

The People's Bank of China: From 1948 to 2016¹

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Abstract

We provide a comprehensive review of the development and activities of the People's Bank of China over the half century. First, the PBC has evolved from the mixture of a central bank and a commercial bank to the central bank of China, with the status legally confirmed in 1995. Although the mandates of the PBC have altered slightly over the past decades, the monetary policy has continuously met challenges in different stages of economic development. Second, in order to reach the objectives of economic growth and stable prices, the PBC does not operate in a single instrument environment, but employs a variety of policy instruments including price-based, quantity-based and administrative policy measures. Third, the PBC has been promoting financial reforms actively and playing a key role of regulation during special episodes such as the credit crunches in 2013, which has led to the rapid development of financial systems and may further contribute to the economic growth and help balance the growth in different economic sectors.

Key words: Central bank; History; Monetary policy; Financial reform

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1. Introduction

With China's rising role in the global economy and markets, economists have become more interested in understanding the complexity of its financial system development and the way its central bank conducts monetary policy. China's economic performance has been impressive over the past decades, with high GDP growth and low inflation rate. In the meanwhile, the financial system also experienced rapid development in the recent twenty-years, with the central bank put forward financial reforms steadily. Interesting questions concern how the central bank conducts the monetary policies in order to promote economic growth with a lagging financial system and how is the role of inflation in China's monetary policy decisions helping to deliver good inflation performance, while policy is not officially targeting inflation.

Over the half century, as the central bank of China, the People's Bank of China (PBC henceforth) gradually changed from a mixture of a central bank and commercial bank to the central bank. Although the mandates of the PBC have altered slightly over the years, the monetary policy has continuously met challenges in different phases of economic development. While deeper structural reforms may be the key determinants of long-run growth, monetary policy has an important role in creating a stable macroeconomic environment that is essential for those reforms to take root.

The goal of this paper is to provide a comprehensive review of the development of the PBC, the decision process of the PBC as well as how the PBC communicates with the market participants and coordinates with the governments or other authorities. Some studies suggest that interpreting monetary policy is difficult because the PBC frequently uses a multitude of instruments ranging from required reserve ratios, benchmark lending rates to deposit rates to set policy (e.g. Chen, Chow and Tillmann, 2016). Based on the review, we try to answer the following questions: (1) how the PBC has performed in the last half century relative to its mandates, especially in keeping price stability and maintaining financial stability; (2) how the monetary policy has contributed to the remarkable economic growth; and (3) how the PBC has put forward financial reforms to liberalize financial system and achieve economic transition.

The remaining sections are organized as follows, In Section 2 we review the history of the PBC since its establishment. In Section 3, we overview the mandates and current organizational structure of the PBC. In Section 4, we discuss the main functions of the PBC, including formulating and implementing monetary policies, its communications with financial markets, maintaining financial stability (especially during special episodes such as credit crunches in 2013 and stock market crashes in 2015), as well as the financial reforms that the PBC has been putting forward in recent years. In Section 5 we further briefly review other responsibilities of the PBC. Section 6 concludes the paper.

2. The history of the PBC

China's banking system before the economic reform in 1980s was characterized by an all-inclusive mono-bank system established in the 1950s, under which the PBC served as both a central bank and a commercial bank. In 1983, the PBC became the central bank legally and kept only the administrative functions of the banking system. In 2000s, the roles of financial regulation were further taken over by the newly established financial authorities, which further strengthened the PBC's mandates of formulating and implementing monetary policy. In this section, we give a review of the history of the PBC since its establishment.

2.1 The establishment of the PBC: 1948-1952

The People's Bank of China was established in Shijiazhuang of Hebei Province on December 1st, 1948, right before the foundation of the People's Republic of China in 1949. The bank was established by merging together the North China Bank ("Huabei Bank"), the North Sea Bank ("Beihai Bank") and the Northwest Farmer Bank ("Xibei Nongye Bank"). Later in February 1949, the PBC was moved to Beijing. Hanchen Nan was appointed as the first president of the Bank.

After PBC's move to Beijing, its four-level organizational system including the headquarter, regional head offices, branches and sub-branches was roughly established. The regional head offices were located at the offices of local governments, regulated directly by the headquarter in Beijing and guided by the local governments (or the local military and political committee) contemporarily. The regional head offices were also responsible for the branches and sub-branches in their own region. By the end of 1949, four regional head offices including the East China office, the Middle South office, the Northwest office and the Southwest office, 40 provincial- or city-level branches, as well as more than 1200 county-level sub-branches and offices were built up.

In September 1949, the *Law of the Central People's Government of the People's Republic of China* was passed by Chinese People's Political Consultative Conference, which brought the PBC into the organ directly under the Government Administration Council of the Central People's Government. The Law also documented that the PBC should be regulated directly by the Finance and Economic Committee (“财政经济委员会”) and perform duties as the State Bank, responsible for issuing currency, managing treasury, administering financial activities, maintaining financial stability and restoring economy and rebuilding the country.

On November 21, 1950, the *Tentative Organizational Regulation of the People's Bank of China* was approved by the Government Administration Council (“政务院”), which officially stipulated the primary mandates of the PBC: (1) printing and issuing

banknote and bond, and adjusting currency circulation; (2) allocating wealth, providing short-term and long-term loans and investment; (3) analyzing and monitoring the financial management of government offices, state-owned enterprises and cooperatives through managing cash and transferring money; (4) managing foreign currency, noble metals, and balance of payment and settlement; (5) taking charge of financial administration and supervising the private institutions, public-private institutions and foreign organizations involving in financial industry; (6) managing treasury and cash outflow of fiscal budget; (7) issuing treasury bond; (8) leading specialized banks and state-owned insurance companies; (9) responsible for other relevant financial issues.

In 1951, the PBC asserted a claim of “positive development of credit cooperation” and started the pilot of rural credit cooperatives. By the end of 1953, more than 9,400 credit cooperatives, 20,000 credit mutual-aid cooperatives and 3,000 credit departments of the supply-and-marketing cooperatives (“供销社”) had been built up, which largely helped peasants solve the funding problems in production and enhance the development of the Agricultural Cooperative Movement. In addition, the People’s Insurance Company of China (PICC) was established, which constituted an integrated financial system with the Bank of China (BOC) and Bank of Communications (BComm). In May 1952, to streamline financial institutions, the Agricultural Cooperative Bank (ACB) was incorporated into the PBC by the approval of the Government Administration Council. In the same year, the Foreign Business Bureau of the PBC was merged together with the Bank of China; moreover, both the BComm and the insurance companies started to be regulated by the Ministry of Finance, which marked the PBC’s progress to a unitary system.

2.2 The PBC in the planned economy: 1953-1977

For the large-scale economic construction from 1953 to 1977, China gradually built up a highly-centralized financial organizational structure and management system, as well as a top-down system of the PBC, to absorb, mobilize, centralize and allocate credit. During these years, the PBC took the responsibilities of both managing the financial system and issuing currency.

In 1954, all the regional head offices were revoked and instead the head office in Beijing started to regulate the branches in provinces, autonomous regions and municipalities directly, which formed a vertical management system and further strengthened the centralized system. After revoking the Agricultural Bank of China (ABC) which was established in 1954, the Rural Financial Department of the PBC was established in 1957, which aimed to manage the national rural financial business. By merging the financial institutions, the PBC became a “super bank” which undertook the dual roles of a central bank and a commercial bank. As documented by Liu (1980), it

acted as the “center of cash, credit and settlement”, from which currency and credit were issued, into which cash held by urban residents, and credit held by state enterprises and institutions were deposited, and through which the payments within the state sector were cleared. Under the mono-bank system during this period, the authority of currency issuance and loan decision belonged to the State Council. The banking system was not independent, and just an organ of the government (Yi, 1992). The decision of money supply was subordinated to the implementation of output targets in the central plan. As most capital investment projects were financed by the budget allotments, the primary objective of the credit plan was to provide working capital to enterprises.

In 1962, to guarantee that the PBC can play an active and positive role in the national economy, the government clarified the administrative hierarchy of the PBC by documenting that the PBC head office in Beijing was altered from a department directly under the State Council to an affiliated department of the State Council and the branches of the PBC were in the same hierarchy with the economic departments of local governments. In August 1977, the PBC hosted the session of the national banks, after which the *Regulations on Improving and Strengthening Banking* was released by the State Council. The Regulation officially documented that the PBC was separated from the Ministry of Finance as a top-tier unit of the State Council and that the branches of the PBC should be led directly by the head office in Beijing. At the end of 1978, the unified system of the PBC was comprehensively recovered.

2.3 The PBC during the opening-up period: 1978-2002

The objective of the economic reform and opening-up policy in 1978, according to the official documents, was to establish a socialist market-oriented economy based primarily on the public ownership with planning as a guidance². The reform in the banking sector was necessary to achieve this goal. The restructuring of the banking system was to give more freedom of operation and profit motives to specialized banks (commercial banks) and making them independent economic entities while the macro monetary policy was controlled by the central bank (Yi, 1991).

In January 1979, the Agricultural Bank of China (ABC) was desterilized to develop the rural economy. In March, the Bank of China was given the mandate to specialize in transactions related to foreign trade and investment. The State Administration of Foreign Exchange (SAFE) responsible for foreign exchange management was established in the same year. Domestic insurance business was recovered and the People’s Insurance Company of China (PICC) was reestablished. In rural areas, a network of Rural Credit

² For instance, the People’s Daily of October 25, 1987 published an article “Marching Along the Socialist Road with Chinese Characteristics” by Ziyang Zhao (the previous President of the Central Committee) on this.

Cooperatives was set up under the supervision of the ABC, while Urban Credit Cooperatives (UCCs), counterparts of the RCCs in the urban areas, were also founded. Non-bank financial intermediaries, such as the Trust and Investment Corporations (TICs) emerged and proliferated in this period as well. Correspondingly, the increasing number of the financial institutions required a more centralized regulatory system as well as a comprehensive coordination mechanism. In July 1982, the State Council further emphasized that the PBC was the central bank as well as the national financial regulatory authority under the control of the State Council, which marked the starting point of the build-up of the central bank regime.

In August 1982, the Standing Committee of the National People's Congress and the State Council decided that the SAFE was separated from the BOC and further incorporated into the PBC. On September 17, 1983, the State Council declared once again the PBC's role as the central bank of China and documented ten aspects of the mandates of the PBC as follows:

“Studying, formulating and implementing guidelines, policies and regulations and basic regimes for the financial industry; issuing currency and regulating currency circulation; managing RMB deposit and loan interest rate and exchange rate; drawing up credit plan and managing credit funds; managing gold, foreign exchange and foreign exchange reserve; managing treasury on behalf of the Ministry of Finance; approving the establishment or the merge of financial institutions; coordinating and regulating financial industry; managing financial markets; engaging in international finance activities on behalf of the government.”

After the announcement of the *Interim Measures of Credit Fund Management* on February 15, 1984, the PBC started to build up the central bank system, which included the first-tier branches in provinces, autonomous regions and municipalities as the local head offices, second-tier branches in prefecture-level cities and the sub-branches in counties. All the branches and sub-branches took the responsibilities of overseeing and managing the State treasury as well as the currency issuance and circulation in the districts.

However, based on the coexistence of planned economy system and market adjustment mechanism, the PBC was still in an early transitional stage of development as the central bank. The main policy tool was the direct control of credit amount and currency issuance. The interference from other local government authorities affected the efficiency of the macro control by the PBC. In addition, the PBC still undertook the issuance of special-purpose loans. As suggested by Yi (1992), the central banking system in China was in a very primitive stage, not because the central bank was not independent of the government, but because the central bank and specialized banks were not really separated. In other words, it was a mixture of a central bank system and an administrative

command-driven centrally-planned system that constituted the money supply mechanism with the “Chinese characteristics”.

At the end of 1993, the State Council announced the *Decision on financial system reform*, which further adjusted the responsibilities of the PBC as the central bank of China. The main changes included the set-up of the regulatory authorities of different financial sub-sectors (e.g. banks, non-bank financial institutions, insurance companies and urban credit cooperatives), and disentanglement of monetary policy from fiscal policy. From 1995, the PBC discontinued lending to the Ministry of Finance further. If the Ministry of Finance planned to issue treasury bonds due to fiscal deficits, the PBC would coordinate on the timing or method of bond issuance, but would not purchase or underwrite treasury bonds or other government bonds. The policy-related activities were handed over to the three newly established policy banks, the China Development Bank (CDB), the Export-Import Bank of China (EIBC) and the Agriculture Development Bank (ADB) of China.

The central bank status of the PBC were legally confirmed by the pass of the *Law of the People's Republic of China on the People's Bank of China (PBC Law, henceforth)* in the Third Plenum of the Eighth National People's Congress. The Law stipulated the PBC's status, mandates, organizations, monetary policy and financial supervision and further documented that the PBC was independent and should not be interfered by governments during the implementation of monetary policy. The Law also announced the set-up of the Monetary Policy Committee (MPC) as the advisory council for the central bank. In April 1997, the State Council released the *Regulations on the Monetary Policy Commission of the People's Bank of China*, which stipulated that the responsibilities of the MPC were discussing monetary policies and making advices on the formulation or adjustment of monetary policy, the target of monetary policy, monetary policy tools, and the coordination between monetary policies and other macro-economic policies based on the defined macro-economic target as well as the analysis of macro-economy situation.

2.4 The PBC in the recent years: 2003 to date

At the end of 2003, the *Law of the People's Republic of China on the People's Bank of China (2003 Amendment)* and the *Law of the People's Republic of China on the Commercial Banks (2003 Amendment)*, which further disentangled the mandates of the PBC from those of the China Banking Regulatory Commission (CBRC), were passed by the Sixth Plenum of the Eighth National People's Congress. These laws further strengthened the PBC's mandates on the formulation and implementation of monetary policies. Since then, the PBC has been no longer responsible for the financial regulation of the banking, securities and insurance industry, while only kept the mandates of maintaining financial system stability and resolving systemic risks.

Faced with new challenges, the PBC continued to improve its organization structure in the 2000s. In August 2005, the Shanghai Head office was established instead of the former Shanghai Branch to further improve the efficiency of decision and operation system of the PBC, deepen the financial market development in Shanghai and move forward the build-up of Shanghai international finance center. Starting from 2008, the PBC still continues to improve the monetary policy system and strengthen the financial coordination mechanism.

3. The mandates and organizations of the PBC

The status and mandates of the PBC was first legally confirmed in 1995 with the announcement of the *PBC Law*. After the amendment of the law in 2003, the mandates and independence of the PBC was further strengthened. In this sector, we discuss the responsibilities and current organizational structure of the PBC.

3.1 The mandates

The PBC Law (2003 Amendment) stipulates that under the leadership of the State Council, the PBC implements monetary policy independently without being interfered by local governments, social organizations and individuals. More specifically, the PBC has the independence compared to other ministries of the State Council and local governments. Governments should not overdraw their accounts at the PBC. The PBC should not purchase and underwrite treasury bonds or other government bonds, or lend to local governments, non-bank financial institutions (unless get the approval by the State Council to lend to some specific non-bank financial institutions) or any other institutions and individuals, or provide guarantees to any institutions or individuals.

According to the law, the mandates of the PBC include the following aspects:

(1) Drafting and enforcing relevant laws, rules and regulations that are related to its functions; (2) Formulating and implementing monetary policy in accordance with law; (3) issuing RMB and administering its circulations; (4) Regulating financial markets, including the interbank lending market, the interbank bond market, foreign exchange market and gold market; (5) Preventing and mitigating systemic risks to safeguard financial stability; (6) Maintaining the RMB exchange rate at adaptive and equilibrium level; Holding and managing the state foreign exchange and gold reserves; (7) Managing the State treasury as fiscal agent; (8) Making payment and settlement rules in collaboration with relevant departments and ensuring normal operation of the payment and settlement systems; (9) Providing guidance to anti-money laundering work in the financial sector and monitoring money-laundering related suspicious fund movement; (10) Developing statistics system for the financial industry and responsible for the consolidation of financial statistics as well as the conduct of economic analysis

and forecast (11) Administering credit reporting industry in China and promoting the build-up of credit information system; (12) Participating in international financial activities; (13) Engaging in financial business operations in line with relevant rules; (14) Performing other functions prescribed by the State Council.

In 2008, the State Council further adjusted the mandates of the PBC, which emphasized the PBC's role in macro control and financial management and clarified the relationship between the PBC and other ministries as well as financial regulatory authorities- the PBC should build up the coordinating mechanism with other related departments (e.g. the National Development and Reform Commission and Ministry of Finance), as well as other financial regulatory authorities; the PBC should also strengthen the coordination between monetary policies and other regulatory policies through joint inter-ministerial meetings³ and build up the financial information sharing system to resolve financial risks and maintain national financial security.

3.2 The organizational structure

The People's Bank of China consists of the PBC Head Office (PBCHO), the Shanghai Head Office, branches (including regional branches and operational offices, sub-branches in provincial capital cities; sub-branches in quasi provincial cities; sub-branches in prefecture-level cities; county-level sub-branches) and some directly affiliated public institutions.

The People's Bank of China Head Office (PBCHO) now consists of 20 departments (or bureaus). Figure 1 shows the organizational structure the PBCHO. There are also some institutions or corporations affiliated with the PBCHO. Shanghai Head Office is an integral part of the People's Bank of China Head Office (PBCHO). As an operating platform of PBCHO's open market and a monitoring platform of financial market, the Shanghai Head Office is responsible for operating open market, supervising financial markets, analyzing financial information, developing and trading financial products, as well as regional financial cooperation. The major responsibilities of Shanghai head office include, first, implementing open market operations based on the PBC's target and undertaking rediscount businesses of commercial banks and other specialized paper agencies in Shanghai; second, managing interbank market and tracking the development of financial markets, studying and innovating financial products, analyzing the impact of market instruments on monetary policy and financial stability, evaluating the regional

³ The Joint inter-ministerial meeting on financial regulation coordination was first launched in by the State Council on August 20, 2013. The members, convened by the chairman of the PBC (Xiaochuan Zhou), are the chairman of different authorities(Fulin Shang of the CBRC, Gang Xiao of the CSRC, Junbo Xiang of the CIRC as well as Gang Yi of the SAFE) then. Please see the announcement by the State Council at: http://www.gov.cn/zwggk/2013-08/20/content_2470225.htm

financial stability and foreign financial security; third, collecting, summarizing and analyzing financial market data and conducting research on monetary policy operations as well as financial market development; fourth, communicating on regional financial cooperation and undertaking relevant international financial affairs.

The PBC's branches include the following parts: Regional Branches and Operation Offices; Sub-branches in Provincial Capital Cities; Sub-branches in Quasi Province-level Cities; Sub-branches in Prefecture-level Cities; County-level Sub-branches. In general, for Regional Branches and Operation Offices, there should be at least 20 functional departments, 3 to 6 party-mass departments, 3 to 5 affiliated institutions; for Sub-branches in Provincial Capital Cities, there should be 18 to 19 functional departments, 2 to 3 party-mass departments, 2 to 5 affiliated institutions; for Sub-branches in Quasi Province-level Cities, there should be 15 functional departments (except Shenzhen, which has 21 functional departments), 2 party-mass departments, 2 to 3 affiliated institutions; for Sub-branches in Prefecture-level Cities, there should be 12 to 16 functional departments, 2 party-mass departments, 1 to 2 affiliated institutions; for County-level Sub-branches, there should be at most 6 departments in total. The main responsibilities of the branches include implementing the monetary credit policy (including capital policy, deposit reserves policy, rediscount policy and interest rate policy) of central bank, currency issuing, cash management and anti-money counterfeiting as well as within other related supervisory and management responsibilities the jurisdiction.

4. Main functions of the PBC

As discussed above, the major responsibilities of the PBC include formulating and implementing monetary policies under the current framework, regulating financial system and coordinating with financial institutions and so forth. In order to improve the efficiency of monetary policies and to develop the repressive financial system, the PBC has been engaging in strengthening communications with financial markets and financial reforms in the last decades. In this section, we first give a review of the monetary policy framework and tools of the PBC, and then discuss the financial reforms that the PBC has been involved in from 1990s.

4.1 Formulating and implementing monetary policies

4.1.1 The development of monetary policy framework

Since 1984, the PBC has started to serve as a central bank. *The PBC Law* passed in 1995 confirms the PBC's status and mandates to formulate and implement monetary policies. The Article 2 of the Law of 1995 stipulates that "the People's Bank of China is the central bank of the People's Republic of China. The People's Bank of China shall, under the leadership of the State Council, formulate and implement monetary policies, guard against and eliminate financial risks, and maintain financial stability."

The Article 3 of the Law clarifies the monetary policy framework, by stating that “the aim of the monetary policies shall be to maintain the stability of the value of the currency and thereby promote economic growth”. The Amendment of the Law in 2003 further confirms the monetary policy instruments and establishes the institutional structure of the monetary policy committee. Overall, since the PBC started to serve as the central bank in 1984, monetary policy framework has been revised and improved mainly from direct control previously to quantity-based adjustment, and then to price-based adjustment.

More specifically, from 1984 to 1997 the monetary policy framework was built on the direct control of credit quota. However, with the astonishing development of financial system (e.g. the establishment of the stock market, interbank lending and bond market, etc.) in 1990s, the monetary policy framework has been gradually transformed to be built on the indirect control of credit amount since 1998. Correspondingly, more instruments including open market operations (OMOs), deposit reserve requirement ratio, rediscount and central bank lending as well as interest rate are combined as the monetary policy instruments during this period. After the 2008’s global financial crisis, liquidity in China’s banking system shank significantly because of the decrease of trade surplus and capital inflows. In the meanwhile, active financial innovations in recent years also reduced the efficiency in using quantity-based instruments (e.g. OMOs) to promote economic growth. The monetary policy framework has started to emphasize the role of price-based instruments (e.g. central bank lending rates). However, as China’s economy and financial system has been under gradual transition to a more market-oriented one, it is the very nature that during the periods of transition, both price- and quantity-based measurements are in place simultaneously (Xie, 2004)

Facing the changing external environment and the slowing-down of China’s economic growth, the monetary policy framework has been improved continuously. First, more new monetary policy instruments, including the short-term liquidity operations (SLO), standing lending facility (SLF), pledged supplementary lending (PSL) and medium-term lending facility (MLF), have been incorporated into the framework since 2013, which has largely extend the PBC’s tools in providing and managing liquidity actively and guiding market interest rate. Second, the PBC started to strengthen the macro-prudential management, which could be reflected in the introduction of the dynamic adjusted differential deposit reserve system into the instrument toolkit in early 2011. Third, the PBC continuously puts forward the interest rate liberalization and the RMB exchange rate regime to enhance the effectiveness of monetary policy transmission.

Recent liberalization policies also include those relaxing the regulation of loan and deposit interest rate and enlarging the floating elasticity of exchange rate⁴.

4.1.2 The targets of monetary policy

In conducting monetary policy, the PBC has certain goals, or ultimate targets, such as price stability and stable economic growth. In trying to reach these goals, the PBC uses intermediate targets, which are macroeconomic variables that the PBC cannot control directly but can influence fairly predictably and that in turn are related to the ultimate targets the PBC is trying to achieve.

The ultimate target of China's monetary policy has evolved since the PBC started to serve as the central bank. In January 1986, the Law of the People's Republic of China on Banking Regulation (Provisional Regulation) stipulates that, "the Central bank, commercial banks and other financial institutions should implement financial policies and guidelines; other related financial service should set the target of developing economy, stabilizing currency and improving the socialist economic welfare", which is the earliest rough statement of the monetary policy target and then gradually evolved into "... set the target of stabilizing currency and improving the economic growth".

However, for a transitional economy facing with credit shortage and high investment demand, the dual targets of monetary policy of stabilizing currency and improving economic growth may lead to excess money creation and high inflation, which may further result in cyclical economic shocks. Hence, in *the PBC Law* of 1995, the monetary policy target was legally set as "stabilizing currency so as to improve economic growth", which has been retained further in the Amendment Law of 2003. Overall, these changes have confirmed that the contribution of the monetary policy to the whole economy should be based on creating a good monetary and financial environment. Mehran et al. (1996) also interpreted as claims of the PBC that the long-term economic growth can only be realized if long-term price stability predominates; in other words, price stability should be the prominent target of the PBC.

After decades of fast growth, China has been faced with structural issues in the economy in recent years. In order to balance the economic growth and deepen the financial liberalization, the monetary policy also keeps a watchful eye on financial stability and reform, as well as the coordinates the relationship among price, balance of payments, employment and growth.

⁴ In October 2015, the PBC removed the upper limit of deposit interest rate, which marked the end of the control for interest rate and was a significant step in the market-based interest rate reform.

China started moving to a monetary strategy anchored on intermediate targets in the late 1980s. Before 1986, China relied on a centrally-planned economy with no explicit intermediate targets. During 1986 to 1996, the most frequently used intermediate targets by the PBC are total credit volume and cash in circulation. However, with the fast development of China's financial system in 1990s, the private credit by other financial institutions and the capital raised through stock market and bond market have been growing dramatically. Therefore, the credit volume by monetary financial institutions could not reflect the financial condition for the whole economy. In September 1994, the PBC started to release different levels of money supply indicators (M0, M1 and M2) regularly and in 1996, the PBC formally introduced the money supply into the intermediate targets and announced that during the 9th Five-Year Plan, the targets of money supply control would be set. From January 1st, 1998, the PBC eliminated the credit ceilings, which was regarded as the fulfillment of the transition of credit volume to money supply as the intermediate target. Since then, the PBC use M2 as the main intermediate target and in the meanwhile monitor M0 and M1 for references.

Similarly, monetary targets were usefully employed by the U.S. Federal Reserve, among other central banks, to stabilize inflation in the 1970s and 1980s (Goodfriend and King, 2005). In the Eurosystem, the inflation objective is supplemented by a reference range for money growth. Goodfriend and Prasad (2006) further argues that because money growth and inflation tend to be highly correlated in the long-run, targets for deposits, bank reserves and the monetary base can still play a useful operational role in stabilizing inflation in countries with less developed financial systems and less reliable interest rate channels of monetary transmission. Xie (2004) also indicates that the money base is the operational target of the PBC. At daily operations, the PBC monitors excess reserve requirement ratio which reflects the volume of base money and monetary market interest rate which indicates the pricing of base money. An important reason for the use of monetary targeting in China certainly is the search for a nominal anchor, i.e. the commitment to a consistent and transparent policy framework that the public could use to monitor the actual policy (Laurens and Maino, 2009), with which the PBC might hope to gain reputation for its monetary policy just as the ECB did, once it was set up (Geiger, 2008)

For a variable to serve as an intermediate target of monetary policy, there has to be sufficient controllability of the variable itself and a relationship with the final target of price stability. In the case of PBC, scholars cast doubts on the controllability of the monetary aggregates, mainly through the exchange rate regime (e.g. Goldstein and Lardy, 2007) and an unstable money multiplier (e.g. Xie et al., 2001). The exchange rate regime with its de facto peg of the RMB to the USD up to July 2005 and the subsequent crawling peg leads to increasing foreign exchange inflows, which have to be converted into RMB and thus increase domestic money supply and inflationary pressure in China. On the other

hand, the instability of the money multiplier would lead to unpredictability of the relationship between money base and money aggregate, which further makes the task of money targeting difficult.

However, the PBC seems to perform well in controlling the money aggregates and price stability. During the periods of 1980-2003, China experienced four episodes of inflation and one of deflation. During these periods, the growth of money supply and output moved in parallel: (1) in the 1980s, annual growth of money supply and GDP averaged 24.5% and 9.8% respectively, and CPI inflation rate was recorded at an average rate of 7.5%; (2) in the 1990s, average annual growth of money supply and GDP stood at 24.9% and 9.7% respectively, and CPI inflation stood at 1.1%, indicating a healthy momentum of strong growth and low inflation (China Monetary Policy Quarterly Report, 2005Q1). During economic expansion, money supply grew rapidly. When money supply expanded to a certain level, prices rose and economic imbalance emerged, a passive adjustment was enforced to tighten money and credit. In the last decades, China also experienced rapid development of financial sector and a decline in money velocity, despite periodic fluctuations.

Therefore, an interesting question on China's monetary policy is that how the relative low level of inflation was achieved without monetary policy targeting inflation. Xie (2004) analyses China's monetary policy for the period of 1998-2002 and finds that within a long-term horizon, money aggregates do not affect economic growth, but do determine the inflation rate in both short- and long-term. Geiger (2008) examines the effectiveness of China's monetary policy in controlling inflation and further attempts to answer the question whether monetary stance has a close relationship to inflation. He assigns the achievements in controlling inflation to a well-managed mix of price- and quantity-based monetary instruments. Additionally, in the 1990s, the role of wage control were important parts of the macroeconomic steering mechanisms, although more recently, wage increases in certain regions have been threatening to undermine the low inflation wage set up. It is estimated that up to 24% of the CPI can be influenced through price controls. More recently, the administrative window guidance, which has intensified since the 2003-04 expansionary economic cycle, was crucial for the successful outcome in the absence of a well-functioning interest rate channel of monetary transmission. In the recent ten years, especially after the 2008's fiscal stimulus package to boost the economy, corporate bond market and shadow experienced astonishing growth, leaving the existing quantitative indicators of money supply no longer able to monitor the financial condition accurately and track the ultimate targets. At the end of 2010, the PBC introduced a new indicator, *Total Social Financing (TSF)*, which is a liquidity measurement which covers loans in local currency, loans in foreign currency, entrusted loans, trusted loans, bank acceptance bill, net corporate bond financing and non-financial enterprise equity financing. Since then, this indicator, updated by the PBC monthly, has been seen as one

of the most important monetary flow indicators in China and provides references for the monetary policy.

4.1.3 The toolkit of monetary policy

The PBC's monetary policy instruments consist of open market operations, deposit reserve requirement ratio, central bank lending and re-discount, interest rate, and window guidance. In order to put forward the macro-prudential policies and improve the monetary policy framework, new liquidity management tools were also introduced after 2008's global financial crisis, including the short-term liquidity operations (SLO), standing lending facility (SLF), pledged supplementary lending (PSL) and medium-term lending facility (MLF).

4.1.3.1 Open market operations

Open market operations (OMOs) have been a key instrument for central banks to implement their monetary policies. The Federal Reserve and the Bank of Japan conduct open market operations on a daily basis; the ECB conducts weekly refinancing operations and ad-hoc fine-tuning operations in the open market; the central banks in Australia and Sweden conduct multiple open market operations every day. Throughout the world, it is a common practice for the monetary authorities to adjust the frequency of open market operations based on the economic situation and policy demand.

Since 1996, OMOs have been one of the most important instruments for the PBC. For a long time, OMOs were mainly used to recycle liquidity as to maintain adequate banking liquidity and reasonable credit growth, with overall abundant liquidity due to capital inflows over the years. As the balance-of-payments account has become more balanced in recent years, banking liquidity is changing from an over-supply to a general equilibrium, and even sometimes a liquidity gap. Hence, the PBC in certain cases has had to provide liquidity to meet the growing liquidity demand due to the expansion of bank credit. In the meanwhile, as the market-oriented interest rate reform has accelerated and monetary policies have been more focused on price-based instruments, the PBC started to strengthen monitoring and guiding money market interest rate and improve the correlation among open market operation interest rate, money market interest rate and bond yield rate.

Over the years the PBC conducts open market operations mainly via reverse repo and repos, purchases and sales of government bonds, and the issuance of central bank bills, regularly on Tuesdays and Thursdays, and occasionally on other weekdays based on market liquidity condition. The primary OMO dealers include major commercial banks, and other non-bank financial institutions such as major securities firms. Till the end of 2015, there have been 46 primary OMO dealers in the market.

In recent years, the PBC has been improving its OMOs mechanism, In early 2013, the short-term liquidity operations (SLO) were introduced to be conducted during interim periods of regular operations when the market witnessed fluctuations and at the same time research was stepped up to increase the frequency of OMOs. Before the 2016's Chinese New Year, massive cash injections and occasional foreign exchange outflows led to an upward pressure on money market rate. Hence, the PBC started to launch daily OMOs and succeeded in easing market pressures, including a 50 percent cut in the fluctuations of weighted average overnight rates and 7-day pledged repos for deposit-taking financial institutions.

The information disclosure system of the OMOs has also been improved significantly in recent years. The *Announcements of Central Bank Bill and Notes Issuance* regularly conveys information on operation categories, maturities and amounts one weekday before the issuance; the *Announcements of open market operations* are regularly released after the operations. Additionally, China Monetary Policy Reports summarize the open market operations by quarter.

4.1.3.2 Reserve requirement ratio

The PBC has actively changed its reserve requirement ratio (RRR) since the mid-2000s. China tops the global league table in terms of both the magnitude and frequency of RRR variations (Ma, Yan and Liu, 2011). The PBC first launched the deposit reserve system in 1984, first only for exerting central banks' function of pooling and allocating funds. Throughout the deepening of financial reforms, the deposit reserves gradually function as payment and settlement, as well as liquidity adjustment. In theory, the deposit reserves consist of required reserve and excess reserve. Required reserve refers to deposits of financial institutions at the central bank in proportion to their total deposits. The reserve requirement ratio is a powerful monetary policy instrument as if the central bank decides to increase reserve requirement ratio, financial institutions have to increase their deposits at the central bank and correspondingly reduce lending. Excess reserve refers to deposits of financial institutions at the central bank in excess of required reserve, mainly used for settlement and liquidity management purposes or as stand-by assets. Some central banks may pay interest on required reserve only, or pay no interest on deposit reserves at all. However, in China, the PBC pays relatively high interest on both types of deposit reserves.

From its establishment in 1984 to June 2003, the RRR was adjusted just six times and mostly as part of financial liberalization. However, since 2006, the RRR has been more frequently and intensively deployed by the PBC as a regular policy tool. Since July 2006, the RRR was altered 43 times according to the PBC announcements, usually 50bps each time. From 2006 to 2008, the RRR more than doubled, from 7.5% to 17.5%. It changed ten times in both 2007 and 2008.

At the beginning, the PBC set different reserve obligations for the different deposits with regard to their origins and the institutions actually holding the reserves. In 1988, the PBC combined all different reserve requirements and set one minimum reserve requirement ratio at 13 percent. However, the instrument of reserve requirement was not extensively used until the reform in 1998. In the March of 1998, the PBC reformed the reserve requirement system by merging together the accounts for required reserve and excess reserve and adopted uniform interest rate. The deposit reserve ratio (the ratio of a bank's reserve to deposit) was reduced from 13 percent to 8 percent, and in November 1999, reduced further from 8 percent to 6 percent. These policies played a key role in expanding monetary base, prompting commercial banks to increase lending and supporting economic growth in those years. Figure 2 shows the change of the reserve requirement ratio over the years.

One purpose for banks, especially the state-owned commercial banks, to keep excess reserves is believed to be the interbank settlement and liquidity management. However, for the central bank it is difficult to discern how large the banks' perceived need for excess reserves is. The PBC clearly had the concern that a significant amount of excess reserves makes banks less sensitive to changes in the policy interest rates in the interbank market, which led to the reform of the differentiated interest rates on required reserve and excess reserve in December 2013- the reduction of the rate of remuneration on excess reserves to 1.62 percent, compared to the unchanged rate of 1.89 percent on required reserves.

In April 2004 the PBC further introduced the differentiated reserve requirement rate system, linking the required reserve ratio with the indicators such as capital adequacy ratio or asset quality. Under the differentiated RRR system, the required reserve ratio is lower for financial institutions with lower capital adequacy ratio and higher for those with higher capital ratio. This alteration affected second-tier banks, including joint-stock commercial banks that had accounted for a significant part of the surge in lending growth in 2003. These banks in this category that did not meet certain standards in terms of the loan quality and capital adequacy were subject to a reserve requirement of 8 percent, half a percentage point higher than the standard required reserve ratio.

Since late 2008, the PBC has also adopted a more formal two-tier reserve requirement system, wherein the RRR for 6 or 7 largest commercial banks has been 200 bps above that applied to most other smaller depository financial institutions. This aims to ease the heightened liquidity pressure on smaller banks during the 2008 global financial crisis.

Later in early 2011 the PBC further rolled out a pilot scheme of "dynamic differentiated RRR", adjusting the differentiated reserve requirement on a continuous and case-by-case basis and encouraging financial institutions to operate prudently and to pace

credit supply from a counter-cyclical perspective by subjecting credit growth to the capital level in a macro-prudential sense and by taking into consideration the systemic importance and soundness of the financial institutions as well as the business cycles.

Ma, Yan and Liu (2011) explore China's evolving reserve requirements and document three related sets of factors help explain the active use of reserve requirements a policy instrument in China. They are the challenges of absorbing structural liquidity surpluses arising from large-scale sterilizations, the quantity-centric monetary policy framework with multiple and sometimes conflicting objectives, as well as other tactical and governance considerations. Particularly, from the perspective of the PBC, adjusting the RRR is perceived to be affect liquidity only within the banking system hence it is often easier to reach consensus of the adjustments among other policymakers. Furthermore, the PBC has some discretion to intensify or suspend the dynamic RRR as needed, serving as a complement to the administrative window guidance.

4.1.3.3 Central bank lending and rediscount

Both rediscount and central bank lending have been important monetary policy tools of the PBC. An independent rediscount rate was designated as a PBC benchmark rate on March 24, 1998. Before that the discount and rediscount rates were set within a floating range of 5 percent to 10 percent below the commercial banks' loan and central bank lending rates respectively. Since 1998, the rediscount rate was determined in line with other central bank lending rate. In 2004, the rediscount rate was installed as the benchmark rate of central bank lending, i.e. the PBC was given the possibility to change the central bank lending rate within a floating range around the discount rate (Xie, 2004).

After 2008's global financial crisis, the PBC clarified that the rediscount should be targeted to financing demand from rural areas and small- and medium-size enterprises. To further regulate the positioning of central bank lending and guide financial institutions' credit structural adjustments, in 2013 the PBC adjusted the classification of central bank lending from three categories to four categories, i.e., the central bank liquidity loans were further subdivided into central bank liquidity loans and credit policy support loans, while the central bank financial stability loans and special policy loans remained unchanged. After the adjustment, the central bank liquidity loans and the Standing Lending Facility (SLF) launched in 2013 were combined to provide liquidity support to financial institutions that complied with the requirements of macro-prudential regulation, while the central bank credit policy support loans include central bank agro-linked loans and small- and medium-sized loans (i.e., the original central bank loans to small- and medium-sized financial institutions). However, the central bank assets of the PBC still stay at a relative low level compared to other advanced economies (Figure 3). Figure 4 further shows the break-down of the central bank assets (PBC vs. ECB vs. Fed). Foreign exchanges account for over 50% of the total assets even since 2004.

4.1.3.4 New liquidity management instrument

As mentioned in previous sections, in recent years the capital flows have been more volatile for China, which led to more severe fluctuations in supply and demand for short-term liquidity in the banking system. Particularly when multiple factors are working together or when market expectations change, the gap between the supply and demand for short-term liquidity can hardly be bridged via financing on the money market, making the liquidity management more difficult for financial institutions and the aggregate liquidity adjustment more difficult for the central bank.

Hence, from 2013 to 2014, the PBC launched several innovative liquidity management tools, including the Short-term Liquidity Operations (SLO), the Standing Lending Facility (SLF), the Pledged Supplementary Lending (PSL) and the Medium-term Lending Facility (MLF) to comply with traditional monetary policy instruments.

The SLOs were launched in early 2013, to manage the temporary liquidity fluctuations in the banking system on a discretionary basis. As a necessary supplement to the regular OMOs, the SLOs are mainly repurchase operations with a maturity less than seven days, but can be extended if necessary (e.g. during holidays). The PBC will, based on the liquidity condition in the banking system and the interest rate on the money market, make decisions on the timing, scale, maturity and other operational specifications. SLOs are conducted with financial institutions that are primary dealers in the OMO markets and that have systemic importance, quality assets as well as a strong capacity in the transmission of monetary policies.

Central banks usually use the SLFs and OMOs for liquidity management. For instance, the ECB has Marginal Lending Facility, while the Bank of England uses Operational Standing Facility. Based on China's monetary policy framework and relevant experiences of the advanced economies, in early 2013 the PBC also announced the launch of the Standing Lending Facility (SLF), to further smooth the volatility of the short-term liquidity. The main function of the SLF is to meet the large-scale demands for long-term liquidity of financial institutions. The maturity of the SLF is up to three months. The interest rates are determined based on the requirements of monetary policy and liquidity management. If necessary the SLF can also be extended based on eligible collaterals such as highly rated bonds or high-quality credit assets. The main recipients are policy banks and large national commercial banks. In June 2013, the PBC conducted SLF operations in response to the liquidity crunch on the money market driven by a number of factors. We will elaborate on this in Section 4.3.3. These operations aim to provide liquidity support against eligible collaterals, including top-rated bonds and quality credit assets, to financial institutions whose lending practices are in compliance with industrial policies and macro-prudential rules. The outstanding SLF amounted to 416 billion RMB as of end-June, 2013 (Figure 5). In January 2014, the PBC started the

operation pilots of SLF at the branch of ten provinces or cities (Beijing, Jiangsu, Shandong, Guangdong, Hebei, Shanxi, Zhejiang, Jilin, Henan and Shenzhen). From the beginning of 2015, the operations of SLF have been allowed by all of the PBC's branches in the country.

Later, in the April of 2014, the PBC also introduced the Pledged Supplementary Lending (PSL) as a new supplement liquidity adjustment tool. The launch of PSL is mainly to adjust the credit structure to promote adjustments, strengthen financial institutions' credit support to key areas and weak links in the economy, such as agriculture-related business, small and micro firms, and shantytown renovations. The required pledges by PSL can be high-grade bonds or high-quality credit assets. From 2014 to 2015, the interest rates of credit policy-supporting central-bank lending and PSL were cut in a timely manner to help cut financing costs for the real economy. In accordance with the timeline of the shantytown renovation projects, the PBC issued PSL in the amount of 575.8 billion RMB to the China Development Bank during the first three quarters of 2015. From October 2015, all of the three policy banks in China, China Development Bank, Agricultural Development Bank of China and China Export-Import Bank, have been allowed to receive the PSL from the PBC.

In September 2014, the PBC also launched the MLF, a policy instrument to provide medium-term base money to commercial banks and policy banks that comply with the macro-prudential requirements. Similarly with the SLF and PSL, the MLF also requires for eligible collateral, which could be government bonds, central bank bills, policy financial bonds, high-grade debenture bonds and other high-quality bonds.

4.1.3.5 Interest rate policy

Interest rate policy is also a traditional monetary policy instrument of the PBC. The interest rate instruments include the deposit and loan benchmark interest rate for financial institutions, the interest rate for liquidity management instruments (e.g. SLF, MLF, etc.), as well as the central-bank lending or discount rate.

In recent years, the PBC has been putting forward the interest rate liberalization gradually. On October 24, 2015, the PBC decided to remove the deposit interest ceiling for commercial banks and rural cooperative financial institutions, which marked the end of interest rate controls in China and was a significant step in the market-based interest rate reform. Consistently, some recent studies also find that the price-based measures may be more suitable for China. For instance, Zhang (2009) compares the money supply (quantity) rule and interest rate (price) rule in China in a DSGE model and argues that the price rule seems to be more effective in managing macroeconomy than the quantity rule, with the economic experiencing less fluctuations (See also, e.g. He and Wang, 2008; He

and Wang, 2013; Zhang, 2012). We would elaborate on process of the PBC's interest rate liberalization in Section 4.3.

4.1.3.6 Macro-prudential policy instruments

The PBC used to employ some traditional macro-prudential instruments over the years before 2008's global financial crisis based on the quantity-based and price-based monetary policy instruments, such as using window guidance to strengthen the risk alerts, or using credit policies or differentiated reserve requirements to strengthen the macro-prudential management and guide the stable growth of private credit.

After the burst of 2008's global financial crisis, the PBC has been working on the enhancement the macro-prudential policy framework. In early 2011, the dynamic adjustment mechanism of the differentiated reserve requirements was introduced into the framework. The basic idea is to link the bank credit with the required capital level by the macro-prudential management and to consider comprehensively the systemic importance and stability of different financial institutions as well we the economic cycle.

Under the current framework of dynamic RRR system, the parameters of the dynamic adjustment mechanism are calibrated according to the performance of financial institutions in five respects, including: the amount of loans for micro enterprises and agriculture-related enterprises, the capital adequacy ratio, internal risk controls, the launch of new branch offices, and regional development, so that the mechanism can be more differentiated and targeted. Financial institutions are encouraged to keep the pace of credit extensions in line with real and seasonal demands, and to increase the proportion of lending to small and micro enterprises, the agricultural sector, rural areas, and farmer, businesses in the central/western and underdeveloped regions, and other key areas and weak links in the economy, so as to support the appropriate growth of credit and development of the real economy. In this way, the dynamic adjustment mechanism has played an active role in counter-cyclical management and structural adjustments.

4.1.3.7 Window guidance

The PBC also uses administrative administrative window guidance on financial institutions to improve the credit structure and manage the pace of credit provision for better support to economic restructuring. The framework for the Chinese window guidance was closely modelled according to the Japanese system, which had been in place for more than 40 years until its suspension in the early 1990s (Liao and Tapsoba, 2014). This policy uses benevolent compulsion to persuade banks and other financial

institutions to stick to official guidelines⁵. The PBC has a major influence on lending decision especially to the four state-owned commercial banks (Geiger, 2008). In accordance with the requirement for differentiated credit policies, the PBC guides financial institutions to enhance financial support to key industries, areas, regions, including key industrial rejuvenation programs, energy conservation and environmental protection, emerging strategic industries and the service sector, mainly through indicative loan quota and loan-deposit ratio. In the meanwhile, the PBC also guides to cut back lending to high energy-consuming and polluting industries and industries with excessive capacity and restricted unauthorized lending to local government financing platforms and as well as to implement a differentiated mortgage policy to promote healthy and stable development of the property market.

In addition, the PBC also encourages financial institutions to improve their operation for performance evaluation and to adjust the credit supply at a proper pace to avoid lending fluctuations between months and quarters. The window guidance may take the form of meetings with commercial banks to convey the intuition of credit policy and the potential risks.

4.1.3.8 Forward guidance

In recent two decades, the understanding of expectation guidance and central bank communications has been largely improved, in particular after the outbreak of 2008's global financial crisis. Prior to the 1990s, central banks were shrouded in mystery and believed they should be. Blinder (1998) expresses a view that central bank communications might actually improve the efficiency of monetary policy because expectations about future central bank behavior provide the essential link between short rates and long rates. Woodford (2001) further proposes that successful monetary policy is not so much a matter of effective control of short-term interest rate as of affecting the evolution of market expectations, hence transparency is valuable for the effective conduct of monetary policy. These new ideas have made a mark on central practice as well. In May 1999, the FOMC of the Federal Reserve began publishing an assessment of its "bias" with respect to future changes in monetary policy in its statements. Most recently in November 2007, the Fed started to increase the frequency and expand the content and horizon of its publicly-released forecasts. Other central banks have also been placing much greater weights on their communications in the last two decades. The Reserve Bank of New Zealand and the Bank of England were early and enthusiastic converts to greater transparency. The ECB has also been more transparent ever since it opened its doors in 1998. In recent years, given the zero-lower-bound constraints, some central banks have

⁵ According to Goodfriend and Prasad (2008), instruments such as "window guidance" may continue to play a limited role during the transition to a more efficient banking system. However, such instruments must be utilized with care since they may not work as expected may have perverse side effects.

experimented with forward guidance, i.e., the central banks communicate the expected future path of interest rates not as a policy commitment, but as a basis to explain the policy responses based on the expected situation.

In recent years, the PBC has also been engaging in improving transparency and communications with the public. First, the PBC releases the policy changes as well as the interpretation of the context and contents on its official website once the policy is carried out. Second, since 2001, the PBC has been publishing China Monetary Policy Report quarterly, which gives a review and evaluation of the monetary policies in the last quarter, some analyses of the current macro-economic situation and financial condition, as well as the expectation of macro-economy and future monetary policies. Third, the PBC has the MPC regular meetings each quarter and announces the press release which shows the MPC members' views on macro-economy and monetary policies on its website after the meetings. Fourth, the president (or vice presidents) give talks on monetary policies at different places, which would be reported and analyzed by media and financial institutions and further provide guidance on market expectations. Fifth, when major policies are announced or sensitive financial data are released, the press secretary of the PBC will hold press conferences to address questions or interpret policies. Sixth, the PBC reports to the Finance Committee of the National People's Congress regularly on the practice of monetary policies. Lastly, the PBC also communicates with financial institutions and guide the market expectations through window guidance.

4.1.4 The transmission mechanism of monetary policy

The effectiveness of monetary policy depends on both policy formulation and policy transmission. Therefore, another practical difficulty for the monetary policymakers is evaluating how monetary policy affects the economy through different channels. Since the PBC eliminated the credit quota mechanism in 1998, a transmission system consisting of “monetary policy instruments- operational target- intermediate target – ultimate target” has been gradually established.

Mishkin (1995) describes the various channels through which monetary policy actions, as summarized by changes either in nominal money stock or the short-term nominal interest rate, impact real variables such as aggregate output and price. According to the traditional Keynesian interest rate channel, a policy-induced increase in the short-term nominal interest rate leads first to an increase in longer-term nominal interest rates, as investors act to arbitrage away differences in risk-adjusted expected returns on debt instruments of various maturities. Therefore, how the interest rate channel works mainly depends to a large extent on the market participants' consensus expectation of the term structure. In China, the monetary policy framework is in the transition from being more based on quantitative instruments to being more based on price instruments. Hence, the PBC are using more frequently price instruments such as short-term or medium-term rate

adjustments, or the benchmark interest rate adjustments to release price signals to the market. However, it will be increasingly difficult for monetary policy to combine quantity and price objectives as a result of financial innovation and market development. The mechanism is being improved (e.g. a complete benchmark interest-rate system is being nurtured) for better transmission of the interest rate channel and for stable expectation.

4.1.5 The decision process of monetary policy

According to the *PBC Law*, the Monetary Policy Committee is the advisory institution of the People's Bank of China in formulating monetary policy. As discussed in the previous section, it was documented in the *Regulations on the Monetary Policy Commission of the People's Bank of China* that the responsibilities of the MPC include discussing monetary policies and providing advices based on the comprehensive analyses of macroeconomic situation and target. Currently there are 15 members in the MPC, 11 from different ministries (including the president and vice president of the PBC, the deputy secretary of the State Council, the vice chairman of the National Development and Reform Commission, the vice finance minister, the head of the State Administration of Foreign Exchanges, the head of the National Bureau of Statistics, the chairman of the China Banking Regulatory Commission, the chairman of the China Securities Regulatory Commission, the chairman of the China Insurance Regulatory Commission and the president of the China Banking Association as well as three economists or experts in monetary policy). The president of the PBC served as the president of the MPC as well. Since 1999, the MPC has been hosting regular consulting conferences with the academic experts.

The MPC has regular internal meetings quarterly or if suggested by the president or more than 1/3 of the committee members, the MPC can have special meetings. From July 1997 to the end of 2014, there have been 68 regular internal meetings, and the achievements are the PBC MPC Meeting Minutes, which are submitted to the State Council. After the MPC internal meetings, the press releases are posted on the website of the PBC to improve transparency and guide market expectations⁶.

4.2 The communication between PBC and financial market

4.2.1 The role of the PBC in financial markets

According to the *PBC Law*, the central bank takes the responsibilities of monitoring and managing financial markets, which is also the outcome of the fast development of financial markets as well as the regulatory roles of the PBC in the history. For instance, after the establishment of the bond market in 1980s, there had been issues of

⁶ For instance, the meeting press releases in 2016 can be accessed on the website of the PBC: <http://www.pbc.gov.cn/huobizhengceersi/214481/214543/index.html>

administrative allocation which led to the mandatory purchase for bond investors or other market confusion during the issuance of treasury bonds. Hence, approved by the State Council in 1997, the interbank bond market was set up and the PBC was the regulator of this market. The *PBC Law* in 2003 clarified that one of the mandates of the PBC was to monitor and regulate the interbank bond market. Another example was the money market. Since the money market was established in 1984, due to the economic situation and lack of market rules the money market was out of control. In 1996 the PBC decided to establish a unified national banking lending market, which is the National Interbank Funding Center.

On the other hand, based on the *PBC Law* in 2003, the regulatory role of the PBC in financial markets is also consistent with the mandates of formulating and implementing monetary policy as well as maintaining financial stability. Financial markets play a key role in the transmission of monetary policy, especially through the channel of interest rate. Hence, the operations of financial markets influence the monetary policy effectiveness and further the stability of the whole financial system.

4.2.2 National Interbank Funding Center

Thirty years after the establishment of the national interbank lending market in 1984, the National Interbank Funding Center has become one of the most important institutions which play a key role in the transmission of monetary policy. According to the Law in 2003, the PBC takes the responsibility of monitoring and supervising the interbank lending market, more specifically, managing the entry, maturity, quota and transparency of this market.

From 1984, banks started to engage in lending to each other at a small amount. The *Interim Regulation on Banking of People's Republic of China* in 1984 legally allowed banks to lend to each other. Till 1996, by learning from experience of other countries, the National Interbank Funding Center was started up. In 2007, the *Measures on the Administration of Interbank Lending* was issued, which further adjusts the regulations on the entries, maturities, quotas and records of this market as well as a more market-based supervisory framework. Till then, there had been 717 members of the 16 categories of financial institutions in the Center and the accumulated transaction volume amounted to 10.65 trillion RMB. After changing the PBC's Shanghai Branch to the Shanghai Head Office in 2006, the Shanghai Head Office started to take over the responsibilities of managing entries, quotas and information disclosure of the Center. Till November 2016, the number of the members of the Center has been increased to 1602.

4.2.3 The Foreign Exchange Trade System

Since the PBC released the *Announcement on Further Reform the Foreign Exchange Regime* in December 1993, the PBC has been improving the mechanism of foreign exchange rate formation. The Foreign Exchange Trade System (FETS) was established in April 1994, which undertook to provide a centralized foreign exchange trading system, organize the listing of foreign exchange products and process the delivery and settlement of foreign exchange transactions. The PBC is the direct regulator of the FETS, and responsible for improving the foreign exchange market policies and rules, promoting the market infrastructure as well as putting forward the innovation of foreign exchange products and managing the open-up of the foreign exchange market.

4.3 Financial stability

Maintaining financial stability is also one of the mandates of the PBC that the Law stipulated. After 2008's global financial crisis, the PBC started to work on macro-prudential management mechanism and build up the framework of monitoring and evaluating systemic risks. In this sector, we will review the role and performance of the PBC on maintaining financial stability, especially during special episodes such as credit crunch in June 2013 and stock market crash in summer 2015.

4.3.1 The framework of maintaining financial stability

The modern literature on monetary policy underscores its role in fostering price stability. However, the recent events have served to emphasize the importance of the role in preserving financial stability as well. As Goodhart (1988) documents, the original motivation for the formation of central banks in many countries was to alleviate the procyclical fluctuations punctuated by banking panics, evident in central banks' function of the lender of last resort as well as maintain financial stability. Stein (2011) shows that in a sufficient simple institutional environment, the goal of financial stability regulation could be achieved with conventional monetary policy, complemented by either deposit insurance or a lender-of-last-resort facility. However, in a more realistic modern-banking setting where a substantial shadow banking sector exists, other tools such as expanded reserve requirements or haircut regulation may also necessary.

The framework of maintaining financial stability of the PBC includes, first, monitoring financial risks, economic environment, as well as the development of financial markets and institutions (especially the systemic important institutions); second, based on an evaluating system, analyzing the impact of changes in economic and financial environments on financial stability; third, taking corresponding measures based on the analysis results. For instance, providing liquidity support to and reorganizing the illiquid financial institutions with healthy financial fundamentals as well as the insolvent institutions. The PBC publishes the China Financial Stability Reports periodically. In recent years, the PBC has been strengthening the risk monitoring of the financial holding

companies and the innovative financial services due to the rise of shadow banking sector. In the meanwhile, after a long period of efforts, the deposit insurance scheme finally went to effect on May 1st, 2015. The scheme applies to all deposit taking institutions, including commercial banks, rural cooperatives, rural credit cooperatives with maximum payout amount per depositor per institution RMB 500,000⁷.

4.3.2 Monitoring and evaluating systemic risks

Since 2008's global financial crisis, especially after entering into the tough development phase of "balanced transition" (the so-called phase of "the New Normal"), the ratio of non-performing loans have moved up sharply again. Although the banking industry has enough capability to make up losses, it is necessary for the regulators to monitor the systemic risks (Chen and Zhou, 2016).

The PBC has been strengthening the regulation of systemic risks, mainly through different levels of channels. At the macro-level, the PBC tracks the development of macro-economy frequently, especially keeping an eye on debt-paying capability (household, corporate and government sectors) and asset bubble risks. At the med-level, the PBC continuously strengthens the risk monitor and evaluation scheme in the sub-sectors of financial industry (commercial banking, securities and insurance). To capture the key risks of China's financial system, a stress testing exercise was jointly conducted by the FSAP team and PBC/CBRC team based on the largest 17 commercial banks in China⁸. Since 2011 the PBC has been carrying out the stress testing for the 17 banks each year. In 2015, the PBC also started to run stress testing for 10 largest and representative securities firms (brokerage firms), of which the results are released in China Financial Stability Reports. Additionally, the PBC and its branches also run on-site examinations for financial institutions. The examinations focus on corporate governance, internal control, risk (credit risk, market risk, operational risk, liquidity risk, etc.) evaluation, financial contagion and shock resilience of financial institutions as well as the efficiency of financial regulation, covering around 600 financial institutions. At the micro-level, the PBC also started to explore how to identify and monitor the risks of systemically important financial institutions (SIFIs), jointly with other related authorities.

4.3.3 The PBC's activities during special episodes

Recently, the financial markets, including the interbank market, stock markets as well as the exchange market experienced turbulences. In this section, we review the involvement of the PBC in those special episodes.

⁷ However, the deposit insurance scheme excludes the foreign banks' branch and Chinese banks' branch overseas. Please see also: http://english.gov.cn/premier/news/2015/03/31/content_281475080793833.htm

⁸ Please see also, People's Republic of China: Financial System Stability Assessment, IMF Country Report No. 11/321: <https://www.imf.org/external/pubs/ft/scr/2011/cr11321.pdf>

4.3.3.1 Credit crunches in 2013

The credit crunch in 2013 was triggered by several factors together. In early May 2013, the SAFE of the PBC issued an announcement to crackdown on foreign exchange inflows to offset the potential shock from the Quantitative Easing (QE) exit of the Federal Reserve in the US, which required banks to strengthen the management of foreign exchange settlements and sales. Therefore, the foreign exchange inflows dropped from the average level of 275 billion RMB during February to April to 66.9 billion RMB in May, and further to -41.2 billion RMB in June. Moreover, the end of June is normally the examination (e.g. loan-to-deposit ratio, payment of reserve requirements) time point for banks, which further strengthened the liquidity tension then. However, the PBC refused to provide extra liquidity to offset the credit crunch, and in the meanwhile kept conducting repurchases until June 9, therefore continuing to withdraw liquidity from the market. Additionally the PBC also issued 92 billion RMB of central bank bills in May and 22 billion RMB more in June to further tighten credit. Given the fast growth of shadow banking in terms of issuance of wealth management products (WMPs) for medium sized commercial banks in recent years, these banks met even more severe situation that some of the WMPs were due in late June. Although the large banks had excess reserves with the PBC they refused to deploy the cash to help small and medium sized counterparts and make up for the PBC's absence from the interbank market. Therefore, the smaller shareholding banks were at risks within the short period. On June 20, the seven-day interbank repo rates soared to 11.62%, which was the highest daily fixing since 2003, suggesting that the liquidity fell sharply.

Amid expectations that the PBC would quickly relieve the sharp rise in the interbank repo rate by injecting liquidity into the market. However, the PBC kept the market waiting until much later in the week. On June 25, the PBC finally announced that it had already extended liquidity support to some qualified financial institutions and would adjust bank liquidity properly, which resolved largely the market confusion over the central bank's stance and further ended the credit crunch in the interbank market.

Some media reports documented that the PBC allowed the liquidity crunch to happen and last for several days as a warning to some domestic banks against taking on too much balance sheet via excessive lending⁹, as some smaller banks tended to rely on the borrowing from the short-term interbank market to finance their exposure to shadow banking activities (especially the high-yield wealth management products). Therefore, the PBC's delay in relieving that the liquidity crunch seemed to have a punitive tinge to it. In

⁹ For instance, a report from Barclays documented that the recent spike in interbank market rates is an indication of how serious policymakers are about to tackle the financial imbalance in China- not least in the shadow-financing system. https://wealth.barclays.com/en_ch/home/thought-leadership/compass/compass-july-2013/china-s-liquidity-crunch.html

the meanwhile, the PBC could see 2 trillion RMB in excess reserves, which was much more than enough to meet settlement needs, therefore the liquidity shortage should not be at the aggregate-level¹⁰. As the new monetary policy instruments were introduced in the beginning of 2013, the PBC, in the Quarterly Monetary Policy Reports in 2013, also stated that it would further actively employ short-term tools such as SLO and SLF to manage liquidity tensions, implicitly indicating that the liquidity crunch might be tactical.

4.3.3.2 Stock market crash in summer 2015

Most recently, Chinese stock market became a focal point for attention during the market run-up and crash from mid-2014 to summer 2015, which further stalled the US Federal Reserve's interest rate liftoff and created even turbulence throughout global financial markets (Carpenter and Whitelaw, 2016). This large crash produced widespread panic in the market and pushed Chinese government to implement a series of rescue policies, with the PBC playing a key role in these policies.

Since 2008's global financial crisis, Chinese stock market had been bearish until the mid-2014. The CSI 300 index, which represents the broad Chinese A share market, rose from 2,050 to a high of 5,178, then collapsed and lost 34% in 20 days, with 1000 points of the index erased in one week alone. The collapse was first triggered by the regulation order by the CSRC on June 13, 2015, which banned all securities firms from providing facility for off-market or shadow margin lending. In response, the CSI 300 index dropped from 5,221 to 4,637 from June 15 to 19, and then continuously plummeted by 7.3% on June 26 and 2,284 out of 2,456 listed stocks fell by 10%, hitting the lower bound.

In the following days, the PBC responded to the stock market collapse with heavy interference and cooperation with other authorities. On June 26, the PBC stepped in to stop a sell-off in the stock market, cutting the benchmark interest rate and deposit rates by 25 basis points each (to 4.85 percent and 2 percent, respectively) and the required reserve ratio (RRR) by 50 basis points. This was also the fourth time the PBC had cut lending and deposit interest rates since November 2014, and was also the first time since 2008 the PBC cut both interest rates and the RRR at the same time¹¹. In response, the stock market rebounded a little. On June 29, the Ministry of Human Resources and Social Security and the Ministry of Finance released draft regulations for consultation, allowing pension funds management by local governments to invest in stocks, funds, private equities and other stock-related products. The proportion of investment in stocks would

¹⁰ This is confirmed by a subsequent report by an official from the PBC:
<http://finance.sina.com.cn/china/jrxw/20130715/064516119954.shtml>

¹¹ For instance, please see "People's Bank of China Cuts Interest Rates," Wall Street Journal, June 27, 2015.
<http://www.wsj.com/articles/peoplesbank-of-china-cuts-rates-1435397932>

be capped at 30% of the pension fund's net value. In other words, up to 600bn RMB (or 97bn USD) could be channeled into China's struggling equity market.

However, there was still a mood of panic in the market, causing a strain of liquidity. Between June 29 to July 3, the CSI index lost another 13% in five trading days. On July 5, the CSRC announced that the PBC will "uphold market stability" by providing funds (about 41.8bn USD or 260bn RMB) to a state agency, the China Securities Finance (CSF), to lend money to 21 leading brokerage firms for purposes of shares¹². The PBC also announced that the CSF would receive liquidity to "hold the line" against the outbreak of systemic or regional financial risks, which suggested that CSF was buying shares directly using PBC money. On July 8, the CSRC banned shareholder with stakes above 5% from selling shares for the next six months.

On July 9, the market rebounded and the CSI 300 gained 5.8%. The market temporarily stabilized until August 11 when PBC unexpectedly lowered the RMB exchange rate by almost 2%. The market interpreted this as the PBC's concern of the weak economy although PBC stated that it was a move forward to the market determination of the exchange rate. In response, the stock market lost again 28.33% from August 12 to 26.

Apparently Chinese stock market was not functioning properly in those months and market correction was inevitable, therefore urgent government interventions are justified. Some recent studies discussed the government intervention during the crash. For instance, Huang et al. (2016) find that the government purchase plan increased the value of the rescued firms with a total net benefit between RMB 5,697 and 6,635 billion by increasing stock demand and liquidity as well as reducing default probabilities. There are precedents of urgent government interventions during market crashes in other advanced markets as well, such as the massive infusion of liquidity and rescue efforts by the US government during the Subprime Debt Crisis in 2008. Chinese stock market has been fast growing and the rescue plans by the PBC as well as other authorities helped in stabilizing the market during the crash, although at the costs of more uncertainty or volatility due to the trial-and-error approach in implementing rescue policies.

4.3.4 Central bank swap

In response to financial crises, central banks set up swap facilities to offset the current-specific liquidity shortages so that the home central bank of the currencies in short supply could provide these currencies to the commercial banks outside the home country that needed them. Allen and Moessner (2010) documented that till now four overlapping swaps network have been established, the Fed network that supplies dollars,

¹² Please see also: <https://www.ft.com/content/1c865eb4-22b4-11e5-bd83-71cb60e8f08c>

the Euro network that supplies Euros, the Swiss Franc network as well as the Asian and Latin American network.

The inter-central bank swap lines in Asian countries were created since 2000, in order to provide mutual financial support after the Asian financial crisis of 1997-1998. The PBC was also active in establishing new swap lines during this period. Before 2008's global financial crisis, 9 agreements of central bank swaps were signed between the PBC and other central banks of Asian countries. The first agreement on central bank swap was signed with Thailand on December 6, 2001. However, during this period, the economies soon got recovered for some Asian countries thereby the incentive to cooperation was weak under the framework of Chiang Mai Initiatives. The average amount of the swaps was relatively lower and in the meanwhile the swaps were denominated in US dollars. After the breakout of 2008's global financial crisis, the PBC scaled up the central bank swaps with other central banks (including central banks of Argentina, Iceland, New Zealand, Australia, etc.) in order to maintain the financial stability as well as boost bilateral trade and direct investments. During this period, the PBC has signed central bank swap agreements with 36 countries, amounted to 3,343.7 billion RMB in total (Table 1). Moreover, the swaps during this period were mainly denominated in RMB in order to establish RMB as international trading vehicles and all have three-year terms, much longer than the terms of the swaps set up by other central banks purely address market liquidity stress, reflecting its dual purposes of providing liquidity and facilitating bilateral trade and investment.

4.4 Financial reforms

One of the enduring puzzles surrounding China's rapid growth is how it was achieved with an underdeveloped financial system. In the last two decades, China has accelerated financial reforms to liberalize the financial system, witnessed by the significant development of both the financial markets and the banking system. The PBC has been involved in most of the successful reforms of financial institutions, the interest rate determination, the RMB exchange rate regime as well as the open-up of capital account.

4.4.1 The reforms of financial institutions

One of the most significant achievements of China's banking sector in the last two decades is the privatization of the state-owned banks. To put forward the reform, the State Council set up a leading team for the pilot of the shareholding reform of the wholly state-owned banks. The office of the leading team was located in the PBC Head Office, responsible for studying and designing the reform scheme as well as coordinating with different participants. Based on the previous experience of financial reforms, the leading team proposed that the target of the privatization of the state-owned banks was to

improve the corporate governance structure and transform the operating system to make the state-owned banks more competitive. To achieve this objective, the PBC proposed to inject foreign reserves into these banks to improve their balance sheets in preparation for going public, and further cooperated with other ministries to study the scheme of establishing four state-owned asset management corporations to liquidate and reduce the Non-performing loans (NPLs) and further listing on A-share or H-share. Till the end of 2010, all of the “Big-Five” banks (namely, the ICBC, BOC, CCB, ABC and BComm) have been listed on both A-share and H-share markets. Remarkably, the total proceeds from the ABC’s IPO from HKSE (July 16, 2010) and SHSE (July 15, 2010) reached \$22.1 billion, overtaking the ICBC IPO as the world’s largest IPO in that year. By the end of 2014, the capital adequacy ratios of the “Big-Five” banks are 14.53% (ICBC), 13.87% (BOC), 12.82% (ABC), 14.87% (CCB) and 14.04% (BComm) respectively (see also, e.g. Allen et al., 2015).

Other reforms in banking include those for Rural Credit Cooperatives (RCC) and those for policy banks. First, due to the unclear property rights and problematic management system, the RCCs accumulated many risks. To address these issues, the PBC proposed to replace the non-performing assets with central bank notes and introduce funding supportive policies with incentive and restrictive mechanism. Starting from June 2003, the PBC announced the pilot of RCC reform in eight provinces, which was further expanded to the whole country. The reform linked the central bank special notes and loans with the reform efficiency in the RCCs. For instance, if the capital adequacy ratio and NPLs ratio has passed the compliance check, then the special notes will be guaranteed. Since then, the governance and internal management system of the RCCs have been improved significantly. Till the end of 2014, the average NPLs ratio of the RCCs is around 3.8% and the average capital adequacy ratio is 13.2%.

From 2009 to 2011, the IMF and the World Bank conducted the first Financial sector Assessment Program (FSAP) in China and affirmed the huge success of China’s financial reforms in the past decade to develop the financial sector and maintain the financial stability.

4.4.2 Interest rate liberalization

Many central banks around the world had controlled interest rates and credit allocation in their recent history. While these restrictions were put in place to maintain financial stability and support development, they also reduced the borrowing costs of governments by imposing low interest ceilings, which may further lead to inefficient intermediation and lower growth (See, e.g. Caprio, Atiyas and Hanson, 1994; Caprio, Hansan and Honohan ,2001). Most central banks removed these restriction after experiencing macroeconomic crises (Feyzioglu, Porter and Takats, 2009). Similarly, the repressed interest rates underlie structural imbalances and distortions in China’s economy

and further led to the fast growth of the shadow banking in recent years (Lin and Zhou, 1993; Hachem and Song, 2016; Wang et al., 2016). Interest rate liberalization is an essential part of China's price reform (He, Wang and Yu, 2014)

The interest rate liberalization in China started from the announcement of *Some Issues of Improving the Socialist Market-Oriented Economy* after the 3rd Plenary Session of the 16th Central Committee in 2003. The announcement stated that the PBC should guide the market rate using monetary policy tools and further establish and improve the formation of market-based interest rate, which has been regarded as the guideline of the interest rate liberalization and has implied that the reform is a systematic process including not only the liberalization, but also the formation of market-based interest rate as well as the adjustment by the monetary authority.

Over the years, the PBC has been engaging in the market-based interest rate reform, including the interest rate in money market and bond market as well as the bank deposit and loan rate. In 1996, the PBC first removed the restrictions on interbank lending rate. Later both the at-issue yields of treasury bonds and policy banks' financial bonds were liberalized and determined by on market demand and supply. In January 2007, with the concerted efforts of the PBC and market members over the years, the Shanghai Interbank Offered Rate (SHIBOR) was formally launched, indicating that China had begun to build a money market benchmark interest rate system. The short-end SHIBOR within three months fully reflects the changes in market supply of the demand for funds, is highly correlated with the borrowing and pledged repos; the medium- and long-end SHIBOR with a maturity of three months (or above) reflects market expectations of future interest rate movements. Since then, the SHIBOR has promoted the rapid growth of money market was widely used in the market-based pricing of products. In April 2008, the PBC started to allow non-financial corporations to issue debt-financing instruments in the interbank bond market based on market interest rate.

On the other hand, the deposit and lending interest rate has also been liberalized in succession in the last decade. Early in October 2004, the PBC decided to remove the upper limit of deposit and lending rate and keep only the floor rate as 90 percent of the benchmark lending rate. In October 2008, in order to handle the potential impact of the global financial crisis on China and support the domestic demand, the floor mortgage interest rate for commercial individual housing was lowered to 70 percent of the benchmark lending rate and the minimum down payment ratios were lowered to 20 percent. In July 2012, the floating bands of deposit and lending rates were adjusted, with the ceiling for deposit rates raised to 1.1 times of the benchmark deposit rate, and the floor of the floating band for lending rates was lowered from 90 percent to 80 percent and then to 70 percent of the benchmark lending rate. One year later, on July 20, 2013, the PBC removed the floor for lending rate of financial institutions (with the exception of

mortgage loans). In the meanwhile, controls on the interest rate for bill discounting were removed, the ceiling on the lending rates of Rural Credit Cooperatives was removed as well. On March 1, 2014, the PBC removed the ceiling on small-scale foreign-exchange deposit interest rates in the China (Shanghai) Pilot Free Trade Zone. In November 2014, the PBC expanded the floating band of the deposit interest rates from 1.1 times to the benchmark deposit rate to 1.2 times the benchmark deposit rate and simplified the brackets of the benchmark interest rate so that the pricing capacity of financial institutions was further improved.

On August 26, 2015, the ceiling of the interest rates for time deposits beyond 1-year (excluding 1-year) was removed for financial institutions. Later on October 24 the ceiling of interest rates for demand deposits and time deposits within 1-year (including 1-year) was removed for commercial banks and rural cooperative financial institutions, which marked the end of the interest rate controls and represented a key step in the market-based interest rate reform. It has also been regarded to create conditions for the conduct of monetary policy to shift from quantitative measures to price measures and help improve the efficiency of macro-economic management.

As suggested by Feyzioglu, Porter and Takats (2009), China meets several of the preconditions for successful interest rate liberalization identified by the experience of other countries (See also, e.g., He, Wang and Yu, 2014). Their model basically suggests that interest rate liberalization will likely result in higher interest rates, discourage marginal investment, improve the effectiveness of intermediation and monetary transmission and enhance the financial access of underserved sectors. However, as documented by the PBC, the removal of administrative controls on interest rates does not necessarily indicate that the central bank will no longer regulate interest rate. Instead, the central bank will rely even more on market-based monetary policy tools and the transmission mechanism. Moving forward, the PBC will pursue further improvements of a complete benchmark interest rate system and the transmission channel of interest rates.

4.4.3 The reforms of the exchange rate regime

With the adoption of market-oriented economic system reforms and the opening-up policy since 1978, China's economy has become increasingly integrated in the world economy and its foreign exchange administration controls have been gradually eased. In November 1993, the Third Plenum of the Fourteenth CPC Central Committee approved a comprehensive reform strategy in which foreign exchange management reforms were highlighted as a key element for a market-oriented economy. A market-based unified floating exchange regime and the RMB convertibility were seen as the ultimate goals of the exchange reform.

In December 2001, China joined the World Trade Organization (WTO), which marked a new area for China's external sector liberalization. In the wake of the Asian financial crisis in 1997, China voluntarily narrowed the RMB exchange rate band to present competitive currency depreciation in the region and a worsening of the crisis. The trading band was further tightened in November 2000 and stood at about 0.01 percent fluctuation around the central parity of RMB/USD \$8.277 until mid-2005 when conditions improved. On July 21, 2005, the PBC decided to improve the RMB exchange rate regime and adopted a managed floating exchange rate regime based on market supply and demand with reference to a basket of currencies. The RMB/USD rate was adjusted to 8.11 at 19:00 (GMT+8) on that day. Figure 6 shows the trends of exchange rate of RMB to USD as well as HKD to USD.

Since the reform, the PBC has endeavored to improve the managed floating exchange rate regime; as a result, the flexibility of the RMB exchange rate has been greatly strengthened, with the currency steadily appreciating in real effective terms until recently. In June 2010, the PBC decided to further reform the RMB exchange rate regime, focusing on the role of market supply and demand with reference to a basket of currencies. After that, the RMB moved in both directions with greater flexibility. By the end of 2010, the central parity of the RMB against the USD had increased 3 percent since the reform began. Given the larger deviation of the central parity rate from the market exchange rate, which also lasts for long sometimes depending on the market condition, on August 11, 2015, the PBC announced that it would improve the RMB to USD central parity rate formation mechanism, which is regarded as the "8.11 Exchange Rate Reform" by the financial markets. The daily quotes of the central parity that market-makers report to the CFETS before the market opens should refer to the closing rate of the inter-bank foreign-exchange market on the previous business day, and it should consider comprehensively the demand and supply conditions in the foreign-exchange market and the exchange-rate movements of the major currencies¹³. In this way, market supply and demand plays a more decisive role in determining the central parity exchange rate. In the meanwhile, the RMB exchange rate has been adjusted consistent with market forces to a more adaptive and equilibrium level. The deviation of the central parity rate from the market rate has been corrected and its benchmark status has obviously also been strengthened.

However, one key question unclear here is that to what extent the PBC would refer to the market-makers' pricing¹⁴. On the same day, the RMB central parity rate rose

¹³ The PBC's official announcement can be found: http://www.gov.cn/xinwen/2015-08/11/content_2911052.htm. Shortly after the announcement, the PBC held a press conference on the 8-11 foreign exchange reform: http://www.gov.cn/xinwen/2015-08/11/content_2911053.htm

¹⁴ The PBC did not give a clear description on to what extent it would follow the pricing by the market-makers in its announcement and the press conference.

200bp, indicating that the PBC was trying to listen to the market price although it still kept some leeway by claiming in the press conference on August 11 that the PBC would closely monitor the exchange market and stabilize the market expectation. Soon after the launch of the reform, there was a short period of fluctuations in the foreign exchange market. The PBC then strengthened communications to guide expectations, provided liquidity to the market as well as took macro-prudential measures to curb speculative trading and to prevent pro-cyclical behaviors and “herding effects”.

Some recent studies have also found evidences for the benefits of exchange rate liberalization. For instance, using a DSGE framework with Chinese characteristics, Chang, Liu and Spiegel (2015) find that through allowing the exchange rate to float, the central bank can respond to external shocks by adjusting the exchange rate, which helps reduce external imbalances and shields the country from adverse impact of fluctuations in foreign conditions, even the capital account remains close.

4.4.4 The convertibility of capital account

The current account has been convertible since 1996. After that, the PBC has been promoting the capital account convertibility, especially in recent years. In late September 2013, the Chinese government launched the Pilot enforcement of Shanghai Free Trade Zone. Soon following that, the PBC released the guidelines to boot the Pilot Zone, with an emphasis on exploring ways to facilitate investment and financing remittance, promoting the convertibility of capital account, promoting the cross-border use of RMB to allow enterprises and individuals in the Pilot Zone to use RMB to carry out cross-border trade in a more flexible way and deepening foreign exchange reform. Capital account liberation can attract more foreign capital, however, large scale and sudden capital flows and foreign speculation significantly increase the likelihood of a twin crisis. Alessandria and Qian (2005) use a model of endogenous financial intermediation and demonstrate that an efficient financial sector prior to liberalization is neither necessary nor sufficient for a successful financial liberalization. Applying these ideas to China, banks can have a stronger incentive to limit the moral hazard concerning borrowers’ choices of investment projects through monitoring and designing of loan contracts following a capital account liberalization even though the current efficiency (especially that of the state-owned banks) is relatively low. Other recent empirical studies have also found limits to the effectiveness of capital controls. For instance, Forbes et al. (2013) argue that while capital controls may mitigate financial fragility, they are less effective for meeting macroeconomic targets. Chang, Liu and Spiegel (2015) argue that as China’s prevailing policy regime features capital controls, exchange rate targets and sterilized intervention, the optimal monetary policy involves a trade-off between sterilization costs and domestic price stability.

4.4.5 Discussions on the possible reform of regulatory consolidation

The institutional arrangements of financial supervisors vary by country. For example, in the US, the Federal Reserve plays a critical role in the US payment system, both as an supervisor and as a provider of whole and retail payment services; it also has substantial responsibilities of consumer protection, promoting financial stability and supervising banking organizations together with other agencies. In the Euro area, even as the ECB has assumed responsibility for monetary policy, some national central banks or other national authorities have retained substantial supervisory powers.

In the existing literature, the discussion of whether the central bank should also act as a supervisor has focused on issues of incentives and efficiency. The main case that is usually presented for separation is on grounds of conflict interests (e.g. Goodhart and Schoenmaker, 1995; Bernanke, 2001). However, others argue that combining central banking and supervision in one agency could yield economies of scope. For instance, if supervisory activities gain information that is useful for carrying monetary policies or other central bank functions, then granting some supervisory authority to the central bank may lead to better outcomes (e.g, Mishkin, 2001; Haubrich and Thomson, 2005)

In China, the current main supervisors include the PBC, the three Regulatory Commissions (CSRC, CBRC, CIRC, 3RCs henceforth) and SAFE, as well as the Ministry of Finance (as major shareholder on behalf the state), the NDRC (as the economic planner). For years, there have been a substantial degree of institutional overlap and rivalry between the different supervisory authorities, which makes an efficient regulation of the financial system difficult and sometimes can even block reforms. One illustration is the segmentation of Chinese bond market, which undermined the bond market development significantly. There have been two separate bond markets in China, one called the interbank bond market regulated mainly by the PBC and NDRC and the other called the corporate bond market regulated mainly by the CSRC and two stock exchanges. More specifically, the PBC governs bond sales and the NDRC approves bond issuance in the interbank market, mostly for state-owned and unlisted firms, and the CSRC and stock exchanges oversees bonds in the exchange markets.

In order to strengthen the coordination among the PBC and 3RCs in the financial industry, the joint inter-ministerial meeting on financial regulation was launched by the State Council in 2013. However the mechanism didn't seem to solve the issue of separate supervision such as how to settle disputes among authorities.

A major step in this direction would be the creation of a super agency for financial regulation under the lead of the PBC, which has been discussed by both policy makers and academic researchers for years in China. After the stock market crash in summer 2015, the issue became again a focal point for discussion in the 2016 NPC&CPCCC.

Governors agree with the direction for super regulation in financial industry however the concrete proposal is still under discussion¹⁵. For instance, the “top coordination” scheme proposes that a central financial committee should be established to coordinate among the PBC and 3RCs¹⁶. The “One central bank-one committee” scheme proposes that the three supervisors should be aggregated into a national financial supervision committee and cooperate with the PBC to regulate the financial industry¹⁷. The “super central bank” scheme proposes that the functions of 3RCs should be aggregated into the PBC and then the PBC is responsible for both implementing monetary policies and financial regulation¹⁸.

5. Other responsibilities of the PBC

Other responsibilities of the PBC include issuance and management of RMB, construction of the social credit system of China, financial statistics, financial consumer protections, development of inclusive finance, as well as integration of finance and information technology.

Since 2006, the PBC organized to establish a comprehensive national financial credit information database (the so-called “credit information registry system” for the corporations and individuals). In June 2007, the State Council launched the inter-ministrial meeting mechanism on the social credit system, led by the NDRC and PBC. In June 2014, the State Council further improve the top-level design of the system during the “New Normal” Period by publishing the six-year plan for the construction of the social credit system, which further emphasizes the impact of honesty and faithfulness.

Currency issuance is one of the traditional mandates of the central banks. The establishment of the PBC also started with issuing the first set of RMB. Besides this, the PBC has also been engaging in the construction of social credit system. For instance, a national unified financial credit information basic database was built up in 2006 led by the PBC. In recent years, the PBC also tried to construct the rating system of the credit market including the individual credit report, credit rating for corporations, financial products, and guarantee institutions. The credit system of micro- or small-firms and rural households has been enhanced significantly as well.

¹⁵ For example, the People’s website reported that both the Vice President of the PBC, Gang Yi, as well as the Chairman of the SAFE, Gongsan Pan said that related departments have been studying the consolidation reform of the PBC and three authorities while the concrete proposal is not clear yet. Please see: <http://money.people.com.cn/bank/n1/2016/0307/c202331-28176498.html>

¹⁶ This scheme was raised by the vice director of Research Institute of the PBC in “Caixin” (February 2016), a leading financial magazine in China. Please see also: <http://opinion.caixin.com/2016-02-23/100911617.html>

¹⁷ This scheme was proposed by scholars such as Fengqi Cao. Please see also: http://news.xinhuanet.com/fortune/2013-08/27/c_125252678.htm

¹⁸ Please see also: <http://finance.sina.com.cn/stock/y/2016-03-07/doc-ifyqaffy3723470.shtml>

Similarly with other central banks the PBC also take the responsibilities of collecting, compiling and analyzing financial data and other economic information, publishing data on money supply and monetary policy, participating in the design of accounting system related to financial monetary statistics, as well as collecting and compiling the balance sheets and income statements of the financial institutions borrowing from the central bank. At the end of 2010, due to the fast growth of shadow banking in recent years, the PBC also introduced a new indicator, Total Social Financing (TSF), to measure the liquidity condition. The TSF covers loans in local currency, loans in foreign currency, entrusted loans, trusted loans, bank acceptance bills, net corporate bond financing and non-financial enterprise equity financing. Since then, the TSF is updated by month and has been regarded as one of the most important monetary flow indicators in China, as the traditional monetary stock indicators such as M2 fail to take all of the social financing sources into account.

6. Concluding remarks

Although China is now one of the world's largest economies, how the central bank conducts monetary policy is little understood. The common perception is that financial system in China is overwhelmingly dominated by state-owned banks and that monetary policy is implemented by targeting the growth of bank credit primarily through quantity-based instruments. This paper attempts to enhance our understanding of China's central bank system. We first review the history of the PBC to see how it has evolved from the mixture of a central bank and a commercial bank to the central bank of China. The major mandates of the PBC is to formulate and implement monetary policies, guard against and eliminate financial risks and maintain financial stability. To deal with the challenges from the constantly changing internal and external environments, unlike the central banks in many advanced economies, no single policy instrument represents a good proxy of China's monetary policy and the PBC successfully combined many price-based, quantity-based and administrative tools to help realize a relatively low inflation rate and fast economic growth as well as smooth short-periods of liquidity crunch in the money market and turbulences in the stock market. Another achievement is that the PBC has been promoting the financial reforms including financial institution reforms, interest rate liberalization and the RMB exchange rate regime actively over the past decades, which has led to the rapid development of China's financial system and may further contribute to the economic growth and help balance the growth in different sectors.

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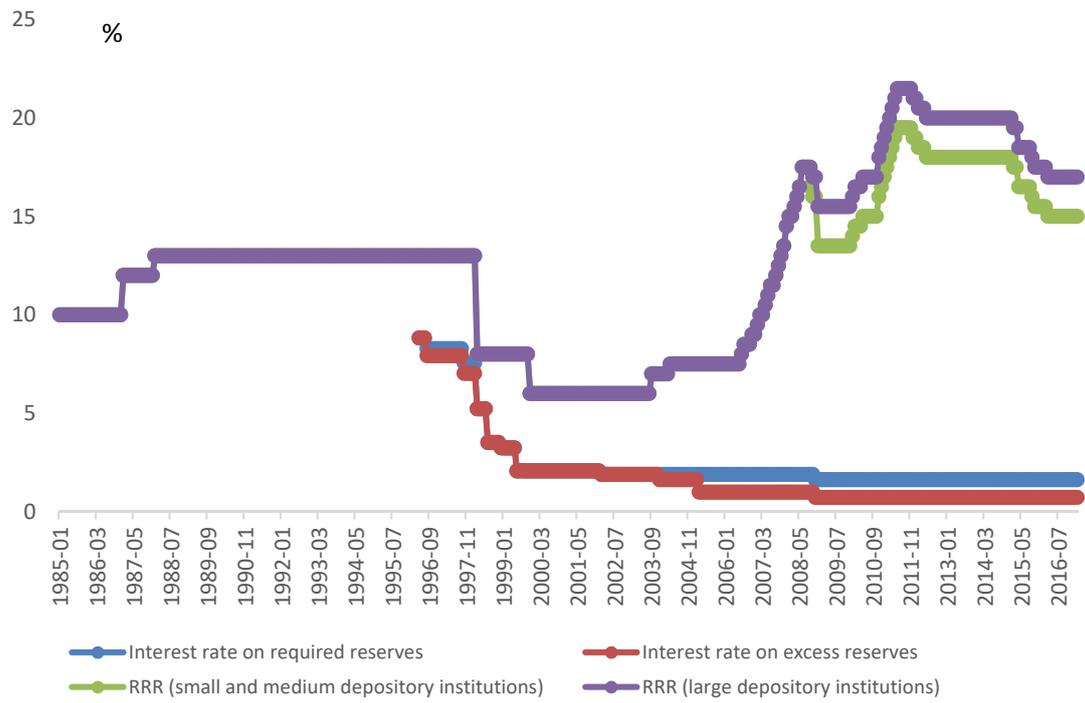
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Figure 1 The Structure of PBCHO



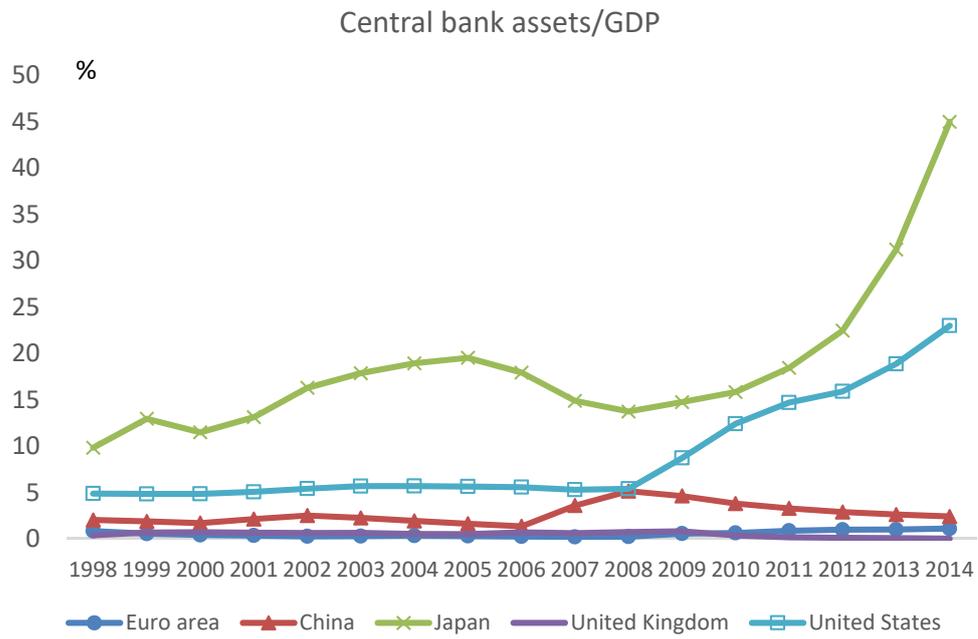
Source: the People's Bank of China.

Figure 2: Reserve requirement ratio and interest rate on reserves



Source: the People's Bank of China.

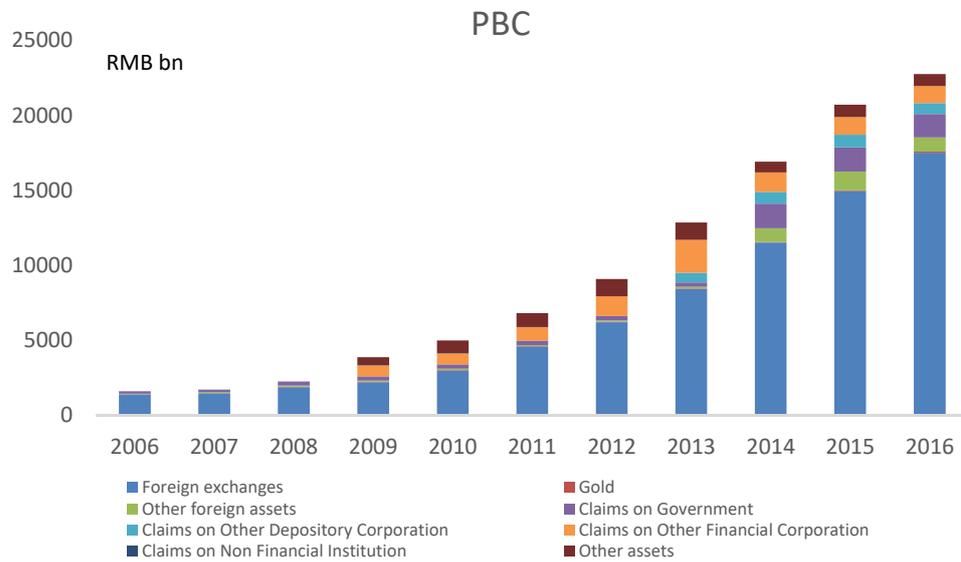
Figure 3: The Growth of Central Bank Assets: China vs. Other Countries:



Source: the World Bank.

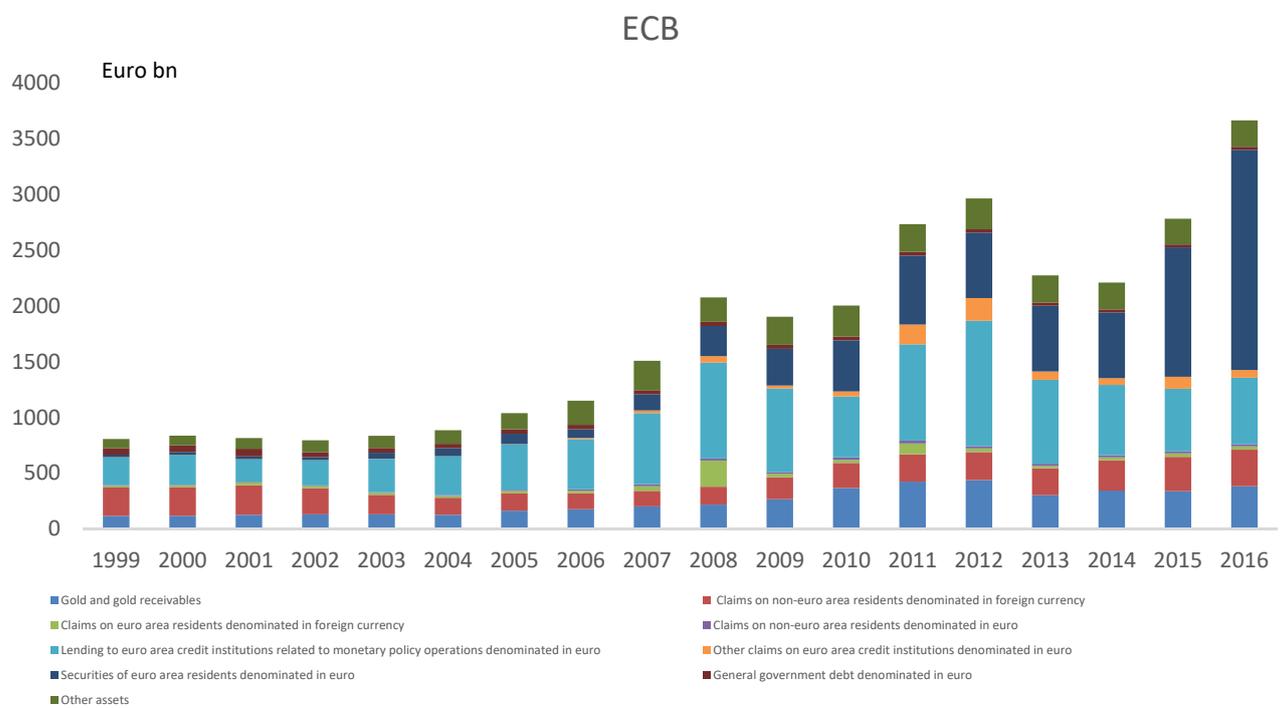
Figure 4: Breakdown of central bank assets

Figure 4-a: Breakdown of assets (PBC)



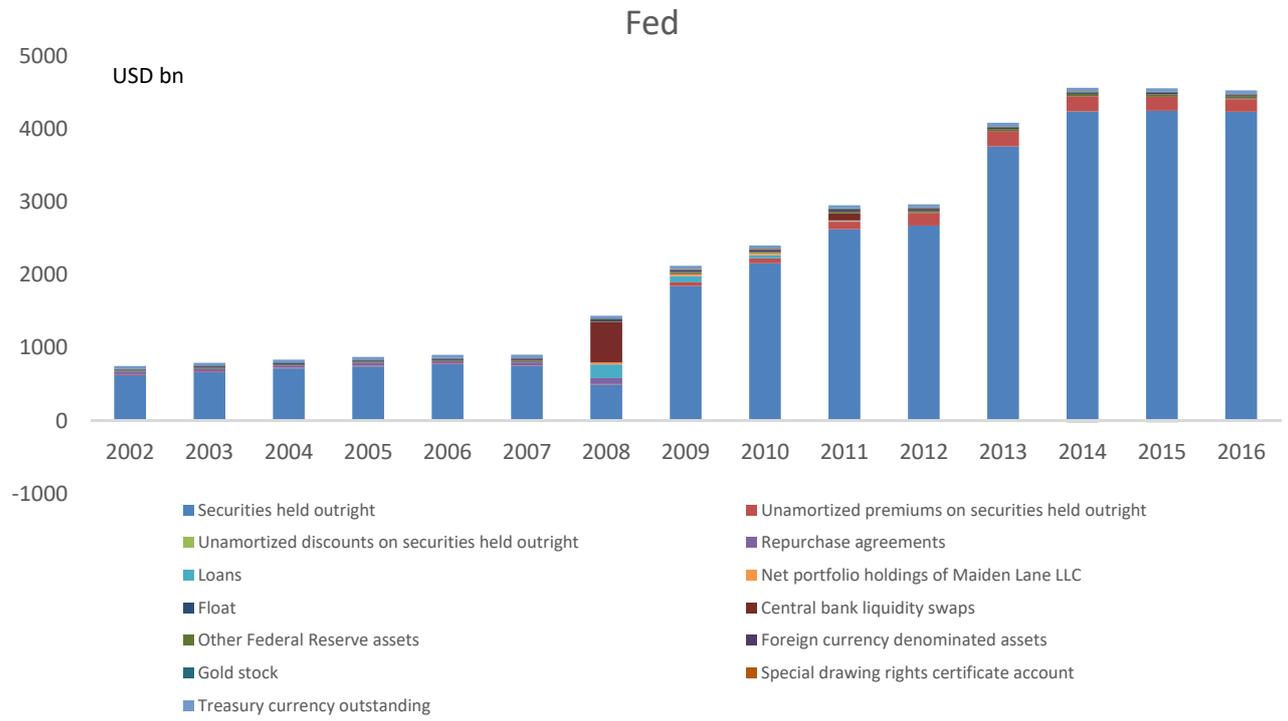
Source: People's Bank of China.

Figure 4-b: Breakdown of assets (European Central Bank)



Source: European Central Bank.

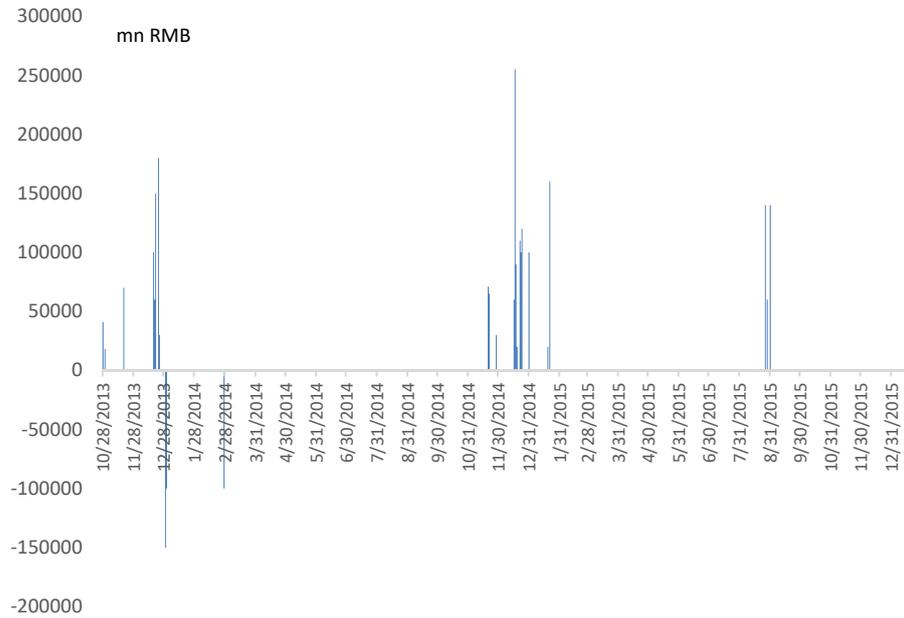
Figure 4-c: Breakdown of assets (U.S. Federal Reserve)



Source: Federal Reserve Bank.

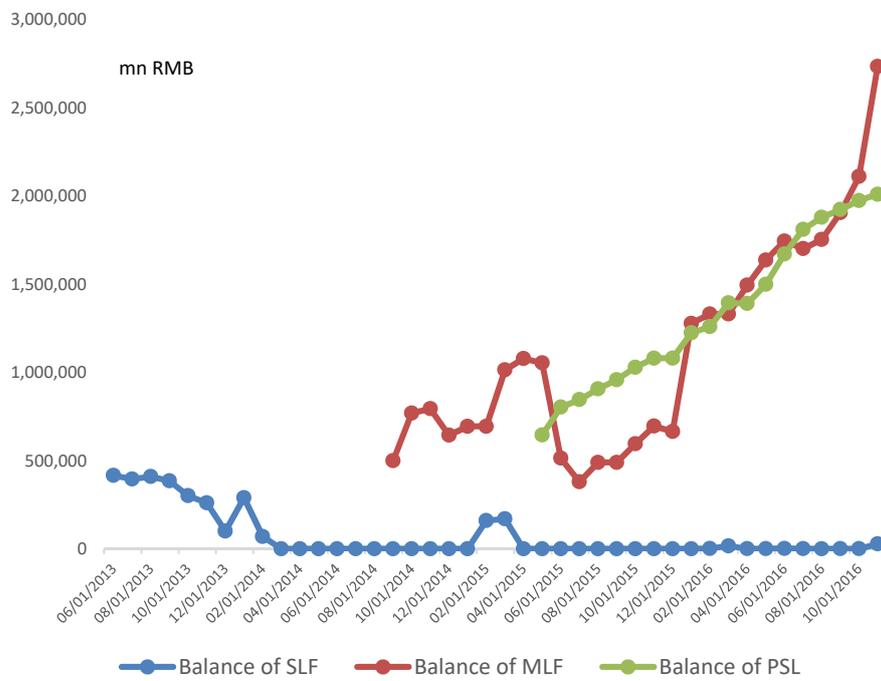
Figure 5: Volume of new monetary policy instruments

Figure 5-a: SLO operation volume



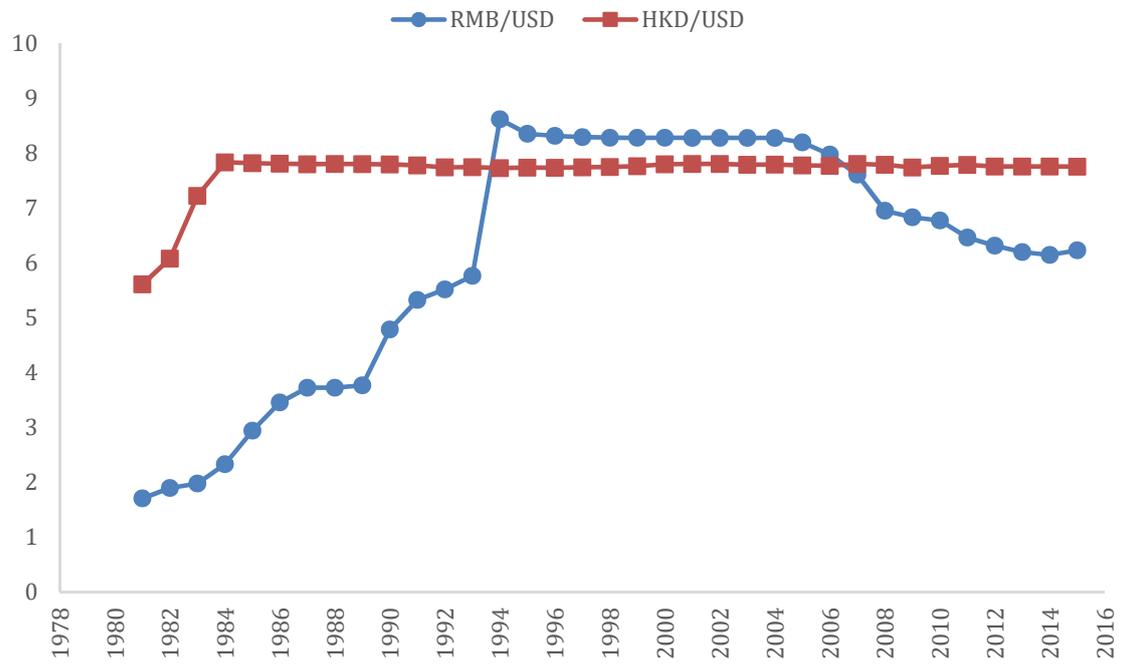
Source: the People's Bank of China.

Figure 5-b: Balance of SLF, MLF and PSL



Source: the People's Bank of China.

Figure 6: Trends of Exchange Rate



Source: the People's Bank of China.

Table 1: The list of counterparty of the PBC swap since 2009

	Counterparty	Date	Volume (RMB)	Maturity (years)
1	Korea	2009.04.20	180bn	3
		2011.10.26 (continued)	360bn	
		2014.10.11 (continued)	360bn	
2	Hong Kong, SAR	2009.01.20	200bn	3
		2011.11.22 (continued)	400bn	
		2014.11.22 (continued)	400bn	
3	Malaysia	2009.02.08	80bn	3
		2012.02.08 (continued)	180bn	
		2015.04.17 (continued)	180bn	
4	The Republic of Belarus	2009.03.11	20bn	3
		2015.05.11	7bn	
5	Indonesia	2009.03.23	100bn	3
		2013.10.01(continued)	100bn	
6	Argentina	2009.04.02	70bn	3
		2014.07.18 (continued)	70bn	
7	Iceland	2010.06.09	3.5bn	3
		2013.09.11 (continued)	3.5bn	
8	Singapore	2010.07.23	150bn	3
		2013.03.07 (continued)	300bn	
		2016.03.07 (continued)	300bn	
9	New Zealand	2011.04.18	25bn	3
		2014.04.25 (continued)		
10	Uzbekistan	2011.04.19	0.7bn	3
11	Mongolia	2011.05.06	5bn	3
		2014.08.21 (continued)	10bn	
			15bn	
12	Kazakhstan	2011.06.13	7bn	3
		2014.12.14 (continued)	7bn	
13	Thailand	2011.12.22	70bn	3
		2014.12.22 (continued)	70bn	
14	Pakistan	2011.12.23	10bn	3
		2014.12.23 (continued)	10bn	
15	United Arab Emirates	2012.1.17	35bn	3
		2015.12.14 (continued)	35bn	
16	Turkey	2012.02.21	10bn	3
		2015.09.26 (continued)	12bn	
17	Australia	2012.03.22	200bn	3
		2015.03.30 (continued)	200bn	
18	Ukraine	2012.06.26	15bn	3
		2015.05.15 (continued)	15bn	
19	Brazil	2013.03.26	190bn	3
20	United Kingdom	2013.06.22	200bn	3
		2015.10.20 (continued)	350bn	
21	Hungary	2013.09.09	10bn	3
22	Albania	2013.09.12	2bn	3
23	Euro Central Bank	2013.10.08	350bn	3
24	Switzerland	2014.07.21	150bn	3

25	Sri Lanka	2014.09.16	10bn	3
26	Russia	2014.10.13	150bn	3
27	Qatar	2014.11.03	35bn	3
28	Canada	2014.11.08	200bn	3
29	Surinam	2015.03.18	1bn	3
30	Armenia	2015.03.25	1bn	3
31	South Africa	2015.04.10	30bn	3
32	Chile	2015.05.25	22bn	3
33	Tajikistan	2015.09.03	3bn	3
34	Morocco	2016.05.11	10bn	3
35	Serbia	2016.06.17	1.5bn	3
36	Egypt	2016.12.06	18bn	3

Source: The People's Bank of China.