China's Monetary Policy Framework in the Past 70 Years: 1949—2019

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In this paper, we review the historical transformation of China's monetary policy framework in a systematical way in the past 70 years since the founding of the People's Republic of China, from the five dimensions of money creation mechanism, monetary policy objective, monetary policy instrument, monetary policy rule and monetary policy transmission channel. We then focus on the current policy framework and suggest its major characteristics: the base money creation mechanism is undergoing fundamental structural changes and the credit system is becoming more and more complex; the multip1e objectives of the monetary policy are prone to conflict with each other; quantitative tools and price-based tools coexist while the validity of various new structural tools still needs to be tested; the monetary policy decisions are mainly discretionary and clear quantitative rules have not been formed; the monetary policy transmission is still dominated by bank credit channels, and the transmission to real economy is partially blocked. In the end, we outline the four major challenges facing China's existing monetary policy framework and put forward policy recommendations for its transformation in the future.

Keywords: China's monetary policy framework, money creation mechanism, monetary policy objective, monetary policy instrument, monetary policy rule

1. Introduction

Over the past 70 years since the founding of the People's Republic of China, as the economic system was reformed and the economic development went through different stages, China's monetary and financial management system and concepts underwent changes, but monetary finance has always been playing a significant role in the economic development. The paper focuses on "monetary policy framework", a core topic in the theories and practice of monetary finance, reviews its historical changes over the past 70 years, analyzes its current status and challenges, and discusses its direction of transformation in the future.

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Generally speaking, monetary policy framework in the narrow sense consists of four parts: monetary policy objective, monetary policy instrument, monetary policy rule and monetary policy transmission channel, and monetary policy objective includes ultimate objective and intermediary objective (Figure 1). Monetary policy framework in the broad sense also includes money creation mechanism of a country or economy. The framework in the narrow sense reviews and understands monetary policy more from the perspective of macro control, and the money creation mechanism, though not in the scope of macro control, is the core and operation foundation of monetary policy and a concept that is more fundamental than the narrow monetary policy. It's fair to say that no discussion on monetary policy objective, instrument, rule or transmission channel is separable from the foundation of money creation mechanism. Especially in the special period of Chinese economic and financial restructuring, money creation mechanism is also undergoing profound transformation and monetary policy framework cannot be properly discussed without fully understanding the money creation mechanism and its intrinsic changes. Therefore, the paper also includes money creation mechanism into discussion and introduces the historical transformation of China's monetary policy framework from the five dimensions of money creation mechanism, monetary policy objective, monetary policy instrument, monetary policy rule and monetary policy transmission channel.

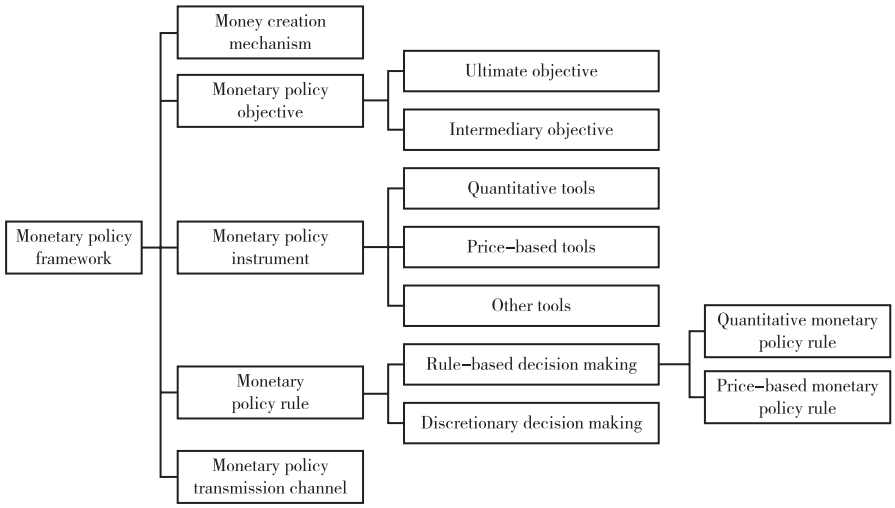

Figure 1. Monetary Policy Framework Diagram

2. Historical Transformation of Monetary Policy Framework

The paper analyzes the evolvement of Chinese monetary policy framework in the past 70 years from five historical stages, with the first being the recovery period of national economy shortly after the founding of the People's Republic of China from

1949 to 1952, the second being the period of planned economy from 1953 to 1977, the third being the period of coexistence between planned economy and market regulation from 1978 to 1992, the fourth being the period of establishing and improving the socialist market economy from 1993 to 2012 and the fifth being the period since 2013 when the reform is being comprehensively deepened. This section reviews the first four stages in the three dimensions of money creation mechanism, monetary policy objective and monetary policy instrument, with monetary policy rule and transmission channel to be discussed in the following section.

2.1. Monetary and Financial Policy during the Recovery Period of National Economy (1949—1952)

During the recovery period of national economy shortly after the founding of the People's Republic of China, no monetary policy framework in the modern sense existed. During this period, the money creation mechanism was relatively simple and issuance and circulation of Renminbi banknotes as well as stability of the currency value mainly relied on credit and authority of the new regime, including its military strength and abilities in guaranteeing supply of materials and stabilizing price etc. Relatively speaking, credit derivation activities of private financial institutions such as banks and money houses played a limited role in money creation.

Monetary policy objective at the time was mainly preventing and controlling inflation and safeguarding financial stability, with the purpose of boosting and maintaining confidence of the society in Renminbi and ensuring Renminbi issuance and national unification of the currency value. From April 1949 to March 1950, four waves of price rise mainly swept large cities. Take Shanghai wholesale price index as example. The index surged by 42 times in March 1950 compared with December 1948 (People's Bank of China, 2008). Meanwhile, black market transactions in gold, silver and foreign currencies were active and financial speculations such as high-interest lending were rampant, which severely undermined the Renminbi issuance and stabilization of the currency value and might easily trigger the vicious circle. In fact, preventing and controlling inflation, ensuring financial stability and maintaining the public's confidence in Renminbi were not only the objective of monetary and financial policy at the time, but also the major task of the financial and economic work (Xue and Wu, 1985). In order to realize the target, it was not only necessary to control the cash issuance, but also imperative to coordinate material allocation and combat speculation and profiteering. The financial and economic concept of "balance in three areas" was preliminarily built up during this period and "cash receipt and payment balance", as one of the three balances,[1] could be approximately regarded as the intermediary

[1] See the *Decision on Unifying the National Financial and Economic Work* promulgated by the Government Administration Council in March 1950.

objective of monetary policy at the time.

In order to realize the objective of preventing and controlling inflation, ensuring financial stability, maintaining confidence in Renminbi and safeguarding Renminbi issuance, the new regime comprehensively adopted multiple monetary policy instruments and non-monetary policy instruments. Among the monetary policy instruments, the first was to reduce banknote issuance and enhance cash management. For instance, the People's Bank of China signed the trade treasury contract with the Ministry of Trade and signed the contract on treasury service and fund allocation and transfer with the Ministry of Railways, Ministry of Fuel Industries, Ministry of Heavy Industry and Ministry of Posts & Telecommunications (People's Bank of China, 2008) to collect and allocate funds in a centralized way. The *Notice on Comprehensively Practicing the Decision on Domestic Exchange* promulgated in 1949 promoted non-cash settlement. The second was to launch "parity savings", capital-and value-guaranteed savings and premium savings, and to encourage banks to absorb deposits and recover loans to tighten the monetary policy. The third was to adjust the interest rate of deposits and loans. The interest rate was adjusted up or down several times according to prices to indirectly regulate market supply and demand of funds. The fourth was to issue "People's Victory Parity Bonds", recover gold and US dollars and withdraw currency. The fifth was to adopt differentiated credit policies for public and private sectors and for trade and production departments, and to flexibly apply the credit leverage. Among the non-monetary policy instruments, the first was to allocate and transfer materials across regions, to organize public trade departments to sell large quantities of materials and to stimulate production initiative of private enterprises, so as to ease market pressure in supply and demand of goods. The second was to strengthen tax administration to recover currency. The third was to apply administrative approaches to combat speculations by investigating and seizing related activities, banning strongholds and punishing leading speculators. The fourth was to divert idle funds and open securities exchanges that were previously sealed up in Beijing and Tianjin.[1]

2.2. Monetary and Financial Policy Framework during the Period of Planned Economy (1953—1977)

During the period of planned economy, a unique monetary and financial policy framework subordinate to the planned management system was developed. Public finance and credit were separately managed by different departments as two channels of fund supply, with public finance as the main channel supplying "capital construction funds, equity fund and normed current fund of state-owned enterprises" and bank credit as the subordinate channel only supplying "temporary fund of enterprises or

[1] Based on the *Major Events of the People's Bank of China* and the *Selected Works of Chen Yun* (Vol. II, Vol. III).

over-normed current fund, working capital for production of collective ownership and petty maintenance loans to farmers". For example, in 1978, supply from bank credit only accounted for 23.4% of production, circulation and construction funds and the remaining was mainly distributed by public finance (Dai, 1998). Exchange of means of production was mostly settled via transfer according to the price specified in plans and therefore, the exchange among enterprises only involved increase, decrease and transfer of bank deposits and loans rather than any cash transaction. Cash was mainly used in the following sectors. The first was to be paid out as salary in government units, enterprises and public institutions, the second incidental expenses in government units, enterprises and public institutions, the third purchase of agricultural and sideline products and the fourth individual or collective deposit withdrawal.

At the time, money supply mechanism was categorized into two types. One was cash input, such as wage expenditure in government units, enterprises and public institutions, and the other was credit supply, such as agricultural loans and capital construction loans. Though the money creation mechanism of loan-derived deposit still existed in theory, given the "generally unified" national banking system and the strict credit plan management, the derivative mechanism hardly played any substantial role for the real economy.

Compared with the recovery period of national economy, during this period, monetary credit policy followed clearer objectives under the strict planned management system. The first was cash receipt and payment balance and the second credit balance as well as consolidated balance between credit, public finance and mateials. These plan balancing relationships were reflected in whether the consumer goods price was stable. As cash was mostly used in trading of consumer goods, once cash volume in circulation exceeded supply of consumer goods, price would probably rise or "recessive inflation" would occur, such as high price with few sellers, queue for panic buying, and coupon-based supply. After the Great Leap Forward in 1956 and 1958, during 1967—1968 amid the Cultural Revolution and in 1976, four rounds of serious inflation broke out one after another. In order to realize the objective of stabilizing the price of consumer goods, monetary and credit policy authorities usually took "growth of market cash flow" and "a proper ratio maintained between market cash flow and retail sales of consumer goods" as intermediary objectives. During the Great Leap Forward and the Cultural Revolution, the credit plan management system was severely disturbed, as reflected in the organizational structure of the People's Bank of China being downsized and damaged, and the planned balancing objective and cash flow objective losing offectiveness (Zhang, 2010). In 1956, the inventory of state-owned commercial goods decreased by 6.5% on a yearly basis and under such circumstances, market cash flow increased by 42%, indicating the pressure of inflation. At the beginning of the Cultural Revolution, due to increased issuance of currency, the ratio between market cash flow and retail sales of consumer goods plunged from 1: 8.9

in 1965 to 1: 6, and the short supply of consumer goods was increasingly grave and the pressure of price rise was mounting.

Monetary policy instruments in the planned economy were mainly administrative directive plan management approaches in two categories.

The first was "consolidated credit plan management". It was implemented since 1953 and featured by "centralized control over revenues and expenditures and centralized control over deposits and loans". First, deposits at all levels were centralized at the Head Office for unified allocation and loan quotas were reviewed and approved by the Head Office in a unified way. Second, deposits and loans of banks at all levels were disconnected and all loan quotas could not be transferred. Third, enterprises at all levels compiled and reported their loan plans to upper levels one by one and the plans were endorsed by national authorities and the Head Office before the plans were fedback to lower levels one by one.[1] The People's Bank of China compiled an annual consolidated credit plan according to related national economy plans and the plan was included into the national economy plan for execution after consolidated balancing by State Development Planning Commission and approval by the State Council. All industrial departments and regions should respectively compile corresponding department or regional credit plans, which were be reported to the Head Office of the People's Bank of China for centralized balancing. Besides annual plans, corresponding quarterly and monthly credit plans were compiled as well.

The other was "cash receipt and payment plan management". The People's Bank of China started to compile the cash booking plan on the basis of national economy plan since 1953, estimate the overall size of cash flow from the different channels of cash receipt and cash payment, calculate the difference regarding cash input or cash withdrawn of the year,[2] and regulate currency circulation according to the plan. Specific regulatory approaches included control of use scope of cash, enhanced non-cash settlement, control of wage expenditure (e.g. the wage fund supervision system has been practiced since 1960), encouragement of savings and withdrawal of cash by selling goods[3] etc.

2.3. Monetary Policy Framework during the Period of Coexistence between Planned Economy and Market Regulation (1978—1992)

After the start of reform and opening up, along with the transition from the planned

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[1] Based on the *Interim Regulations on Compiling the Quarterly Credit Plans* promulgated by the People's Bank of China in June 1955, and Dai (1998).

[2] Refer to the *Report on Further Strengthening the Cashbook Planning Work* promulgated by the People's Bank of China in 1959.

[3] For instance, the interim measure of selling highly-priced pastries, candies and liquor was taken in 1961 to withdraw RMB 3.3 billion cash. For details, see Dai (1998).

management system to market economic system, the monetary and financial policy framework under the previous planned system started to be adjusted gradually, shaping the embryo of the monetary policy framework in the socialist market economic environment afterwards. It's fair to say that transition was the most typical characteristic of monetary policy framework during the period of coexistence between planned economy and market regulation shortly after the launch of reform and opening up. The characteristic of transition was firstly reflected by the increasingly clear work division of between the central bank and the commercial & financial institutions. The People's Bank of China was no longer handling banking business for the public while specialized banks and other financial institutions started to play a more important role in money creation. The "dual-layer" money creation mechanism was gradually consolidated, with the central bank issuing the base currency through granting loans to financial institutions and buying foreign exchange and gold and silver etc. while banking financial institutions creating deposit money via channels such as loan derivation.

During the period, the ultimate objective of monetary policy was embodied mainly in two aspects. First, to maintain price stability remained the primary objective. At the special stage of transition from planned economy to market economy, inflation tended to happen frequently while inflation control remained the principal headache and urgent task facing the monetary policy, as represented by the control efforts made in 1979, 1984 and 1988. Second, to promote industrial restructuring started to become one of the objectives endowed by reformers to the monetary policy. Given the limited flexibility of total quantity control, the government promoted industrial structural adjustment and optimization by increasing or decreasing the credit structure. Given the supply and demand features shortly after the beginning of reform and opening up, the credit structure was adjusted to first satisfy the loan demand of light industries such as production, purchase and processing of agricultural and sideline products and textile and state-owned large and medium-sized backbone enterprises, and meanwhile narrow down irrational loans of low-benefit projects, non-production projects and investment projects with self-financed fixed assets.[1]

At the same time, as the monitoring scope of monetary credit was gradually expanded, the market-based intermediary objective system of monetary policy also started to take form and became increasingly clear. As commodity economy developed, economy was increasingly monetized and the application scope of cash and credit was substantially broadened. Therefore, in 1987, the People's Bank of China began to draft the "money supply plan" to incorporate deposits in to the concept of money statistics;

[1] Refer to documents such as the *Report on the Several Measures for Controlling Currency and Stabilizing Finance* (August 11, 1988) of the People's Bank of China as approved and distributed by the State Council and the *Decision on the Key Points Regarding the Current Industrial Policies* (No.29 in 1989) of the State Council etc.

in 1989, it started to compile the "credit plan of the entire society" and popularized credit management from bank loans to the broader scope of credit creation. The two measures symbolized that the embryo of the "two-way" regulation mode started to take form; in other words, monitoring and regulation were conducted on the both ends of credit creation and money supply. Afterwards, the "two-way" regulation mode was continuously improved, laying the foundation of China's intermediary objective system of monetary policy to a great extent. Later, the People's Bank of China regularly released monetary statistics, credit receipts and payments statistics of financial institutions and social financing statistics, all of which were derived here, and even today, the mode remains the important basis for monitoring the monetary and financial environment and studying and developing monetary policy. Besides, the monetary credit monitoring was constantly systematized during the period, with the previous "one plan covering the whole year" being transformed to regular monitoring and forecasting on a quarterly or monthly basis, and the indicator system was improved.

This period was not only the transition period of Chinese economy from planned system to market system, but also the transition period of the People's Bank of China from a "generally unifying" national bank to central bank. Interest interference from local areas and different departments still existed to a large extent, suppressing the effect of indirect regulatory instruments. Therefore, on the one hand, the previous plan control on credit scale and cash issuance was still effective as an monetary policy instrument, and on the other hand, because of the development of non-banking financial business, the previous credit plan management mode was adjusted, producing a credit plan management system with multiple layers.[1] Besides, the People's Bank of China launched a series of major reforms and innovations over the monetary policy instrument, creating multiple indirect regulatory instruments one after another and attempting to establish a pattern with direct and indirect regulatory instruments combined. First, it created the central bank loans system. The People's Bank of China increased or decreased its loans granted to state-owned specialized banks and other financial institutions to indirectly affect their size of credit without directly interfering in autonomous operation of the specialized banks, which became an important instrument for regulating credit scale and money supply. Second, it established the deposit reserve system. The legal reserve system was implemented since 1984 and the provisions system was set up in 1988. Third, it reformed the interest rate system by increasing the number of grades of interest rate and practicing differentiated interest rates, and enhanced interest rate management over various financial institutions. During this period, the regulatory instrument of interest rate was utilized several times to implement the monetary policy.

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[1] Refer to the *Regulations on Improving the Credit Fund Administration Measures* of the People's Bank of China issued in December 1986 and the *Opinions on Deepening the Reform in the Credit Fund Administration System in 1988* of the People's Bank of China issued in March 1988.

2.4. Monetary Policy Framework during the Period of Establishing and Improving the Socialist Market Economy (1993—2012)

In 1992, the 14th National Congress of the CPC identified the reform target of establishing the socialist market economic system, signaling that China entered the new stage of establishing and improving the socialist market economy. During this period, the monetary policy framework was enriched and improved in an accelerated way and became increasingly mature.

First, the dual-layer money creation mechanism further evolved and monetary credit creation activities became more exuberant. The money creation mechanism at the time showed two typical features. Firstly, issuance channels of base currency were diversified and in particular the channel of funds outstanding for foreign exchange became the main mechanism for the central bank to issue base currency for a while. In the context of continuously expanding size of surplus in both current account and capital account, exporting enterprises and foreign companies coming into China converted foreign exchange into Renminbi at deposit bank, which converted the foreign exchange they collected at the central bank. In this process, the channel of funds outstanding for foreign exchange creates base currency. After China's accession to WTO and before 2009, base currency created through this channel once exceeded the net increment of base currency of the year. Especially in 2004—2006, funds outstanding for foreign exchange on the balance sheet of the central bank increased by RMB 1.6 trillion, RMB 1.6 trillion and RMB 2.2 trillion respectively on a yearly basis, accounting for 268%, 295% and 166% of the year's net increment of base currency (Feng and Yang, 2018). Consequently, the central bank had to issue bills often to recover the excess base currency released via the channel of funds outstanding for foreign exchange. Secondly, abilities of commercial banks in money derivation were increasingly improved and the banks played an increasingly active and important role in the money creation mechanism. Deposit money considerably outgrew cash in circulation. During the 20 years from 1993 to 2013, M0 increased from RMB 586.47 billion to RMB 5857.44 billion by 9 times, while M2 increased from RMB 3487.98 billion to RMB 110652.5 billion by 30.7 times. The proportion of M0 in M2 continued to drop from 16.8% in 1993 to 5.3% in 2013.

Second, during the period, monetary policy regulation was transformed from direct to indirect regulation and a monetary policy regulation system compatible with the socialist market economy was gradually established. In 1993, the State Council promulgated the *Decision on the Reform in the Financial System*, elaborating the ultimate objective, intermediary objective and operating objective of monetary policy in the central document for the first time. The ultimate objective was to "maintain currency stability, so as to promote economic growth", and the intermediary and operating objectives were about "money supply, aggregate credit, interbank offered

rate and bank provision rate". The *Law on the People's Bank of China* passed in 1995 used the same expression that "the monetary policy objective was to maintain currency stability, so as to promote economic growth", but did not distinguish the ultimate objective from the intermediary objective. By analyzing the historical context, we find that compared with before, the expression of "maintaining currency stability, so as to promote economic growth" at the time enhanced the objective of stabilizing currency value and symbolized to some extent the intention of the reformers and legislators at the time to transform functions of the People's Bank of China and the orientation to a single monetary policy objective. As the financial reform was deepened, the interference of the local areas and different departments with monetary credit policy was greatly curbed towards the end of this period. On the level of intermediary objective of monetary policy, money supply gradually attracted greater attention. The central bank started to release money supply data at three levels (M0, M1 and M2) on a quarterly basis since 1994.

At the same time, monetary policy started to pay more attention to the use of indirect instruments and internationally accepted policy instruments for macro control. First, rediscount business was launched since October 1994 and rediscount gradually became a common monetary policy instrument. Afterwards, the central bank could flexibly control the money supply by increasing or decreasing the quota, loosening or tightening rediscount conditions, adjusting the rediscount rate and choosing objects related to rediscounting. Second, the central bank started with open market operations and traded negotiable securities to increase or decrease money supply and adjust interest rate, including the foreign exchange open market operations since April 1994, treasury bonds open market operations since April 1996 and the follow-up open market operations in securities related to the policy financial bond and central bank financing boud. Third, the existing central bank loan system and deposit reserve system were reformed and improved. In 1995, central bank loans were concentrated at the Head Office for management and the Head Office of the People's Bank of China directly extended loans to legal persons of commercial banks. Subsidiaries of the People's Bank of China and subsidiaries of commercial banks were no longer directly engaged in central bank refinancing. In 1998, legal reserve and provisions were combined and legal deposit reserve rate was dramatically reduced. Correspondingly, planning instruments and direct directive instruments were gradually weakened or terminated. For instance, in January 1998, control on loan scale of state-owned banks was abolished,[1] with no more directive plans, but guidance plans being released. Instead, asset-liability management and risk management were promoted among commercial banks.

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[1] Refer to the *Notice on Improving the Administration on Credit Scale of State-owned Commercial Banks* of the People's Bank of China promulgated on December 24, 1997.

3. Transformation of Monetary Policy Framework and New Characteristics amid the Comprehensively Deepened Reform (since 2013)

After the global financial crisis broke out in 2008, the world's economic situation underwent profound changes. Having experienced the RMB 4 trillion policy stimulus and interim adjustment, Chinese economy shifted from high-speed growth to medium-high growth, and economic structural transformation was accelerated. From 2013 to 2014, the central government made the major judgment that we face "the special period of simultaneously dealing with the slowdown in economic growth, making difficult structural adjustments and absorbing the effects of the previous economic stimulus policies" and "the new normal" about the macro economic situation. Change of the economic situation altered the operation environment of monetary policy and objectively required the monetary policy framework to proactively adapt to the situation and make adjustment (He, 2015; Sun, 2017). This section will focuson the transformation and new characteristics of Chinese monetary policy framework since the comprehensive deepening of reform in 2013 and especially at present.

3.1. Base Currency Creation Mechanism Undergoes Structural Transformation and Monetary Credit System Gets Increasingly Complicated

On the level of base currency creation, the channel of funds outstanding for foreign exchange and the channel of central bank refinancing were traded off. Funds outstanding for foreign exchange started to narrow down since 2010 and was directionally reversed after 2015, starting to withdraw base currency instead of releasing base currency as before (Figure 2). In 2015—2017, Funds outstanding for foreign exchange were decreased by RMB 2.2 trillion, RMB 2.9 trillion and RMB 463.7 billion year by year. Under this background, the People's Bank of China created such instruments as standing lending facility (SLF), pledged supplementary lending (PSL) and medium-term lending facility (MLF) to supplement base currency, and all of these instruments were in nature the refinancing of the central bank to commercial banks. In 2016 and 2017, central bank refinancing grew by RMB 5.8 trillion and RMB 1.7 trillion respectively, accounting for 159% and 150% of the year's net increment of base currency (Feng and Yang, 2018).

Along with the transformation of base currency creation channels, credit creation activities of commercial banks, non-banking financial institutions and private finance were changed noticeably as well. First, bank credit turned off-balance-sheet and credit creation activities became more complex. Besides traditional loan credit creation, commercial banks resorted to non-banking channels such as trusts, funds and asset management plan to pump funds into real economy, lengthening the credit creation chain. Bank credit, non-banking financial institution credit and commercial credit

were intertwined and became highly complicated. Second, the wealth under bank management and money market fund grew explosively. Aside from traditional current deposit and time deposit, these new financial assets with partial money attributes expanding in scale and connotation and denotation of money presented some vague areas amid dynamic development. Third, as driven by popularized technologies such as Interne and smart phone, private credit activities as represented by P2P and blockchain token barbarously grew outside the regular financial system. Some of these credit creation activities were indeed based on authentic real economy activities, some improved the efficiency of finance serving the real economy, some were in pursuit of regulatory arbitrage and some wandered on the edge between being legal and illegal along with the wave of emerging technologies. On all accounts, these credit creation activities changed the previous traditional money creation system that relied on loans-derived deposits to some extent, and exerted influence over validity of traditional monetary policy instruments and smoothness of monetary policy transmission channels.

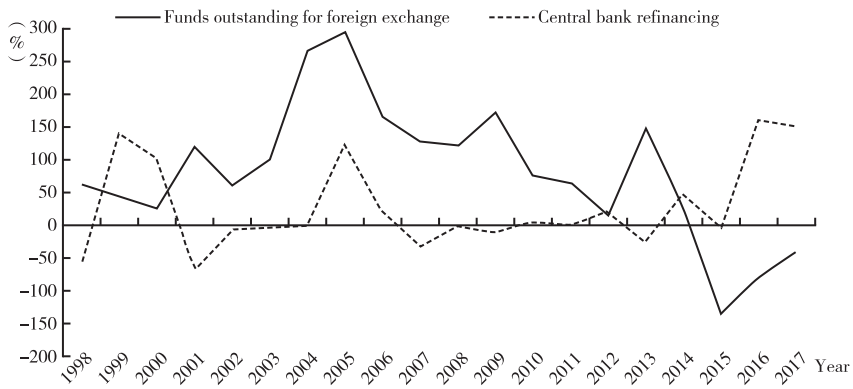

Figure 2. Share of Funds Outstanding for Foreign Exchange and Central Bank Refinancing in Monetary Base Increment

Source: The People's Bank of China.

3.2. Diversified Objectives Are Discretionarily Adjusted and Intermediary Objective Experiences the Quantitative to Price-Based Transition

3.2.1. Ultimate Objective of Monetary Policy

Ultimate objective of Chinese monetary policy has long been controversial. First, the *Law on the People's Bank of China* states in Article 3 "to maintain currency stability", but "currency stability" is a broad term, which easily leads to ambiguity in both theory and practice and under different scenarios, can be interpreted at least in three different ways as follows. Firstly, Renminbi has a stable purchasing power

against general consumer goods and in other words, inflation is kept in a moderate range; secondly, Renminbi has a stable exchange rate against US dollar or the basket of currencies; thirdly, Renminbi has stable price parity against noble metals such as gold or other assets.

Second, though the *Law on the People's Bank of China* manifests the orientation to a "single objective" to some extent, in practice, the ultimate objective pursued by Chinese monetary policy is rather diversified. Zhou (2016) expressed the monetary policy objective of Chinese central bank as "4+2", with "4" referring to maintaining price stability, promoting economic growth, enhancing employment and maintaining a general balance of payments and "2" referring to driving the reform and opening up and facilitating development of the financial market. He held that the characteristics of Chinese transition economy determined the "multiple objectives" of the central bank. Ma and Guan (2018) believed that Chinese monetary policy is pursuing at least seven ultimate objectives at the same time, which are related to economic growth, employment, inflation, exchange rate, foreign exchange reserve, financial stability and restructuring. This paper finds that the ultimate objectives of Chinese monetary policy show concern for multiple aspects such as price stability, economic growth, employment, exchange rate, foreign exchange reserve, financial stability and risk prevention, economic structural restructuring, promoting reform and benefiting people's livelihood.

These ultimate objectives respectively correspond to a series of statistical indicators. For instance, the objective in economic growth corresponds to real GDP growth, growth of industrial added value and growth of investment in fixed assets, the objective in employment growth to newly created urban jobs and lower unemployment rate, the objective in inflation control to the CPI, PPI and GDP deflator, the objective in exchange rate to RMB exchange rate against US dollar and CFETS RMB exchange rate index, the objective in foreign exchange reserve to the balance of foreign exchange reserve and its changes, the objective in financial stability to performance in credit market, stock market, bond market, foreign exchange market and real estate market, and the objective in economic restructuring to primary, secondary and tertiary industrial structures, capital operation structure, proportion of new and high-tech industry and other important structural proportions.

At different stages, monetary policy authority makes discretionary adjustment in view of different objectives according to economic and financial situation changes both at home and abroad. For example, it adjusts up the weight of price stability under intense pressure of inflation, adjusts up the weight of economic growth and employment in the face of external impact and adjusts up the weight of financial stability in the case of violent fluctuation of asset price. However, requirements of different objectives for the direction of monetary policy may not be consistent all the time and could be conflicting, putting the monetary authority into a dilemma. For instance, for some time

after 2012, Chinese economy was under continuous pressure of downward growth and meanwhile, the tasks of financial risk prevention and structural deleveraging remained arduous. On the one hand, to stabilize growth required easy monetary policies; on the other hand, an easy monetary environment was not helpful for deleveraging and might further push up the real estate price and accumulate financial risk instead. At this particular point, the central bank needs to weigh the objective of stabilizing growth against the objective of financial stability and properly strike a balance in between.

3.2.2. Intermediary Objective of Monetary Policy

Currently, the intermediary objectives of Chinese central bank are under the transition from quantitative to price-based objectives. For a long period of time, Chinese central bank mainly followed quantitative intermediary objectives related to the M2, aggregate financing to the real economy and new loans as well as the growth. As the economic and financial structure became increasingly complex, it was more and more difficult for the central bank to track, monitor and accurately control the volume of monetary credit on the one hand. On the other hand, the correlation between the volume of monetary credit and economic growth, inflation and financial stability was weakened. The two factors together made the quantitative to price-based transition of intermediary objectives both necessary and urgent.

Before the deposit and lending interest rate cap and floor were deregulated, the price-based intermediary objective followed by the central bank was mainly about the benchmark deposit and lending rate of commercial banks. After they were deregulated, though weighted average interest rate of conventional loans could be taken as an optional intermediary objective in theory, it was not a directly generated price out of market transactions and requested statistical sampling and computation, thus being less timely or reliable. Therefore, it was generally not used as the intermediary objective. At present, those that serve as intermediary objectives mainly concern the money market interest rates, such as Shanghai Interbank Offered Rate (Shihor) and sell-repo and anti-repo interest rate. In recent years, the central bank attempts to establish an "interest rate corridor" with the 7D rate of standing lending facility (SLF) as cap and the 7D anti-repo interest rate as floor, and meanwhile pays greater attention to the intermediary role of DR007. According to the response in the financial market, since 2018, DR007 is most highly recognized as policy rate of the central bank or serves the function of a "policy rate-to-be" to some extent.

3.3. Quantitative Tools and Price-Based Tools Coexist and Multiple Structural Tools Are Newly Created

In the current monetary policy toolkit of Chinese central bank, quantitative tools and

price-based tools coexist. Traditionally speaking, quantitative tools of monetary policy relied by Chinese central bank mainly included adjustment of legal deposit reserve rate, open market operations, refinancing and rediscount while price-based tools included adjustment of benchmark deposit and lending rate of commercial banks and adjustment of interest on excess reserves. In October 2015, as the deposit interest rate cap was cancelled, all the key interest rates were nominally deregulated. Afterwards, though adjustment of benchmark deposit and lending rate remains a monetary policy tool, legally speaking, its policy validity will be weakened. It's necessary to point out quantitative intermediary objectives and quantitative tools are not corresponding on a one-on-one basis, and neither are price-based intermediary objectives and price-based tools. Quantitative objectives can be realized with both quantitative tools and price-based tools, and so are the price-based objectives. During the transition of intermediary objectives from quantitative to price-based ones, quantitative and price-based monetary policy tools need to be used at the same time. In the future, even if the transition to price-based objectives is completed, existence of quantitative tools such as deposit reserve rate and refinancing remains necessary.

Since 2013, the central bank has created several new structural monetary policy tools one after another, such as short-term liquidity operations (SLO), standing lending facility (SLF), medium-term lending facility (MLF), pledged supplementary lending (PSL) and targeted medium-term lending facility (TMLF). In the meantime, it used structural tools several times such as targeted RRR cut, targeted increase of refinancing and rediscount quota for support of agriculture and small and micro businesses and targeted decrease of refinancing interest rate for support of agriculture and small and micro businesses, so as to guide financial institutions to enlarge credit input into small and micro businesses, "agriculture, countryside and farmers" and technological innovation. The monetary policy tools used by Chinese central bank since the People's Republic of China was founded are introduced in Table 1.

Besides, over recent years, the central bank continuously enhances communication with the market, attempts to put into effect forward guidance as a monetary policy tool and proactively makes its voices heard to guide market expectations.[1]

Table 1. Monetary Policy Tools of the People' Bank of China and Their Launching Time (1949—2018)

Monetary policy	Launching time	In use
Interest rate adjustment	Since founding of the People's Bank of China	Yes
Administrative measure	Since founding of the People's Bank of China	Rarely
Special savings	Parity savings and capital-and value-guaranteed savings in April 1949; premium savings in 1950	Basically no

[1] Refer to the *China Monetary Policy Report Quarter Two, 2018*.

Monetary policy	Launching time	In use
Differentiated credit policy/ structured credit policy	Since 1950	Yes
Consolidated credit plan management	1953	No
Cash receipt and payment plan management	1953	No
Central bank financing (refinancing)	1984	Yes
RRR	The legal deposit reserve system was established in 1984 and the provisions system in 1988. In March 1998, the legal reserve account and provisions account were combined. In April 2014, instruments for targeted RRR cuts were newly created.	Yes
Special deposit	1987 and 1988, 2007	Rarely
Rediscount	October 1994	Yes
Open market operation*	Foreign exchange transaction started in 1994 and treasury bond trading started in April 1996.	Yes
Window guidance	Undefined. Often used since 1998.	Occasionally
Forward guidance	Since 2008	Yes
Short-term liquidity operations (SLO)	2013	Yes
Standing lending facility (SLF)	2013	Yes
Medium-term lending facility (MLF)	2014	Yes
Pledged supplementary lending (PSL)	2014	Yes
Targeted medium-term lending facility (TMLF)	2018	Yes

Note: * means that back at the recovery period of national economy shortly after the founding of the People's Republic of China , the People's Bank of China used to trade gold, US dollars and other assets in the open market to regulate money supply, which could be taken as a form of open market operation at the early stage.

Source: Related official materials as collected by the authors.

3.4. Monetary Policy Decisions Are Mainly Discretionary and Quantitative Rules Have yet to Take Form

"Rule-based decisions" and "discretionary decisions" are two different concepts of central banks in making monetary policy, with the former following predetermined quantitative rules and the latter relying on real-time changes in the economic and financial environment. Shortly after the People's Republic of China was founded, national economy and the monetary and financial system were under recovery. It was

impossible to establish a monetary policy framework in the sense of modern macro control or to develop monetary policy rules. During the period of planned economy, monetary credit policy observed "credit plan balance" and "cash receipts and payments plan balance", which two must take into consideration and assist fiscal balance and material balance as well, so as to reflect and realize the overall balance of national economy. After the start of reform and opening up, the monetary policy framework started the transition from planned balance to one compatible with the market economic system and the previous directive cash plan management and credit plan management gradually faded out, replaced by total quantity control and indirect control. Currently, Chinese monetary policy generally follows the discretionary decision-making mechanism of cutting peak and filling valley in practice and quantitative rules have not been formed. In fact, under the circumstances that diversified ultimate objectives of monetary policy coexist and intermediary objectives remain indefinite, it's difficult to develop clear and transparent quantitative rules objectively.

In practice, "rule-based decisions" and "discretionary decisions" both have advantages and disadvantages. Solely relying on either hardly meets the complicated requirements of monetary policy practice and the two need to be used in combination. In fact, few central banks follow the absolute "rule-based decisions" or "discretionary decisions". Yi (2016) mentioned that "monetary policy is a science, but more of an art" in vivid description of the relationship between the two. In reality, some central banks incline to make "rule-based decisions", supporting them with discretionary decisions on the basis of quantitative rules by taking into consideration economic and financial situation changes. Some central banks prefer the concept of "discretionary decisions", relatively paying less attention to quantitative rules. It's generally believed that the Federal Reserve is the typical representative upholding the rule-based concept, but in fact, after the financial crisis in 2008, the Federal Reserve decisively deviated from the benchmark reference given by Taylor rule and turned to embrace a series of nonconventional monetary policies such as quantitative easing and operation twist.

Nevertheless, the preset transparent quantitative rules can both provide the reference for central banks to develop monetary policies, and offer a restraint mechanism and play a signaling role. Lacking explicit and transparent quantitative rules is defective in obvious ways. First, monetary policy operations away from rule-based decisions tend to trigger groundless speculations outside, cause confusion in expectations and result in fluctuations in the financial market. Second, monetary policy authority hardly reaches consensus internally in some cases and tend to yield to external pressure. Third, it works against the credibility of central banks. In recent years, these issues have repeatedly bothered the monetary policy practice in China and therefore, it's necessary to gradually explore and develop quantitative monetary policy rules that are compatible with Chinese economic reality, relatively transparent, traceable and verifiable.

3.5. Monetary Policy Transmission Is Still Dominated by Bank Credit Channels

During the recovery period of national economy shortly after the founding of the People's Republic of China, China was a poorly monetized economy with agriculture taking the absolutely dominant position. The single economic structure and the less developed financial system determined that monetary policy transmission channels were simple and monetary policy transmission was directly implemented through issuance and withdrawal of cash. The effect of credit channel, asset price channel and exchange rate channel was limited. During the period of planned economy, the transmission of monetary credit policy framework mainly depended on various plan management channels of reporting plans and issuing quotas level by level. Though it seemed that credit and savings still played the role of inputting and withdrawing money, in fact, under strict plan management, the role of the interest rate channel was rather weak. Besides, the credit channel and asset price channel with market attributes almost disappeared at this stage. Under external blockade, the exchange rate channel was barely effective, either.

After the start of reform and opening up, as economic monetization was deepened, economy was further opened, the financial system was increasingly refined, and monetary policy transmission channels became further diversified and complicated. However, so far, bank credit remains the main channel of monetary policy transmission in China and also the most prioritized channel in monetary policy operations by the central bank. This is determined by the fact that commercial banks take a predominant position in Chinese financial system and the proportion of loans in aggregate financing to the real economy steadily stays above 70% and sometimes even exceeds 90%.

At present, the following dynamics with the monetary policy transmission channels is worth noticing. First, as assets and liabilities in the household sector accumulate, the asset price channel is increasingly important and the most influential part is real estate and housing mortgage loans. According to statistics, in 2017, among Chinese urban households, the share of housing assets in total household assets already reached up to 78%.[1] By the end of 2018, personal housing loan balance reached RMB 25.75 trillion, accounting for 18.9% of various RMB loan balance of financial institutions.[2] In terms of both assets and liabilities, the role of the asset price channel in the monetary policy transmission should be sufficiently noticed. Second, transmission via the interest rate channel is blocked, which needs to be urgently addressed by deepening the reform. Today, the interest rate channel is featured by "being smooth on one side and blocked on the other side"; private economic entities, especially small and micro businesses and the agricultural sector are sensitive while state-owned sectors such as state-owned

[1] Source: *2018 China Urban Household Wealth Health Report* jointly released by Survey and Research Center for China Household Finance, Southwestern University of Finance and Economics and China Guangfa Bank.

[2] Source: The official website of the People's Bank of China.

enterprises and local government funding vehicles are less sensitive due to soft budget constraint. This usually puts the aggregate-type monetary policy tools in a dilemma and makes it difficult for the tools to take effect. Though the central bank has repeatedly adopted structural tools such as targeted RRR cut, targeted refinancing and rediscount in recent years to clear the monetary policy transmission channels, it remains difficult to effect a permanent cure.

4. Challenges for Chinese Monetary Policy Framework and Direction of Transformation in the Future

Monetary policy is carried out and takes effect in particular economic and financial environments. There is no monetary policy framework that is the "best", only monetary policy framework that is most compatible with the particular economic and financial environment and institutional background of a country at a particular time. Under current circumstances, attention must be paid to the influence of changes in three aspects on the framework. First, the pivot of economic growth is moving downwards; the economic structure is undergoing drastic adjustment; the macro-economic environment has changed dramatically. Second, the financial market is developing rapidly, with financial business categories getting increasingly complicated; the "shadow banking" system is intertwined and macro-leverage climbs noticeably, along which the financial risk environment has worsened. Third, as Chinese economy evolves to a large open economy and finance is opened wider, "spillover effect" of domestic policies starts to show and external hindrances are increased, making it apparently necessary and more difficult to coordinate monetary policies internationally.

Under the context of profound changes in domestic and international economic and financial environments, the previous monetary policy framework has exposed some problems. The challenges currently faced are concentrated in four areas. First, development of financial market and technological advance make the means of payment and savings and wealth management further diversified and both connotations and denotations of currency have been adjusted. These make traditional quantitative intermediary objectives less reliable. Second, as interest rate transmission is blocked, the adverse picture that "the central bank has adjusted down the policy rate and interbank market rate goes down accordingly, but financing cost of real economy enterprises stays high" has repeatedly presented itself in recent years. Third, internal transmission steps of funds within the financial system are increased and the transmission chain is lengthened, reducing the general utilization efficiency of monetary funds. Part of the liquidity released by monetary policy operations of the central bank is accumulated inside the financial system and fails to be effectively translated into investment and financing to the real economy. Among that, liquidity

transmission to small and medium-sized enterprises, private enterprises and the "agriculture, countryside, farmers" sector is especially blocked. Fourth, the inflation indicator that central banks of countries traditionally rely on and peg is less sensitive to monetary policy and the importance of asset price and financial stability becomes prominent. Given so, how to include asset price and financial stability into the monetary policy framework remains a new subject (Goodhart, 1988; Mishkin, 2010; Issing, 2011).

Transformation of monetary policy framework is a systematic project, involving coordination of various factors such as policy objectives, policy instruments and transmission mechanism, and also being intertwined with reforms in interest rate liberalization and exchange rate formation mechanism, broader financial reform, even state-owned enterprise reform and fiscal and tax reform. Therefore, the transformation raises high requirements for the top-level design and makes it necessary to fully refer to international experience on the basis of Chinese realities, enhance coordination and press ahead in a collaborative manner. On such basis, the paper will discuss the direction of the monetary policy framework transformation in the future and propose countermeasures accordingly in the five dimensions of monetary creation mechanism, monetary policy objective, monetary objective instrument, monetary objective rule and monetary objective transmission channel.

4.1. Money Creation Mechanism

Money creation mechanism is the operation foundation of monetary policy framework in a country, and cultivating and establishing a money creation mechanism adapted to the economic and financial structure of the country is the fundamental prerequisite for optimizing the monetary policy framework. Currently, under the circumstances of violent changes with the economic and financial structure, one of the fundamental tasks for optimizing the monetary policy framework is to adjust and improve the money creation mechanism.

The first is to lower dependence of money creation on external credit and gradually increase the proportion of money creation based on domestic credit. Among various types of domestic credit, central government credit has the highest rating. It's necessary to expand and invigorate the treasury bond market in order, perfect national debt term varieties, increase liquidity of the treasury bond market and pay attention to the fundamental role of the treasury bond market in money creation and monetary policy macro-control.

The second is to seize the opportunity of counter-cyclical regulation to gradually decrease legal deposit reserve rate. Before legal deposit reserve rate is reduced to a moderate level, it should be prioritized to use RRR cut rather than to conduct central bank refinancing, to supplement liquidity, so as to avoid loss in social welfare caused

by the "operation twist" from the co-existence of high reserve rate and large-scale central bank refinancing (Feng, 2018). Besides, the opportunity should be taken to replace various assets stock of central bank refinancing through RRR cut.

The third is to improve abilities of banks and other financial institutions in efficiency identification and risk pricing, standardize the business development of shadow banks and elevate general utilization efficiency of funds. It's important to push commercial banks to shift from collateral-based passive risk control to efficiency identification-based active risk control in the process of granting credit. Financial and economic discipline should be strict and budget constraint over state-owned sectors should be tightened. It's advisable to refine financial infrastructure such as credit rating and improve the independence and credibility of credit rating institutions. Necessary measures should be taken to effectively avoid such problems as prolonged fund transmission chain and rising cost of funds that are derived from money creation via the channel of central bank refinancing and to prevent "shadow central bank" from interfering in the effective transmission of monetary policy.

4.2. Monetary Policy Objective

On the level of ultimate objectives, it's necessary to promote the transition from multiple objectives to dual objectives and ultimately establish a dual-objective system centered on inflation and financial stability. Objectives such as stabilizing growth, adjusting structure and benefiting people's livelihood should be fulfilled by other sectors with other policy instruments. On the level of specific operation, first, it is to optimize basket selection, indicator design, weight setting and dynamic adjustment of CPI, PPI and other inflation statistical indicators so that inflation indicators can reflect price changes in time and objectives and reliability of statistics can be improved; second, it is to pay greater attention to financial risk and financial stability and highlight coordination between the "two pillars" of traditional monetary policy instruments and macro prudent instruments, with monetary policy focusing on counter-cyclical regulation and macro prudent policy on prevention of systematic financial risk.

On the level of intermediary objectives, the transmission from quantitative objectives to price-based ones needs to be steadily promoted. First, in the monetary policy practice, it's advisable to accelerate the formation of officially identified and externally recognized policy rate of central bank and drive the interest rate corridor mechanism to mature. Second, during the transitional period, quantitative objectives still need to be taken into consideration. It's necessary to improve the existing monetary credit indicator system in time according to changes in the monetary and financial system, adjust statistical calibers such as money supply and aggregate financing to the real economy and optimize statistical methods to enhance reliability. In the process of adjusting the statistical calibers, maximal efforts should be made to

make them transparent, open, traceable and comparable, so as to prevent the financial market sentiment from being disturbed by information disorder.

4.3. Monetary Policy Instrument

First, while applying quantitative and price-based tools in a coordinated and combined way, price-based tools should play a greater role, so as to ultimately realize the transformation of monetary policy from being predominated by quantitative tools to by price-based ones. It's important to realize that quantitative tools enjoy unique advantages in the bank-dominant financial system and will continue to play an irreplaceable role for a long time to come; meanwhile it is necessary to acknowledge that they have defects and their reliability will be further reduced as the financial system is increasingly complicated and interest rate liberalization is deepened, which makes the transformation towards price-based tools both necessary and urgent.

Second, transmission mechanism and policy effect of new structural monetary policy tools should be closely tracked, analyzed and judged to facilitate timely adjustment and optimization. In recent years, the People's Bank of China highlighted structurality of monetary policy and created one after another and used several times structural monetary policy tools such as SLO, SLF, MLF, PSL, TMLF, targeted RRR cut and targeted refinancing and rediscount. As new structural tools, things remain to be determined as for their mechanism of action, actual effect and side effect. Research should be strengthened in terms of theoretical foundation, mechanism and methodology and policy effect, so as to scientifically judge and reasonably use the structural monetary policy tools.

Third, greater attention needs to be paid to the role of expectation and the forward guidance tool should be well utilized. Forward guidance is called the monetary policy tool with the "lowest cost". Monetary policy authority should enhance communication with the financial market and the broader public by releasing policy reports, having speeches delivered by officials, interpreting statistical data and holding seminars etc. to effectively guide market expectations. That the forward guidance tool effectively plays its role is related to clear identification of monetary policy objectives and relies on institutionalization and transparency of the monetary policy decision-making mechanism. Who is entitled to develop monetary policy, which departments make decisions over important issues and what is the decision-making mechanism should all be explicitly communicated to the public by the central bank of China, the world's second largest economy. Especially given that Chinese economy will be opened wider and Chinese monetary policy operations will exert broader influence over international financial market and even global economy, it seems particularly urgent to institutionalize and make transparent the decision-making mechanism. Otherwise, it may not only trigger speculations and doubts outside, especially in international

financial market, and cause market fluctuations, but also might damage reputation and credibility of the central bank and prevent forward guidance and even substantive monetary policy operations from effectively taking effect.

4.4. Monetary Policy Rule

The "rule-based decisions" concept and the "discretionary decisions" concept, both with advantages and disadvantages, are neither contradictory nor mutually repelling, and should be applied in combination. Chinese central bank has accumulated rich experience in making discretionary decisions, but lacks quantitative rules for reference. Looking forward, it's necessary to gradually explore and establish quantitative monetary policy rules in line with Chinese realities on the basis of thorough researches and tests in practice. This can help not only improve the credibility of monetary policy authority, but also guide market expectations and maintain stability of the financial market.

In fact, extensive research achievements have been made regarding applicability of "Taylor rule" and "McCallum rule" in China (Xie and Luo, 2002; Wang and Zou, 2006; Song and Li, 2007; Task Force of Banking Administration Department of the People's Bank of China, 2009; Zheng and Liu, 2010; Liu and Zhang, 2012; Jiang *et al.*, 2018). According to the literature currently available and in line with the new situation in the monetary policy practice today, in order to construct quantitative monetary policy rules in China, the following four major issues need to be addressed urgently.

The first is compatibility between quantitative rules and price-based rules. Construction of either quantitative or price-based monetary policy rules has both theoretical support and rich literature for reference, but research on whether the two can coexist, how to make them compatible and under what circumstances there might be conflicts is still limited. Given that China is in the special period of transformation of the monetary policy framework, the pattern that quantitative and price-based intermediary objectives coexist and quantitative and price-based tools coexist will sustain for a long time and the issue of compatibility needs to be studied in depth.

The second is measurement of latent economic variables such as potential output level, potential inflation, natural rate of unemployment and natural interest rate etc. These latent economic variables are the foundation for studying, designing and identifying quantitative monetary policy rules. In post-industrialized countries that are approaching a steady state, theoretical research and computation methods on these latent variables pertinent to countries amid economic restructuring are lacking. Given that Chinese economy is under intensive restructuring and its industrial structure, factor distribution structure and expenditure structure are all changing rapidly, China obviously cannot simply copy the experience of US, Europe and other post-

industrialized countries and regions in developing its quantitative monetary policy rules.

The third is development and improvement of related statistical systems and statistical data. For instance, reliable unemployment data is the prerequisite of measuring natural rate of unemployment and thus also the prerequisite of constructing quantitative monetary policy rules. Unfortunately, reliability of the indicator of registered unemployment rate that has been long used in China is rather low while the new indicator of surveyed unemployment rate was not released until 2018 and therefore cannot support metrological research. Moreover, new forms of business that have been constantly emerging and expanding in recent years such as sharing economy, platform economy and free economy also pose challenges to traditional national economic accounting system and methods. Under such circumstances, how to keep traditional indicators such as GDP and CPI abreast with the times becomes an inevitable topic for quantitative monetary policy rules. It requires close collaboration among statistical departments, monetary policy authority and experts in economics, statistics, computer science and big data to jointly promote the development of related theories and practice.

The fourth is inclusion of asset price and financial stability into quantitative monetary policy rules. As mentioned above, importance of asset price and financial stability in the monetary policy practice should be duly emphasized. However, so far, how to include them into quantitative rules is yet to made clear in domestic and foreign literature and awaits further study.

4.5. Monetary Policy Transmission Channel

To properly handle the interest rate channel is the top priority for clearing monetary policy transmission channels currently and therefore multiple measures should be taken to improve monetary policy efficiency in the interest rate channel. The first is to clear the "policy rate–interbank market rate–lending rate of commercial banks" transmission channel, especially regarding the medium-sized, small and micro private enterprises and "agriculture, countryside, farmers" sectors. The second is to clear the "policy rate–credit bord interest rate" transmission mechanism and the key is to improving the credit rating and pricing. The third is to clear the transmission mechanism from short-end interest rate to long-end interest rate and avoid the twist caused by direct action of policies on multiple points of yield curve simultaneously. To clear the interest rate transmission mechanism not only relies on the central bank, but also requires the support of reforms in other related sectors, among which two fundamental reforms are especially crucial. Firstly, financial and economic disciplines should be tightened and soft budget constraint of state-owned sectors hardened. Only when the problem of state-owned enterprises and local government funding vehicles "borrowing regardless

of cost" is thoroughly tackled and their elasticity of interest rate is improved, can the transmission mechanism of monetary policy be cleared fundamentally. Secondly, abilities of commercial banks in efficiency identification and risk pricing at the asset end need to be enhanced. For credit pricing, Chinese commercial banks have long been passively relying on collateral value of tangible assets such as land-use right, real estate and machines and equipment, rather than rely on their own efficiency identification ability and risk pricing ability. In the future, as services take up an increasingly high share in economy and intangible assets occupy an increasingly high proportion in total assets, commercial banks need to improve their abilities in active efficiency identification and risk pricing.

Besides, as value of residents' wealth, especially real estate, has increased, in the future monetary policy practice, greater attention should be paid to the role of the asset price channel and it's especially important to avoid dramatic rise and decline in real estate market price. Excessive rise of real estate price will squeeze out consumption, induce funds out of manufacturing into real estate, increase price cost of macro-economic operation, intensify inequality of wealth distribution and fundamentally worsen the endogenous drivers of Chinese economic growth. Dramatic drop of real estate price tends to trigger financial risk, cause adverse impact on economy through multiple channels such as consumption and investment, and cause unstable social emotions. Looking forward, it's necessary to step up efforts in tracking, monitoring and effectively leveraging the influence of monetary policy on such economic behaviors as consumption, investment and industrial production via the asset price channel.

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