# A Narrative Indicator of Monetary Conditions in China

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**Abstract:** In this paper, we apply the narrative approach, studying the PBC's historical records, to infer policy-makers' intentions and thereby build a time series of monetary policy indicator. We show that our narrative policy indicator is informative about economic activity. Changes in it reflect the PBC's responses to its perceptions of economic conditions. It is a good indicator of monetary policy actions. Finally, we show that compared to monetary aggregates, changes in interest rates and the required reserve ratio are more associated with changes in monetary policy, as measured by our narrative indicator, but only to a limited degree. None of them alone can be a good proxy of policy indicator.

**Key words:** the narrative-based policy indicator, quantitative policy measures, VAR, predictive power

**JEL-Classification:** E52, E58

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# 1. Introduction

A key research question on Chinese monetary policy is how to accurately measure changes in monetary policy. The main challenge arises from the fact that Chinese central bank, the People's Bank of China (PBC), uses a mix of monetary policy instruments that include price, quantity and administrative tools, and none of them can be described as a dominant instrument.[2] Thanks to a large amount of recent contributions (see, among others, Chen, Chen, and Gerlach 2013, He and Pauwels 2008, Shu and Ng 2010, Sun 2013, 2014, Xiong 2012), the consensus has emerged that all the changes in the PBC's frequently used monetary policy tools contain the information on changes in its policy stance and thus the accurate measurement of the PBC's monetary policy requires one to monitor a set of indicators other than only an interest rate or a monetary aggregate.

However, these PBC's policy instruments are different in nature: some are quantitative, some are administrative and some measures are only on a discrete basis.[3] There is no clear rule on how to quantify the latter two. Even if one focuses on quantitative measures only, it is not obvious how to weight different policy instruments and summarize them into a single indicator. One approach to overcome this difficulty is the narrative approach. The use of the narrative approach in monetary economic analysis has a long tradition.[4] In general, this approach relies on the reading of the central bank's documents to infer additional information on policy-makers' intentions. Friedman and Schwartz (1963) and Romer and Romer (2004) use Federal Reserve diaries and policy records, together with time series data, to identify monetary policy. Brunner and Meltzer (1964) and Boschen and Mills (1995), among others, read Federal Reserve documents to construct time series of index on the policy stance (tight, neutral or ease). Romer and Romer (1989) then use the additional information on the Fed governors' intentions behind each policy movement to identify exogenous components in policy shifts.

Shu and Ng (2010) and Sun (2013) apply the narrative approach to China's case and study the PBC's documents.[5] In particular, Shu and Ng (2010), following Brunner and Meltzer (1964) and Boschen and

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[2] This differs from the single-instrument monetary policy framework adopted in many advanced economies, where their monetary policy is often measured with that single instrument.

[3] For example, the PBC launches discrete specific central bank lending schemes and window guidance to address the structural imbalance and financial instability problems in China. For more discussion, please refer to Sun (2013, 2014).

[4] This approach has been applied in studies on the effect of fiscal policy as well (see, e.g., Alesina, Favero, and Giavazzi 2012, Ramey 2011, Ramey and Shapiro 1998, Romer and Romer 2010).

[5] Another approach used to address the PBC's policy measurement problem is to use quantitative information of time series by considering the PBC's instrument set, as in He and Pauwels (2008) and Xiong (2012). Rather than directly measuring the

Mills (1995), build a time series to gauge the general monetary policy condition in China as tight, neutral or easy; Sun (2013), in the spirit of Romer and Romer (1989), identifies three exogenous contractionary monetary policy episodes[6].

In this paper, we apply the narrative approach in Section 2, reading two sources of the PBC's documents, to build a time series of five-value index for the period of 2000-2014. This policy indicator measures the overall monetary condition in China as "very easy", "easy", "neutral", "tight" or "very tight". Our index complements and extends the Shu-Ng narrative index, which covers the sample 2001-2008. In addition, these two indices involve authors' independent reading and interpretation of the PBC's documents. A comparison of them works as cross verification. We find that they conform well: the correlation is 0.91. This high level of agreement lends support for the narrative approach in terms of consistency of interpretation.

Our narrative-based qualitative policy index measures the PBC's current policy stance in a comprehensive way, considering all kinds of information contained in various quantitative policy instruments as well as those discrete and administrative measures. We code the stance of monetary policy with reference to our classification criteria how the PBC balances the weights on price stability and economic growth. Changes in this indicator reflect the PBC's decisions for shifts in the policy stance, in response to the incoming information on real activity and inflation. Its variations are independent of demand shocks in liquidity/financial markets. This indicator is hence free of endogeneity problems arising with quantitative variables (e.g., an interest rate or a monetary aggregate).

In Section 3, we follow Bernanke and Blinder's (1992) two criteria to assess our narrative indicator. First, a reliable policy indicator should be informative about the state of the economy: it should be able to predict economic activity (see, among others, Bernanke and Blinder 1992, Friedman and Kuttner 1993, Hamburger 1970, McCallum 1991). We study the information content of our narrative indicator in a series of VAR-based tests, and find that its predictive power for economic activity outperforms quantitative policy measures like interest rates and monetary aggregates.

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general monetary condition, both papers examine the over-time changes in the PBC's instruments and measure changes in monetary policy as an expansionary change, no change, and a contractionary change.

[6] Those three episodes are defined as exogenous when the PBC decided for a contractionary shift to fight against higher inflation. The exogeneity comes from the fact that the current inflation is not directly correlated with the level of current and future output, which ensures an unbiased estimate of the policy effect on output even with a simple regression (see Sun 2013).

Second, a policy indicator should react to the PBC's perception of the state of the economy. The extraction process of our narrative indicator, as discussed above, is self-evident: this indicator is coded with reference to how the PBC reacts to its updated information on inflation and growth. Nevertheless, it would be interesting to estimate a Taylor-type policy response function (Taylor 1993) for our narrative indicator. As an alternative, we follow Avery's (1979) approach[7], assuming that the true policy indicator is a latent variable and estimating the PBC's policy reaction function in a state space model.[8] In both cases, we find supportive evidence for our narrative indicator that it responds to lagged inflation and output in a reasonable way.

Finally, in Section 4, we examine the relation between our narrative indicator and other quantitative policy measures.[9] Changes in the policy stance, as measured with our narrative-based qualitative indicator, will be reflected in the subsequent adjustments of the PBC's various quantitative policy measures. We model their relation in bivariate VARs and find that the PBC relies heavily on interest rates and the required reserve ratio (RRR) to realize adjustments in the policy stance, while there is no clear relation between monetary policy and monetary aggregates. However, these interest rates and the RRR cannot be good policy indicators, either, as a substantial amount of variations in them reflects influences from factors other than monetary policy.

Our main findings in this paper are twofold. First, the narrative indicator measures Chinese monetary policy well. Second, the PBC mainly relies on interest rates and the RRR to realize adjustments in the policy stance, while there is no clear relation between monetary policy and monetary aggregates.

## 2. Narrative-Based Qualitative Policy Indicator

We study two sources of the PBC's documents for the period of 2000-2014: "Press Release" on quarterly meetings of the Monetary Policy Committee (MPC) and *China Monetary Policy Report* (a quarterly executive report of monetary policy of China).

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[7] Bernanke and Blinder (1992) adopt this approach, as well, to examine whether the federal funds rate is superior to other measures to gauge monetary policy of the Fed.

[8] Jefferson (1998) applies a latent-variable framework to evaluate Boschen and Mill's (1995) narrative indicator in a slightly different way: he studies the timing and persistence of monetary policy regimes and computes probabilistic measures of the qualitative indicator's reliability.

[9] Boschen and Mills (1995) examine such relation between various narrative indicator and quantitative policy measures for the case of the Federal Reserve.

The MPC was established in July 1997, designated as a consultative body for the policy-making of the PBC, as reflected in its responsibility "to advise on the formulation and adjustment of monetary policy and policy targets".[10] At the moment, it is composed of 15 members. Since 1999, it holds regular quarterly meetings to discuss current policy issues. After each meeting, the PBC discloses main contents of discussion by issuing a short press release, available on the PBC's homepage (in both Chinese and English), though incomplete (available only since 2000). This press release covers the MPC's overviews of current economic conditions and its forecasts for the future, its assessments of current monetary policy and in particular, its suggestion for the future monetary policy is clearly stated and explained. Based on this information, we build a time series of index to describe the current state of monetary condition.

As a cross check, we control our findings from "Press Release" with a comparison to *China Monetary Policy Report*, which is an executive summary of monetary policy and published each quarter by the PBC since 2001. This Report analyzes economic and financial conditions and explains the monetary policy operations. One chapter addresses the PBC's policy intentions for the next period and changes in the policy stance are explained.

Table 1 lists the classification criteria of five-value monetary stance indicator, which are in line with those used by Boschen and Mills (1995). These criteria are based on how the policy-makers balance the weights on different policy goals. At the moment, the PBC's main tasks include: price stability[11], economic growth, and financial stability. The last task is mainly reflected in exchange rate stability. The RMB exchange rate regime[12] requires that the PBC be actively engaged in foreign exchange interventions and the subsequent sterilisation operations. The foreign exchange purchases are first reflected in rises of excess reserves. This resulting excessive liquidity is not necessarily what the PBC wants. The PBC withdraws excessive liquidity through three ways: repo transactions, issuance of central bank bills, and increase of the required reserve ratio (Sun 2014). However, these "sterilization" operations are necessary liquidity management as a result of foreign exchange interventions and say nothing about shifts in the policy stance, as ZHOU Xiaochuan, the PBC's Governor, pointed out

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[10] See the PBC's website: http://www.pbc.gov.cn/publish/english/980/index.html.
[11] The PBC's mandate is defined in the People's Bank of China Act (promulgated in 1995) as "to maintain the stability of the value of the currency and thereby promote economic growth".
[12] In July 2005, China announced to give up its decade-long dollar peg and switch to a managed floating exchange rate regime with a daily movement up to +/- 0.3 percent in bilateral exchange rates. This daily band was extended gradually to the current level (+/- 2 percent).

(Caixin 2012). Hence, our underlying classification criteria focus on the PBC's first two mandates only and are mainly based on how the PBC balances the weights on price stability and economic growth.

**Table 1: The Classification Criteria of Five-Value Monetary Stance Indicator**

| | |
|---|---|
| 2 (Very tight) | Strong emphasis on inflation reduction |
| | "Prevent full-scale inflation"; "Tight monetary policy"; "Restrain the excessive growth of money and credit" |
| 1 (Tight) | Mild emphasis on inflation control, liquidity management and macroeconomic management |
| | "Sound monetary policy featuring a steady and moderate tightening"; "Strengthen liquidity management"; "Strengthen macroeconomic management"; "Curb rapid growth of money and credit"; "moderate tightening" |
| 0 (Neutral) | Normal |
| | "Maintain interest rates and the exchange rate stable"; "The economic condition has a good tendency" |
| -1 (Easy) | Mild emphasis on real growth |
| | "Unfavorable outlook of the world economy"; "Strengthen coordination of monetary policy with fiscal policy"; "Liquidity was appropriate"; "keep close watch on the effects of the too high increase of money supply and credits on the macro economy"; "appropriate money and credit aggregate"; "Appropriately adjust money supply" |
| -2 (Very Easy) | Strong emphasis on real growth |
| | "Moderate (relatively) loose monetary policy"; "Weak economy"; "Critical time for economic development"; "Strengthen financial support for economic growth"; "Promote stable money and credit growth"; "Maintain adequate liquidity"; "Increase support for economic growth"; "Appropriately increase Money supply" |

Notes: Author's summary.

Together with the general description of those criteria, we list some key words that are used to describe either the policy stance or the policy-makers' intentions behind corresponding policy shifts. On the basis of the degree of policy tightness, we assign each quarter an integer value from -2, indicating a strong emphasis on promoting real growth (strong ease), through 2 that indicates a strong policy emphasis on inflation reduction (strong tightening). The emphasis of monetary policy often shifted in stages, those mild emphases on real growth and inflation control are coded with values of -1 and 1, respectively. The value of 0 stands for a neutral monetary policy stance. We present a brief summary of our narrative index in the ensuing paragraphs. The time series table of this index (2000 Q1 – 2014 Q4) is included in the appendix, together with the extracts of remarks from the policy record.

**2000Q1 – 2007Q4: Prudent (easing/tightening) monetary policy.** Quite often, the PBC described its policy as "the prudent monetary policy"[13], especially for the period of 2000Q1 – 2007Q4. Yet, it does not mean there is no change in the policy stance over this period as this term has multi-level

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[13] In Chinese it is "稳健的货币政策"，also translated as "sound monetary policy".

implications. In general, the prudent monetary policy is not a neutral monetary policy. Instead, it refers to an activist policy that "aimed to keep a proper growth rate of money supply under the precondition of preventing financial risks to support the stable and healthy development of the economy" (*China Monetary Policy Report 2010 Quarter IV*: 47). Under a prudent monetary policy, policy might be featuring with either tightening or easing. For example, in *China Monetary Policy Report 2010 Quarter IV* (p. 47) the PBC describes its monetary policy from 1998 to 2007 all as a prudent policy, but for the former period (1998 – 2002), as a prudent easing policy to stimulate domestic consumption and fight against deflation while for the latter period, as a prudent tightening monetary policy to curb excessive investment and tackle inflation.

Our reading of the documents does reveal variations in the policy stance over the period of 2000Q1 – 2007Q4. In particular, the policy stance for the beginning period is well described as either "easy" (-1) or "very easy" (-2) given that the PBC put much emphasis on appropriate finical support for economic growth or "to prevent the economy from a slowdown". Only for 2003Q1 – 2003Q2, the policy stance is identified as "neutral" (0). Afterwards, this prudent monetary policy started to tilt toward tightening. For period 2007Q3 – 2007Q4, the PBC described its policy as a "sound monetary policy featuring with a steady and moderate tightening" to "prevent a shift from a relatively fast growth to an economic overheating". ("Press Release" on the 2007 Quarter II MPC Meeting).

It is likely that both statutory objectives are addressed in the "Press Release". For example, over the period of 2005Q3 – 2007Q2 the MPC continuously put forward to boost consumption demand, "rationalize the relation between investment and consumption" ("Press Release" on the 2005 Quarter II MPC Meeting), and "adjust economic structure and growth model" ("Press Release" on the 2007 Quarter I MPC Meeting). Yet, meanwhile the PBC was aware of the inflationary pressure arising from an economic overheating. Repeatedly, the MPC proposed that "various instruments should be adopted to appropriately control money and credit aggregates" ("Press Release" on the 2006 Quarter I MPC Meeting) "to maintain price stability" ("Press Release" on the 2007 Quarter I MPC Meeting). The main reason for these seemingly conflicting focuses is that Chinese monetary policy has been also used for directing bank loans to solve the structure problem. However, the mandate to maintain price stability has been dominating: the PBC raised interest rates and the required reserve ratio during this period to rein in inflation. The signal is clear. We record a mild tightening policy stance (1) for those quarters.

**2008Q1 – 2012Q4: Monetary policy over the crisis period.** The PBC's monetary policy over this period is identified as easy, tight and easy. In the beginning of 2008, the PBC continued its tight monetary policy to rein in inflation. By the second half of 2008, the financial crisis triggered a worldwide economic slowdown. As a response, the MPC decided to adopt loose monetary policy to "strengthen coordination of monetary policy with fiscal policy[14]" ("Press Release" on the 2008 Quarter III MPC Meeting). By the end of 2010, this easy money engendered high inflationary pressure. The MPC agreed to "give more priority to stabilizing the general price level in 2011" ("Press Release" on the 2010 Quarter IV MPC Meeting). But in 2012, the PBC shifted the focus back on the economic growth and called for "reasonable growth of money and credit … (to) support stable and fairly rapid economic growth" ("Press Release" on the 2012 Quarter I MPC Meeting).

**2013Q1 – 2014Q4: Macroeconomic management.** Over these two years, the PBC has put more emphasis on macroeconomic management through fine-tuning and preemptive adjustment measures in an attempt to balance economic growth, price stability, and risk prevention. The main focus of monetary policy is "to create good monetary conditions for the adjustment of economic structure." ("Press Release" on the 2013 Quarter II MPC Meeting).

Both documents indicate that over the period of 2013Q1 – 2014Q1[15], the PBC "continued to implement the sound monetary policy, neither loosening nor tightening the supply of money" (*China Monetary Policy Report 2013 Quarter III*: II). During this period, the PBC focused on using multiple instruments to maintain an appropriate smooth growth rate of money and credit and promote improvements in the credit structure. We hence record a neutral monetary policy stance (0) continuously for these five quarters. Afterwards, monetary policy stance turned to be "easy" (-1) as the PBC has "actively taken measures to respond to downward pressures and moderate growth in price levels" (*China Monetary Policy Report 2014 Quarter II*: I) by lowering the required reserve ratio (for selected financial institutions) and extending central bank lending.

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[14] The RMB 4 trillion fiscal stimulus package was announced in November 2008.

[15] June 2013 saw a liquidity crunch in Chinese money market. The Interbank Offered Interest Rate (IBOR) rose from 4.6% on June 3 to the peak of 13.2% on June 20; it then fell back to 5.4% by the end of June. Even if we take a monthly weighted average (6.6%), it was clearly higher than its adjacent months – 2.8% (in May) and 3.3% (in July). Yet, this high IBOR did not implicate monetary tightening. Rather, it reflected the PBC's determination to give priority to restructuring and it hence did not react to a rise in the demand for liquidity. We record monetary neutral for June 2013 as well.

**Inconsistency between two sources.** For each quarter, we read both documents – "Press Release" on the MPC's quarterly meetings and *China Monetary Policy Report* – to identify the monetary condition. This cross-check suggests that inconsistency of policy description in these two documents occurred once – 2008 Quarter III. It arises due to the fast spread of the 2008 financial crisis and the different publication time of the two documents. Starting from the second quarter of 2003, the MPC's meeting is held at the end of each quarter to make decision on which policy stance to take in the coming quarter. The policy stance based on the "Press Release" (on the MPC's Quarterly Meetings) is ex ante, while the review of monetary policy operations in *China Monetary Policy Report* provides the information on the actual monetary condition. At the MPC's 2008 Quarter II meeting, the Committee still held the view that there was noticeable inflationary pressure and hence proposed a tightening monetary policy for the coming quarter. Yet, in the second half of 2008, the US subprime mortgage crisis spread quickly. This led to a worldwide economic slowdown. During this quarter, the PBC implemented moderately easing policy[16], as described in *China Monetary Policy Report 2008 Quarter Three*, to keep enough liquidity in the banking system, and to promote steady and faster economic growth. We hence record a relatively loose monetary condition (-2) for 2008Q3 according to the realized policy.

**Figure 1: The narrative policy stance indicator, 2000-2014**
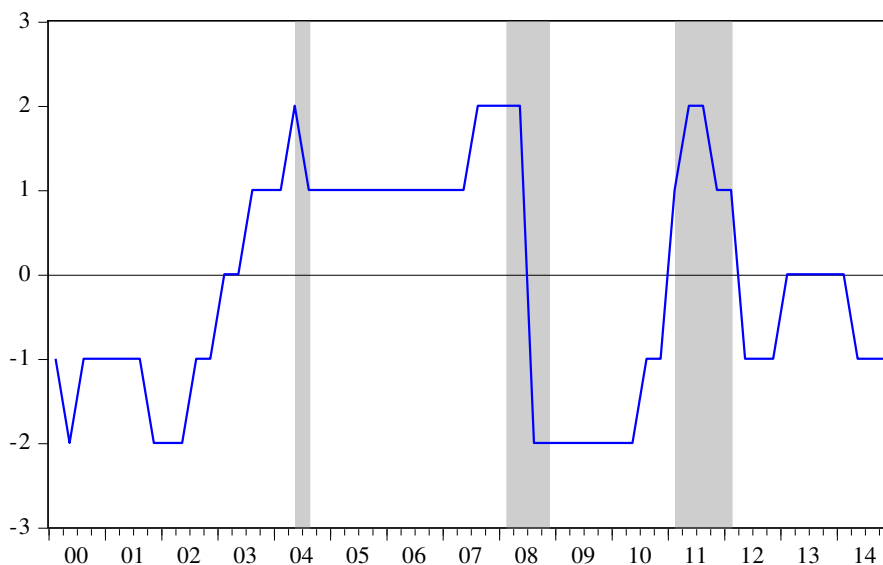


Note: The grey shaded areas are the contractionary episodes, identified by Sun (2013).
Source: Author's compilation and Sun (2013).

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[16] This suggests that Chinese monetary policy in certain sense is implemented with "constrained discretion".

We report our narrative indicator in Fig. 1, together with the Sun (2013) contractionary episodes (in grey shaded areas). Three local peaks in our narrative index – that is, the maximum tightness periods over the period – coincide with the Sun (2013) contractionary episodes when the PBC took various contractionary measures to reduce high inflation.

## 3. Is This Narrative Index a Good Policy Indicator?

We have coded our narrative indicator, based on our interpretation of the PBC's documents, to measure the relative tightness and ease of monetary policy. In this Section, we assess our narrative indicator in two steps. First, if it is a reliable measure of policy, it should "provide information to the policymaker regarding the state of the economy" (McCallum 1991: 4). Or in Bernanke and Blinder's (1992: 903) words, a policy indicator "should be a good reduced-from predictor of major macroeconomic variables". We study the information content of our narrative indicator. Its predictive power is evaluated through comparison with other quantitative policy measures.

To do so, we consider a three-variable VAR of GDP growth[17], inflation, and one of these policy measures. Altogether, six VARs are estimated, corresponding to six different policy measures. Two lags are included, as suggested by the AIC information criterion. Quarterly data are used, obtained from the National Bureau of Statistics and the PBC. The sample period runs from 2000Q1 to 2014Q4.

The five quantitative policy measures[18] include: the lending rate (the PBC's benchmark lending rate[19] with the maturity of one year); the interbank offered interest rate (IBOR[20], an overnight money market interest rate); the RRR; the log difference of monetary base[21] (ΔMB) and the log difference of broad money (ΔM2). They are either the PBC's policy instruments (the lending rate, the RRR), its operating target (the IBOR), or its intermediate target (the M2).

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[17] GDP is a widely accepted comprehensive measure of economic activity. This choice is also partly due to the data availability constraint: in China, employment or unemployment data are not well defined. As an alternative, we tried the same practice with monthly data, measuring economic activity with industrial production (IP), and we came to the same conclusion that our narrative indicator outperformed all other quantitative policy measures in predicting IP.

[18] They are shown in Figs. 3 and 4 in the ensuing Section.

[19] In 2004, the lending-rate ceiling and the deposit-rate floor were abolished. In 2012, the floating band for the lending rate was extended to [0.7, ∞) and that for the deposit rate to (-∞, 1.1]. In July 2013, the lending-rate floor was abolished.

[20] This IBOR is a transaction-based money market interest rate, called CHIBOR, in distinguishing from SHIBOR (LIBOR equivalent, quote-based, introduced in China 2007). CHIBOR has been existing since January 1996.

[21] According to the PBC, monetary aggregates are M0 (currency in circulation), M1 (sum of M0 plus demand deposits) and M2 (the sum of M1 plus savings and time deposits) (see *PBC's Annual Report 2007*).

The Granger-causality tests are reported in the upper panel of Table 2. Each entry shows the *p*-value for the *F*-test that lags of the column policy measure do not enter the reduced-form equation for GDP growth. They present marginal significance levels of seven policy measures for forecasting GDP growth. A small value indicates that the column policy measure variable is important for predicting GDP growth.

**Table 2: Comparison of the information content of policy measures**

*A. Marginal significane levels of policy measures for forecasting GDP growth*

| | Narrative Indicator | Lending rate | IBOR | RRR | ΔMB | ΔM2 |
|---|---|---|---|---|---|---|
| Full sample (2000-2014) | 0.02 | 0.002 | 0.21 | 0.53 | 0.51 | 0.87 |
| 1st subperiod (2000-2006) | 0.009 | 0.23 | 0.23 | 0.20 | 0.77 | 0.65 |
| 2nd subperiod (2007-2014) | 0.038 | 0.043 | 0.92 | 0.013 | 0.54 | 0.87 |

*B. Forecast error variance decompositions of GDP growth (full sample 2000-2014)*

| | Narrative Indicator | Lending rate | IBOR | RRR | ΔMB | ΔM2 |
|---|---|---|---|---|---|---|
| At a 4-Quarter horizon | 6.43 | 5.69 | 3.22 | 1.30 | 1.16 | 0.30 |
| At a 6-Quarter horizon | 8.96 | 4.93 | 6.36 | 1.45 | 3.95 | 0.20 |
| At a 8-Quarter horizon | 9.63 | 6.49 | 8.09 | 3.36 | 6.26 | 0.19 |

Note: The upper panel presents marginal significance levels of seven policy measures for forecasting GDP growth. The lower panel presents the percentages of the variance of the forecasted GDP growth accounted for by variation in the column policy measure at different horizons (see text for explanations). Δ indicates first-differences of logs of the monetary aggregates.

Source: Author's estimation.

The Chow test suggests a break at the end of 2006. This corresponds roughly to the time point when the PBC started to intensively use the required reserve ratio to dry up excessive liquidity. This suggests a possible regime switch around 2006. We hence divide the full sample into two subperiods (2000-2006 and 2007-2014).

The full sample results in Table 2A shows that at a 5% level of significance, only our narrative indicator and the lending rate help predict real economic activity; other policy measures (the IBOR, the RRR and all two monetary aggregates) hardly have predictive power. The *p*-value suggests that the lending rate is slightly superior to our narrative indicator in predicting GDP growth according to the Granger-causality criterion. However, this interest rate loses its superiority in the analysis of subperiods. In the 1st subsample, the narrative indicator is the best predictive variable while all the other five

quantitative variables do not help predict real economic activity. In the 2nd subsample, the narrative indicator remains superior to the lending rate in forecasting GDP growth. Meanwhile, the RRR has been widely used during this subperiod and not surprisingly, its predictive power turns out to be strong as well.

Compared to all other five quantitative policy measures, our narrative indicator is so far the most reliable indicator for real economic activity. Its predictive power is stable, regardless of regime switches. It is hence especially recommended because, the PBC, as a "young" and fast evolving institution, has been experiencing progression of operating procedures.

This superiority of our narrative indicator as an informative variable is further evidenced in the lower panel that presents the percentages of the variance of the forecasted GDP growth at different horizons, attributable to variation in the column policy measure.[22] Clearly, the narrative indicator outperforms all other five quantitative policy measures with the highest contribution in the variance decomposition of GDP growth at all horizons. The variations in the narrative indicator contribute about 6 to 10 percent to the variance of GDP growth. However, in general the variance of economic growth is mainly attributable to its own lags.

Our narrative indicator is informative about the economic condition. The second test is whether it responds to the PBC's perception of the state of the economy. We estimate the systematic responses of the narrative indicator in a three-variable VAR with quarterly GDP growth, inflation and the narrative indicator, two lags included.[23] Fig. 2 shows the responses of the narrative indicator to positive one-standard-deviation shocks to output and inflation. Monetary policy responds quickly to an inflation hike and turns out more contractionary. But this effect dies out quickly. After five quarters, monetary policy is found expansionary. Yet, statistical uncertainty about this result is large. On the other hand, monetary policy is more accommodative to an economic overheating. It responds slowly and turns out a contractionary shift with a two-quarter lag. Despite all these, these two response curves look like plausible reaction functions.

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[22] Due to the limited space, we present the results for the full sample period only.
[23] One potential problem with this VAR specification is that the narrative indicator is treated as a continuous variable. As an alternative, we also try to estimate how it responds to lagged inflation and growth in an ordered probit model and obtain similar response patterns.

**Figure 2: Responses of the narrative index to output and inflation shocks**
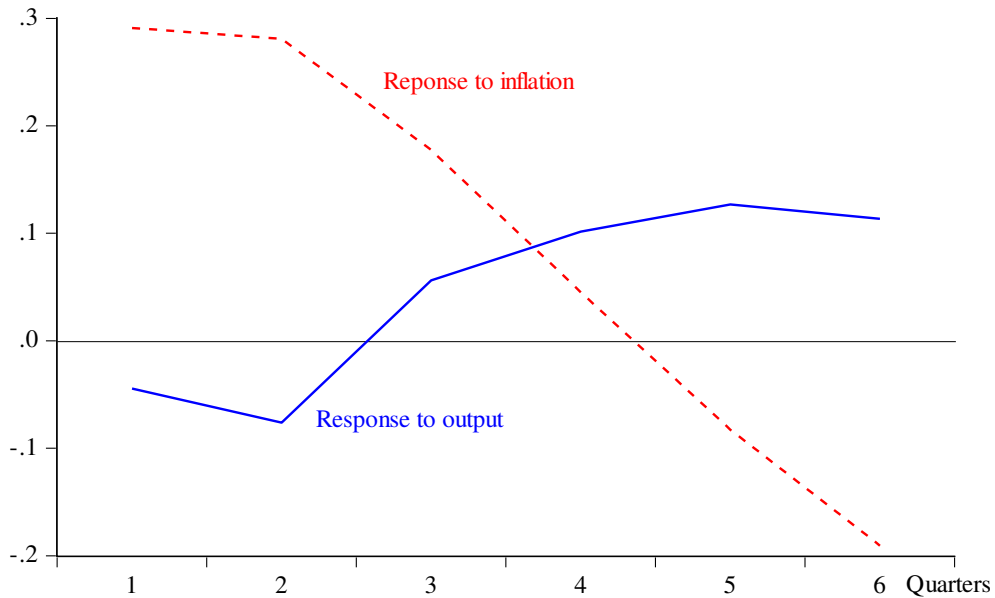


Note: The generalized impulse responses are estimated from a three-variable VAR with the GDP growth, inflation, the narrative index. Source: Author's estimation.

Alternatively, we model the PBC's policy reaction in a MIMI (multiple indicators and multiple causes) framework, as proposed by Avery (1979) (see also Bernanke and Blinder 1992, Jefferson 1998). Avery (1979) argues that no single indicator can fully measure the Fed's policy stance. Instead, he treats the true policy indicator as a latent variable, but can be estimated as it links changes in a set of causal variables that proxy the Fed's mandates and changes in money market indicator variables. We follow his practice to model the PBC's MIMI in a state space model:

$$S = Xc + u \qquad (1)$$
$$Z = Sb' + v \qquad (2)$$

where $\mathbf{S}$ is the true but unobserved measure of monetary policy. $\mathbf{X}$ contains $k$ causal variables. $\mathbf{Z}$ is a vector that includes $m$ monetary policy indicators, such as various interest rates or monetary aggregates. $\mathbf{u}$ and $\mathbf{v}$ are error vector/matrix, independent of explanatory variables.

Eq. (1) is the "state" or "transition" equation. The latent variable $\mathbf{S}$ is assumed to be a linear function of the causal variables $\mathbf{X}$ that include lagged output and lagged inflation. It is the true reaction function. $\mathbf{S}$ is not directly observed, but it is linked to various indicators, as specified in the "signal" or "observation" equation, Eq. (2).

The model is estimated with maximum likelihood techniques over the full sample period 2000Q1 – 2014Q4. The causal variables are the same as in the previously estimated reaction functions: **X** = (two lags of GDP growth, two lags of inflation). We consider three indicators[24]: **Z** = (Narrative indicator, Lending rate, IBOR). All variables are measured as deviations from means, so no constant term is included.

Our narrative indicator is modelled as an observable policy indicator as well. In the previous Section, we built the time series of our narrative indicator. Yet, it does not mean that the policy stance information it contains is not observable. Rather, this information is publically announced: quite often the press release is top news on public media.

As the latent indicator S is unsigned, we normalize coefficient on S of "Narrative indicator" in Eq. (2) and hence an increase in S represents a contractionary policy shift. The estimated reaction function coefficients of Eq. (1) are reported in Table 3, together with joint chi square tests. Consistent with theoretical predications, an economic slowdown loosens policy; increased inflation of the last quarter tightens it, though the response to a rise in inflation of two quarters ago has wrong sign. It seems that the policy reaction to a rising inflation rate is immediate but transitory, as we find in the previous VARs. The joint chi square test suggests that economic growth and inflation both play significant role in policy determination, although individual tests for these two driving factors speak more in favor of economic growth.

**Table 3: Estimated (latent indicator) reaction function to the state of the economy**

| | Coefficient estimates | Joint chi square |
|---|---|---|
| $\Delta Y(-1)$ | 0.10 | 7.61** |
| $\Delta Y(-2)$ | 0.16 | |
| $\pi(-1)$ | 0.39 | 5.03** |
| $\pi(-2)$ | -0.26 | |

(Joint chi square overall: 11.83**)

Note: $\Delta Y$ and $\pi$ are real GDP growth and inflation (see text for explanations). The table reports the effects of $\Delta Y$ and $\pi$ on a latent indicator of monetary policy. * and ** indicate that a null hypothesis of zero is rejected at the 10 percent and 5 percent level, respectively.
Source: Author's estimation.

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[24] We consider two interest rates plus our narrative indicator, rather than all six indicators discussed in the previous sections. As argued by Bernanke and Blinder (1992), a complicated version of this model (e.g., including too many indicators) could result in rejected models. It is indeed our concern: when we try models with more signal variables incorporated, the overidentification restrictions are always strongly rejected.

Besides this response pattern, we are interested in the comparison of different signal indicators. To do so, we follow Bernanke and Blinder's (1992) approach to compare how closely each policy indicator resembles our estimates of the latent-variable measure of monetary policy (S). We check the correlations between the fitted values of S and each observable policy indicator. These correlations are 0.6 for the narrative indicator, 0.53 for the lending rate, 0.10 for the IBOR, 0.13 for the RRR, and 0.03 for ΔM2. Thus, the narrative indicator is closely tied to monetary policy, followed by the lending rate. The links of the money market interest rate and the RRR with monetary policy are both quite low, while the growth rate of broad money is hardly connected with monetary policy.

A clear overall message from our various tests in this Section can be drawn: (i) The PBC has been following the policy to "lean against the wind"; (ii) Compared to other quantitative policy measures, our narrative indicator is a good indicator of the PBC's monetary policy actions.
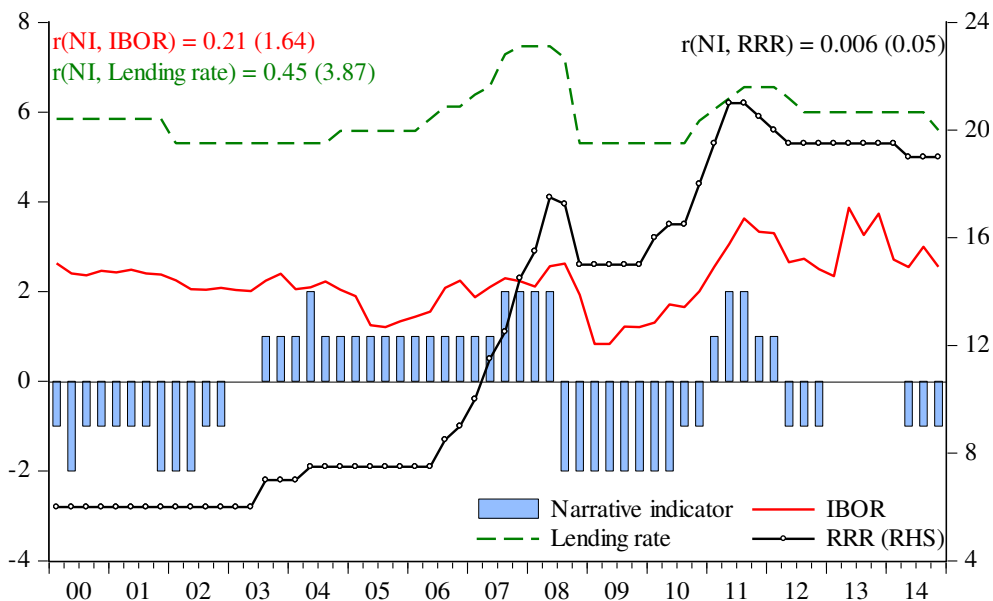
## 4.  Relation between Our Narrative Indicator and Quantitative Policy Measures

Shifts in the policy stance are realized though adjustments in policy instruments. In this Section, we check the relation between our narrative indicator and these five quantitative policy measures discussed above. The question underlying these tests is whether we can find a quantitative policy measure that is closely related to our narrative indicator such that it can proxy the policy indicator.

We plot these five quantitative policy measures and our narrative indicator in Figs. 3 and 4 for the period of 2000Q1 – 2014Q4, together with the calculated correlations and their $t$-statistics. Two interest rates and the RRR are shown in Fig. 3. It appears that changes in the policy stance are associated with adjustments of the lending rate, while the co-movement pattern between the narrative indicator and the IBOR is less apparent. Meanwhile, in August 2003 the PBC started to incorporate an active use of the RRR into its toolkit. The policy contractionary and expansionary changes are accompanied with hikes and drops of this ratio. Yet, since the middle of 2006 changes in the RRR have become more frequent as the PBC started to use it as a "sterilization" tool (Sun 2014). It turns out that not all of these adjustments are necessarily accompanied with changes in the policy stance. For example, within one year (starting from mid-2006) the PBC continuously raised the required reserve ratio in six steps. Yet, its policy stance remained unchanged over this period: slightly tight. Indeed, changes in the RRR are

"not necessarily indicative of monetary easing or tightening, but are more related to the management of foreign exchange reserves", as pointed out by ZHOU Xiaochuan (Caixin 2012).

**Figure 3: The narrative policy stance indicator and three selected policy instruments**



Notes: The correlations between the narrative indicator (NI) and various quantitative policy measures are reported as r(NI, ?), with *t*-statistic in the parentheses.
Source: Author's compilation and the PBC's statistics dataset.

**Figure 4: The narrative policy stance indicator and two monetary aggregates**
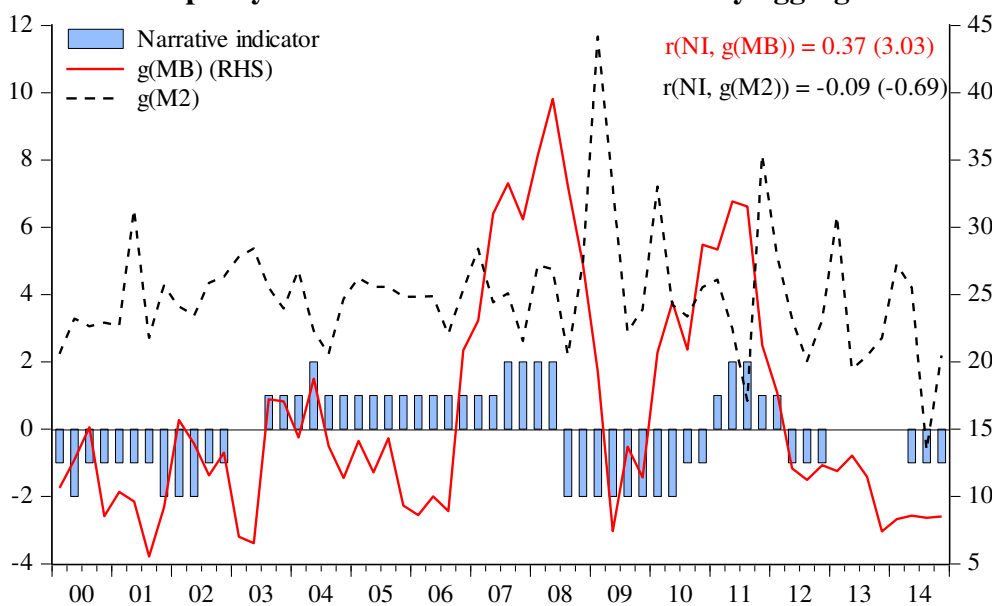


Notes: g(MB) and g(M2) are growth of MB and M2, respectively. See notes of Fig. 3.
Source: Author's compilation and the PBC's statistics dataset.

These observed relation patterns are further confirmed by their correlations with the narrative indicator, as shown in the Figure. These correlations are 0.45 for the lending rate, 021 for the RRR and 0.006 for the RRR, of which only the correlation with the lending rate is statistically significant. Possibly, the policy instruments follow changes in the policy stance with some lag. If we take this into consideration and compute the dynamic correlations (not shown in the paper), we come to the same conclusion. It seems that contractionary policy shifts are closely followed by rising lending rates with a one-quarter lag: the highest correlation (0.60) is found between this interest rate and the narrative indicator of one lag, while other two correlations are not much improved.

Analogously, Fig. 4 plots two monetary aggregates: growth of MB and M2. These two time series are much more volatile. Hardly, any clear relation patterns can be detected. But the correlation suggests that our narrative indicator is significantly positively correlated with base money, though the theory predicts the opposite. Possibly, this positive correlation is due to the fact that in China the RRR is intensively used as a liquidity management tool. The PBC raises this ratio in a contractionary policy shift to absorb excessive liquidity in the banking system. It leads to an increase of required reserves that banks hold at the PBC, and hence a rise of base money [25] (Sun 2014). This hike is driven by a rising ratio of required reserves in base money and it does not indicate a surge of liquidity. Indeed, we find that broad money M2 is negatively correlated with our narrative indicator, though insignificantly.

We further estimate the relation between our policy indicator and the money market variables using a bivariate VAR model, $(NI_t, MM_t)$, which contains our narrative policy indicator NI and one of quantitative variables MM. We run five VARs. Four lags are included, as the (Akaike) information criterion suggests.

Table 4 summarizes the Granger-causality statistics for these five bivariate VARs. It reports the *p*-value of each *F*-test on the null hypothesis that the coefficients of all the lags of a given column variable are jointly zero in the reduced-form equation for the row variable. That is, the first row tests whether there exists a predictive relationship running from quantitative policy measures to our narrative indicator, while the second row tests the reversed Granger-causality that runs from measured monetary policy to quantitative policy variables.

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[25] It is the sum of the currency in circulation and the total reserves that banks hold at the central bank.

**Table 4: Joint significance tests in the bivariate VARs**

| | *p- values for* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **dependent vairalbe** | NI | Lending rate | NI | IBOR | NI | RRR | NI | ΔMB | NI | ΔM2 |
| **NI** | - | 0.128 | - | 0.631 | - | 0.743 | - | 0.784 | - | 0.415 |
| **MM** | 0.000 | - | 0.000 | - | 0.013 | - | 0.313 | - | 0.263 | - |

Note: The entries show the *p*-values for *F*-tests that lags of the column variables do not enter the reduced-form equation for the row variable labelled "dependent variable". Those *p*-values smaller than 0.05, highlighted in grey, suggest that the corresponding null hypotheses must be rejected at the 5-percent level of significance.

NI stands for our narrative policy stance indicator and MM for a quantitative policy measure variable, including the lending rate, the IBOR, the RRR, ΔMB and ΔM2.

Source: Author's estimation.

Clearly, our narrative indicator is never Granger-caused by these five quantitative measures. But the reversed Granger-causality exists: at the 5 percent significance level, lags of our narrative indicator help to predict the RRR, the lending rate and the IBOR. However, such a relation does not prevail for two monetary aggregates: lags of the narrative indicator do not help explain ΔMB nor ΔM2. Compared to three policy instruments, monetary aggregates are less closely linked with the policy stance.

We focus on the generalized impulse response function (IRF)[26] (Pesaran and Shin 1998) of our bivariate VAR models. In so doing, we avoid proposing the ordering assumption[27] (known as Cholesky decomposition in the VAR literature) on the contemporaneous relationship between our narrative policy indicator and these quantitative indicators. This Cholesky decomposition approach is widely applied in the VAR literature, but both impulse responses and forecast error variance decompositions are not invariant to the ordering of the variables. In our case, we use quarterly data and such an ordering assumption would be difficult to justify.

Fig. 5 shows the generalized responses of quantitative variables to a one-unit positive shock in our narrative indicator.[28] Our analysis focuses more on qualitative comparison of their response patterns, rather than quantitative comparison of their response magnitudes, as variations in these five quantitative policy measures are remarkably different and it will not be surprising that their response magnitudes vary a lot as well. The responses of the RRR and two interest rates display the same basic pattern: policy innovations are consistently associated with subsequent movements in these instruments.

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[26] It is *general* (not orthogonalized) because it is invariant to the ordering of the variables in the VAR.

[27] That is, it assumes that the variable ordered first in the VAR is contemporaneously unaffected by all other variables.

[28] The confidence intervals of all the estimates are not reported to keep the figures readable.

The PBC's decisions for a contractionary shift are followed by its actions to raise both the RRR and the interest rates. These three instruments respond rapidly, rise quickly to the peak (two or three quarters after the initial policy shock). The two interest rates response dampens out slowly (in about two years), while the required reserve ratio remains high.

**Figure 5: Responses of the five quantitative policy measures to a contractionary policy shock**
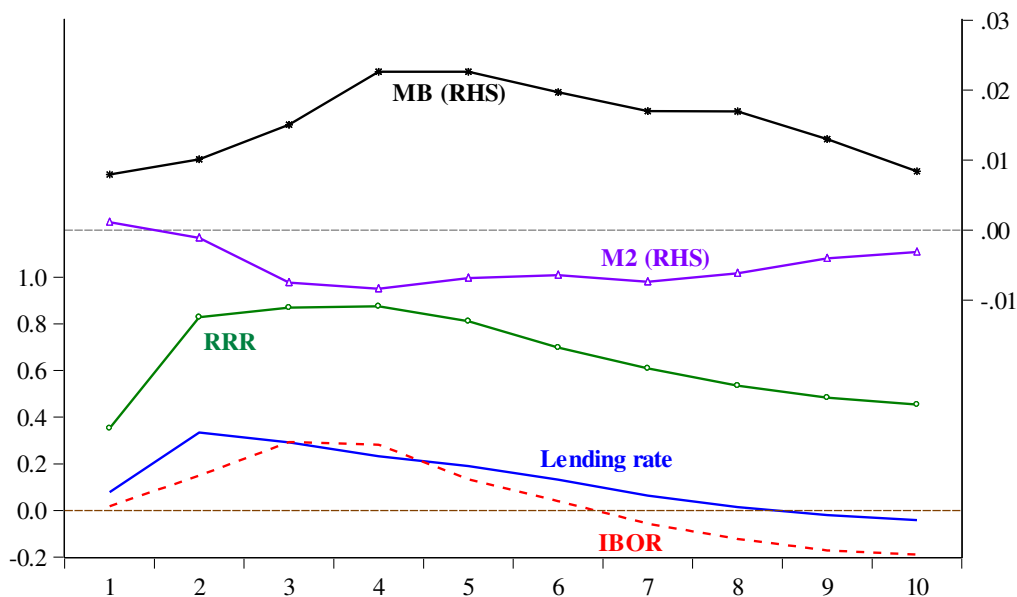


Note: The generalized impulse responses are estimated from five bivariate VARs (see text for explanations).
Source: Author's estimation.

The cumulative responses of MB and M2[29] are reported in the graph as well. The point estimates suggest that rather than falling, base money rises after a contractionary shift, which is in contrast to the theoretical prediction but consistent with what we found with the correlations. As pointed out, this hike in the MB is attributable to a rise of the RRR in response to a contractionary policy shock, which is evidenced by the RRR response function in the same Figure. It does not indicate an increase in liquidity: broad money M2 is declining, though slowly with a two-quarter delay.[30]

All the above analysis indicates that the PBC's policy intentions are closely followed by actions. Our narrative indicator is more closely related with policy instruments, compared with monetary aggregates. Are the policy decisions the major driving force for the observed changes in the quantitative indicators,

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[29] In the bivariate VAR model, the monetary aggregates are included in the log-first-difference form. Hence, we display their cumulative responses to the innovation in the policy stance, which measure the percentage increases in the level of the monetary aggregates.

[30] The statistical uncertainty about these estimates is large: estimated cumulative responses of both the MB and M2 are not significantly different from zero at all horizons.

at least these three policy instruments? To answer this question, we study the forecast error variance decompositions from our bivariate VARs. Table 5 reports the percentage of forecast error variance in these five quantitative measures at different horizons that is attributable to the innovation to the narrative policy stance. Consistent with what we find above based on other exercises, monetary policy innovations do not play a significant role in explaining the variation in monetary aggregates at all horizons. For M2, the maximum explained portion is 10 percent at the four-quarter horizon, while policy decisions have even smaller impact on base money. Apparently, a substantial amount of variation in this narrow money is caused by non-policy factors, such as the use of the RRR as a "sterilization" tool, as discussed above.

**Table 5: Variance Decompositions: Impact of monetary policy on quantitative variables**
(Percentage of n-step ahead forecast error variance due to a monetary policy innovation)

| Explaining | Horizon | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1-quarter | | 2-quarter | | 4-quarter | | 8-quarter | |
| Lending rate | 6.79 | (6.64) | 42.88 | (11.07) | 44.48 | (15.24) | 44.29 | (17.09) |
| IBOR | 0.17 | (2.83) | 7.93 | (7.89) | 35.85 | (13.53) | 36.08 | (13.04) |
| RRR | 21.12 | (9.61) | 38.76 | (11.75) | 37.76 | (14.91) | 29.13 | (18.05) |
| ΔMB | 2.64 | (4.42) | 2.80 | (5.20) | 5.92 | (6.93) | 4.68 | (6.81) |
| ΔM2 | 0.30 | (2.83) | 1.39 | (5.30) | 9.19 | (8.36) | 8.71 | (8.40) |

Note: The forecast error variance decompositions are computed from five bivariate VARs (see text for explanations). The numbers in parentheses are the Monte Carlo standard errors obtained after 500 repetitions. Those estimates that are significantly different from zero at the 5-percent level of significance are highlighted in grey.
Source: Author's estimation.

On the contrary, policy innovations explain much more of the variations in three policy instruments. Most notably, the fraction of explained lending rate variance rises quickly to 43 percent at the two-quarter horizon and remains at this high level afterward. Similarly, monetary policy tends to explain more variance in the IBOR at longer horizons as well, though quantitatively, the explanatory power for this money market interest rate is slightly smaller, about 36 percent at the peak. Interestingly, the RRR variance decomposition displays a different timing pattern. At the one-quarter horizon, the narrative indicator already explains over 20 percent of the variation in this reserve ratio. At the three-quarter horizon (though not shown in the table), this explanatory power almost doubles to the peak. However, the explanatory power of monetary policy for these three policy instruments is in general limited. The

explained portion never exceeds 50 percent. It seems that a substantial amount of quarterly variation in these variables is not associated with monetary policy innovations.

All our analyses in this Section suggest weak links between monetary policy and money aggregates. Although we find positive evidence for three policy instruments, their links with policy are limited. A large portion of changes in these instruments reflects impacts of other factors, rather than monetary policy. Hence, none of them can replace our narrative indicator to gauge Chinese monetary policy.

## 5. Conclusion

Our main findings have been amply discussed throughout the paper. In brief, we show that our new narrative indicator is a good indicator of monetary policy actions. Also, we find that the changes in the policy stance, as measured with our qualitative narrative-based policy indicator, are reflected in the subsequent adjustments of the PBC's policy instruments. Not surprisingly, these quantitative policy measures predict future real activity as well. However, their predictive power is not consistent and reliable, possibly because the weight that the PBC attached to different policy tools has been changing. None of them is such a dominant policy instrument that it can be consistently used as a good measure of Chinese monetary policy. There is also no clear trend that the PBC is going to switch to a single-instrument policy regime. Rather, the PBC seems to be determined to stick to this multiple-instrument monetary policy regime given multiple tasks that it is facing and the demand for macroprudential policy management. Therefore, it is still necessary to take into account various policy instruments in a comprehensive way in order to measure Chinese monetary policy. Our qualitative measure, based on the narrative interpretation of the PBC's policy intentions, is a solution.

# Appendix A: Monetary Policy Stance

| Period | Indicator | Remarks from Press Release (on Quarterly Meetings of Monetary Policy Committee) |
|---|---|---|
| 2000q1 | -1 | Play a bigger role to balance the relationship between economic growth and financial stability. |
| 2000q2 | -2 | Increase the support for the economic growth. Appropriately increase the money supply. |
| 2000q3 | -1 | Strengthen and develop the good momentum of the economic recovery while keeping watch on the macroeconomic effects of high growth of money supply. |
| 2000q4 | -1 | Further contribute to the economic recovery, but meanwhile keeping watch on the fast increase in money supply and credits. |
| 2001q1 | -1 | Appropriately increase money supply, increase the support for economic growth. While trying to prevent deflation, ... keep alert to inflation. |
| 2001q2 | -1 | Keep on increasing the domestic demand. Keep the stable growth of money supply. Strengthen the credit supervision. |
| 2001q3 | -1 | Stimulate the domestic demand. Maintain the appropriate increase of money supply: Keep the interest rates stable. |
| 2001q4 | -2 | Keep an appropriate increase of money supply, ... support the expansionary fiscal policy to prevent the economy from a slowdown. |
| 2002q1 | -2 | Strengthen the support for economic development to prevent further economic slowdown. |
| 2002q2 | -2 | Increase the money supply so as to strengthen financial support to economic development. |
| 2002q3 | -1 | Sound monetary policy. Appropriately adjust the money supply. Maintain interest rates stable. |
| 2002q4 | -1 | Sound monetary policy. Adjust the money supply appropriately and accordingly. |
| 2003q1 | 0 | Maintain interest rates and the exchange rate stable. The economic condition has a good tendency. Strengthen the credit management. |
| 2003q2 | 0 | Sound monetary policy, ... ensured timely provision of financial services for SARS prevention activities. |
| 2003q3 | 1 | Keep the interest rates and the exchange rate stable. Closely monitor rapid credit growth. Strengthen credit risk early-warning and surveillance arrangement. |
| 2003q4 | 1 | Good momentum of economic and financial development. Faster-than-desired growth of money supply and credit. Prevent new credit risks. |
| 2004q1 | 1 | Maintain the interest rates stable. Adjusted the total amount of money and credits and their structure, ... keep alert to inflation. |
| 2004q2 | 2 | Strengthen macroeconomic and financial management. Properly control money and credit growth, ... no tolerance in preventing inflation and financial risks. |
| 2004q3 | 1 | The strong growth momentum of money supply and loans had been reined in. The Chinese economy in general was in good shape. Macroeconomic management. |
| 2004q4 | 1 | Meet the requirements of strengthened macroeconomic control, … continue to appropriately mange the money and credit aggregate. |
| 2005q1 | 1 | Further improve financial macro adjustment. Manage the liquidity of the financial system in a timely and appropriate manner. |
| 2005q2 | 1 | Inflationary pressures had not yet to be eased fundamentally. Further strengthen macro financial management. |
| 2005q3 | 1 | Improve macro financial adjustment to ensure price stability and healthy economic development. Rationalize the relationship betw. investment and consumption. |
| 2005q4 | 1 | Strengthen preemptive and fine-tuning measures. Coordinate macroeconomic policies, boost consumption demand, … and realize sustained growth and price stability. |
| 2006q1 | 1 | Pressures on a rebound in fixed-asset investment growth. Coordinate macroeconomic policies. Appropriately control and adjust money and credit aggregates. |
| 2006q2 | 1 | Strengthen macroeconomic management to ensure a continuously steady development of Chinese economy as well as a basic stability of the price level. |
| 2006q3 | 1 | Strengthen the liquidity management. Prevent an excessively rapid growth of money and credit. Properly control the scale and pace of mid- and long-term lending. |
| 2006q4 | 1 | The economic situation was broadly favorable. Strengthen the liquidity management of banking system. |
| 2007q1 | 1 | Strengthen banking liquidity management to …maintain price stability. Keep money and credit growth at an appropriate level. |
| 2007q2 | 1 | Enhance macroeconomic management. Strengthen liquidity management … to maintain price stability. Properly control the growth of money and credit. |
| 2007q3 | 2 | Sound monetary policy featuring with a steady and moderate tightening. Prevent a shift from a relatively fast growth to an economic overheating. Maintain basic stability of the price level. |
| 2007q4 | 2 | Sound monetary policy featuring a steady and moderate tightening. More-than-desired expansion of credit. Building-up of inflationary pressures and rising assets prices. Keep money and credit grow at reasonable speed. |

# Appendix A (continued)

| Period | Indicator | Remarks from Press Release (on Quarterly Meetings of Monetary Policy Committee) |
|---|---|---|
| 2008q1 | 2 | Tight monetary policy. Prevent shifts from a relatively fast growth to an economic overheating and from structural price rise to full-scale inflation. Strengthen liquidity management. Restrain the excessive growth of money and credit. |
| 2008q2 | 2 | Tight monetary policy. Prevent excessive increase of general price. Curb excessive growth of money and credit. Retrain the excessive growth of money and credit. |
| 2008q3 | -2 | Moderate loose monetary policy. Keep enough liquidity in the banking system. Strengthen support to economic growth. |
| 2008q4 | -2 | The outlook of the global economy was unfavorable, and proper measures should be taken accordingly. Strengthen coordination of monetary policy with fiscal policy. |
| 2009q1 | -2 | Moderately loose monetary policy. Greater financial support to economic growth. Maintain adequate liquidity and promote the stable money and credit growth. |
| 2009q2 | -2 | Relatively loose monetary policy. Stimulate domestic demand. |
| 2009q3 | -2 | Relative loose monetary policy. Critical time for the stability and recovery of the Chinese economy. |
| 2009q4 | -2 | Relatively easy monetary policy. Increase the contribution of domestic demand (household consumption) to economic growth. |
| 2010q1 | -2 | Relatively easy monetary policy. Keep good control of the growth rates of money and credit so as to avoid big swings. |
| 2010q2 | -2 | Relatively easy monetary policy. Maintain adequate liquidity in the banking system and guide reasonable increase of money and credit supply. |
| 2010q3 | -1 | Relatively easy monetary policy. The liquidity in the banking system was appropriate. |
| 2010q4 | -1 | Relatively easy monetary policy, ... facing a hard task on how to manage the inflation expectations. |
| 2011q1 | 1 | Give more priority to stabilizing the general price level in 2011. Control liquidity and bring the monetary and credit conditions back to a normal state. |
| 2011q2 | 2 | Prudent monetary policy. Keeping price stability is top priority of macro management. Manage the liquidity and keep money and credit at a reasonable level. |
| 2011q3 | 2 | Prudent monetary policy. Manage the liquidity. |
| 2011q4 | 1 | Prudent monetary policy. Manage the liquidity. |
| 2012q1 | 1 | Prudent monetary policy. Macro-prudential policy measures will be employed to make counter-cyclical adjustment. |
| 2012q2 | -1 | Sound monetary policy. Play a counter-cyclical adjustment role to guide reasonable growth of money and credit. ... support stable and fairly rapid economic growth. |
| 2012q3 | -1 | Sound monetary policy. Guide an appropriate growth rate of money and credit ... to contribute to economic growth. Strength fine-tunings and preemptive adjustments. |
| 2012q4 | -1 | Sound moentary policy. Guide an appropriate smooth growth rate of money and credit. Improve financial services and better support the real economy and hence promote GDP smooth and faster developments. |
| 2013q1 | 0 | Sound monetary policy to balance among maintaining stable growth, adjusting economic structure, containing inflation and preventing risks. |
| 2013q2 | 0 | Sound monetary policy to maintain policy continuity and stability. Maintain a stable monetary environment. |
| 2013q3 | 0 | Sound monetary policy to maintain policy continuity and stability, guide appropriate growth of money supply and credit. MPR 2013-3: The PBC continued the sound monetary policy, neither loosening nor tightening the supply of money. |
| 2013q4 | 0 | Sound monetary policy. Create good monetary conditions for the adjustment of economic structure, upgrading and transformation of the economy. |
| 2014q1 | 0 | Sound monetary policy. Maintain appropriate liquidity, guide money and credit aggregates to grow at a proper pace. Optimize the financing and credit structure. |
| 2014q2 | -1 | Sound monetary policy. "The PBC has actively taken measures to respond to downward pressures and moderate growth in price levels" (MPR 2014-2: II). |
| 2014q3 | -1 | Sound monetary policy. "The PBC has taken measures to respond to the downward pressures and the moderation in price inflation" (MPR 2014-3: I). |
| 2014q4 | -1 | Sound monetary policy. Keep liquidity at appropriate levels. Improve efficiency and build stronger capacity to serve the real economy. |

Note: MPC meeting used to be held at the beginning of the quarter (2000Q1 – 2003Q1). We code the statement of monetary policy stance as the contemporary quarter. Yet, starting with 2003Q2, the meeting is rescheduled to be held at the end of the quarter and the emphasis is shifted to pin down the monetary policy stance for the coming quarter. We thus start to code the policy stance, for example, of 2003 Q3, based on the new release of 2003 Q2's MPC meeting.

Source: The PBC's News Release (on MPC Quarterly Meetings): 2000Q1 – 2012Q4, with the author's extraction.

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