

Chinese Economists Society 2012 Conference

# Central Bank communications and Bond markets in China

June 2012

Alicia Garcia-Herrero  
Banco Bilbao Vizcaya Argentaria (BBVA)

Eric Girardin  
Aix-Marseille University, GREQAM, Aix-Marseille School of Economics

Sandrine Lunven  
Thierry Apoteker Consulting (TAC), GREQAM, Aix-Marseille University



**T A C**  
Applied Economic & Financial Research



# Motivations

---

- Understanding mechanisms and efficiency of monetary policy transmission in China...
- ... via the management of expectations reflected in the term structure of interest rates (in the interbank bond market)

*Svensson (2004): “monetary policy is to a large extent the management of expectations”.*

*Bernanke (2004): “monetary policy works largely through indirect channels, in particular by influencing private-sector expectations and thus long-term interest rates”.*

- Do changes in monetary policy have a significant impact on the term structure of interest rates?
- What is the role of Central Bank communications in conducting monetary policy in China?

# CB communications is a key aspect of monetary policy in China

---

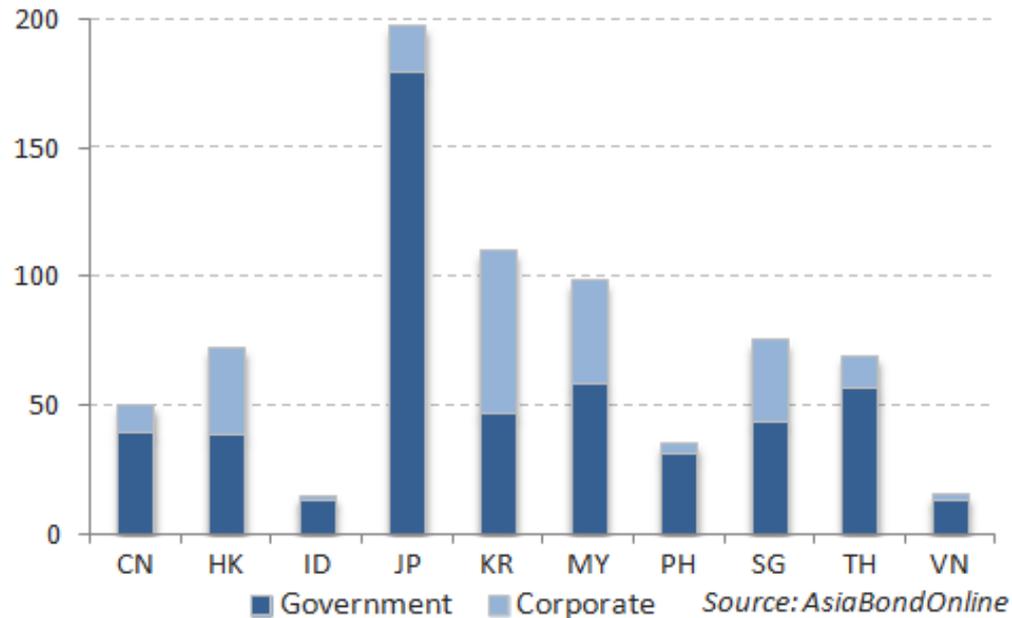
- Increasingly important as the economy is more and more market oriented
- Academic research (Blinder et al): communications is a power tool for CB to conduct a more predictable monetary policy
- The final goal of CB speeches is managing financial market expectations: better managed when financial market are forward-looking (Garcia-Herrero and Remolona, 2008)
- CB communication: proof of transparency or/and real monetary policy instrument?
- Provides signals about future interest-rate changes
- Also send signals on the current and future moral suasion or window guidance (not observable)

# China-specific factors

## Structure of China's bond market

- Increasing role of the interbank market in China but it remains yet underdeveloped

Figure 1: Size of LCY Bond Market in % GDP (Sep. 2011)

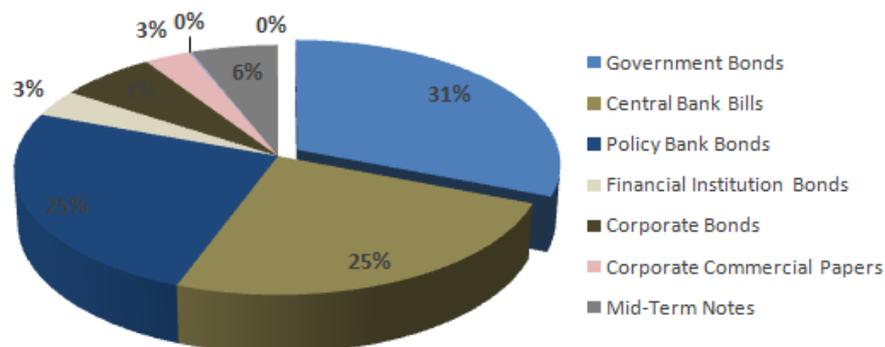


# China-specific factors

## Structure of China's bond market

- The Chinese bond market has developed into a multi-layered market comprises of two segments:
  - The national interbank market (only this segment is analyzed here)
  - The exchange-traded market
- The interbank market, established in 1996, is a quote-driven over-the-counter (OTC) market, governed by the PBoC
- Still modest in size, it has become the most active bond market. Banks are the largest investors.

Figure 1: Bonds outstanding by type in May 2010



Source: [www.chinabond.cn](http://www.chinabond.cn)

# Empirical analysis

## Data

---

- Daily data on “yield curve of Interbank Fixed rate Tbond” (government bond yield), considered as bond yield benchmark in China
- Extracted from Wind from March 2006 and May 2011 (1250 observations)
- Maturities range from 1 year to 10 years (liquidity issue to include longer range of maturities)
- Representative maturities used:
  - 2 years for the short-end of the yield curve
  - 5 years for the medium-end of the yield curve
  - 7, 10 years for the long-end of the yield curve

# Empirical analysis

## The conduct of monetary policy in China

---

- Differs significantly from US and Europe.
- The different monetary instruments are:

---

<b>Price-based</b>	Regulated deposit and lending rates Interest rates for required and excess reserves Rediscount rate
--------------------	---

---

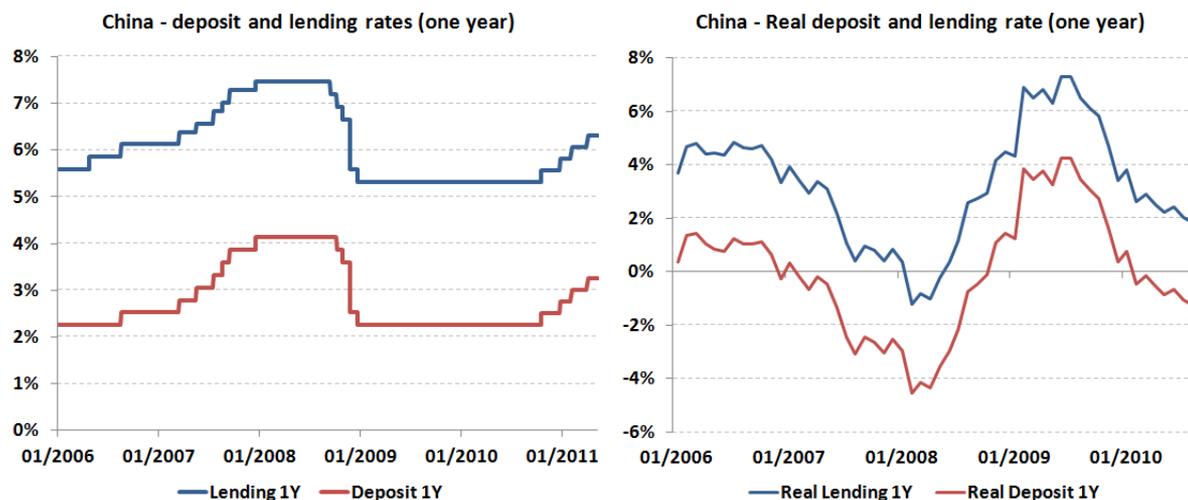
<b>Quantity-based</b>	Reserve Requirement Ratio (RRR) Open Market Operations (OMOs) (through central bank bill issuance) Credit controls
-----------------------	---

---

# Empirical analysis

## Data

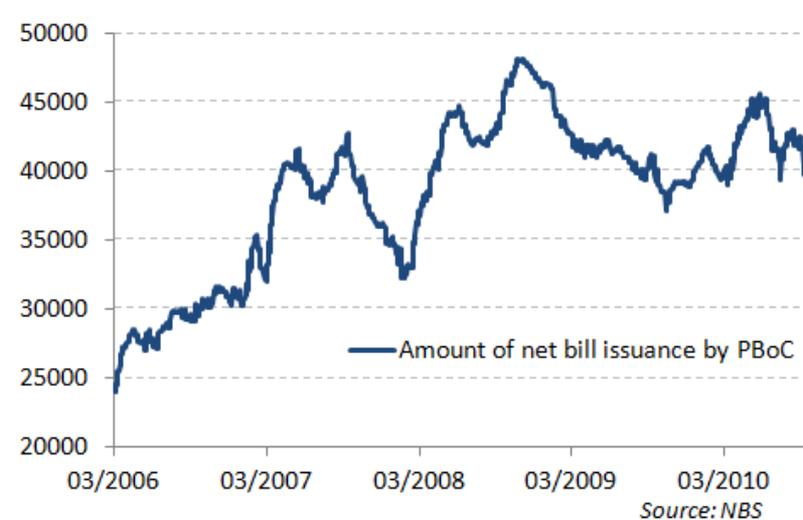
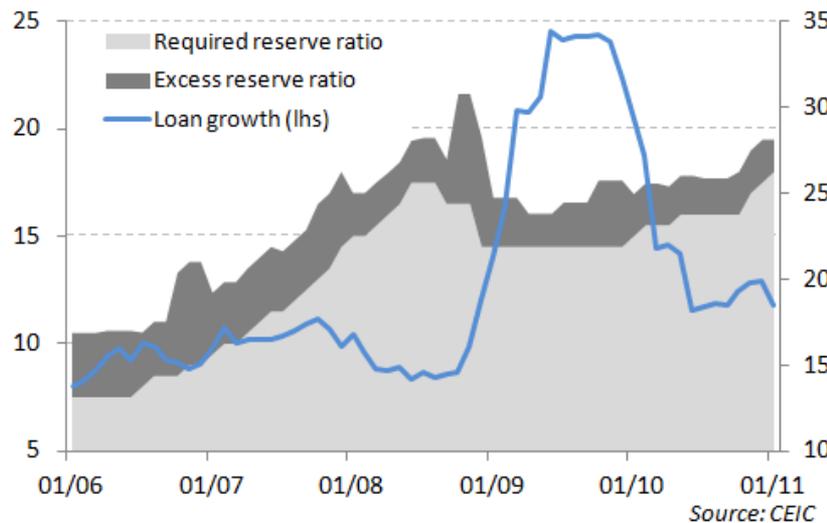
- Price-based instruments (lending and deposit rates)
  - 15 changes over the 2006-2011 period.
  - The deposit-rate ceiling is generally considered binding (Feyzioglu et al, 2009, He and Wang, 2011), leading to low and often negative real returns on deposits



# Empirical analysis

## Data

- Quantity-based instruments (OMOs and RRR)
  - Used to sterilize foreign-currency reserve inflows, to signal tightening credit condition (Ma, Xiandong and Xi, 2011)
  - RRR used 33 times during the 2006-2011 period and OMOs used very frequently



# Empirical analysis

## Recent literature

---

- Recent papers have developed theoretical models: Freixas and Rochet (2008), Porter and Xu (2009), Chen, Chen and Gerlach (2011), He and Wang (2011).
- They show that raising deposit rate would lead to a rise in market rates if the deposit rate ceiling is binding and the lending rate floor is non-binding.
- Girardin and Garcia-Herrero (2011) look into the reaction of changes in interbank rates to the type of message provided by the PBoC. They find strong evidence in favor of money market repo rate increase immediately after a hawkish statement.

# Empirical analysis

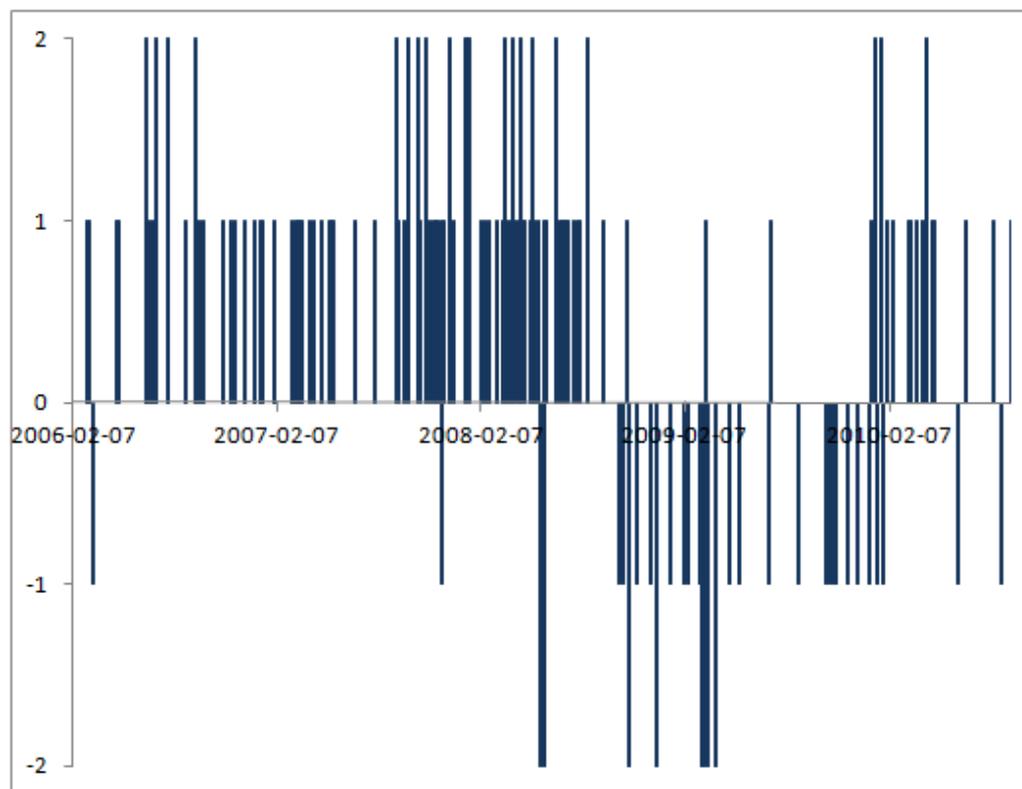
## Central Bank communications indicator

---

- Construction of a high frequency database on verbal communications:

Focus on the governor of the PBoC, Mr. Zhou Xiaochuan, by extracting press articles from two sources (Factiva and LexisNexis) and looking at information content.

The variable takes a higher value the more hawkish the speech and a lower value the more dovish the speech.



# Empirical analysis

## Model

---

- Estimation of a standard GARCH(1,1) by integrating in the mean equation:
  - Change in deposit rate
  - Change in Reserve Requirement Ratio (the announces)
  - Open Market Operations
  - Central Bank Communication indicator
- Daily data from March 2006 to October 2010

# Empirical analysis

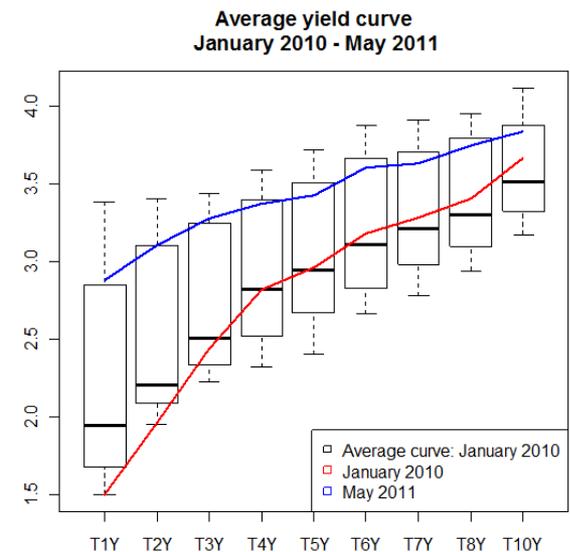
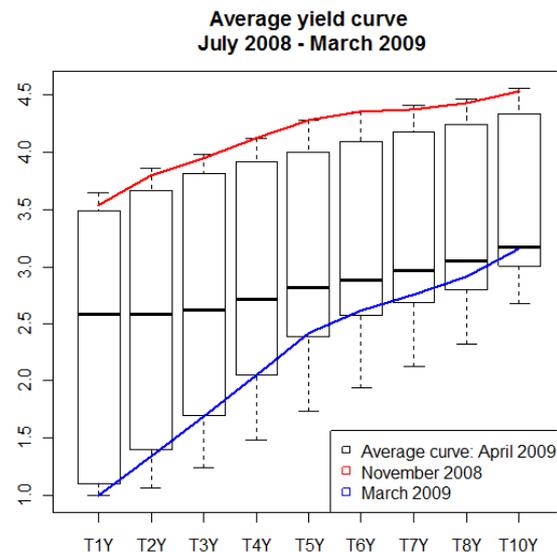
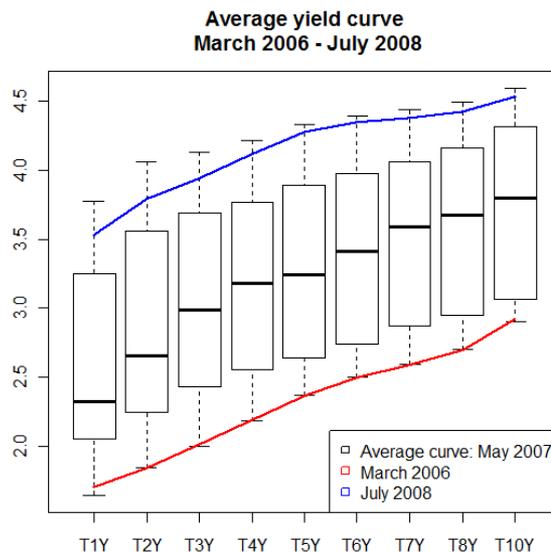
## Model

- Estimation of a standard GARCH over three periods:

From March 2006 to July 2008 ('pre-crisis'): robust economic growth, tightening monetary policy environment. Slope highly positive.

From July 2008 to March 2009 ('crisis period'): substantial monetary easing, flattening of the yield curve and strong decline in the level of yields

From January 2010 to May 2011 ('post-crisis period'): progressive shift in monetary policy objectives (weaker economic growth, focus on the rise in inflation). Expectations of higher future short-term interest rates)



# Empirical analysis

## Results

---

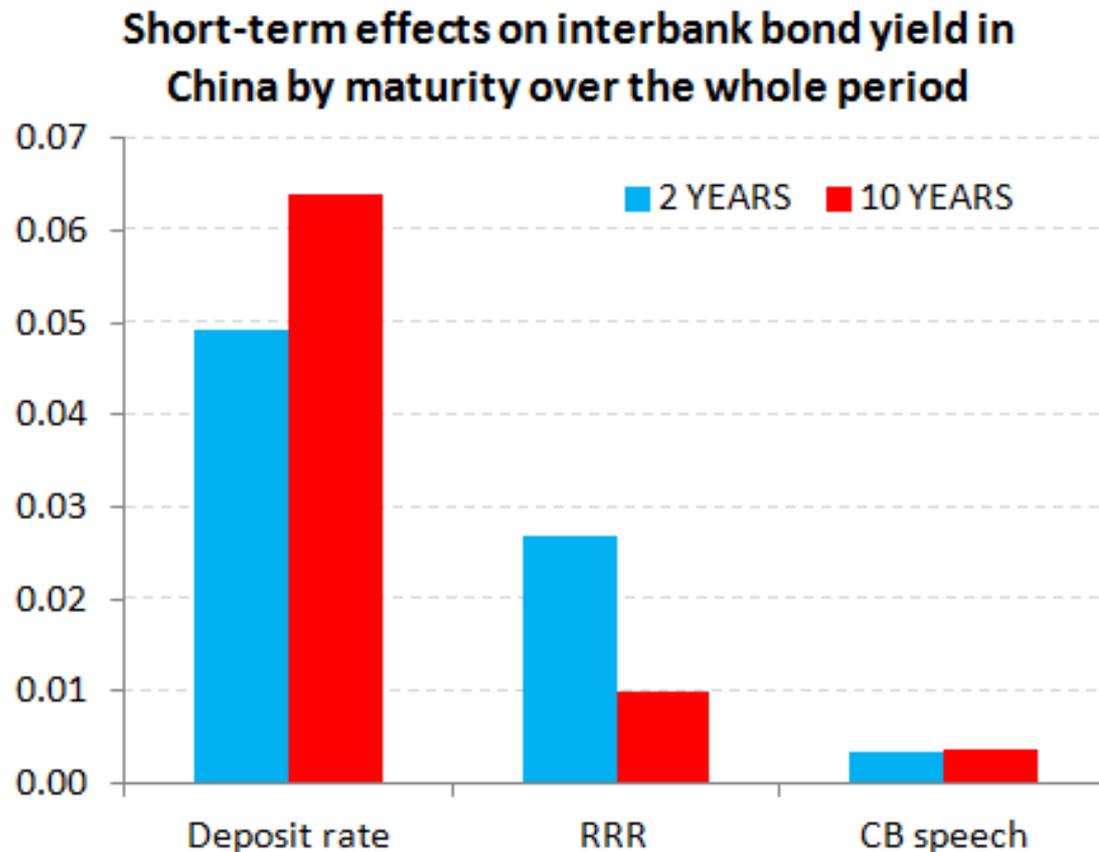
- Bond yields are more sensitive to changes in the one-year deposit rate
- Also respond to changes in RRR
- But not to open market operations
- However, the effect of each main instruments varies over time and the magnitude also differs
- Central bank communications plays a significant and ‘smooth’ role in explaining the evolution of the bond yields, both in term of transparency and also as an instrument

# Empirical results

## Results

---

- Variation deposit rate: +27bp, RRR (announced):+0.5bp

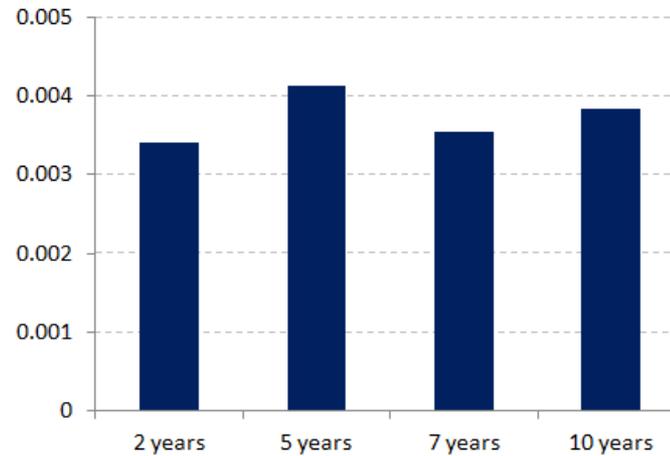


# Empirical results

## Results

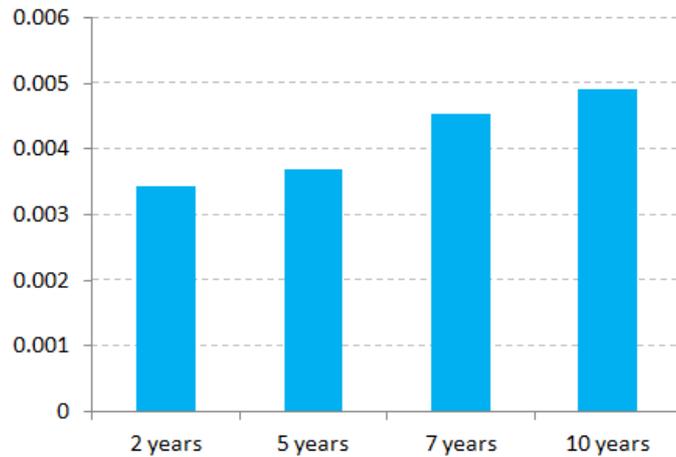
### CB speech effect on bond yields

Whole period: Feb. 2006 - Oct. 2010



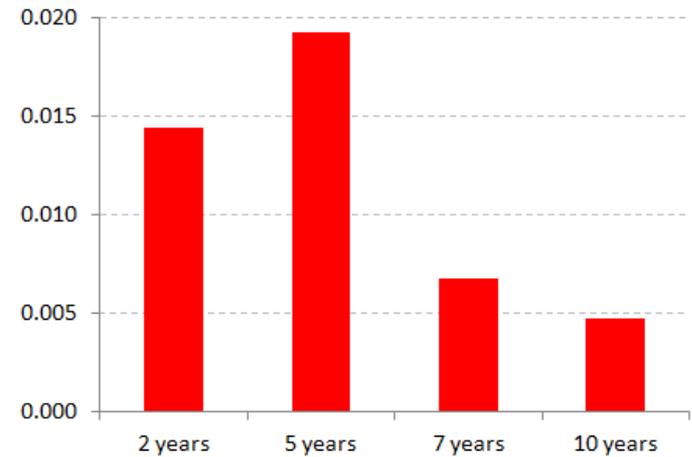
### CB speech effect on bond yields

Pre-crisis period: Feb. 2006 - Sept. 2008



### CB speech effect on bond yields

Crisis period: Oct. 2008 - Sept. 2009



# Conclusion

---

- At the current stage of the research, we find that:
  - The potency of each main instruments across the yield curve varies over time and the magnitude of the effects also differs.
  - One-year deposit rate is the more efficient monetary policy instruments. It affects Chinese bond yields for all maturities, at least over period of tightening monetary policy.
  - The ratio of one-deposit rate's elasticity to the Reserve Requirement Ratio's elasticity is between 2 and 6 for all segments of the Chinese bond yield curve (short-term, medium-term and long-term).

# Conclusion

---

- **Central Bank communications: a tool for more transparency**
  - ✓ Speeches play a crucial and steady role in the deformation of the yield curve:
  - ✓ They guide the market by providing key messages on the monetary policy regime and potential future changes in instruments
  - ✓ They smooth the evolution of the yield curve by preventing rather than taking the market in surprise
- **Central Bank communications: a key monetary policy instrument**
  - ✓ Interestingly, the market appears to more listen CB speeches during 'crisis period'. During this period, the market trusts in CB communications and directly reacts. CB seem to integrate window guidance (other instruments are less significant)
  - ✓ Effects are stronger than during normal periods and mostly affect the short-end of the yield curve.