China's Interest Rate System and Market-based Interest Rate Reform

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Interest rate is an important macroeconomic variable, and its liberalization is one of the core reforms in China's economic and financial sector. Since the reform and opening-up, China has been steadily advancing interest rate liberalization to establish and improve the mechanism in which interest rates are determined by market supply and demand, and the central bank has been guiding market rates with monetary policy instruments. After over 30 years of continuous efforts, China has achieved remarkable results in its market-based interest rate reform. A complete system of market-based interest rates has been formed, and the yield curve has come close to a mature pattern, creating favorable conditions for enabling interest rates to play an important role in adjusting the macro economy.

1. Interest rate is an important macroeconomic variable.

As the price of money, interest rate is of guiding significance to macroeconomic equilibrium and resource allocation. Reflecting the degree of fund scarcity, interest rate is an important indicator pricing the factor of production, as wages and rents. Meanwhile, it is also a reward for delayed consumption. Effects of the interest rate on behaviors and resource allocation are mainly measured by the real interest rate, i.e. the nominal interest rate minus the inflation rate. In theory, the natural rate of interest is the real interest rate at macroeconomic equilibrium where the aggregate supply equals the aggregate demand. In practice, the level of interest rate directly affects the savings and consumption of the public, the investment and financing decisions of enterprises, imports and exports, and the balance of payments, thereby asserting broad influences on the whole economy. Therefore, interest rate is an important macroeconomic variable.

Interest rate plays an important role in adjusting the macro economy, mainly by affecting consumer demand and investment demand. In terms of consumption, the rise of interest rates will encourage savings and discourage consumption. In terms of

investment, higher interest rates will reduce the total volume of profitable investments and dampen investment demand, filtering out projects with low rate of returns. Interest rate also influences imports and exports as well as the balance of payments. The decline of domestic interest rates will stimulate investment and consumption and increase the aggregate demand, thereby increasing imports and resulting in a decrease in net exports. Meanwhile, it will narrow the spread between the interest rates of domestic currency and foreign currencies, which might lead to capital outflow and affect the balance of payments. Undoubtedly the interest rate transmission mechanism and the relationship among macroeconomic variables in the reality are much more complex than the simplified version stated above.

The equilibrium interest rate is determined by market supply and demand, and it is the result of savings, investment and financing activities by market participants, including businesses, residents and financial institutions, who mainly save and lend via banks, invest or get financed in the bond market, the stock market and the insurance market, and then allocate financial resources to the real economy and various assets. The market plays a decisive role in resource allocation, and the allocation process is guided by prices of market transactions on the premise of clearly-established ownership of equity. In the process, as the price of funds, the interest rate determines fund flow and thereby the allocation of financial resources. The miracle of China's economic development since the reform and opening up proves that, compared with the planned economy, the socialist market economy, where resources are mainly allocated by the financial market, is much more efficient and has brought much more benefits to the people. **In the medium and long term, macro interest rate should be basically in line with the natural interest rate.** However, as a concept abstracted from theories, the natural interest rate is difficult to estimate. Therefore, in practice, the "Golden Rule" is often used to measure the reasonable interest rate level, that is, when the economy is on a steady growth path where the per-capita consumption hits its maximum, the inflation-adjusted real interest rate (r) should equal the real economic growth rate (g). When r is constantly higher than g, social financing costs will remain high, putting businesses at distress and adversely impacting economic development. When r is lower than g, the nominal interest rate is usually lower than the growth rate of nominal GDP. This is favorable for debt sustainability, namely, stable or even lower leverage ratios, thus giving the

government some extra policy space. However, studies show that, at least in emerging markets, debt crises are still unavoidable when *r is* lower than *g*. In general, it is reasonable to have an *r* that is slightly lower than *g*. Empirical data suggests that in China, for most of the time, the real interest rate is lower than the real economic growth rate, which may be called an optimal strategy that allows leeway. However, *r* cannot be constantly and significantly lower than *g*. An interest rate that is too low for long will distort the allocation of financial resources, lead to overinvestments, overcapacity, inflation and asset bubbles, and cause funds to circulate within the financial system. Therefore, ultra-low interest rate policy is hard to sustain in the long run.

Interest rate not only affects the investment returns and financing costs of micro entities, but also acts more as a critical factor in balancing the aggregate supply and demand in the macro economy. Therefore, all mature market economies have come to take interest rate as a major macro regulatory instrument. **In determining policy rates, the central bank must conform to economic principles and the requirement of macro regulation and inter-temporal designs.** The ultimate goal of China's monetary policy is to "maintain the stability of RMB value and promote economic growth", and interest rate is the key to achieving the goal.

Following the strategic arrangements made by the Central Committee of the Communist Party of China (CPC) and the State Council, we have been advancing the market-based interest rate reform, which conforms to both national conditions and international standards. While relaxing the interest rate control in an orderly manner, we attach great importance to the establishment and improvement of the market-based interest rate system in which interest rates are determined by market supply and demand and guided by monetary policy instruments of the central bank, and we give full play to the role of the interest rate in adjusting the macro economy.

2. China has established a complete system of market-based interest rates.

After 30 years of continuous efforts to advance the market-based interest rate reform, China has basically established a market-based mechanism for interest rate formation and transmission and a complete system of market-based interest rates. We adjust liquidity in the banking system mainly with monetary policy instruments and send

regulation signals with policy rates. We guide the benchmark rates in the market to move around the policy rates with the interest rate corridor, and transmit them to lending rates through the banking system. In this way, the market-based mechanism for interest rate formation and transmission has been established to adjust the supply and demand of funds and the allocation of resources, thereby achieving the goal of our monetary policy.

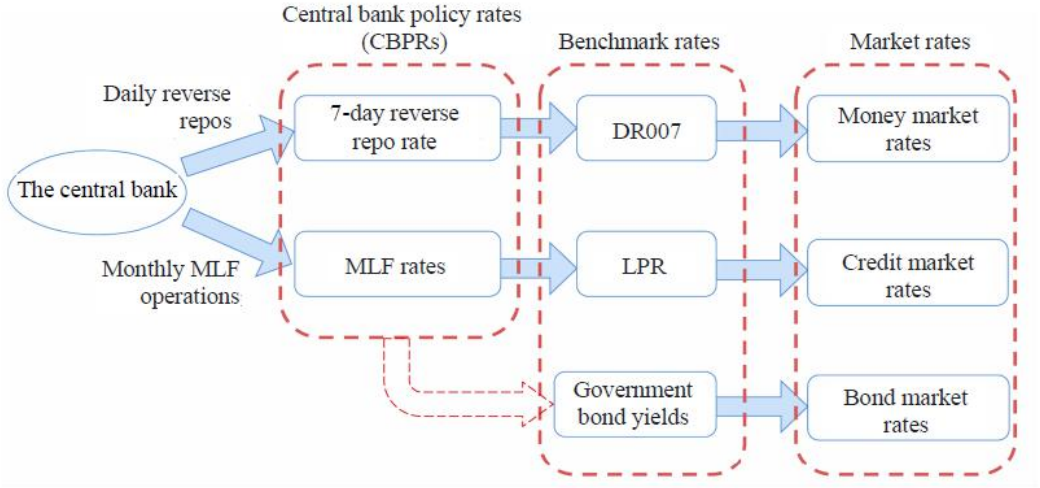

Figure 1 China's interest rate system and framework for interest rate regulation

Table 1 Major types of interest rates in China

Interest rate type	Current rate	Introduction
Open market operation (OMO) rate	7-day reverse repo at 2.2 percent	Short-term reverse repo rate
Medium-term lending facility (MLF) rate	1-year MLF at 2.95 percent	The interest rate at which the central bank lends to the market for medium terms.
Standing lending facility (SLF) rate	7-day SFL at 3.2 percent (= 7-day reverse repo rate + 100BP)	The interest rate at which the central bank provides short-term capital to financial institutions as demanded, which is the cap of the interest rate corridor.
Loan prime rates (LPR)	1-year LPR at 3.85 percent, 4.65 percent for maturities of 5 years and above	The arithmetic average of loan rates provided for customers of best credit qualities by LPR quoting banks.
Benchmark deposit rate	Demand deposits at 0.35 percent, 1-year deposits at 1.5 percent	Interest rates published by the PBC as a guidance for commercial banks to set interest rates on customer deposits.

Interest rate on excess reserves	0.35 percent	The rate at which the central bank makes interest payments on the excess reserves deposited by financial institutions, which is the floor of the interest rate corridor.
Interest rate on required reserves	1.62 percent	The rate at which the central bank makes interest payments on the required reserves deposited by financial institutions.
Shanghai Interbank Offered Rate (Shibor)	2 percent overnight, and around 2.35 percent for 3-month maturity	The arithmetic average of interbank offered rates quoted by banks with high credit ratings.
Government bond yield	10-year government bonds yield around 2.85 percent	Reference rates for the market-based bond market

In our market-based interest rate system, the most important types of interest rates include:

(1) OMO rates and interest rate corridor. The 7-day reverse repo rate, one of the OMO rates, is a short-term policy rate of the central bank and is currently at 2.2 percent. Through daily OMOs, the central bank keeps the liquidity in the banking system adequate at a reasonable level and sends short-term policy interest rate signals, so that short-term rates, such as the pledged depository-institution repo rate (DR), could move around the policy rates and be transmitted to other market rates. Meanwhile, through the interest rate corridor with the standing loan facility (SLF) rates as the cap and the interest rate on excess reserves as the floor, the central bank limits the movements of short-term interest rates within a reasonable range. The SLF is a tool for the central bank to provide short-term funds to financial institutions as demanded. As financial institutions may borrow from the central bank at the SLF rates, they don't have to borrow from the market at higher prices. Therefore, the SLF rates could be regarded as the cap of the interest rate corridor. Currently, the 7-day SLF rate stands at 3.2 percent, which equals the 7-day reverse repo rate plus 100 basis points. Recently, the People's Bank of China (PBC) launched reforms to promote electronic transactions of SLF in an orderly manner, which are expected to raise transaction efficiency, stabilize market expectations, enhance the stability of the liquidity in the banking system, maintain the stable operation of money market

interest rates, and effectively prevent liquidity risks. The interest rate on excess reserves is the rate at which the central bank makes interest payments on the excess reserves deposited by financial institutions. As financial institutions can always deposit their surplus funds into the excess reserve account and receive interest payments at the interest rate on excess reserves, they would not be willing to lend to the market at prices below such a rate. Therefore, the interest rate on excess reserves can be regarded as the floor of the interest rate corridor. Currently, the interest rate on excess reserves stands at 0.35 percent.

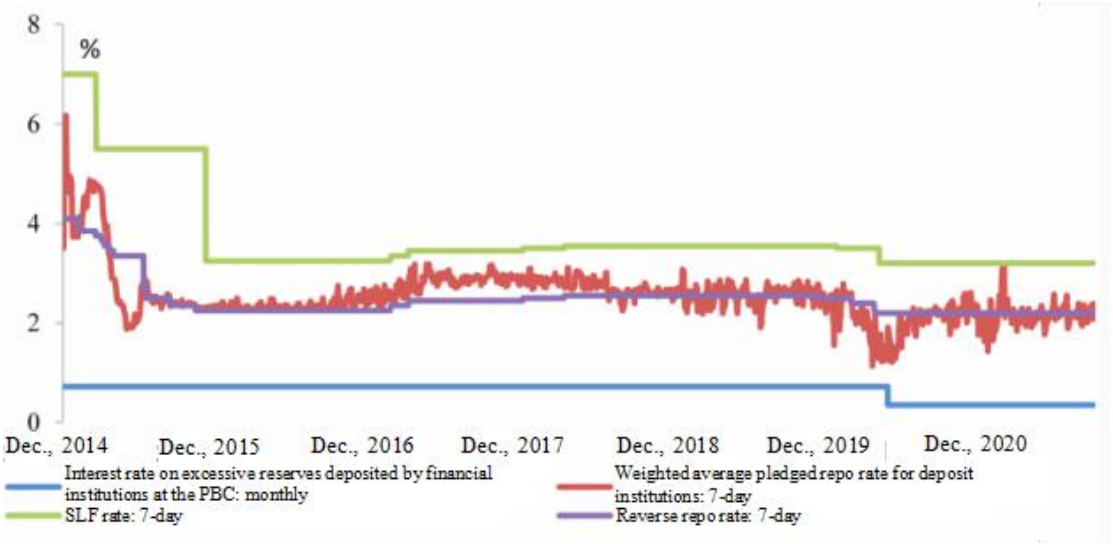

Figure 2 Short-term policy interest rates and the interest rate corridor

(2) MLF rates. The MLF rates are medium-term policy rates of the central bank, which, together with the 7-day reverse repo rate, constitute the central bank's policy interest rate system. Currently, the 1-year MLF rate stands at 2.95 percent, which represents the marginal cost of medium-term funds at which the banking system borrows from the central bank. Since 2019, the PBC has gradually established a mechanism for regular MLF operations, meaning that MLF operations are carried out once in the middle of each month. By carrying out MLF operations in a fixed time window at a fixed frequency, the PBC improves the transparency, regularity and predictability of MLF operations, continuously sends the medium-term policy interest rate signals to the market, and guides the movement of the medium-term market interest rates. Let's take the yield to maturity (YTM) of 1-year interbank negotiable certificate deposits (NCDs) (AAA+ rated) as an example. In the past two years, it generally moved around the MLF rates, except for the first quarter of 2020 when it

temporarily deviated from the MLF rates due to the impact of the COVID-19 pandemic.

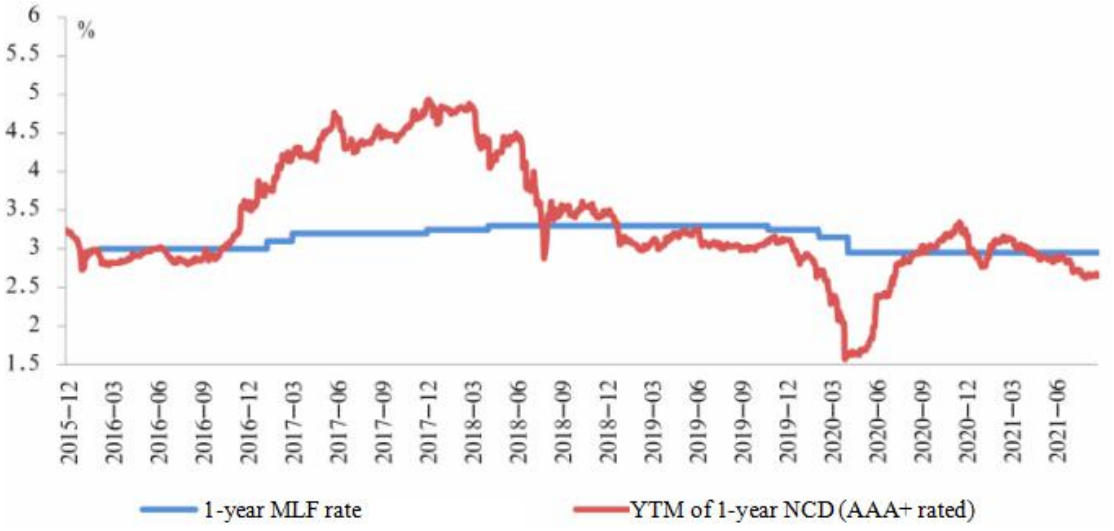

Figure 3 Medium-term policy interest rates and NCD rates

(3) LPR. In August 2019, the PBC launched the LPR reform, in which the panel banks quote the LPR based on MLF rates and a comprehensive consideration of the cost of funds, risk premium and other factors, so as to fully reflect the market supply and demand. After two years of continuous advancement, financial institutions have basically set prices with reference to the LPR when issuing loans, and completed the conversion of the pricing benchmark for outstanding loans. The LPR has replaced the benchmark lending rates to become the major pricing reference for financial institutions, and the lending rates become evidently more market-based. After the reform, the implicit lending rate floor is removed and the LPR timely reflects the new trend of slightly declining market rates. In this way, we effectively leverage the role of LPR in guiding the real lending rates to decrease and set up an interest rate transmission mechanism featuring “a transmission from MLF rates to LPR and then to lending rates”, thus greatly smoothing the transmission channel of monetary policies and strengthening the mutual reference between lending rates and bond rates.

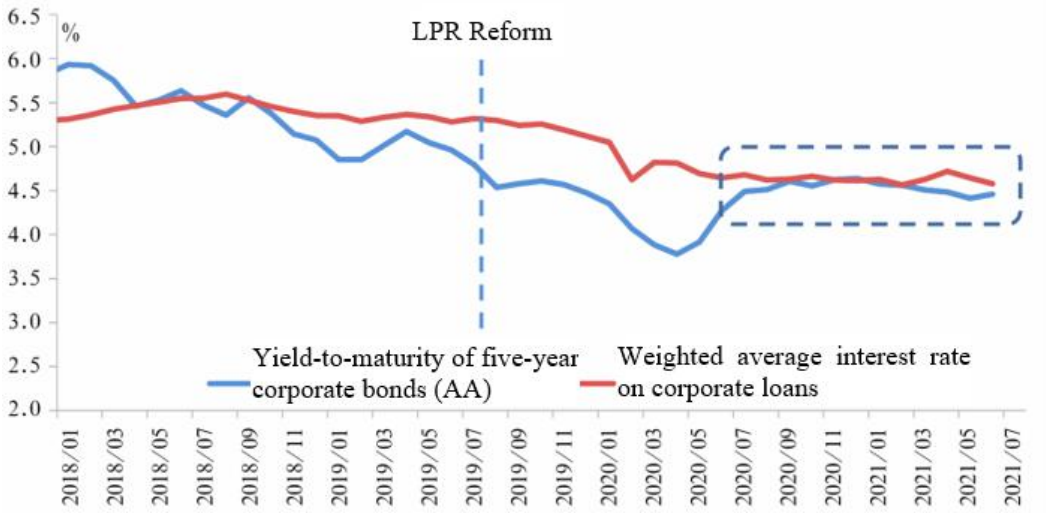

Figure 4 Post-reform mutual reference between lending rates and bond rates has intensified to some extent

(4) **Interest rates on reserves.** Interest rates on reserves are the interest rates at which the central bank pays for the reserves deposited at the central bank by financial institutions. The rates are classified into two categories-the interest rate on required reserves and the interest rate on excess reserves. At present, the interest rate on required reserves stands at 1.62 percent in China, which helps to balance the interests of various stakeholders and bolster the sustainable development of financial institutions. In 2020, the interest rate on excess reserves dropped from 0.72 percent to 0.35 percent, on par with the benchmark rate of demand deposits. This aligned the interest rate on household demand deposits at commercial banks with that on excess reserves that commercial banks deposit at the central bank, which was relatively fair. In addition, due to decreased return on excess reserves of commercial banks and increased opportunity costs of idle money, commercial banks are motivated to boost the efficiency of fund use and are encouraged to increase credit supply with their own funds so as to better serve the real economy .

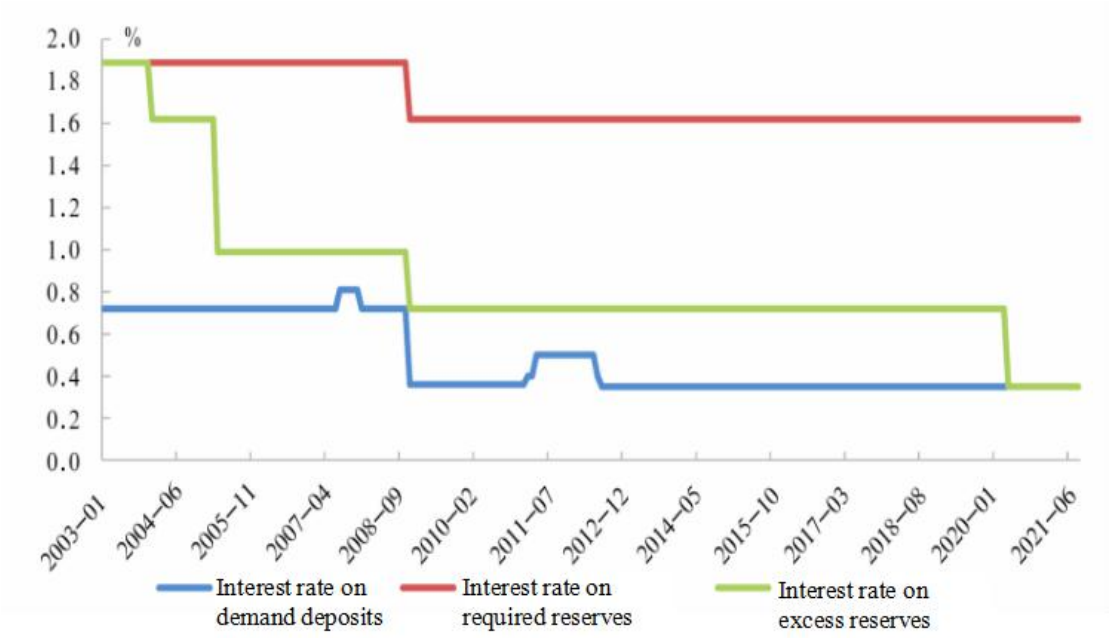

Figure 5 Interest rates on reserves

(5) Shanghai Interbank Offered Rate (Shibor). The PBC introduced Shibor in 2007, which is a simple, no-guarantee, wholesale interest rate calculated by arithmetically averaging all the interbank RMB lending rates offered by the panel of quoting banks with high credit ratings. Featuring a complete maturity structure covering eight maturities from overnight to 1-year, Shibor can serve as a reference to the pricing of financial products of diverse maturities. At present, it has been applied in financial product pricing in different layers of the money market, bond market and derivatives market among others. Since the introduction of Shibor, the PBC has been performing supervision and administration in an attempt to ensure the quality of Shibor quotations. Meanwhile, in line with the general principle of drawing upon international consensus and best practices, the PBC actively participates in the reform of international benchmark rates, and guides the interest rate self-regulatory mechanism and the National Association of Financial Market Institutional Investors (NAFMII) to release a series of domestic reference texts on the transition from London Interbank Offered Rate (Libor), creating favorable circumstances for domestic financial institutions to respond to the withdrawal of Libor.

In addition, the **benchmark deposit rates** used to play an important role in the past. As the market-based interest rate reform advances, at present, financial institutions can independently determine their actual deposit rates. As every household holds some deposits, these deposits are the most important products of financial services to the public, which are related to their immediate interests. The deposit rates are determined by the market under certain rules. As the guiding rates, the benchmark deposit rates released by the PBC serve as an important reference to the pricing of deposit interest rates by financial institutions. From the perspective of international experience, deposit rates are generally more stable than other market rates. Currently, domestic 1-year benchmark deposit rate stands at 1.5 percent, based on which financial institutions can adjust their actual deposit rates upwards or downwards. This level is regarded as a golden level, adaptive to the demand of inter-temporal policy design. In September 2013, the self-disciplinary mechanism for setting interest rates was established under the guidance of the PBC, which realized self-disciplinary management on interest rate setting by financial institutions. The mechanism, with reference to the benchmark deposit rates, has put in place a self-disciplinary agreement on deposit rates, and plays an important role in maintaining fair and sound competition order in the deposit market. In June 2021, the mechanism changed the determination of the self-disciplinary ceiling for deposit interest rates, which had shifted from adjusting the benchmark deposit rates upwards by a designated multiplier to adding basis points to the benchmark interest rates. This helps further regulate the competition order of deposit rates, improve the maturity structure of deposit rates, and create a sound environment for the market-based reform of interest rates. When needed, market entities can adjust their deposit rates downwards at their own discretion.

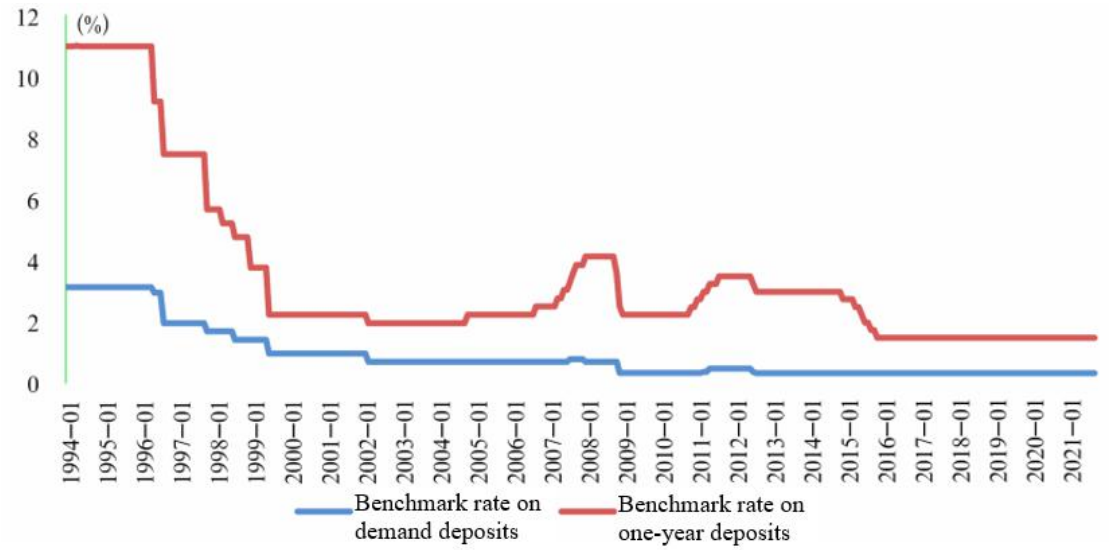

Figure 6 Benchmark deposit rates

3. China's Yield Curve Tends to Be Mature.

In the market-based interest rate system, the benchmark yield curve is crucial as it provides pricing reference to various financial products for diversified market entities. The yield curve reflects the maturity structure of interest rates ranging from those of a shorter maturity to those of a longer one, and represents a system composed of major benchmark rates of financial products with various maturities. The short end of the yield curve shows overnight and 7-day depository-institutions repo rate (DR007), whereas the long end demonstrates the government bond yields. From an international perspective, even in the US where the bond market is rather developed, its Treasury yield curve mainly works at the middle and long end, and the short-end interest rates such as those in the money market are mainly determined with reference to federal funds rate and Libor (SOFR after the reform). **For different sections of the yield curve, the central bank and the market have different roles to play.** At the short end of the yield curve, the central bank controls base money supply, and provides short and medium-term base money through OMOs, MLF and others, exerting direct impact on the short and medium-term benchmark market rates. At the medium and long end of the yield curve, the benchmark rates are formed through market transactions based on the market expectations of the development trend of the macro economy as well as the stance of monetary policy. With an observation of these rates, investors and policy makers can grasp important market information.

The Chinese government bond yield curve is getting mature in terms of its construction and publication. Since the publication of the first yield curve for RMB-denominated government bonds in 1999, the construction and publication of the Chinese government bond yield curve have become increasingly stable and mature. The providers include infrastructures, such as the China Central Depository & Clearing Co., Ltd. (CCDC) and the China Foreign Exchange Trade System, and global information services companies, such as Bloomberg. The yield curves produced by the CCDC are published by China's Finance Ministry, the PBC, and the China Banking and Insurance Regulatory Commission on their official websites. The US Treasury yield curves of major influence are those produced by the US Treasury Department and Bloomberg. On the Chinese government bond yield curve, the 10-year government bond yield has drawn the most attention from the market and given rise to active trading, with an average daily volume of nearly 500 transactions, or more than RMB20 billion.

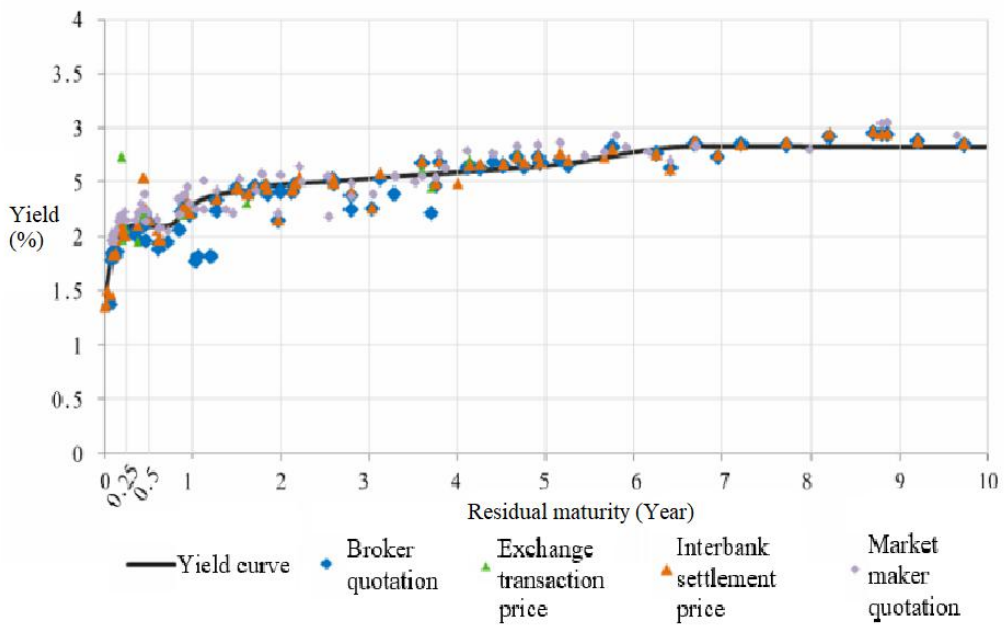

Figure 7 Chinese government bond yield curve (overnight to 10Y)

The Chinese government bond yield curve has had increasingly extensive uses. Widely applied by market institutions in risk management, fair value measurement, and transaction pricing, it is playing an important role in the bond market. Perpetual bonds and floating-rate bonds issued or re-priced with reference to government bond

yields have amounted to nearly RMB3.7 trillion. With their issue prices benchmarked against the ChinaBond government bond yield curve, over RMB30 trillion of local government bonds and ultra-long maturity government bonds have been issued so far. Internationally, the three-month Chinese government bond yield was included in the Special Drawing Rights (SDR) interest rate basket in 2016, providing a pricing benchmark for investments by overseas central banks and commercial institutions in China's bond market.

The Chinese government bond yield curve is still not as market-based as that of developed markets. A mature yield curve can effectively reflect changes in macroeconomic growth as well as in inflation. Judging by market size, the outstanding amount of Chinese government bonds stands at RMB21 trillion, while that of US Treasury bonds exceeds USD28 trillion. Moreover, Chinese government bonds, especially long-term government bonds, have a relatively low turnover ratio, with that of longer-than-10-year government bonds below 100 percent and much lower than the 530 percent in the US. In terms of bid-ask spreads, the average market maker spread in China's government bond market is notably higher than that in the US. The recent years have seen a rise in the correlation between Chinese government bond and US Treasury yields. For instance, since 2016, the coefficient of correlation between the 10-year Chinese government bond yield and the 10-year US Treasury yield has been 0.67, as compared with the 0.3 recorded over the years 2010-2015. The difference between Chinese government bond and US Treasury yields is reflective of various factors combined.

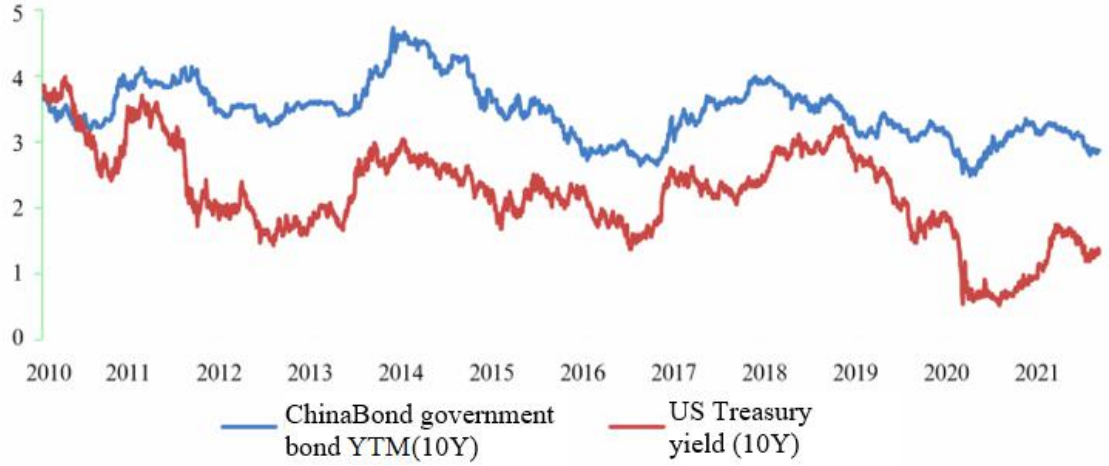

Figure 8 10-year Chinese government bond yield and US Treasury yield

Then let's talk about conventional and non-conventional monetary policies. Asset purchases do not fall into the conventional monetary policy toolkit. Rather, they are reluctant choices of the central bank when the market gets into trouble. Prolonged use of asset purchases will jeopardize market functioning, monetize fiscal deficits, undermine central bank reputation, blur the boundaries between central bank solutions to market failures and its monetary policy stance, generate moral hazard, and cause many other problems. Therefore, such operations should by all means be avoided. In case asset purchases are indeed necessary, three principles should be followed. **First,** central bank interventions should be aimed at restoring normal market operation rather than playing the role of the market. **Second,** the central bank should act ahead of the market and intervene in order to quickly stabilize market sentiment and avoid worsening market failures. **Third,** the central bank should rein in asset purchases and end them as early as possible so that the intensity of asset purchases matches the severity of market failures. Currently, interest rates have been on a downward trend in the world's major developed economies, with some having adopted near-zero policy rates or even negative interest rates. As China is expected to keep its potential economic growth within the range of 5-6 percent, it is well positioned to conduct a normal monetary policy and to maintain a normal, upward sloping yield curve. China will pursue a normal monetary policy for as long as possible, with no need to engage in asset purchases at present.

In line with the strategic arrangements made by the CPC Central Committee and the State Council, the PBC will further move ahead with the market-based interest rate reform and enhance the market-oriented interest rate formation and transmission mechanism. On the one hand, continued efforts will be made to improve the central bank policy rate system. We will consolidate the central bank policy rate system in which OMO rates are taken as short-term policy rates and MLF rates as medium-term policy rates so that market rates will move around policy rates in ideal circumstances. We will improve the interest rate corridor and take steps to achieve wholly electronic conduct of SLF operations. On the other hand, we will continue to enhance the cultivation of market benchmark rates. The mechanism for the formation of LPR quotes will be optimized while panel banks will be urged to improve the quality of their quotes, go through performance assessments, and leave the panel if they don't qualify. Past LPR quotes will be released when appropriate. Additionally, we will

expand the application of the repo rate DR in financial products to further consolidate its role as a benchmark. And we will follow market-based principles to develop the government bond yield curve.

Meanwhile, not only should we lift restrictions through the market-based interest rate reform, but no less attention should be paid to the formation of interest rates. A major problem found in the process lies in the impediments to the formation and transmission of market-based interest rates. The reasons behind include market segmentation, which has resulted from regulatory arbitrage and the immaturity of financial markets, and fiscal and financial institutional problems, such as soft budgetary constraints on financing platforms as well as disorderly competition for deposits. In the next stage, more work needs to be done to strengthen regulation, improve business environment, tighten budgetary constraints, and defuse financial risks in order to create more favorable conditions for furthering the market-based interest rate reform.