Department of Economics
Research Area: Statistics and Econometrics

Freie Universität Berlin

Assessing the Anchoring of Inflation Expectations

New Empirical Approach Based on an ESTAR Model

SFB Discussion Paper 2012-22

Introduction

- Inflation expectations (IE) are a key driver of actual inflation (new keynesian Phillips curve)

$$\pi_t = E[\pi_{t+1}|I_t] + \gamma y_t + \epsilon_t$$

- Central banks seek to anchor IE

How to measure the anchoring?

- *Existing approach (Gürkaynak 2010): news (X_t) regression*

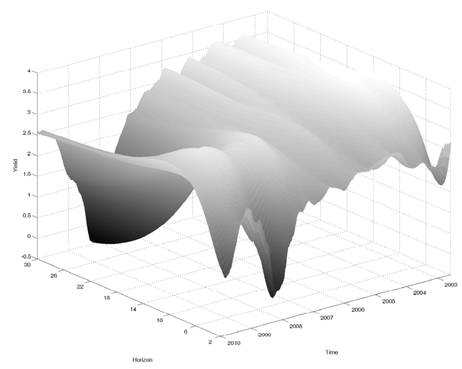
$$\Delta\pi_t^e = \beta_0 + X_t\beta_1 + \epsilon_t$$

- *Shortcommings: implausible unit root dynamics and no level information*

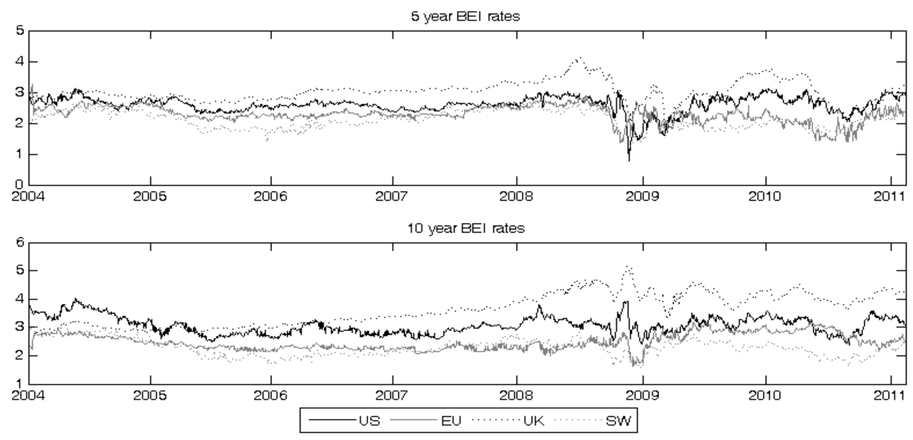
This paper

- *Stationary expectations with local unit root behavior: ESTAR*
- *We provide estimates of the*
  - *Strength of the anchor*
  - *Market-perceived inflation target*

Data: Break-Even Inflation Rates



- Fisher equation: $\pi_t^e = y_t^N - y_t^R$
- We estimate daily nominal and real Nelson-Siegel-Svensson yield curves between 2004 and 2011, following Gürkaynak et al. (2007)
- Countries: US, EMU, UK and Sweden



Methodology: ESTAR

$$\pi_t^e = c + e^{-\gamma(\pi_{t-1}^e - c)^2}\left(\sum_{i=1}^{p}\alpha_i\pi_{t-i}^e - c\right) + X_t\beta + \epsilon_t$$

- Adjustment speed γ: strength of the anchor
- Constant c: market-perceived inflation target
- News regression nested for $\gamma = 0$
- Appropriate to model inflation, *Nobay et al. (2010)*

Features of the model:

- Less persistent when further away from target
- Focus on long-run dynamics
- Lehman-dummy (LEH) for crisis effects

Results

	US		EMU		UK		SW	
	5Y	10Y	5Y	10Y	5Y	10Y	5Y	10Y
c	**2.613** (0.029)	**3.233** (0.059)	**2.416** (0.021)	**2.491** (0.035)	**3.113** (0.108)	**3.463** (0.140)	**2.169** (0.049)	**2.310** (0.066)
LEH	−0.181 (0.100)	**−0.181** (0.075)	**−0.370** (0.048)	0.162 (0.096)	0.102 (0.532)	**0.830** (0.180)	**−0.217** (0.092)	−0.140 (0.082)
γ	**0.294** (0.086)	**0.055** (0.016)	**0.531** (0.188)	**0.189** (0.059)	0.021 (0.014)	0.011 (0.007)	**0.074** (0.026)	**0.057** (0.025)
LEH	**−0.250** (0.088)	**0.152** (0.071)	−0.023 (0.188)	−0.113 (0.071)	−0.015 (0.017)	0.020 (0.019)	0.047 (0.073)	0.108 (0.067)
p	1	4	2	3	2	3	2	2
Q(5)	0.59	0.26	0.95	0.28	0.08	0.05	0.23	0.58
Q(10)	0.60	0.41	0.97	0.35	0.01	0.14	0.18	0.75
ARCH(1)	0.58	0.00	0.86	0.02	0.01	0.10	0.63	0.22
ARCH(5)	0.67	0.11	0.89	0.29	0.07	0.47	0.24	0.56

- Strong cross-country variation in the degree of anchoring
- No crisis effect on the anchor
- Expectations are best anchored in the EMU with half lives of at most 4 weeks

Literature:

Gürkaynak, R., Sack, B. and Wright, J. H. (2007), *The U.S. Treasury Yield Curve: 1961 to the Present* , Journal of Monetary Economics.
Gürkaynak, R., Swanson, E. and Levin, A. (2010), *Does Inflation Targeting Anchor Long-run Inflation Expectations? Evidence from the U.S., UK, and Sweden*, Journal of the European Economic Association.
Nobay, B., Paya, I. and Peel, D. A. (2010), *Inflation Dynamics in the U.S.: Global but Not Local Mean Reversion*, Journal of Money, Credit and Banking.

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