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China's Fiscal and Monetary Policies During the Global Financial Crisis and the Covid-19 Pandemic: Lessons and Policy Implications

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Abstract

Using statistical and institutional analysis approaches, this study seeks to make a comprehensive study on fiscal and monetary policies and tools adopted by China for ensuring and sustaining its economic development despite the 2008 Global Financial Crisis (GFC) and the Covid-19 pandemic. Primarily, it aims to find evidence on the more appropriate fiscal and monetary policies and tools, specifically by giving emphasis to those implemented by the Chinese government to stimulate and sustain economic development, particularly during the earlier mentioned contexts. The study generated the following major findings: *First,* the transition from loosening monetary policy to tightening monetary policy at the time of 2008 GFC is one notable approach and a valuable lesson learned; *Second,* prioritization of lifesaving and enhancing economic resiliency should be at the core in addressing the economic challenges, particularly during the Covid-19 epidemic; and *Third,* the importance of the central bank to function as a transmission belt for government to flood the country with liquidity through commercial bank lending.

Keywords: *China's monetary policy, Chinese fiscal policy, economic development*

1. Introduction

The 2008 GFC and the Covid-19 are truly a challenge on a global level. In the context of a crisis, the effectiveness of a country's response policies is closely linked to the fiscal and monetary policy space, the industrial development capacity and economic structural resilience. Therefore, the economic governance capacity, especially in terms of monetary policies, are very important factors for the country to implement an economic stimulus program aiming to bring the economy back to normal pre-crisis conditions.

Over the years, China has enjoyed one of the fastest growing economies in the world and has contributed significantly to world economics. However, the global financial crisis in 2007-2008, and 12 years later, the Covid-19 pandemic that started in late 2019 and early 2020, have severely affected the world economy, threatening to significantly slow down the growth of the Chinese economy. Some Chinese industries, especially the export sector, have been hit hard by the crisis and millions of workers were laid off. This situation is a major concern for the Chinese government, which often uses a measure of rapid economic growth as a tool of strategic importance in maintaining social stability. Concerns have also largely been raised from the rest of the world. Given the capital controls in place in the Chinese economy, the effects of Chinese monetary policy shocks are likely to be transmitted through the trade channel, where a domestic monetary expansion increases the demand for imports and leads to an increase in aggregate output and prices in a foreign economy. Moreover, China as the world second economic power, currently holds a large amount of foreign exchange reserves and has trade relations with many other important global economies, so the country's monetary policy, especially response policy during times of crisis, can theoretically be of important impacts not only on the Chinese economy itself, but also on partner economies, even on the global perspective.

This research analyzes China's specific fiscal and monetary policy responding to the GFC and Covid-19 pandemic respectively, and then draws lessons and policy implications.

Regarding the data used in this research, apart from the official conventional statistic data sources taken from the China's National Bureau of Statistics, the World Bank, the International Monetary Fund (IMF), etc., this research uses the concept of Aggregate Financing to the Real Economy (AFRE) first used by the People Bank of China (PBC) in 2011 as an instrument to observe total liquidity funding to the real economy during a given time.

2. China's Fiscal and Monetary Policies: A Brief Overview

2.1 China fiscal policy

While initially founded in 1949 as a socialist state with a centrally planned economy, China now has a mixed economy, described by its government as "Socialism with Chinese characteristics". For a long time before the economic reforms started in 1979, the government had adopted a balanced-budget fiscal policy. After the economic reforms, China began to run budget deficits and to issue a limited amount of foreign and domestic debt. In 1993, the government passed a law allowing the Ministry of Finance to finance all its budget deficits by issuing bonds instead of taking money from the PBC. Since then, Government debt started to increase. As a result, economic growth quickly picked up, but central and local government debt rapidly increased, raising concerns among academics and business firms over China's fiscal riskiness and economic future. After the Asian Financial Crisis in 1997, for the first time, China adopted an expansionary fiscal policy, and as a result, budget deficits and government debt increased quickly. Recently, China's fiscal policy has been focusing on expanding consumption, promoting technological advancement, and enhancing food security.

Also, after the economic reform, China has been characterized by a high degree of political centralization but significant economic decentralization. The central government sets the strategic direction while local officials carry it out. The objective of the decentralization was to increase the local governments' responsibility for local economic development and their autonomy in conducting fiscal functions to achieve this goal, while preserving an adequate degree of fiscal control for the central government. As documented by Wong (2011), most responsibilities for providing public services are assigned to sub-national governments, and the central government accounts for less than one-fifth of national budgetary expenditures – a share that has fallen steeply over the past decade. The provision of infrastructure also mainly falls to local governments, and they have accounted for 70-75 percent of budgetary expenditures on fixed investment in recent years for which data are available.

2.2 Reserve requirements

In advanced economies, the reserve requirement instrument is rarely used. However, it has been used frequently in China and is considered an important tool. The PBC uses required reserves to manage liquidity in the financial system, sterilize foreign-exchange intervention, manage credit allocation, and implement macroprudential policy. Theoretically, it is used not only to change aggregate credit and money supply, but also to regulate credit structure through different reserve ratio schemes. For example, the above tool requests that the required reserve rates applied to small and medium financial institutions, rural financial institutions would be lower than large and urban financial institutions, to support small and medium enterprises and the "Three Rurals" policy.

2.3 Open market operations

Among all monetary policy tools, open market operations, i.e., buying and selling securities by the Bank for its own account in the open market, are the most important and flexible tool of central banks. In China, open market operations are securities transactions conducted by the PBC – being the Chinese central bank, with a cohort of major banking sector financial institutions for the purpose of fulfilling its monetary policy goals. The feature of open market operations in China is that besides purchasing and selling government bonds and policy financial bonds, the PBC also controls the size and frequency of central bank bill issuance. Central bank bills are short-term bills issued by the PBC and sold to depository institutions to reduce base money; on the contrary, the expiration of central bank bills means base money increases. Central bank bills in China were first introduced in 2004 because the state bonds held by the PBC were not enough to make sterilized intervention.

2.4 Interest rate policy

Since the bank rates in China are still guided by the PBC, the interest rate policy can therefore be used as a monetary policy tool. It includes two categories, the first one is to adjust benchmark interest rates offered by the central bank, including re-loan rate, rediscount rate, and reserve balances rate; the other is to adjust the benchmark interest rates on financial institutions' deposits and loans. The interest rates offered by banks can accordingly fluctuate within the floating range around the benchmark rates.

Although interest rate liberalization reforms began in the late 1970s, significant progress has mainly been made in the 2010s. Along with interest rates liberalization, the PBC also emphasized China would shift the monetary policy regime from quantity-based to price-based. From 2000, the intermediate targets of China's monetary policy are not unique, money quantity or interest rate, but both of them, with which, the hybrid rule of targeting both money quantity and interest rate is an important feature of the current monetary policy of China. It is different from advanced economies where the short-term nominal interest rate is the unique intermediate target. The PBC deletes using bank lending rates and deposit rate ceilings in 2013 and 2015, respectively. Regulators have taken steps that should lead to the full deregulation of deposit interest rates. Banks have been given more leeway to offer deposit rates higher than the benchmark rates set by the PBC. And in 2015 China established a long-awaited deposit insurance system, which like the FDIC system in the United States provides security for most household bank deposits. The last restrictions on deposit interest rates were lifted in July 2015 (Kroeber, 2020). In 2015, that deposit insurance scheme can cover more than 99 percent of depositors up to RMB 500,000 each, paving the way for banks to compete without putting depositors at risk. He and Wei (2022) argue that replacing the implicit guarantee with an explicit guarantee is an important step for interest rate liberalization. In 2019, it introduced the market-driven loan prime rate (LPR) as the benchmark lending rate.

2.5 Credit policy and window guidance

Credit policy is designed based on the state's macroeconomic policy, industrial policy and other regional economic development policies aiming to orient and shape the scale and credit structure of financial institutions. This bank lending channel approach, or credit channel in the strict sense, stresses that monetary policy affects the level of economic activity not only by modifying short-term interest rates, but also by altering the availability and terms of bank loans. Before 1998, credit policy was implemented through credit ceilings. In 1998, the credit ceiling was abolished and replaced by the window guidance, through which, the PBC directs banks to increase or decrease loans to different economic sectors or corporations. 'Window guidance' is an informal policy instrument that uses benevolent compulsion to 'guide' financial institutions to extend credit and allocate lending in line with the central government targets. Although the window guidance is a type of indirect currency control tool, it is however effective in China, because China's major financial institutions are all state-owned or state-held.

2.6 Real estate credit control

Real estate credit control is considered a special type of tool of China's monetary policy and used to regulate real estate price fluctuation by applying the minimum mortgage prepayment rate. Specifically, for example, the down payment to buy a second house or more is often higher than that of the first house, to limit investment and speculation needs. Typically, recently well-known was the "three red lines" policy was unveiled in August 2020 to tackle property developers' unbridled borrowing by restricting the amount of new borrowing they can raise each year. The "three red lines" metric put caps on debt-to-cash, debt-to-assets and debt-to-equity ratios and asked property developers to provide more details about their debts. However, China has been now planning to relax restrictions on borrowing for property developers to support the troubled sector by gradually dialing back the "three red lines" policy.

To make an overall evaluation on Chinese monetary policy, Fu, B., and Wang, B. (2020) have well documented that China changed from a planned economy to a market-based economy in the last four decades since the reform and opening-up policy by Deng Xiaoping. All aspects of this economy are still undergoing fierce reform and the monetary policy regime reform is an essential part of this economic institution transition. In 1998, the PBC ended the monetary policy of directly controlling bank loans and officially adopted money quantity M2, rather than interest rate, as the intermediate target of monetary policy. With interest rate liberalization and financial market development, the central bank began to discuss monetary policy reform to target interest rates.

3. The Global Financial Crisis and the Chinese 2009 Four Trillion RMB Stimulus Package

3.1 The fiscal policy

According to Zhang (2009), owing to the strict capital control, China's financial institutions have very limited financial losses in the US sub-prime crisis. However, the deep involvement of its real economy in the global production has made China deeply affected by the global financial crisis and the economic recession or downturn. China's leaders were very concerned in the late fall of 2008 that economic slow-down would turn into a broader recession, fueled by a panicky reaction (Naughton, 2009). Following Premier Wen Jiabao's call to make the stimulus "big, fast, and effective," the program was implemented with great force and in record time. China's comprehensive stimulus policy officially began on November 5th, 2008. On that day, the State Council decided to launch the investment stimulus package worth four trillion Yuan (about 586 billion USD at the then exchange rate) equivalent to 12.5 percent of the Gross Domestic Product (GDP) in 2008. The stimulus package will be spent from the fourth quarter of 2008 until the end of 2010 (Naughton, 2009). To recall, and as Zhang (2009) stated, for many years, China has been very much conservative in fiscal expansion and China's fiscal revenues as a share of GDP increased from 11 per cent in 1997 to 21 per cent 2007, and, in 2008, the ratio of fiscal deficit to GDP amounted to a mere 0.6 percent; the ratio of public debt to GDP was only about 20 percent. Therefore, China has a very strong fiscal position for implementing the stimulus package and even for enlarging its scale if necessary. Interestingly, Schmidt & Hellmann (2010) concluded that, in contrast to Western central banks, the PBC role consists less in directly providing or absorbing liquidity to the money market but in being a transmission belt between the government and the commercial banks to influence investment growth and the inflation rate. Naughton (2009) argued that local authorities are also eagerly waiting for new orders to be issued by the central authority. The opportunity that local governments want is the ability to get their favorite local projects approved by the central government and included directly or indirectly in the national investment plan. In fact, the central government has given the green light to the new round of negotiations with the provinces by signaling to the provinces what types of projects it wants them to propose. The central government also gives provincial governments a rough idea of the investment budget they can expect, based on the province's population and previous dependence on central government investment. The provinces will then respond with a list of project proposals. However, the central government's direct funding commitment is only RMB 1.18 trillion, accounting for 30 percent of the total stimulus package. Furthermore, the program includes a number of projects and amounts of money that had in fact been previously committed, notably RMB 1 trillion for post-earthquake reconstruction. Since local governments are still not allowed to borrow money by themselves, the central government agreed to issue treasury bonds worth RMB 200 billion for local governments to use in 2009.

To sum up the above described central-local policy targets, Schmidt and Hellmann (2010) said "the most obvious common aim of both the central and the local governments is to curb unemployment and thereby uphold social stability. Other than that, central government interests often collide with local interests when it comes to the stimulus. The central government is more concerned with addressing the longer-term structural problems and boosting private consumption. On the other hand, local and regional governments/party organizations are more concerned with the stabilization of their income revenues by protecting the local industries even if they rely on energy insufficient, polluting production."

3.2 Funding mechanism of the fiscal policy – The monetary policy

This section examines the funding mechanism. Although the central government itself only partially funded the stimulus plan, it freed up large amounts of capital to finance increased investments, mainly through the banking system.

To help localities have financial resources, the central government has approved some relaxing measures. A special program of extra-long-term, concessionary interest rate bank loans has been authorized to provide paid-in capital for investment projects. Before, China required that a minimum of 20 to 35 percent of the funding for investment projects be provided by equity-like paid-in capital to restrain the abuse of financial leverage. But it now allows the special long-term loans to qualify as paid-in capital.

The issuance of corporate debt has been facilitated under the "implicit" guarantee of local governments. Corporate bond market is considered the least developed tool of the Chinese financial system, as previous bond issuance experiments have repeatedly failed, and were often cut off by Chinese regulators. Now, regulators are once again trying to experiment with larger issuance sizes.

Loan quotas controls have been relaxed. The PBC manages bank credit supply through setting loan quotas which are the lending targets for commercial banks. The PBC statistics show that total loan quotas increased in a spectacular way from RMB 4.9 trillion RMB in 2008 to almost RMB 10 trillion in 2009. Cong et al. (2019) documented that the two most prominent measures in this sense were the following. First, in the last quarter of 2008, the PBC lowered commercial banks' reserve requirement ratio from 17.5 percent to 13.5 percent for medium-sized and small banks, and from 17.5 percent to 15.5 percent for large banks, thus a huge, freed liquidity became available for bank lending. Second, the PBC reduced the base one-year lending rate from 7.47 percent to 5.31 percent.

Also, according to Cong et al. (2019), one of the reasons behind the changes in banking regulation was to meet Local Government Financial Vehicle (LGFV) s' borrowing needs. LGFVs' borrowing needs common features are the need to provide financial resources directly to local governments so that they can perform on their ambitious investment plans. Localities have little or nothing to lose in this stimulus pursuit, so they clearly propose more projects than they can conduct. Local governments in large part financed this increase in spending through so-called LGFVs, off-balance-sheet companies set up to increase local government expenditure without officially running a deficit (Cong et al., 2019). Zheng and Chen (2009) argued that local governments have strong motivations to lobby the central government to authorize projects that could directly and quickly generate local GDP growth, which has the largest weighting in official's assessments. Within just one month from the initiating document, 18 provinces have proposed huge projects with a total investment budget of up to RMB 25 trillion, over 80 percent of annual GDP. These kinds of investments are primarily in infrastructure and public goods with limited income-earning potential.

It is obvious that China's increasingly commercially oriented banks would not be enthusiastic about engaging on these projects on their own, however, these measures allow the provincial projects to go forward, with the local governments taking responsibility for long-run repayment schemes. By funding local governments, these measures at the same time make local authorities more solvent, and give them more opportunity to increase their leverage, turning to local commercial banks for credit.

3.3 The loosening monetary policy and the exploding of bank credit

As stated by Cong et al. (2019), the second component of the stimulus plan entailed a set of credit expansion policies—including lower bank reserve requirements and lower benchmark lending rates—aimed at increasing lending to the real economy by Chinese banks. As expected, bank credit has grown at an explosive pace since the central government announced its stimulus plan. This is on the one hand thanks to policies explicitly designed to facilitate the provision of credit: The Chinese government encouraged an increase in credit supply to the real economy by the commercial banking system; and on the other hand, the urgency mixed with the politicization of the stimulus itself (Naughton, 2009). These two together send a very strong and interesting signal to commercial bankers in the country that they are expected to rapidly increase bank lending to support the above-said projects.

Therefore, it is not surprising to see that commercial bank lending has grown spectacularly. Bank lending to the real economy increased between 2008 and 2009, at the outset of the stimulus program. In the first quarter of 2009 alone, total outstanding bank loans rose by a whopping 4.6 trillion yuan, even higher than the total stimulus package in more than two years, which is four trillion in the 27-month period from October 2008 to December 2010. With regard to the term structure of the loan increment is concerned, medium- and long-term loans increased more than the short-term loans. In 2009 and 2010, the medium- and long-term loans occupied 70 percent and 83 percent of the loan increments respectively (Cong et al., 2019).

But where did the new Chinese bank lending go? The answer is the increased loans to households were only nine percent of the incremental lending, while non-financial businesses got over 90 percent of the total. Of total lending, 37 percent was long-term lending to businesses, and 32 percent was bill discounting, a new financing practice for Chinese bankers. Both last two channels provide funds to support new local investment (Naughton, 2009).

The above said credit increments flowed into the infrastructure loans since the proportion of the municipal infrastructure loans which the local financing platform relies on is high. Local government financing platform refers to those types of "City Construction Investment Company" or other companies like those established by the local government for the purpose of local infrastructure investment to guarantee local governments' revenue. And those funds are raised from commercial banks.

Overall assessment of the effectiveness of the stimulus package, the most fundamental criticism is that the stimulus package depends too much on government investment injections while in the long run, the goal of the economy is completely opposite, it is to increase household income and consumption, and at the same time change the direction of economic growth to a more consumption-friendly trajectory.

3.4 The tightening monetary policy phase

Faced with the risk of inflation and real estate bubble, the PBC began to move to a period of tightening monetary policy from the beginning of 2010. In December 2010, the Chinese Government announced a clear statement about implementing a "sound monetary policy", through which, from January 2010 to June 2011, the PBC increased the required reserve ratio 12 times. Chen (2013) documented that this ratio for large financial institutions was raised from 15.5 percent to 21.5 percent, the highest level in the history of the Chinese banking system, while for small and medium-sized financial institutions, this rate increased from 13.5 percent to 18 percent. In addition, in 2011 the PBC introduced flexible adjustment of the required reserve ratio which is considered an innovation in the central bank's policy tools.

According to Chen (2013), the purpose of the PBC is to guide Chinese financial institutions to maintain reasonable and moderate credit growth and to optimize credit structure. Those new policies are mainly related to the following issues: *First,* the level of deviation degree between bank credit scale and economic growth as well as the price index; *Second,* an effective credit policy implementation; *Third,* measures to which a financial institution influences the overall deviation of the system, and thus its systemic importance and soundness. If the loans from a single financial institution have a significant impact on the total deviation or the institution is of high systemic importance and is not sound, then a higher than common standard reserve ratio will be applied; and if that organization meets the requirements of relevant measures after credit adjustment, it will enjoy a rate lower than the general level.

The PBC also conducts open market operations more flexibly. Besides, it also increased benchmark interest rates for deposits and loans and strengthened guidance on credit windows and credit policies. It also encourages banks to further strengthen credit support for key borrowing sectors, such as in the "Three Rurals", small and medium enterprises, livelihood projects, especially housing projects for low-income urban residents, energy saving, etc. At the same time, the PBC requires banks to strengthen the management of loans to local government financial platforms to strictly control loans to high energy consumption, high emission industries, etc. To control the dangerous expansion of the real estate bubble, the State Council has issued stricter regulations, according to which the prepayment rate for second homes or more has been gradually raised to 60 percent. Mortgage rates have been raised to 1.1 times the benchmark rate and third home mortgages have been suspended (Chen, 2013).

4. The Covid-19 Pandemic and the Chinese Stimulus Policy

The Chinese economy has seen significant changes in the past 17 years when the Severe Acute Respiratory Syndrome (SARS) epidemic hit China and the East Asia region. In 2019, the region was four times larger and accounted for 16 percent of the world economy, compared to only about four percent in 2003. Additionally, the structure of GDP in 2019 was very different from 2003. The tertiary and consumption sector now contribute more than half of China's

GDP. The economy would therefore be more sensitive to the decline in domestic demand due to the epidemic and the government's control measures, since the control measures imposed by the government have been much more extensive than during the SARS epidemic.

The year 2020 has seen the unprecedented biggest global economy's recession since the 1930s. The UNCTAD's 2020 Trade and Development report said that the estimated world income was 7.3 percent lower than pre-Covid-19 forecast for 2020 and will remain 6.4 percent lower for 2021. China's economy decreases by 6.8 percent in the first quarter of 2020 and achieves a growth rate 2.3 percent for the whole year. Although China is one of the few countries to achieve that positive economic growth, this is China's lowest growth rate since the Open-door reform in 1979. Its growth has particularly been decelerating for about 10 years, compared with rapid growth before SARS (Unctad, 2020). Even before the Covid-19 outbreak, the economy was facing difficulties due to trade tensions, high domestic debt, and weak external demand. Hoffman et al. (2020) argued that there is growing recognition that the economic impact of COVID- 19 will be far more severe than that for SARS, and furthermore, because today's population is more mobile, whether for business, employment or leisure, transport restrictions will have a significantly greater impact on the economy than in the past.

Covid-19 is indeed a global challenge. To a national extent, a country's performance is closely linked to its fiscal and monetary policy space, industrial capacity and structural resilience of the economy, as well as governance capacity, which are critical for the country to deploy its economic stimulus program.

4.1 Fiscal policy

Since the Covid-19 epidemic broke out in Wuhan in early 2020, China has quickly implemented a fiscal stimulus policy to maintain economic stability. According to Unctad (2020), China's total fiscal deficit in 2020 reached RMB 3.76 trillion, with RMB 1 trillion higher than in 2019. The fiscal deficit ratio increased from 2.8 percent in 2019 to more than 3.6 percent in 2020. In particular, the central government issued anti-epidemic special bonds worth RMB 1 trillion, for local public health-related infrastructure construction, and other expenses related to epidemic prevention. At the local level, the government also increased local special bond issuance by RMB 1.6 trillion higher than in 2019. Financial support measures related to the bond market were also implemented, with an increase in net financing credit bonds of RMB RMB 1 trillion, higher than that in 2019; and other solutions to support large businesses in issuing more loans as well as freeing up credit sources to support loans for small and micro businesses. The approval process for special financial bonds for small and micro enterprises has improved. Therefore, this policy helped financial institutions issue RMB 300 billion of special financial bonds to finance small and micro enterprises.

To better implement that fiscal policy, the Chinese Government has also taken the following supporting measures: establishing a direct fiscal fund allocation system; reducing taxes and fees; increasing spending for epidemic prevention. The central and local governments in 2020 allocated a total of more than RMB 400 billion in special funds for the material procurement and prevention for Covid-19, and subsidies for consumers and businesses. Subsidies for consumers are implemented in the form of issuing consumer vouchers. Businesses heavily affected by the epidemic have also been subsidized (Unctad, 2020). More fiscal measures details have been documented by Hoffman et al. (2020) through which, in early February 2020, the MOF announced an interest rate subsidy to half interest costs for affected companies. On 11 February, it issued an RMB 848 billion new local government bonds quota, earlier than expected. On 25 February, the State Council announced a reduction of the normal VAT rate for SMEs. Earlier, on 18 February, it called for the deferment or exemption of social security and housing fund premiums payments, and many local governments obliged. However, at the lowest administration, as Wong (2021) argued, fiscal difficulties at the county level were the likely culprit for China's ineffectual social welfare response to the COVID-19 crisis in 2020, when the vast majority of workers suffering economic hardship received no help from the government despite promises of assistance from top leaders.

4.2. Monetary policy

The Chinese government has initiated a range of policies to counter the effects of the epidemic. Monetary policy focused on maintaining the monetary aggregate at an appropriate scale; reducing significantly the cost of financing; and supporting the real economy. The main goal of the measures is to keep afloat companies that face liquidity problems. This is quite sensible, as introducing a large stimulus at this stage, when the economy is constrained to respond, would be a waste of resources that could be better used later. The PBC has provided sufficient liquidity to the market by lowering the reserve requirement ratio, lowering the relending, and rediscounting interest rates, etc. In February 2020, the PBC released RMB1.2 trillion worth of liquidity through its open market reverse repo operation and set up a special RMB 300 billion relending facility that enables commercial banks to extend preferential credits to companies hit by the outbreak. The PBC has also lowered interest rates on its discount facilities. Commercial banks were on the other hand encouraged to provide credit support to enterprises by deferring debt repayment and issuing new credit loans to small and medium-sized enterprises (PBC, 2020). The principal and interest repayments were initially postponed to March 31 of 2021, and then postponed to the end of 2021. Zhang et al. (2022) argued that these policies also further leveraged the role of the financial system in supporting economic stability through other measures such as increasing bond market financing and developing supply chain finance etc.

More details of the implementation the monetary policy are as follows: to provide sufficient liquidity for the market, the PBC launched a total of more than RMB 9 trillion of monetary support measures in 2020 through various tools such as reserve requirement ratio (RRR) cuts, the medium-term lending facilities, central bank lending and discounting. Among these measures, RMB 1.7 trillion of short-term liquidity was provided to the financial market when it reopened after the Chinese New Year, which effectively stabilized market expectations. The PBC also lowered the deposit reserve ratio three times to provide a long-term liquidity of RMB 1.75 trillion. Regarding credit support to enterprises, in 2020, the PBC arranged totally RMB 1.8 trillion within three lots to help commercial banks issue preferential loans to enterprises, including RMB 300 billion of special central bank lending, RMB 500 billion quota of central bank lending and central bank discounts and one trillion RMB quota of central bank lending and central bank discounts. Commercial banks also implemented the policy of deferring the principal and interest repayments on loans. Till the end of 2020, Chinese banking and other financial institutions have totally deferred the principal and interest repayments on loans of RMB 7.3 trillion. Apart from the credit policy toward big enterprises, banking and other financial institutions have also been encouraged to issue inclusive small and micro credit to small and medium enterprises. More specifically, in 2020, banking and other financial institutions totally issued RMB 3.9 trillion in total under the forms of inclusive small and micro credit loans, with an increase of RMB 1.6 trillion compared to that of the previous year (PBC, 2020).

Besides, credit guarantees were also increased. According to Zhang et al. (2022), this policy has fully promoted the role of local government financial guarantee organizations, gradually increased guarantee authority, and reduced guarantee fees of government financial guarantee organizations and other organizations. re-guarantee rate down to less than 1 percent. This policy has actively promoted the activities of national financial guarantee funds.

5. Lessons Learned and Policy Implications

5.1 The fastest and timely responsive policy implementation against the two crises

China's response to the GFC was spectacularly considered among the fastest in the world. In terms of policy agility, the very few countries that come close to China's quick response are Indonesia and South Korea whose governments have experienced major policy lessons from traumatic national experiences with the Asian financial crisis during 1997-1999. Many other countries such as Brazil, India, South Africa in 2008 simply considered the financial crisis to be a sectoral phenomenon that would cause only a minor effect on the real economy. However, the Chinese leadership from the very onset of the crisis was truly concerned about a negative impact on overall social stability.

Similarly, responsive policies to the Covid-19 pandemic were also timely implemented. According to Zhang et al. (2022), in the early February of 2020, the Chinese Government also decided to introduce a new series of fiscal, taxation and financial policies to support supply guarantees on the basis of various measures that had been introduced in the early stage for epidemic prevention and control.

Policy timeliness also means economic policy would highly focus on, or quickly change to dealing with structural issues, if needed be. The transition from loosening monetary policy to tightening and sound monetary policy during the GFC would be a lesson worth remarking on. Similarly, the core principle for every economy during the Covid-19 epidemic should be to prioritize lifesaving and enhance economic resilience. As Zhang et al. (2022) argued, China's economic policies follow this principle very well by focusing on dealing with two structural issues: One is to ensure that there is enough epidemic prevention materials and daily necessities; and the other one is to put special emphasis on supporting industries, companies and people badly affected by the epidemic.

5.2 The expansion of credit risk and the risks of disproportionate allocation of credit

Along with the sudden surge in credit scale, credit risk in the banking sector increased sharply, especially the credit risk generated from local government financing platforms and real estate, which caused widespread concern. Reasons for the high credit risk of the local government financing platform can be stated as follows: firstly, the implicit guarantee or commitment letter of local government presented to commercial banks are entirely not of legal binding guarantee. Secondly, those investment projects are mostly public ones, with quite a long payoff period and low return. It is obvious that in the future when the huge amount of financing platform loan repayments exceeds the local governments' ability to repay, a large number of non-performing loans would appear.

Other criticism comes from the decrease of liquidity of the banking system. The net interest margin and profit also remarkably reduced. Other macroeconomic concerns are the loosening monetary policy would result in rapid growth of loans and money supply. In addition, while main western countries implemented a quantitative easing (QE) monetary policy, which led to global surplus liquidity, thus a large number of international capitals could fly to China, which aggravated the excess money supply.

Although the 2009 monetary stimulus contributed to a temporary four percent increase of GDP, this quiet growth rate was not achieved by an increase in consumption but by a disproportionate increase of bank credit to real estate and heavy industries with excess capacity. As a result, this monetary stimulus had large and persistent effects on the investment ratio and debt-to-

GDP ratio. The high investment-to-GDP and debt-to-GDP ratios have been concerns for policymakers (Chen et al., 2016).

There are also some other risks and problems. Firstly, much evidence indicates that some of the new bank loans have been infused into the stock markets and property markets. From November 2008 till July 2009, the Shanghai stock composite index (A share) increased by 110 percent, reaching 3300 points from 1600 points. Since February 2009, the housing prices in some coastal cities have surged by 40 percent on average. Obviously, the asset bubble problem has once again become a big concern now. Since July, the authorities have decided to control the increase of bank credits, which eventually caused the new bank lending to shrink to 355.9 billion Yuan in July or a sharp fall by 77 percent from the latest peak amount in June. Monetary policy is facing a dilemma. If the authorities continue to control the bank credits and even switch to moderately tight monetary policy, then many new projects may suffer from shortage of expected new funding injection and eventually become problem projects and the bank loans injected early may become non- performing. If it gives up the efforts to control the crazy surge of bank loans, the asset bubble may become very serious in the near future (Zhang, 2009).

5.3. Uniqueness of the funding mechanism, the AFRE, and the China shadow banking

The most distinctive, or even unique feature of the Chinese case consists in the funding mechanisms, compared with other countries in terms of the stimulus policy against the GFC, as Schmidt and Hellmann (2010) commented, in contrast to the common international practice of stimulus funding. The underlying financial risks are therefore not included in China's formal state budget or in the balance sheet of the central bank but only appear, possibly or partially, in the books of China's big retail banking institutions manipulated by local authorities. And as Wong (2011) said, the fiscal stimulus program was likewise to be implemented by local governments, and they embraced it with frenzied enthusiasm.

Whereas, as a conventional mechanism, we can see in other countries, the financial resources come from the national government mostly as part of the regular budget and raised through government bonds, the bulk of financing in China is contributed by local authorities which themselves have tapped the local branches of state-controlled banks. In China we have thus witnessed a highly unusual role of the central bank that has in effect functioned as a transmission belt for government orders to flood the country with liquidity under the forms of commercial bank lending.

As He and Wei (2022) documented, to illustrate this point, the ratio of bank credit over GDP in China jumped from 97 percent in 2008 to 118 percent in 2009 but has remained stable since. However, using the Aggregate Financing for the Real Economy (AFRE) measure, the AFRE/GDP ratio has continued to climb, rising from 119 percent in 2008 to 170 percent in 2012; The ratio reached 275 percent in 2021. Crucially, rapid growth in non-bank financing has caused concerns over financial stability from top policymakers in Beijing.

There are several important caveats for the AFRE measure. *First,* the AFRE concept covering much broader financing sources than on-balance- sheet bank loans, does not distinguish how much various components support the economy. The *second* point is more relevant to researchers. Although closely related, AFRE is a separate concept from shadow banking in China, which consists of trust and entrusted loans, wealth management products (WMP), and underground lending (say, P2P platforms). AFRE is defined based on the asset side of banks and financial institutions' balance sheets, focusing on supporting real economic activities. By contrast, shadow banking focuses on various nonbank financial businesses; some components could overlap given its often vague definition, like WMPs, which could be funding sources—i.e., liability—for trust funds, implying that simply adding trust loans to WMPs will overstate the size of shadow banking (He & Wei, 2022).

In the past, the PBC used to focus on managing banks' RMB loans, but in recent years, however, with the development of the credit market and shadow banking alongside interest rate liberalization, the PBC has been monitoring a broader concept known as Total Social Financing (TSF), which includes banking system RMB and FX loans, all corporate bonds, trust loans, entrusted loans (inter-corporate), undiscounted bills, equity financing and others (Chan, 2019).

The recent divergent growth trends of the broader M2 and narrow M1 money supply measures suggest that institutional deposits are migrating into WMP. In China, M1 includes currency in circulation and short-term demand deposits while M2 includes M1, interest-bearing time deposits, savings, and other deposits. In the past, whenever corporate profits or spending was about to increase, demand deposit growth would typically pick up, leading to accelerating M1 growth. However, this relationship broke down in 2015–2016 when M1 growth continued to surge even as corporate profits and investment plummeted, suggesting that corporates and institutions are moving more of their funds away from time deposits (M2) to WMPs in response to the weak business outlook and the WMPs' relatively more attractive returns (Chan, 2019).

After 2009, the large stimulus began, and then local governments and state-owned enterprises relied more on shadow banking to finance various projects (Chen et al., 2020b). As shadow banking was previously not observed, the central bank partly lost control of the money supply. So, the effects of the money quantity tool shrank after 2009. However, interest rates can still influence the cost of shadow banking after the interest rate deregulation reform, and thus the interest rate tool was more effective after 2009. Because the effectiveness of money quantity tools descended and that of interest rate ascended, the central bank relied more on interest rate tool and less on quantity tool (Fu & Wang, 2020).

According to He and Wei (2023), including bank credits, equity and bond issuances, and various shadow banking items like trust loans, AFRE is the most closely monitored and analyzed statistic released by China's central bank for macroeconomic management today.

Given rapid developments in China's financial system over the past two decades, especially since the 2009 four-trillion stimulus program, traditional credit measures like bank loans increasingly do not reflect the extent of financing to the real economy (He & Wei, 2023). Indeed, in China, the four trillion-yuan stimulus package in 2009 was behind the rapid growth of shadow banking after 2012, expediting the development of Chinese corporate bond markets in the post stimulus period. Chinese local governments financed the stimulus through bank loans in 2009 and then resorted to nonbank debt financing after 2012 when faced with rollover pressure from bank debt coming due. Chen et al. (2020) show that, cross-sectionally, provinces with greater bank loan growth in 2009 experienced more municipal corporate bond issuance during 2012–2015, together with more shadow banking activities including trust loans and wealth management products.

As simply put by Amstad and He (2019): "The Chinese shadow banking is just the 'shadow' of commercial banks".

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Notes

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