Inflation Targeting and Financial Stability

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Introduction and Motivation

What?

- This paper answers three questions:
  - Q1 Are banks from countries that adopt Inflation Targeting (IT) more stable?
  - Q2 Are these banks more stable during times of global illiquidity?
  - Q3 Do systemically important banks from IT countries take more risk?

- Recent criticism of IT: central bankers overlooked the banking system and the development of asset bubbles.

- Counter-arguments:
  - (a) IT regime comprises of more dimensions than just controlling inflation.
  - (b) United States of America, where the crisis originated, is not considered an IT country.

Introduction and Motivation

How?

- We employ a database from BankScope containing 5646 commercial banks from 74 countries (22 of which are IT) during the period 1998-2012.
  - Richness of the data: results are not specific of any country and time period.
  - First study to analyze IT's impact on financial stability using bank-level data.

- Methodology: (Q1) regress a dummy that equals one if the country is IT on a bank stability variable.

- We also interact this variable with (Q2) TED spread (difference between the interest rates on interbank loans and on short-term U.S. government debt – a proxy of global financial distress) and (Q3) a SIFI dummy.

Introduction and Motivation

Literature

- IT consists in four elements (Mishkin, 2004; Heenan et al., 2006):
  - (i) CB mandate to pursue price stability as a primary objective;
  - (ii) an explicit inflation target;
  - (iii) policy action based on a forward looking assessment of inflation pressures;
  - (iv) increased transparency of monetary policy strategy and implementation.
- Large evidence that IT has reduced inflationary pressures and anchored price expectations in countries that implement it.
  - But at what cost to the real economy? (Gonçalves and Carvalho (2009) versus Brito (2010))
- The effects of IT on financial stability, however, are not clear.

Introduction and Motivation

Literature (Cont.)

- On one side lower levels of inflation have positive effects on financial stability.
  - Instability in the price level exacerbates financial instability.
- On the other hand, the recent financial crisis has made economists realize that **price stability is not a sufficient condition for financial stability.**
  - Central banks have overlooked financial imbalances and the development of asset bubbles in the pursuit of price stability.
  - "Paradox of credibility" (Borio et al. 2003).
- Critics suggest authorities include a financial stability goal on the IT framework.
- Few empirical works, however, have been done to provide evidence to either view.

Data

- We take balance-sheet data of 5646 commercial banks from 74 countries during 1998-2012 from BankScope.
- In order to avoid loosing several observations due to missing data, we average relevant balance sheet data by trienniums.
  - If there is missing data for a specific bank and year, the observation for that triennium is the average value of the remaining two years.
- Data on countries that employ IT as well as the year of adoption from Roger (2009) and authors' own research.
- The variable of global illiquidity is the TED spread (Eurodollar - Treasury Bill), calculated using US Federal Reserve Data.

Data

- As dependent variable, we consider a measure of financial fragility derived from the Z-Score (the number of standard deviations that a banks re- turn on asset has to fall for the bank to become insolvent.).

$$\text{Z-score}_{it} = \frac{\overline{ROA} + \overline{Capital\ \ Ratio}}{\sigma(ROA)} \tag{1}$$

- We control for balance-sheet variables such as: bank's relative size in the banking market, liquidity ratio, and cost to assets ratio.

- We also construct a systemically important bank dummy (SIFI_{it}) equal to one if the bank's size is higher than two standard deviations from a country's mean.

Data

- In addition to controlling for balance-sheet data, we also include two different types of controls:
  - Economic indicators:
    - Financial Freedom and Property Rights indices (Heritage Foundation); and
    - the GDP growth (World Bank's WDI).
  - Financial Depth variables:
    - Density of deposits (BankScope and WDI);
    - The banking system's equity to assets ratio (Bankscope);
    - The domestic credit to the private sector as % of the GDP (Bankscope); and
    - A banking market competition index known as the Lerner index (Bankscope and authors' estimation).

Results

Q1: Are banks from IT countries more stable?

Variables	[1] Fin. Stability$_{it}$	[2] Fin. Stability$_{it}$	[3] Fin. Stability$_{it}$	[4] Fin. Stability$_{it}$
Inf. Target$_t$	0.747***	0.533***	0.544***	0.411**
	(0.180)	(0.162)	(0.171)	(0.167)
Controls				
Bank-Level Vars.	Yes	Yes	Yes	Yes
Financial Depth	No	No	Yes	Yes
Economic Activity	No	Yes	No	Yes
Observations	21,282	21,282	21,282	21,282
R-squared	0.089	0.111	0.100	0.117
Number of Banks	5,646	5,646	5,646	5,646

Robust

standard errors in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

Results

Q2: Are banks from IT countries more stable in times of global illiquidity?

Variables	[1] Fin. Stability$_{it}$	[2] Fin. Stability$_{it}$	[3] Fin. Stability$_{it}$	[4] Fin. Stability$_{it}$
Inf. Target$_t$	0.680***	0.493***	0.462***	0.354**
	(0.175)	(0.163)	(0.171)	(0.165)
TED Spread$_t$	-0.407***	-0.213***	-0.382***	-0.215***
	(0.054)	(0.042)	(0.037)	(0.037)
TED Spread$_t$ * Inf. Target$_t$	0.115	0.070	0.138**	0.098
	(0.093)	(0.078)	(0.068)	(0.062)
Controls				
Bank-Level Vars.	Yes	Yes	Yes	Yes
Financial Depth	No	No	Yes	Yes
Economic Activity	No	Yes	No	Yes
Observations	21,282	21,282	21,282	21,282
R-squared	0.090	0.111	0.101	0.117
Number of Banks	5,646	5,646	5,646	5,646

Robust

standard errors in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

Results

Q3: Are systemically important banks from IT countries more stable?

Variables	[1] Fin. Stability$_{it}$	[2] Fin. Stability$_{it}$	[3] Fin. Stability$_{it}$	[4] Fin. Stability$_{it}$
Inf. Target$_t$	0.774***	0.531***	0.559***	0.407**
	(0.180)	(0.160)	(0.171)	(0.166)
SIFI$_{it}$	-0.100	-0.088	-0.111	-0.099
	(0.087)	(0.082)	(0.080)	(0.077)
SIFI$_{it}$ * Inf. Target$_t$	0.427**	0.411**	0.469**	0.426**
	(0.197)	(0.174)	(0.185)	(0.170)
Controls				
Bank-Level Vars.	Yes	Yes	Yes	Yes
Financial Depth	No	No	Yes	Yes
Economic Activity	No	Yes	No	Yes
Observations	21,282	21,282	21,282	21,282
R-squared	0.087	0.110	0.099	0.116
Number of Banks	5,646	5,646	5,646	5,646

Robust

standard errors in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

Results

Robustness tests

- (1) We re-run our estimation by comparing banks from countries with similar legal system origins (English, French, German/Nordic).
  - We classify banks according to their legal origins according to La Porta et al. (1997, 1998, 2008), Djankow et al. (2003), and author's own research.

- Results are robust to these specifications: in **no** specification have we found that banks from IT countries are less stable, more vulnerable to liquidity shocks or less stable if they are SIFIs. In fact, we have some evidence to the contrary.

- Then, IT countries have stronger banking systems even when compared to other countries with same economic and legal characteristics.

Results

Robustness tests

- (2) Results are also robust if we consider banks from IT countries where the central bank is also responsible for bank supervision.
  - We take data on whether bank supervision is the responsibility of the central bank from Barth et al. (2001, 2004, 2008, 2013)

- Banks from these countries appear even to be:
  (a) more stable than those from other IT countries (weak significance)
  (b) no more vulnerable to global financial shocks (insignificance)
  (c) no less stable if they are SIFIs (insignificance)

- This test suggests that arguments from IT critics are not the case.

Results

Robustness tests

- (3) Test whether IT banks were more stable during the crisis as an alternative Q2 test. Strong evidence that IT banks were more stable in this period.
- (4) We exclude banks from the G7 economies and re-run the tests. Results from Q2 and Q3 are no longer significant, but the signals remain.

Conclusion

- Contrary to recent criticism, countries that adopt IT present sounder banking systems, even during times of economics uncertainty.
- Possible reasons for the results:
  (a) Price stability together with enhanced communication and accountability might play a role in reducing banks' risk;
  (b) IT central banks have not ignored the build up of financial imbalances in their respective markets.
  (c) Others?
- However, this paper argues neither that central banks must only attain and maintain price stability nor that no trade-offs between monetary policy and financial stability exist.