



## Dual-track interest rates and the conduct of monetary policy in China

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### ABSTRACT

China has a dual-track interest-rate system: bank deposit and lending rates are regulated while money and bond rates are market-determined. The central bank also imposes an indicative target, which may not be binding at all times, for total credit in the banking system. We develop and calibrate a theoretical model to illustrate the conduct of monetary policy within the framework of dual-track interest rates and a juxtaposition of price- and quantity-based policy instruments. We show the transmission of monetary policy instruments to market interest rates, which, together with the indicative credit target in the banking system, ultimately are the means by which monetary policy affects the real economy. The model shows that market interest rates are most sensitive to changes in the benchmark deposit interest rates, significantly responsive to changes in the reserve requirements, but not particularly reactive to open market operations. These theoretical results are verified and supported by both linear and GARCH models using daily money and bond market data. Overall, the findings of this study help us to understand why the central bank conducts monetary policy in China the way it does, using a combination of price and quantitative instruments with differing degrees of potency in terms of their influence on the cost of credit.

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### 1. Introduction

The conduct of Chinese monetary policy is little understood by observers of the Chinese economy. Unlike in the advanced market economies, where monetary policy typically has one target and one instrument, the monetary policy framework in China is regarded as having multiple targets and multiple instruments. However, it is unclear through which channels the instruments operate to impact the target variables. It is also unclear how the price- and quantity-based instruments are chosen or combined to influence the availability and/or cost of credit.

The key to understanding China's monetary policy framework is the “dual-track” interest-rate system: on the one hand, bank deposit and lending rates are regulated by the central bank (imposition of a deposit-rate ceiling and a lending-rate floor); on the other hand, interest rates in the money and bond markets are market-determined (Porter & Xu, 2009)<sup>1</sup>. This system is considered to be part of the process of transitioning from planned to market economy and is consistent with China's overall approach to economic reform. At the heart of China's gradualist approach to economic reform is the dual-track price system: prices at the margin are allowed to be set by market forces, while a large segment of the demand and supply system continues to function on the basis of controlled prices (Qian, 1999). The controlled or regulated sector shrinks over time, and the whole system gradually becomes market-based. During the transition process, regulated and market prices interact with each other in a complex fashion: while changes in the regulated prices invariably affect market prices, due to the forces of arbitrage, movements in market prices

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<sup>1</sup> There are still a few regulations on yields at issuance in the bond market. For example, a corporate bond cannot yield over 40% more than the term deposit rate at the same maturity. However, these regulations have not been binding, as markets have resorted to other instruments that do not fall under the regulation (Wu, 2011). Therefore, wholesale interest rates are basically market-determined in the money and bond markets.

also provide useful information to the authorities who set the regulated prices about changes in the underlying condition of demand and supply.

The objective of this paper is to provide a framework that enables a better understanding of the conduct of monetary policy in China under the dual-track interest-rate system and a juxtaposition of price-based and quantity-based policy instruments. We model the transmission of monetary policy instruments to market interest rates, which we take as indicators of monetary conditions and the cost of credit and which, together with an indicative quantitative credit target in the banking system, ultimately are the means by which monetary policy affects the real economy.

The existing literature on China's monetary policy typically focuses on various weaknesses of the financial system and evaluates links between monetary policy and macroeconomic performance (Qin, Quising, He, and Shiguo (2005), Geiger (2006), Laurens and Maino (2007), Dickinson and Liu (2007), Fan and Zhang (2007), He and Pauwels (2008), Shu and Ng (2010), among others). Although many studies point out that regulated interest rates might hamper monetary policy transmission, few studies pay attention to how the transmission works under the dual-track system. Empirical models employed in those studies either assume that the transmission mechanism in China is the same as in advanced economies or simply treat it as a black box.

However, three recent studies do pay explicit attention to the transmission mechanism of monetary policy under regulated interest rates. Feyzioglu, Porter, and Takats (2009) study the behavior of Chinese banks under regulated interest rates and argue that interest-rate liberalization will likely result in higher interest rates. Porter and Xu (2009) construct a stylized model of China's interbank market, based on Freixas and Rochet (2008), and argue that raising the regulated lending rate will lead to a rise in the interbank rate but that raising the regulated deposit rate will instead lead to a fall in the interbank rate, provided the deposit-rate ceiling is binding and the lending-rate floor is not binding. Chen, Chen, and Gelach (2011) extend the theoretical work of Porter and Xu (2009) and show that regulated deposit and lending rates either have a negative impact, or have no impact, on the interbank rate. This result is troubling because it implies that regulated interest rates are not effective as monetary policy instruments in China. The result may however be due to the particular structure of the model, which is a partial-equilibrium model that does not take into account interactions between the banking sector and the money and bond markets.

In this paper, we develop a theoretical model based partly on Porter and Xu (2009) and Chen et al. (2011) and extend their earlier analyses by taking into account money flows between the banking sector and bond market. Our new model shows that monetary policy instruments work reasonably well in the dual-track system, in the sense that their effects on the cost of credit are predictable both qualitatively and empirically. We conduct a simple calibration of the theoretical model to compare the relative potency of various policy instruments. We then estimate two empirical models to test the predictions of the theoretical model.

The theoretical model shows that raising the deposit-rate ceiling would lead to a rise in market rates if the deposit-rate ceiling is binding and the lending-rate floor is non-binding. Under this scenario, the lending-rate floor has no impact on market rates because moving the floor would not affect market equilibrium. Raising the Reserve Requirement Ratio (RRR) will also lead to a rise in market rates, as will issuing Central Bank Bills (CBB). The calibration under this scenario shows that the impact of changing the deposit-rate ceiling is approximately twice as large as the impact of changing the RRR, which in turn is much larger than the impact of changing the issuance rate for central bank bills.

The empirical section of this study aims to test the prediction of the theoretical model and the calibration. To do so, we employ daily data from the interbank market, covering the period 30 October 2004 to 15 November 2010. The empirical results are consistent with the predictions of the theoretical models and the calibration: changes in regulated interest rates and other policy instruments have predictable effects on market interest rates. For the People's Bank of China (PBC), setting the benchmark deposit rate is the most powerful instrument for influencing market rates, and setting the RRR is the second in line. The relative potency of setting the benchmark deposit rate versus the RRR is not fixed over time but depends on the supply elasticity of deposits. However, setting the issuance rate for central bank bills does not have a significant impact on market rates, presumably due to the relatively small weight of such bills in the PBC balance sheet.

The rest of the paper is organized as follows. The next section briefly reviews China's monetary policy framework and describes the structure of the interbank bond markets. Section 3 derives the theoretical model and discusses two scenarios under the framework. A simple calibration is conducted to compare the relative potency of various policy instruments. Section 4 discusses specifications of the empirical models and estimation strategy. Section 5 reports and discusses estimation results. Section 6 concludes the paper.

## 2. Institutional background

### 2.1. The monetary policy framework in China<sup>2</sup>

According to the *Law on the People's Bank of China*, "the aim of monetary policies shall be to maintain the stability of the currency and thereby promote economic growth." Thus, the PBC has a dual mandate, similar to that of the US Federal Reserve. Even though it is not explicitly stated in the law, there is also an understanding that the PBC is obliged to maintain the stability of the Chinese financial system, in connection with its role as lender of last resort. The policy implementation framework has

<sup>2</sup> This section draws on He and Pauwels (2008).

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