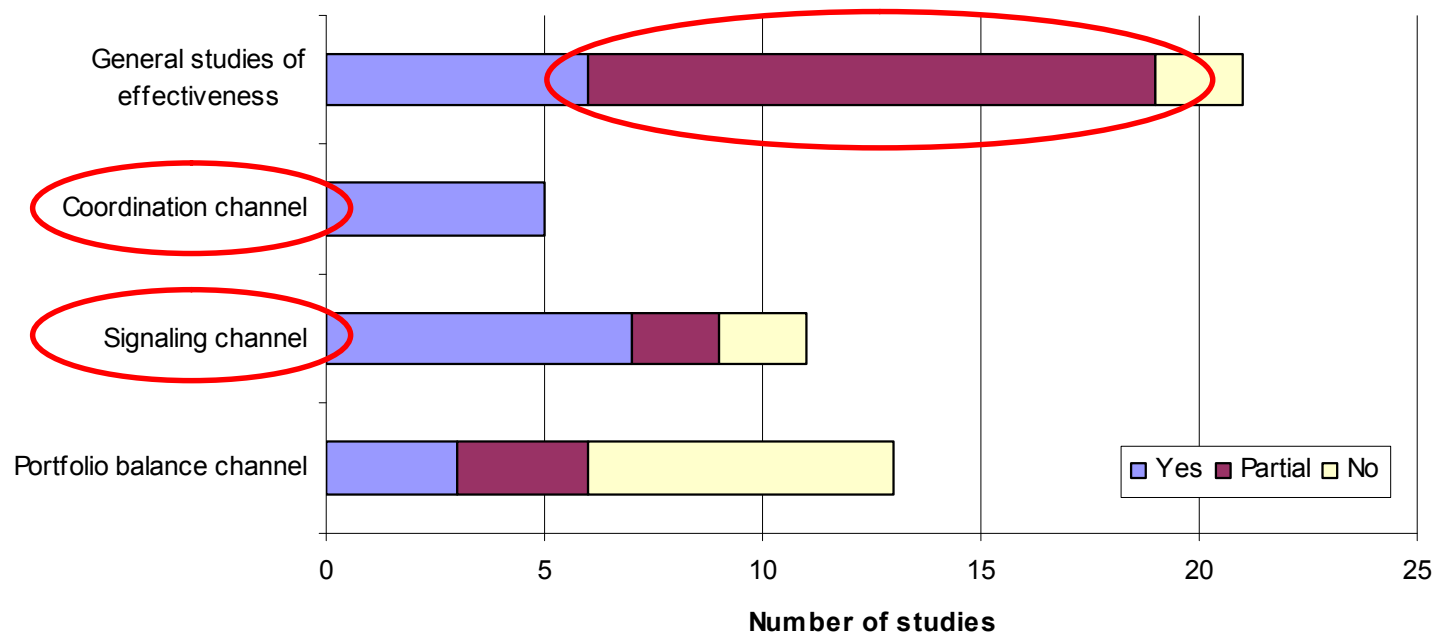
GDP growth
(annual percentage changes; differences in pp – right-hand scale)



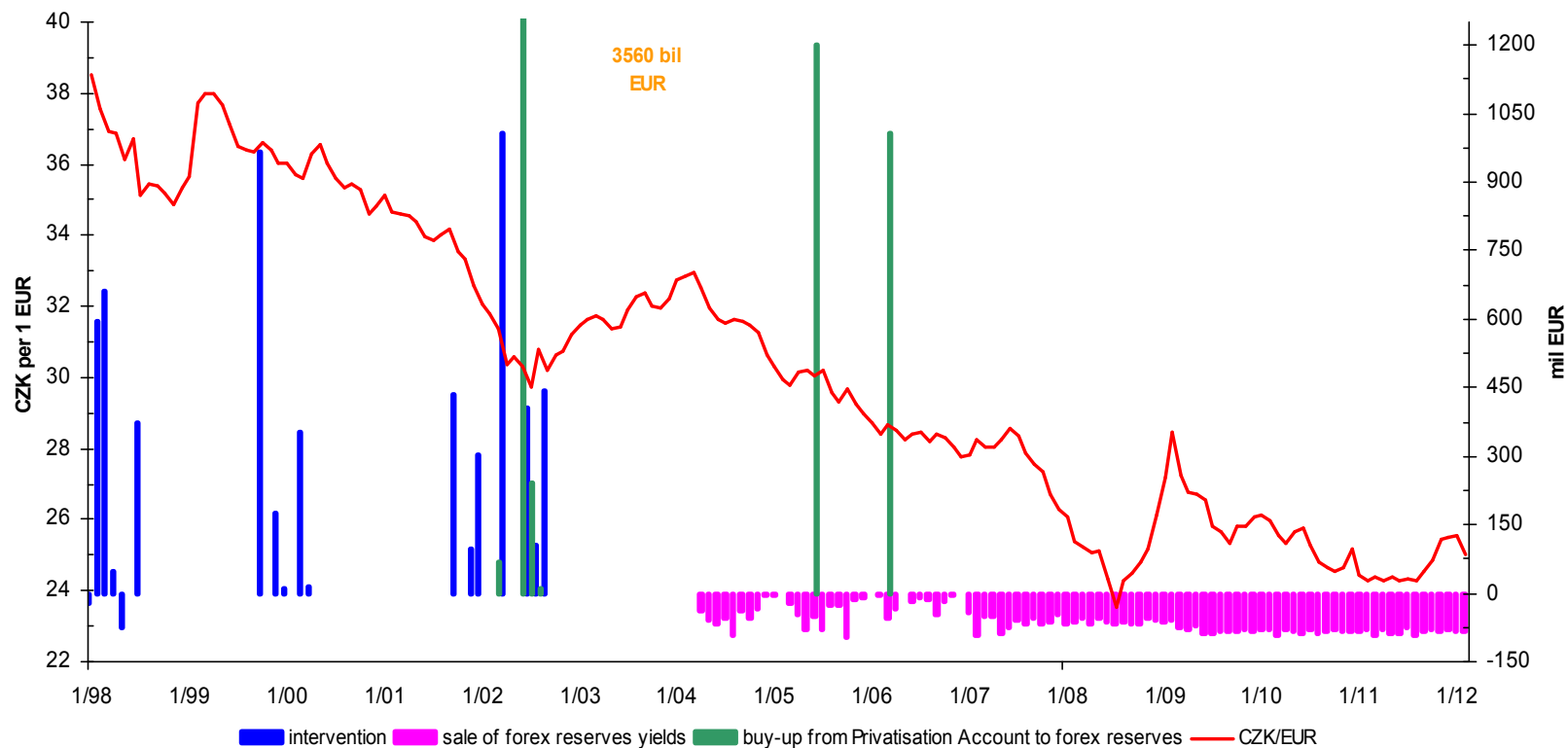
Source: CNB Inflation Report IV/2012

- According to the IMF's classification, independent floating dominates among IT countries (with 19 countries as of April 2008), but managed floating coexists with this regime, too (10 countries).
- Many of officially independent floaters do occasionally intervene, with interventions more common during the recent crisis: Brazil, Chile, Indonesia, Israel, Mexico, New Zealand, Poland, South Korea, Switzerland.
- The literature advocates freely floating exchange rate for IT regime but doesn't deal with situation when interest rates hit the zero lower bound (ZLB).
- FX interventions with (almost) zero interest rates: Switzerland & Japan (both independent floaters)

- In the situation of a zero lower bound, appreciation shocks cannot be accommodated by a standard interest rate cut to ease the monetary conditions.
- The implicit reaction of MP affects our ability to estimate the true effects of FX interventions.
- Do interventions work? Cavusoglu (2010): Evidence of longer term effect very limited; evidence on effectiveness in general is mixed.



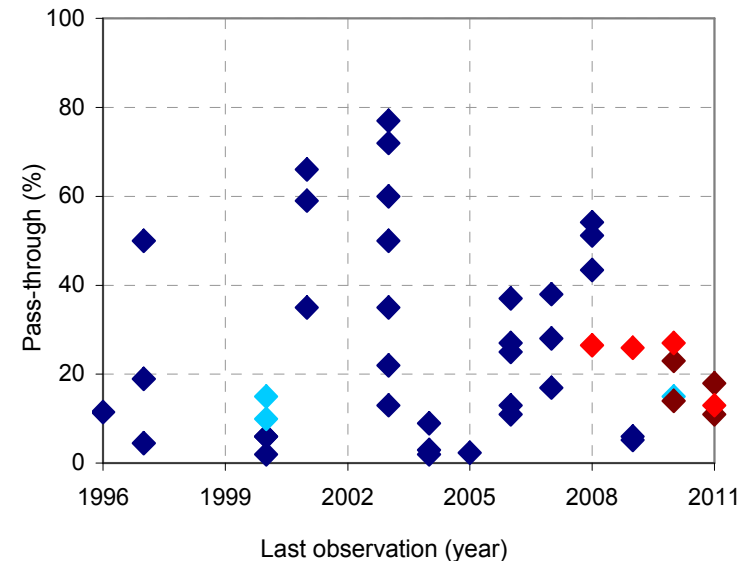
- Intervention periods: February – July 1998, October 1999 – March 2000, October 2001 – September 2002
 - Evidence of effectiveness: studies identify small but statistically significant short-term effect in most cases.
- Selling yields on FX reserves also statistically significant effect.



- Existing empirical evidence suggests that FX interventions have the ability to influence the exchange rate, but not necessarily in the long term.
- Fatum & Pedersen (2009): Sterilized FX interventions in Denmark have a significant influence on exchange rate returns when the direction of intervention is consistent with the MP stance.
 - This is the case when an FX shock is NOT accommodated but rather fueled by MP inactivity.
 - When the interest rate hits zero and can no longer be used or is insufficient to influence inflation expectations and achieve price stability, FX interventions become a viable option.

- But how do exchange rate changes affect prices in the Czech Republic?
- Is the existing evidence of exchange rate pass-through relevant for FX interventions?
- The estimates of the transmission of an exchange rate shock to Czech inflation lie between 0% to 80%.
- In the standard inflation-targeting regime, a shock transmits:
 - directly through import prices;
 - indirectly through economic activity: real volumes of imports and exports -> wages -> employment;
 - moderated by reaction of interest rates: correction of nominal exchange rate & through real interest rates influences investment and private consumption

Exchange rate pass-through to Czech inflation based on a literature review

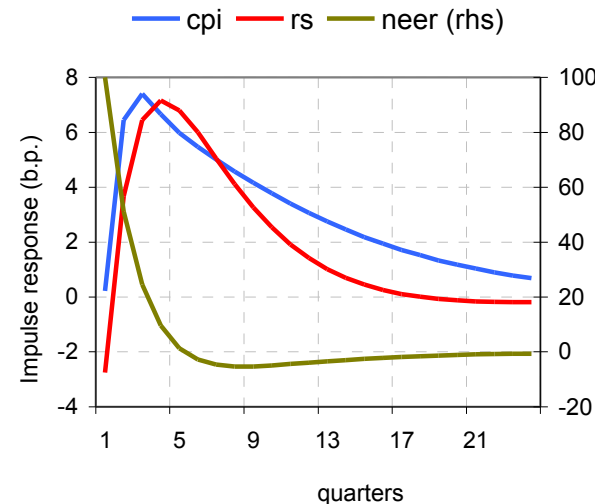


Note: The figure shows the reaction of consumer prices to an exchange rate shock of 1%. It summarizes 43 ERPT estimates for the Czech Republic collected from 22 papers and articles published in 2001–2012. Dark blue points represent time-invariant estimates. Light blue points are medians of time-varying estimates. Results based on the CNB RPN (forthcoming) are in dark red (VAR, VECM) or red (BVAR median and TVP-VAR for 2008Q1, 2009Q1 and 2010Q1).

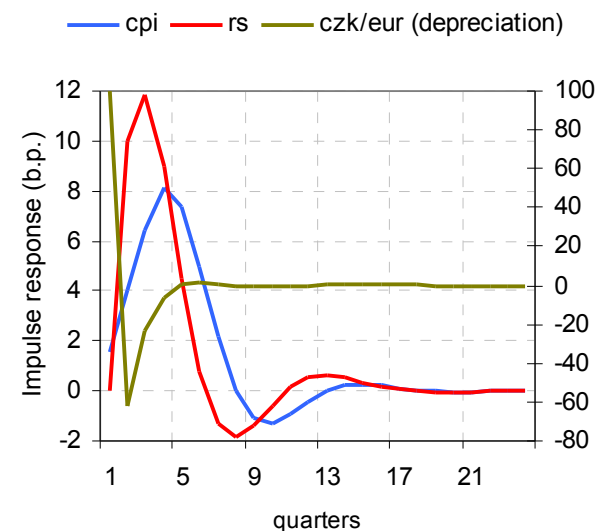
Source: Hájková and Saxa (forthcoming 2013)

- Impulse response based on a VAR model, quarterly data 1998Q1-2012Q3: pass-through of nearly 8%.
- Other recent estimates based on BVAR and TVP-VAR models lie between 13% and 26%.
- Impulse response based on the CNB's core DSGE forecasting model (g3) is similar to the empirical evidence.
- Reaction of consumer prices peak after about 4 quarters.
- Largest pass-through (over 50%) is observed for import prices; transmission to industrial producer prices and consumer inflation is an order of magnitude lower.

Impulse response of the CPI and the short-term interest rate to a Czech koruna depreciation of 1% (VAR model)



g3 model (CNB's core DSGE forecasting model)



Note: cpi = consumer price index; rs = 3M PRIBOR; neer = nominal effective exchange rate; czk/eur = nominal exchange rate

Source: Hájková and Saxa (forthcoming 2013); CNB

- As rates approach the ZLB, the transmission of shocks to the economy may change.
- Bayesian fan charts (Franta et al. 2013):
 - Forecasts can be conditioned on shocks that lead to a non-negative nominal interest rate (Fig. 1).
 - Forecasts can be conditioned on the interest rate itself (regardless of shocks – influence on other vars).
 - ZLB can be ignored (Fig. 2): ex-post observed MP relevant inflation on the edge of the centered 95% of the distribution forecast; over-optimistic growth outlook.

Fig. 1: Shocks filtered (ZLB active)

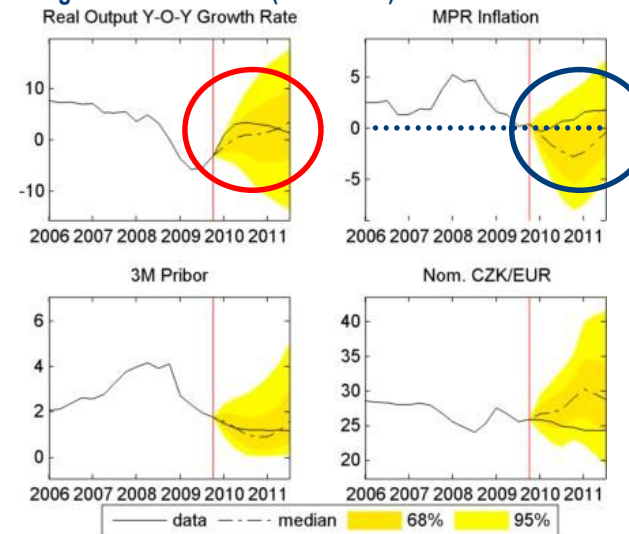
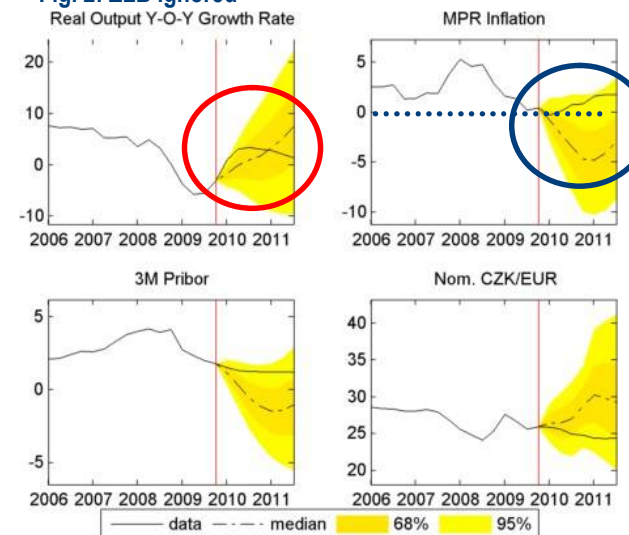


Fig. 2: ZLB ignored



- In general, fixing one input or binding constraint leads to higher responsiveness (volatility) of the remaining variables.
- That is, when MP reacts transparently to an exchange rate shock, the pass-through to inflation is relatively small.
- But as the CB approaches the ZLB and interest rates can't counteract the shock, the transmission increases sizably depending on how long economic agents expect MP to operate in the ZLB regime:
 - Direct channel through import prices is stronger.
 - Indirectly through real interest rates and expectations about their future development: longer-term fixed nominal interest rates and increasing inflation push real interest rates down.
- Analogously, fiscal multipliers are higher in a ZLB regime (Gerchert & Will, 2012).

- Existing estimates of pass-through are not applicable in a situation of zero rates.
 - Pass-through at the ZLB can be expected much larger than past estimates.
- FX interventions do not reduce the transparency and credibility of inflation targeting.
 - Targeted inflation remains unchanged and is still publicly known in advance.
 - The prediction of the market interest rate path, despite reflecting the zero level, remains publicly announced, too.
 - Exchange rate is still not the target, but rather a new tool for achieving the target.

- FX interventions used only when the standard tool is no longer available.
 - Power of the CB when intervening against its own currency is not limited by the size of the reserves.
 - Depreciation helps net exports, which is a good side-effect stimulating the economy.
- **The use of FX interventions to ease the monetary conditions in an open economy is a rational choice at ZLB.**

Forthcoming as BIS publication:

Lízal, L., and J. Schwarz: *Foreign Exchange Interventions As An (Un)conventional Monetary Policy Tool*

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