Discussion of Wu and Zhang

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Chicago Fed DSGE Conference

Summary

- Major challenge: In 2020, how are we going to estimate our models with data covering 2009-2015?
  - Continuous regime with ZLB?
  - New regime with new tools? (Balance sheet, forward guidance, ...)
- Either way, take regime change and/or occasionally-binding constraints seriously when solving/estimating models.
- **This paper:** Take your favorite DSGE model, replace FFR that is subject to the ZLB constraint with the shadow rate and solve the model linearly. All will be well. (**need to accept some assumptions**)
  - All "problems" due to the inability of the central bank to exert multiplicity of equilibria, large multipliers, strange properties, ...
  - ... and the model solves in an instant.
- Let's confront these assumptions with U.S. data. (ultimate goal is to estimate this model)

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Assumptions and U.S. Data

1. Shadow rate reacts to events (e.g. to output and inflation deviations) just the way FFR does.

Assumption 1: Shadow rate reacts to events like FFR

	Change in Policy (monthly, in bp)		
	1998-2008	1998-2015	2009-2015
Initial Claims Surprises (lagged, std)	-10.9 (**)	-11.1 (**)	-0.5
Initial Claims Surprises $\times$ ZLB		10.0 (**)	

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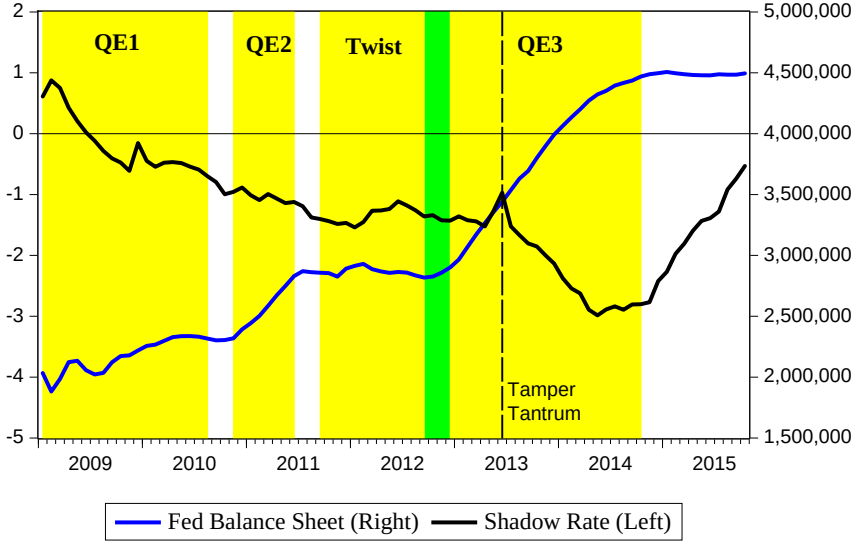
Assumption 2: Shadow Rate Captures UMP



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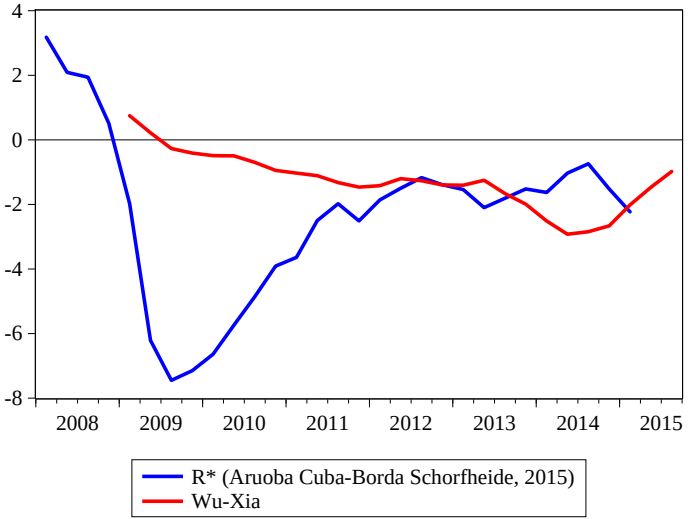
Was the Fed policy not nearly expansionary as it should be in 2009-2010?



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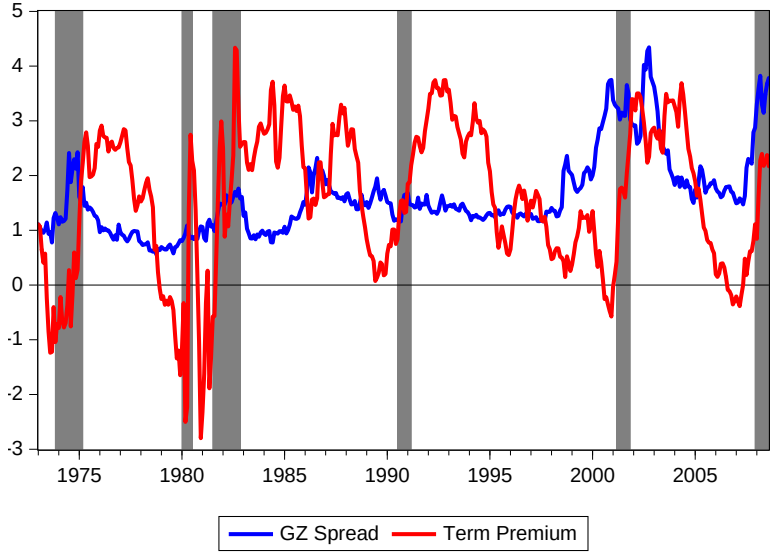
Assumption 3: Risk/Term Premium at and away from ZLB



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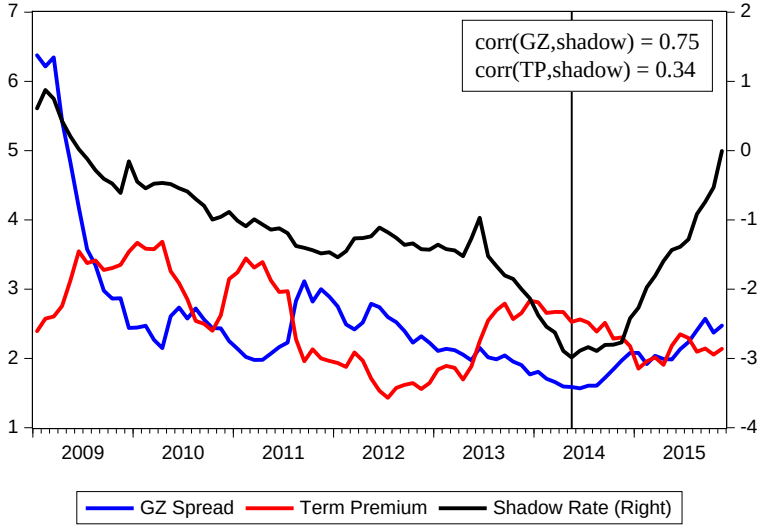

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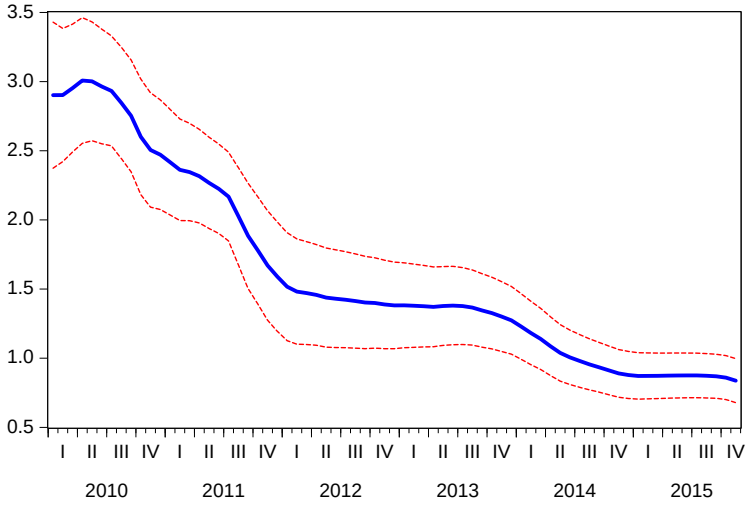
Estimate $spread_t = \alpha + \beta_T s_t + \epsilon_t$ for $t = 1, ..., T$ recursively and plot β_T.



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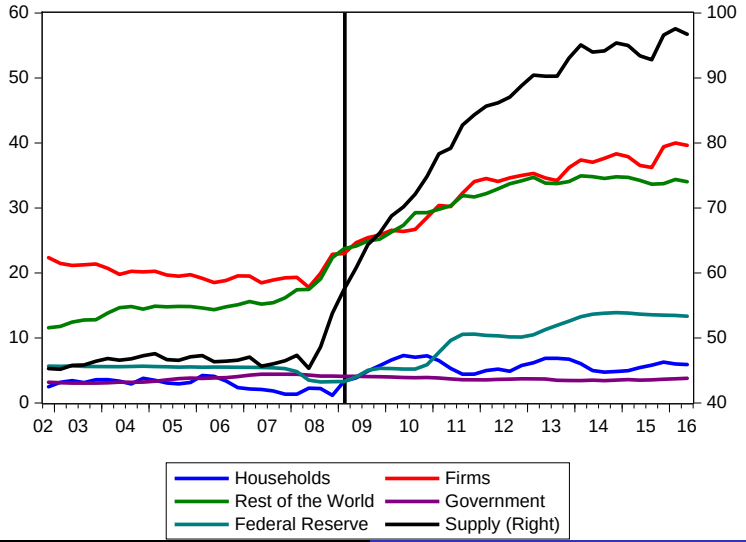
Assumption 4: Government Bonds at and away from ZLB

Supply and Demand for U.S. Government Bonds (% of GDP)



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Assumption 5: Key Variables at and Away from ZLB

Moment	Pre-ZLB (1984-2008)	ZLB (2009-2015)
$corr(\pi_t, \pi_{t-1})$	0.48	0.40
$corr(y_t, y_{t-1})$	0.34	0.08
$corr(y_t, \pi_t)$	-0.17	0.24
$corr(R_t, y_t)$	0.06	-0.42
$corr(R_t, \pi_t)$	0.18	-0.22

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   - Some key correlations seems to change signs.

Conclusion

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- This approach is not (yet) ready for prime-time.
  - If we were to estimate it using U.S. data covering 2009-2015, it would not do well.
- Looking forward to the next iteration.