

Discussion of:  
**Unconventional monetary policy and the  
macro-economy: Evidence from a shadow  
interest rate approach**  
by **Leo Krippner, Tomas Key, Martin Weale  
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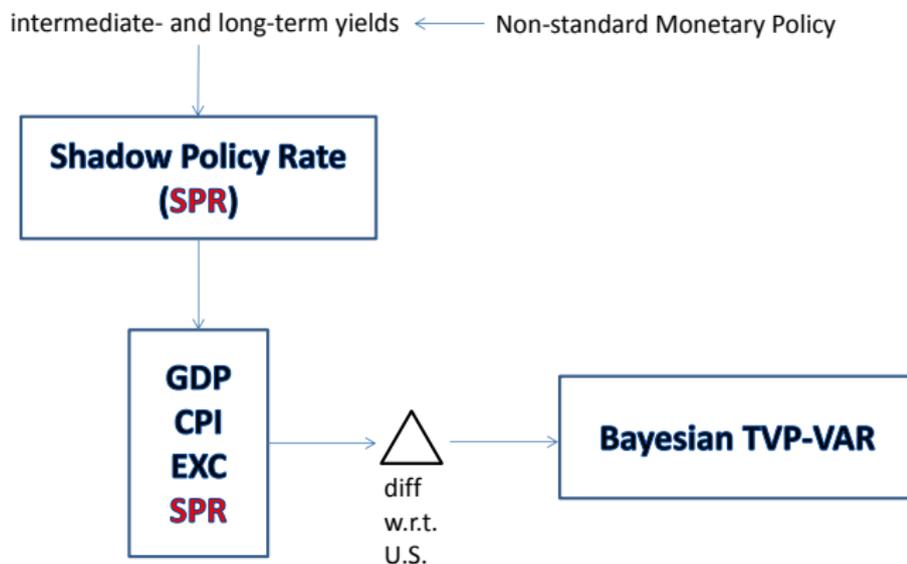
# What is the paper about?

- Empirical study for the macroeconomic impact of unconventional monetary policy in the Euro Area, UK and US
  - Do the unconventional monetary policies work by stimulating domestic demand or by currency depreciation?
  - Does unconventional monetary policy impact differently when compared to conventional monetary policy?
- But mainly the paper provides a very interesting new framework for measuring and quantifying effect of unconventional monetary policies

## Introduction (cont)

- What to do when interest rates become constrained by zero-lower bound? (normal, log-normal, quadratic)
- Shadow rate (*SPR*) approach of Krippner (2012) (based on Black (1995)) to measure unconventional monetary policy
- Estimate a relative TVP-VAR (w.r.t. US) to get effects on variables (GDP, CPI, FX, *SPR*)
- *Result* : 100 BP unconventional MP shock is weaker than conventional MP shock (statistically significant for FX)

# Design of Study



# Shadow rate approach

- Shadow rate = Model based rate
- Different term structure model gives different shadow rate
- # factors, *volatility*, switching, parameter stability, estimation method...
- Some indication of confidence bands, goodness-of-fit, etc...

# Shadow rate approach: example

- Different implied shadow rates for Japan from Christensen & Rudebusch (2013)

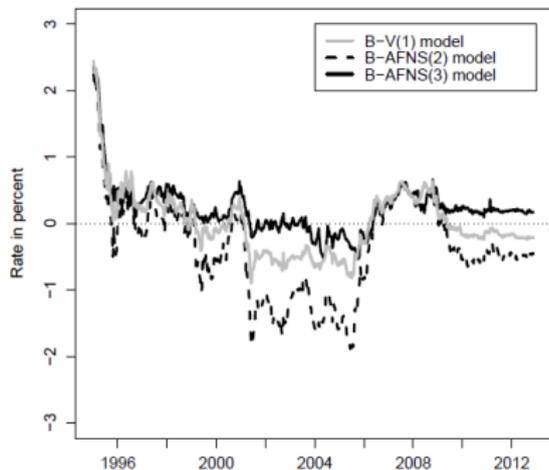


Figure 6: Model-Implied Shadow Rates from the Extended KS Sample. Illustration of the model-implied shadow rate from the B-V(1), B-AFNS(2), and B-AFNS(3) models.

# Shadow rate as a measure for unconventional monetary policy

- Conveniently summarizes monetary policies into a single time series
- For the US and UK it reacts to the QE related shocks
- Also may include many other shocks unrelated to monetary policy (dealt with by differencing w.r.t. US.)
- Might be interesting to see not-differenced results (without exchange rate)
- Inference on TVP-VAR should reflect shadow rate construction (two-step estimation)

## Euro area situation

- Policy rates are low, but large differences between the interest rates in different countries exist
- Paper uses data from France up to 2008 then Overnight Indexed Swap (OIS) curve
- Different from UK - US approach for construction
- Non-standard MP sometimes designed not to affect the monetary stance (SMP)

# Multi-country Euro-area yield curve model

- Suggestion for Euro area modeling:
  - Take the global yield curve model of Diebold, Li & Yue (2008)
  - Implement favorite ZLB term structure model for, say, France, Germany, Italy and Spain
  - Allow for Euro-area factors and country-specific factors
  - Derive the Euro-area shadow rate from the term structure model implied by the Euro-area factors
  - Similar as in Kose, Otrok & Whiteman (2003)

# Main points

- Shadow rate model justification
- Non-differenced VAR results
- Euro area adjustment

-  Black, F. (1995), 'Interest rates as options', *Journal of Finance* **50**, 1371–1376.
-  Christensen, J. H. E. & Rudebusch, G. D. (2013), 'Estimating term structure models with near zero yields'. Working paper.
-  Diebold, F. X., Li, C. & Yue, V. Z. (2008), 'Global yield curve dynamics and interactions: A dynamic Nelson-Siegel approach', *Journal of Econometrics* **146**, 351–363.
-  Kose, M. A., Otrok, C. & Whiteman, C. H. (2003), 'International Business Cycles: World, Region, and Country-Specific Factors', *American Economic Review* **93**, 1216–1239.
-  Krippner, L. (2012), 'Measuring the stance of monetary policy in zero lower bound environments'. Reserve Bank of New Zealand Discussion Paper: DP 2012/04.