China's Monetary Policy Communication: Money markets not only listen, they also understand

Alicia Garcia-Herrero

&

Eric Girardin

Motivation

- Central Bank communication: very broad concept
  - Many focus on transparency (release of information)
  - Others look into the management of expectations through words instead of deeds (relevant information: i.e., knowledge)
  - We follow the latter approach being specially relevant for China
    - Monetary policy instruments (*deeds*) are only one aspect of the conduct of monetary policy
    - Window guidance and moral suasion are also relevant and *words* can be the means to implement them

What has happened with Chinese monetary policy?

- Monetary policy framework getting closer to that of its counterparts
- Market-oriented monetary instruments introduced gradually over the last 15 years
- Publication of written statements of PBoC Monetary Policy Committee meetings
- Delivery of speeches by its governing body.

- Publication of statements and delivery of speeches

  $\Rightarrow$ More transparent central bank

  – But do markets pay any attention to them?

- In China, extra dimension:

  – Communication traditionnally seen as complement or reinforcement of monetary policy

  – In China can be seen as substitute to monetary policy

    - Signal of current and future moral suasion by the PBoC.
    - Communication may thus provide news on unobserved monetary policy decisions

Objectives

- Do markets listen to PBoC words?
  - i.e. do these words alter volatility?
    - New information
      - generating more uncertainty
      - or calming markets
- Do markets understand PBoC words?
  - i.e. do markets get the message about the stance of monetary policy conveyed by speeches?
  - Do money market rates go up after a hawkish speech?

Previous literature

- In the presence of information asymmetries between the public and the central bank
  - communication is relevant for policy action (Woodford, 2005).
- Intensive research on OECD countries,
  - central bank communication does matter for financial markets (JEL survey : Blinder et al. 2008).
- but relative neglect of emerging markets,
  - No existing work on the effects of central bank oral communication in China

Impact of monetary policy instruments on financial markets

- Existing work on China:
  - Li and Zhou (2008): increased volatility and correlation between bond and stock prices during periods of restrictive monetary policy
  - Fan and Johansson (2009): effects of official interest rate changes on the yield curve.
  - Porter and Xu (2009): our benchmark model of the interbank market .
    - Competitive profit-maximizing and price-taking commercial banks
    - In equilibrium the interbank rate is a positive function of lending rate and central bank bill issuance, but responds ambiguously to rises in required reserve ratio.

Methodology

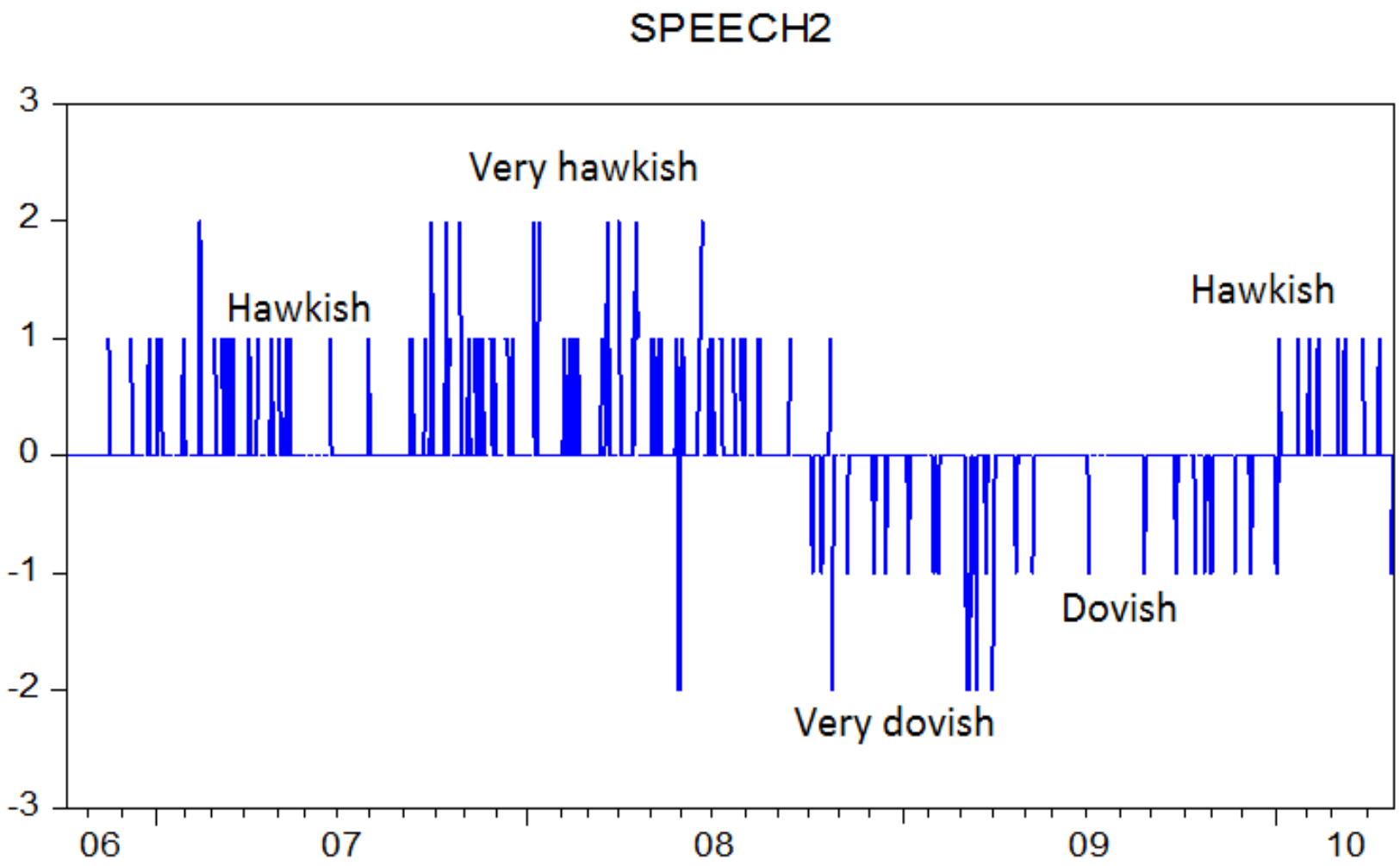
- Mean equation:
  - Interest rate is a function of
    - Speeches by PBOC
    - control variables
- Volatility equation:
  - Conditional volatility of interest rate a function of
    - Speeches by PBOC
    - Absolute value of control variables
  - Exponential GARCH-in-Mean model with Generalized Error Disribution
    - Due to non-normality of residuals in prior estimates

Speeches

- by PBoC officials
  - Source: Dow Jones Factiva database
  - Governor Zhou (209) and Dr Fan Gang (50)

- Three dummies
  - Mean
    - SPEECH1: from -1 (dovish) to 0 (neutral) and +1 (hawkish)
    - SPEECH2: from -2 (very dovish), -1 (dovish) to 0 (neutral), +1 (hawkish), +2 (very hawkish)
  - Conditional volatility
    - SPEECH: 1 on day of speech, 0 otherwise

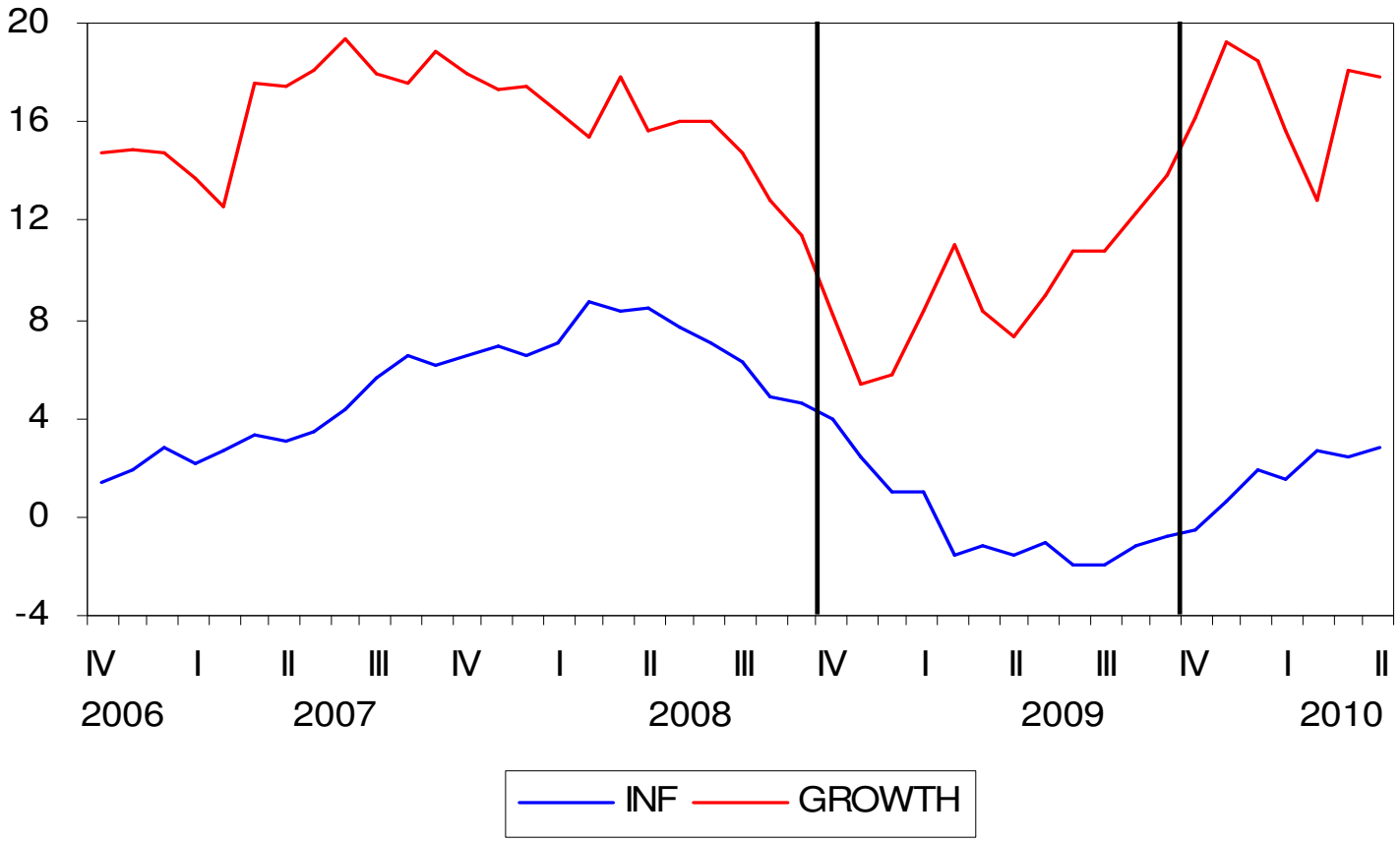
Stance of speeches



Sample

- October 2006-April 2010.
  - Three subsamples:
    - October 2006- Sept. 2008:
      - very expansionary period with inflation pressures => hawkish statements
    - Oct 2008-Sept.2009:
      - growth and inflation slowdown => dovish statements
    - Oct 2009-April.2010:
      - growth resumes => dovish statements
      - High growth => hawkish statements

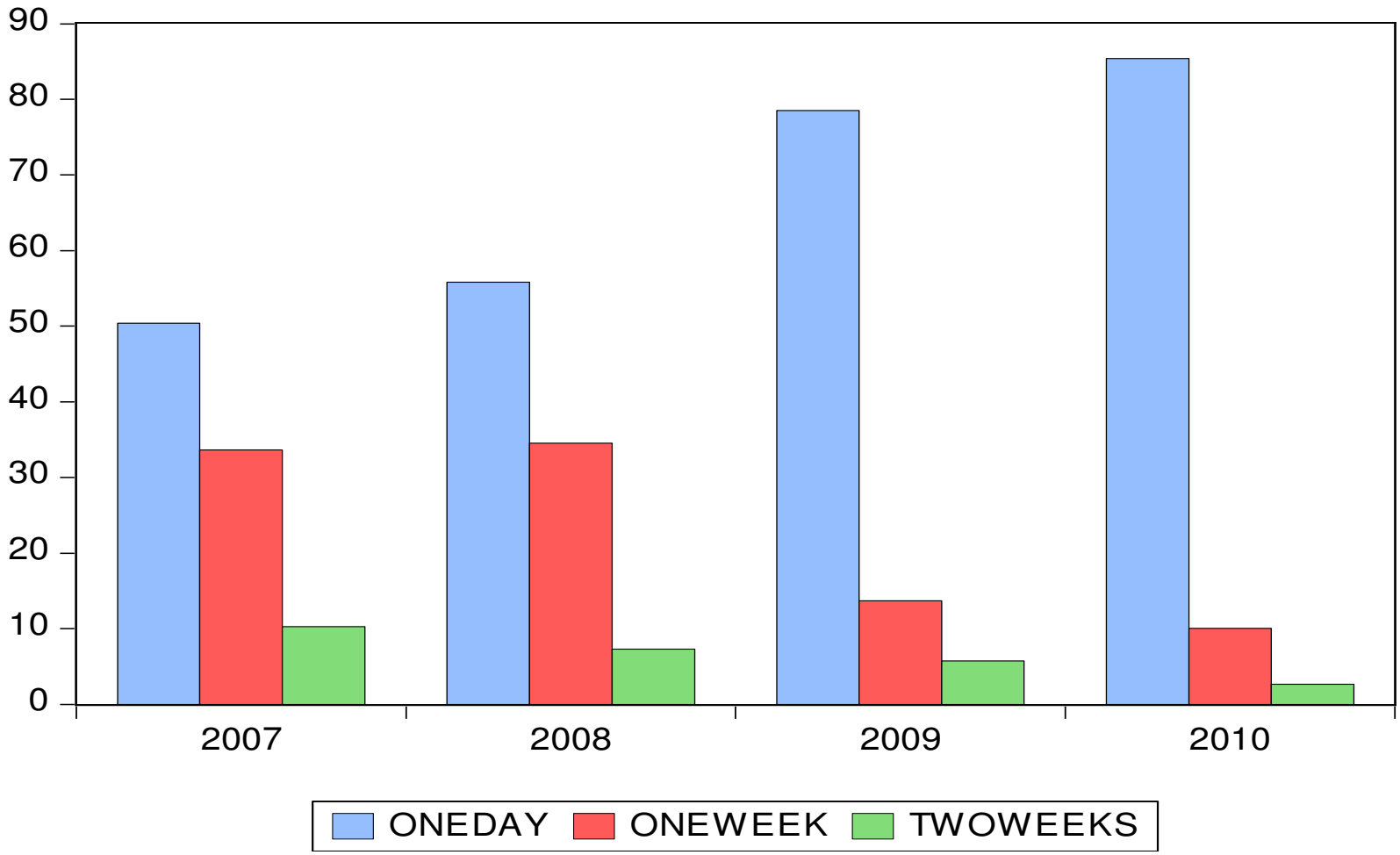
Inflation and industrial output growth in China (yean-on year, %)



Our focus on money market

- Why money market?
  - Most developed in China
  - Comes first in the transmission mechanism
- Why SHIBOR (Shanghai Interbank Market Offered Rate)?
  - Improved on existing benchmark rate (CHIBOR) which lacked liquidity; is based on quotes rather than trades.
  - Aimed at providing a true market signal of the functionning of the money market
- Why start sample in Oct 2006?
  - SHIBOR launched on a trial basis on 8th October 2006
  - Came into operation on 4th January 2007.

Average turnover of Repo market by maturity



Maturity

- Maturity
  - We look at
    - overnight, one week, two weeks and one month
    - and the 6 month SHIBOR as representative of long maturities (3 to 12 months)
  - But emphasize results for
    - more liquid one day or one-week maturity

Control variables

- Written statements by PBoC

- Monetary policy instruments
  - Deposit rate: one-year
  - Lending rate: one-year
  - Required-reserve ratio
  - Net PBoC Bill issuance
- News
  - Initial Public Offerings: liquidity lock-up (prior evidence)
  - Macro-announcements in China
- Calendar effets
  - Day of the week
  - End of month
  - Chinese New Year

Modelling strategy
Level or first difference of SHIBOR?

- Tests:
  - Null hypothesis of stationarity of SHIBOR rejected: all subsamples and all maturities.
  - Null hypothesis of unit root sometimes accepted, sometimes rejected, depending on maturity and subsample.
- Previous work on oral communication looked in all cases at the effects on stationnary variables:

  -> Change in market interest rates: Connolly and Kohler (2004); Ehrmann and Fratzscher (2005); Reeves and Savicki (2007); Rosa and Vega (2007).

Do Chinese money markets listen?

- When a PBoC speech occurs how does the conditional volatility of the change in the overnight SHIBOR respond:
  - Positively: rise in uncertainty
  - Negatively: calming markets

	06:10-08:9	08:10-09:9	09:10-10:4
Overnight SHIBOR			
Same day	0.60***	-0.06***	-0.04***
Next five days	0.22***	-0.26***	0.015***
One-Week SHIBOR			
Same day	0.29	0.12	-1.28
Next five days	-0.24**	0.45	1.44
***significant at 1%.			

Do money markets understand?

- When a speech occurs how do the mean changes in the SHIBORs respond?
  - Positive response as a rule
  - Negative= excess liquidity?

	06:10-08:9	08:10-09:9	09:10-10:4
Overnight SHIBOR			
Same day	0.023***	0.001**	0.001**
Next five days	0.035**	0.006**	-0.0016**
One-Week SHIBOR			
Same day	0.015**	0.011***	-0.028**
Next five days	0.015***	-0.03***	0.038**

How much?

- Assess the magnitude of the effects of PBoC oral communication
- Use a more simple communication coding:
  - -1 (dovish), 0 (neutral), +1 (hawkish) speech dummy
- Magnitude of the effect on the change in SHIBOR
  - sometimes as large as in the case of the ECB (Ehrmann et al. 2007): around 1.2 basis points

Conclusion

- For most liquid short maturities, overnight and one-week
  - Markets listen: Volatility tends to increase on the day of the speech
    - But Instances when volatility is reduced: calming markets
  - Markets understand: SHIBOR responds to oral communication in the intended direction
    - SHIBOR tends to increase after a hawkish speech
    - Magnitude of such effects is sometimes as large as that of the ECB found by Ehrmann et al (2007).