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Cao Tong

Four Suggestions on Global Monetary Governance

Ben Shenglin

In Search of a Solution to the Dilemma of International Monetary System: an International Fed System

Liu Jun

Breaking & Making an International Monetary System Way out of the Global Financial Crisis

Wanda Tseng

Reflections on the Bretton Woods System: History and Future of the International Monetary System

Dai Wensheng

Public Sentiment and Observation about RMB Internationalization

Zhang Chengsi

Monetary Dynamics of Inflation in China

Also including

Financial Crisis and the Prospect of International Monetary System by Robert A. Mundell *Don't Be Fooled by Taper Talk* by Steve H. Hanke

China's Currency Conundrum by Ronald I. McKinnon

Working with Financial Markets: Beyond the Third Party Plenum by Joseph Yam The Proposal on Improving China's Financial Legal System by Pan Gongsheng

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Introduction to the International Monetary Institute (IMI)

Established on December 20, 2009, IMI is a nonprofit academic institution affiliated to China Financial Policy Research Center and the School of Finance of Renmin University.

Following the "general theory of macro-finance", IMI aims to become a world-class think tank, focusing on the studies of international finance, in particular the international monetary system and RMB internationalization. Despite its relatively short history so far, IMI has established itself as a leading research institution and important forum, where industry leaders, policy makers and academic experts from home and abroad share their insights and expertise.





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PAN GONGSHENG

Deputy Governor of People's Bank of China Member of IMI Advisory Board

Dr. Pan Gongsheng, party committee incumbent of the People's Bank of China, Deputy Governor; member of the Monetary Policy Commission; member of CPPCC Standing Committee; Ph.D in economics, researcher; doctoral supervisor at Renmin University of China.

Dr. Pan has worked at several domestic and foreign financial institutions, including Standard Chartered Bank, the Industrial and Commercial Bank of China and the Agricultural Bank of China, earning extensive management experience and familiarity with the Chinese banking practice. As a major promoter and implementer, he successfully guided reorganization, restructuring and public offering of the Industrial and Commercial Bank of China and the Agricultural Bank of China, two large commercial banks in China, building history of the world's largest IPOs. As Deputy Governor of the People's Bank of China, he is mainly in charge of Research Bureau, Financial Survey and Statistics Department, Credit Information System Department, State Treasury Bureau.



This issue is proud to present



PAN GONGSHENG

Deputy Governor of People's Bank of China Member of IMI Advisory Board

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In Brief

Editor's Note:

Up to the end of June 2014, the advisory board members and academic committee members of IMI have been expressing their research opinions on monetary finance and economics through published articles and public speeches. The following is a summary of their research reviews.

Research Review by IMI Advisory Board Members

According to **ROBERT A. MUNDELL** in his speech entitled "*Financial Crisis* and the Prospect of International Monetary System", since euro zone and US dollar zone have taken up 40 percent of the world economy, a stable exchange rate between Euros and US dollars can promote the development of global economy. European Central Bank (ECB) and US Federal Reserve Bank can reach an agreement to intervene in the exchange rate in a certain range in order to avoid exchange rate fluctuation. He said that China can also join the mechanism of a stable exchange rate after the full convertibility of RMB under the guidance of a more prudent and consistent monetary policy.

STEVE H. HANKE mentioned in his article "*Don't Be Fooled by Taper Talk*", since last June, most thought the U.S. Federal Reserve's taper was just around the corner, but it came later than most anticipated. Now talk has turned to the increase of the federal funds interest rate. The massive distortions created by the Fed's interest rate manipulations will be with us for longer than most anticipate.

The U.S. is still in the midst of the Great Recession. The annual trend rate of growth in nominal aggregate demand has been 4.95% since 1987. Though it bounced back from -4.0% in the depth of the Great Recession and almost reached the trend rate of growth in late 2011, it has slumped to its current 2.86% since then.

To find the correct measure for the money supply, we flash back to 1979, when Paul Volcker took the reins of the Federal Reserve System. The state of the economy was dreadful, with double-digit annual inflation running at 13.3%. Chairman Volcker obviously knew that money supply would have to be controlled to kill the inflation.

He quickly took his move and reduced the annual rate of inflation to 3.8% by 1982. However, it was followed by a short recession and then another severe slump that ended in November 1982.

Chairman Volcker's problem was that various measures were calculated by a simple summation of their components, implying that they all possessed the same degree of moneyness — usefulness in immediate transactions. If the money supply had been measured correctly by a Divisia metric, Chairman Volcker would have realized that the Fed was imposing an unintended tighter monetary policy.

Money created by a monetary authority represents the underlying monetary base of an economy, and money is imbued with the most moneyness of the various types of financial assets that are called money. In addition, there are many substitutes that possess varying degrees of moneyness. Closest substitutes for base money should receive higher weights than those that possess a lower degree of moneyness. As the fed funds rate went up, the divergence between the two M2 measures became greater.

When available, Divisia measures are the "best" measures of the money supply, and more classes of financial assets should be added together to better determine the money supply. Even now, the annual Divisia M4 growth rate is an anemic 2.6%. This results from an outright drop in the quantity of bank money-which accounts for 80% of the Divisia M4 measure- since the Lehman collapse.

Tougher bank supervision, stricter prudential bank regulations, and higher bank capital requirements provide the answer. Instead of release these three procyclical squeezes on bank money soon, the Fed will probably be forced to keep federal funds at the zero bound much longer than most think — perhaps well into 2016.

RONALD MCKINNON pointed out in his article "*China's Currency Conundrum*" that China is caught in a currency trap because of its own saving surplus (American saving deficiency) and near-zero interest rates on dollar assets. If China tries to liberalize its financial markets and eliminate capital controls on financial inflows, hot money finance flows the wrong way—into the economy rather than out. Although fully liberalizing China's domestic financial markets and "internationalizing" the renminbi— China's national currency— may be possible some halcyon day, that day is far off.

In the meantime, high-growth China best retains controls on inflows of financial capital while the PBOC intervenes to stabilize the yuan/dollar rate. Until conditions in the world economy improve substantially, China's policymakers will have no easy way out. But the economy can continue its fast growth even if its policy makers are trapped.

JOSEPH YAM CHI KWONG pointed out in his paper "*Working with Financial Markets: Beyond the Third Party Plenum*", in respect of the Mainland's new initiative decided at the Third Party Plenum to allow the market to play a decisive role in the allocation of resources, the following advices are offered. First, markets are superior to bureaucrats in discovering market clearing prices that facilitate the efficient allocation of resources. Second, markets occasionally fail; the relevant authorities need to be involved in protecting the public interest through participation or intervention in markets. Third, such bureaucratic authority should be transparently prescribed to enhance policy credibility and prevent abuse. Fourth, for the Mainland of China, there is a need to build a suitable motivational foundation to promote market-type behavior in economic entities that are in public ownership. Fifth, financial authorities needs to be cognizant of the fundamental conflict between the private interests in maximizing profits and the public interest of ensuring the efficient mobilization of financial resources.

Specifically, in respect of the money and foreign exchange markets, recommendations are as follows. The PBOC to step back from the renminbi money market and to focus only in controlling the supply of base money, so that the wider money market can be relied upon in the allocation of funds. The PBOC should do away with a money supply target and focus on controlling the price of base money and exert influence on the price of general money. This change would make the reserve requirement redundant, and provide an opportunity for the RRR to be phased out, thus significantly enhancing the efficiency in the allocation of funds. PBOC should cease to play a role in the determination of interest rates that fall within the scope of business between the banks and their customers. Specifically, the PBOC should forthwith abolish its benchmark lending rates. The PBOC should also confidently implement a program for the liberalization of deposit interest rates that starting from wholesale to retail deposits, and from long term to short term deposits, coordinating the timing of the liberalization for short-term retail deposits with the introduction of deposit insurance. The PBOC should determine and publicize a target rate for short term money of a well-defined maturity in the interbank market, against which it would dynamically conduct open market operations to achieve. All other interest rates should eventually be abolished. Interest rates charged in special liquidity assistance in the form of last resort lending should either be transparently priced at a pre-determined premium over the monetary policy target rate or at the pleasure of the PBOC. The full convertibility for the renminbi should be supported by a foreign exchange management mechanism that is efficient and user friendly; and powers over conversion should be reserved to ensure monetary and financial stability. The foreign exchange market should be allowed a greater scope to perform

its fundamental functions. Specifically, SAFE should stand back more in its foreign exchange intervention activities, eventually to intervene only to iron out erratic fluctuations. The current band should be widened to facilitate price discovery; and, eventually, abolished altogether, along with the daily fixing mechanism. The pace of internationalization of the renminibi should be hastened, if only for the purpose of managing the exchange and credit risks incurred in the holding of a huge amount of foreign reserves.

PAN GONGSHENG put forward "The Proposal on Improving China's Financial Legal System". According to the proposal, recent financial innovations including internet financing and shadow banking are not subject to sufficient regulations by laws, rules, and departmental rules. If this absence of regulation lasts, the safety and stability of China's financial market will be jeopardized. Pan Gongsheng proposed to strengthen the legislative protection and regulation for financial innovation. To elaborate, we should sort out related commercial activities and the problems therein, make regulatory policies and measures more targeted, and prevent regulatory vacuum. At the same time, we should perfect the rules on market competition and innovation, give full play to market players in innovation, encourage competition, enhance market discipline, and provide more options to financial consumers. He also proposed to establish a functioning and effective deposit insurance system which combines rights with obligations, establish a market-based mechanism to prevent and handle financial risks, and, on the basis of improving related risk-control system, build a transparent, standard, and sustainable municipal financing mechanism by orderly allowing local governments to independently issue municipal bonds.

Research Review by IMI Academic Committee Members

According to the article "China Should Prevent the Risk of Real-Estate Market **Downturn**" by **CHEN YULU**, in the Second Meeting of the 12th National People's Congress, Chen Yulu pointed out that China should prevent the risk of real-estate market downturn. He proposed that, to comprehensively deepen reform and improve modern national governance, China should take precautions to prevent real-estate market downturn while continuing to increase effective housing supply. He listed three reasons for the proposal. First, China is in the second half of a 17-year-long cycle of construction industry. Housing price is in a stagnant period and faces the risk of declining. Second, the possible downturn in real-estate market would have enormous impacts. Third, it is more difficult to prevent housing price from declining than to prevent it from rising. Chen Yulu proposed that in the modernization of a country's governance capability, four elements are very important: first, efficiency spirit and innovative thinking of market economy; second, a law-based society and country; third, effective control and collectivism of a social system; fourth, an intelligent government based on modern information technology. These four elements should be perfectly combined in the treatment of the real-estate market.

In his speech "The Development of Internet Financing Both Home and Abroad" which revealed the special reasons and prospect of the internet financing boom in China, BEN SHENGLIN held that there were four reasons for China's internet financing boom: political dividend and regulatory arbitrage; high efficiency, advanced technology, and low cost of internet companies; financial oppression; the virtuality, limitlessness, and leverage effect of the internet. When talking about the prospect of internet financing, Ben Shenglin thought four factors would determine the future direction of China's internet financing development. First, as China's legislation accelerates, internet financing will have fewer opportunities for political and regulatory arbitrage. Second, the future financial reform will be focusing on marketizing, liberalizing, and opening up financial market. Financial oppression will diminish. Third, from technological perspective, the present technology and efficiency of both internet companies and traditional financial institutions will improve. Fourth, the internet and financial market both have leverage effect and the combination of the two will generate additive effect. This internal advantage of internet financing will remain. In conclusion, a coinage "Frenemy" vividly describes the competition and cooperation between internet financing and traditional financing. The two will be symbiotic in the future, and people in both areas will be enemies as

well as friends. At least, this is our expectation.

CAO TONG pointed out in "Interest Rate Reform Will Be the Core in Financial **Reform**" that China's financial reform faces three core issues: interest rate reform, exchange rate reform, and capital control reform, among which interest rate reform is the priority. It is the start point in solving institutional problems in China's financial market. Two problems in the financial market underline the necessity of interest rate reform: first, the abnormality of co-existing liquidity glut and liquidity squeeze; second, the skyrocketing interest rate. The reasons for liquidity squeeze can be traced back to the government and the market. Therefore different solutions should be applied on the two sides. On the one hand, the market should be subject to market-based mechanism, with minimal government intervention. Quantitative management is only a temporary policy, and should not become a norm. On the other, administrative constraint should be imposed on government investment. Effective expectation management of interest rate is one of the preconditions for a successful interest rate reform, and the former is different from the latter. To effectively manage interest rate expectation, we can separate interest rate reform into several stages and carry out the reform stage by stage. Only when the administrative incentive and economic nature of government investment are combined, can we stop the current debt size of 20 trillion CNY from growing, solve the problem of high leverage in non-government financing, stop the recurring liquidity squeeze, and bring interest rate pricing mechanism back to the right track.

In the article "Building a Fair Tax Structure", GUO QINGWANG stated that during the past few years, serious problems with national income distribution emerge while national income is mounting. In the sense of distribution in different sectors, the shares of business and government sectors are too large. In terms of factors of production, labor income shares too small a pie. In terms of resident income distribution, the gap between individuals is yawning. To adjust the pattern of national income distribution, especially when curbing the widening gap between rich and poor is high on the agenda of building a harmonious society, a series of tax policy adjustments should not be overlooked. Considering the multiple purposes of taxation, the aim of China's reform on tax structure should be "building a tax structure that benefits structural optimization and social equality. First is optimizing tax structure and building a tax system that improves vertical equity. Second is improving individual income tax to promote fair income distribution. Third is reforming indirect tax to improve the distribution of tax burdens.

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JI ZHIHONG pointed out in "Fully Deepening Reform and Promoting Financial Transformation and Development" that both fully promoting social reforms and deepening economic restructuring require a fundamental change in the environment for financial sector. The key to giving market the decisive role in resource allocation and further financial sector reform lies in solving problems of incomplete market system, small role of market in allocating capital elements, too much governmental intervention and inappropriate regulation. A market that is characterized by fair competition, efficient pricing mechanism and sound exit mechanism should be built to promote sustainable, sound and steady development of China's financial sector. Currently, Chinese economy is in a crucial stage of accelerating transformation. Internationally, the shadow of financial crisis lingers and global economy still finds it hard to shift to fast lane. Domestically, the headache of overcapacity, increasing labor cost and the restraint of resource and environment are increasingly serious, which makes the challenge confronting the existing growth mode more prominent. Generally, China's reform in the past is more or less characterized by "crossing river by feeling for stones" and adjusting policies according to the changing conditions. But in the future, starting from a new height, we should take initiative measures in a more systematic way. Next, the priority of deepening reform should be put on system and mechanism. System innovation should be achieved by a two-pronged sword -- promoting market efficiency, maintaining financial stability and risk prevention.

According to LEE IL HOUNG in his paper "*Two Sides of the Same Coin? Rebalancing and Inclusive Growth in China*", since its reform and opening up period, China has made remarkable strides in lifting people's incomes and reducing absolute poverty. However, it has come at the cost of rising inequality.

To be sure, rising inequality has been a near global phenomenon in the last two decades, with the important exception of Latin America. Across the globe, there is increasing dissatisfaction with the quality of recent economic growth, which is often seen as benefiting certain groups more than others. The economics literature has attributed this mainly to globalization, skill-biased technological change and the decreasing bargaining power of workers. Even within this global setting, however, China's experience stands out. The rise in inequality has been particularly pronounced, leaving China among the most unequal economies in the world.

This paper uses the Shapley Value decomposition technique to assess the factors behind the rise of inequality in China. It finds that, in many ways, inequality may have been an inevitable by-product of China's investment and export-led growth model. Between Chinese households, Lee, Syed and Wang find that the most

important factors explaining income inequality are location, education, access to health insurance, and labor market variables, including the sector of employment and enterprise size. Across China's provinces, divergences in per capita incomes are driven by the relative level of capital-intensity, public spending, financial access, privatization, and urbanization. In addition, excess liquidity may have exacerbated inequality in the last decade, by driving up property prices and the wealth gap.

Based on these results, policies that could help broaden the benefits of growth in China include maintaining prudent monetary and credit policies, a more progressive fiscal tax and expenditure system, higher public spending on health and education, deregulation and reforms to increase competition, measures to raise labor incomes and assist vulnerable workers, and better access to finance for both households and SMEs, including in rural areas. Not surprisingly, given the argued nexus between China's growth strategy and inequality, many of these reforms are the same ones that would help rebalance its economy toward consumption and household incomes.

In fact, the changes in the growth model envisaged in the 12th Five Year Plan already encompass many of these policies. Thus, the results endorse the policy directions espoused by the government, which would not only help move China to a more balanced growth model but also make this growth more inclusive. More recently, the income distribution plan approved by the State Council further identifies many of the right reform priorities, including minimum wage increases, improving the tax system, and strengthening social security. The remaining challenge will be effective implementation. In addition, fundamental changes, such as rising wages driven by demography, are already in train and could also support the transition to a more equal society.

According to LIU JUN's article "Do Not Name Liquidity Shock as 'Money Shortage", liquidity shock has become a pressure testing of Chinese characters. The impulse response of macro policies, especially monetary policies on real economy and financial sector is beyond expectation -- the fluctuation of interest rates is larger and finance's tight and loose are unpredictable. Therefore, liquidity shock was named "money shortage". After all, economics of shortage is the theory explaining economics of last century, which is based on the conditions of lack of aggregate supply. But liquidity shock is a structural shortage of capital element. Even if lack of aggregate supply affects financial market, it is instant lack of aggregate supply, instead of long-run. Therefore, the explanation of liquidity shock should be beyond of traditional definition of "shortage" and illustrate financial market's own definition of "shortage". First, non-credit asset's share in monetary aggregates is surging and the mismatch of terms

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is increasingly serious. Second, excessive money is "wandering" among different kinds of assets and goods at different speeds, which results in the changes of relative prices among different assets and goods within a certain period of time. Third, since the amount of debt stock is huge and interest rate increasing, enterprises' interest expense is stepping up quickly, which solidities flowing monetary capital. Fourth, mismatch of financial resources, distortion of fund price, decreasing fund efficiency and the net loss of social welfare because of the failure of transmission of policy. Fifth is the irrational activity of rational "economic man". Sixth, isomorphic financial markets and homogeneity of market players accelerate financial resonance and multiply the effects, making liquidity shock's influence on interest rate much larger than mature markets.

In the 13th "Biweekly Forum" by IMI, **QU QIANG** made a keynote speech entitled "*Shadow Banking, Credit Expansion and Systematic Risk*". According to his speech, shadowing banking system is the structural financial institutions, business chains and business networks which are formed after traditional commercial bank's functions of deposit, investment and remittance are broke down and integrated by financial market. Shadowing banking has both advantages and disadvantages. With only traditional capital market and commercial banks, the transformation from deposit to investment is more difficult. In this sense and from a long-run perspective, shadowing banking is a welcome phenomenon. But in terms of risk, the mismatch of terms in product and investment may lead to liquidity risk.

According to the article "*The Internationalization of the RMB is an Important Guarantee for National Security*" by **TU YONGHONG**, economic globalization has enhanced financial relations among countries, while the unreasonable global monetary system has caused frequent financial crises. As important mediums of the global economy, major international currencies have the characteristics of public goods. But their issuance and management are reliant on sovereign states; this grants issuing countries of those currencies super-sovereign monetary power; with this power, those countries can make benefits for their own economic and political purposes, and currencies have thus become important targets and leverages in games among big powers. Currently, the international monetary system is excessively reliant on the dollar; it is out of the real economic development pattern; in this system countries share unequal rights and obligations. The financial crisis in 2008 exacerbated this defect. Against such a complicated background, only those who hold financial dominance, especially monetary dominance, can secure the economy. Therefore, the internationalization of the RMB is not only conducive to the stability

of the international monetary system, but also crucial to China's national security in the new era.

The internationalization of the RMB will help safeguard China in three aspects: first, it can enhance China's ability and initiative to allocate resources, improve the independence of monetary policies and find new channels for financial stability; second, it can provide some odds of success in the information security war and the public pinion war, protect economic secrets, know accurately the flow of capital, help guide the public opinion and make China's voice louder in the global economy; third, it can consolidate China's sovereign, promote military and cultural security, enhance political mutual trust and improve the identity and appeal of Chinese cultural, so that China can win without fighting a war.

In his article "Has the Exit of the QE caused Capital to Flow Out of the Emerging Market Economies?", WEI BENHUA pointed out at IMI's 'Roundtable on Money and Finance 2014 Spring' that the Frankel's model began from theoretical analysis and provided us with implications on the new form of crisis. With the newest methods, the balance sheet extended from the stock to the relation between different sectors of the national economy and the roles of these sectors in the current situation. In the new round of crises, other countries' problem was that it would be very dangerous if there was a serious current account deficit.

According to "China's Economy has Entered a 'New Normal' State" by XIANG SONGZUO, in recent years, two characteristics of China's economy have emerged: first, economic growth has slowed down and financial risks have risen sharply; second, policy space has shrunk and policy effects have weakened. The two characteristics will determine the trend of China's economic development in a long period. China faces two most important economic problems besides others, the first is that since 2009, China have seen unprecedented monetary and credit expansion, while its real GDP growth has slowed down; the second is that China's M2 has already risen to more than two times of its GDP, while a money shortage and rising interest rates have become prevalent in the financial market. The answer to the first problem is that China's labor productivity growth has already shown a trend of a continuous slow-down, or even that of a rapid show-down. The trend is reflected in two aspects: first, many industries are suffering from over capacity, the products are overstocked and cannot be transformed into social wealth, causing a huge loss of social wealth; second, China's factor costs are rising. The answer to the second problem is that China's overall financial risks are rising rapidly. Thus we can draw the following conclusion: first, market interest rates do not have a negative

correlation with money supply; rather, it is associated with the liquidity of the economy. Second, there is a negative correlation between the liquidity of the economy and the risk preference of the economy. When the risk preference rises, the liquidity decreases, and vice versa. Third, neither the narrow money supply (M1) nor the broad money supply (M2) is an appropriate measure of the liquidity. The three conclusions can together form a new monetary theory.

According to the article "China's First Financial Sector Assessment Program (FSAP) Ended Successfully" by XUAN CHANGNENG, the FSAP was initiated by the IMF and the World Bank in May, 1999. The program aims to enhance assessment of and supervision over the financial fragility of IMF members, reduce the possibility of financial crises and promote financial reform and development. After years of development, the FSAP has already become a globally recognized assessment framework of financial stability. In order to assess China's financial stability from a global perspective, in August, 2009, China accepted the FSAP assessment carried out by the IMF and the World Bank. With joint efforts and cooperation, the assessments ended successfully and achieved fruitful results. The IMF and the World Bank fully affirmed China's achievements in commercializing the financial sector, enhancing financial stability and improving financial regulation. The assessment report pointed out that China's financial reform was make progress; the power of Chinese financial institutions was rising; China's financial system remained stable; China had withstood the financial crises; China's financial products and services were increasingly diversified and they had supported economic development; China had made great achievements in the banking industry, the securities industry, the regulation and payment of the insurance industry, and the development of the settlement system, and had made headways in developing an anti-money laundering system and a system against financing for terrorism. The report suggested that China should push ahead with its financial reform to further promote sound and robust financial development and prevent financial risks. China should also accelerate market-oriented reform of the financial system, enhance financial regulation, improve financial infrastructure and legal framework, and expand financial market and service.

ZHANG JIE pointed in "*Institutional Gaming in the Financial Development*" that, at present, the financial system in China is undergoing another round of adjustment and reform. On the whole, we have not developed a stable and effective financial development pattern. Marked by institutional reforms and getting listed in the stock market, state-own commercial enterprises systems and governance

structure have changed significantly. However, there is no sign that the original economic growth pattern is absent or original mechanism that caused capital erosion and non-performing loans has been removed. At the same time, emerging financial institutions represented by private banks are still going through a lot of changes. In addition, although the internationalization of Renminbi is pushed forward steadily, current institutional arrangements are not adequate to respond to long-term challenges of maintaining international and domestic economic equilibrium against the background that Renminbi witnesses a lot fluctuations in exchange and our foreign exchange reserves continue to grow. More importantly, we should timely adjust the process of the liberalization finterest rate according to changes in macro and micro economy. Only on this basis can we establish a monetary policy framework to effectively adjust domestic and international equilibrium.

From the perspective of institutional changes, there is no so called the best or the most ideal institutional structures. We can only achieve the Nash equilibrium. This means thatafter conflicts, all stake holders in the financial institutional changes will make concessions in the end. As for China's financial system, domestically, our financial reform should make concessions or reach an equilibrium between four parties, namely the nation, real economy, state-own financial system and general public. Internationally, we should add the international elements, including foreign financial rules dominated by foreign institutions and developed economies, which will need compromises from five parties.

According to the article "Twelve Principles Guiding the Regulation of Internet Finance" by ZHANG XIAOPU, recent years have witnessed the booming development of China's Internet Finance, which supplements Formal Finance and attracts the attention of all sectors of the society. On the one hand, the development of the Internet Finance helps reduce systematic risks by increasing the supply of financial services, making resource allocation more efficient, and promoting the sustainable development of the real economy. On the other, due to its low access threshold, the Internet Finance makes it easier for the nonfinancial institutions to do financial businesses. Therefore the franchise value of financial institutions may be lowered and the motivation of risk management increased. In general, institutions in charge of the financial regulations should be open, inclusive and adaptive when it comes to the regulation of Internet Finance, and they should maintain a balance between encouragement and regulation, pay equal attention to promoting development and preventing risks. We should maintain a fine competition order, promote fair competition, build a safety net covering market discipline, judicial interference and external regulation, and safeguard the sound and stable

development of the financial system. The following twelve principles, therefore, are suggested to provide some basic rules in this area, and can serve as the basis and starting points for further discussion.

1. The regulation of Internet Finance should embody risk tolerance.

2. Ways of regulation should be adjusted according to specific evaluation.

3. Principles-based regulation and rules-based regulation should be combined.

4. Following the same principle in regulating so as to prevent regulatory arbitrage.

5. Pay attention to systematic risks and prevent them.

6. Data monitoring and data analysis should be covered in all areas.

7. Cracking down upon financial criminal activities.

8. More efforts should be made in the information disclosure and the market discipline.

9. A good, smooth, and constructive communication should be maintained between Internet financial industries and financial regulators.

10. Guiding consumers and protect their legitimate interests.

- 11. Strengthening self-discipline of financial industries.
- 12. Financial regulations of different institutions should be coordinated.

In the article "Yellen's Concerns about Retreating from Quantitative Easing Policy" ZHANG ZHIXIANG pointed out, according to Federal Reserve's perspective, the U.S. has retreated from quantitative easing policy, but the impact of the financial crisis is still there. So whether we can get through this crisis remains a very important problem. Yellen has three concerns. First, whether those indicators they are focused on can work and whether the unemployment rate is exaggerated or underestimated; second, whether the inflation rate can reach 2%; third, the fundamentals of the emerging market may bring adverse impacts. At present, the reform of international monetary system has not been decided yet. We should continue to pay attention to these problems.

According to the article "*Find New Path for Asia Economy Growth*" by **ZHAO XIJUN**, since the outbreak of the global financial crisis, Asia has enjoyed the most rapid economic growth in the world. However, at the dawn of the developed countries' economic recovery, Asia, the engine of the world economy, shows sign of sluggish economic development. So where is the new impetus of Asia's economic growth? I think that we should follow the path of reform, innovation and cooperation, unleash new impetus through reform, create new impetus through innovation and seek new impetus through cooperation. Reform means that we

should sort out and remove all institutional and systematic obstacles that hinder economic growth, so that all market players can be dynamic and this will further unleash more impetus for economic growth. Innovation is the most fundamental measure to generate new impetus. Systematic and institutional innovations, innovations in business forms and models, products, markets, technologies, management, even education and cultural innovations can help bring new advantages and build new patterns, thus serve as the fundamental for create new impetus. Cooperation is the magic weapon for Asia or even the world to see new impetus. Cooperation enables us to share markets, resources, information and ability to avert risks so as to share success.

Research Report

Internationalization of the RMB: 2013 Annual Report

Conclusions and Policy Implications

By International Monetary Institute, Renmin University of China

Editor's Note:

The internationalization of RMB is a key research area of IMI. Since the first issue of the "Internationalization of the RMB: 2012 Annual Report" and the initiate of RII, IMI has been composing and releasing the Report for consecutive years. The following Conclusions and Policy Implications are excerpt from the "Internationalization of the RMB: 2013 Annual Report" which sets the topic on changes of international trade structure and the internationalization of RMB. This report establishes the RMB Internationalization Index (RII) in trace of how widely the RMB is accepted and used in the global market. With the help of the RII companies and financial institutions can better understand the market thus identify possible profit opportunities. Researchers may take it as a useful guidance in their future studies. Government administrations can assess policy outcomes with the RII. We expect that the RII will be of important use to foreign enterprises, financial institutions and international organizations in the future as well.

Main conclusions

The RII stands on a record high

Despite the global economy is recovering slowly and China's international trade is growing at a slower pace, the internationalization of the RMB is steadily progressing. The RII grows to 0.87 from 0.58 in 2012 with an increase of 49% year on year. 1.53% of the global trades were settled in RMB which makes up 70% of the

RII. Cross-border trade settlements in RMB have progressed in four ways. Firstly it is growing steadily and has been in use nation-wide. Secondly the cross border settlement in RMB continues to expand in size and includes more and more countries inside. Thirdly the receipt and payment balance in RMB is improving. Fourthly trade in goods is still the major part in cross-border settlements in RMB while services' share has shown a significant increase. The cross-border settlements in RMB reached 2.94 trillion in 2012 which is an increase of 43.4 % over last year. The receipt and payment balance continues to improve with the receipt to payment ratio reached 1:1.2. Financial institutions set up various trades financing businesses such as letters of credit in RMB and factoring, to help promote RMB's cross border settlements. Furthermore China has signed up currency swap arrangements with the UAE, Turkey, Australia, Ukraine and other countries and regions which made a total of RMB swap arrangements scale reach 2 trillion.

RMB direct investment grows fast which strengthens RMB's financial valuation function. As the Chinese government further relaxes its control on cross-border capital flows in RMB, foreign direct investment in RMB amounted to 284.02 billion Yuan which is more than 1.5 times of that in 2011. In the year of 2012 foreign direct investment in RMB has become the fastest growing area in RMB internationalization. Today more than one third of foreign direct investments are settled in RMB and international financial transactions in RMB have reached close to 1%. In order to promote RMB internationalization, China launched a series of reforms in domestic interbank market. First, the RMB- U.S. dollar exchange rate fluctuations expands from five per mile to one percent which enhances the flexibility of RMB exchange rate and leaves the market more room in determining the RMB exchange rate. Second, China launched the direct trading of RMB to the yen. Third, China launched confirmation and write-off business in the interest rate swaps electronic trading system in which way market participants' operational risk can be reduced and the market efficiency improved. Fourth, domestic bond market has opened to foreign insurance companies, qualified foreign institutional investors and other foreign organizations. In addition cross-border RMB securities investment and credit business continues to innovate. The world's first RMB Qualified Foreign Institutional Investors (RQFII) ETF targeting the A Share and currency settlement

RMB futures contracts started to list in the Hong Kong market which enlarges derivative product lines in the RMB offshore market.

The international index of the US dollar remained stable, while other major international currencies' international indexes declined to varying degrees. The US dollar strengthened its role as a major haven currency in 2012 thanks to the US economy performing better than expected. The proportion of international bonds and notes issued in the US dollar was increased meanwhile that of the Euro was decreased which offset the adverse effects of the Fed's QE to the US dollar. Thus the international index of the US dollar got 52.34 which were almost the same as it was in 2011. Due to the sovereign debt crisis the Euro's influence in the international monetary system declined. The quarterly averaged share of international debts and notes issued in the Euro decreased by 1.8%. So the international index of the Euro declined to 23.60 which was a decrease of over 10% compare the last year. The share of international debts and notes issued in the British Pound declined significantly. But it was offset by the London Olympic and the weak Euro. Thus the British Pound's international index was 3.98 which were only slightly lower than last year. The Japanese economy was bolstered by its reconstruction and the Japanese Regeneration Strategy. Meanwhile the expanding quantitative easing policy in the U.S. and European countries made the yen as a major currency in international financing. However Japan had a huge trade deficit in 2012 due to its massive increase in imports and a significant decrease in exports which undermined foreign residents' favor toward the yen. So the international index of the yen was 4.46 which were just the same as last year.

Changing international trade pattern calls for new international currencies

The international trade pattern is a set of conceptions including national (or regional) share in the global trades, international trading goods, trade terms, trading area and the national (or regional)trading power in the global market. The international trade pattern underwent several major changes in its history. In the 21th century the international trade pattern has the following characteristics. Firstly emerging economies' trading share increased significantly. The share of the Asia, Africa and Latin America together is almost the same as that of the Europe and North America. Secondly the intra-products trades between the North and the South becomes the main form in international trades which ties trades between developed

and developing countries closer. Thirdly regional trades become the major trading form in the international markets. Meanwhile bilateral trades get more popular. And multi-national trades are replaced by the above two.

Accompanied by changes in the international trade pattern the denomination currency will change accordingly. Looking back at history we can find that changes in the international trade patter usually leads to changes in the trade-denominated currency firstly. After a while it spread to the financial sector which will accelerate this process. Finally the international monetary system changes accordingly. The denomination currency in exports is determined by several factors including economies of scale, industry characteristics, trade structure, and macroeconomic volatility and transaction costs. Currencies of those emerging economies that are also major trading power in the international market are likely to become the new denomination currency in international trades. And the development of regional trades and bilateral trades calls for new denomination currencies as well.

The intentional trade pattern will finally determine how the international monetary system is going to change. We expect the international monetary system to change in the following three aspects. First China and other emerging economies are becoming major trading powers in the global market. Thus these countries' currencies may become international currencies in the foreseeable future. Second major regional economies are more influential in the global market. So currencies of these countries are expected to be the key currencies in regional trades. The RMB may become the key currency under the ASEAN. Third wars against these emerging international currencies may be a major obstacle in their way to internationalization. These emerging international currencies may be urged to appreciate which would undermine these countries' competitive advantages in the global trades and may influence these currencies' internationalization process adversely.

The internationalization of the RMB may change the current international monetary system

Changes in the international trade pattern lead to changes in the international monetary system. But it does not mean each little change in the former will entail change in the latter. So when the international monetary system cannot catch up the changing international trades major international currency issuing country has to face the Triffin Dilemma. Since a country can never have a lasting trade deficit and a stable currency at the same time. It seems that the Triffin Dilemma cannot be avoided in a world where national fait currency takes the role of means of settlement in the international trades. But history reminds us that the continued deterioration of current account of the America only appears in the period from late 1950s to the early 1970s and the late 1990s to 2008 when the international trade pattern has changed while the international monetary system remained the same. In other words when the American growing trade deficit becomes a problem and the Triffin Dilemma intensifies, it shows that the current international monetary system is not suitable to the global economy and trades any more.

A complete interpretation of the Triffin Dilemma may establish the theoretical and practical basis for the RMB internationalization strategy. The Bretton Woods System was built on the gold exchange standard. Deterioration in current account deficit resulted in massive gold outflow from the America which would in turn undermine foreign residents' confidence in the US dollar. Thus the American current account deficit was unsustainable. In other words there was no solution to the Triffin Dilemma under the Bretton Woods System. While in the Jamaica System the American current account deficit may last for long since the US dollar was not fixed to the gold anymore. But a so-called "new Triffin Dilemma" was entailed. The American growing trade deficit increased the friction among international economic policies. Countries with huge dollar reserve were caught in the "Dollar Trap" and heavily influenced by the American domestic policies especially after the 2008 financial crisis. The current international monetary system had to change. In these circumstances the internationalization of the RMB may not only help China to get of the Dollar Trap but promote the reform of the current international monetary system as well.

Trade surplus is the premise to a countries' currency internationalization since major international currencies' issuing countries all had long period of trade surplus. A country can have a trade surplus and provide international liquidity to foreign residents at the same time. Therefore to maintain a certain amount of trade surplus can help China in its domestic economic transformation and have the RMB internationalized as well. China should take this opportunity to increase RMB's share in the international settlements. How to promote RMB's share in bilateral and regional trades are the most urging concerns.

Opportunities and challenges to cross-border RMB trade settlements

The changing global trade pattern opens doors for the RMB internationalization. Regional trades and South-to-South trades are becoming the mainstream in global trades. Multi-national companies play an increasingly important role in determining trade terms, factors allocations and so on. China's trade volume has seen a rapid growth in recent years. By the end of 2012 it has been almost the same size of the American and will surpass the America to be the largest trading power in 2013. Meanwhile China's foreign trade has undergone structural changes. Trade volume on higher value-added products such as electrics and communication equipments are increasing. China's trade partners are more diversified which lowers China's dependence on Europe, America, Japan and other developed markets. In addition China's direct investments and loans play an important role in promoting its international trade growth. China has an increasing share in trades among emerging economies. In order to avoid the exchange rate risk of major international currencies such as the US dollar, the Euro and the yen, RMB will be in huge demand in the settlements of trades between China and other emerging economies.

Cross-border RMB trade settlement has achieved fruitful results. This report did a scenario analysis with statistics from the Fed, the European Central Bank and the Bank of Japan. The RMB's share in international trade settlements was 1.53% in 2012 which was between the conservative estimate (1.26%) and the general estimate (168%). It shows that the extent of use of the RMB in trades between the six biggest economies and China has surpassed the yen a decade ago and closed to the British Pound at that time. Taking into account China's capital account is not liberalized yet, the statistics of RMB settlements may be inaccurate since a considerable amount of cross-border capital flow is under the guise of trades. In addition the report makes a relatively conservative estimate. Therefore this result shows that the cross-border trade in RMB has a huge room for further expansion.

Barriers in promoting trade settlements in RMB

China has become a big trading power in the international market but it is not one with significant competitive advantages yet. There's still a big gap between China and those important trading powers such as the America, Germany and Japan in that China has weaker trade- related industries and lower commercial maturity. Most of the Chinese companies are in the business of processing and assembling which are of low margins. China is in short of companies with international competitiveness, core technology and influential branding. Chinese Companies' innovating capability is to be strengthened. In addition developed countries are in their way of re-industrialization. The international industrial transfer may lead to a decline in China's trade growth or even lead to a decrease in absolute terms. All of these slow down the pace of RMB internationalization.

The first obstacle is Chinese companies lack of the willingness and ability to insist RMB settlements in international trades. Currently more than half of China's exports are products of processing. There are huge amount of exporting enterprises. But most of them are small-scale. The industry concentration is quite low. In this situation China's exports are facing high risk of being substituted. At the same time exporting enterprises have little competitive advantages which restrict them from using RMB as the settling currency in international trades. In addition China's economic growth is driven by growth in investments and exports which further undermines Chinese exporting enterprises' negotiating power. Meanwhile the high transaction fees in using RMB in international trade settlements reduce RMB's attractiveness as an international currency. Therefore in order to promote RMB settlement in international trades China has to undergo reforms both in its economic growth pattern and trading structure as well. First China has to enhance its competitiveness in international trades by innovations in the firm level. Second China has to support domestic exporting enterprises to grow bigger in which way they may have more bargaining power in using RMB as means of settlements. Finally China has to reduce the transaction fees in RMB settlements by various financial reforms.

The second obstacle is that China's financial market is still far from maturity. Chinese commercial banks have a long way to go in facilitating cross-border RMB settlements. Chinese banks have conducted cross-border RMB business since 2009 including cross-border trade financing, factoring, global cash management and a lot more business innovations. However there are still a variety of constraints. First Chinese banks are not internationalized yet. There are only limited amount of overseas branches especially in the biggest six economies. Second Chinese banks prefer to finance domestic business rather than cross-border trades due to China's tight monetary policies and heavy regulations in the financial market. In addition

China's interest rate and exchange rate are still under control which leaves room for various hedging and speculating activities. These speculative capitals usually take the way of cross-border RMB business to come into the Chinese market partly because offshore RMB capital has few ways to invest. Therefore a further internationalization of the RMB must be built on a further reform and development in the Chinese financial market. Chinese commercial banks should continue to facilitate domestic enterprises in international trades and overseas investments. As long as Chinese financial institutions' business innovations keep up with the pace of enterprises going-out activities, the RMB will be a major international currency in the future.

The international community is cautiously optimistic towards RMB internationalization

Suggestions of respondents from different backgrounds on how to promote RMB internationalization may be of certain value to Chinese government. Most people agree with that the extent of use of the RMB in international settlements has fallen behind the development of international trades. The inconvenience in global payments and lack of offshore investment opportunities are considered to be the major factors hindering a further increase in RMB settlements. And capital controls are seen as another significant obstacle. Respondents from governments and think-tanks emphasize China's different political system undermines the credibility of the RMB. Most respondents believe Chinese banks have advantages in conducting RMB business but their low level of professionalization and internationalization may hinder the RMB's internationalization.

The internationalization of the RMB started well with promoting cross-border RMB settlements as the first step. Respondents from Asia are more likely to accept the RMB in settlements and believe the internationalization of the RMB would facilitate international trades. The survey shows that suspicions between China and neighboring countries cannot prevent the trend of regional economic integration and the use of RMB in regional trades. Therefore the internationalization of the RMB should started from cross-border trades and gradually expand to other parts of the world. And Africa may be the next step.

Results from questionnaires and interviews show that the internationalization of the RMB has been a frequently mentioned topic in the business and financial professionals circle abroad. Asian media and commercial media all over the world have paid high attention of RMB internationalization. The American government is very concerned about this issue. Opinions on RMB internationalization varies among nations. Americans have the most negative attitude with a lot of worry and anxiety. Meanwhile developing countries worry about the possible negative influence to the prices of their imports and the exchange rates. But developed countries other than the America are more active towards this issue. In short the international community basically agrees with that the RMB would exceed the British Pound and the yen in the international monetary system in the next 10 years.

Policy implications

Policies focusing on promoting RMB settlements

Firstly China should take advantages of the common interests and trade complementarities between itself and the ASEAN countries to seek a further increase in cross-border RMB settlements. China should continue to participate in regional economic cooperation with the ASEAN countries and promote the establishment of the China-Japan-Korea FTA. In addition China should make efforts to reduce the transaction fees in RMB settlements and increase RMB's share in regional trades by accelerating the direct exchange between the RMB and neighboring countries' currencies.

Secondly China should make a change in its trade structure by promoting bilateral trades between itself and other emerging economies. In this way China could get a bigger share in bilateral trades and increase RMB settlements at the same time. BRIC countries have common interests in several areas. Political and economic cooperation within these countries have grown rapidly in recent years. In this circumstance China should promote trades with other BRIC countries in which way China could see a rapid growth in its trade volume and increase settlements in RMB and other BRIC countries' currencies as well. Finally the RMB could get an increasing share in the global trade settlements.

Thirdly RMB direct investment is becoming an important force in promoting the internationalization of the RMB. Thus China should further facilitate RMB direct investments in overseas markets and encourage Chinese enterprises especially private enterprises to enter foreign markets. Meanwhile the development of RMB

direct investments can give rise to various financial transactions in RMB overseas market and increase offshore RMB liquidity. In this way RMB settlements can be more convenient to Chinese importing and exporting companies. Finally RMB financing and settlements can be an important force in promoting each other's development. **RMB to be a safe-haven currency with China being a major creditor**

In the early days of RMB internationalization China should reinforce its position as a major creditor by increasing trade surplus to ensure RMB a stable currency. Meanwhile China could provide RMB to foreign residents by foreign lending and economic aids to other countries. Currently RMB overseas can come back to the Chinese market through importing and trade credits repayments in RMB. RMB's coming back through investment and speculating activities are not suggested at this moment since the Chinese financial market is far from maturity. In order to encourage foreign residents' willingness to hold RMB assets the RMB offshore market must provide sufficient liquidity and various means in managing the exchange risk. Capital account liberalization and other accompanying reforms should also be conducted in this way.

In a world with high financial volatility to be a safe-haven currency can accelerate the internationalization of RMB. China had better encourage long-term capitals in order to avoid the negative impact of the flows of the hot money. Trades and foreign direct investments in RMB should highly emphasize in the way of RMB internationalization. Therefore China should continue to promote domestic economic transformation by industry upgrading and domestic economy getting rid of excessive dependence on investment and exporting. Meanwhile China should encourage domestic enterprises to invest in innovations so that Chinese enterprises may have greater power in pricing and settling currency deciding. In short, a changing global trade pattern calls for a changing international monetary system. China should take this opportunity to increase RMB's share in international settlements and promote RII to a new high.

Encourage the internationalization of Chinese financial institutions

The internationalization of the Chinese financial institutions is the basis of the internationalization of RMB and should be at the same pace with the development of China's international trades. Trades between China and other developing countries

especially the BRIC countries and emerging economies are increasing which could facilitate Chinese banks' going out strategy. The internationalization of Chinese banks should emphasize in facilitating RMB settlements in trades and foreign direct investments. Thus Chinese banks should build an overseas branch network to cover China's major trading partners. It is better to have Chinese state-owned banks to go out first since they are highly rated and better at risk management. More importantly these state-owned banks have the financial strength in supporting a massive expansion of overseas branches. But these state-owned banks may face discriminations in entering certain market economies. Thus China should encourage its private banks to go out as well. Furthermore enterprises usually demand for a set of financial services in cross-border RMB business including banking, securities and insurance. Thus Chinese banks, security companies and insurers should all seek a way into the overseas market so that the RMB internationalization can be better implemented.

The Chinese government should make efforts to support the Chinese financial institutions' internationalization and turn itself from a regulator into a supporter. Thus the Chinese government has several important tasks to do. First the Chinese government should encourage domestic banks going out by lowering the regulatory constraints and support banks in building an overseas branch network covering China's major trading partners. Second the Chinese government should build an integrated platform to post information from the global market such as changes in macro policies, financial regulations, credit and legal environments and so on. So that the Chinese financial institutions could make better choice and risk management decisions against sovereign risks. Third the internationalization of the Chinese banks calls for the internationalization of the China Banking Association. The CBA could set up offices overseas and cooperate with the local regulatory bodies which can help minimize the political risks in banks going-out. The CBA overseas offices can also help reduce the cost in banks going-out by providing information to Chinese banks through surveys in the local market. Furthermore the CBA can provide training facilities to banks' overseas personnel.

Establishing CIPS from a strategic point of view

China should increase investment in its financial infrastructure and build a Cross-Border Interbank Payments System (CIPS). Cross-border trades will still be

settled through the current CNAPS. In this way RMB payment and settlement efficiency could be improved and costs reduced. Another big obstacle in RMB internationalization is the lag in legislation. Thus China should improve its legal system in the area of payment and settlement. More precisely China is in need of a set of laws in this area. First, China needs to introduce a set of concepts, rules and legal relationships to define the payment and settlement system and set up entrance requirements to financial institutions that are willing to participate in this system. Second, China has to introduce laws concerning RMB payment and settlement system into the current Codex. The American UCC Article 4A and laws of other developing countries can be valuable references. These laws are set to adjust the rights and obligations of each party and help establish RMB's legal status and credibility. Third, a set of legal mechanism in RMB payment and settlement system is in need. Thus China has to learn from other countries judicial practice and dispute settlement mechanisms to establish specific regulations suitable to the RMB payment and settlement system.

Building a favorable international opinion environment for RMB internationalization

China has to guide the international community to focus on the economic side of RMB internationalization rather its political side. International community especially financial institutions are paying increasingly attention to the issue of RMB internationalization. Bank of England has sent a group of researchers to China to study China's capital account liberalization and RMB internationalization. Reuters set up a research team in order to study the motivation of RMB internationalization from the political and strategic perspective. International investment banks such as Goldman Sachs and Morgan Stanley have started to do research on the possible impact of RMB internationalization and report to their clients. The current international opinion environment can benefit RMB internationalization since the international community has not take RMB internationalization as a political thing. Therefore we suggest China to maintain this favorable condition by semi-official propaganda. First China should emphasize that the internationalization of RMB will prevent Chinese government from influencing the exchange rate of the RMB. Second China should point out that the internationalization of RMB is China's effort to help the current international

monetary system to change to a new one since China's huge reserve has seen great depreciation due to the massive QEs in developed countries. Third China should tell the world the internationalization of RMB is of great importance to its domestic economic reforms. The efforts above can help maintain this favorable international environment and avoid the issue of RMB internationalization to turn to a political one.

China should pay attention to the international public opinion and respond to the concerns of the international mainstream media actively in which way China may create a favorable environment for RMB internationalization. Concerning their own interests foreign countries may have different opinions on RMB internationalization. So China must be wary of the reports of international mainstream media who talk about the possible negative impacts of RMB internationalization such as China over issued trillions of currency; the appreciation of RMB may push up prices of imported goods; RMB internationalization may cause inflations in other countries and so on. China must respond to these questions actively and minimize international communities' misunderstanding on RMB internationalization. China had better start its PR activities from Asian media and commercial media in other parts of the world.

Building RMB offshore markets worldwide

China has to have RMB offshore markets all over the world to meet the increasing demand for RMB financing. The RMB offshore markets will be the place where Chinese enterprises abroad and companies from China's trading partners settle trades and get RMB financing. Currently there's only one RMB offshore market in Hong Kong. It may not able to cope with RMB settlements and financing in the future since trades and investments between China and Latin America and the Africa has been increased rapidly in recent years. Therefore China has to expand the RMB offshore business into other markets such as Taiwan, Singapore, London and other major financial centers. Meanwhile the RMB financing instruments and RMB derivatives are to be diversified so that the RMB liquidity can be increased and the efficiency of RMB settlements improved.

China should further develop the Hong Kong RMB market into an information hub and a model market for RMB offshore business by establishing a joint mechanism in RMB interest rate and capital flows between the mainland and the

Hong Kong market. At the same time China has to start to establish RMB offshore markets in other parts of the world as well. RMB offshore markets in different regions should fit into the local economic and financial environments. Thus China can expect RMB offshore markets to compete and cooperate with each other in a healthy way.

The RMB offshore markets have several advantages. It can help attract global capitals and determine the price of RMB capital in a broader scope. Play RMB offshore market brings together international capital found within the broader scope of the market price, the optimal allocation of domestic RMB advantage. Meanwhile, formed by the development of the offshore RMB market Forced certain pressure, and promote the deepening of domestic financial markets, interest rates and market-oriented reforms accelerated rate, improve financial supervision and capital market liberalization mechanism to ensure financial efficiency by improving China's economy continues to safe and healthy development.

Featured Research on Reform of International Monetary System

Four Suggestions on Global Monetary Governance

By CAO TONG



Seventy years ago, representatives from 44 countries, including the United States and the United Kingdom, met in Bretton Woods, New Hampshire in 1944 for the United Nations Monetary and Financial Conference, during which, the final act was adopted based on "White's Plan". It was decided that two international financial institutions should be established, namely, the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (IBRD) .The double-peg international monetary system with the US dollar at

the center was officially launched, linking the dollar to gold at the rate of \$35 per ounce of gold and pegging other countries' currencies to the dollar.

Undoubtedly, the Bretton Woods system has proved its far-reaching significance, as it played an important role in promoting post-War international financial stability and advancing post-War economic recovery.

Firstly, the Bretton Woods system put an end to the pre-war chaotic situation in the international monetary and financial field and returned the post-War international monetary system to normality. Following World War One, with severe inflation in various countries, the free convertibility and transfer of gold got stuck and the gold standard was abolished. The world economic crisis during 1930s accelerated the collapse of the gold standard and the international monetary and financial system lost the unified institutional basis. Countries formed competing currency blocs, tightened foreign exchange controls and engaged in foreign exchange dumping, thus plunging the international monetary and financial system into complete chaos. However, with the establishment of the dollar-centered Bretton Woods system after World War Two, the international monetary and financial institutions regained a unified basis, with the US dollar being the major international reserve currency, making up for inadequate international liquidity in the post-War world and, to a

large extent, easing the shortage of international reserves due to undersupply of gold.

Secondly, the Bretton Woods system effectively boosted international trade. Building on its gold reserves, the United States issued huge amounts of dollars by way of providing grants and credit and buying foreign goods and labor services, thus laying the currency basis for international trade. At the same time, the fixed foreign exchange rate has, to some extent, reduced the risks of exchange rate volatility, stabilized the exchange rates of the currencies of major countries and promoted smooth international trade activities.

Thirdly, after the Bretton Woods system was established, the IMF and the World Bank played a positive role at certain level in the global economic recovery and development. After the World War Two, many countries, restrained by limited gold and foreign exchange reserves, resorted to currency depreciation, resulting in balance of international payment crises. The loans provided by the IMF eased these problems to different degrees. As its lending operations continued to expand, the IMF shifted priority from Europe to the third world countries in Asia, Africa and Latin America to support the development of these countries. Long-term loans and investment from the World Bank met the financial needs of countries to varying extent in their post-war recovery and reconstruction efforts. The World Bank also gradually made loans available to developing countries in order to meet their funding demands.

The IMF and the World Bank also played a positive role in technical assistance provision, global macroeconomic monitoring, international economic and monetary research, poverty reduction, and removal of development bottlenecks.

However, the flaws inherent in the Bretton Woods system were gradually exposed over time, mainly manifested in the lack of stability associated with an international monetary system dominated by the currency of one country (the US dollar). In the past decades, the growth of global economy and trade demanded more support of the foreign exchange reserves, which could only be solved by long-term trade deficit of the United States; Meanwhile, the US dollar had to be stable and strong to remain as the core international currency, which required the United States maintain trade surplus or a balance of international payments. These two conflicting aspects have caused the "Triffin Dilemma".

As we have seen, the US dollar went through several crises in the following years. In August 1971, the United States announced to suspend selling gold to other countries, severing the linking between the US dollar and gold. During the US dollar crisis in 1973, the United States once again declared depreciation of the US dollar, leading to the adoption of the "floating exchange rate" in place of the "fixed
exchange rate" by various countries. By signing the Jamaica Agreement in 1976, the Bretton Woods system in the traditional sense ceased to exist, and the world entered the era of "Jamaica Agreement".

The Jamaica Agreement, which recognizes the natural evolution of the monetary system, is a "system without system". But because of the irreplaceable status of the US economy and the US dollar, the global monetary system continues to be dominated by US dollar, only that the US dollar is no longer pegged to gold, showing the salient feature of a "Greenback standard". The time between 1976 and the 2008 financial crisis was an unprecedented era of "explosion" of global money creation and financial innovation. This era of "explosion" saw the cropping up of the floating exchange rate, unrestricted capital flows, excess credit supply and innovative financial instruments, repeatedly shattering traditional financial concepts. After the latest financial crisis, we saw massive quantitative easing for rescuing purpose, central banks purchasing large quantities of equities and debts of commercial entities with base currency, monetization of government debts in large scales, and prolonged measures to intervene in and suppress market interest rates. With these developments, the concept of the global monetary governance entered a period of "concept without concept".

Today as we commemorate the 70th anniversary of the Bretton Woods system, we are in fact marking two 30-year-long monetary eras, divided by the transition of the double-peg international monetary system to a single-peg one. Although both systems regard the US dollar as the core currency, they are very different. The repeated occurrence of financial crises across the globe since the 1970s were caused fundamentally by following reasons: First, unrestricted money creation leads to the expansion of visual finance. Second, as the international base currency, the issuance of US dollar faces no restrictions except for moral injunction imposed by itself. And third, when its domestic monetary policy clashes with the global monetary policy, the United States will certainly choose to protect itself. The 2008 global financial crisis was caused by these fundamental factors. Moving forward to the next 30 years, how should we design the course for the global monetary system? How to strike a balance between preservation and innovation of the global monetary governance?

In this context, I would like to make the following four proposals:

First, we should develop a "tripartite" international currency standard system.

The flaws of the single currency system dominated by the dollar are obvious. If the system is not reformed, the next financial crisis will be just around the corner, and it will be even more disastrous for the global economy. A diversified currency standard system can play a positive role in stabilizing global exchange rates, supervising the fulfillment of responsibilities by the issuing countries of standard

currencies, and reducing the amount of money created by central banks. Considering the economic size of different countries and the representation of their currencies, a "tripartite" currency standard system consisting of the dollar, the euro and the Renminbi would be the best option. The three currencies shall be accepted by all countries as both reserve currencies and pricing currencies for commodities and the financial market. In the meantime, these three economies shall also exercise their duties as the issuers of base currency.

Second, we should develop a "core-peripheral" flexible exchange rate regime at the global level.

In order to improve the stability of the global exchange rate structure, there should be relatively fixed exchange rates among the tripartite core currencies, while the peripheral currencies shall keep their existing floating exchange rate regimes

Third, we should develop common global rules for money creation.

We live in a globalized world with floating exchange rates and free cross-border capital flows. The money created by every individual country shall also be seen as money created for the whole world, and they all make a profound impact on the global economy. Given time, the monetary policies adopted by individual countries could all cause spillover effects in other parts of the world. Therefore, just as in the case of carbon emissions, countries in the world should try to develop a "global covenant on money creation" to put a check on the creation of money as well as unregulated quantitative easing and government debt monetization. Only in this way can we ensure that we will not be suffocated by the "CO2" emitted in the form of money.

Fourth, we should develop a new global structure and mechanism for monetary governance.

The global political and economic landscape has changed a lot over the past 70 years, and the role of the IMF and the World Bank in global monetary governance is significantly reduced. Both their functions, representation and decision-making mechanisms are increasingly misaligned with the demand of monetary governance in the new era. Therefore, countries should establish a new monetary governance structure and mechanism within the G20 framework to meet the demands of the new world.

The financial crisis that started in 2008 is not completed, yet the factors that triggered the crisis are surfacing and becoming active again. In particular, the excessive money supply caused the crisis in the first place, but countries have been attempting to bail out with the creation of even more money. Where and when is the cycle going to end? There are many lessons we can learn from the evolution of the Bretton Woods system and the Jamaica monetary system over the past 70 years. The

global monetary governance system is never static. While keeping its fundamental principles, it is constantly moving forward through innovation, responding to the new demands of global politics and economy, and making important structural changes at critical moments in history. All the members of the international financial community, must seize the historical opportunities, and work together to build up a new global monetary governance system.

In Search of a Solution to the Dilemma of International Monetary System: an International Fed System

By BEN SHENGLIN



The current international monetary system is not sustainable

The current international monetary system is confronting with the Prisoner's Dilemma reflected in the following aspects:

First, the current US dollar interest rate setting mechanism of the Fed is considered "unbalanced" and inconsistent with the spirit of justice and democracy. Given the leadership role of the United States and the significance of the US dollar as a world

currency, the interest rate mechanism of the Fed has huge externalities, whereas Fed is primarily focused on America's own interests and (largely) ignores the impact of the decision on "the rest of the world".

The current artificially low USD interest rate is probably the largest distortion in the world economy. The consequences are severe. Firstly, low interest rate has led to speculative hot money flows and cross-border arbitrage opportunities, which brings negative impacts on financial market stability of other countries and difficulties in policy making and financial supervision. Secondly, low interest rate leads to severe asset bubbles in emerging markets. Thirdly, low interest rate results in inefficient resource allocation worldwide.

Therefore, although the current US dollar interest rate mechanism of the Fed is a suitable arrangement for the States, however it is a rather "unfair and undemocratic" system from the global perspective given the global role that USD plays.

Second, the artificially low interest rate policy is a way to "reallocate (or transfer) wealth" among countries and groups, which affects the stability of financial market and monetary system. Since US treasury bonds are the main composition of China's foreign exchange reserves, a 1% decrease in US dollar interest rate represents about USD 30 billion loss in interest revenue for China, while the US Federal government, with an aggregated 17 trillion US dollar treasury bonds, saves USD 170 billion interest expenses every year.

This policy is not only against the principle of justice; it also invites questions on ethical issues. This is not limited to the USD interest rate policy, as we find similar situation in China, where the artificially low deposit interest rate causes wealth transfer (the recent money flow into money market funds via "internet finance channels" is simply a response to this low rate policy). Like China's regulated deposit interest rate policy, the low interest rate policy of the States is a form of "financial repression", but there are two differences between the two distortions: firstly the USD policy appears to be "more market-based" and thus invites less questioning; secondly the USD's international role means any USD-related repressive policy has more and complicated influence over the world economy, and is an important factor affecting the stability of international financial market and global monetary system.

Third, "RMB internationalization" needs accurate interpretation and rigorous reassessment. "RMB internationalization" has been attracting more and more attention from all parts of the world. But the fact is "internationalization" is only aimed at promoting the normal use of RMB on an international scale, whereas the term "RMB internationalization" may sound too grand and may lead to misunderstandings by other countries, countering the goal of RMB's cross-border uses. In the meantime, it is worthwhile conducting a more rigorous cost-benefit analysis of RMB internationalization. We must caution the risk of RMB internationalization based primarily on the expectation of RMB's appreciation, which would be unsustainable and will bring severe consequences, such as the disruptive impact of hot money inflow on China's real economy and domestic financial market. Also, attention should be drawn to the pressure of RMB internationalization borne to domestic financial reform and financial system. Especially at the time of the economic downturn and higher financial risks in Chinese economy, the pace of RMB internationalization should be re-assessed and better managed.

In conclusion, the current international monetary system is confronting the typical "prisoner's dilemma" situation, i.e., the United States is concerned with the perceived international effort to replace the US dollar and thus loss of the privilege as the international currency, whereas other countries, including China, worry about the United States benefiting herself at other's expense when making the dollar policies. This classic scenario in game theory is a reflection of the competitive dynamics and a lack of trust between the United States and other countries in the area of international monetary system. As we all know according to economics, establishing the strategic mutual trust is the solution to the prisoner's dilemma.

An international Federal Reserve System is the solution

Taking into account the international influence of the US dollar, we should consider the internationalization of the Federal Reserve System. Established in 1913, after more than a century's test, the Federal Reserve System has proven to be an effective mechanism, with a good level of independence as well as checks & balances, (the 12 Federal Reserve Banks according to economic districts and nomination and independent voting mechanisms for 7 Board members).

With the globalization, the world today is similar to the United States 100 years ago, in many ways such as the imbalance of regional development and the co-existence of multiple regional economic blocks. Therefore, we may consider building upon the current Fed system to address the deficient USD interest rate policy in the global context. For example, we can introduce non-US Fed board members with voting rights to represent the interests of other countries, regions and international organizations. Under the current international governance framework, the membership of UN Security Council and G20 will be good reference for the non-US board seats in an internationalized Fed system.

This adjustment builds on the present Fed system and does not require reinventing the wheel, which could mean relatively quick adoption and acceptance by all major powers in the world. For the United States, although the adjustment may lead to the loss of some sovereignty over the USD monetary policy, the internationalized Fed will still be under its dominant leadership. For other countries, their USD related interests will be partly represented by the international members of the new Fed Board. This adjustment should help enhance the mutual trust among countries.

Some people may argue that this proposal does not go far enough and is not an optimal solution, but as we know, in real life "optimality" or the best solution is not always an option and only second best solutions are available. Take language as an example. For many people in the world, it may not be optimal for English to be the internationally spoken language. Many idealists have made a lot of effort trying to influence and change this. Among the most idealistic and daring would be the creation of the Esperanto by Polish Jew Dr. Zamenhof in 1888. Despite its "great prudence, grace, logic and expressiveness", and the support and recognition by UNESCO in 1954, Esperanto today has only found its real usage in San Marino as an official language with little usage worldwide. Language and currency have many similarities, as both exhibit the "network effect" and "positive externalities" with lowest "transaction/communication costs" as the primary drivers.USD is similar to the English language, while the SDR system created in 1968 is somewhat like the Esperanto, whose current situation (of little real usage) should not be a surprise.

We call for resolute leadership

Although international monetary system seems to be a currency issue, or a financial or economic issue, it is actually a political issue indeed and concerns the global governance arrangement! Therefore any reform would require more resolute leadership at both country and international levels. My humble suggestions would call for the following:

First, the United States should sacrifice (or share) some of the monetary policy making authority by taking the responsibility as a global leader so as to earn more respect (and collaboration) from the rest of the world.

Second, other countries in the world, including China, should acknowledge and respect the cornerstone status of the US dollar in international monetary system and the continued leading role of the United States in the future US dollar policy making. While it is not the perfect arrangement, it is the second best and most feasible under the current global circumstance.

Third, the current international monetary system has inherently multiple unstable elements. The "rational behavior" of every country in pursuing their own interests may lead the world to the trap in the current situation of the prisoner's dilemma that we are presently confronting with. In order to prevent it developing into the all-lose situation, we must collaborate and act together, quickly!

Breaking & Making an International Monetary System Way

out of the Global Financial Crisis

By LIU JUN



Major parties struggling through the global financial crisis since 2008 now seemed to have seen some "light at the end of the tunnel". U.S. economy stabilized and employment improved. Its Quantitative Easing (QE) tapering has gone from a screenplay to a show on broadcast, and entered into Season 4. Eurozone has witnessed mild recovery partly due to fiscal austerity. Yields of both sovereign debts and corporate bonds plunged abruptly in not only core nations but also peripheral states. What a boom it

appears to be! Japan has shot the three arrows of Abenomics, the effect is not as loud as it sounds. Emerging nations seemed to have played the economic driving force at first, yet failed to sustain the momentum at the Finale of the Rebalance. Currency value plummeted as investors pulled their cash. This picture of the progression of this crisis is a bit of mess, missing some positive energy, though the major direction captured is just about right.

The U.S. economy's way out is to print money, whereas the Europeans' is to stall. The former sent banknotes all over the markets by QE 1 to n, while the latter started endless debt restructuring as a delaying tactic. Greece began its buyback. Spain is restructuring matured debts in order not to pay or pay less, while appearing less disgraceful or not at all disgraceful. Cyprus has their banks bailed-in to impose the losses on creditors instead of entirely on taxpayers. They are actually playing the same game, time for space, paper money to keep the capital running, both of which led to currency overflow and depreciation. Surely the USD with its anchor position provides a safe harbor. The more hazards out in the world, the stronger the USD becomes. However, do not be deluded by this illusion. No matter the exchange rate between any two currencies goes up or down, the real purchasing power of all major international currencies is going down. Paper money in circulation is losing credibility. Even if we could indulge ourselves for a moment in the bosom of USD, which would still be merely a safety bubble and would eventually burst.

Though it did not go with QE itself, China in parallel, has in its reserve an enormous amount of foreign exchange coming from major economies, hanging above its head like a Damocles Sword. New money needs to be issued to purchase

the foreign exchange, which makes the money supply stay at a high level for long. Though being the core components of the monetary transmission mechanism, commercial banks are at the same time, bound by the mandatory loan-to-deposit ratio, and thus are unable to channel the new money into the real economy freely. Hence we see odd things as follows. Before June 2013, there was undersupply and high interest rate on the lending side, and at the same time abundant liquidity in the inter-bank market. After June 2013, the inter-bank liquidity fell short with surging rates while the capital chain in real economy remained tight and the funding cost stayed high. Starting from 2014, the money shortage eased in the inter-bank market, yet the financing cost is still soaring. The real economy still hasn't found the measure to cover the lending shortage. Of course, some capital has found their indirect paths to flow into the real economy via inter-bank business and wealth management business, but the financial mechanism design in its nature, would inevitably result in financial intermediary's dislocation and deviation from the real economy, leaving one side in water and the other in flames. Here is one more clarification to make. Do not take it for granted that the increase of lending is bound to cause reckless investment and overproduction, since what really matters is the price instead of the amount. As long as the lending interest rate accurately reflects the value of capital, the producer will then organize its production accordingly with careful consideration of projects, cost of labor, technology and other factors. The continuous increase in supply has pushed the money stock in China to an astronomical level. Even though the RMB appreciates nominally against USD or other currencies for now and maybe for a long time to come, its buying power as an universal equivalent and simply a means of payment for bread and butter, and production has gradually eroded away.

Europe is still struggling, U.S. is recovering and China is adjusting, however the monetary policies they adopted are the same in essence, no matter you call it QE, debt monetization, fiscal austerity, or proactive fiscal policy combining prudent monetary policy, and no matter the tools used are debt buyback, operation twist, central bank lending, or open market reverse repo. When the curtain is reopened for encore, all you see is just an ocean full of money bubbles. The problems right in front of us may seem to have gone for now, but just as the bubbles will eventually burst into nothing, what actually happened is that we simply swept our problems under the rug.

Where is the RMB going? Central banks all over the world have been in a money printing frenzy since the crisis took place, hoping to stimulate the economy with easy monetary policy. However, every choice has its consequences, and the worst scenario for this is hyperinflation. In theory, there is always a question of where and

how inflation initiates and distributes. To put it in simple terms, those who can export inflation may relieve internal pressure, and those who are forced to take in inflation will become collateral damage. This is a game of drum-and-pass. The U.S holds the drumstick in its hand and will send the flower to anyone at any point that serves its best interest. Let's take a look back at the financial history. The 1997 crisis started in Southeast Asia spread to East Asia in 1998; India and Indonesia started to suffer from capital outflow and currency depreciation exactly the same time when the U.S. and Europe saw their twilight in 2013. We can't help but wondering, will the crisis this time again be led to East Asia in 2014? One may still remember that Chinese government promised not to devalue RMB back then, and now it promised, with clenched teeth, not to let the economy take a hard landing. A reform is like a house renovation, painting, flooring, breaking down the old things to make it new. The excitement of the new may for a while be able to justify the necessity and righteousness of the reform, but don't forget that this comes with a price. The hope we had for the reform was to bring in foreign capital, technology and mechanism to facilitate domestic economic transformation and subsequently social transformation. However, the foreign rational economic man remains sensible as usual. They are coming to this New World to seek excess return out of the huge market potential, leaving the natives come to realize at the end of the day, that they have to bear the cost on their own. Clean environment, labor force, land and rent, multiple times of factors of production have been thrown into this trade for glamorous GDP growth. Who is there to pay for all of these? The government, public, private sectors, or each of all has to share. Then there comes the question of how. The answer is RMB devaluation, particularly the weakening of its real buying power, possibly deep depreciation, with inflation on the other side of the coin. This certainly cannot be regarded as the best solution, hardly a satisfying one. The negative impact will become more significant along the progress of RMB's internationalization. The prognosis of RMB trend underlines the importance to recalibrate the money supply RMB internationalization should mechanism. be based on independent, well-targeted and forward-looking monetary mechanism, rather than following the herd. At the heart the rule-based principle must be upheld, the foremost being discipline and responsibility.

Way into a Functioning International Monetary System

The Bretton Woods System established the anchor position of USD, as a result of the wrestling between the Keynes Plan of U.K and the White Plan of the U.S. The fight between Keynes' Bancor and White's Dollar was in fact a power display of

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Sterling Pound and USD. The U.K. wanted to de-dollarize, and the U.S. wanted to substitute for the gold standard. The outcome needless to say, is that the Bancor and its virtual world government gave in to the U.S., the strongest real-world government. This demonstrates to us that international currency status and monetary system are not a pure competition of financial strength, but the comprehensive contest of political, military and diplomatic power. Later, the dollar-based gold exchange standard under the Bretton Woods System evolved into the Jamaica System which is described as a system of no system, the essence of which is a coming back from the fixed exchange rate system to the floating system even with various fixed alternatives. This is the so-called disappearance of trace of savageness in gold, and the reconstruction of a fiduciary money system.

Both the Bretton Woods System and the Jamaica System are built on faith in credit money. A fixed exchange rate system may be stable, yet it will inevitably stuck in the Triffin Dilemma and is no solution to the confidence issue of credit money, due to the unbalanced economic and political situations. The floating rate system on the other hand, does in pace with the unbalanced reality, yet its cycle of crisis-reconstruction-more crisis-more reconstruction shows that the confidence issue and exchange rate instability is still outstanding. Unbalanced development, relative stability of exchange rates and the faith in credit money still pose themselves as the impossible trilemma.

Fundamentally speaking, the core of a fiduciary money system is creditability of credit, of which confidence comes from, and it can only be established through prudent arrangement from an effective international coordination mechanism, backed by self-discipline of all participants. The two pillars referred here are:

First, discipline, which means that no country should monetize its debt and deficit at liberty. Both the public debt to GDP ratio, normally less than 60%, and the deficit to GDP ratio, normally no more than 3%, should be controlled within a reasonable limit. And this should be made into a mandatory requirement and executed with utmost rigour. The U.S., Europe and Japan have turned their post-crisis efforts into a contest in public debt and deficit monetization, and almost all of these two ratios went beyond the limits. Consequently, while the market malfunction remains severe, the government malfunction is also on the way.

Second, responsibility, which mainly refers to the money supply to GDP ratio. The money supply should in line with the GDP growth, industry structure, maturity level of financial system and social financing structure. Value of money and quality of economy shall not be sidelined. Currency issuance may seem to be one country's own decision, yet indeed it matters significantly to all that under the international monetary system and specifically the international coordination system. If a nation

supplies money just to stimulate its own economy, that may work to its own advantage in the short-term, but will certainly cause chaos in global market.

Discipline and responsibility are the necessary and sufficient conditions for the building of a functioning international monetary system. Their effect will first show internally and then extend to the external, the feedback of which will later come back to the internal. The international monetary system can only be stable and firm with these two pillars in place. Looking forward, we may consider center the system on IMF's SDR or we may continue with the progression of the current monetary system with USD at the core and gradually transform into a real multiple-currency basis. One thing I can speak for sure is that RMB will definitely be a crucial and organic part of the international monetary system, and that the RMB will complete its internationalization as a settlement currency, investment currency and reserve currency step by step. Most importantly, this process should be completed with utmost discipline and responsibility.

Reflections on the Bretton Woods System: History and Future of the International Monetary System

By WANDA TSENG



The international monetary system has changed tremendously since the Bretton Woods Conference 70 years ago. Yet, the International Monetary Fund (IMF), an institution created at Bretton Woods, remains at the center of international monetary cooperation. This paper reflects on why the IMF has endured, how it has adapted to the changes in the world economy, and what reforms are needed in both the international monetary system and the IMF to realize the original vision of Bretton Woods—that

is, international cooperation to achieve a more peaceful and prosperous world. Section I provides a brief historical background on the birth of the Bretton Woods system. Section II describes the historical contributions of the IMF. Section III covers the reforms undertaken in the international monetary system and by the IMF to address the global financial crisis. Section IV reflects on prospects for the IMF and the international monetary system.

I. Birth of the Bretton Woods System

Looking around the world, there are not many institutions or companies that stay around for 70 years. Most of them disappear for a variety of reasons: because they fail to adapt to changing trends and lose relevance, or because they fail to innovate and become outdated. So the fact that the IMF is still here can be viewed as an achievement, especially considering its birth during the uncertain times just before the end of World War II and when its success was, by no means, guaranteed.

The Bretton Woods institutions, the International Monetary Fund and its sister institution, the International Bank for Reconstruction and Development (more commonly known as the World Bank Group), were born in the summer of 1944. A month earlier, Allied forces had landed on the beaches of Normandy, ending the War in Europe, but more than another year would pass before Japan surrendered in September 1945 to end the War in the China Theater. In July 1944, 730 delegates from 45 countries gathered for the United Nations Monetary and Financial

Conference at the Mount Washington Hotel in the cool mountains of Bretton Woods, New Hampshire. The objective of the conference was to set up a system for international monetary and financial cooperation that was hoped would create a more prosperous and peaceful world.

Harry Dexter White, a founding architect of the Bretton Woods System, said at the time:

The IMF is essential to winning and preserving peace, and that is why representatives of 44 nations here in Bretton Woods are taking steps to prevent a repetition of the currency chaos, which is usually followed in the wake of war.

On July 22, 1944, the participating nations signed the provisional Articles of Agreement for the IMF and the World Bank. John Maynard Keynes, the intellectual force behind the Bretton Woods System, said:

There has never been such a far-reaching proposal on so great a scale to provide employment in the present and increase productivity in the future...and I doubt if the world yet understands the bigger things we are bringing to birth.

China was an active participant at the Bretton Woods Conference. China was an original member of the Bretton Woods institutions. China had the third largest quota in the IMF until 1959, and thus was one of 5 countries entitled to appoint an Executive Director at IMF's Executive Board (Boughton 2001). Koo Yee Chun, Vice Minister of the Nationalist Government at the time, was the first Chinese Executive Director; he served in that role during 1946-50, after which he had a distinguished career as IMF Treasurer. Mainland China assumed the representation of China in 1980, with Zhang Zicun as Executive Director. Since then, Executive Directors from China, including the recent Directors: Zhang Zhixiang, Wei Benhua, Wang Xiaoyi, Ge Huayong, He Jianxiong, have been an active voice on the Executive Board. They brought an unique perspective to the IMF Executive Board. Their insights about economic reforms, transition to a market economy, and economic growth and development were particularly relevant and valuable to the emerging and developing members of the IMF.

II. Historical Contributions of the IMF

During the past 70 years, the IMF has worked to achieve its purposes as set forth in the Articles of Agreement:

(i) To promote international monetary cooperation through a permanent institution which provides the machinery for consultation and collaboration on international monetary problems.

(ii) To facilitate the expansion and balanced growth of international trade, and to contribute thereby to the promotion and maintenance of high levels of employment

and real income and to the development of the productive resources of all members as primary objectives of economic policy.

(iii) To promote exchange stability, to maintain orderly exchange arrangements among members, and to avoid competitive exchange depreciation.

(iv) To assist in the establishment of a multilateral system of payments in respect of current transactions between members and in the elimination of foreign exchange restrictions which hamper the growth of world trade.

(v) To give confidence to members by making the general resources of the Fund temporarily available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity.

(vi) In accordance with the above, to shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members.

The vision of the IMF's founding fathers—international cooperation to promote high levels of employment and real incomes, while fostering price and financial stability— is as pressing and relevant today as it was 70 years ago. Of course, the world has changed tremendously in the past 70 years, but the IMF remains central to the international monetary system today because it has adapted to changes in the world economy. Looking back, some of the milestones that have marked the history of the IMF include:

- 1971 Collapse of the Gold Standard
- 1973 Oil Shock
- 1982 Mexican debt crisis
- 1991 Collapse of Soviet Union
- 1996 Launch of HIPC
- 1997 Asian financial crisis
- 2008 Global financial crisis
- 2009 Euro zone crisis

While remaining true to its central mission, the IMF has adapted to the new challenges in the world economy. It has done so by innovating new tools, refreshing its views, learning from its mistakes, and developing new expertise. The following describes some examples of the IMF's response to some of the major changes in the world economy.

Collapse of the Gold Standard, 1971-73

The gold standard came under strain in the early 1960s owing to a deteriorating U.S. balance of payments and the corresponding loss of gold. With President

Nixon's official termination of gold convertibility of the U.S. dollar in 1971, it became apparent that a new monetary order was needed. A group of major industrial countries¹ attempted a realignment of key-currency exchange rates, including a devaluation of the dollar under the Smithsonian Agreement in December 1971. But that agreement quickly came under strain, and finally, after two years of discussions, the goal of exchange rate stability was abandoned and the IMF instead was mandated to exercise "firm surveillance" over what was supposed to become a stable international monetary system through bilateral and multilateral oversight (Boughton 2012). That mandate was eventually enshrined in the Second Amendment of the IMF Articles of Agreement in 1978.

Oil-price shocks of the 1970s

Responding to the oil-price shock of 1973-74, the IMF introduced a new lending facility—the Oil Facility that borrowed from oil exporters and rich countries and lent these funds on low-conditionality terms to oil-importing countries, both industrial and developing.

Tumultuous 1990s: collapse of the Soviet Union and emerging market financial crisis

The 1990s brought a new set of challenges for the IMF. The IMF had to develop new expertise to assist the Soviet Union and the former Eastern bloc countries to make the difficult transition to market economies. Globalization quickened and large and volatile cross border capital flows surged. The increased financial integration and interdependence among economies meant that financial crisis is no longer confined within a country's borders but spilled over to other countries and regions. Beginning with Mexico in 1994, a series of crippling financial crises spread across the globe and the Asian financial crisis erupted in 1997.

The IMF had to come to the aid of countries in financial crisis after the sudden stop of private capital flows. The IMF's role during the Asian financial crisis was subjected to intense public scrutiny and criticism. Nevertheless, it should be recognized that the IMF rose to the occasion: it was there to help, when no one else was present; the IMF acted quickly and substantially; and the IMF involvement proved largely successful. In the case of Korea, the IMF was there to help after Japan and the United States turned down Korea's request for bilateral loans and Korea was running out of foreign exchange reserves. The staff team worked closely with the authorities under great pressure, and a program was submitted for Executive Board approval within one week from the beginning of negotiations. The program proved largely successful: within a year, the economic downturn had begun to

¹ Group of Ten (G-10): Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States.

reverse and the financial situation stabilized. Within two years, real GDP exceeded the pre-crisis level. Within three years, the IMF-supported program had ended. And within four years, Korea repaid all outstanding IMF loans, well ahead of schedule. The reforms undertaken by Korea at the time made Korea what it is today, more transparent, resilient, and globally competitive.

In the aftermath of the emerging market crisis of the 1990s, the IMF moved to improve the functioning of the international monetary system. The IMF introduced the Financial Sector Assessment Program (FSAP) in 1999 to strengthen surveillance over a country's financial sector; the FSAP examines in depth the potential risks and vulnerabilities of a country's financial sector and offers recommendations for reforms. The IMF also adapted its surveillance to reflect the growing recognition that countries whose institutions are well regulated and transparent tend to demonstrate better economic performance and greater financial stability. So the IMF and the World Bank defined Standards and Codes in 12 policy areas (such as data dissemination, fiscal and monetary policy), which are benchmarks of good practices to help countries to strengthen their domestic economic and financial institutions.

The IMF also increased the transparency of its operations and outreach to civil society. From a largely secretive organization, the IMF now routinely publishes its Executive Board discussions and staff reports on country consultations. The IMF also increased engagement with civil groups—students, labor unions, NGOs—to expand the perspectives brought to its operational decisions.

Debt relief for low-income countries

The IMF and the World Bank launched the HIPC Initiative in 1996. For the first time in its history, the IMF wrote off some of its lending. This was because of the growing understanding that the heavy and unsustainable debt burdens can become a stranglehold on the growth and development of low-income countries. The HIPC Initiative aimed to ensure that no poor country faces a debt burden it cannot manage. Since then, the international financial community, including multilateral organizations and governments, have worked to reduce to sustainable levels the external debt burdens of the most heavily indebted poor countries provided they are implementing effective development strategies. To date, debt reduction packages under the HIPC Initiative have been approved for 36 countries, 30 of them in Africa, providing US\$75 billion in debt-service relief over time.

Global financial crisis and euro zone crisis

The first decade of the 21st century has been marked by financial crisis in the advanced countries. In 2008, a subprime crisis in the U.S. quickly engulfed the whole world, causing the most severe global recession since the Great Depression.

This was followed by the euro crisis in 2009, and while the situation in the euro area is now stabilized, the full resolution of the crisis has not yet been achieved.

The IMF did not anticipate nor prevent the crisis in the advanced countries. It was a serious failure of surveillance. Indeed, leading up to the crisis, IMF had been in a lull, preoccupied with bureaucratic reorganization to downsize its staff because its lending activities had dropped sharply after the emerging market crisis of the 1990s.

III. Reforms to Address the Global Financial Crisis and Strengthen the International Monetary System

The global financial crisis led to renewed discussions about reforming the international monetary system. The deficiencies of the international monetary system—excessive risk-taking in financial markets, exchange rate misalignments and external imbalances, large and volatile capital flows—have resulted in repeated financial crisis with systemic spillovers.

Since 2008, the IMF has been implementing wide-ranging reforms to help improve the international monetary system. Some of these reforms are still ongoing. The key reforms include:

Creating a crisis firewall. To meet increasing financing needs of countries hit by the global financial crisis and help strengthen global financial stability, the IMF has greatly bolstered its lending capacity. It has done so both by obtaining commitments to double quota subscriptions of member countries²—the IMF's main source of financing—to about \$737 billion, and securing large temporary borrowing agreements from member countries, including recent pledges of \$461 billion.

Stepping up crisis lending. The IMF has overhauled its lending frame framework to make it better suited to country needs and to give greater emphasis on crisis prevention. The IMF also streamlined conditions attached to loans. The new lending facilities include the Flexible Credit Line (FCL) and Precautionary and Liquidity Line (PLL).³ Since the start of the global financial crisis, it has committed well over \$600 billion in loans to its member countries.

Strengthening regional and multilateral surveillance. The IMF has learned a

² On December 15, 2010, the IMF completed the 14th General Review of Quotas, which involved a package of far-reaching reforms of the Fund's quotas and governance. The reform package involves an unprecedented 100 percent increase in total quotas (to SDR 477 billion from SDR 234 billion) and a major realignment of quota shares.

³ As of May 31, 2014, Columbia, Mexico, and Poland have arrangements under the FCL and Morocco has an arrangement under the PLL.

great deal about the importance of surveillance over the financial sector, spillover effects, and regional and multilateral surveillance. The IMF revamped the FSAP in September 2009 to make its assessment more candid and transparent, and to improve its toolkit—by better identifying linkages between the broader economy and the financial sector and cross-country linkages. Since September 2010, the IMF made the Financial Sector Stability Assessment (FSSA, a major component of FSAP) mandatory for 25 systemically important jurisdictions.

The IMF also sharpened its analysis of spillover effects, giving emphasis to interconnectedness among countries and the external effects of a country's economic policies. These analyses are published in its periodic Regional and World Economic Outlooks (REO and WEO), Global Financial Stability Reports (GFSR), supplemented by the introduction of an Early Warning Exercise, the Fiscal Monitor, the Spillover Report, the Pilot External Sector Report, and the G20 Mutual Assessment Process.

The IMF intensified efforts at crisis prevention. In bilateral surveillance with individual countries, one innovation is a more systematic assessment of risks so that potential problems can be identified and appropriate policy responses developed more effectively. Another innovation has been the incorporation of risk assessment matrices in many Article IV reports.

Rethinking capital controls. The IMF revised its thinking about capital controls. In 1997, consideration had been given to amend the IMF's Articles of Agreement to make the liberalization of capital controls as part of the IMF's mandate. However, in view of experience with the series of capital account crisis, the IMF issued an important paper in 2012, setting out its institutional view on a framework for managing capital flows (IMF 2012, IMF 2013). In addition to the traditional macroeconomic policies, the IMF considered that capital control measures, involving both certain macro prudential measures (MPMs) and capital flow management measures (CFMs), also have a role to play, and should be part of the toolkit for managing capital flows.

Helping low-income countries. The IMF undertook an unprecedented reform of its policies toward low-income countries and quadrupled resources devoted to concessional lending.

Reforming the IMF's governance. In 2010, the IMF agreed on wide-ranging reforms so that its governance is more reflective of the increasing importance of emerging market countries. In addition to the doubling of quotas, the reforms will shift more than 6 percent of quota shares to dynamic emerging market and developing countries (mainly from advanced countries in Europe, which will also see a reduction in its seats at the IMF's Executive Board) and make all BRIC

countries be among the top 10 IMF shareholders. At the same time the voice of poorest countries will be maintained by preserving their voting shares. Unfortunately, IMF governance reforms suffered a major setback early this year as the U.S. Congress failed to approve these reform that had been agreed internationally four years ago.

V. Future Prospects for the IMF and the International Monetary System

Despite all the efforts undertaken since the global financial crisis, reforming the international monetary system remains an unfinished agenda. There are three main gaps:

The first gap is the instability in an international monetary system anchored by the currency of a single country. The outbreak of the financial crisis in the United States—the world's reserve currency country—and its spillover to the entire world revealed the vulnerabilities of this system. As Governor Zhou Xiaochuan of the People's Bank of China pointed out, policy decisions taken in reserve currency countries might not be appropriate for the rest of the world, leading to systemic risks (Zhou 2009). Furthermore, the global financial crisis and increasing worries about the large and possibly unsustainable public debt burdens of the main reserve currencies raised questions about whether these currencies could maintain their store of value properties over the long term.

Since the global financial crisis, there has been renewed debate about alternatives to the present domination of the U.S. dollar, but progress has been elusive. A super sovereign reserve currency, such as the IMF's Special Drawing Rights (SDR), is one possibility, but there seems to be little market demand for a substantial expansion in the use of the SDR. Governor Zhou has also proposed a stronger international role for the currencies of major emerging economies (such as the RMB) in the SDR basket. The IMF's Executive Board is scheduled to review the SDR basket composition next year, in 2015.⁴ Another possibility is the emergence of additional reserve currencies. With emerging markets now accounting for half of the world's GDP, emerging markets' currencies (in particular, the RMB) could rise as additional global reserve currencies

⁴ In October 2011, the IMF Executive Board concluded that the current criteria for SDR basket selection remained appropriate. For a currency to be included in the SDR, it should be "freely useable." Indicators of "freely useable" include: the currency composition of official reserve holdings; the currency denomination of international banking liabilities; the currency denomination of international debt securities; and the volume of transactions in foreign exchange markets (IMF, 2011).

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Despite great progress, the RMB still has some distance to go before it can become a global reserve currency. China's growing weight in global output and trade, together with policy measures taken by the Chinese authorities, have led to an increasing use of the RMB in international trade settlement. However, use of the RMB for international financial transactions remains very limited, notwithstanding the creation of rapid expansion of offshore RMB markets, The lack of sufficiently deep and liquid domestic financial markets, interest rate and other restrictions, remaining capital controls, and insufficient exchange rate flexibility hamper the international use of the RMB, especially as a reserve currency. Continued progress with these reforms will advance RMB internationalization and create market demand for its use as a reserve currency.

The second gap is the surveillance framework, in particular, the lack of mechanisms to compel countries, especially the systemically important ones, to take into account the external spillover effects of their domestic economic policies. The problems this gap create can be seen in the volatility shock that hit emerging markets in May 2013 after the U.S. Federal Reserve announced its intention to taper its quantitative easing. It has been suggested that the IMF's Articles of Agreement be amended to incorporate an obligation for member countries to direct its economic policies toward global economic growth and financial instability, in addition to its own internal and external stability. However, this option is unlikely to materialize in the near future, as governments would see this as an infringement on their national sovereignty.

The third gap in reforms of the international monetary system is the urgent need for governance reforms. The world has changed greatly since the founding of the Bretton Woods institutions, yet its governance structure largely reflects the economic realities 70 years ago. This outdated governance structure undermines the legitimacy of the IMF as an international cooperative institution. Steven Pearlstein, a columnist in the Washington Post wrote:

Economic and political systems tend to be successful when there is widespread trust, a sense of mutual responsibility and an expectation that those in charge will not abuse their discretion just because it may be in their short-term interest to do so.

These words are applicable to the current impasse on IMF governance reforms and what is needed to make the IMF a more legitimate and effective institution. Decisions on which countries have a seat at the table have a major effect on what gets done and how successful outcomes can be. So completing IMF governance reforms is an urgent task.

In conclusion, an institution like the IMF is essential for the smooth functioning of the international monetary system. In the past 70 years, the IMF has been the

central institution of international monetary cooperation. It has lasted because it has almost universal membership, with 188 countries, and because it is a learning institution, allowing it to adapt and reinvent itself as the world economy evolved. Hopefully, efforts to fill the gaps in international monetary system will be successful because, as President Franklin Roosevelt said nearly 70 years ago at Bretton Woods, the reform agenda is vital among "the arrangements which must be made between nations to ensure an orderly and harmonious world."

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Working Paper

Public Sentiment and Observation about RMB

Internationalization *

By DAI WENSHENG^{*}

The extent of RMB internationalization can be measured by two ways in two different perspective: one is using the RII indicator, in the perspective of international monetary function; the other is examining the public sentiment about RMB to indirectly reflect the acceptance of RMB worldwide, in the perspective of media attention.

1. Analysis Methods and Techniques on International Public Sentiment

With the accelerating process of RMB internationalization, the share of RMB in in international trade, direct investment and international credit gradually increases, ranking among the top 10 trading currency. RMB-denominated settlement, changes in RMB exchange rate, and monetary policy have an impact on the economic interests of a growing number of countries, whose companies and individuals linked to RMB more of less. Hence, the degree of national media coverage and attention to the RMB rises. There is no doubt that the attention itself embodies the internationalization of the RMB.

The miscellaneous international public sentiment includes both the mainstream media and non-mainstream media coverage, and motives involved with the specific content of RMB are quite different, not necessarily related to the internationalization of the RMB. Therefore, we need to design a scientific program to tap the intrinsic link between the international public sentiment and the internationalization of RMB by following the three steps.

First, use the Delphi method to invite experts on global monetary issues to select the world's major news media. According to these experts, we got the final English Media Directory and take their English website database for the study. Considering

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that the regional distribution of these media is uniform, and they are typical of print media and able to represent the mainstream media, thus, using them to study the internationalization of RMB is relatively credible and reliable.

Secondly, take the time period, 2001, when China joined the WTO, to the end of 2013, to tap the international mainstream media attention to RMB. Given that the major news media on RMB was really rare before 2008, for example, there is no report on RMB in 2003, we merger the statistics in and before 2008, accounting for the "2008 and before".

Thirdly, study these media and their focuses. Search news containing words like 'RENMINBI", RMB, CNY and then "Internationalization" and "International use" on their English websites and found out that there are a lot of international media reports about the RMB in recent years, but relatively a less number of reports about "Internationalization" and "International use". As the "RMB internationalization" is a domestic academic term and "the RMB cross-border use" is an official term of Chinese Government, the two terms are rarely used in international reports. Hence, we amended the technical path to analyze the public sentiment and identified RMB as searching object. Directly search news containing "RENMINBI", RMB, CNY news, and then tap the high-frequency words in the text database these news combine, forming the outcome of follow-up research.

Public sentiment analysis mainly uses the regular expression (Regular Expression):1, LDA modeling, and 2, general text mining techniques.

2. Characteristics of the Public Sentiment towards RMB

The research on the public sentiment of RMB mainly focuses on two aspects, one is the longitudinal study on the evolution of international media attention to RMB, and the other is the horizontal comparison between the economic activities of different countries and regions which concern about RMB. Table.2 gives statistics about reports that involved with RMB. According to the table and charts derived from it, we summarize some characteristics of international public sentiment.

2.1 RMB attracts more and more attention from the mainstream media.

Prior to 2008, there are accumulatively 259 pieces of reports about RMB from selected the 101 mainstream media. Along with a comprehensive start-up internationalization of the RMB, there is a sharp rise on the extent of global media attention to RMB, the number of reports increasing to 552 in 2010. And it doubled to 1334 in 2013. The annual average number of articles per media is more than 10. In the global mainstream media, measured by the number of reports, the United Kingdom, India, Canada, Australia are the top 4 countries which give most attention to RMB.

Table.1 The Number of Reports on RMB by the Mainstream Media around the

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	World (2008-2013)						
News Count	YEAR						
COUNTRY	2008	2009	2010	2011	2012	2013	Total
Africa					4	2	6
Asia			66	92	169	181	508
East Asia			21	27	67	25	140
South Asia			20	37	67	116	240
Southeast Asia			23	24	29	23	99
West Asia			2	4	6	17	29
Europe	259	168	422	296	325	1041	2511
European Union			17	4	5	24	50
France			5	2	1	9	17
Germany			10	10	3	1	24
Russia				1	2	1	4
Turkey			23	35	38	13	109
UK	259	168	367	244	276	993	2307
North America		3	39	41	88	67	238
Canada			37	38	46	30	151
USA		3	2	3	42	37	87
Oceania(Australia)			24	36	47	43	150
South America			1	1			2
Argentina				1			1
Mexico			1				1
Total	259	171	552	466	633	1334	3415



Fig.1 The Number of Reports on RMB by the Mainstream Media around the World

2.2 Media attention varies greatly in different regions and nations, with Europeans tops.

Before 2008, reports about RMB exist only in European's, precisely, only in UK's mainstream media. The media coverage extended to Asia, Africa, Latin America, Oceania and the number of reports has doubled and doubled in the next 3 years. European media is the main force, RMB-related reports from them accounted for more than half of the world related reports. It is worthwhile to note that reports from the United Kingdom accounts for more than 80% of Europeans reports, indicating that as the world's largest financial center, UK was more involved with RMB and London paid more attention to the prospect of RMB as international currency. In addition, unexpectedly, Turkey paid more attention to RMB that Germany, France and other traditional large EU countries, indicating that there may be a new breakthrough in economy and trade between China and Turkey. In addition, since 2010, as China participated in the European sovereign debt crisis mitigation plans and increased direct investment in the European Union, media in Germany and France, the two core countries in EU, showed great interest in RMB. there is an significant increase in the number of reports, and the coverage density of German is much higher than that of France, which shows a positive correlation to the growing trade and investment between the Chinese and German.



Fig.2 The Comparison of the Number of Reports on RMB by the Mainstream Media in Different Regions and Nations (2008-2013)

2.3 The Asian media is giving more attention RMB.

The number of reports showed a gradual increase in East Asia, Southeast Asia and South Asia since 2010, peaking at 163 pieces in 2012. In addition to the European media, the number of reports involving RMB from Asia media accounted for more than half of rest reports, and India from South Asia has the highest frequency, with a total of 240 articles from 2009 to 2013. Particularly, in 2013, when the attention to RMB declined globally, the number of reports soared by 73% to 113 pieces in India. This shows that financial cooperation mechanisms among BRIC countries, international monetary system reform, and the RMB internationalization attract much concern in India. What's more, in 2013, the number of reports about RMB increases from 6 to 17 in Saudi Arabia in one year.

2.4 North America shows a strong interest to RMB in the recent 2 years.

Although the cross-border use of RMB mainly happens in peripheral areas of China and Asia, it has a great shock in North America. In 2012 and 2013, there is a significant rise in the number of reports on RMB in U.S.A and Canada, about 40 pieces of reports annually. Overall, having a closer economic relationship with China, United States has fewer reports on RMB than India, which is only 87 pieces.

3. Comparison about Focuses to RMB in International Public Sentiment

Through mining and analyzing high-frequency words from the 101 selected media databases, we found out that the international community's focus to RMB is mainly involved with economy and trade. From 2013 onwards, reports about RMB are more involved with Finance, such as foreign exchange, securities, and investment and so on. Media focuses varies continentally, but most are concerned about bilateral economic and financial transactions with local characteristics.

3.1 The International Public Sentiment Focuses on Trade and Finance

Analysis on the use of high-frequency words associated with RMB in media coverage can accurately reflect the focus of public opinion. Figure.3 shows the top 25 high-frequency words from reports between 2010 and 2013, with "Economy", "Bank ", "Market", "Finance", "Trade" ranking the top 5. RMB exchange rate ranked ninth in terms of frequency, attracting widespread concern.



Fig.3 The Number of High-frequency Words Associated with RMB around the World

In fact, the international use of the RMB has also drew a lot of media coverage, linking RMB and the world economy, globalization and the international community. In these reports on RMB, "Global", "World" and "International" frequently appears, ranking seventh 10th and 17th respectively. It is worth mentioning that the "London" as a place ranked 25th among high-frequency words, suggesting that the UK is very sensitive to the internationalization of the RMB with intense social concern.

RMB internationalization is a product of the 2008 international financial crisis, embodying the international monetary system reform. It is also fully reflected in international public opinion. In RMB-related reports, "dollar ", "Crisis ", "debt ", " currency " ranked 12th, 20th,21th and 24th relatively in the high-frequency words. Quite a number of news reports analyze the financial crisis and debt analysis in the U.S. dollar -dominated international monetary system, suggesting that RMB internationalization an inevitable trend.

3.2 The Focus of International Public Opinion Varies with the International Economic and Financial Situation

The international financial crisis forced the world to a painful readjustment of economic structure, leading to a dramatic change in international political, economic, monetary situation accordingly. This change will, undoubtedly, be reflected among media coverage in the first time, as we can see it from the different focuses of reports. Figure.4 reflects the changes in high-frequency vocabulary from 2010 to 2013.

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Top 10 high-frequency words associated with RMB in media coverage in 2011



Top 10 high-frequency words associated with RMB in media coverage in 2012



Top 10 high-frequency words associated with RMB in media coverage in 2013

Fig.4 The Change of the Focuses to RMB over the Years

Changes in high-frequency words show that as time went on, "Finance " and the " Bank " is getting more and more attention, the ranking of "bank" increased year by year, from fourth in 2010 to third in 2011 and ranked second in 2012 and 2013. "Finance" has not yet been in top 10 before 2010, ranking 7th and 8th in 2011, 2012 first in 2013. On the contrary, "Trade" retreated from second in 2010 and to 4th in and 8th in 2013. In fact, this change is highly consistent with the process of RMB internationalization. RMB internationalization started from RMB -denominated trade settlement, but its development relies on promotion the banking and financial transactions.

3.3 The Focuses of the Continents Are with Local Characteristics

China is the world's largest trading nation, the cons and pros in RMB-denominated settlement are quite different. Analyzing their focuses is conducive to grasp the channels through countries to know, accept and recognize RMB, which is beneficial to extend the use of RMB.

The focuses to RMB vary greatly in different years, and countries and regions pay more attention to the affairs which they are involved with. Ranking the words in terms of frequency in different years and continents; we can see the general changes in public opinion. (See Table.2)

As the teaching philosophy, theoretical foundation, etc. of projects teaching is quite different from that of traditional teaching, thus it should have its own application process.

	Before 2009	2010	2011	2012	2013	
Africa	-			Trade, bond, proprietary, client, income, revenue, equity	Specular, system, tax, transact, trillion	
East Asia	-	University, professor, faculty, science, economy, growth, rate, invest, export, corporation, demand	Fund, japan, invest, company, bond, exchange	Taiwan, island, state, Japanese, dollar	University, professor, faculty, science, reserve, Hong Kong, corporate	
South Asia	-	India, reserve, deficit, rupeeexport	India, trade, Singapore, global, power, rupee, infrastructure	Trade, nation , Indian , foreign, growth, invest	offense, agree, rupee, recommend, disagree	
Southeast Asia	-	Police, Indonesia, fund, export, invest, trade, exchange, industrial, capital, dollar, nation Brand, trade, blond, export,	Hong Kong, Indonesia, intern, ASEAN, region Malaysia, Islam, fund,	North, dollar, Indonesia, state, region Billion, Islam, issuance,	Bond, Indonesian, inflate, increase, plan Hong Kong, yen, growth,	
West Asia		fashion	capital, ICM, offer, product, service	sector, industry, manage, plus, continue	Japan, IMF, monetary, value	
Europe	currency, market,	currency, economy, world,	Crisis, debt, photography,	London, need, now, Chinese,	Continue, custom, seen,	

Table.2 The Change of the Focuses to RMB in Different Regions and Nations over the Years

	dollar,	market,	global,	finance,		time, growth	without,	try,
	economy,	one,	last,	growth,	trade,		contact,	
	trade, rate,	export,	policy,	Europe			describe	
	company,	dollar						
	one, turn,	,						
	price							
Canada	-	Canada,	dollar,	Reserve	, trade,	Fur, reserve,	Digit, rese	rve,
		percent,		intern, i	nterpret	invest	main,	
		business,					investor	
(North		reserve,	global,					
America)		trade,	bond,					
		today, rig	ht, last					
	dollar, hold,	Dollar,		Apple	Store,	Dollar,	Dollar,	
	policy,	company,		debt,	iPhone,	billion,	billion,	
	trade,	exchange	, value,	Asia, iP	ad, buy,	growth, rate,	investor,	
USA	currency,	cost,	custom,	Obama		invest, fund	export	
	deficit,	factory,	foreign,					
	dunk,	job, mobi	le					
	fiberglass							
0 4	-	-		Inflate,		-	-	
South				agricult	ure,			
America				export,	devalue			
Oceania	-	-google, d	chrome	Euro,	global,	Wine,	invest, do	llar,
				intern,	trade,	Penfolds,	fund, grow	/th
				dollar,		drinker		
				monetai	у			

Public sentiment analysis shows that European countries concerns more about the macro areas involved with RMB, such as the markets, trade, banking, finance, government control, crisis and economic growth. Their focus transfers to finance and banking in recent two years.

North American media focuses on US dollar, deficit, foreign exchange reserves, income, trade and other issues; while United States is more concerned about the high-tech exported to China. In addition, in 2009, the North American countries were very concerned about specific issues about optical glass, attention to finance, reserves, and investment significantly increased in 2010.

Because the dollar is the dominant currency today and RMB internationalization will affect dollar to some extent, so the U.S.A's attitude toward the RMB is very

complex. Thus, public sentiment in USA is worthy of a separate analysis. the United States is a very self, very pragmatic country. Before 2012, there are few reports about RMB in the United States, with relatively divergent topics and low frequency of high-frequency words. For example, in all reports mentioned RMB in 2011, Apple is the word with highest frequency and its main products iPhone, iPad are also ranking among the top in high-frequency words, suggesting that American concern for the RMB due to the Chinese heat for Apple products. After 2012, there is a surge in the number of reports on RMB and also in high-frequency words, indicating that the U.S. mainstream media began to focus on the impact of the internationalization of the RMB. Trade, markets, banks, funds, investments, bonds are the focuses of American on RMB.

Research on South American news media includes those of Brazil, Argentina. Due to the economic structure, trade patterns and geographic distance and other reasons about South America, they paid less attention to RMB. In all those reports from 2004 to 2013, there was only one piece involved with RMB in Brazil in 2010 and in Argentina in 2011 and related reports focus on the import, export, trade, inflation, and agriculture.

Asian countries have extensive and complex with links with China in politics, economy, military and finance. The goal of RMB internationalization in the first phase is to become an regional currency area in Asia. As China has signed free trade agreements with some East Asian, Southeast Asian countries, China has built close economic relations with them. Relatively speaking, the trade scale is smaller between China and South Asia, West Asia. In order to deeply study the Asian focus on public opinion, we divide Asia into four regions--East Asia, Asia , South Asia, Southeast Asia, West Asia.

1. The reports mentioned RMB in Japan and South Korea focus on economy, finance, bank, bond, international reserves, the relationship between yen and RMB. From the specific content of high-frequency words, we can see that they showed greater interest in universities, research than in economy. Focuses of 2012 also includes Taiwan and islands, reflecting the impact of the political situation on concerns about RMB.

2. Choose India as the representative of South Asian countries. There are a growing number of reports on RMB since 2010, peaking in 2013. India's concern about RMB is directly related to currency internationalization, since the reports on RMB is always associated with " currency ", " Russian ruble ", " dollar" and other words. In the Indian view, as denominated currency in trade or investment, there exists competition between RMB and U.S. dollar or Russian ruble. In addition,

India's concern about RMB also includes banking, trade, economy growth, governance and infrastructure.

3. Southeast Asia's focus on RMS is much more straightforward. the most relevant word with RMB is "currency", followed by "trading" and "market", and then by "finance ", "bank". With the increase in the scale of authorized issue of RMB, funds, bonds and investment become the focus of reports. Compared to other regions, Southeast Asia may pay the most attention to the internationalization of RMB, with "international" and "global" among high-frequency words. Not only that, "dollar" is also closely related to the frequency of RMB, suggesting that RMB internationalization do impact U.S. dollar.

4. Saudi media represent the West Asia. In Saudi reports on RMB, "dollar", "Islam "appears frequently, as well as "Japan" does. Since Saudi Arabia is an oil-exporting country and the U.S.A, Japan are the main oil-importing countries, and U.S. dollar is the dominated currency in export, indicating that Saudi Arabia is concerned about the impact of RMB internationalization on oil export revenues. In addition, 2013 IMF reform is also a high frequency words in Saudi reports.

5. As the representative of Oceania, Australian media were most concerned with network and browser before 2012 and focused on wine in 2013. One brand of wine is "Penfold", in China called " benfu ", being very popular in the mainland market, and hotspot of media. Like other regions, the focus of Australian media turned to investment banking, trade, finance and globalization.

6. There are no relevant reports on RMB in Africa before 2012. After that, reports focused on the economy and finance. "Trade" tops in the two years as the focus of reports, followed by foreign exchange, banking, finance, economy, bonds and so on.

Summary

This article reflects the attention in RMB of the global main media through Text mining and the attention in RMB itself is also one of the characteristics of the internationalization of the RMB. Mining results show that Europe remained constant attention in RMB, the attention for the rest of the world, especially in South Asia and Southeast Asia has increased in recent years. At the same time, different continent focus on the same topics such as economic and financial field, but they all focus on the different fields which reflects the economic relationship between China and these countries. The results suggest that public opinion can really reaction even in advance on the internationalization of the RMB, and the Chinese should pay more attention in the public opinion guidance to the international main media appropriately in the process of promoting the internationalization of the RMB.

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Monetary Dynamics of Inflation in China *

By ZHANG CHENGSI^{*}

This paper investigates both the short-run and the long-run relationships between monetary growth and inflation in China between 1980 and 2010. We construct multivariate dynamic models based on Friedman's quantity theory of money (but permitting money to be endogenous) and Meltzer's monetarist model. The empirical results provide robust evidence that there is a bilateral causal relationship between monetary growth and inflation as well as between monetary growth and output growth. An indirect and implicit causal relationship between monetary growth and inflation is found through the asset inflation channel. There are also long-run equilibrium relationships among money stock, price index, and other relevant variables. The present paper further provides a historical exploration of the mechanism of the monetary dynamics of inflation in China over the underlying period. We conclude that the monetary growth rule is likely to be the most promising policy orientation for China to manage its inflation. (JEL codes: E31; E52; E58)

1. Introduction

The idea that inflation is associated with the growth of money is one of the oldest and most established propositions in economics. Macroeconomists have repeatedly observed that prolonged increases in prices (and thereby inflation) are associated with increases in the nominal quantity of money. Friedman (1963) sums up the prevailing evidence and proposes that inflation is always and everywhere a monetary phenomenon. There is a vast amount of literature on the relation between monetary growth and inflation, mostly long-run relation analysis in nature¹. Grauwe and Polan (2005) divide the literature into three groups based on the data frequency, countries, and sample periods involved in the relevant studies. A common finding in the articles surveyed by Grauwe and Polan (2005) is that monetary growth is positively correlated with inflation in the long-run. Representative studies are largely dominated by the experiences in the United States and other developed countries, presumably because this relationship originated from the United States and standard

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¹ See Lucas (1980), Geweke (1986), Stock and Watson (1988), Hasan and Taghavi (1996), King and Watson (1997), Dwyer and Hafer (1999), Bachmeier and Swanson (2005), and Zhang and Pang (2008), to name a few.
models often work less well in developing countries.

However, recent co-movement between inflation and monetary growth in China reminds researchers that inflation in China may also be a monetary phenomenon. Studies focusing on China's inflation dynamics, nonetheless, provide little consensus on this topic. For example, Chow (1987) and Blejer *et al.* (1991) suggest that China's inflationary process was a monetary phenomenon while Peebles (1992) argues that money is unlikely to be a significant driving force for inflation in China. To re-examine the relationship between money and inflation in China, Hasan (1999) constructs a "true price index" and finds a reliable long-run relationship between the "true price index" and the money stock, as well as between inflation and monetary growth. Although the "true price index" may be a useful proxy for the price index of China's economy in the pre-reform era (since it was developed for a highly centrally-planned economy), it is difficult to show the merits of using such a price index during post-reform China when the economy was greatly decentralized.

In this paper, we investigate the relationship between monetary growth and inflation in China by developing multivariate dynamic models based on conventional monetarist theories with officially published consumer price index (CPI) inflation data from 1980 to 2010. By so doing, the present research seeks to enrich the empirical branch of the literature that studies the relationship between money and inflation but that is largely long-run analysis in nature. In addition to the conventional quantity theory, we also investigate the topic through a monetarist model featuring dynamic interactions among money, real capital assets, and consumer price inflation. More importantly, most published articles use low frequency data (e.g. annual data), which substantially smooth out potential useful information that is embedded in higher frequency data; by contrast, we examine the money–inflation link using quarterly data throughout the empirical analysis. We also choose not to use annual data because with annual data most economic relationships (especially in short-run analysis) are likely to become simply contemporaneous owing to temporal aggregation.

As a result, this paper adds several useful contributions to the literature. First and foremost, we find that China's inflation, based on official data, is a monetary phenomenon in both the short-run and the long-run. Second, we find direct causal links between monetary growth and house price inflation, and between house price inflation and consumer price inflation. The causal relationship between monetary growth and consumer price inflation is indirect and implicit through the asset inflation channel proposed by Meltzer (1995). Third, unlike the existing literature (e.g. Hasan and Taghavi, 1996) that supports a one-way causality from broad money to real income, we find that there is also causality from real output to money, which

depicts the important nature of monetary policy reaction function in China in the 1980–2010 period. The baseline findings are robust to various model specifications as well as to alternative measures for prices, real economic slumps, and monetary aggregates.

The remainder of the paper is organized as follows. The theoretical background of the study is discussed in section 2, very briefly, as it is familiar material which considers both Friedman's quantity theory of money (QTM) and Meltzer's (1995) monetarist model. Section 3 describes the data and shows the stylized facts of the correlations between monetary growth and inflation in China. Section 4 discusses and rationalizes the empirical results of the underlying models. Section 5 investigates the relationship between the long-run components of monetary growth and inflation and examines the interrelationship between money stock and price index using a co-integration methodology to delineate both long-run and short-run relationships. Section 6 discusses the mechanism of the monetary dynamics of the inflation process in China over the past three decades. Section 7 provides a summary and conclusion.

2. Theoretical Considerations

a. Friedman's Quantity Theory of Money

The view that inflation is essentially a monetary phenomenon began with Friedman's (1956) famous QTM, followed up later in Friedman $(1970)^2$. Although a common interpretation of Friedman's QTM is that inflation is always and everywhere a monetary phenomenon over a sufficiently long period of time (e.g. Grauwe and Polan, 2005), the QTM is not necessarily confined to the long-run *per se*. At issue is how the theoretical model is interpreted when applied to empirical analysis. Therefore, the validity of both long-run equilibrium and short-run dynamics becomes an empirical issue.

In essence, the quantity theory identity in the rate of growth form at time period t can be written as

$$p_t + y_t = m_t + v_t \tag{1}$$

where p, y, m, and v are the proportionate rates of change in price level, real income, quantity of money, and money velocity, respectively. The best-known and simplest way of converting this identity into a theory is to assume that the velocity of money is constant. The assumption of constant velocity provides approximation in many

² The idea that inflation is associated with money may be traced back to David Hume's 1752 essay "Of Money" which investigates the link between monetary growth and inflation (Dwyer and Hafer, 1999).

situations, and we follow this assumption in the present analysis³.

Since money velocity is assumed to be constant, equation (1) can be written as

$$p_t = m_t - y_t \tag{2}$$

The foregoing identities indicate that in the long-run there is a proportional relation between inflation and monetary growth and that a permanent increase in the monetary growth leaves output (and velocity) unaffected. If there is a positive effect of monetary growth on output, it only holds in the short-run but not in the long-run, which is the well-known neutrality of money.

The theoretical specification of equation (2) is, of course, highly stylized. To specify an empirical model for the analysis of short-run dynamics with monthly or quarterly data, we need to consider the institutional length of price contracts in the real world. In addition, at a relatively high frequency, the contemporaneous timing of the annual equation (2) becomes less tenable given real-world recognition, processing, and adjusting lags. Taking into account the real world lags, equation (2) can be reformulated as:

$$p_{t} = \alpha(L)m_{t-1} - \beta(L)y_{t-1}$$
(3)

where $\alpha(L) = \alpha_1 + \alpha_2 L + \alpha_3 L^2 + ... + \alpha_n L^{n-1}$ is a polynomial in lag operator *L* with *n* as an optimal lag length which in practice can be specified by standard information criteria, and $\beta(L)$ is defined analogously.

Note that within the quantity theory framework it is conventional to treat output (and its detrended value) as exogenously determined by factors such as technological change, the characteristics of the labor force, and other variables that are largely independent of the quantity of money and prices. This assumption, especially since Friedman's statement of the natural rate hypothesis, is now regarded as a characteristic of the long-run when prices can be more realistically assumed to be fully flexible and expectations can be assumed to be correct. If this assumption is incorporated into the model, however, we are by implication developing a model that applies only to the analytic long-run and which we would therefore expect to be consistent with the long-run average rather than with short-run data.

More controversially, quantity theorists often treat the quantity of money as exogenous, mainly on the grounds that it is ultimately influenced by monetary authorities. This assumption is somewhat controversial because in some circumstances, notably when exchange rates are fixed and barriers to trade are stable (as in China), money supply could be an endogenous variable, and one would expect

³ Even if money velocity is not a constant, it may be squeezed into the disturbance term in empirical work. Therefore, this assumption presumably does not affect our empirical analysis.

monetary growth to hover around an average, although there may be some room for independent monetary policy even in these circumstances. Even where these circumstances do not apply, for example, when exchange rates are flexible and as a result money supply can in principle be exogenously determined, the authorities may not so determine it.

Therefore, estimating equation (3) directly may induce biased estimates due to the potential endogeneity of the underlying variables in the model. In effect, these variables are more likely to be endogenously determined within a dynamic interaction system, especially in the short-run. For example, the growth rate of money supply may respond to the rate of inflation and the growth rate of the real economic slump, as articulated by Stock and Watson (2007). Likewise, the growth rate of real output in the short-run may also be affected by inflation rate and the growth rate of money supply.

Therefore, the empirical model for the QTM employs a vector autoregressive (VAR) system that is simple but can capture the dynamic interactions properly among the underlying variables. To be specific, the system can be written as

$$X_t = \Phi(L)X_{t-1} + \varepsilon_t, \tag{4}$$

where X_t is a vector time series incorporating the endogenous variables, $\Phi(L)$ denotes the vector polynomial of the lag operator with the optimal lag order determined by information criteria, and ε_t is a vector shock.

The empirical representation of Friedman's QTM above, together with variations appearing in the literature, also suggests some limitations to the stylized theory. First, the trivariate VAR model (4), based on the QTM, only comprises money, price, and output, which may not be able to fully capture the institutional features of a reforming transition economy such as China. It may be worth taking the effect of international prices and exchange rates on domestic inflation or domestic demand into account. Second, and perhaps more fundamentally, theory at this level gives no guidance as to the empirical definition of price level. These various issues will be addressed in the robustness analysis in section 4.

b. Meltzer's Monetarist Model

Another useful framework for examining the relation between monetary growth and inflation is Meltzer's (1995) monetarist model, which is essentially the asset inflation channel of monetary transmission. Although both Milton Friedman and Allan Meltzer are described as monetarists, the analytical frameworks of their respective theories remain distinct. Friedman's QTM features a direct link between monetary growth and aggregate price inflation in an economy, while Meltzer's (1995) monetarist theory underscores an indirect connection between monetary growth and inflation with real capital asset price being the intermediation.

The framework in Meltzer (1995) was originally used to analyze the monetary policy transmission process. The model highlights the interactions among three assets, namely money assets, securities assets, and real capital assets⁴. We note that the housing or real estate market has become an important real asset market as an intermediation that connects monetary growth and inflation in China since China's housing market reform in 1998.

Therefore, we also utilize Meltzer's (1995) model to analyze the possible causal relationship between monetary growth and inflation in China over the particular period since 1998 when China commenced profound urban housing reforms. Meltzer's (1995) model contains the three assets: money, securities, and real capital (houses). Money is a nominally denominated asset that provides real services as a medium of exchange; securities are nominally denominated assets that yield the rate of interest, and real capital yields a real return. The model determines two relative prices to achieve asset market equilibrium for the economy. The movements in asset market equilibrium also disturb the output market, which depicts aggregate price changes in terms of aggregate demand and aggregate supply.

Meltzer's (1995) model highlights the important effects of monetary growth on the prices of equity and real estate. According to the theory of this asset inflation channel, expansionary monetary policy leads to higher equity prices, which make investment more attractive (through Tobin's q), thus raising aggregate demand. Higher equity prices also raise aggregate demand. In principle, the link between increased money supply and higher equity prices can be argued from either a monetarist or Keynesian perspective. In the former, an increase in money raises consumer wealth and asset prices, and hence spending on household and enterprise assets, whereas in the latter, the increase in money lowers interest rates and makes equity markets more attractive.

Overall, Meltzer's (1995) monetarist theory suggests that monetary growth may eventually lead to aggregate price inflation via real capital asset price or equity price changes. Accordingly, the implications for testing the theory are similar to Freidman's model by fitting VAR models with monetary growth, asset price inflation, and consumer price inflation.

3. The Data and Stylized Facts a. Data Description

⁴ The bonds market in Meltzer's framework covers securities traded in both open market operation of central banks and held by the public.

The data used in this paper are chosen to be in line with the respective models described in section 2. Here, we briefly describe our measures of the key variables, with supplementary details of the data description presented in the Appendix.

First, empirical investigations of Friedman's model involve series for monetary growth, aggregate price inflation, and a measure of real economic slumps. In the baseline analysis, monetary growth is computed as the growth rate of M2 and inflation is measured as the growth rate of CPI, both of which are calculated on a year-on-year basis⁵. For brevity, in what follows we use $\Delta M2$ to denote the year-on-year growth rate of M2, and all other variables in growth rate form are defined analogously. The real economic slumps in Friedman's model are measured by real GDP. Since no published data are available for China's real GDP series with a quarterly frequency, we use quarterly data on nominal GDP in levels and real GDP in growth rates (year-on-year) to construct a quarterly real GDP series with 1997 as the base year⁶. The estimated quarterly real GDP series based on this method appears to match the officially published annual data quite convincingly.

Second, the empirical tests of Meltzer's model involve real estate price inflation in addition to the money and inflation series described above. We use the year-on-year growth rate in the property price index (building) to measure house price inflation (denoted Δ HPI). Furthermore, because Meltzer (1995) signified the role of equity price, we also consider the returns of the composite stock price index (CSPI) for China's A-share stock market as alternative asset price inflation to Δ HPI. This series of returns are calculated based on the value-weighted method and cash dividends are assumed to be reinvested into the security that paid them, as suggested by the standard literature (e.g. Blume and Friend, 1973; Fama and French, 1992). To further explore other real assets (commodities), we also consider the purchasing price index (PPI; in the form of year-on-year growth and denoted Δ PPI) for resource (raw) materials in China which covers the prices of fuels, power, and ferrous metal materials, among many other representative commodities.

In addition, to assess the robustness of the baseline results, M1 is used to assess the information content of an alternative monetary aggregate and the GDP deflator is used as an alternative measure for price index (denoted GDPIP). As a complementary hypothesis, we also check whether the expansion of domestic credit

⁵ Because in the long-run analysis the level of the CPI is also used, we recover the price index based on the published data (from the NBS) for CPI inflation series with the price index in October 1995 equal to 100 (seasonally adjusted).

⁶ The year 1997 is chosen as the base year because the growth rates of nominal and real GDP for 1997 are roughly the same. This choice is also consistent with the treatment in Abeysinghe and Gulasekaran (2004), whose results are used to obtain quarterly real GDP series for China over 1980–1991 in the present paper. In practice, models using data series in the post-1992 period were also estimated, and the results were substantively unchanged from those presented in section 4.

in China could be a legitimate cause of greater inflation. Quarterly data on domestic credit include credit issued by all banks in China (denoted CREDIT). Additionally, the possible effects of international prices and the exchange rate on inflation are also considered in our robustness analysis. To this end, import price index (denoted IMP) published by the Global Economic Monitor of the World Bank (available since 1990) and real effective exchange rate (denoted REER) for RMB from the IFS (available since 1980) are used in the corresponding assessments.

Furthermore, to examine the stationarity of the underlying variables, we perform the Augmented Dickey–Fuller (ADF) tests, which impose the null of non-stationarity, and Kwiatkowski–Phillips–Schmidt–Shin (KPSS) tests, which impose the null of stationarity. Since our long-run analysis in section 5 also involves level data for money stock and price index, and the method applies to nonstatioanry series, the stationarity tests are performed on both level (in logarithm) and first difference data for all variables, except for Δ HPI and Δ PPI, which are only available (and applicable) in growth rate form.

The results of the two unit root tests are reported in Table 1, which show the *p*-values of the ADF tests and statistics of the KPSS tests. The unit root test regressions for all variables (except for real GDP) contain an intercept term but no time trend since a time trend in such regressions is insignificant. At the conventional levels of significance, the two different unit root test methods generally provide a uniform conclusion that most variables are I(1) in levels and I(0) after differencing. The results for Δ HPI and Δ PPI are somewhat conflicting, but it may be reasonable to assume that both of these price inflation series are I(0) given the well-known low power of the ADF test.

Unit Root Tests Results for the Underlying Variables					
Level data	ADF (p-value)	KPSS (statistic)	Growth rates	ADF (p-value)	KPSS (statistic)
CPI	0.579	1.228^{***}	ΔCPI	0.044^{**}	0.310
M2	0.234	1.326***	$\Delta M2$	0.002^{***}	0.419^{*}
M1	0.748	1.333***	$\Delta M1$	0.040^{**}	0.211
GDPIP	0.731	1.287^{***}	ΔGDPIP	0.071^{*}	0.139
CREDI T	0.719	1.330****	∆CREDI T	0.020***	0.253
IMP	0.501	0.830***	Δ IMP	0.000^{***}	0.293
REER	0.078^{*}	0.842^{***}	∆REER	0.000^{***}	0.089

TABLE 1

. . .

11	VII Rev	view				
	CSPI	0.350	1.063***	ΔCSPI	0.011**	0.105
	GDP	0.935	1.333^{***}	ΔGDP	0.036**	0.046
	GDP ^{trend}	0.014^{**}	0.146^{*}	Δ HPI	0.018^{**}	0.535^{**}
_				ΔΡΡΙ	0.286	0.355*

Notes:

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All level variables are defined in natural logarithms; the optimal lag order in ADF tests are specified by SIC with a maximum of 8 lags; The autocorrelation correction for the variance estimate in the KPSS test is based on the Newey-West procedure with the Bartlett kernel; Δ denotes first difference of the corresponding level data (i.e. $ln(X_t)-ln(X_{t-4})$); the unit root tests for all variables (except for GDP^{trend}) have an intercept term but no time trend; GDP^{trend} refers to the unit root tests for the real GDP with both an intercept and a time trend; *, **, and *** indicate statistical significance at the 10, 5, and 1 per cent levels, respectively.

The unit root tests for real GDP deserve further discussion. Since a time trend is significant in the unit root tests for real GDP, the small *p*-value (0.014) of the ADF test indicates that China's real GDP may be trend stationary. Of course, if the true data-generating process is trend stationary; differencing would induce a non-invertible moving average while traditional HP detrending would also be inappropriate despite its widespread use in applied macro analysis. However, the trend stationary conclusion for the real GDP here seems to be sensitive to sample period changes and alternative unit root test methods. To ensure the robustness of the empirical analysis, therefore, we use the first difference of logged real GDP (i.e. the growth rate of the real GDP) in our baseline analysis and assess the sensitivity of the baseline results using a linearly detrended series (obtained via a regression on time trend and denoted LDGAP) as a measure of real economic slumps in the relevant models.

b. Stylized Facts

Figure 1 shows the full sample of observations on CPI inflation and growth rate of M2 in China between 1980 and 2010. To provide an intuitive illustration of the dynamic evolution of monetary growth and inflation, we use in our plot a dual axis scaling with overlapping scales. The figure shows that the patterns of the evolution in monetary growth and inflation are remarkably similar. In particular, the peaks and troughs of CPI inflation are followed by corresponding rises and drops in monetary growth; furthermore, most of the time, monetary growth leads CPI inflation approximately one to two years.



China's Monetary Growth and CPI Inflation: 1980Q1-2010Q3

Data source: IFS, NBS of China, and the author's calculations.

From Figure 1 we can also observe that high fluctuations in inflation in the 1980s and 1990s are accompanied by large swings in monetary growth. Since the end of the 1990s, however, both inflation and monetary growth have witnessed marked decrease in their volatilities. A similar pattern but a clearer picture of the link between monetary growth and inflation can be observed in Figure 2, which plots three-year rolling averages of the two key variables of interest. The rolling averages smooth short-term fluctuations in the corresponding series and thereby provide a useful hint about the medium- to long-run relationship between money and inflation. As one can see from Figure 2, the smoothed series manifest a stronger pattern of co-movement over time than do the non-smoothed data. Additionally, the time leads from monetary growth to CPI inflation are more striking during the 1980s and 1990s than those thereafter. The observed reduction of time leads from monetary growth to king and Clovis (2010).





Data source: IFS, NBS of China, and the author's calculations.

If money matters for inflation, there should be a positive correlation between

monetary growth and inflation. It is also useful to compare correlations across different time horizons, using quarterly observations of each variable, to assess the link between monetary growth and inflation. Therefore, our analysis uses rolling averages of monetary growth and inflation over one-, three-, and five-year intervals. This approach effectively smoothes short-run fluctuations in the series that may mask the underlying long-term relationship. In addition to evaluating the static correlation between monetary growth and inflation, we also assess the dynamic correlations between the two variables using lags of $\Delta M2$. The correlations are reported in Table 2.

TADIES

IADLE 2						
Correlation between Monetary Growth and CPI Inflation						
	Time Inter	val of Rolling	g Average			
Pair	1-Year	3-Year	5-Year			
ΔΜ2, ΔCPI	0.525	0.776	0.921			
Δ M2(-1), Δ CPI	0.587	0.810	0.937			
Δ M2(-2), Δ CPI	0.646	0.838	0.947			
Δ M2(-3), Δ CPI	0.694	0.858	0.949			
Δ M2(-4), Δ CPI	0.724	0.869	0.944			
Δ M2(-5), Δ CPI	0.732	0.870	0.930			
Δ M2(-6), Δ CPI	0.723	0.860	0.908			
Δ M2(-7), Δ CPI	0.698	0.838	0.878			
Δ M2(-8), Δ CPI	0.662	0.804	0.841			

Notes:

Sample spans 1980Q1-2010Q3; Δ M2(-1) denotes the first lag of Δ M2 and Δ M2(-*i*) for i>1 are defined analogously.

The results in Table 2 indicate a wide range of correlation for the money–inflation link. The static correlation between $\Delta M2$ and ΔCPI over one-, three-, and five-year intervals are 0.525, 0.776, and 0.921, respectively. This result generally suggests that there is a strong positive relationship between monetary growth and inflation, and that the link between monetary growth and inflation improves as the dynamic time horizon (lags of $\Delta M2$) increases. Looking across dynamic correlations and taking the three-year rolling average as an example, the correlation grows from 0.810 for the first order lag in $\Delta M2$ to 0.870 for the fifth order lag in $\Delta M2$ and then decreases gradually as lag length grows. A similar rolling average pattern is observed for the other time intervals.

The results tabulated in Table 2 reveal that monetary growth and inflation are strongly correlated in both the short-term and long-term, and that they seem to be related more closely in the long-run. The correlations are generally much higher than those found for many other countries in the literature (e.g. Hafer, 2001). In addition, the stylized facts also suggest that the dynamic correlation between monetary growth and inflation in China is higher than is its static counterpart and that it achieves its maximum value in approximately one year time. Taken as a whole, this correlation exercise indicates that monetary growth is strongly correlated with inflation in China. The correlation, of course, does not necessarily imply causation. The following sections embark on investigating the causality between monetary growth and inflation from both the short-run and the long-run perspectives.

4. Empirical Results

a. Empirical Results of Friedman's Model

As discussed above, the aphorism "Inflation is always and everywhere a monetary phenomenon", coined by Milton Friedman, is essentially an empirical issue. To judge the usefulness of this theory and evaluate whether this claim applies to inflation in China between 1980 and 2010, we analyze the data on monetary growth and inflation in conjunction with the real economic slump and test whether such a hypothesis (inflation is a monetary phenomenon) is empirically true.

Specifically, we use the VAR model specified in section 2 to examine the nature and consistency of the conjuncture of the causal relationship between monetary growth and inflation. VAR modeling involves estimating a system of equations in which each variable is expressed as a linear combination of lagged values of itself and of all other variables in the system. Following the notations in section 3, we use Δ GDP, Δ CPI, and Δ M2 to denote the three variables in the system, namely the growth rate of real GDP, CPI, and the growth rate of M2, respectively.

In the present example, VARs are estimated from each variable for the other two variables using quarterly data from the first quarter of 1980 to the third quarter of 2010. To determine the appropriate lag length of the VAR model, the Schwartz Inflation Criterion (SIC) is implemented and the criterion suggests that a second-order VAR model is optimal. This VAR model is then used to conduct Granger causality tests. By definition, a variable x_{1t} is said to be Granger-caused by x_{2t} if x_{2t} helps in the prediction of x_{1t} , or equivalently if the coefficients of the lagged x_{2t} s are statistically significant.

Table 3 tabulates the results of the Granger causality tests for the three equations of the VAR system, which are VAR model tests of the joint statistical significance of the lagged values of each regressor in causing (predicting) the dependent variables. The results presented in Table 3 show that the *p*-value pertaining to the null hypothesis that $\Delta M2$ does not Granger cause ΔCPI is 0.004, which indicates that

CPI inflation in China can be explained by monetary growth occurring at earlier stages. Highlighting this result is the finding that, in the regression equation for Δ CPI, the coefficients of the lagged Δ M2 are jointly significant at the 1 per cent significance level.

		TABL	E 3	
Resi	ults (p-values) of	Granger Caus	ality Tests for	Friedman's QTM
		ΔCPI	$\Delta M2$	ΔGDP
	$lag(\Delta CPI)$		0.044^{**}	0.000^{***}
	$lag(\Delta M2)$	0.004^{***}		0.121
	$lag(\Delta GDP)$	0.170	0.041^{**}	

Notes:

The *p*-values associated with the Wald statistics in Granger causality tests are reported; sample spans 1980Q1-2010Q3 prior to lag adjustment; the optimal lag length chosen by SIC is 2 (with a maximum of 8 lags); lag(Δ CPI) denotes all lagged items of Δ CPI on right hand side of each regression, and lag(Δ M2) and lag(Δ GDP) are defined analogously.

An interesting finding is that monetary growth does not Granger cause the growth rate of real GDP. This result appears to indicate that even in the short-run money is "neutral" in the sense that monetary growth only predicts future inflation but has no significant prediction power on real economic growth. Another interesting result to note is the Granger causality tests for the equation with $\Delta M2$ as a dependent variable. This result suggests that monetary growth responds significantly to both CPI inflation and the growth rate of real GDP.

The bilateral relationship between monetary growth and inflation corresponds to the endogenous view of money (e.g. Yun, 1996). Although this cannot be fully reflected in any monetarist type of argument, the explanation is straightforward. On one hand, expansionary monetary policy provides ample liquidity, which boosts demand above supply in the goods market and thereby causes consumer price inflation. On the other hand, a sudden surge in consumer price inflation may trigger a rise in the demand (and hence supply) for money because of higher transaction volumes on goods markets. Furthermore, as a response to higher inflation, the central bank will then adjust the growth rate of money supply, indicating a causal link from monetary growth to inflation.

The directional causality from output growth to monetary growth suggests that real GDP growth leads monetary growth. This may reflect the notion that the People's Bank of China (PBC) has been implementing (implicitly) a backward-looking monetary policy reaction function, which depicts the response of monetary growth to lagged (instead of future) output growth (Zhang and Clovis, 2010).

To provide further information about to what extent and in which direction that monetary growth has influenced consumer price inflation and how the underlying variables have been influenced by the associated shocks, we also compute the orthogonalized impulse response functions (IRFs) of each variable in the model to the underlying shocks. By definition, these orthogonalized IRFs produce the IRFs of structural shocks as implied by the reduced form shocks in VAR models. As in much of the literature on the effects of monetary policy using VARs, the underlying computations of the IRFs are then based on a standard Cholesky decomposition⁷. The results of the corresponding IRFs are reported in Figure 3.

The first two graphs in the upper panel of Figure 3 show the impulse responses of CPI inflation to a one-unit (standard deviation) shock in monetary growth and real GDP growth. The graphs suggest that Δ CPI positively responds to Δ M2 and Δ GDP. The IRFs of CPI inflation achieve maximum values after approximately six quarters. Additionally, the IRFs of Δ GDP (the last two graphs in the lower panel of Figure 3) suggest that a positive shock to Δ CPI and Δ M2 leads to a temporary increase in Δ GDP, with the impact of the inflation shock diminishing much faster than that of monetary growth. Another interesting result to note is that a random shock in Δ CPI induces a negative impact on Δ M2 (the first graph in the lower panel of Figure 3). This result implies that monetary policy will be tightened as a response to a positive shock to inflation, which seems to be consistent with the practical implementations of monetary policy.

⁷ The ordering scheme in the VAR model follows Δ GDP- Δ CPI- Δ M2. Alternative orders provide very similar results.

FIGURE 3





Notes:

The solid lines are the estimates of impulse responses and the dotted lines are their 95 per cent confidence bands; "IRF of CPI to M2" denotes the impulse response function of the CPI inflation to one standard deviation shock in the monetary growth and the other notations in the Figure are defined analogously.

Overall, the empirical results of the VAR system based on Friedman's QTM indicate that inflation has been a monetary phenomenon in China over the past three decades. The results also suggest a causal link from output growth to monetary growth. Whether this finding is robust to Meltzer's (1995) monetarist model is examined in the following subsection, which focuses on the short-run dynamics between monetary growth and inflation based on asset inflation channel.

b. Empirical Results of Meltzer's Model

To examine the indirect causal relationship between monetary growth and inflation in China through the asset inflation channel, we perform Granger causality tests based on three VAR systems. Each VAR model has the form of equation (4). The first VAR model contains all three variables (i.e. $\Delta M2$, ΔHPI , and ΔCPI), the second VAR model includes $\Delta M2$ and ΔHPI , and the third VAR model includes ΔHPI and ΔCPI . By estimating the first VAR model, we attempt to investigate the general relation and causal links among the three underlying variables. By estimating the second and third VAR models, we focus on the bilateral causal link between monetary growth and house price inflation, and house price inflation and consumer price inflation, respectively. The use of the second and third VAR models may also mitigate concerns regarding possible multicollinearity between Δ HPI and Δ CPI when they are simultaneously included (as in the first VAR model).

The specification and estimation procedures for the VAR models are similar to those in Table 3. Table 4 tabulates the results of the Granger causality tests for the three VAR models. For the first VAR model (which contains $\Delta M2$, ΔHPI , and ΔCPI), we test for causal links between each pair of the three variables. The first null hypothesis in this VAR model tests for whether monetary growth Granger causes (predicts) house price inflation. The corresponding p-value (0.006) is smaller than 1 per cent, suggesting that the null hypothesis can be rejected, i.e. monetary growth does Granger cause house price inflation. Likewise, the *p*-value for the second test (0.045) suggests that Δ HPI also Granger cause Δ M2 at the 5 per cent level of significance. The *p*-values (0.191 and 0.911) associated with the Granger causality tests between $\Delta M2$ and ΔCPI are insignificant at the conventional levels. This reflects the fact that the link between monetary growth and consumer price inflation is indeed indirect in the asset inflation model. In addition, the p-values (0.018 and 0.025) associated with the Granger causality tests between Δ HPI and Δ CPI suggest a significant feedback relationship between the house price inflation and consumer price inflation.

IADLE 4					
Results (p-values) of Granger Causality Tests of Meltzer's Model					
		$\Delta M2$	Δ HPI	ΔCPI	
VAR: $[\Delta M2, \Delta HPI, \Delta CPI]$	$lag(\Delta M2)$		0.006^{***}	0.191	
	$lag(\Delta HPI)$	0.045^{**}		0.018^{**}	
	$lag(\Delta CPI)$	0.911	0.025^{**}		
VAR: $[\Delta M2, \Delta HPI]$		$\Delta M2$	Δ HPI		
	$lag(\Delta M2)$		0.014^{**}		
	$lag(\Delta HPI)$	0.011^{**}			
VAR: [ΔΗΡΙ, ΔCΡΙ]		Δ HPI	ΔCPI		
	$lag(\Delta HPI)$		0.004^{***}		
	$lag(\Delta CPI)$	0.061^{*}			

TADIE /

Notes:

Sample spans 1998Q1-2010Q3 prior to lag adjustment; the optimal lag order is chosen by SIC (with a maximum of 8 lags).

For the second and third VAR models, which consider the bilateral links between Δ M2 and Δ HPI, and Δ HPI and Δ CPI, respectively, the Granger causality test results

provide findings consistent with those of the first VAR model. Taken as a whole, the results presented in Table 4 suggest that there is a bilateral causal relationship between monetary growth and house price inflation and a bilateral causal link between house price inflation and consumer price inflation. These two bilateral relationships, however, imply an indirect pass-through from monetary growth to consumer price inflation via the asset inflation channel.

c. Robustness Analysis

The discussion so far suggests that monetary growth has a predictive power for CPI inflation in China, either directly through Friedman's model or indirectly via Meltzer's asset inflation channel. However, there are a number of issues deserving further assessment. In this subsection, we conduct seven robustness tests, with five sensitivity tests for Friedman's model and two further robustness tests for Meltzer's model. These tests incorporate various considerations of model specification and alternative measures for stationary real output, price index, monetary aggregate, and equity prices.

Specifically, for Friedman's model, we consider the following five sensitivity tests. First, we consider the possible pass-through effect of international prices and the exchange rate on domestic inflation, as articulated in Smets and Wouters (2002) and Slavov (2008), among many others. Second, since the nature of the stationarity of real GDP series seems to be sensitive to different unit root tests, as discussed in section 3, it is important to examine the sensitivity of the baseline finding using alternative stationary series for real output, namely linearly detrended real output (i.e. LDGAP). Third, to mitigate the possible measurement problem of price and inflation encountered in the empirical work in China, we also use GDP deflator (constructed in section 3) as an alternative price index to assess the robustness of the baseline finding. Fourth, to assess the information content of different monetary aggregates, we use M1 as an alternative monetary aggregate to M2. Fifth, the existing literature on monetary transmission mechanisms (e.g. Li, 2000) suggests that monetary expansion can generate a liquidity effect that increases bank lending and credit supply. Therefore, we also check whether the expansion of domestic credit in China (i.e. $\triangle CREDIT$), which shows a very similar time series pattern to $\triangle M2$, could be a legitimate cause of inflation. For Meltzer's model, we assess the sensitivity of the underlying results by considering the returns of the CSPI for China's A-share stock market as alternative asset price inflation to Δ HPI. Additionally, we also consider ΛPPI as an alternative real asset.

Table 5 summarizes the results of the robustness tests outlined above, with panels A to G corresponding to the respective sensitivity test results. The interpretation of the results is analogous to the previous subsection. For the robustness tests

associated with Friedman's model, we find that monetary growth significantly Granger causes inflation in all cases (panels A to E) at the 5 per cent level. These findings support the Granger causality of monetary growth for inflation in a richer five-variable VAR framework (*p*-value=0.035), in models with alternative measures for stationary output (*p*-value=0.004), inflation series (*p*-value=0.002), monetary aggregate (*p*-value=0.000), and in the model with Δ CREDIT substituting Δ M2 (*p*-value=0.001).

In addition, the feedback relationship between monetary growth (or credit growth) and inflation remains significant in most of the sensitivity exercises in panels A to E. The causal link from real economic slumps to monetary growth, by contrast, is significant in three out of the five tests. Note that the two insignificant cases occur in panels B and D, which pertains to one model with LDGAP as the measure of the real economic slumps and another model with $\Delta M1$ as a replacement for $\Delta M2$. These two insignificant cases nonetheless, strengthen (rather than weaken) the important feature of the PBC's monetary policy reaction function: in practice, the PBC looks at the growth rate of real GDP, rather than GDP gap, to adjust its broad (instead of narrow) money supply mechanism, as explicitly stated in the Central Bank Law of China enacted in 1995. Another interesting finding in the robustness exercises is that there also appears to be significant feedback from monetary growth to output growth, which is insignificant in the baseline analysis. The causality from money to real output may justify money as a good intermediate target variable in China (Hasan and Taghavi, 1996).

The two robustness tests for Meltzer's model seem to provide different results. The results in panel F make it clear that the baseline finding of Meltzer's model holds when Δ CSPI is used to measure equity price inflation, albeit the causality from Δ M2 to Δ CSPI is significant at the 10 per cent level. The results in Panel G, however, seem to suggest that the direct causal links from monetary growth to real asset price inflation and from real asset price inflation to consumer price inflation are insignificant even at the 10 per cent level. This inconsistent finding may be caused by the relatively high level of collinearity between Δ CPI and Δ PPI. Indeed, when the underlying variables are fitted in two separate VAR models, as practiced in the preceding subsection, the causality links from Δ M2 to Δ PPI and from Δ PPI to Δ CPI regain statistical significance.

Friedman's			AM2			- 515
riteuman s		ACH	ΔIVI2	AGDP	AKEE D	ΔIM
Model				o	R	
A.	lag(ΔCPI)	**	0.488	0.417	0.454	0.28
	$lag(\Delta M2)$	0.035	0 0 0 0 ***	0.013	0.226	0.87
	$lag(\Delta GDP)$	0.008	0.009	**	0.319	0.05
	$lag(\Delta REER)$	0.003	0.517	0.019		0.01
	$lag(\Delta IMP)$	0.276	0.069	0.752	0.619	
D				LDGA		
D.		ΔCPI	$\Delta M2$	Р		
	$lag(\Delta CPI)$		0.075^{*}	0.041^{**}		
	$lag(\Delta M2)$	0.004^{***}		0.016^{**}		
	lag(LDGAP)	0.167	0.384			
C.		∆GDPIP	$\Delta M2$	∆GDP		
	lag(AGDPIP)		0.052^{*}	0.468		
	$lag(\Delta M2)$	0.002^{***}		0.474		
	$lag(\Delta GDP)$	0.001***	0.098*			
D.		ΔCPI	$\Delta M1$	∆GDP		
			**	0.003^{**}		
	lag(ΔCPI)		0.026	*		
	$lag(\Delta M1)$	0.000^{***}		0.027^{**}		
	$lag(\Delta GDP)$	0.016***	0.196			
_		ΔCPI	∆CREDI	∆GDP		
E.			Т			
	log(ACDI)		0.000***	0.000^{**}		
	lag(ACFI)		0.009	*		
	$lag(\Delta GREDI)$	0.001***		0.177		
	lag(AGDP)	0.042**	0.016**			
Meltzer's		0.072	0.010			
Model						
F		лсы	AM2	ACSPI		
1.	lag(ACPI)		0.905	0.027^{**}		
	lag(DCFI)		0.703	0.027		

TABLE 5

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	$lag(\Delta M2)$ $lag(\Delta CSPI)$	0.071^{*} 0.000^{***}	0.038**	0.076*
G.		ΔCPI	$\Delta M2$	ΔΡΡΙ
	lag(Δ CPI)		0.856	0.005**
	$lag(\Delta M2)$	0.084^*		0.181
	$lag(\Delta PPI)$	0.686	0.025^{**}	

Notes: See Table 3.

To summarise, the various robustness tests provide a uniform conclusion that there is a significant feedback relationship between monetary growth and inflation in China and that the causal relationship is valid implicitly through the asset inflation channel. All results highlight the monetary dynamics of inflation in China in the post-reform era.

5. Money and Inflation in the Long-run

The preceding analyses all focus on short-run inflation dynamics. Monetarist theories, however, are not confined to short-run analysis. In fact, the aphorism "Inflation is always and everywhere a monetary phenomenon", proposes that only money matters for inflation in the long-run. In this section, we carry out two sets of analyses, namely a na we analysis on the relationship between long-run components in monetary growth and inflation and a co-integrating analysis for money stock and price index.

a. Na ïve Analysis

In regards to the long-run relationship between monetary growth and inflation, a plethora of studies have shown that the fraction of inflation's long-run variation explained by long-run monetary growth has been very high and relatively stable in developed countries over the past two decades (Benati, 2009). However, the proportionality between the long-run components of monetary growth and inflation may also vary over different time periods and in different countries. Therefore, it is intriguing to examine whether there exists a close link between the long-run components of monetary growth the inflation performance in China.

To obtain the long-run components of the underlying series, we use the common detrending method, the Hodrick–Prescott (HP) filter. This filter is used to obtain a smoothed non-linear representation of a time series that is more sensitive to

long-term than it is to short-term fluctuations. The adjustment of the sensitivity of the trend to short-term variations is achieved by a numerical penalty parameter (1600 for quarterly data). Figure 4 plots the trend components of monetary growth and CPI inflation in China based on the HP filter. The figure presents a remarkable co-movement between the trend in monetary growth (M2TREND) and the trend in inflation rate (CPITREND). For instance, the rising trends in monetary growth in the mid-1980s and early-1990s are followed by the rising trends in inflation in a similar pattern. When the trend in monetary growth drops drastically in the late-1990s, the trend in inflation rate also witnesses a marked decrease. Further comparison of the two series in Figure 4 also reveals that the long-run component of monetary growth leads the long-run component of CPI inflation in a few quarters time.



To provide further evidence of the correlation between M2TREND and CPITREND over different time periods, we also calculate rolling correlations (10-year backward rolling windows) between the two long-run components. The results (not reported here) provide three interesting and important results. First, the long-run components of monetary growth and CPI inflation are highly correlated in most periods with correlation coefficients being larger than 0.5 in all the rolling samples. Second, the highest rolling correlations (close to unity) are clustered between 1998 and 2007. With a 10-year rolling window, this second result implies the long-run components of monetary growth and inflation have been virtually perfectly correlated since the end of the 1980s. Third, the dynamic correlations are generally higher than are the static correlations prior to the mid-1990s, and the trend in monetary growth with more lags appear to be more correlated with inflation than it is with any other factor. This scenario reverses from the mid-1990s onwards, indicating that inflation trend tends to move more quickly with any change in monetary growth trend in more recent periods than it did so before.

It is worth noting that in the short-run, supply shocks and other factors may push inflation above or below its long-run trend and the cyclical pattern of CPI inflation may not exactly mimic that of monetary growth at all times (recall Figure 1). The above results, however, demonstrate that the long-run trends in monetary growth and inflation are highly correlated over time. The high correlation, of course, provides little information about the causal relationship between the trends in monetary growth and inflation.

Obviously, the argument of causal relationship is much stronger and, therefore, entails further econometric investigations. In practice, we carried out a Granger causality test based on a bivariate VAR model with CPITREND and M2TREND. The *p*-value pertaining to the null hypothesis that "M2TREND does not Granger cause CPITREND" is 0.000, and the *p*-value corresponding to the null hypothesis that "CPITREND does not Granger cause M2TREND" is 0.048. These results suggest that there exists a bilateral causality between the long-run components of monetary growth and inflation.

b. Cointegration Analysis

In seeking to construct an improved model for the long-run relationship between money and price, we formulate a model that integrates long-run properties with short-run dynamics, based on the well-established theories of multivariate co-integrating and the vector error-correction (VEC) system developed by Johansen (1991, 1995). Johansen's method first tests for the number of the co-integrating relationships (or co-integrating vectors) based on a VAR model. A by-product of this test is the estimation of the co-integrating vectors, which is then used to formulate the VEC model.

The baseline VAR model in Johansen's approach can be formulated as:

$$\Phi^*(L)\Delta Y_t = C + \Pi Y_{t-1} + \varepsilon_t \tag{5}$$

where

$$\begin{cases} \Pi = -\Phi(1) = \sum_{i=1}^{p} \Phi_{i} - I_{k} \\ \Phi^{*}(L) = I_{k} - \sum_{i=1}^{p-1} (-\sum_{j=i}^{p} \Phi_{j}) L^{i} \end{cases}$$
(6)

In this setup, Y_t denotes a vector of the underlying variables, k denotes the number of variables in the VAR model, $\Phi(L)$ denotes the vector polynomial of the lag operator, and the optimal lag length p is determined by the lag exclusion test and serial correlation test with a maximum of eight lags.

Ideally, co-integrating analysis should incorporate all the relevant factors of

aggregate demand and supply pertaining to inflation in China. Hasan (1999) provided an important analysis in this regard by including money stock, real output, wages, agricultural productivity (AP), and industrial productivity (IP). However, owing to the lack of quarterly data on wages, AP and IP, we confine our analysis to a five-variable VAR model that contains I(1) series of GDP, CPI, M2, REER, and IMP (all variables are in natural logarithm), as defined in section 3.

In effect, this model is a non-stationary counterpart to the one used in panel A of Table 5 in section 4. The structural interpretation of such a model can be found in Smets and Wouters (2002). The key difference between our model and Smets and Wouters' framework is that money stock, rather than interest rate, is used as the baseline monetary policy indicator. This modification, of course, is consistent with China's monetary policy implementation and is also necessary for the current analysis of the monetary dynamics of inflation in China.

By construction, Johansen's approach is a sequential procedure, starting from the overall null hypothesis that rank(Π)=0 (implying all variables are non-stationary and that there is no co-integrating), and working progressively towards the case of a stationary system where rank(Π)=k. Johansen developed two related test statistics to implement this procedure, namely the trace statistic and maximal eigenvalue statistic. Although both these statistics are used to test the number of co-integrating vectors, more weight is typically placed on the trace statistic because it has the advantage of being effectively a joint test rather than considering a single estimated eigenvalue as in the maximal eigenvalue test.

Table 6 reports the results of Johansen's co-integrating tests. The trace test suggests that there exist four co-integrating relationships in the five-variable VAR system at the 5 per cent level of significance. The maximum eigenvalue test, by contrast, indicates that there are three co-integrating vectors in the model. Based on either of the two statistics, however, we can conclude that there exist long-run equilibrium relationships among money stock, price index, and other variables in the model. The finding of co-integrating among the underlying variables also indicates that the monetary dynamics of inflation in China contains valid error-correction representations with co-integrating constraints embedded in them (Hasan, 1999).

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Results of Johansen Co-integrating Tests					
Hypothesized No. of CE(s)	Trace statistic (<i>p-value</i>)	Max-Eigen statistic (<i>p-value</i>)			
None	0.000^{***}	0.000^{***}			
At most 1	0.000^{***}	0.000^{***}			
At most 2	0.000^{***}	0.000^{***}			
At most 3	0.015^{**}	0.054^{*}			
At most 4	0.096	0.096^{*}			

TABLE 6

Notes:

The table reports MacKinnon-Haug-Michelis (1999) p-values; co-integration equations include both intercepts and time trends; lag length of the VAR model is determined by lag exclusion test and LM serial correlation test with a maximum of 8 lags.

With co-integrating, there are r < k co-integrating relationships between the k elements of Y_t in Equation (5). For convenience, define the $k \times r$ matrix B, where the columns of B contain the r distinct, linearly independent, co-integrating vectors. Therefore, the r elements of Z_t , defined by $Z_t = B'Y_t$, are all I(0) variables⁸. As such, the VEC model can be formulated by rewriting model (5) as:

$$\Phi(L)\Delta Y_t = C + AB'Y_{t-1} + \varepsilon_t = C + AZ_{t-1} + \varepsilon_t$$
(7)

where C is a vector of constants, B denotes the co-integration vector, and A is the adjustment coefficient matrix. The VEC model (7) provides a behavioral interpretation to co-integration. Each co-integrating relationship represents a long-run equilibrium relationship among the non-stationary variables in Y_{i} . Therefore, Z_t captures r distinct long-run relationships. These hold in equilibrium, so that in steady state $Z_t=0$. For each specific time period t, $Z_t=B'Y_t$ is the extent of disequilibrium in these relationships. The adjustment coefficient A then shows how each of the variables adjusts to achieve these long-run equilibrium relationships.

Of course, given the four co-integrating relationships here, the scale of matrix A (and B) is relatively large (5×4) , and it provides little information as to the issue of our interest to present all the estimates for A and B in the VEC system. However, model (7) can be further used to carry out Granger causality tests for the stationary

⁸ In practice, intercepts are allowed to enter from the short-run dynamics as well as through the co-integrating relationships.

variables of ΔY_t . Under the current setup, Granger causality tests based on the VEC model (7) can effectively provide information about the causality relationships among monetary growth, CPI inflation, and the growth rates of real output, effective exchange rate, and the import price index. Therefore, model (7) is employed as a further examination of the relationship between monetary growth and inflation, among other issues of interest.

The results of the Granger causality tests are reported in Table 7. Judged by the *p*-values associated with them, monetary growth and output growth significantly Granger cause CPI inflation (with the former significant at the 10 per cent level). There are also significant causal links from CPI inflation to monetary growth and output growth. These results are generally consistent with the short-run analysis in the preceding section, which highlights the feedback relationship between monetary growth and inflation. The results also suggest bilateral causality between monetary growth and real output growth.

The Results (<i>p</i> -values) of Granger Causality Tests for the VEC Model						
		AN/ 2		ΔREE	Δ IMP	
			AODF	R		
lag(ΔCPI)		0.017**	0.001***	0.432	0.003 [*]	
lag(ΔM2)	0.095*		0.000^{***}	0.000^{*}	0.670	
$lag(\Delta GDP)$	0.047^{**}	0.017^{**}		0.530	0.572	
$lag(\Delta REER)$	0.112	0.293	0.024^{**}		0.088^{*}	
$lag(\Delta IMP)$	0.100	0.000^{***}	0.013**	0.920		

Notes:

The results are based on the VEC model (7) of Table 6; other notations follow those of Table 3 and Table 5.

To summarize the long-run analysis in this section, we find that there exists a feedback relationship between the long-run components of monetary growth and inflation. We also find long-run equilibrium relationships among money stock, price index, and other relevant variables. The Granger causality tests based on the VEC system also suggest a feedback relationship between monetary growth and inflation and a feedback relationship between monetary growth.

6. Further Discussion

Prior to the economic reforms in 1978, rigid controls kept the consumer prices of many goods virtually unchanged for decades, and thereby inflation was not a major concern for China. In the post-reform era, however, China had to confront historical upward spikes in inflation in the early 1980s, 1988–1989, and 1994–1995, as well as recent rises in inflation in 2007 and 2010. China also experienced notable deflation between 1998 and 2002. The evolution of inflation over the past three decades reflects the corresponding historical changes in the mechanism of price formation in China. From a historical perspective, changes in pricing mechanisms and in turn, inflation processes are accompanied and mainly caused (predicted) by changes in the money supply mechanism, albeit other factors also seem relevant to inflation behavior in China. In what follows, we will explore this argument on a decade-by-decade basis from 1980.

a. Money and Inflation in the 1980s

From 1978, government-set prices were gradually liberalized. In particular, the central government of China officially initiated a so-called "adjustment and reform" policy in 1979 to promote robust growth in the industrial and agricultural sectors. In 1979, consumer prices began to increase, and this increase became substantial and widespread in 1980. Although there was a slowdown in the growth of prices between 1981 and 1983, inflation continued to represent a latent threat to China's economic development during the entire 1980s.

Although the institutional change in the price control system may cause changes in relative prices and, in turn, aggregate consumer prices (Zhang and Clovis, 2010), the price liberalization alone cannot change the overall pricing mechanism without monetary boost (the price liberalization may be viewed as a "fuse igniter" rather than the underlying cause of the inflation in the 1980s). Indeed, there were serial shifts in the money supply mechanism during the late 1970s and early 1980s, and these shifts ultimately dominated inflation during the 1980s. Specifically, China began to decentralize its bank lending system in 1979 by changing its old "credit quota system". Under the new bank lending system (implemented in 1980), commercial banks' credit lending was not constrained by the earmarked quota from the Central Bank of China. The new system allowed banks to expand their credit as their deposits increase, instead of remitting the deposits to higher levels of the banking system, as long as the borrow-lend spread was in line with the central bank's requirement. Because commercial banks in the 1980s (especially after 1984) maintained a sizable amount of public deposits, the new bank lending system effectively expanded overall credit and money supply in the economy.

During these bank lending reforms, the cash flow supply of state-owned enterprises (SOEs) also changed from fiscal appropriation to full bank credit supply.

In the mid-1980s, commercial banks in China (mostly state-owned) gained a lending appetite and showed growing confidence in approving loans to SOEs. Banks even urged enterprises to take advantage of this loose lending policy. The reform of the cash flow supply to SOEs, therefore, reinforced monetary expansion in the mid-1980s.

b. Money and Inflation in the 1990s

Due to the lack of an efficient and consistent monetary transmission mechanism in the 1980s and 1990s, however, monetary growth regained a rapid rise (29 per cent) in 1991 and 1992. In the spring of 1992, a speech on the subject of "promoting Chinese economic development with all efforts" by the Chinese leader Deng Xiaoping (known as the "South China Tour Speech") marked a new round of fast economic development in China. To encourage investment, the central government aggressively loosened credit control and the growth rate of aggregate money supply reached a record high of 48 per cent in 1993.

This proactive monetary policy led to an increase in Chinese inflation in 1992 and it reached a peak of 24 per cent in 1994. To curtail this unprecedented high inflation, the Central Bank of China increased benchmark interest rates by 218 basis points in May 1993. Moreover, in July 1993, the monetary authority of China decided to cut loans to on-going building projects and cease loans to new projects. Some building projects were even suspended, leaving thousands of incomplete buildings across the nation. These incomplete projects also led to a large amount of non-performing loans in commercial banks of China.

Following these policy measures, monetary growth dropped to 15 per cent in 1998 and 1999. Consequently, inflation started to decelerate in 1995 and dropped to below zero in 1998 and 1999. It may be noted that the Asian financial crisis in 1997–1998 also brought negative supply shocks to the Chinese economy, which helped subdue inflation in China at the end of the 1990s.

c. Money and Inflation in the 2000s

At the end of the 1990s, considerable improvements were implemented in China's monetary policy. As a result, the PBC adjusted its intermediate target for monetary growth by issuing central bank bills and using repurchase agreements to offer collateralized loans to primary dealers (about 50 selected commercial banks). In January 1999, the Central Bank of China abolished its branches at provincial and municipal levels and set up nine regional branches to promote policy efficiency, protect the PBC from local government interference, and to prevent potential moral hazards in the financial sectors. From the end of the 1990s, the PBC has used a composite measure of quantity-based and price-based tools to implement its policies, with the quantity-based tool being the predominant policy instrument.

These reforms have enhanced the PBC's capability of managing and accomplishing its intermediate and final goals in the new century. The average rate of monetary growth was much lower between 2000 and 2008 than it was prior to 2000. Accompanied by this strained monetary growth, the rate of inflation has also been low and stable over the period. As the econometric results shown in sections 3 and 4 of this paper, a causal link is embedded in these co-movements between monetary growth and inflation.

It should also be noted that inflation in 2004, 2007, 2008, and 2010 was high (above 3 per cent) relative to other periods in the 2000s. The rises in inflation in 2004, 2007, and 2008 were mainly caused by real estate market booms in China, which reflects flow from monetary growth to real capital asset price changes and eventually to general price inflation, as articulated in Meltzer's (1995) monetarist theory.

The most recent rise in inflation in 2010 was another example of money-driven inflation. To counteract the negative disturbances of the new global financial crisis in 2007–2008, China implemented a 4 trillion Yuan economic stimulus package to reinvigorate the economy and the PBC also reduced benchmark interest rates on deposits and loans five times and reserve ratio rate four times over four months from September 2008. In late 2008, the central bank also abolished the constraints on the credit lending of commercial banks. As a result, money supply grew 28 per cent in 2009, leading to a notable rise in inflation in 2010.

7. Conclusions

This paper examines the interrelationship between monetary growth and inflation in China using quarterly data between 1980 and 2010. We construct multivariate dynamic models based on Friedman's QTM and Meltzer's monetarist framework, with both short-run dynamics and long-run equilibrium relationships investigated. The empirical results suggest that inflation in China is Granger caused by monetary growth in both the short- and the long-run. An indirect and implicit causal relationship between monetary growth and inflation is found through the asset inflation channel. Our results also suggest that the causal relationship between monetary growth and inflation is bilateral, reflecting the endogenous view of money. Another interesting finding is that there exists a feedback relationship between monetary growth and output growth. This finding not only justifies money as a good intermediate target variable in China, but also depicts the gist of monetary policy reaction function in China.

The paper also provides a comprehensive discussion of the mechanism of money-driven inflation in China over the past three decades. Since monetary growth

is the dominant driving (predictive) force of inflation, our results indicate that the monetary growth rule is likely to be the most promising policy orientation for China to manage and control its inflation in an effective manner. Overall, the article presents firm evidence of a stable dynamic relationship between monetary growth and inflation, which implies that the deviation of real money growth from its long-run average is a good indicator of future inflation acceleration or deceleration. In this regard, our results imply that there may be room to consider more general versions of the New Keynesian model that allow for a more prominent role for money, at least in models analyzing developing economies such as that in China.

The analysis in this paper is not intended to be exhaustive. Other factors may also influence inflation, and some of these may provide other possible explanations for the recent change in Chinese inflation dynamics. For example, increased globalization and competition may have lowered the sensitivity of domestic inflation to alternative shocks. Other factors that possibly influence inflation in China include wages, agricultural productivity, and industrial productivity, as suggested by Hasan (1999). Net trade (as a percentage of GDP) may also be a relevant factor for inflation (Smets and Wouters, 2002). Therefore, it could be fruitful for future research to adopt a more structural framework incorporating, when tractability allows, all relevant factors pertaining to inflation in China. Studies in this direction may provide more compelling results that may complement the present research. One caveat to note is that when more variables are adopted, it could be more difficult to obtain accurate empirical results because of the potential multicollinearity problem given possible overlapping information embedded in the underlying time series. Researchers may then have to balance between model completeness and parsimony.

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Appendix

This appendix provides a detailed description of our data sources, data manipulations and statistical methods. It also tabulates the supplemental data used in the robustness analysis of the paper. The raw data were collected from various sources (as listed below) and transformed prior to empirical work. Monthly available data were transformed into quarterly frequency using end-of-quarter observations as the corresponding quarter values to avoid inducing serial correlation in the final dataset. The stationary variables used in the empirical analysis are plotted in Figure A1 through Figure A5.

In addition, the quarterly data for real GDP is constructed based on quarterly data of nominal GDP in levels and real GDP in growth rates (year-on-year) which are available from the NBS since 1992, with 1997 as the base year. Prior to 1992, however, China's GDP data (both levels and growth rates) are mostly available only on an annual basis. To address the problem of low frequency, we first convert the annual data of the nominal GDP over 1980–1991 (published by the NBS) into quarterly data by averaging annual figures, and then employ estimation results from

Abeysinghe and Gulasekaran (2004) for quarterly growth rates of real GDP (year-on-year) over the same period to derive the corresponding quarterly real GDP series.

Data	Data description						
Nam	Trans.	Description	Data	Sample			
е	code		sources	availability			
CPI	2/3	Consumer price index	NBS	1980-2010			
				(M)			
M2	2/3	M2 money stock	IFS	1980-2010			
				(Q)			
M1	2/3	M1 money stock	IFS	1980-2010			
				(Q)			
GDPIP	2/3	GDP deflator, calculated as the ratio	NBS	1980-2010			
		of nominal GDP to real GDP		(Q)			
CREDI	3	Domestic credit,	IFS	1980-2010			
Т				(Q)			
IMP	3	Import price index	GEM	1990-2010			
				(M)			
REER	3	Real effective exchange rate	IFS	1980-2010			
				(Q)			
CSPI	3	Composite stock price index of	CSMA	1991-2010			
		China's A-share stock market	R	(M)			
GDP	2/3/4	Real Gross Domestic Product	NBS	1980-2010			
				(Q)			
Δ HPI	1	Year-on-year growth rate of house	NBS	1998-2010			
		price index		(Q)			
ΔPPI	1	Year-on-year growth rate of	NBS	1997-2010			
		purchasing price index for resource		(M)			
		materials					

Notes: The following abbreviations are used: M=monthly available; Q=quarterly available. Data sources are: NBS=National Bureau of Statistics; IFS=International Financial Statistics; GEM=Global Economic Monitor of the World Bank; CSMAR= China Securities Market Research Database. Data transformation codes are: 1. level of the series; 2. series in natural logarithm; 3. first difference (year-one-year) of the logged series; 4. linearly detrended series.

IMI News

IMI Lecture: The Market-Oriented Reform of Interest Rates



On the afternoon of April 11th, the IMI Lecture (Issue No. 4), hosted by the International Monetary Institute of Renmin University of China (IMI), was held in Room 830 of Ming De Main Building. Professor Wang Honglin, researcher from Hong Kong Institute for Monetary Research (HKIMR) and economic professor at Michigan State University, was invited as the guest speaker to the lecture. Professor Zhang Zhixiang, former Chinese executive director in the IMF and academic committee member at the IMI, presided over the

lecture; the topic was "The Future of China's Interest Rates: the Policy Rate and its Operation after the Market-oriented Reform of Interest Rates".

From a historic perspective, Prof. Wang demonstrated two characteristics of China's economic reform that started in the 1980s: gradual development and a dual track system. He also pointed out that China currently faced three main economic reforms: the market-oriented reform of interest rates, the reform of the exchange rate formation mechanism and capital account liberalization. This lecture focused on the market-oriented reform of interest rates, and explored the policy rate and its operation after the reform.

Prof. Wang analyzed the nature of the market-oriented reform of interest rates, the process and the characteristics of monetary policy transmission under the current interest rate system and after the reform, and the relation between interest rate control and quantitative control. He also used the movement differences of the risk-free yield curves to explain the differences between Chinese and American monetary policy transmission mechanisms.

Prof. Zhang Zhixiang expressed his support to Prof. Wang's speech. He said the analysis in the speech is accurate and conducive to opening listeners' minds; the comparison between the policy transmission mechanisms can help us clarify the targets of China's central banks' monetary policies. Prof. Zhang also added that in the past, banks were the main financing channels; now with the development of Internet finance, we should take more variables and parameters in formulating monetary policies.

During the Q&A part, Prof. Wang Honglin answered questions on the

development direction of Hong Kong's RMB offshore market, how the market-oriented reform of interest rates applies to exchange rates, China's national debt depth, and the development space for financial derivative instruments. His wonderful explanation won thunderous applause.

IMI Biweekly Seminar: An Analysis on the Loan-deposit Gap,



Liquidity and Money Creation

On the afternoon of April 13th, the IMI Biweekly Seminar (Issue No. 10), hosted by the International Monetary Institute of Renmin University of China (IMI), was held in Room 602 of the Cultural Building. Mr. Li Bin, director of the monetary policy department of the People's Bank of China, was invited as the guest speaker; Mr. Xu Yuanrong, associate researcher at the IMI and deputy general manager at the research department of SDIC CGOG Futures Co., LTD, presided over the forum.

Mr. Li delivered a speech entitled "The Loan-deposit Gap, Liquidity and Money Creation". He said that the loan-deposit gap provided an excellent perspective to learn the operational law of money, especially that of credit money. The monetary base, including cash, required reserves and excess reserves, was the source of the liquidity of the economy. The monetary base had a great influence on banks' ability to issue loans and create money, and excess reserves played a critical role in it. The liquidity of the narrow banking system was the excess reserves of banks. The liquidity regulated by the central bank was the excess reserves of banks, because they determine commercial banks' ability to create money.

Based on his analysis, Mr. Li explained China's large loan-deposit gap and some

misunderstanding about the gap in the real economy. Mr. Li also thought that the central bank's role of the liquidity regulator was being enhanced. The focus of monetary policy regulation would shift from the quantity to the prices.

Mr. Zhang Zhixiang, former Chinese executive director in the IMF and academic committee member at the IMI, also aired his opinion on the influence of the deposit reserve ratio on the loan-deposit gap. He thought that increasing the deposit reserve ratio would influence the transformation between excess reserves and required reserves, and thus influence the loan-deposit gap. He also explained how to adjust China's monetary policy as the quantitative easing policy ended and the funds outstanding for foreign exchange tended to decrease.



IMI & IMF Jointly Issue World Economic Outlook

On April 16, International Monetary Institute of Renmin University of China sponsored release event of IMF World Economic Outlook was hosted in Renmin University. Dozens of experts from both China and other countries attended the event, including Wei Benhua, an academic member of IMI and the former deputy director of State Administration of Foreign Exchange, Alfred Schipke, IMF's resident representative to China, Davide Furceri and Aqib Aslam, senior economists of IMF, and Syed Murtaza Husain, IMF's deputy representative to China. The event was hosted by Zhang Zhixiang, an academic member of IMI and the former IMF Executive Director for China.

Mr. Schipke briefed about the focuses of World Economic Outlook. First, the outlook is becoming increasingly positive, especially for the outlook of European economy, even including Southern Europe. Second, China has been given special attention – what risks exist in China? Will there be widespread economic slowdown? If yes, what it means for the world economy? And what impact it may impose on the commodity prices and local supply chain? Third, what will happen after non-traditional monetary policy exits?

According to Mr. Schipke, IMF has been planning to increase China's quota shares since 2010. It is not achieved because relative agreements are not approved by U.S. Congress. The IMF Board of Governors will give U.S. more time, so as to increase China's quota shares. During the adjustments and changes of IMF's internal structure, China's quotas in IMF will be doubled, making IMF more representative and reflect the landscape of world economy more comprehensively.

In Davide Furceri's speech, he presented a general picture of World Economic Outlook. First, the recovery of world economy registered in the second half of 2013 will pick up more momentum, and the trend will continue in 2014 and 2015. Second, the main force driving economic recovery has shifted from developing countries and emerging economies to developed economies. Third, what the outlook of world economy will be for the next two years. Mr. Furceri pointed out that global growth was projected at 3.6 percent in 2014 and 3.9 percent in 2015, and China's GDP in 2015 would grow by 7.3 percent. The recovery of world economy is gaining momentum, but the pattern and speed of recovery are different from country to country and region to region.

Aqib Aslam's introduction of World Economic Outlook focuses on emerging economies: whether emerging economies will still be on the receiving end, what effects of external conditions on the cost-benefit of emerging economies will be, and what the outlook for emerging economies is.

In the Q&A session, the guest speakers answered questions about the sources of developed economies' demand, predictions concerning China's hard landing, etc.

It is reported that IMI and IMF have established a long-term and stable partnership and both are committed to the study and exploration of monetary and financial strategy. They regularly release World Economic Outlook and hold irregular academic events.

The Salon of the General Theory of Macro-Finance

Editor's Note:

Academically, the concept of "Macro-finance" was originated from Prof. Huang Da's theory of combining Microfinance with Macro-finance theories. Conceptually, the concept was originated from a systemic philosophy of finance and real economy being an integrated whole. The president of RUC Chen Yulu systematically expounded the basic concept and methodology of Macro-finance in his Guidelines of Macro-finance, thereby laying a theoretical and empirical foundation for comprehensively constructing a Macro-finance system condusive to promoting long-term growth and enhancing national competitiveness. To promote the construction of Macro-finance disciplines, and deepen the research on Macro-finance theories, policies, and strategies, IMI of RUC launched "the Salon of the General Theory of Macro-Finance" to promote the development, reform and application of "Macro-finance" disciplines through close-door discussions.



An analysis on the far-reaching influence of the Fed's tapering of QE

On April 23rd, the first "Macro-finance Salon" was held by IMI, RUC in Renmin University of China. Chandima Mendis, former IMF economist, portfolio manager and researcher of Emerging Star Asset Management Company, was invited as the guest speaker. Former deputy director of State Administration of Foreign Exchanges
Wei Benhua, Vice director of IMI Tu Yonghong and other experts and scholars attended the meeting.

Chandima Mendis delivered an impressive speech titled "Emerging Markets And the Tapering of QE: the Post-storm Tranquility". He pointed out that the tapering of QE on the part of the Fed has exerted negative effects on emerging markets. After years of robust growth fueled by adequate liquidity, it suddenly dawned upon the market players that low interest rates and loose asset liquidity are not sustainable. When the Fed was tightening monetary policy and raising interest rates, emerging markets witnessed simultaneous large-scale sell-off of local currencies and stocks. Chandima Mendis held that the reduction of bond-buying did not change the world, fundamentally or structurally. What changed was people's concept and market's mentality. Tighter liquidity will bring some changes to emerging market, but will not lead to international payment crisis or liquidity crisis. He also said the influence of reducing bond-buying was substantive but not catastrophic, as was assumed by market players. The gradual outflow of capital and the rise of interest rates will have indirect trade spillover effect on emerging markets.

In the discussion session, Wei Benhua talked about the possibility of ECB reducing QE following the US, and the trend of monetary and fiscal policies in emerging markets.

The Building of the Silk Road Economic Belt and the Strategy of Renminbi Internationalization

Editor's Note:

On Sept 7th 2013, Chinese president Xi Jinping made an important speech in Nazarbayev University, Kazakhstan, and proposed to build a Silk Road Economic Belt. On Jan 17th 2014, when meeting the delegation of the Third Round Strategic Dialogue of Cooperation Council for the Arab States of the Gulf, President Xi further proposed to co-build the "Silk Road Economic Belt" with West Asian countries. Against the background of the internationalization of Renminbi, and based on the building of the Silk Road Economic Belt, we should deepen our bilateral trade and strengthen financial cooperation, push forward the regionalization of Renminbi by using Renminbi as the money of account in the regional energy trades and promoting Renminbi Loans.

IMI International Monetary Review



Apr 26th, the second "Macro Finance Salon" held by the International Monetary Institute will take place in Renmin University of China. The theme of this conference is "The Building of the Silk Road Economic Belt and the Strategy of Renminbi Internationalization". Jing Xuecheng, director-general of the China Harmonious Strategy Research Council and former deputy director in the Department of Research for People's Bank of China, and Dr. Li Jianjun from the China Economic Research Center of Bank of China and other experts attended this conference. Tu Yonghong, Vice-Director of IMI chaired the conference.

Jing Xuecheng pointed out that the building of the Silk Road Economic Belt is a strategic thinking, and a way for China to breach the existing blockade. There is more than one way to achieve the internationalization of Renminbi, and the building of the Silk Road Economic Belt and the exchange of currencies is one of them. We need to innovate in the process of internationalization of Renminbi and strengthen the efforts from the top-level government to achieve win-win cooperation. Li Jianjun pointed out that the internationalization of Renminbi faces a dilemma: it is hard for a country with twin surpluses to achieve internationalization of its currency. In promoting the internationalization of Renminbi, we need to draw lessons from Japan's economic and financial cooperation with East Asia and Southeast Asia when promoting Japanese Yen in the 1970s and 1980s. We cannot solely rely on trade to promote the internationalization process, because it's too weak. We need a whole package of design, including settlement, loans, investment trade and other arrangements.

Researchers of IMI, including Zhang Wenchun, He Qing, Gang Jianhua, Qian Zongxin, Hu Tianlong and associate researcher Zhao Xueqing, doctoral student Rong Chen and Wang Jiaqing also participated in the discussion.

Call for Papers

International Monetary Review

International Monetary Review is an internal academic magazine sponsored by International Monetary Institute. Following the principle of including both Chinese and western merits with precise and practical academic spirit, International Monetary Review focuses on the cutting-edge theoretical researches in internationalization of RMB, reform of international monetary system, regional monetary and financial cooperation, China's international financial strategies, and other macro-financial theories and policies. We welcome submissions by scholars, experts and practitioners in financial industry. Papers and articles should center on key financial issues and follow academic standard and scientific methodology. We welcome quality articles based on data analysis and theoretical model and other insightful articles with standard writing.

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