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PBC and IMF Joint Conference

New Issues in Monetary Policy

International Experience and Relevance for China

EDITORS
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货币政策新问题

国际经验和对中国的借鉴

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SUMMARIES AND PRESENTATIONS
总结与报告

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http://www.imf.org/external/country/chn/rr/chi/whatwedo.htm

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FOREWORD

YI GANG[1]

On behalf of Governor Zhou and the People's Bank of China (PBC), I would like to welcome everyone to the second joint PBC-IMF conference.

Last year, the PBC and IMF held a very successful conference on capital flow management, during which experts from around the world gave some good advice on capital account liberalization in China. Later, the third plenum of the 18th Party Congress decided "China will promote the opening of the capital market in both directions, increase the convertibility of cross-border capital and financial transactions in an orderly way and accelerate renminbi capital account convertibility." The message of last year's conference was quite consistent with what China ultimately decided to do.

In the last seven or eight years, we have witnessed the Lehman Brothers crisis, the European sovereign debt crisis, and recent turmoil in some emerging market economies. Summarizing the lessons from these crises and rethinking the framework of monetary policy and macro-prudential policy are important, especially for China, a country undergoing fast transitions in both its financial system and its overall policy framework.

China is now in a transitional juncture as its financial sector landscape has evolved significantly in recent years. First, market access for private and foreign participants has been expanded to enhance competition and provide a level playing field. Second, the surge of "shadow banking" and internet finance has reshaped finance, attracting money out of the traditional system of regulated banks and contributing to the formation of more market-based interest rates. All these changes

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[1] Yi Gang is Administrator of the State Administration of Foreign Exchange and Deputy Governor of the People's Bank of China

in economic and financial conditions call for further reform tailored to the circumstances, especially the evolution of an overall monetary policy framework to keep pace with the constant innovation. On the policy side, the PBC has increased the flexibility of the renminbi (RMB) exchange rate and advanced interest rate liberalization. Efforts are being made toward putting in place the infrastructure for adoption of more market-based monetary policy tools, such as developing the financial market, promoting competition, reinforcing property rights protections, and improving corporate governance of financial institutions. We will advance the reform program steadfastly according to the Third Plenum Reform Blueprint.

Against this background, today's conference will touch upon many important issues related to monetary policy, such as reviewing major economies' experiences as they moved toward price-based tools, discussing challenges for monetary policy frameworks in the wake of the global financial crisis, and rethinking the coordination of monetary policy and macro-prudential policy. These topics are particularly important and relevant for China to better formulate a reform plan. This conference is also a good opportunity to share our own practices in conducting monetary policy as well as our thinking about reforms ahead with a very distinguished audience.

Finally, I would like to thank IMF colleagues and our PBC staff for their efforts to organize the conference, and also everyone present today for their contributions to the conference. I hope this conference will contribute to reforms in China and a better understanding of China's circumstances globally.

INTRODUCTION[2]

The Peoples Bank of China (PBC) and the International Monetary Fund (IMF) held a joint conference on March 27, 2014, in Beijing to discuss ***New Issues in Monetary Policy in the context of the international experience and its relevance for China***. This was the second joint PBC/IMF conference; the first was held in 2013 and covered capital account liberalization.

Against the backdrop of the global financial crisis and the use of unconventional monetary policy, conference participants looked at the implications for monetary policy frameworks, as well as the changing toolkit available to central banks. As China makes the transition toward an increasingly open and complex financial system, the conference reviewed the experience of other major economies as they moved toward interest-rate-based tools and how they addressed rapidly changing financial landscapes. The conference brought together central bankers, international experts, Chinese academics, and PBC and IMF staff. The event encompassed five sessions:

SESSION I: EVOLVING MONETARY POLICY FRAMEWORKS AFTER THE GLOBAL FINANCIAL CRISIS

Conventional wisdom about optimal policy frameworks has been challenged. Although inflation targeting delivered low and stable inflation in many advanced economies and emerging markets before the global crisis, there is a debate about optimal monetary policy frameworks that

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[2] The editors would like to thank Li Jing from the IMF Beijing office for doing an outstanding job in putting the e-book together.

go beyond narrowly defined inflation targets of the past, including taking into consideration growth, unemployment, and financial stability. This session reviewed the latest views on optimal monetary policy frameworks and their implications for China.

Session II: Changing Toolkit of Central Banks

This session reviewed the changing and expanding toolkit of central banks, including forward guidance, balance sheet operations, capital flow management, and macro-prudential policies.

Session III: Rapidly Changing Financial Systems: Challenges for the Coordination of Financial Sector and Monetary Policy

Rapidly changing financial systems, financial innovations, and the surge of nonbank and shadow banking activities go hand-in-hand with strong economic growth and structural transformation. While beneficial, it presents challenges both for financial sector regulation and supervision and the conduct of monetary policy. This session looked at the international experience of how best to approach a rapidly changing financial sector landscape and how best to coordinate macro-prudential and monetary policy.

Session IV: Experiences in Moving Toward Market-Based Policy Instruments

As countries move from quantitative targets to price-based monetary policy tools, they have to determine the appropriate anchor, instruments, and operational targets. This session looked at how countries managed the transition and the lessons and implications for China.

The conference concluded with a panel discussion that drew on the main conclusions from the day's event. Panel members summarized their main takeaways with a focus on lessons that may be relevant for China's next steps.

The volume includes short summaries for each topic and of the respective presentations, as well as the concluding remarks. While this is the official version, a Chinese translation is available at http://www.imf.org/external/country/CHN/rr/chi/.

SESSION I

EVOLVING MONETARY POLICY FRAMEWORKS AFTER THE GLOBAL FINANCIAL CRISIS

RETHINKING MONETARY POLICY

LI Bo[3]

In the aftermath of the 2007–09 global financial crisis, the zero interest rate, quantitative easing, and credit easing have become the most-used monetary policy instruments to stimulate the economies of postcrisis developed countries (***please see Appendix for the corresponding presentations, including figures and tables***). The crisis poses a significant challenge to monetary policy framework. First, it challenges central banks' objectives, including the rationale for the single objective of targeting price stability. It raises questions on whether price stability is enough to ensure financial stability and whether more-flexible inflation targets should be considered. Second, it challenges the operation of central banks, including whether the policy interest rate is effective and whether quantitative tools should be introduced. Third, it challenges central banks' independence. Since the financial crisis, central banks have been under varying degrees of pressure from governments, markets, and the public. New debates on central bank independence have arisen. For example, which is more important, independence from the government or independence from the legislature? The pressure from voters and the political process in democratic politics poses a challenge to central bank independence. Fourth, it challenges monetary policy strategy. In the aftermath of the crisis, the unconventional monetary policy operations of the major central banks created significant shocks to the rules-based monetary policy strategy of the precrisis period. Discretionary policy making became the norm. The postcrisis experience has shown that the dichotomy between rules-based and discretionary policymaking is perhaps an oversimplification that fails to capture the complex options central bankers are facing in the real world.

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[3] Li Bo is Deputy Director General in the Monetary Policy Department II, People's Bank of China.

The financial crisis has presented us with a new perspective in studying the coordination between monetary and fiscal policies. Monetary and fiscal policies differ in many respects including objectives, constraints, tools, and the decision-making mechanism. Complementary monetary and fiscal policies can create a hybrid governance mechanism for the macroeconomy. In the short term, the fiscal decision-making process is complex, protracted, and often constrained by parliamentary procedures. Therefore, during times of crisis, when "stimulus" is needed, fiscal policy often is not as flexible as monetary policy and appears to be inadequate in the short term. "Expert-governed" monetary policy can compensate to a certain degree for insufficient "legislature-governed" fiscal policy during a downturn. In the long term, fiscal policy is characteristically "imprudent." Voters are subject to fiscal illusion, and politicians seeking votes favor immediate tax cuts and spending increases. Although intergenerational redistribution models vary, most models show that electoral politics lead to higher current fiscal deficits. Partisan competition causes delays in fiscal consolidation and creates excessively high fiscal deficits and debt buildups. Imprudent long-term fiscal policy may eventually lead to financial and economic crises and create pressure for monetary policy easing, which leads to the monetization of public debt. Foreign citizens or future generations will bear the cost through inflation and asset bubbles. Imprudent fiscal policy challenges the independence of monetary policy and renders the latter a "subordinate policy" to fiscal policy. Since the crisis, many countries have realized the flaws of democratic politics and reflected on fiscal policy, which has led to a debate about fiscal policy independence. At the same time, countries are paying more attention to the long-term sustainability of fiscal policy.

BEYOND FLEXIBLE INFLATION TARGETING: CANADA'S EXPERIENCE

John Murray[4]

CANADA'S EXPERIENCE WITH INFLATION TARGETING

Canada was one of the first inflation targeters in the world. It started targeting in February 1991, just a few months after the Reserve Bank of New Zealand introduced this new revolutionary framework for monetary policy (***please see Appendix for the corresponding presentations, including figures and tables***).

Canada's experience with inflation targeting has been extremely positive over the past 24 years. It easily exceeded initial expectations, and has outperformed all of the other monetary policy frameworks tried (monetary aggregate targeting, nominal GDP growth targets, pegged exchange rates, full discretion, and so on).

"Flexible inflation targeting," as it is sometimes called, together with a fully flexible exchange rate regime, has delivered superior monetary policy performance in Canada before, during, and after the global financial crisis. It was stress tested and came through with flying colors.

Moreover, it delivered these results in the context of a financial system that remained solid throughout the challenging 2007–10 period. Canada, like other countries such as Australia, has demonstrated that there is no necessary tradeoff between monetary stability and financial stability. The two are jointly achievable and, indeed, inexorably bound.

The bar for introducing any significant changes to Canada's existing framework, therefore, is very high. Although flexible inflation targeting

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[4] John Murray is Deputy Governor, Bank of Canada.

may not represent the "end of monetary history" or the best of all possible regimes, it is the best that we have found so far and has proved to be remarkably robust and reliable.

Renewal of Canada's Inflation Targets

Canada's inflation targeting framework is supported by a joint agreement between the Bank of Canada and the government of Canada, which sets the inflation objective and gives the central bank effective independence for achieving it. Every five years, however, the Bank and the government are required to renew the terms of the agreement.

This regular renewal is viewed as a positive feature, ensuring that any new advances in monetary policy thinking are embedded in the latest framework, and that any desirable adjustments are made on a timely basis. Although no major changes have been introduced since the early 1990s, when we moved to a 2 percent target, the Bank has a fiduciary responsibility to continually look for possible improvements.

The last renewal was in 2011, and three fundamental questions were asked in the run-up to it. Indeed, these are the same questions that many other central banks are now asking themselves after the crisis. In a sense, therefore, the Bank of Canada has already provided tentative answers.

The three questions were (1) is 2 percent still the right inflation target; (2) would price-level targeting be better than inflation targeting; and (3) should our inflation targeting framework be modified to give more explicit recognition to financial stability concerns.

The short answers to these questions were (1) yes, (2) no, and (3) no. Although some promising evidence was uncovered suggesting that there might be a small net benefit associated with moving to a lower inflation target or moving to a price-level target (or some combination of the two), the prospective gains were not thought to be worth the risks. Why change a framework that seemed to be working so well, especially in such an uncertain environment?

The idea of giving greater recognition to financial stability concerns was also rejected. The Bank found that the existing monetary policy framework had enough flexibility to serve as an effective financial stability tool when required. No new adjustments to the agreement were needed.

It is important to note in this regard that the Bank viewed monetary policy as, at best, the third or fourth line of defense in meeting its financial stability objectives. Individual responsibility on the part of borrowers and lenders was the first line of defense. Micro-prudential oversight was the second, followed by macro-prudential measures. Monetary policy could play a helpful complementary role, at times, but other, more targeted remedies would generally be preferred.

In short, the research in the run-up to the renewal of the 2011 agreement, coupled with the experience during the crisis, gave a renewed appreciation for the framework already in place.

Optimal Monetary Policy Considerations and Other Outstanding Issues

This is not to suggest that the Bank believes that it has conclusively and permanently answered all of the outstanding issues related to monetary policy.

Some observers have suggested that encounters with the zero lower bound (ZLB) on interest rates will be more frequent in the future—perhaps because of secular stagnation (IMF, 2014). This might favor the adoption of a higher inflation target rather than a lower one. However, more frequent encounters with the ZLB might also favor the adoption of a price-level target or some other type of monetary policy that incorporates greater history dependence in the central bank's reaction function.

Time-inconsistent commitments in the form of price-level targeting, average inflation targeting, or nominal GDP level targeting are increasingly attractive solutions in such an environment, conditioning

agents' expectations in a way that reduces the chances of hitting the ZLB and minimizing the time that is spent at the ZLB once it has been hit.

Although central banks might be hesitant to adopt any of these alternative frameworks on a permanent basis, the Bank has considered using them in an asymmetric fashion and only in emergencies, that is, switching from inflation targeting to price-level targeting once the ZLB is reached.

"Breaking the glass" and employing price-level targeting or its variants could be viewed as a form of unconventional monetary policy—as a sort of rainy day tool. In fact, several central banks have already done this indirectly. One could regard quantitative guidance as a form of back-door, history-dependent policy. Committing to not raising interest rates until the unemployment rate falls below a certain level and allowing for some inflation overshooting is really a hybrid form of nominal GDP targeting. Moreover, it shares many features with what is termed optimal monetary policy.

The next inflation target renewal date for Canada is in 2016, and work on it has already begun. Some of the ideas flagged above are at the center of the research agenda, and others will be added. We intend to share our results with others along the way, inviting their comments, suggestions, and criticisms, to make our policy framework even stronger.

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THE EUROPEAN CENTRAL BANK'S MONETARY POLICY FRAMEWORK BEFORE AND AFTER THE CRISIS

Philipp Hartmann[5]

This short note briefly characterizes the European Central Bank's (ECB's) framework for monetary policy, describes whether and how it was affected by the crisis starting in 2007, and discusses a few challenges for the ECB's monetary policy in the time ahead (***please see Appendix for the corresponding presentations, including figures and tables***).

THE ECB'S MONETARY POLICY FRAMEWORK

The ECB's monetary policy framework can be characterized through its objective, policy strategy, and policy instruments. The primary objective of monetary policy is to maintain price stability. Price stability is defined as a yearly increase of euro area consumer price inflation below but close to 2 percent, which is to be achieved over the medium term. The monetary policy strategy is a structured description of how monetary policy decisions are made. It includes an economic analysis for the short- to medium term horizon and cross-checks its results with those of a monetary analysis for the medium- to long-term horizon. The ECB uses open market operations, standing facilities, and minimum reserve requirements as policy instruments to ensure that short-term interest rates are in line with a monetary policy stance that would maintain price stability.

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[5] European Central Bank, Acting Head of Directorate General Research. Any views expressed are the author's own and should not necessarily be regarded as the views of the ECB or the Eurosystem. This note considers information available until March 2014.

IMPLICATIONS OF THE CRISIS FOR THE ECB'S MONETARY POLICY FRAMEWORK

The special circumstances for monetary policy that the crisis starting in August 2007 created left the ECB's primary objective and the basic structure of its policy strategy unaffected. But policy instruments were used in increasingly innovative ways, and some aspects of the policy strategy were broadened and deepened to meet the unprecedented challenges the crisis posed.

One purpose of having one primary objective for one policy and for providing a quantitative definition of the objective is precisely to avoid opportunistic changes in the objective or definition. The regular verifiability of the achievement of an objective that is not changed in response to specific circumstances allows the central bank to be accountable and to maintain its credibility. Moreover, the symmetric nature of the ECB's objective, which aims to prevent inflation rates that are either too high or too low (including, obviously, deflation), means that it is also adequate for situations of financial crisis.

The ECB's monetary policy strategy, through its monetary pillar, always means to identify some financial imbalances that could contribute to the emergence of financial crises. The consideration of various monetary and credit aggregates and their decomposition was further extended with the crisis. Financial stability indicators were also added. Moreover, more financial factors were incorporated into the economic pillar of the strategy, allowing for a better consideration of macro-financial linkages. A focal point of this broadening and deepening of the ECB's monetary policy strategy was the insight that in different phases of the crisis different elements of the monetary policy transmission mechanism in the euro area became severely impaired. Targeted (unconventional) policies to address these impairments required an increasingly granular analysis of the transmission mechanism.

Against the background of these impairments, conventional monetary policy instruments, that is, changes in policy interest rates, were not enough. In the first phase of the crisis (starting in August 2007)

money markets were impaired and banks faced problems in wholesale funding. This required, among other things, front-loading of liquidity during the reserve maintenance period, lengthening of maturities in liquidity-providing operations, and the provision of liquidity in foreign currencies via swap agreements with other central banks. In the second phase of the crisis (starting in September 2008) bank wholesale funding became highly dysfunctional, economic uncertainty increased tremendously, and the risk of a credit crunch emerged. In addition to very significant interest rate reductions (325 basis points by May 2009), the ECB responded to this through enhanced credit support, which included the provision of any liquidity demanded by banks for which they had eligible collateral at a fixed interest rate; an enlarged list of collateral acceptable in its operations; and a further lengthening of maturities; along with other actions. Moreover, it established a program of purchasing covered bonds, a particularly important instrument for bank funding in Europe. The third phase of the crisis (starting in May 2010) was the sovereign debt crisis, in which certain secondary sovereign bond market segments dried up; financing of small and medium-sized companies became impaired (in particular in stressed countries); and at some points, unfounded market fears of euro break-up scenarios (redenomination risk) appeared. Apart from further lowering interest rates, the ECB responded through secondary market government bond purchases (securities markets program), very long term refinancing operations (with a maturity of three years), the announcement of a program for outright monetary transactions (potential purchases of short-term government bonds of countries under a macroeconomic adjustment program), and additional credit claims in its collateral framework.[6]

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[6] The ECB did not pursue quantitative easing policies of the type the US Federal Reserve, the Bank of England, and the Bank of Japan implemented. When policy rates are at the zero lower bound, quantitative easing *substitutes* for conventional interest rate policy. The ECB's unconventional monetary policies did not substitute for conventional policy but *complemented* it. They were implemented to help the monetary policy stance (continued)

Through these conventional and unconventional policies the ECB has very much cushioned the adverse effects of the crisis on the economy, maintaining its ability to steer the euro area inflation rate toward levels in line with price stability.

SELECTED CHALLENGES FOR THE ECB'S MONETARY POLICY

Among the main challenges at the time of writing for the future are the following four:

First, the potential materialization of adverse contingencies could derail the relatively mild and fragile economic recovery in the euro area. Such contingencies include, at the present juncture, a worsening of the external repercussions of the political crisis in Ukraine, the reemergence or broadening of emerging market tensions, and the emergence of euro money market volatility that is transmitted across the yield curve. These occurrences could "test" the zero lower bound of policy rates in the euro area.

Second, inflation could become too low or the present period of low inflation could become too long (or both). In the present prolonged period of low inflation the ECB has to be vigilant that inflation expectations remain anchored and that the tail risk of deflation does not materialize. This was also one motivation for the ECB to strengthen over time its forward guidance on policy rates that it had started in July 2013 in the context of money market spillovers and volatility associated with the debate about the U.S. Federal Reserve tapering its asset purchases.

Third, by November of 2014 the ECB will become a bank supervisory authority. In integrating the Single Supervisory Mechanism to its

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defined by conventional policy, which had not reached the zero lower bound, find its way through the economy.

activities, it will have to define how the monetary policy function and the new supervisory function relate to each other, respecting the legislative requirements for adequately separating them to manage potential conflicts of interest and reputational risks.

Fourth, and taking a more medium- to long-term perspective, like many other central banks the ECB will have to answer the question of what the “new normal” will be for monetary policy. Which of the new or varied policy instruments will become part of the conventional toolkit, which will remain unconventional ,and which can be removed once the crisis is fully overcome? And, finally, what will the role of conventional or unconventional monetary policies be relative to potential macroprudential regulatory policies?

ESCAPING FROM A LIQUIDITY TRAP AND DEFLATION: THE JAPANESE EXPERIENCE IN 1999–2014

Tsutomu Watanabe[7]

The Japanese economy has been in a liquidity trap since the mid-1990s, in which the natural rate of interest stays close to or below zero (due to low productivity growth, financial market frictions, aging, and other factors) and the rate of inflation is slightly negative (***please see Appendix for the corresponding presentations, including figures and tables***).

Previous studies on this issue, including by Lawrence Klein in the 1940s, James Tobin in the 1980s, and Paul Krugman in the 1990s, suggest that the best strategy for escaping from a liquidity trap and deflation is to raise inflation expectations.

The Bank of Japan (BOJ) and the Japanese government have made several attempts to raise inflation expectations. Governor Toshihiko Fukui started quantitative easing in 2003 with a commitment that the BOJ would continue it until the CPI inflation rate returned to a positive level. More recently, Governor Haruhiko Kuroda has started "quantitative and qualitative easing," often referred to as QQE, in April 2013, in which the BOJ will double base money with a time horizon of two years to raise the CPI inflation rate to 2 percent per year, which is the BOJ's current inflation target. The BOJ purchases about 7 trillion yen of Japanese government bonds every month, which is more than half the amount the Ministry of Finance issues each month.

Owing to these efforts, the CPI inflation rate started to rise beginning in the spring of 2013, and the year-over-year inflation rate is

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[7] Tsutomu Watanabe is Professor of Economics, University of Tokyo.

now above 1 percent. However, economic forecasters inside and outside the country, as well as market participants, do not believe that the BOJ will be able to achieve the goal of 2 percent inflation within two years. For example, according to the consensus forecast, the year-over-year CPI inflation rate (excluding the effects of the consumption tax increases in April 2014 and October 2015) will stay somewhere near 1 percent until the end of 2015.

Such pessimism about the future course of CPI inflation stems from the fact that the BOJ has not yet successfully raised inflation expectations formed by households and firms. The flattening of the Phillips curve has made it even more difficult for the BOJ to achieve 2 percent inflation.

The Japanese experience during the last two decades indicates that it is extremely difficult to escape from a liquidity trap and deflation once deflation is built into expectations. This suggests that, in the framework of inflation targeting, the target rate of inflation should be set at a high positive level (probably much higher than 2 percent) so that the economy is at a distance from deflation and so that the central bank has sufficient room for monetary easing even when the economy is hit by a large adverse shock.

SESSION II
CHANGING TOOLKIT OF CENTRAL BANKS

CHINESE MONETARY POLICY TOOLS

Sun Guofeng[8]

EVOLUTION OF MONETARY POLICY TOOLS

With the deepening reform of its economic and financial systems, China has gradually shifted its monetary policy framework from direct to indirect management, leading to a gradual evolution and diversification of monetary policy tools over the years (***please see Appendix for the corresponding presentations, including figures and tables***).

THE CHOICE OF TOOLS FOR THE SHIFT FROM THE DIRECT TO THE INDIRECT REGULATORY MODEL

During 1984–97, China adopted a direct regulatory framework based mainly on credit size management, using quotas to control credit and cash directly. In 1998, China established an indirect management framework of money and credit aggregates, which mainly used tools such as open market operations, the reserve requirement ratio (RRR), central bank lending, and rediscounting to regulate the monetary base. In the process, the People's Bank of China (PBC) emphasized the gradual use of price-based tools such as interest rates to adjust the level and structure of market rates. The role of these price-based tools was continuously strengthened. To cope with the stress of excess liquidity caused by the "double surplus" (surpluses in both the current and the capital accounts), the PBC also introduced central bank bills to enhance the sterilization effect, and thereby became more proactive in conducting macroeconomic and financial regulation.

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[8] Sun Guofeng is Deputy Director General of the Monetary Policy Department, People's Bank of China.

The introduction of macro-prudential policy tools after the global financial crisis

Macro-prudential regulation is not new for China. As early as 2004, the PBC began to use differentiated RRR to implement monetary policy. In the post crisis era, the PBC mainly used a dynamic adjustment mechanism of the differentiated RRR to conduct macro-prudential management. It thereby linked credit expansion to capital ratios as required by macro-prudential policy, also taking into consideration the deviation of credit expansion from the needs of economic growth, the systemic importance and resilience of financial institutions, and other factors. This mechanism helped guide and encourage financial institutions to provide more support to small and micro businesses as well as to agro-related industries, and enhanced their own capacity to prevent risks and maintain resilience. At present, China has preliminarily established a monetary policy framework that relies on a combination of quantitative, price-based, and macro-prudential tools.

The launch of new liquidity management tools such as the standing lending facility (SLF) and THE short-term liquidity operations (SLO)

Various factors such as an unstable external environment and volatile capital flows caused the demand for and supply of short-term liquidity in the banking system to increasingly fluctuate. As a response the PBC launched the SLF and the SLO in 2013. The SLF is designed to meet the large demand for longer-term liquidity of financial institutions, and the majority of SLFs have maturities of one to three months. SLOs are mainly repurchase operations with maturities of up to seven days, and are conducted via market-based interest rate bidding. In January 2014, the PBC launched pilot programs for the PBC regional offices to conduct SLF operations in 10 provinces and municipalities including Beijing and Jiangsu, so as to improve the regular liquidity provision channel by the central bank to small and medium-sized financial institutions. In addition, to strengthen and improve liquidity management for better targeted and more effective liquidity supply in support of the national economy's key

areas and weak links, the PBC adjusted its classification of central bank lending into four categories—liquidity lending, credit policy support lending, financial stability lending, and special-purpose policy lending—each of which has its particular role to play in liquidity supply.

Apart from the above-mentioned tools, the PBC has paid increasing attention to the role of expectations in monetary policy transmission and has made great efforts to strengthen policy communications, enhance transparency, and guide public expectations. First, the PBC uses its website and micro-blog to release statements to further explain relevant policies and provide responses to hot-button issues to increase the public's understanding. Second, the PBC releases its China Monetary Policy Report on a quarterly basis. This report reviews monetary policies of the previous period, analyzes the current macroeconomic and financial situation, and looks into the next stage. With this report, the PBC properly discloses its monetary policy stance for the period ahead. Third, the PBC holds a monetary policy committee meeting every quarter. A news release is posted on the PBC website after each meeting to disclose the views of committee members about the current economic and financial situation and their opinions on the monetary policy stance for the period ahead. Fourth, the PBC governors reveal relevant information about monetary policy on proper occasions. This information is often quoted and interpreted quickly by the media and other institutions; this has become an important channel to guide expectations. Fifth, the PBC spokesperson answers questions in press conferences to respond to and elaborate on topics of concern to the public. Sixth, the PBC reports regularly to the National People's Congress Financial and Economic Affairs Committee about the implementation of monetary policy and answers questions raised by members, and provides timely responses to proposals from the National People's Congress and the Chinese People's Political Consultative Conference. Finally, the PBC exchanges information with financial institutions and guides expectations via window guidance.

New Developments and Challenges in Choosing Monetary Policy Tools

At present, the PBC faces new developments and challenges in choosing monetary policy tools, which can be observed from the following three aspects.

First, more complicated international balance of payment patterns require more sophisticated liquidity management. In the past few years, the double surplus in the international balance of payments has been a prominent feature of the Chinese economy. The PBC used a mix of tools, such as open market operations and central bank lending, to fine-tune liquidity, giving full play to the role of "small pools" to absorb liquidity, which has made the PBC's monetary policy more proactive. By contrast, there are not always massive surpluses in the balance of payments now, which means that the intensity, pace, and orientation of policy tools should change accordingly.

Second, financial innovation has made the traditional quantity-based tools less effective. Against the backdrop of financial innovation, when interbank business and financial institutions' wealth management products greatly affect credit expansion, the traditional regulatory framework focusing on RMB loans has been markedly impacted .

Third, soft financial constraints on micro-entities reduce the role of price-based tools. The soft financial constraint is an economic phenomenon whereby financially troubled economic entities can avoid bankruptcy and survive by borrowing from external sources. This diminishes the role of the market mechanism in eliminating weaker players, making borrowers such as local governments and large state-owned enterprises insensitive to interest rates. Therefore, it constrains the role of price-based tools. The 3rd Plenary Session of the 18th CPC National Committee has made overall arrangements for deepening reform on all fronts, so the problem of soft financial constraints is expected to be resolved over time.

THOUGHTS ON THE USE OF MONETARY POLICY TOOLS DURING THE NEXT PHASE

For the next phase, the PBC will continue its effective monetary regulation via the three-pronged approach.

First, the PBC will continue to use a mix of monetary policy tools to manage aggregate liquidity, which means to effectively control the "source" of the monetary base so as to influence and rein in the all-system financing aggregates. It is important to note that the RRR is only one liquidity management tool and should not be over-interpreted. What matters is the result of liquidity management by the central bank rather than the tools it uses.

Second, with the improvement of China's international balance of payments, the PBC will emphasize the role of monetary policy tools such as central bank lending, rediscounting, and the RRR in guiding economic restructuring. It will innovate further the financing mechanisms and monetary policy tools, and will restructure base money according to the principle of "stabilizing credit aggregates, optimizing structure and making good use of credit stock." These moves will support key areas such as shanty town renovation and weak links of agro-related and small and micro businesses, with a view to reducing financing costs in the real economy and promoting economic restructuring and upgrading.

Third, the PBC will explore ways to establish an interest rate corridor, enhancing the role of price-based tools. It will subsequently cultivate the central bank policy rate and improve the interest rate corridor. As a developing country, China will continue to grow relatively fast for a considerable time, which means large demand for capital. Therefore, the central tendency of interest rates may move upward at the beginning of market-based interest rate reform, which is normal, not necessarily presaging larger fluctuations. Over the last year, market rates fluctuated considerably because of the collective payment of corporate income taxes, holiday demand for cash, payment of required reserves, as well as the impact of external shocks, and should be viewed objectively. The main objective of liquidity management is to maintain aggregate

liquidity at a proper level while keeping interest rate swings in check. In the future, the PBC will continue to use a variety of policy tools, including open market operations, the RRR, central bank lending, rediscounting, as well as the SLF and the SLO to properly regulate liquidity supply and demand in the financial system and to smooth market rates.

REMARKS ON THE CHANGING TOOLKIT OF CENTRAL BANKS

Arminio Fraga[9]

In the old days, central banks used to control inflation indirectly using the money supply as the main tool. Sometimes reserve requirements were used as a supporting tool. Bank supervision was also a key role of many central banks. Supervision focused on the health of individual financial institutions (now sometimes known as the micro-prudential approach).

At some point it became clear to most central banks that, even though in the long term inflation is always a monetary phenomenon, in the short term velocity had become highly unstable, and therefore the money supply had become an unreliable tool for the conduct of policy. (In Canada it was said that "we did not abandon the monetary aggregates, they abandoned us.")

The watershed event leading to the next phase was Paul Volcker's dramatic move to break the back of inflation in the early 1980s. After an initial attempt at monetary targeting, Volcker tightened policy via a bold and direct increase in interest rates, and within a few years the era now known as the Great Moderation had started. During these years, central banks began to target inflation directly, either with an explicit target or implicitly through a commitment to price stability.

In the United States, the Great Moderation was followed by a great bubble, a great crash, and a great policy response. The latter was characterized by hugely accommodative fiscal policies and equally impressive monetary policy stimuli, implemented by the prolonged setting of interest rates at zero, an unprecedented move.

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The reaching of the so-called zero lower bound, or what used to be called the liquidity trap, was not enough to dispel the fear of deflation and its direct consequence, high expected real interest rates. Since then, further experimentation has been taking place.

Unconventional monetary policy is the new toolkit. Once conventional monetary responses proved insufficient to drive the economy out of its slow pace of recovery, the Fed moved into even deeper uncharted waters with the adoption of many forms of forward guidance and quantitative easing, both of which were attempts at manipulating the yield curve so as to lower long-term interest rates and risk premiums.

Forward guidance is the policy of guiding expectations of the path of future interest rates. It includes using language such as “low for long” and “considerable period,” as well as quantitative thresholds.

Quantitative easing includes outright purchases of long-term Treasuries and mortgages and has been implemented in the United States and in Japan.

The following are some of the problems that may follow from the extended use of unconventional monetary policy tools:

- Excessive risk taking in the financial system, typically leading to high and excessive leverage.
- Complacency in the overall policy response to crisis situations (e.g., no structural policies, unsustainably weak fiscal policies).
- Unwarranted income and wealth redistribution.
- Exit issues—the exit from manipulated yield curves and asset prices is unlikely to be smooth.
- Excessive complexity in forward guidance may lead to a loss of credibility for the central bank.

Deeper research must be conducted into whether these unconventional monetary policy tools should become part of a central bank´s emergency toolkit. Clearly, they are not appropriate tools for normal times.

An economy of the size and complexity of China's must have its own independent monetary policy. As China evolves toward a more market-based system, the need to introduce more conventional monetary policy tools makes sense. In this context, a move to a flexible inflation target with a short-term interest rate as the main policy instrument seems appropriate.

This, in turn, requires the adoption of a flexible exchange rate system.

Fiscal policy must remain healthy, so as to reduce uncertainty and to be available as a countercyclical tool in a crisis situation.

Macro-prudential tools such as reserve requirements, margin deposits, and haircuts must be used to avoid systemic risk.

Transparency and good corporate governance in the capital markets must be fostered.

A strong payment system, with a focus on developing healthy counterparty risk, must be developed.

SOME THOUGHTS ON THE DESIGN OF MONETARY POLICY STRATEGY AND COMMUNICATIONS

Andrew Levin[10]

Over recent decades, economists have reached a broad consensus regarding the benefits of clear monetary policy communications, including clarity about the central bank's goals and policy strategy, its assessments of the economic outlook and the balance of risks, and its judgments about the appropriate path of policy (***please see Appendix for the corresponding presentations, including figures and tables***). Central bank communications contribute to economic prosperity by facilitating well-informed decisions of households and businesses and by reducing economic and financial uncertainty. Clear communications also enhance the effectiveness of the monetary transmission mechanism by helping financial market participants and the general public understand how the policy stance is likely to evolve in response to changes in economic and financial conditions. In light of international experience, the People's Bank of China may wish to strive to:

- *Explain the central bank's goals and policy strategy as clearly as possible*.

Economists have also arrived at a broad consensus regarding the importance of insulating monetary policy decisions from short-term political pressures. The central bank's operational independence is only sustainable if the government provides a clear legal mandate for its policy objectives and instruments and then holds the central bank accountable

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over time for fulfilling that mandate. Transparency about the central bank's policy framework and the rationale for its specific decisions facilitates accountability and thereby reinforces the central bank's operational independence.

- *Clarify the central bank's legal mandate to strengthen its operational independence and its ultimate accountability to the governmental authorities.*

A clear inflation goal helps keep inflation expectations firmly anchored, thereby fostering price stability and providing the central bank with greater flexibility to promote macroeconomic and financial stability. The numerical value of the inflation goal is appropriately determined in light of assessments of the relative costs of inflation, the extent of downward nominal wage rigidity, and the costs and risks associated with the zero lower bound on nominal interest rates. When the inflation goal is framed using a broad measure of consumer price inflation, the time horizon over which inflation is projected to converge to its goal appropriately reflects the central bank's assessments of the medium-term outlook and the balance of risks.

- *Specify a fixed numerical goal for inflation in the medium term that can serve as a benchmark for the central bank's monetary policy strategy and communications.*

Economists broadly agree that monetary policy can influence real economic activity in the short to medium term but *not* over the longer term. The goals of macroeconomic stability and price stability are generally complementary, but policy tradeoffs between these goals can arise. There is a growing consensus that those goals are inextricably linked to financial stability, along with growing recognition of potential interactions between monetary policy and macro-prudential policies.

- *Regularly convey the central bank's assessments of resource slack and emerging financial imbalances as well as the degree of uncertainty surrounding those assessments.*

The central bank may be able to deploy a number of distinct monetary policy tools, depending on its legal mandate and on the

characteristics of the domestic financial system. For example, such tools may include direct lending to financial institutions, payment of interest on reserves, and transactions in publicly traded securities or foreign exchange. Thus, clarity about the central bank's monetary policy framework necessarily involves transparency about its choice of instruments, including its assessments of the efficacy, costs, and risks of each tool. Clarifying the central bank's judgments about the appropriate path of policy as well as the conditions that could warrant significant adjustments to that path also holds substantial benefits.

- *Clearly communicate the central bank's plans for adjusting the specific instruments that will be used in implementing its policy strategy over time.*

Forecasters at many central banks and in the private sector have tended to focus on providing precise assessments of the single most likely scenario rather than on gauging the evolution of the balance of risks. Analysis of alternative scenarios is a valuable tool for examining key risks and formulating contingency plans aimed at mitigating such risks. Central banks may find benefits in conducting and publishing stress tests for monetary policy, analogous to the stress testing that is becoming standard practice for private financial institutions.

- *Provide regular communications regarding the central bank's assessments of the balance of risks to the economic outlook and contingency plans for mitigating and addressing such risks.*

Historically, the institutional culture of central banks has tended to be quite conservative, with a strong inclination toward presenting a unified front in all public communications. However, effective risk management and contingency planning requires "outside-the-box" thinking and creative problem-solving. These considerations underscore the institutional benefits of ensuring that both policymakers and staff represent a diverse set of backgrounds and perspectives.

- *Foster and encourage a diversity of viewpoints in formulating and communicating the central bank's policy decisions.*

CHINA'S EVOLVING MONETARY POLICY FRAMEWORK

WANG Tao[11]

China has used a combination of policy tools to conduct its monetary policy, including the traditional quantitative policies and price-based tools as well as the capital flow management and macro-prudential measures that have recently become popular (***please see Appendix for the corresponding presentations, including figures and tables***). Among these policy instruments, the central bank relies mainly on the quantitative and administrative measures, as well as on macro-prudential requirements to manage money supply and credit expansion. The People's Bank of China (PBC) has typically targeted monetary aggregates, including broad money supply (but also informally, Chinese currency lending). To achieve these targets, the central bank first uses open market operations and reserve requirements to help sterilize foreign exchange inflows and manage base money supply. In addition, lending quotas, administrative measures, and prudential regulations such as loan-to-deposit ratios are used to manage credit expansion, and hence, influence broad money supply. Although the PBC has sometimes adjusted benchmark deposit and lending rates and guided short-term rate movement in the interbank market, interest rates have played a much smaller role in helping to achieve the targets for monetary aggregates.

Financial liberalization in recent years has changed the landscape within which monetary policy operates and poses new challenges to policy management. The development of new financial offerings such as wealth management products means that bank deposits have declined in importance in the funding of financial intermediation, and the development of shadow credit products has reduced the share of bank

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lending in overall credit. Such developments have increased the complexity of financial linkages and reduced the effectiveness of the traditional policy tools such as lending quotas and reserve requirements. It has also become more difficult to identify the appropriate monetary aggregates to influence policy objectives (such as GDP) while the relevance of money market interest rates and bond yields have increased. The fact that financial liberalization is proceeding while reforms to state-owned enterprises and the fiscal system are lagging adds another complication to monetary policy transmission.

The increased financial integration between China and the global market will further complicate monetary policy management. As capital controls are relaxed and cross-border currency flows increase, the impact of global liquidity and rates on China is on the rise. This is especially tricky as the major global central banks make the transition from a prolonged period of unconventional monetary policy easing to "normality," and as financial liberalization leads to more volatile conditions at home.

As the monetary policy framework becomes positioned within a more liberalized financial system, the traditional administrative and quantitative measures have to give way to a more market-based and price-based approach. Establishing a short-term policy rate anchor is a critical first step for the central bank to ensure the smooth functioning of financial markets and to anchor expectation. For this to happen, the PBC has to choose an appropriate short-term rate (for example, the seven-day repo rate) and work hard to ensure the stability of this rate, avoiding large and confidence-shaking volatility in the market and transmitting the necessary policy signals. However, at this stage, a more urgent and important step for the PBC is to separate the market in which banks borrow from each other and the central bank as the lender of last resort (the true interbank market) from the financial and credit market at large in which nonbank financial institutions and firms can borrow from financial institutions. China's development of a large bond market in the so-called interbank market has seriously muddied the waters. As it stands today, corporate bond issuers could cause large fluctuations in interbank rates with their borrowing demand or payment issues, forcing the PBC to

intervene in this market, thus functioning effectively as the provider of liquidity to any such institutions (lender of the first resort).

As financial liberalization proceeds, the central bank cannot just rely on a price-based approach, but has to pay special attention to the quantity of overall credit, avoiding credit booms and busts often experienced in other countries' liberalization processes. This means the PBC has to use all tools at hand, including the traditional quantitative and administrative measures, prudential regulations, and management of capital flows. However, because traditional monetary aggregates are increasingly less relevant, the PBC needs to improve and broaden its measurements of monetary aggregates (to M3, for example) and overall credit (perhaps by establishing a broader credit measure to include both bank lending, off-balance sheet credit, and shadow credit), and to track a broad set of economic indicators, beyond the basic GDP and CPI inflation matrix.

In the transition process, during which there are many moving parts to follow, it is especially important for the central bank to increase coordination with other government agencies and to improve communications with the market. Because neither the traditional framework and tools nor the new ones work well alone, and the mixture may add confusion to understanding in the market, the central bank needs to redouble efforts to communicate its analysis of the economy, policy objectives, and intermediate instruments to the market at large (beyond the usual large banks and government agencies), and establish a feedback mechanism to also test the market’s understanding of its signals and policy intentions, as well as where fragility may lie. As an example, the PBC could publish information about excess reserves of the banking system at a higher frequency and with shorter delay, and publish decrees or ordinances that it distributes to banks.

Finally, the central bank needs to monitor the policy moves of other major central banks and the implications for foreign exchange liquidity flows to China more closely, and to increase the flexibility of the exchange rate so as to allow exchange rate adjustments to aid its monetary policy management.

SESSION III

RAPIDLY CHANGING FINANCIAL SYSTEMS: CHALLENGES FOR THE COORDINATION OF FINANCIAL SECTOR AND MONETARY POLICY

CENTRAL BANK, MONETARY POLICY AND MACRO-PRUDENTIAL SUPERVISION

WANG Yu[12]

In the aftermath of the global financial crisis, countries have been rapidly adjusting monetary policies and financial supervision. The changes in monetary policy frameworks and the establishment of macro-prudential supervision are quietly changing, and enriching, the theory and practice of central banking (***please see Appendix for the corresponding presentations, including figures and tables***).

MONETARY POLICY AND PRICE LEVEL

Throughout the twentieth century, mankind faced the challenges of inflation. Price stability thus became the main goal of monetary policy. The Great Depression of 1929–33 gave birth to Keynesianism. Keynes believed that the root cause of economic crisis lay in the lack of aggregate demand. To avoid crisis, the theory goes, government should implement "discretionary" macroeconomic policy and raise aggregate demand through public spending.

In the 1960s, led by Milton Friedman, monetarists proposed the single rules—use of the money supply as a nominal anchor to ensure the rate of growth in money supply is in sync with the potential economic growth rate. In the 1990s, some countries began to adopt inflation targeting. Under this policy framework, central banks conduct monetary policy operations according to inflation expectations and guide inflation expectations to be close to the inflation target. Meanwhile, other

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countries chose the monetary policy framework with price stability and full employment as the main targets and interest rates as the main tool.

Price stability is the biggest contribution of monetary policy to the economic development of the world. Although the above-mentioned monetary policies have different features, they all played their roles in different countries at different times. Since the 1990s, with the effort of central banks, global inflation has come down significantly and the world's economic growth volatility has evened out noticeably.

Since 2007, responding to the shock of the global financial crisis, the central banks of major developed countries have significantly lowered benchmark interest rates to zero or near zero, and have adopted a variety of unconventional monetary policy tools. Massive quantitative easing obscured the boundary between monetary and fiscal policies and once again caused concern over the prospect of global inflation.

MONETARY POLICY AND ASSET PRICE

Since the beginning of the twenty-first century, asset bubbles have become a major problem facing the world. A new challenge to central banks is managing the relationship between monetary policy and asset prices, as well as achieving the goals of both price stability and financial stability.

For a long time it was believed that maintaining price and output stability would ensure financial stability. This hypothesis is somewhat implied in the traditional monetary policy framework. But actually there is no direct connection between price stability and financial stability. On the contrary, under the traditional monetary policy framework, central banks' obsession with price levels may cause them to overlook other problems, including asset bubbles. In fact, the Japanese asset bubble of 1985–92, the U.S. subprime crisis of 2007, and the global financial crisis of 2008–09 all showed that price stability does not mean financial stability. For any country, price stability and financial stability are equally important to social welfare.

Before the latest global financial crisis, many economists did not support incorporating asset prices into monetary policy objectives. They believed the link between asset bubbles and monetary conditions was weak, and that it was neither necessary nor possible for monetary policy operation to directly respond to fluctuations in asset prices. As a result of the crisis, people began to realize that central banks need to pay attention to asset prices. More economists since have joined the discussion.

Some economists have proposed the strategy of "leaning against the wind." Regardless of price fluctuations, the interest rate should remain above the Taylor's Rule level to prevent bubbles from forming, they suggested. Other economists insisted on the strategy of "cleaning up," which allows the central bank to take the position of benign neglect while the bubble is forming. The central bank must make necessary adjustments in monetary policy when asset prices drop to avoid economic crisis. Still other economists suggest that asset price bubbles should be divided into two categories: credit-driven bubbles such as real estate price bubbles and irrational exuberance bubbles such as the internet bubble. It is suggested that the lean against the wind strategy may be used to address credit driven bubbles while the clean-up strategy may be used to address irrational exuberance bubbles.

The key issue is how to incorporate asset prices into the monetary policy framework. This is what led researchers at central banks to began to look at macro-prudential supervision.

Central Banks and Macro-Prudential Supervision

No single policy tool in the existing toolbox is capable of the dual function of ensuring price stability and suppressing asset price bubbles. To achieve the twin objectives of price stability and financial stability, both monetary policy and macro-prudential supervision perhaps are needed. The next question is, who shall conduct macro-prudential supervision?

The central bank is better positioned to conduct macro-prudential supervision. First, price stability and financial stability are inherently consistent; second, as “lender of the last resort” the central bank has both the responsibility and the capability to safeguard financial stability. However, the central bank’s conduct of macro-prudential supervision may affect the effectiveness of monetary policy. The central bank’s countercyclical operations may exacerbate economic volatility.

The debate continues. But practice always precedes theory. In the aftermath of the crisis, reforms first took place in each country’s financial regulatory system. The United States, the United Kingdom, and the European Union have all established macro-prudential supervision regimes and clarified the status and role of the central bank. The People’s Bank of China and relevant Chinese financial regulatory agencies have been actively exploring ways to establish and improve the country’s macro-prudential supervision policy framework.

The central banks have entered uncharted waters in the postcrisis world and are faced with new challenges. We need to be more open-minded in our understanding, and address the relationship between monetary policy and macro-prudential supervision to make our chosen policies more effective.

LESSONS FROM ISRAEL'S MONETARY POLICY EXPERIENCE

Leonardo Leiderman[13]

This presentation focuses on key lessons from monetary policy experience in Israel in recent years (***please see Appendix for the corresponding presentations, including figures and tables***). As in other countries, the recent global economic and financial crisis has brought the central bank in Israel into new territory. Among the salient recent challenges for monetary policy in Israel are:

- how to deal with the sharp decline in policy rates by the Federal Reserve and the European Central Bank,
- how to manage policy when there is a considerable risk of a housing price bubble,
- how to deal with the rapid emergence of a nonbank credit market, and
- how to divide the tasks between standard and macro-prudential policy steps.

With no significant threat to the inflation target of 1–3 percent per year, and with a clear trend of real exchange rate depreciation, largely reflecting the improvement in the economy's fundamentals, the Bank of Israel had little choice other than to lower the policy rate to avoid either a stronger real exchange rate appreciation or a dip below the inflation target range.

Having reduced the domestic policy rate, the next risk to confront was potential overheating in the housing market. Given the housing shortage that developed toward the end of the first decade of the twenty-first century, the continuation of positive demographic trends led to a basic trend increase in the price of housing. The reduction in the

[13] Leonardo Leiderman is Professor of Economic, Tel Aviv University.

domestic interest rate, which lowered the cost of mortgages, only added more strength to house price inflation.

Given these developments, the Bank of Israel decided to use the policy rate mainly to deal with inflation targeting and real exchange rate considerations, and to use macro-prudential measures to deal with the risks of a housing price bubble. Accordingly, loan-to-value restrictions were imposed on borrowers, and capital and provisioning requirements were applied to banks.

In hindsight, it took a relatively long time for the central bank to realize that macro-prudential measures were needed to cool housing price inflation. Consequently, some of these measures have not been very effective, and the IMF's recent Israel country report estimates that housing prices remain about 30 percent higher than what could be attributed to fundamentals. Whether a milder decline in the policy rate could have helped avoid some of the housing price inflation, while at the same time not giving rise to major deviations from the other targets, remains to be seen.

The nonbank credit market developed rapidly in recent years. In particular, given the very low yields on fixed-income assets such as bonds, various institutional investors, among them insurance companies and pension funds, found it appropriate to start granting loans to very large companies in Israel. Local commercial banks accounted for 80 percent of the credit market at the start of the 2000s, but account for only about 50 percent today.

The key challenge is to ensure that the credit market functions properly while taking all necessary precautions to avoid a future credit crisis. Yet, achieving this has been difficult because three relevant supervisory agencies are involved: the Bank of Israel, the Capital Markets Division at the Treasury Department, and the Israel Security Agency. As recognized by the IMF, this institutional feature calls for the establishment of a Financial Stability Committee consisting of representatives of the relevant entities, to ensure consistency and alignment in the measures undertaken by the three regulatory agencies.

However, as logical as it sounds, the creation of such a committee has encountered both political and personal difficulties.

Israel's experience suggests two key implications for the People's Bank of China:

- attempt to plan monetary policy reactions to a variety of hypothetical future external and internal shocks in advance, and in particular, define the dividing line between standard monetary policy measures (such as changing the policy rate) and macro-prudential policy steps; and
- enhance cooperation between the various regulatory bodies that are relevant for the capital and money markets, in an attempt to ensure consistency and harmony in the measures taken by each of these bodies in their role of ensuring financial stability for China.

CYCLICAL MACRO-PRUDENTIAL POLICIES

Nellie Liang[14]

INTRODUCTION

Many countries have started to implement cyclical macro-prudential policies to promote financial stability (***please see Appendix for the corresponding presentations, including figures and tables***). An area of active discussion is the role of monetary policy. This presentation provides a brief overview of the Federal Reserve's framework for implementing cyclical macro-prudential policies. It then discusses some general considerations for using monetary policy to promote financial stability based on recent research. These considerations apply to both the United States and China, in light of their rapidly evolving financial systems with risks moving outside regulated entities, and research that documents the endogenous buildup of financial vulnerabilities, such as leverage, with improvements in financial conditions fostered by monetary policy.

Systemic risk is the *potential* for widespread financial externalities, such as from asset sales and contagion, which can result in large negative outcomes for output and inflation. These externalities are more likely to occur when significant financial vulnerabilities, such as high leverage and reliance on short-term wholesale funds, are present in the system. Financial externalities differ from textbook production externalities such as pollution because they manifest only in some states of the world. The

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potential aspect of systemic risk is important because it suggests that externalities are not easily measured or linked directly to particular entities, and thus are not easily taxed.

In the past few years, substantial new macro-prudential policies have been put in place to reduce systemic risk by increasing the resilience of the system. For example, capital surcharges in Basel III reflect the potential systemic impact of a large banking firm's distress. Another example is that more derivatives are being moved to central clearing to reduce the complexity of the network. But one-time fixes are not sufficient to prevent future crises. Given the dynamism of the financial system, the development of new products and practices could obscure risks and move them outside the regulatory perimeter. In addition, vulnerabilities can build to socially inefficient levels during extended periods of high returns and low volatility.

Monetary policy is one of several time-varying macro-prudential tools, but it also has other objectives: to maintain price stability and full employment. However, such efforts may also lead to a buildup in vulnerabilities and risks to financial stability, which raises important research and policy questions.

Assessment of Financial Stability

To monitor risks to financial stability, the Fed uses a framework in which systemic risk (i.e., the potential for financial externalities) is more likely to be high when there are vulnerabilities in the financial system that can amplify possible shocks (Adrian, Covitz, and Liang, 2013). The framework explicitly recognizes that shocks are usually difficult to predict or to prevent. That is, this framework focuses more on assessing how various possible shocks could be amplified and less on trying to predict shocks. The framework also recognizes that it is unrealistic to address systemic risk by taxing the actual financial externalities during a crisis. The overall

goal of the framework is then to mitigate identified financial vulnerabilities using preemptive policies.[15] The framework introduces a policy tradeoff in which reducing the likelihood of financial crises is achieved by raising the costs of finance in normal times when the volatility of shocks is low.

Financial vulnerabilities can be categorized by asset valuation pressures, leverage, maturity transformation, and interconnectedness and complexity. All of these vulnerabilities can create the realization of externalities, such as fire sales, contagion, and adverse feedback loops. What is interesting is that these vulnerabilities, to some degree, also are essential to a well-functioning financial system with risk taking. So there is a major challenge to determine qualitatively and quantitatively when they pose a substantial enough risk to financial stability to warrant a macro-prudential policy response.

These vulnerabilities are fundamental but may be hard to measure directly or on an aggregate basis. Thus, the economy is broken down into various sectors, notably regulated banks, shadow banks, asset markets, and the nonfinancial sector (businesses and households), and the evidence in each is assessed.

There is a growing body of research on how financial frictions, combined with improving financial conditions, can lead to inefficient risk-return outcomes from a social perspective (see, for example, He and Krishnamurthy, 2012, 2013; Brunnermeier and Sannikov, 2014; Gorton and Ordonez, 2014; and Adrian and Boyarchenko, 2012). For example, risk premiums and volatility tend to compress substantially following favorable economic periods, and evidence also suggests that low risk

[15]See Jeanne and Korinek (2012) for a model to characterize the optimal mix of ex ante policy measures and ex post bailouts in models with financial amplification channels. Ex ante macro-prudential policies are more blunt because they depend on expectations, whereas bailouts are targeted. But bailouts distort incentives and create moral hazard. Jeanne and Korinek (2012) show ex ante measures can solve the time-consistency problem.

premiums tend to predict negative excess returns. Stretched asset valuations can pose a financial stability risk if they occur in conjunction with or in response to high leverage and lax underwriting standards. Some research indicates a tight link between asset valuations and expanding balance sheets and leverage at broker-dealers (Adrian and Shin, 2014; Adrian, Etula, and Muir, forthcoming). In addition, research documents evidence of a risk-shifting channel at banks, and of endogenous (short-term) leverage at banks (Dell'Ariccia, Laeven, and Suarez, 2013; Nuño and Thomas, 2013).[16] Moreover, growth in short-term secured funding markets, which depend on collateral valuations such as repo and asset-backed commercial paper, can accelerate as asset prices increase, but then generate fire sales and contagion when prices fall and uncertainty increases (Covitz, Liang, and Suarez, 2013; Gorton and Metrick, 2012).

In the United States, the financial sector has grown substantially since the 1960s, from 50 percent of GDP to 200 percent at the peak of the crisis in 2008. The banking sector grew substantially, but its growth was dwarfed by the growth outside of banks. Some of this growth represents increases by insurers, pension funds, and managed funds, like mutual funds, entities that are generally less levered than banks. But some of this growth is at shadow banks, defined by financial intermediation without the backing of deposit insurance, lender of last resort, or other official sector backstops. The core of shadow banks in the United States before the crisis consisted largely of securitizations sold to levered entities that were funded in wholesale short-term debt markets by highly risk-averse lenders, such as money market mutual funds. Securities broker-dealers facilitate shadow banking; to finance their own

[16] These focus more on risk-shifting, rather than moral hazard arising from the ability to divert resources (Gertler and Kiyotaki, 2010), as the financial friction that can lead to nonlinear amplification effects. That is, banks have limited liability, which gives an incentive to increase risk, and this incentive increases with the banks' debt burdens. So creditors impose a leverage constraint. Volatility shocks then affect real economic activity via the leverage ratio of financial intermediaries.

and client's securities holdings, they rely heavily on collateralized lending agreements, such as short-term repo, which become fragile when the value of collateral becomes uncertain. Although many reforms under Dodd-Frank and Basel have made great strides toward building the resilience of the regulated banking sector, little has been done to date to address the fragility of short-term funding markets.

MACRO-PRUDENTIAL POLICIES, INCLUDING MONETARY POLICY

Beyond structural policies in Dodd-Frank and Basel, what macro-prudential tools are available to mitigate identified cyclical systemic risks? For the regulated banking sector, a number of tools are on hand. First are supervisory guidance and exams. A recent example is the leveraged loan guidance issued by the bank regulators in 2013, which imposes higher underwriting standards for such loans, whether held on the books or distributed to other investors. The effectiveness of guidance will be limited if the activity can migrate easily to nonbank providers.

Another important tool is stress tests, which require banks to be adequately capitalized against a potential severe macroeconomic scenario. In the scenario and in the instructions to thefinancialinstitutions, supervisors can point to risks that seem particularly salient at a given moment and ask banks to consider how this risk would affect the banks' losses and revenues. In the recently completed stress tests, the scenarios incorporated greater risk from emerging market economies and corporate credit; last year's exercise, by contrast, highlighted euro area risks and mortgage credit.

In addition, there is a time-varying element in the design of macroeconomic scenarios, to help reduce the procyclicality in capital requirements and lending behavior. As an example, amid an improving economy, an increase in the unemployment rate of 4 percentage points might be viewed as insufficiently stressful; for this reason, scenarios will incorporate a floor of 10 percent for the unemployment rate.

An additional tool is the Basel III countercyclical capital buffer (CCB) for banks. The CCB would act to lean against booming credit expansions, but also to increase capital buffers, making firms more robust to a future deterioration in credit quality. Tighter monetary policy could also lean against booming credit, primarily by raising borrowing costs. However, unlike traditional macro-prudential tools, CCB would not directly build resilience at banks.

If emerging systemic risk concerns are in shadow banks or asset markets, such as overvalued corporate bonds or equities that have only limited connections to banks, the available tools are fewer. Communications via speeches by officials can be used to warn of speculative excesses. But the effectiveness of communications is unknown and difficult to measure. To the extent these securities are being financed in collateralized transactions, higher margins could be imposed to reduce investor leverage and reliance on short-term funding. The Fed has exercised its authority for setting margins on equities, but has not changed the level from 50 percent since 1977, given the ease of circumventing margin rules with derivatives. Moreover, the Fed does not have the authority to set margins on government securities. The effectiveness of adjusting margins also will require international coordination if transactions can be easily moved across borders.

In these situations, monetary policy is one of the few options available to policymakers. Higher interest rates likely would reduce asset prices, which would reduce collateral values and the endogenous creation of leverage at dealers. A major drawback is that higher rates also would have broader effects that might not be welcome if accommodative policy were needed to strengthen the economy.

More broadly, a number of factors must be acknowledged when considering the use of traditional macro-prudential policies or monetary policy. Both work to mitigate the buildup of excesses in risk taking. But macro-prudential tools likely have a single objective and can be more targeted at specific sectors of concern, suggesting they may be more appropriate when excesses are confined to narrower markets or institutions. Moreover, macro-prudential policies can lean against the

buildup of excesses, but may also increase the resilience of financial institutions because they require firms to increase capital or increase underwriting standards. However, macro-prudential tools may push risky activities out of the regulated sector, may require significant lead time because multiple agencies may be involved, and may have other costs to the extent credit allocation appears to be an outcome.

The success of macro-prudential policies relies importantly on two conditions. First is that the areas of concern can be successfully identified and interconnectedness understood, but regulators may have difficulty keeping up with emerging systemic risks when financial conditions are improving quickly and the pace of financial innovation is rapid. A second condition is whether macro-prudential tools can actually reach the areas of concern. Although some shadow bank activities are tied somehow to the regulated banking sector, many are not. For example, while the fragility of repo markets can be addressed somewhat by reducing the reliance of banks on this market, current banking reforms cannot address transactions that occur between unregulated entities.

In contrast, monetary policy affects financial conditions generally, suggesting it may be more appropriate when excesses are broad, activities are outside the regulated sector, and there are high costs to perceived credit allocation. Another advantage to monetary policy is that the lead time to implementation is likely shorter because the central bank is the sole decision maker.

Current research provides evidence that risk taking and financial leverage respond to changes in monetary policy, which suggests that the setting of monetary policy should explicitly consider financial stability. Still, as in the lean versus clean debate, there is a need to know whether tighter monetary policy is likely to diminish the risk. Indeed, controversy still exists over the effect of short-term interest rates on equity prices in the late 1990s and on house prices in the middle of the 2000s (Dokko and others, 2011). Moreover, tightening policy too late, after leverage has already increased, could itself possibly be destabilizing if it were to prick an asset bubble. But the recent crisis suggests that cleanups can be very costly.

It is often argued that macro-prudential tools should be deployed first because they are targeted and therefore less costly than monetary policy. However, an argument for more expansive and simultaneous use of monetary policy would be based on the premise that even when the risks can be identified, the effectiveness of macro-prudential tools is uncertain, and that monetary policy "gets in all the cracks."

To conclude, even if the two considerations—a dynamic financial system and endogenous risk taking—suggest that monetary policy should be used more than in the past for macro-prudential purposes, considerably more work would be needed to calibrate the effects and the costs to the economy. In addition, questions remain about the effectiveness of macro-prudential policies in mitigating systemic risks, especially when shadow banks are a substantial source of credit. In that case, more analysis also is needed to evaluate the costs and benefits of expanding the government safety net—along with the necessary accompanying regulations to limit moral hazard—to short-term wholesale funding and shadow banks.

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CHALLENGES FOR THE COORDINATION OF FINANCIAL SECTOR AND MONETARY POLICY: THE CASE OF MEXICO

Ana Maria Aguilar[17]

The global financial crisis has led to an intense debate about the implications of financial stability for monetary policy frameworks (***please see Appendix for the corresponding presentations, including figures and tables***). Generally speaking, there are two extreme views about this issue. On the one hand is the *traditional view*, which argues that monetary authorities should keep their mandate of price stability, while macro-prudential authorities should pursue financial stability, with each having its own policy instruments. On the other hand, there is a *leaning against the wind view*, which suggests that financial stability should be part of the central bank's objectives. In particular, it argues that financial stability concerns should be taken into account when deciding the appropriate monetary policy stance.

This note analyzes this issue from the perspective of emerging market economies (EMEs). Based on the current characteristics of these economies, this note argues that these extreme views might not be plausible. A more balanced view that emphasizes coordination might be appropriate. This alternative view should include key elements such as monetary policy with a primary objective of price stability, as well as a central bank involved in the design and implementation of macro-prudential policies along with other authorities. To do that, it is necessary to have a solid reputation and credibility, as well as appropriate coordination between monetary, fiscal, and macro-prudential policies.

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This note is structured as follows: The first section discusses some characteristics of EMEs that are relevant for assessing the proper approach for these economies. The second section analyzes the case of Mexico. The last section presents some conclusions.

CONSIDERATIONS FOR EMES

Financial stability concerns in EMEs are often associated with periods of massive and volatile capital inflows to these economies. For instance, episodes of large capital inflows may lead to artificially low domestic interest rates, excessive credit expansion, and sharp increases in asset prices in the recipient economies. Another concern is the possibility of a sudden reversal in capital flows. Abrupt reversals in foreign financing typically lead to sharp contractions of domestic expenditure and production, collapses in the real exchange rate, and reductions in both asset prices and credit to the private sector. In this context, adverse external shocks may be the trigger of financial crisis in EMEs.

Overall, short-term capital flows are mainly driven by, among other factors, interest rate differentials between advanced and emerging economies that usually lead to higher risk appetite for EMEs' assets among foreign investors. In this setting, the scope for addressing financial stability risks through monetary policy may be limited. In particular, higher domestic interest rates in comparison with interest rates in advanced economies may simply lead to additional capital inflows, exacerbating the financial imbalances.

Therefore, for EMEs, a comprehensive policy response may involve the use of macro-prudential tools with the participation of central banks in their design. Because financial vulnerabilities vary from one country to another, there is no one policy response suitable for all economies. However, there are some general principles. First, macro-prudential measures must be preventive in nature, that is, they must be designed to mitigate the buildup of risks during the expansionary phases.

Second, these measures must be state dependent. With respect to this point, it should be noted that capital inflows can be allocated to different markets and assets, with different implications for the development of financial imbalances. Overall, these inflows may be intermediated through the domestic banking system, directly invested in domestic assets such as real estate, or allocated to public or corporate debt markets. The effectiveness of macro-prudential tools depends on the circumstances. In particular, a higher probability of success occurs when financial vulnerabilities are originated in the banking system. In turn, macro-prudential policies might not work or be necessary when bubbles are not fueled by leverage and are more difficult to implement when flows are intermediated through the bond market. Finally, that there is no clear-cut boundary between macro-prudential and other policies. For example, micro-prudential and monetary policies are often labeled as macro-prudential.

Summing up, an effective and proactive regulatory and supervisory framework is crucial to increase the resilience of the financial system to adverse shocks. However, the specific measures to be implemented may vary among countries. Moreover, two additional elements must also be taken into consideration to reduce the vulnerability of EMEs. On the one hand, strong macroeconomic fundamentals are the first line of defense against adverse external shocks. In periods of financial turbulence, investors tend to differentiate between countries with solid fundamentals and those with weaker positions. On the other hand, economic growth always helps. Accordingly, given the complex external juncture, countries must focus on increasing the potential growth of their economies.

THE CASE OF MEXICO

Mexico, like other emerging economies, has significantly strengthened its macroeconomic policy framework and improved its economic fundamentals during the last decade. A monetary policy framework committed to price stability supported by a prudent fiscal policy,

relatively low levels of public debt, a flexible exchange rate regime, and a healthy domestic financial system has contributed to the creation of an environment of certainty and confidence among market participants, which has reduced the economy's vulnerability to adverse external events. This situation has significantly improved the credibility of Banco de México and increased the degrees of freedom of monetary policy. However, credibility should not be taken for granted. Therefore, Mexico has continued with the process of strengthening its macroeconomic policy framework to further improve investors' confidence.

Regarding financial stability issues, the resilience of the Mexican banking system is mainly due to reforms that strengthened the financial regulatory framework in the aftermath of the financial crisis of 1995. That crisis made it evident that the regulation and the supervision of banks were inadequate. To overcome this situation, several measures were adopted to reinforce the capital and liquidity of banks, as well as to improve their risk management. Accordingly, reducing the currency mismatches in its financial system, especially among commercial banks, became possible.

Mexico has continued to strengthen its financial regulatory framework to improve the resilience of the domestic financial system further. In 2010 Mexico's Central Bank created an area specialized in financial stability issues. Furthermore, the domestic banking system is largely compliant with Basel III. In addition, in 2010 a Financial Stability Council, with the participation of the central bank and government financial authorities, was established. The purpose of the council is to identify financial and macroeconomic risks that could have systemic effects, and recommend macro-prudential measures.

Finally, a financial reform was recently approved by the Congress. A key feature of the reform is the achievement of four essential balances. The first balance is between promoting credit growth, subject to greater capitalization, liquidity requirements, and a regime of guarantees in line with international standards, and the extension of the regulatory scope to other financial intermediaries. Second is the balance between the soundness of financial institutions and a greater degree of mobility of

economic agents among them. This must come from healthy competition in the financial system. Third is the balance between the need to protect users of financial services, and the need to avoid practices that undermine the essence of financial intermediation. Fourth is the balance between the flexibility that will be given to development banks and their obligation to provide access to financial services to those who lack such access. It is expected that all of the above will contribute to the orderly growth of credit markets in Mexico.

Summing up, given the very difficult international environment emerging economies currently face, the measures implemented in Mexico are very relevant. In particular, they have contributed to improving confidence in the Mexican economy, helping to attenuate the negative impact of external shocks. This may explain the Mexican economy's favorable evolution during the recent period of financial stress in international markets.

Final Remarks

To address the financial stability risks associated with capital inflows, Mexico has mainly focused on improving its economic fundamentals over time. Given the recent episodes of turbulence in international financial markets, it can be argued that those countries that have created credible macroeconomic frameworks based on strong fundamentals and sound macroeconomic policies tend to be relatively less affected by adverse external events. That is, although an adverse international shock may affect all economies, the severity of the impact on each economy may be related, to some extent, to domestic factors. Although strong macroeconomic fundamentals include monetary policy focused on price stability, it should be noted that Central Bank of Mexico also plays a leading role in the design and implementation of macro-prudential policies, along with other authorities.

SESSION IV

EXPERIENCES IN MOVING TOWARD MARKET BASED POLICY INSTRUMENTS

KOREA'S EXPERIENCE WITH MONETARY POLICY INSTRUMENTS

Woon Gyu Choi[18]

The Bank of Korea (BOK) gradually moved from quantity-based policy tools to market-based policy tools in the 1980s. After the 1997 Asian financial crisis, Korea's monetary policy framework shifted from monetary aggregate targeting to inflation targeting and interest rate policy (***please see Appendix for the corresponding presentations, including figures and tables***). With a heightened emphasis on financial stability, the BOK has recently been faced with challenges to its market-based policy—such as the controllability of long-term yields under elevated capital movements and the invigoration and harmonization of policy tools.

The monetary policy framework in Korea moved from monetary targeting to inflation targeting (slides 5–7). Monetary policy before the 1997 Asian crisis was based on the traditional two-step monetary targeting framework. The central bank used monetary aggregates as the intermediate target to achieve the final goal of price stability. To achieve the M2 target growth rate, bank reserves were used as the operating target, and three open market operation instruments—lending facilities, deposit facilities, and reserve requirements—were used for reserves control. Korea shifted to inflation targeting in April 1998 using the call/base rate as the policy rate to target inflation as the final goal, while maintaining the three instruments. During the transition, the broader monetary aggregate M3 and exchange rates were used as information variables. Under monetary aggregate targeting, actual M2 growth since

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the mid-1980s has often deviated from its target, owing to loosened relationships between monetary aggregates and economic activity because of rapid financial innovation. The nominal anchor moved from monetary aggregates (the so-called soft peg) as the intermediate target to inflation under single-step inflation targeting. Such a regime shift was also partly attributable to concerns about the impossible trinity problem.

The monetary policy focus shifted from monetary aggregates to policy rates (slides 8–10). Monetary policy that is focused on policy rates—which are easily observable and conducive to financial stability because they reduce the volatility of interest rates—could involve predictable effects in transmission. In these circumstances, the BOK has focused on policy rates: call rates from 1998 to 2008 and base rates (close to seven-day RP rates) since March 2008. The BOK has targeted CPI inflation with a range (+/– 1 or 0.5 percent), and currently targets headline CPI inflation in the range of 2.5 percent to 3.5 percent. Actual inflation has largely been in the target range except during crisis eras and during the recent year and a half when disinflationary pressures from abroad were felt. In its monetary policy move from direct measures to market-based measures, Korea successfully pursued interest rate liberalization, bond market development, exchange rate flexibility, and the operational independence of the central bank.

The BOK emphasizes market mechanisms—both to promote financial development and to obtain signals from, and respond to, financial markets (slides 12–16). Against this backdrop, monetary policy instruments are actively used to achieve price stability and financial stability. Reserve requirements had been an effective liquidity management tool until the 1980s but have not been so under inflation targeting (see presentation) The BOK usually does not remunerate banks' reserve holdings but can do so in certain situations. The BOK can set reserve requirements on financial debentures as well as on deposits. Looking forward, reserve requirements will not be binding if the liquidity coverage ratio (under Basel III) is too high.

Given a policy rate decision, the BOK conducts open market operations (OMOs) considering the demand for, and supply of, bank

reserves (slides 17–20). OMOs involve the sale and purchase of monetary stabilization bonds (MSBs) (introduced in 1961, with tenure up to two years) for long-term liquidity adjustment and RPs (mostly seven day) and MSAs (up to 91 days) for shorter-term adjustments. As of end-2013, MSBs accounted for 88 percent, and RPs for 7.5 percent of total liquidity withdrawal through OMOs.

The BOK provides lending and deposit facilities (slides 21–25). For standing facilities, a corridor system was introduced in March 2008 (the base rate +/– 100 basis points (see presentation). The deposit facility was very successful in absorbing excess liquidity and reining in the volatility of the overnight market rate during the global financial crisis, while the lending facility has been used cautiously owing to possible stigma effects. To address failures in financial markets, such as sectoral liquidity shortages amid ample aggregate liquidity, the BOK recently reinvigorated its credit policy—"Bank Intermediated Lending Support Facility." It offers lower interest rates to commercial banks with ceilings on the total quantity of such lending (see slide 25).

The policy rate affects both short- and longer-term rates via interest rate pass-through (slide 26). The policy rate is closely linked to short-term rates in the short term and through a one-for-one, long-term correspondence (perfect pass-through). It also affects longer-term rates with quite close links in both the short and long terms (imperfect pass-through).

Financial integration has loosened the domestic yield curve, posing a policy challenge (slides 28–29). International financial integration has affected the controllability of longer-term yields. Term spreads in advanced economies and emerging market economies show strong co-movements (see slide 29). The inversion of yield curves (the policy rate exceeded three-year bond rates) in 2012 in Korea is attributable to falling U.S. term spreads.

For both macroeconomic and financial stability, central banks need to more closely coordinate between monetary policy, macro-prudential policy, and credit policy (slides 30–32). The precrisis orthodoxy of inflation targeting became less effective after the global crisis. Now central banks

may need to work on a “new postcrisis nexus” between broader objectives and an expanded set of instruments, including macro-prudential policy. The BOK uses a three-prong macro-prudential policy, but the extent to which it interacts with monetary policy to reconcile macroeconomic stability and financial stability is not known. The funneling of aggregate liquidity by the central bank into market liquidity and loans for investment could be called a “modern reincarnation” of credit policy. To minimize possible distortions through interventions in credit flows and distributions, however, credit policy should be based on clear, preset principles: consistency with monetary policy, transparency, simplicity, use of the market mechanism, feedback from banks and borrowers, and monitoring of credit flows and performance.

In conclusion, there is no one-size-fits-all way to operate monetary policy over time and across countries. Nonetheless, the benefits of market-friendly policies still seem to outweigh the associated costs. A recent challenge to monetary policy in the face of capital mobility is that financial integration, which has weakened the controllability of longer-end yield curves, will render monetary policy operations more complex. Faced with extended roles and broader responsibilities, central banks need to develop new tools and modernize old tools**,** taking into account changes in macroeconomic and financial landscapes.

MOVING TOWARD MARKET-BASED POLICY INSTRUMENTS: THE MALAYSIAN EXPERIENCE

Sukudhew (Sukhdave) Singh[19]

Malaysia's monetary policy framework has evolved over time in response to changes in the economic environment and financial landscape in Malaysia (***please see Appendix for the corresponding presentations, including figures and tables***). Interest rate liberalization and the adoption of market-based interest rate setting require a well-functioning and developed financial system that is also well regulated and supervised.

After the Asian financial crisis (AFC) in 1997, the Malaysian authorities undertook a planned and wide-ranging transformation of the Malaysian financial system. The outline of this transformation was laid out in the Financial Sector Masterplan and the Capital Market Masterplan, produced, respectively, by Bank Negara Malaysia (Malaysia's Central Bank) and Securities Commission Malaysia.

Creating a strong and competitive banking system has been the foundation of the transformation. The establishment of effective risk-management mechanisms and credit information systems and a strong regulatory and supervisory framework have been some of the key ingredients that have facilitated the transformation. The establishment of deep and well-functioning financial markets in Malaysia has required a significant amount of effort on the part of policymakers in putting into place the infrastructure and regulatory environment, as well as developing the instruments and attracting a diversity of institutions. It

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has required a phased and carefully considered liberalization of domestic financial markets. Exchange controls have been progressively liberalized, and foreign participation in the domestic financial markets has increased.

The increased depth of the market and the greater diversity of market paper have helped policymakers in Malaysia adopt more market-based policy frameworks and instruments, including the following:

The adoption of a monetary policy framework that uses interest rates as a tool for managing macroeconomic and financial stability.

The increasing use of market-based instruments to conduct monetary policy.

Reduced need for intervention in markets due to the ability of the markets to effectively intermediate financial flows.

The presence of large domestic financial players such as pension funds and insurance companies has been a stabilizing force in domestic markets during times of sudden capital inflows and outflows. By being ready buyers and sellers of domestic paper, they have helped to mitigate the potential impact of these flows on yields and market conditions.

An important outcome of these developments has been that the exchange rate has behaved more flexibly in response to domestic and external developments. The contrasting relative behavior of the exchange rate and the policy interest rate in the pre-AFC period and the post-unpegging period is highlighted in the final slide of the presentation. Although exchange rate volatility increases the cost of doing business, the availability of hedging instruments in the domestic financial system has provided an avenue for businesses to manage some of that cost.

Nevertheless, being a small open economy, having deeper financial markets and market-based policy instruments alone may not ensure macroeconomic and financial stability. Therefore, there are a number of caveats:

Interest rates alone are not sufficient to address all risks. The Bank Malaysia Negara has actively used macro-prudential and supervisory measures to address specific risks in the financial system.

Occasional intervention in the Malaysian foreign exchange market is still necessary because of the large size of capital flows and the potential for them to destabilize market conditions and create overshooting of the exchange rate.

The increased depth of the Malaysian financial markets has increased the threshold of their tolerance to capital flows, but it has not eliminated it. It is still possible that capital flows can be so large and unrelenting as to overwhelm the absorptive capacity of the domestic financial system in the absence of intervention by policymakers. In fact, the depth of the financial markets can attract large capital flows due to the availability of liquidity and investable assets that are much sought after by international portfolio fund managers.

The regulatory and supervisory powers of Bank Malaysia Negara had to be enhanced not only to insure against systemic risks in the formal banking system but also among unregulated financial institutions.

The governance framework for surveillance and decision making among monetary policymakers and financial regulators had to be strengthened to ensure that risks are addressed preemptively and in a coordinated manner, using the most effective instruments.

CHINA: MOVING TOWARD INTEREST RATE TARGETING

MA Jun[20]

Currently, China's monetary policy framework involves setting an official quantity target (M2 growth) and making reference to the need for "reasonable" growth of credit and total social financing as well as stable market rates (***please see Appendix for the corresponding presentations, including figures and tables***). This policy framework attempts to balance the need to achieve one or a few desirable quantity targets against the need to stabilize market rates simultaneously in the short term. However, experience from recent years suggests that the stability of monetary aggregate growth and the stability of market rates are no longer compatible in the short term because of various liquidity shocks such as capital flows, financial innovation, shadow banking activities, policy arbitrage, and fiscal operations. In other words, if the stability of monetary aggregate growth takes priority, it is increasingly difficult to maintain market rate stability. And by destabilizing market expectations, high interest rate volatility (note that SHIBOR [Shanghai Interbank Offer Rate] volatility was 10 times that of LIBOR [London Interbank Offer Rate] in 2013) tends to negatively affect investment and other economic decisions.

China should consider a new monetary policy framework that involves a short-term policy rate as the operational target and the M3 growth rate as a medium- to long-term reference. This framework is similar to that currently in use by the European Central Bank. Under this framework, the main short-term objective of monetary policy operations is to achieve a desirable policy rate level and reduce the volatility of that rate around the target. Quantity targets are not emphasized in the short

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term. Only in the medium and longer terms is a moving average of the M3 growth rate taken into account in monetary policy.

The arguments for China's move toward targeting an interest rate in the short term include the following:

- The relationship between M2 growth and economic performance indicators (such as GDP growth and consumer price index inflation) has weakened substantially in the past decade, while the volatility of interest rates has risen sharply and the economic impact of high market rate volatility is becoming more visible.
- Some preliminary empirical analyses show that China's fixed-income market is reasonably developed, and the basic transmission mechanism between short-term rates and medium- and long-term rates has been established.
- The transmission of market rates to lending rates is also partially developed, although reforms are needed to further develop this mechanism.
- The interest rate sensitivity of firms has improved, although further reforms are needed to harden the budget constraints of local governments and state-owned enterprises.

The arguments for China's new monetary policy framework to retain some "reference" to a broad money indicator such as M3 growth in the medium and longer terms include the following:

- Despite the rapid development of its capital markets, China's financial system is still dominated by the banking system, which accounts for about 60 percent of total social financing. This feature is closer to that of the Euroarea, but differs sharply from the United States, where bank loans only provide 10 percent of total financing to firms. Monetary aggregates, as measures of monetary conditions and for prudential purposes, are more relevant to a financial system dominated by banks.
- A properly designed M3 (by including more liquid, money-like instruments in addition to deposits and cash) can have a better

long-term relationship to economic performance indicators than the short-term relationship between M2 and economic indicators.

The transition toward the new monetary policy framework may take two to three years. One possible road map for the transitional arrangement could involve the following steps:

- ***Step 1 (e.g., Year 1)***: Establish a de facto corridor around an implicit policy rate target that does not need to be announced. Establishing such a corridor can substantially reduce market rate volatility without changing the average level of rates.
- ***Step 2 (e.g., Year 2***): Further narrow the de facto interest rate corridor.
- ***Step 3 (e.g., Year 3)*** At the time the People's Bank of China abolishes benchmark deposit rates, it should announce the short-term policy rate target and an M3 growth rate as a medium-term reference for monetary policy implementation. By that time, an official corridor (with the interest rate on the standing facility as the cap and the interest rate on excess reserves as the floor) can also be established, in addition to the much narrower de facto corridor maintained by open market operations.

During the transition toward the new monetary policy framework, efforts should also be made to improve monetary policy transmission; establish analytical links between rates, M3, and economy and related economic forecast models; and improve the central bank's liquidity forecasting capacity. Several specific reforms in this regard are to (1) develop the securitization market, to improve transmission from the policy rate to the loan market; (2) develop the derivatives' market (especially interest rate swaps), to improve transmission between different segments of the yield curve; (3) improve the liquidity and maturity structure of the government bond market, to facilitate open market operations in all segments of the FI market; (4) remove the loan-to-deposit ratio (LDR) cap, which distorts the seasonal pattern of money demand; (5) improve coordination between government agencies to

enable better liquidity projection; and (6) gain experience in “operation twist”, to influence the shape of the yield curve.

FROM DIRECT TO INDIRECT INSTRUMENTS IN MONETARY POLICY: THE EUROPEAN EXPERIENCE OF THE 1980S

Heinz Herrmann[21]

Many central banks have changed their monetary policy strategy and tactics since late in the twentieth century (***please see Appendix for the corresponding presentations, including figures and tables***). One such change was the transition from direct to indirect instruments. Direct methods rely mainly on administrative measures, whereas indirect methods rely mainly on market-oriented price mechanisms. This overview provides some idea of why central banks in Europe switched from direct to indirect methods and of the problems with which they were confronted during the transition. This might be helpful for other countries considering similar reforms now or in the future.

In the mid-1980s, nine European countries (including Germany, France and Italy) were participating in the European Exchange Rate Mechanism, a system in which exchange rates were fixed but adjustable. Because exchange rate adjustments were often accompanied by turbulence in foreign exchange markets and had a number of unfavorable macroeconomic consequences, central banks attempted to bring their monetary policy more into line with fixed exchange rates. Among other things, this required more-harmonized monetary policy instruments. Indeed, at that time, monetary policy instruments (and the financial systems in general) differed to a remarkable extent. In Germany (like in the United Kingdom), indirect instruments clearly dominated, whereas the central banks in France, Italy, Spain, as well as in some of the smaller European countries, relied mainly on direct methods. (In those countries a large part of the banking system was also often under government

[21] Heinz Herrmann is Head of Research Deutsche Bundesbank.

control.) Such direct methods consisted of administrative credit controls (credit ceilings) and of high un-enumerated (marginal) reserve requirements (to influence credit growth and deposit and credit interest rates) along with combinations of these two instruments.

Central banks in these countries preferred such direct measures at that time for various reasons. One of the reasons given was to control several variables simultaneously (in particular, exchange rates through interest rates, and credit or monetary growth through direct measures). Another related reason was the attempt to control specific credit variables (for example, in specific regions or specific sectors). Yet another was that the financial markets were still poorly developed and central banks doubted whether they could rely on market mechanisms. However, owing to lack of experience, the central banks did not know the appropriate interest rate level. This problem was aggravated by the fact that inflation was often high and volatile, which meant that it was difficult to obtain a good estimate of the real interest rate.

The need for more harmonized instruments in Europe was one reason why central banks started to strengthen indirect instruments. Another and more fundamental motive was the finding that the direct measures were becoming more and more ineffective and that they were impeding efficiency in the banking sector and the economy in general. Banks tried to circumvent regulations, prompting even more complex regulations with further disadvantages. Countries therefore gradually introduced more indirect methods. They liberalized interest rates (long-term interest rates were often liberalized first and short-term interest rates at the end of the process), implemented phased reductions in reserve requirements, and softened credit ceilings so that they could be used as a safety net during an intermediate period. In parallel with these measures, central banks fostered the development of financial markets and the financial system in general so that, for example, effective open market policies could be used. Some countries also retained the possibility of temporarily reintroducing direct controls for emergencies. For example, Italy reintroduced credit controls for some months in 1986 when the lira came under downward pressure. However, it became clear that such temporary measures were not very successful.

During the transition period, some central banks complained that the indicator function of credit growth was being hampered. The Banca d'Italia, for example, reported some intensified competition among banks for a time. Furthermore, comparisons of the interest rate level before and after liberalisation—because rationing existed before liberalization and measured interest rates did not reflect the true equilibrium rate—are difficult. However, all in all, the transition process tended to run smoothly and without any serious problems. The rather favorable macroeconomic environment and the fact that the deutsche mark could be used as an anchor were probably an advantage in this context. From the present-day perspective, it is worth pointing out that none of these countries experienced a financial stability problem during this phase. However, transition periods are not always without risk. Sweden, which did not participate in the Exchange Rate Mechanism but had also liberalized its financial system and introduced more indirect instruments in the mid-1980s, was confronted with a serious banking crisis in the early 1990s. It can be argued that the crisis was a consequence of an ill-designed reform process in the macroeconomy and in the banking industry. The liberalization in the banking industry contributed to the development of external and internal imbalances and a housing boom that ended in a bust and a banking crisis. (For a detailed description, see, for example, Peter Englund, "The Swedish Banking Crisis, Roots and Consequences," *Oxford Review of Economic Policy*, Vol. 15, No. 3, 1999.)

CLOSING REMARKS

CLOSING REMARKS

MARKUS RODLAUER[22]

President Belka, Deputy Governors Yi, Choi, Murray, and Singh, distinguished guests, ladies and gentlemen:

In closing this conference, I would first like to thank all the speakers and attendees for their participation. We have had a busy and productive day, and I will not speak at length. I would just like to say a few words on how I think the main topics of today's proceedings relate to the road ahead for China.

Many of you have highlighted the key challenges in advancing China's monetary framework: (1) clarifying the mandate of the central bank and the goals of monetary policy; (2) continuing the evolution from the traditional anchors of quantitative credit targets, administered interest rates, and the exchange rate, to a new set of nominal targets and anchors; (3) adapting to financial innovation and the migration from bank to nonbank financial intermediation; and (4) conducting policy in an environment of accelerating global integration, capital account liberalization, and internationalization of the Chinese currency.

Clearly, this is a major and complex task, and it is therefore truly valuable for us to have discussed the latest international thinking on these and related issues. What are some of the key take-aways from today's discussions? Let me preface these with a point emphasized by Mr. He in his remarks today: as your experiences have shown us, there is no "one-size-fits-all" approach or solution; each central bank must adapt its policy framework to the particular circumstances of its country. With this caveat, I would note the following points:

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[22] Markus Rodlauer is Deputy Director, IMF Asia and Pacific Department.

As Mr. Fraga and Ms. Aguilar noted, it goes almost without saying that sound macroeconomic management is an important precondition for sustained growth, and in particular, that sound fiscal policy is a precondition for successful monetary policy. It is therefore critical to ensure that fiscal and quasi-fiscal activities do not "dominate" monetary policy.

As monetary policy evolves in a more and more market-oriented and globally integrated environment, central banks need greater flexibility and control over the monetary and macro-prudential tools at their disposal—a point highlighted by several speakers.

At the same time, Deputy Governor Yi Gang reminded us that effective, market-based monetary policy also needs sound corporate governance economy-wide and, as Sun Guofeng put it, hard budget constraints—otherwise the price signals of an interest rate–based monetary policy will remain unheeded.

Some of you reminded us of the painful experiences in your own countries as financial liberalization and a move from quantitative to price-based monetary policy were accompanied by an unintended loosening of monetary conditions—an experience the Chinese authorities are rightly determined to avoid.

Mr. Choi, echoed by several others, advised careful progression from the current anchors to a new framework, keeping multiple tools and target aggregates in the transition as safeguards to minimize the risk of accidents given the many uncertainties ahead.

In this context, having a strong prudential regulator that is dynamic, proactive, and well coordinated with the central bank is particularly critical during this phase of transition (Jun Zhu, Nellie Liang, and Ana Maria Aguilar).

Exchange rate flexibility will be key to China's independent monetary policy as the capital account becomes more and more open, an important point stressed by Governor Belka and several others.

And last, Andy Levin impressed on us the benefits of transparency and effective communication by central banks because monetary policy is as much about shaping current monetary conditions as it is about shaping expectations.

I am sure that there were many other important points, and each of the above topics merit much further thought and discussion. Some of that was given in today's presentations, and I am sure each of you will be prepared to share further insights and references in follow-up contacts and exchange of views. To preserve some of the very rich discussions we have had today, let me propose that we put together your presentations in a compendium (an e-book) that will be posted on the conference website, similar to what we did after last year's PBOC-IMF seminar on capital account liberalization.

In closing, please allow me to thank the People's Bank of China for jointly sponsoring the seminar again this year. I look forward to our continued collaboration. As China implements its comprehensive reform agenda in the coming years, rest assured that the IMF stands ready to provide any assistance and advice that you may find helpful.

BIOGRAPHIES

Dr. ZHOU Xiaochuan, Governor, the People's Bank of China.

Dr. Zhou was born in January 1948 at Beijing, People's Republic of China. He graduated with a B.E. degree from Beijing Institute of Chemical Technology in 1975 and received a Ph.D. in Economic Systems Engineering from Tsinghua University in 1985.

Dr. Zhou was Assistant Minister of Foreign Trade and Economic Cooperation from December 1986 to December 1989 and, between November 1986 and September 1991, was also a member of the State Economic System Restructuring Committee. He became Vice President of the Bank of China in September 1991 and remained in that position until October 1995 when he was appointed Administrator of the State Administration of Foreign Exchange. Between October 1996 and February 1998, Dr. Zhou was Deputy Governor of the People's Bank of China and Administrator of the State Administration of Foreign Exchange. Then, he served as President of the China Construction Bank until his appointment as Chairman of the China Securities Regulatory Commission in February 2000. Dr. Zhou returned to the People's Bank of China as Governor in December 2002, and started to chair the regular meetings of the Monetary Policy Committee in January 2003.

Dr. Zhou is among the first group of intellectuals who are entitled to receive special government allowance and the author of over 100 academic papers and more than 10 books.

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Dr. YI Gang, is the administrator of the State Administration of Foreign Exchange and a deputy governor of the People's Bank of China.

Dr. YI received his Ph.D. in Economics from University of Illinois in 1986 and taught at Indiana University from 1986 to 1994. He co-founded the China Center for Economic Research (CCER) at Peking University in 1994 and has been a professor at CCER since then.

Dr. YI joined the People's Bank of China in 1997 and has held a number of senior positions, including Secretary-General of the Monetary Policy Committee and Director-General of the Monetary Policy Department. He became a deputy governor of the People's Bank of China in December 2007 and was appointed the Administrator of the State Administration of Foreign Exchange in July 2009.

His research interests include money, banking and the Chinese economy.

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Mr. LI Bo, Director General, Monetary Policy Department II, the People's Bank of China

Mr. Li joined the PBOC in 2004, working in the Legal and Regulation Department before joining the Monetary Policy Department II in 2009. Prior to joining the PBOC, Mr Li was a practicing attorney with the New York law firm of Davis Polk & Wardwell. Mr. Li holds a Ph.D. degree in economics from Stanford University and a J.D. magna cum laude from Harvard Law School. He is a member of the Chinese and New York Bar.

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Mr. HE Jianxiong, Director General, International Department, the People's Bank of China

Mr. He has worked in the PBC since 1991, first as Deputy Division Chief, then as Division Chief, Deputy Director-General, and Director-General in the International Department. During this period, Mr. He has held a few positions in the IMF, as Advisor to Executive Director in 1995-1997, Alternate Executive Director for China in 2006-2009 and Executive Director for China from May 2009 to November 2011.

Before joining the PBC, Mr. He was Deputy Manager of the CITIC Trading Inc, following his academic experiences in the University of

International Business and Economics where he secured his Bachelors and Masters degrees and then worked successively as Assistant Lecturer, Lecturer and Deputy Dean in the School of International Business. In 2001-2005, Mr. He was also Vice President of China Institute of International Economic Relations. Mr. He has published many articles in international finance and economics.

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SUN Guofeng, Deputy Director General, Monetary Policy Department, the People's Bank of China

Sun Guogeng graduated from the Graduate School of the People's Bank of China in 1996, before joining PBC's Planning and Central Bank Lending Department in the same year. He then worked in the Bank's Monetary Policy Department, where he served as Deputy Director of Open Market Operations and subsequently Director of Foreign Exchange Transactions. Mr. Sun has held the office of Deputy Director General of the Monetary Policy Department since 2010, primarily engaged in the establishment of the inter-bank bond market, the development of China's money market, the launching of open market operations, and the reform of the RMB exchange rate regime. During 2003-2004, he was invited to do research as a visiting scholar at Stanford University. Mr. Sun is currently a part-time professor at the University of International Business and Economics of China and a distinguished member of the China Finance 40 forum.

Sun Guofeng has for many years studied topics such as credit money theory, central bank monetary policy, RMB exchange rate, the bond market, the money market and international financial markets. He is the author of more than 60 papers and 2 books, and has been a guest speaker at various colleges and research institutions including Stanford University, University of California, Berkeley, the Bank for International Settlements, China Center for Economic Research at Peking University, and China Society for Finance and Banking.

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Dr. Wang Yu, Deputy Director General, Bureau of Research, The People's Bank of China

PhD in Economics, Remin University, 1994; Completed post-doctoral research at the Institute of World Economy and Politics, Chinese Academy of Social Sciences, 1996.

Dr. Wang joined the People's Bank of China in 1996 and has been working successively at Department of Monetary Policy, Department of Financial Market and Bureau of Research. Dr. Wang was a visiting scholar at Stanford University, and served as member of the board for China Society of World Economics and American Society of Economics. Dr. Wang is an adjunct professor at PBC School of Finance and write columns for *China Economic Times* and *Modern Bankers*.

During his tenure at the People's Bank of China, Dr. Wang participated in the creation of China's monetary policy framework and the building of the Chinese financial market. He is involved in market-based interest rate reform, exchange rate reform, as well as the convertibility of capital account. Dr. Wang participated in the formulation of rules and development of trading tools for the Chinese currency and gold markets. Dr. Wang's work supports the opening up of the Chinese financial market to the world.

Dr. Wang's main research areas are: monetary policy, financial market, exchange regime and international finance. He has published over 800 papers on such publications as *Economic Research Journal*, *Journal of Financial Research*, *Journal of World Economy*, *Seeking Truth*, and *China and World Economy*. Dr. Wang's scholarly writings also appeared on the *People's Daily* (theory section), *China Economic Times*, *Guangming Daily*, *Economic Daily*, *China Business Post* and *21st Century Business Herald*. More than twenty of his works, including translations, have been published by the Commercial Press, SDX Joint Publishing Company, People's Press and China Financial Publishing House.

Dr. Wang has given speeches on seminars at the IMF, BIS, Stanford University, Peking University, Tsinghua University, and China National School of Administration, as well as on Phoenix TV.

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ZHU Jun, Deputy Director-General, International Department, the People's Bank of China

Ms. Zhu Jun joined the People's Bank of China in 1993 and has held a variety of positions since then. After working in the Governor's Office, Ms. Zhu joined the International Department in 1997, first in the BIS Division and then in the Research Division. In 2001, she became Deputy Director of the Research Division, and in 2006 the Director. She was appointed Deputy Director-General of the International Department in 2009.

She worked in the BIS as a secondee from March to October 1999. In September 2003, she returned to the BIS and worked as an Economist until December 2005.

Ms. Zhu graduated from Peking University with a Bachelor's degree in Economics in 1989, and received her Master's degree in Economics in Peking University in 1993.

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ZHOU Hao is currently a professor at PBC School of Finance, Tsinghua University. Before March 2013, he was a senior economist at the Board of Governors of the Federal Reserve System. Hao's prior official duty involved supervising systemically important financial institution and advising the Board of Governors on macroprudential regulation policy. Hao was visiting professors at MIT and Peking University. He joined the Federal Reserve after receiving a PhD degree in economics from Duke University in 2000 and also held BA and MA degrees in economics from Peking University.

Hao's research agenda covers the areas of consumption-based asset pricing models with stochastic volatility, structural credit risk models and credit derivatives market, financial market volatility and return

predictability, dynamic model of term structure of interest rate, realized jumps on financial market and asset pricing puzzles, international risk premium dynamics and incomplete market, systemic risk and macro-prudential regulation of financial institutions. He has published in Journal of Finance, Review of Financial Studies, Journal of Financial and Quantitative Analysis, Journal of Econometrics, Journal of Business and Economic Statistics, Journal of Banking and Finance, Journal of Financial Econometrics, Journal of Financial Services Research, among others.

His research has been recognized by numerous academic and professional awards, including Whitebox Advisors Selected Research Best Financial Research Paper finalist, China International Conference in Finance Best Paper Prize, Crowell Memorial Prize, Chicago Quantitative Alliance (CQA) Academic Competition, BankScope Best Paper Prize of Australasian Finance and Banking Conference, Global Association of Risk Professionals (GARP), Imperial College London Centre for Hedge Fund Research, Bocconi Centre for Applied Research in Finance (CAREFIN), among others.

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Ana María Aguilar, Director of Economic Studies, Central Bank of Mexico.

Since 2004 Ana María Aguilar holds a PhD in Economics by the University of California, Los Angeles (UCLA), and has worked in Banco de México since 1998. In the Central Bank Dr. Aguilar worked as an economic researcher, and later was in charge of the Monetary Research Division. Presently, she is the Head of the Directorate of Economic Studies. On the one hand, Dr. Aguilar is in charge of the analysis of the monetary policy, particularly the economic factors including the performance of financial markets, affecting the evolution of inflation and its expectations. On the other hand, she is in charge of the relation between the Directorate General of Economic Research and the national and international academic sector. Additionally, she provides support to the authorities of the Central Bank in making monetary policy decisions and other relevant

topics of the economic policy, as well as in informing the general public of the referred decisions.

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Marek Belka, President, Narodowy Bank Poliski

Born in January 1952 in Łódź (central Poland), Marek Belka graduated from the University of Łódź with a Master's Degree in Economics in 1972, continued his academic career at the Institute of Economics of his *alma mater*. He received his Ph. D. in 1978, which was followed by a postdoctoral degree in economics ("habilitation") in 1986. Associated with the Polish Academy of Sciences since 1986, Marek Belka was a research fellow at the Columbia and Chicago Universities (1978-79, 1985-86) and at the London School of Economics (1990). He received the title of Professor of Economics in 1994.

Professor Belka has published over 100 scientific papers dedicated primarily to the theory of money and anti-inflation policy in developing countries. He specializes in applied economics and contemporary economic thought.

From 1990 to 1996, he worked as a consultant and adviser at the Polish Ministry of Finance, and subsequently at the Polish Ministry of Ownership Transformations and at the Central Planning Office. He became a consultant to the World Bank in 1996.

From 1994 to 1996, Professor Belka was Vice-Chairman of the Council of Socio-Economic Strategy at the Council of Ministers, and next economic adviser to the President of the Republic of Poland.

Professor Marek Belka served as Deputy Prime Minister - Minister of Finance on two occasions: in the government of Włodzimierz Cimoszewicz in 1997 and in the government of Leszek Miller from 2001 to 2002.

From May 2004 to October 2005, Professor Belka served as Prime Minister of Poland.

Professor Belka has also held numerous top-rank positions within the international community. In 2003, he served as Chairman of the

Council for International Coordination for Iraq and as Director of Economic Policy in the Coalition Provisional Authority (2003-2004) where he was responsible for the currency reform, the development of a new banking system and supervision of the Iraqi economy. From 2006 to 2009, he held office in the United Nations as Executive Secretary of Economic Commission for Europe (UNECE) in Geneva. In January 2009, he assumed office as Director of the European Department at the International Monetary Fund.

On 10 June 2010, Professor Marek Belka was approved by the Parliament of the Republic of Poland as President of Narodowy Bank Polski.

In January 2011, Professor Marek Belka was elected for a 3-year term of office in the Steering Committee of the European Systemic Risk Board. Since November 2011 he has also chaired the World Bank/IMF Development Committee.

Professor Belka is married and has two adult children.

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Mr. Woon Gyu Choi is currently a Deputy Governor and the Director General of the Economic Research Institute at the Bank of Korea (BOK). Before joining the BOK in June 2012, he worked at the IMF (the Asian Division of the IMF Institute, 2000–2012). At the IMF Institute, he taught various courses in macroeconomics, international finance, finance, and related policy issues to government officials worldwide. He led and/or coordinated various IMF courses including financial programming and policies, macroeconomic diagnostics, economic policies for financial stability, financial market analysis, macroeconomic management and financial sector issues/fiscal policy, and monetary and exchange rate policy. Prior to joining the Fund, he worked at the Research Department of the BOK (1987–1991), and taught all levels of courses including money & banking and advanced macroeconomics as an assistant professor at the Hong Kong University of Science & Technology (1995–2000). His research interests include monetary policy and financial markets, aggregate and

corporate money demand, exchange rate policy and fiscal policy issues, international reserves, financial cycles, macroeconomic policies and unemployment, and global financial market issues. He has publications in leading academic journals including Journal of Monetary Economics, Journal of International Economics, Journal of Money, Credit, and Banking, and Journal of Financial and Quantitative Analysis. He obtained his Ph.D. in economics from the University of California, Los Angeles (UCLA).

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Arminio Fraga is the founding partner at Gavea Investimentos, an investment management firm he founded in August, 2003, based in Rio de Janeiro, Brazil. Mr. Fraga was the Chairman of the Board, BM&FBovespa, Brazil's securities, commodities and derivatives exchange, from April 2009 to April 2013, and was the President of the Central Bank of Brazil from March 1999 to December 2002. From 1993 until his appointment as governor of the Central Bank, he was managing director of Soros Fund Management in New York. From 1991 to 1992, he was the director responsible for international affairs at the Central Bank of Brazil. Earlier in his career, he held positions with Salomon Brothers and Garantia Investment Bank. Mr. Fraga has taught at the Catholic University of Rio de Janeiro, the Graduate School of Economics at Getulio Vargas Foundation, the School of International Affairs at Columbia University and the Wharton School. He is a member of the Group of Thirty and of the Council on Foreign Relations, and serves on the boards of several NGOs. Mr. Fraga has published widely in the areas of international finance, macroeconomics, and monetary policy. Mr. Fraga earned his Ph.D. in Economics from Princeton University in 1985, and his BA/MA in Economics from the Catholic University of Rio de Janeiro, in 1981.

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Stephen Green is Head of Greater China research at Standard Chartered Bank. His team is based in Beijing, Shanghai, Hong Kong and Taipei. Stephen has a Ph.D. from the Department of Government, London School of Economics and Political Science and a first class Honours degree from Cambridge University. He has been a visiting researcher at Fudan University in Shanghai and at the Shenzhen Stock Exchange.

Previous to joining Standard Chartered, Stephen was Head of the Asia Programme at London's Chatham House, The Royal Institute of International Affairs, and was the Deputy Editor on The Economist's *The World in...*magazine for several years, during his Ph.D. work. He has also worked in rural Kenya and Mozambique, doing relief work, as well as teaching.

His fourth book, 大国经济之路 (*The Challenges of China's Economy*), was published in Chinese in January 2010 by CITIC Publishers.

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Philipp Hartmann is the Deputy Director General and the Acting Head of the research department at the European Central Bank (ECB). He is also a Fellow of the Centre for Economic Policy Research and a chaired part-time professor of macro-financial economics at Erasmus University Rotterdam. His previous positions include that of Vice President of SUERF, member of the Basel Committee Research Task Force, Head of the Financial Research Division at the ECB and Research Fellow for Financial Regulation at the London School of Economics.

Mr Hartmann's work is on a wide range of issues in financial, monetary and international economics. He has authored or co-edited several books, published numerous articles in academic and market journals and serves as an associate editor of the Journal of Financial Stability. His policy work has been published in many official reports and discussed in fora including the ECOFIN Council, the ECB Governing and

General Councils, the Basel Committee on Banking Supervision, and the United Nations Economic Commission for Europe.

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HE Dong is Executive Director (Research) at the Hong Kong Monetary Authority (HKMA), responsible for managing the Research Department and for directing research and policy advice on issues relating to the maintenance of macroeconomic and financial stability, and the development of financial markets. He is also Director of the Hong Kong Institute for Monetary Research, responsible for leading the Institute's research activities.

Prior to joining the HKMA in August 2004, Mr. He was a staff member of the International Monetary Fund during 1998-2004 and a staff member of the World Bank during 1993-1998. He had wide-ranging experience working with member countries in policy consultation, loan negotiation, and technical assistance.

Mr. He holds a doctorate in economics from the University of Cambridge, and has published extensive works on macroeconomic and financial market issues relating to Hong Kong, Mainland China and other emerging market economies.

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Heinz Herrmann is the head of research of the Deutsche Bundesbank. He received his PhD in 1978. From 1978 until 1980 he worked in the staff of the German Council of Economic Advisors and joined the Deutsche Bundesbank as an economist in 1980. He served as deputy head of the monetary analysis division and as head of a unit for preparation of the EMU before he became head of the Bundesbank research centre in 2000. He is also a member of the German Data Forum.

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Leonardo Leiderman is Professor of Economics in Tel Aviv University. Born in Cordoba, Argentina in 1951, migrated to Israel in 1969 and started BA studies at Hebrew University of Jerusalem. Completed MA studies in 1974 and then moved to the University of Chicago, USA, for Economics Doctorate degree which was obtained in 1978. Then took a teaching and research position at Tel Aviv University up until now. Over the years, visited in numerous occasions the IMF, World Bank, University of Chicago and other institutions. Held top positions at Deutsche Bank and the Bank of Israel. Published more than 70 articles in professional journals and authored or edited 7 books. Main areas of research are macroeconomics, monetary policy, emerging markets, international finance.

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Andrew Levin is currently a resident scholar in the research department at the International Monetary Fund. Dr. Levin received his Ph.D. in economics from Stanford University in 1989. He was a staff member at the U.S. Federal Reserve Board from 1992 to 2012, most recently serving for two years as a special adviser to Chairman Bernanke and Vice Chair Yellen on monetary policy strategy and communications. Dr. Levin has also had extensive interactions with many other central banks: He served as a consultant to the European Central Bank's inflation persistence network and to the Bank of Canada's external review of research, was a co-editor of the *International Journal of Central Banking*, has been a visiting scholar at the Bank of Japan and the Dutch National Bank, and has provided technical assistance to the national banks of Albania and Macedonia. Mr. Levin's own research has been published in leading economic journals, including the *American Economic Review*, the *Journal of the European Economic Association*, the *Journal of Monetary Economics*, and the *Journal of Econometrics*.

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Nellie Liang is the Director of the Office of Financial Stability Policy and Research (OFS) at the Federal Reserve Board. OFS is responsible for conducting and coordinating work at the Board relating to analyzing emerging and structural financial risks to financial stability and evaluating alternative policies to mitigate systemic risks. Ms. Liang's recent research has focused on short-term funding markets, debt covenants on employment risk, corporate payout policies, defined contribution pension plans, and company stock. Her research has been published in Journal of Finance, Journal of Financial Economics, Journal of Financial and Quantitative Analysis, and Journal of Public Economics, among other places. She received her PhD in economics from the University of Maryland.

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MA Jun is Managing Director, Chief Economist for Greater China, and Head of China/Hong Kong Strategy with Deutsche Bank. Prior to joining Deutsche Bank in 2000, Jun worked as economist and senior economist at the International Monetary Fund and World Bank from 1992-2000. From 1988-1990, Jun was an Economic Research Fellow at the Development Research Center of China's State Council. Jun has published eight books and several hundred articles on the Chinese economy, global economy, and financial markets. Jun was frequently invited by government agencies for policy discussion. His main research interests include macroeconomic forecasting, monetary and exchange rate policy, RMB internationalization and capital account liberalization, financial market development, and structural reforms.

Jun has been frequently rated at the top in his fields by various investor polls. His recent accolades include the No.1 Asia economist and the No.1 China analyst in Institutional Investor's for the past four years in a row (2009-2012), one of "Top Chinese Bankers" by Finance Asia (2012),

as well as many No 1 rankings on China economics and strategy research by Asia Money, Thomson-Reuters, and Sohu Finance, among others.

Jun received his Ph.D. in Economics from Georgetown University in 1994, his master's degree in Management Science from Fudan University in 1988.

Jun is a member and director of China Finance-40 Forum, member of the academic committee of Boyuan Foundation, member of the academic committee of International Finance Forum, member of the academic committee of Shanghai New Finance Institute, Vice Chairman of Hong Kong Chinese Finance Association, member of the Youth Committee of All-China Federation of Overseas Chinese, and Adjunct Professor at Fudan University.

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John Murray was appointed Deputy Governor of the Bank of Canada in January 2008. In this capacity, he is one of two deputy governors responsible for overseeing the Bank's analysis of domestic and international economic developments in support of monetary policy decisions. As a member of the Bank's Governing Council, he shares responsibility for decisions with respect to monetary policy and financial system stability, and for setting the strategic direction of the Bank.

Born in Toronto, Mr. Murray received a bachelor of commerce degree from Queen's University in 1971, as well as an MA in economics and a PhD in economics from Princeton University in 1974 and 1977, respectively.

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Markus Rodlauer is Deputy Director of the IMF's Asia and Pacific Department. He was head of the team that prepared the 2012 Article IV Consultation for the People's Republic of China. His previous operational responsibilities include being Deputy Director in the Western Hemisphere Department, Assistant Director in the Asian Department, and IMF Representative to Poland and the Philippines. Dr. Rodlauer worked with the Ministry of Foreign Affair of Austria before joining the IMF. His academic training includes various degrees in economics and international relations and a Doctor of Law from the University of Innsbruck.

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Alfred Schipke is the IMF Senior Resident Representative for China. Previously, he was a division chief in the Asia and Pacific Department, where he coordinated the work on fast growing low income countries in South-East Asia (Frontier Economies) and led missions to Vietnam. He was a division chief in the IMF's Western Hemisphere Department in charge of the Latin Caribbean and Eastern Caribbean Currency Union (ECCU) divisions. Among others, he negotiated a high access Stand-by Arrangement, which included a debt restructuring and a debt-equity swap for one of the countries in the ECCU, as well as an $800 million precautionary Stand-By Arrangement for El Salvador. Also, he was the Regional Resident Representative for Central America, Panama, and the Dominican Republic and worked in the IMF European Department. He teaches international trade and finance at Harvard University, John F. Kennedy School of Government and has authored and edited a number of books and articles, including a recently published handbook on the ECCU. His research has focused on economic integration and the linkages between macroeconomics and finance.

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Sukudhew (Sukhdave) Singh is Deputy Governor at Bank Negara Malaysia, with responsibility over Monetary Policy, Economics, International, Statistics, IT, Risk Management and Human Capital Development. He is also a member of Bank's Monetary Policy Committee, Financial Stability Committee and Board of Directors.

Dr. Sukhdave joined Bank Negara Malaysia in 1986 and holds a PhD in Monetary and International Economics from Vanderbilt University, USA. In his service with the Central Bank, Dr. Sukhdave has contributed to various other functional areas including financial stability, payment systems, human resource management, statistical information systems, and in the financial advisory role to the Government. He has chaired a number of regional taskforces and was co-chair of the SEACEN Experts Group on capital flows. He is also Malaysia's negotiator for financial services in the Trans-Pacific Partnership (TPP) Free Trade Agreement negotiations.

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Wang Tao, Managing Director, Head of China Economic Research, UBS Investment Bank

Dr. Tao Wang is a managing director and the Head of China Economic Research at UBS investment bank. She leads a team that covers China's macroeconomic and policy issues. Prior to joining the company, Dr. Wang was Head of Greater China Economics and Strategy at Bank of America and Head of Asian Economics at BP plc.

Before joining the private sector, Dr. Wang was a Senior Economist at the International Monetary Fund (IMF), working on the China desk. During the eight years she spent at the IMF, Dr. Wang was involved in program negotiations and annual consultations with many member countries, and published a number of research papers. She also worked

as the Chief Asia Economist at DRI/ McGraw-Hill (currently Global Insight).

Dr. Wang received her Ph.D. in Economics from New York University and her bachelor's degree from Renmin University in Beijing.

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Tsutomu Watanabe is Professor of Economics at the Graduate School of Economics, University of Tokyo, where he has been teaching macroeconomics, monetary economics, and international finance since October 2011. Before that, he was Professor at the Institute of Economic Research, Hitotsubashi University in 1999-2011, and Senior Economist at the Bank of Japan in 1982-1999. He has also held visiting professor positions at various universities, including Kyoto University and Bocconi University. He received his Ph.D. in Economics from Harvard University in 1992, and did his undergraduate work at the University of Tokyo. Watanabe's main research area is monetary policy and inflation dynamics. He is known for his series of papers on monetary policy when nominal interest rates are bounded at zero; in particularly, his paper on the optimal monetary policy at the zero lower bound, whose first draft appeared in 2001 and final version was published in 2005, has been widely recognized as the first paper to provide a simple description of the liquidity trap and characterize the optimal policy response to it in a setting of dynamic stochastic general equilibrium. He is an author of many books and more than 40 academic journal articles on monetary policy and international finance. He is Project Leader of JSPS Grant-in-Aid for Scientific Research projects on "Understanding Persistent Deflation in Japan" (2012-2017).

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APPENDIX

PRESENTATIONS

PART I

SESSION I: Evolving Monetary Policy Frameworks after the Global Financial Crisis

Rethinking Monetary Policy
LI Bo

Beyond Flexible Inflation Targeting
John Murray

The ECB's Monetary Policy Framework Before and After the Crisis
Philipp Hartmann

Escaping from a Liquidity Trap and Deflation: The Japanese Experience in 1999-2014
Tsutomu Watanabe

PART II

SESSION II: Changing Toolkit of Central Banks

Chinese Monetary Policy Tools
SUN Guofeng

Some Thoughts on the Design of Monetary Policy Strategy and Communications
Andrew Levin

China's Evolving Monetary Policy Framework
WANG Tao

PART III

SESSION III: Rapidly Changing Financial Systems: Challenges for the Coordination of Financial Sector and Monetary Policy

PART IV

SESSION IV: Experiences in Moving Toward Market Based Policy Instruments

PART I

SESSION I: EVOLVING MONETARY POLICY FRAMEWORKS AFTER THE GLOBAL FINANCIAL CRISIS

Re-Thinking Monetary Policy

The People's Bank of China

Monetary Policy Department II

Li , Bo

March 27, 2014

Contents

- **Post-Crisis Monetary Policy : A Primer**
- **Rethinking Monetary Policy**
- **Policy Coordination: Monetary vs. Fiscal**
- **Lessons for China**

2

Post-Crisis Monetary Policy: A Primer

Interest Rate Structure when Financial Market is Stable

$$R_t = R_{f,t} + CS = (R_{f,0} + TP) + CS$$

- Zero Interest Rate Policy (ZI): Reduce $R_{f,0}$ to zero

- Quantitative Easing (QE): Reduce TP

- Credit Easing (CE): Reduce Sector-Specific CS

3

Re-Thinking Monetary Policy

- **Central bank mandate**
  - Is single mandate(price stability) proper?
  - Does inflation targeting imply single mandate?
  - Can price stability ensure financial stability?
  - Should inflation target be higher or more flexible?(Blanchard, Ariccia and Mauro, 2010)

4

Re-Thinking Monetary Policy

- **Central bank operations**
  - Is policy rate effective?
  - Should quantity target be re-introduced?
  - How can monetary policy respond to productivity shocks?
  - Macroprudential policy: What is the role of a central bank?
  - Can traditional CPI effectively measure the overall price increase? (Zhang, 2010)

5

Re-Thinking Monetary Policy

- **Central bank independence**
  - Since the financial crisis, central banks face heightened pressure from various sectors: government, market, and the public
  - Independence from the government? From the legislature?
  - Democratic politics and long-term inflation: Is it inevitable?

6

Re-Thinking Monetary Policy

- **Monetary policy strategy**
  - Rule vs. discretion
  - Since the financial crisis, central banks have faced numerous new circumstances, and are forced to exercise discretion
  - Central banks are also inventing new rules: e.g., Federal Reserve's forward guidance.

7

Policy Coordination: Monetary vs. Fiscal

- **"Expert-governed" monetary policy vs. "Legislature- governed" fiscal policy**
  - Policy objectives
  - Policy constraints
  - Policy tools
  - Decision-making mechanism

8

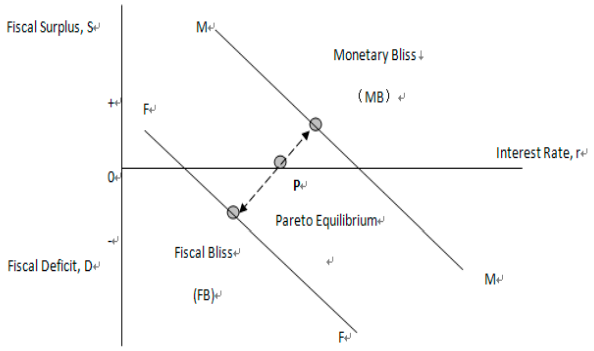
Mixed Governance of Macroeconomic Policies

- **Short-term perspective**
  - "Expert-governed" monetary policy can compensate to a certain degree for insufficient "legislature-governed" fiscal policy during downturn
- **Long-term perspective**
  - Imprudent long-term fiscal policy may eventually lead to financial and economic crises and create pressure for monetary policy easing
  - Democratic politics and inter-generational externalities

9

Policy Coordination: Monetary vs. Fiscal

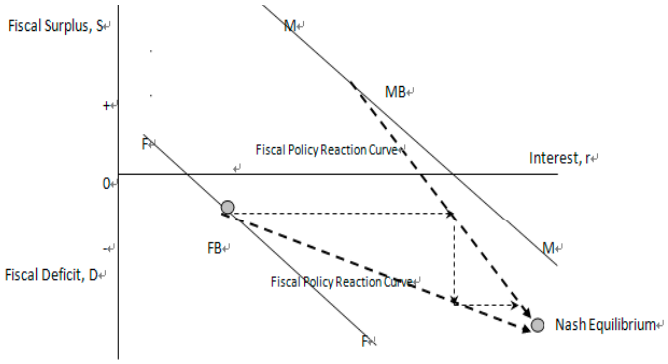
- **Game Theory Model –- Nordhaus (1994)**



10

Policy Coordination: Monetary vs. Fiscal

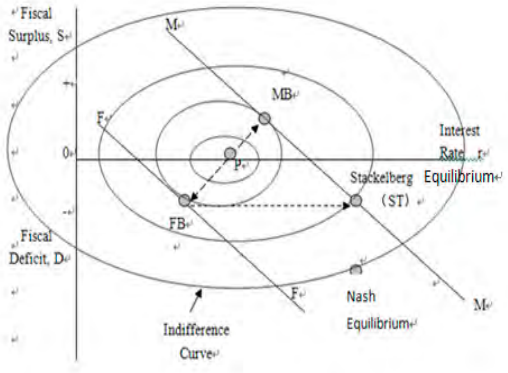
- **Nash equilibrium in static, non-cooperative case–Nordhaus (1994)**



11

Policy Coordination: Monetary vs. Fiscal

- **Fiscal policy leadership and Stackelberg equilibrium in dynamic game–Nordhaus (1994)**



12

Policy Coordination: Monetary vs. Fiscal

- Nordhaus (1994) assumes a single mandate for central banks
- In reality, a multi-task central bank may be forced to lower interest rate by inflexible (short term) and imprudent (long term) fiscal policy(Stackelberg game)

13

Lessons for China

- Multiple objectives of monetary policy may be desirable
- Macroprudential considerations are important
- The role of inflation targeting
- The role of discretion
- Fiscal reform: independent evaluation may be desirable
- Policy coordination is important
- Rethinking central bank independence

14

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Beyond Flexible Inflation Targeting

"New Issues in Monetary Policy: International Experience and Relevance for China"
Hosted by the PBOC and IMF
Beijing, China – 27 March 2014

John Murray
Deputy Governor
Bank of Canada

www.bank-banque-canada.ca

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Outline

- Canada's experience with flexible inflation targeting before and after the crisis
- Renewal of Canada's inflation targets in 2011
- Outstanding issues related to the monetary policy framework
- Optimal monetary policy, history dependence and price-level targeting

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Canada's Experience with Flexible Inflation Targeting

- Canada was an early adopter of inflation targeting
- Performance over the 1991-2007 period – Better than we expected [Chart 1 and Table 1]
- Performance during and after the crisis – better than most other countries [Charts 2 and 3]
- Is this as good as it gets? Is this a game that only AEs can play?

3

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Renewal of Canada's Inflation Target

- Extensive research program prior to the 2011 renewal looked at three questions:
  1. Is 2 per cent the right inflation target?
  2. Would a price-level target be better?
  3. Should financial stability concerns get more recognition?
- What we concluded – promising results but in the end, no change
- Renewed appreciation for what we already have

4

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Outstanding Issues Related to the Framework

- Many issues nevertheless remain unresolved and are being re-examined in the run-up to our 2016 inflation targeting renewal:
  1) Are encounters with the zero-lower-bound going to be more frequent?
  2) Does this suggest the need for a higher inflation target?
  3) Does it increase the attractiveness of price-level or GDP level targeting? [Charts 4 and 5]
- Tools, targets and the assignment problem

5

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Optimal Monetary Policy and History Dependence

- The advantages of history dependence and inflation overshooting
- Links with price-level targeting and inflation averaging
- History-dependent monetary policy as a rainy-day tool
- Backdoor history dependence via forward guidance and thresholds
- Expectations formation – some preliminary experimental evidence

6

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Chart 1: Inflation performance was better than we expected

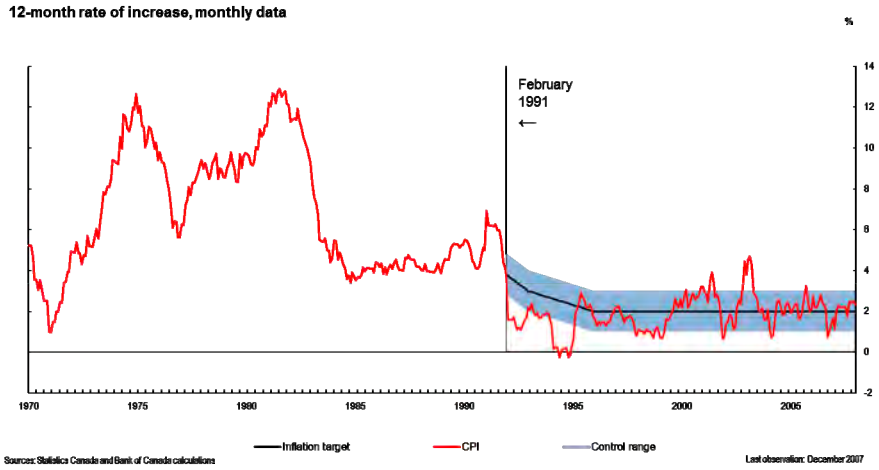

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Table 1: Canada's economic performance (1970-2013)

	Average (%)			Standard Deviation		
	1970M1-1991M1	1991M2-2007M12	2008M1-2013M12	1970M1-1991M1	1991M2-2007M12	2008M1-2013M12
CPI: 12-month increase	6.8	2.1	1.6	3.0	1.2	1.0
Real GDP growth	2.9	2.8	1.4	3.5	2.1	3.2
Unemployment rate	8.9	8.4	7.4	1.7	1.7	0.7
3-month interest rate	10.0	4.7	1.4	3.3	1.8	0.9
10-year interest rate	10.1	6.1	2.8	2.2	1.6	0.7

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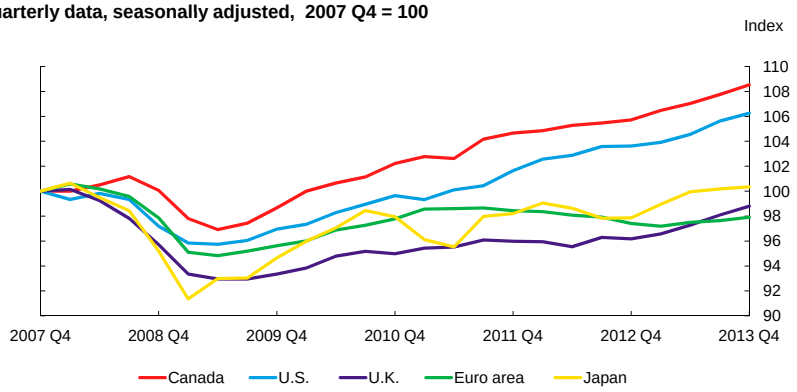
Chart 2: Canada's performance has been better than other advanced economies

Real GDP Levels

Quarterly data, seasonally adjusted, 2007 Q4 = 100



Sources: Statistics Canada, U.S. Bureau of Economic Analysis, Statistical Office of the European Communities, U.K. Office for National Statistics, Cabinet Office of Japan and Bank of Canada calculations

Last observation: 2013Q4

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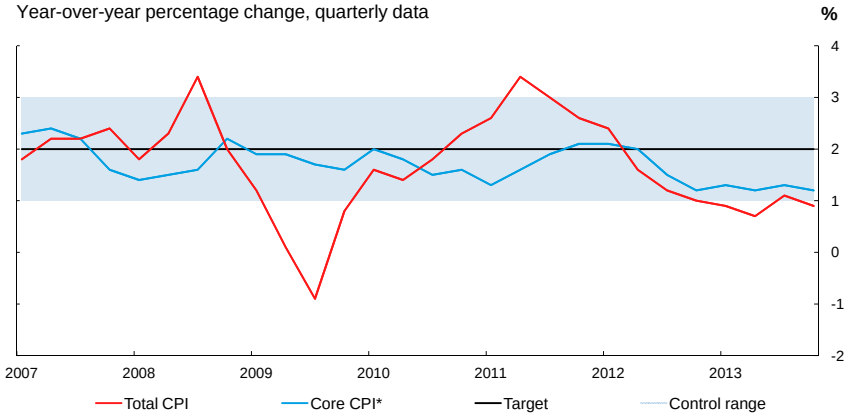
Chart 3: CPI inflation has been subdued but generally well-behaved

Year-over-year percentage change, quarterly data



*CPI excluding eight of the most volatile components and the effect of changes in indirect taxes on the remaining components
Sources: Statistics Canada and Bank of Canada calculations and projections

Last observation: 2013Q4

10

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Chart 4: PLT and IT stabilize inflation

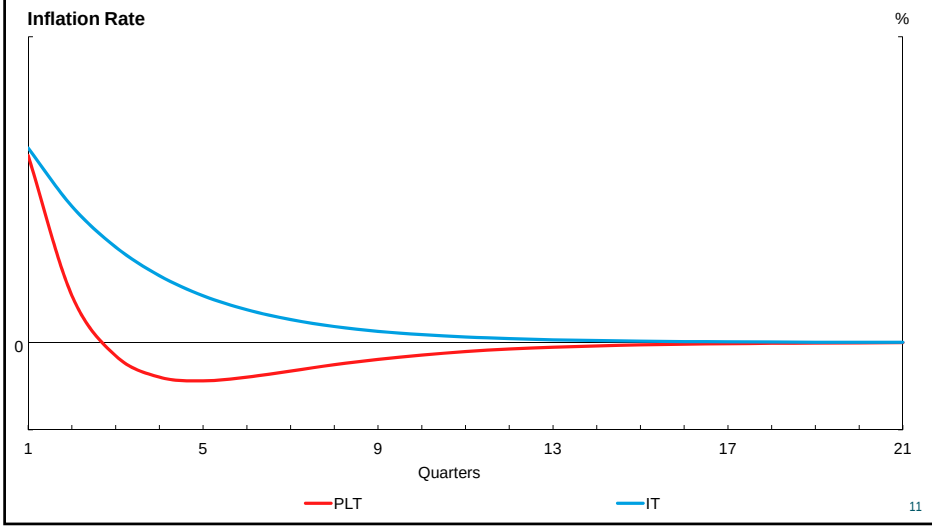

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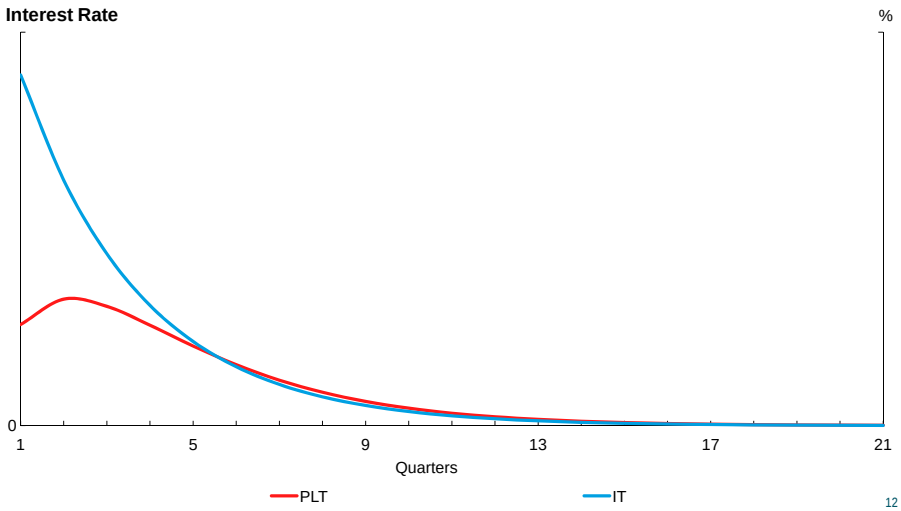
Chart 5: However, smaller movements in the interest rate are required under PLT



12

EUROPEAN CENTRAL BANK
EUROSYSTEM

Philipp Hartmann

Deputy Director General and Acting Head of DG Research

The ECB's Monetary Policy Framework Before and After the Crisis

Panel Intervention at the Second Joint People's Bank of China and International Monetary Fund Conference on "New Issues in Monetary Policy"

Beijing, 27 March 2014

Disclaimer: The views expressed are those of the speaker and do not necessarily reflect those of the ECB

The ECB's framework for monetary policy

- **Objective**
  - Primary: Price stability
    - Quantitative definition: Yearly increase of euro area consumer price inflation below but close to 2%, to be achieved over the medium term
  - Secondary: Without prejudice to price stability support the general policies of the European Union
- **Strategy**
  - Structured description of how monetary policy decisions are made
  - Two pillars (cross-checked)
    - Short-to-medium term: Economic analysis (macroeconomic supply and demand, incl. e.g. staff projections)
    - Medium-to-long term: Monetary analysis (money and credit aggregates)
- **Instruments**
  - Open market operations
  - Standing facilities
  - Reserve requirements

Implications of the crisis for the monetary policy framework

- **The primary objective remains unaffected**
  - Statutory obligation to maintain price stability
  - No “opportunistic” changes in the definition
- **The strategy turned out to be robust, but specific aspects of the two analyses were broadened and deepened**
  - Monetary analysis can provide early information on financial imbalances
  - Incorporation of more financial factors in the economic analysis (macro-financial linkages)
  - Increasingly granular analysis of the monetary transmission mechanism
- **Policy instruments were used in an increasingly innovative way**
  - Early in the crisis the broad range of available instruments could be used effectively
  - As the crisis deepened, also the ECB had to expand its toolkit, particularly addressing impairments in the transmission mechanism and therefore complementing (not substituting) standard monetary policy

Crisis phases, transmission impairments and non-standard monetary policy

- **Phase 1: Financial turbulence (Aug 2007 – Aug 2008)**
  - Impairment in money markets and problems in bank wholesale funding
  - Frontloading of liquidity, lengthening of maturities and foreign currency liquidity
- **Phase 2: Great financial crisis (Sep 2008 – Apr 2010)**
  - High uncertainty, dysfunctional bank wholesale funding and risk of a credit crunch
  - Standard policy: Reduction of key interest by 325 basis points (by May 2009)
  - Non-standard policy: Enhanced credit support (fixed rate full allotment, enlarged collateral, further lengthening of maturities etc.) and covered bond purchases
- **Phase 3: Sovereign debt crisis (May 2009 – 2014?)**
  - Dry-up of sovereign bond market segments, impairment of SME financing and risk to stability of the euro (re-denomination risk)
  - Standard policy: Further lowering of key interest rates
  - Non-standard policy: Government bond purchases, outright monetary transactions (OMT program), very long-term refinancing operations, additional credit claims etc.

Challenges ahead

- **Potential adverse contingencies in the recovery that could "test" the zero-lower bound of interest rates**
  - Repercussions of Ukrainian crisis
  - Money market volatility
  - Re-emergence/broadening of emerging market problems
- **Protracted period of low inflation**
  - Make sure inflation expectations remain anchored
  - Vigilance that tail risk of deflation does not materialise
- **How will the relationship between monetary policy and bank supervision work out?**
  - Start of the Single Supervisory Mechanism (SSM) planned in November
  - Separation principle
- **What will be the "new normal" for monetary policy instruments?**
  - Will some instruments become "permanent"?
  - Will non-standard monetary policy become "standard"?

Background Slides

Comparison of forecasts for euro area real GDP growth and HICP inflation

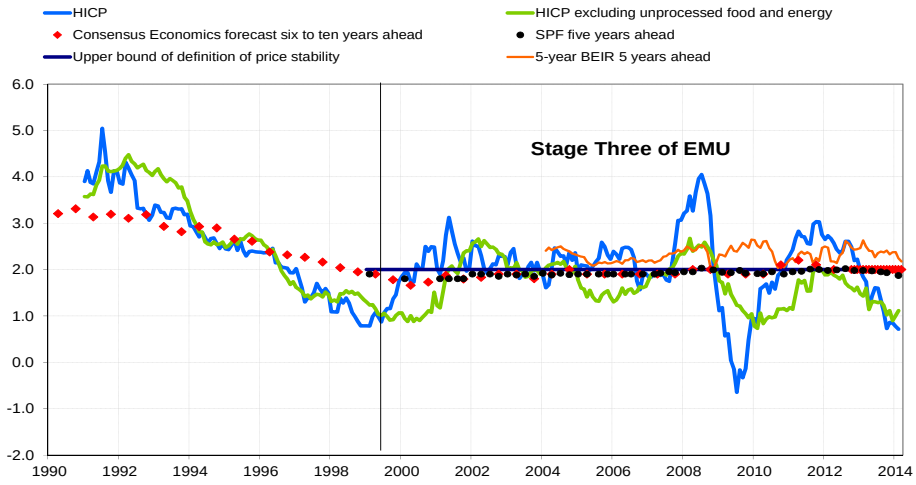
(annual percentage changes)

	Date of release	GDP growth			HICP inflation		
		2014	2015	2016	2014	2015	2016
ECB staff projections	March 2014	1.2	1.5	1.8	1.0	1.3	1.5
		[0.8 – 1.6]	[0.4 – 2.6]	[0.7-2.9]	[0.7-1.3]	[0.6 – 2.0]	[0.7 – 2.3]
European Commission	February 2014	1.2	1.8	-	1.0	1.3	-
OECD	November 2013	1.0	1.6	-	1.2	1.2	-
Euro Zone Barometer	February 2014	1.1	1.5	1.5	1.0	1.3	1.8
Consensus Economics Forecasts	February 2014	1.0	1.4	1.5	1.0	1.4	1.8
Survey of Professional Forecasters	February 2014	1.0	1.5	1.7	1.1	1.4	1.7
IMF	January 2014	1.0	1.4	1.5	1.5	1.4	1.5

Sources: European Commission's European Economic Forecast, Winter 2014; IMF World Economic Outlook, Update January 2014 (GDP); IMF World Economic Outlook, October 2013; OECD Economic Outlook, November 2013; Consensus Economics Forecasts; MJEconomics; and the ECB's Survey of Professional Forecasters.
Notes: The ECB staff macroeconomic projections and the OECD forecasts both report working day-adjusted annual growth rates, whereas the European Commission and the IMF report annual growth rates that are not adjusted for the number of working days per annum. Other forecasts do not specify whether they report working day-adjusted or non-working day-adjusted data.

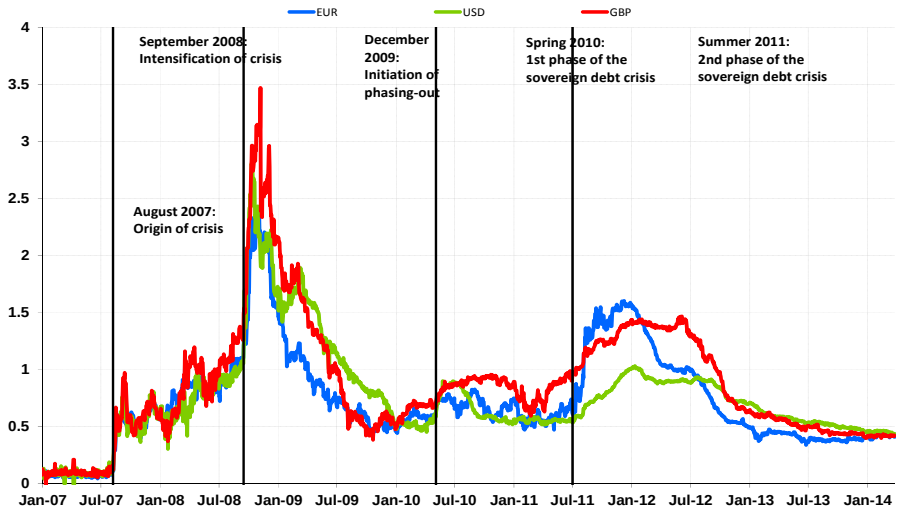
Source: ECB Monthly Bulletin, March 2014.

Euro area inflation and inflation expectations



Note: Last observations for the HICP headline and the core HICP refer to February 2014. The latest Consensus Economics Forecast refers to March 2014, while the latest SPF survey corresponds to February 2014. Longer-term inflation expectations from Consensus Economics Forecasts refer to a horizon of six to ten years, while those from the Survey of Professional Forecasters refer to five years ahead. Consensus inflation expectations are constructed as a weighted average of the five largest euro area countries which together account for more than 80% of euro area GDP.
Sources: ECB, Eurostat and Consensus Economics Forecast.

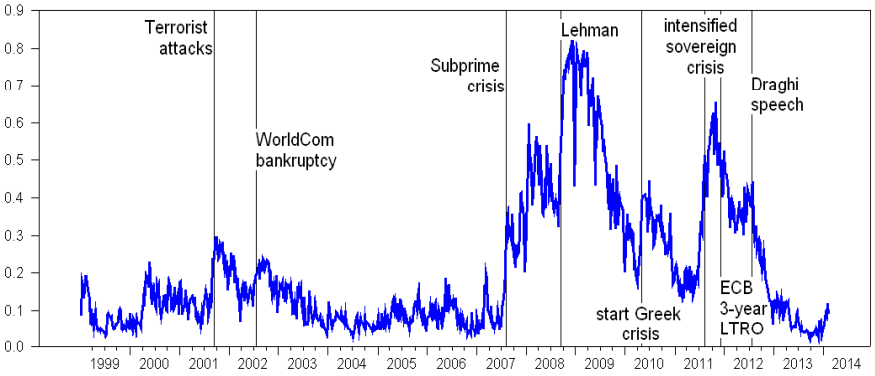
Phases of the crisis: interbank market spreads



Note: Spreads are the difference between 12-month Euribor/Libor and Overnight Index Swap rates, in percent (latest observation 25 March 2014). Source: Bloomberg.

9

Composite Indicator of Systemic Stress ("CISS", euro area)



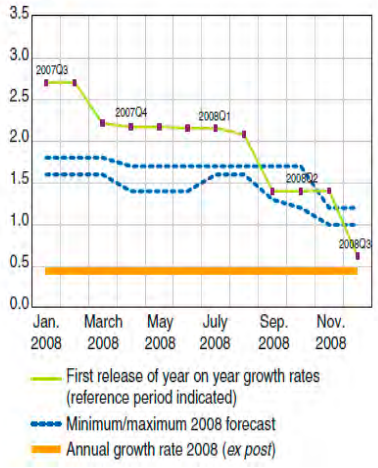
- Scope: Equity, bond, money and FX markets plus banks/financial institutions - real time
- Basic sub-measures include volatilities, trends, spreads, recourse to marginal lending (weekly data)
- Normalisation between 0 and 1 and aggregation weighted with correlations ("systemic")

Source: Holló, Kremer and Lo Duca (2012).

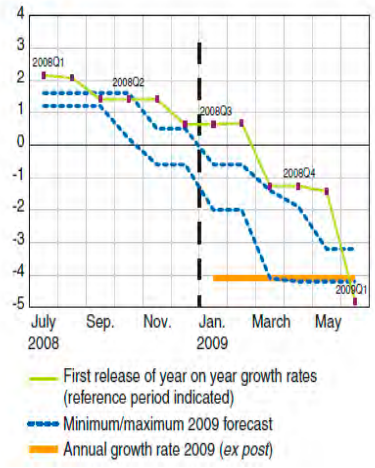
Real time euro area GDP growth forecast errors and coincident growth releases

(%)

a) For 2008

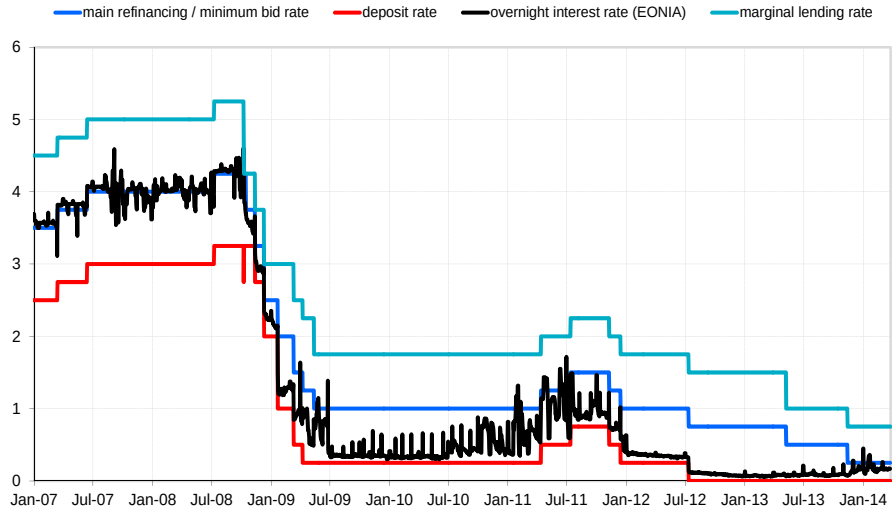


b) For 2009



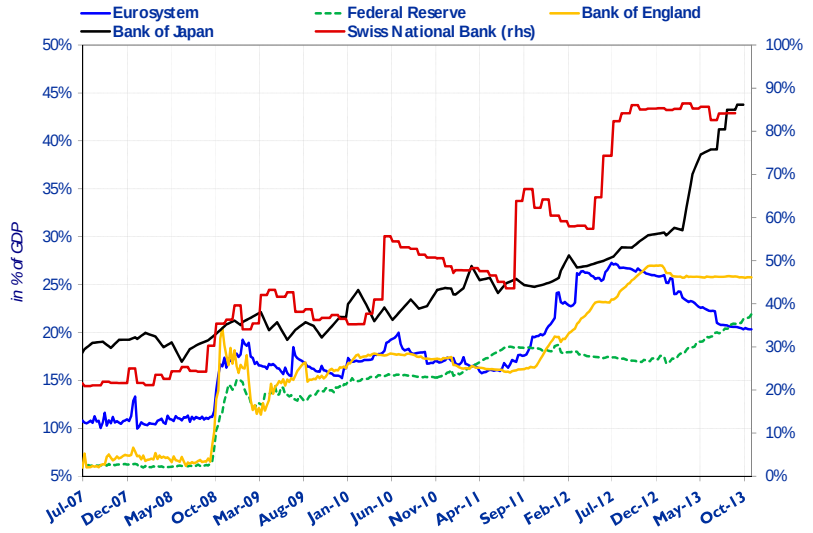
Source: Trichet (2011).

Key ECB interest rates and EONIA



Note: Latest observations 25 March 2014..
Source: ECB..

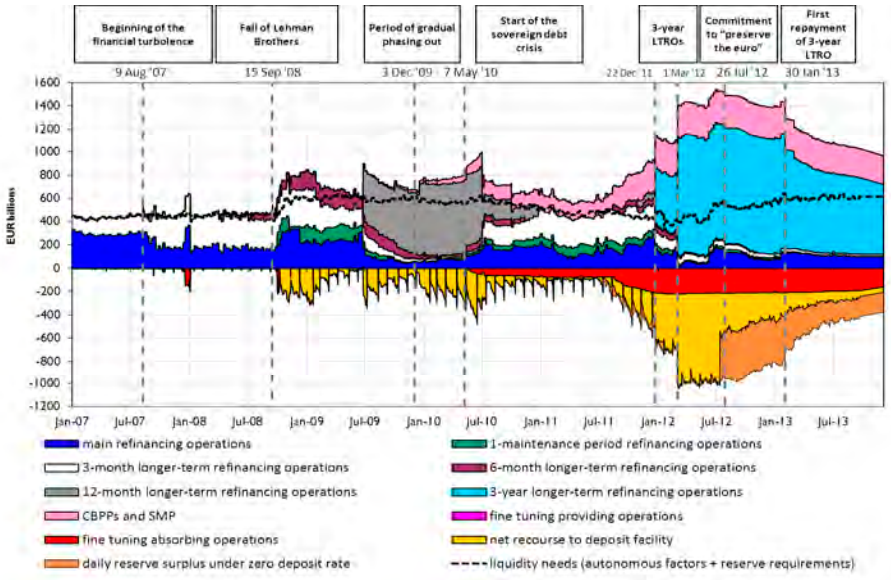
Comparison of central bank balance sheets



Note: Latest observation 7 February 2014.
Sources: Bank of England, Bank of Japan, Eurosystem, Federal Reserve, Swiss National Bank.

13

ECB balance sheet and composition of operations

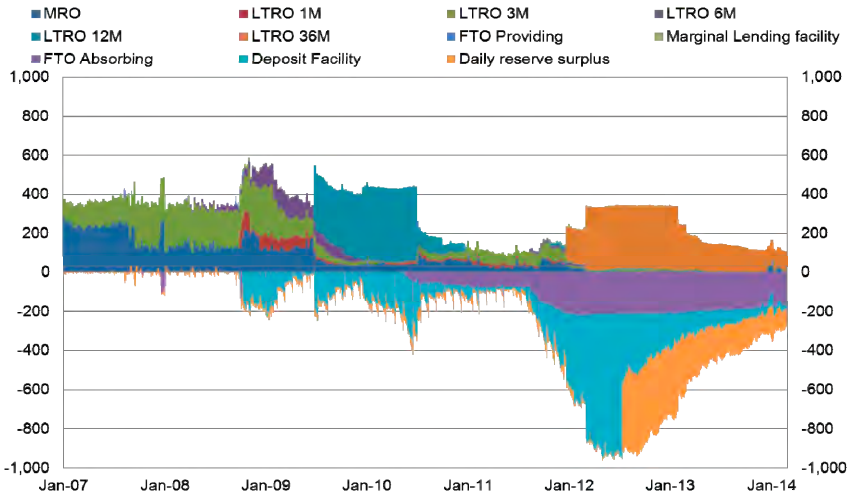


Note: Latest observation 13 March 2014. Source: ECB.

14

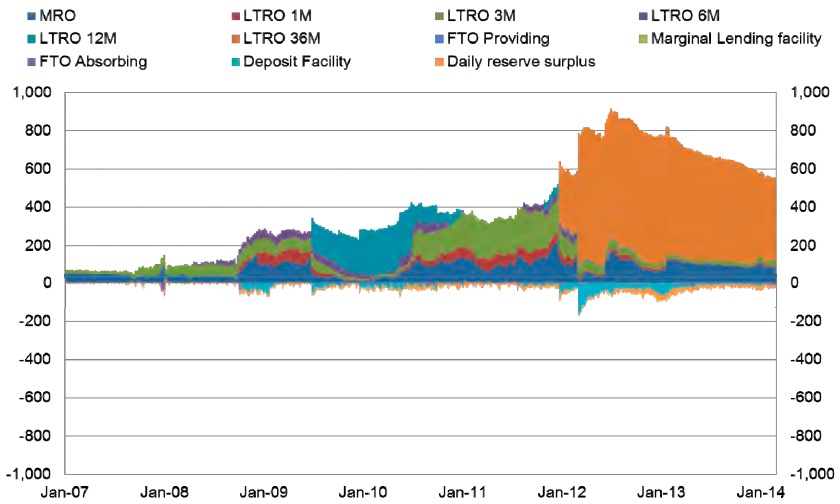
Remaining fragmentation – non-stressed countries

Recourse by non-distressed countries to the ECB's market operations and standing facilities (EUR billion)

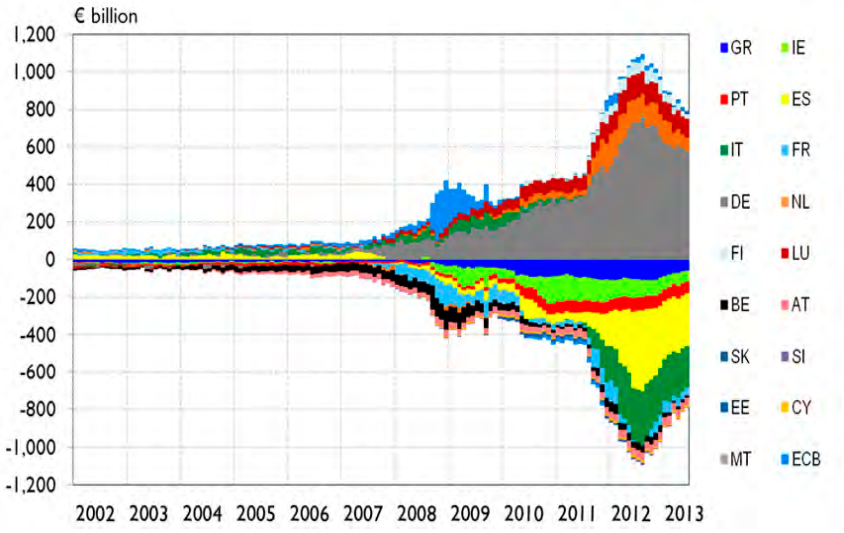


Remaining fragmentation – stressed countries

Recourse by distressed countries to the ECB's market operations and standing facilities (EUR

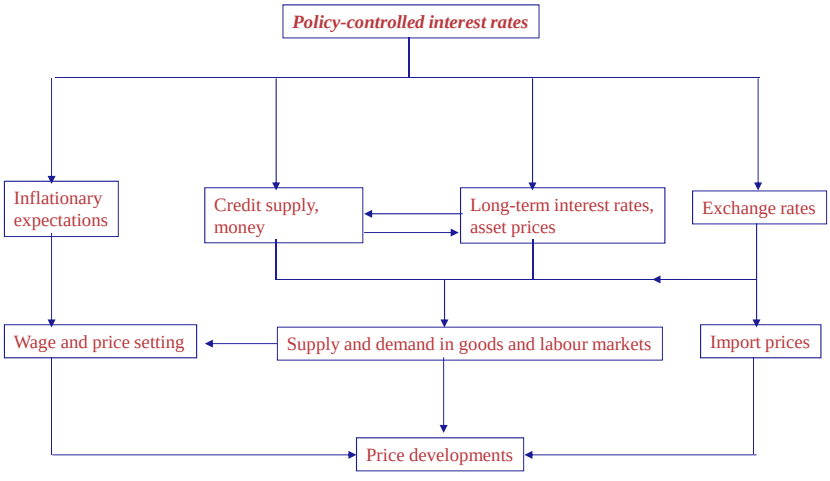


TARGET2 balances of euro area central banks

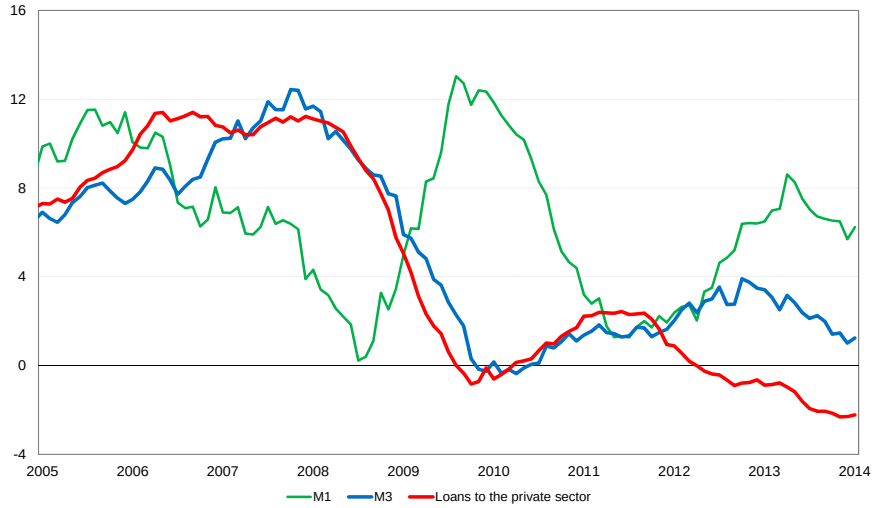


Note: Last observation July 2013. Sources: ECB, NCBs, IMF's International Finance Statistics and internal calculations.

Stylised illustration of the monetary transmission mechanism



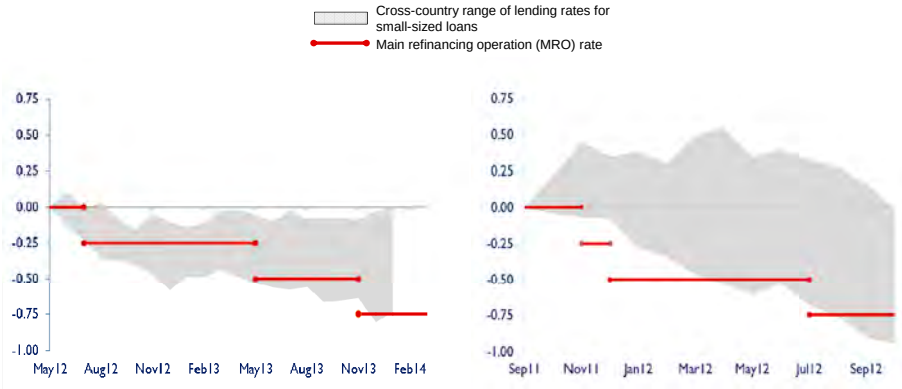
Euro area money and credit growth rates *(annual %)*



Note: Latest observation January 2014 (annual growth M3 1.2%, M1 6.2%, MFI loans to the private sector -2.2%.
Sources: Reuters, ECB calculations.

Pass-through of ECB policy rate to bank lending rates of euro area non-financial corporations (percent)

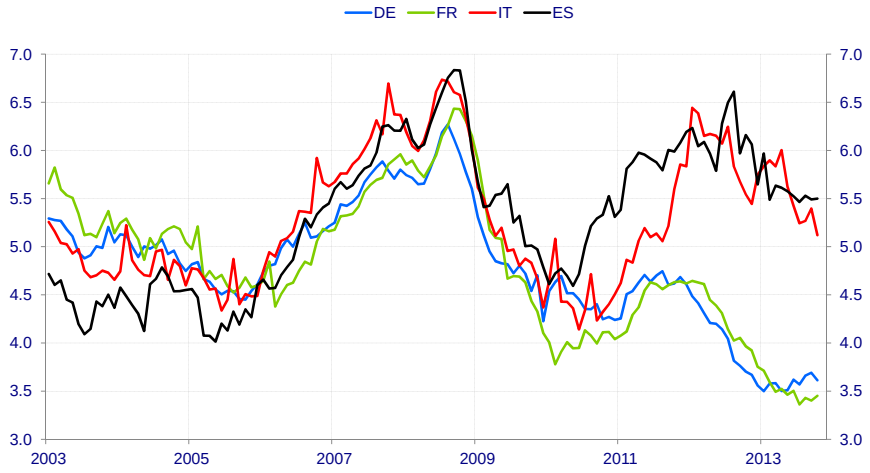
Post-OMT Easing *(July 2012 – Feb 2014)* **Pre-OMT Easing** *(Nov 2011 – Oct 2012)*



Notes: Latest observation for lending rates February 2014 (left chart), or October 2012 (right chart). The red lines define cumulated changes in the MRO rate. The grey ranges define the 20th to 80th percentile of cumulated changes in short-term bank lending rates for small-sized loans (<€1mln) to NFCs.
Sources: Reuters, ECB calculations.

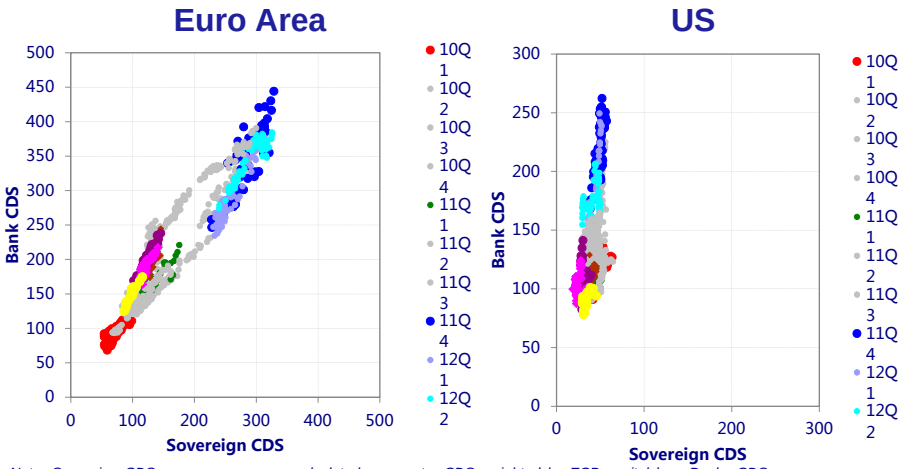
Heterogeneity in bank lending rates to NFCs between stressed and non-stressed countries

(percentage per annum, euro area, loans up to EUR 1 million)



Note: Loans with maturity between 1 and 5 years. 2121
(latest observation October 2013). Source: ECB MIR database.

Interaction between sovereign and financial sector



Note: Sovereign CDS euro area average calculated as country CDS weighted by ECB capital key. Banks CDS euro area average is calculated taking the largest bank of each available country and aggregating using ECB capital key. Each dot represents the pair (av. sovereign CDS, av. bank CDS) at a certain day in the respective quarter. Greece is excluded from the sovereign CDS average. Colour-coded dots correspond to 2010Q1, 2011Q4, 2013Q2, 2013Q3 and 2013Q4 respectively. Latest observation: 2013 Q4.
Source: Thomson Reuters and ECB calculation.

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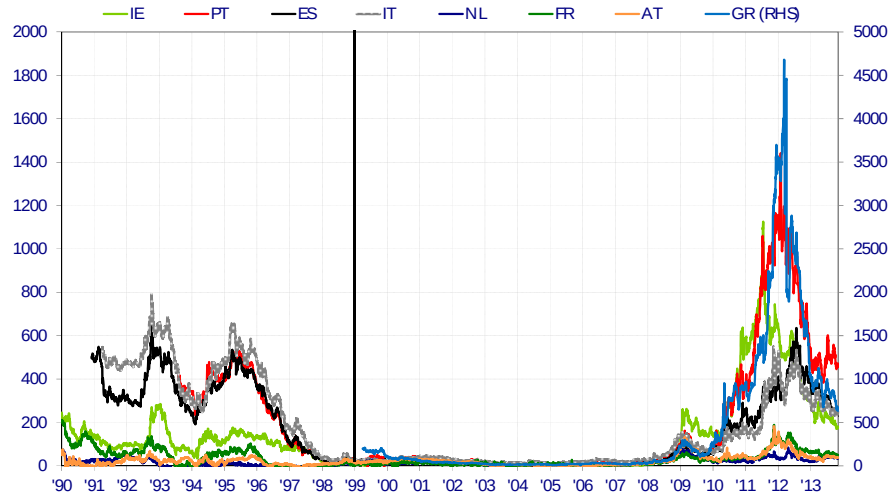
10-year government bonds spreads against Germany

(basis points)



Note: Starting dates Jan 1990, except for Italy (Apr 1991) and Greece (Apr 1999); Latest observations:1 November 2013. Source: DataStream and ECB calculations.

23[23]

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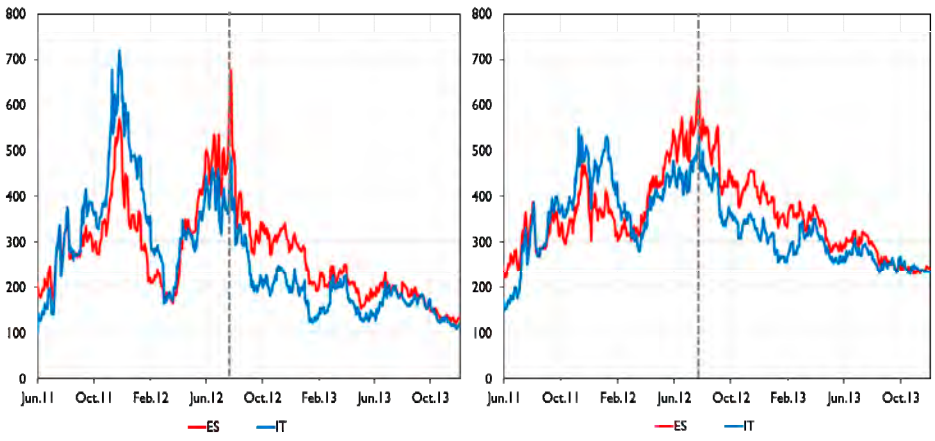
Effectiveness of OMT announcement

2-year yield spreads of Italy and Spain versus Germany (vertical dashed line: OMT announcement)

10-year yield spreads of Italy and Spain versus Germany (vertical dashed line : OMT announcement)



Note: Latest observation 2 December 2013.
Source: Reuters and ECB calculations.

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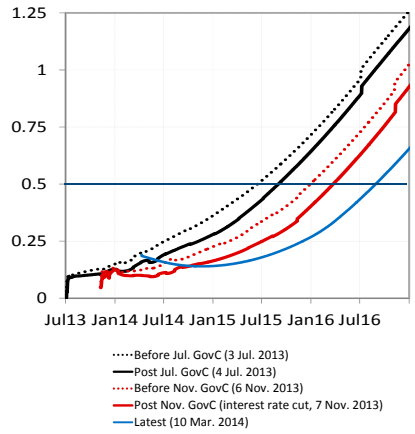
Effectiveness of forward guidance

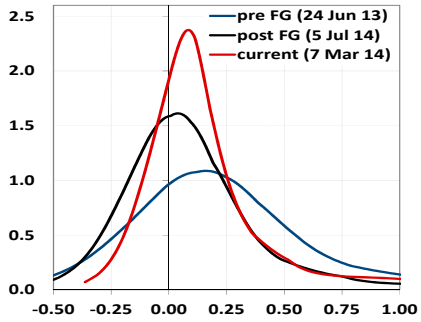
Level of future interest rates
(EONIA forward rates, in percent)



Before Jul. GovC (3 Jul. 2013)
Post Jul. GovC (4 Jul. 2013)
Before Nov. GovC (6 Nov. 2013)
Post Nov. GovC (interest rate cut, 7 Nov. 2013)
Latest (10 Mar. 2014)

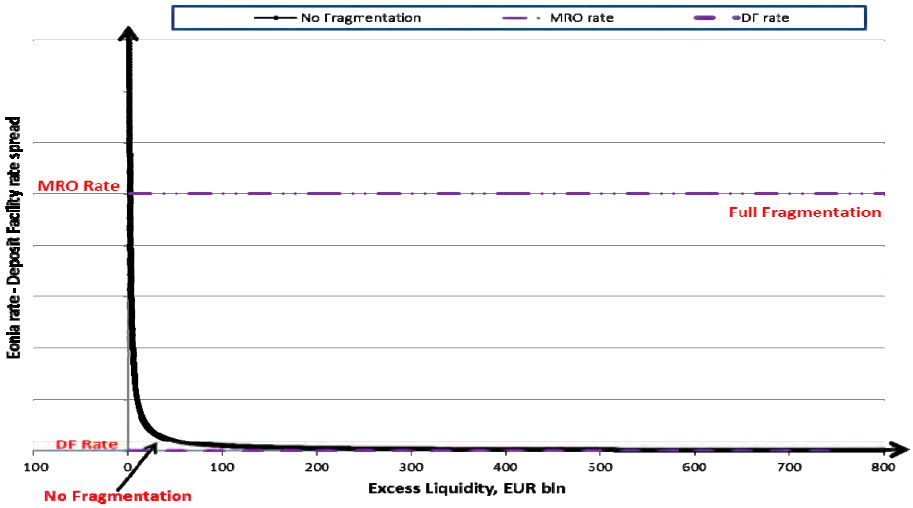
Source: Thomson Reuters and ECB calculations

Uncertainty about future interest rates
(Implied uncertainty of 3-m EURIBOR in 1year applied to 3-m OIS)

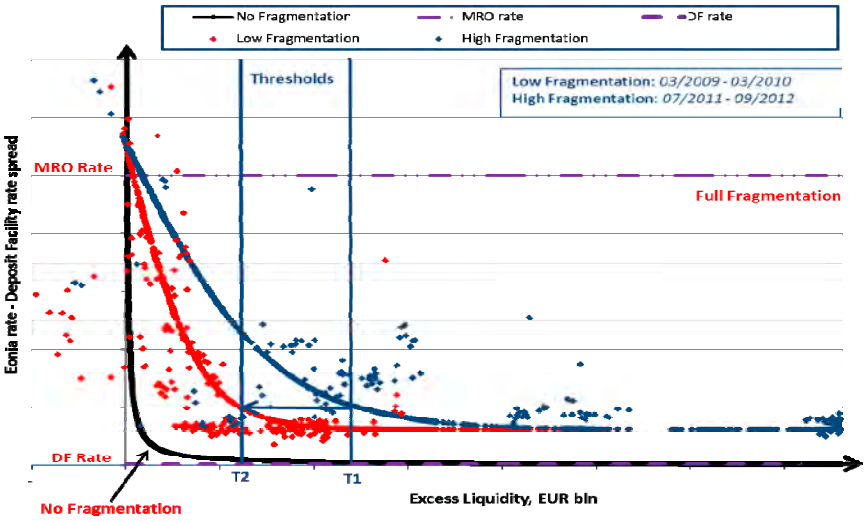


Note: Option-implied probability density functions of 3-month Euribor in 1-year applied to 3-m OIS.
Source: NYSE Liffe and ECB calculations.

Euro area excess liquidity and money market rates 1



Euro area excess liquidity and money market rates 2



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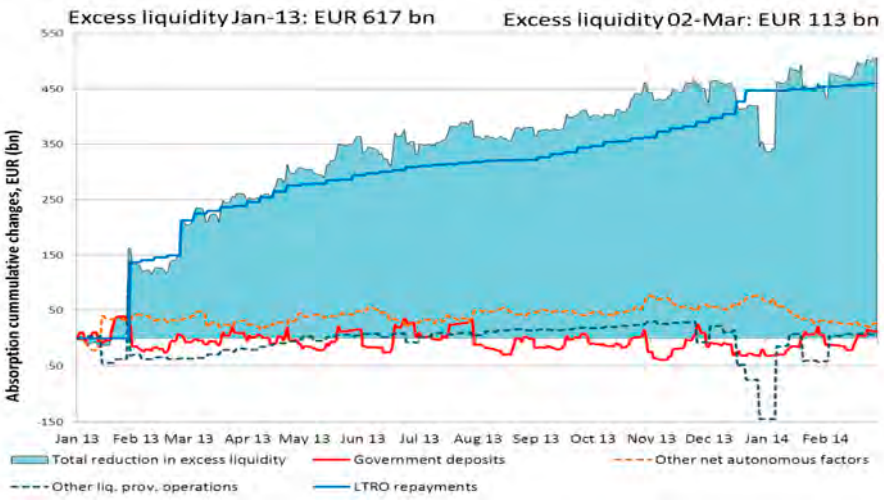
Reduction in euro area excess liquidity



Source: ECB.

28

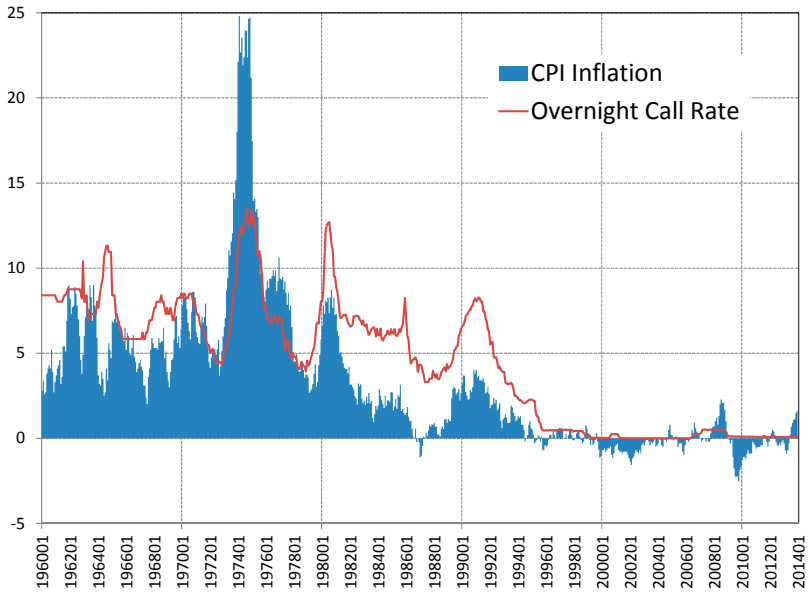
Escaping from a Liquidity Trap and Deflation: The Japanese Experience in 1999-2014

Tsutomu Watanabe

UTokyo Daily Price Project
http://www.cmdlab.co.jp/price_u-tokyo/
https://sites.google.com/site/twatanabelab/

March 27, 2014

Mild but persistent deflation in Japan



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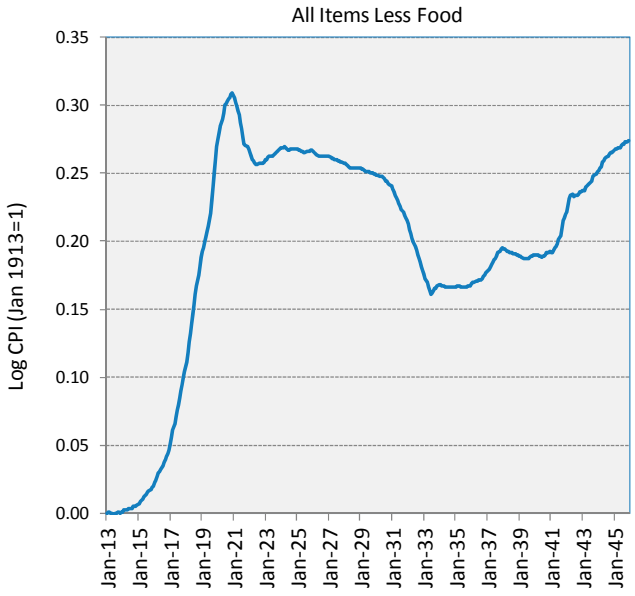
U.S. Consumer Price Index during the Great Depression



3

Old but key idea: The natural rate of interest could fall below zero

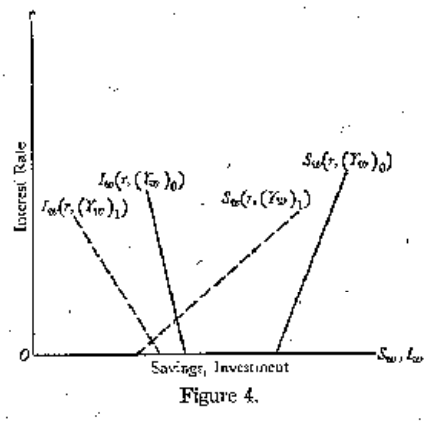


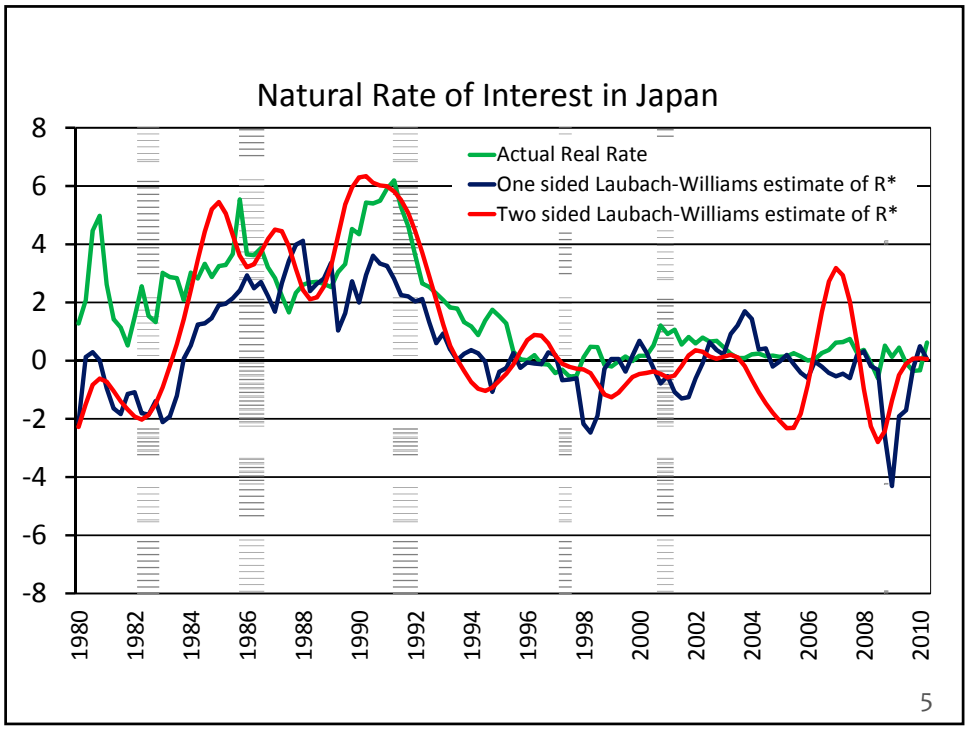
Figure 4.

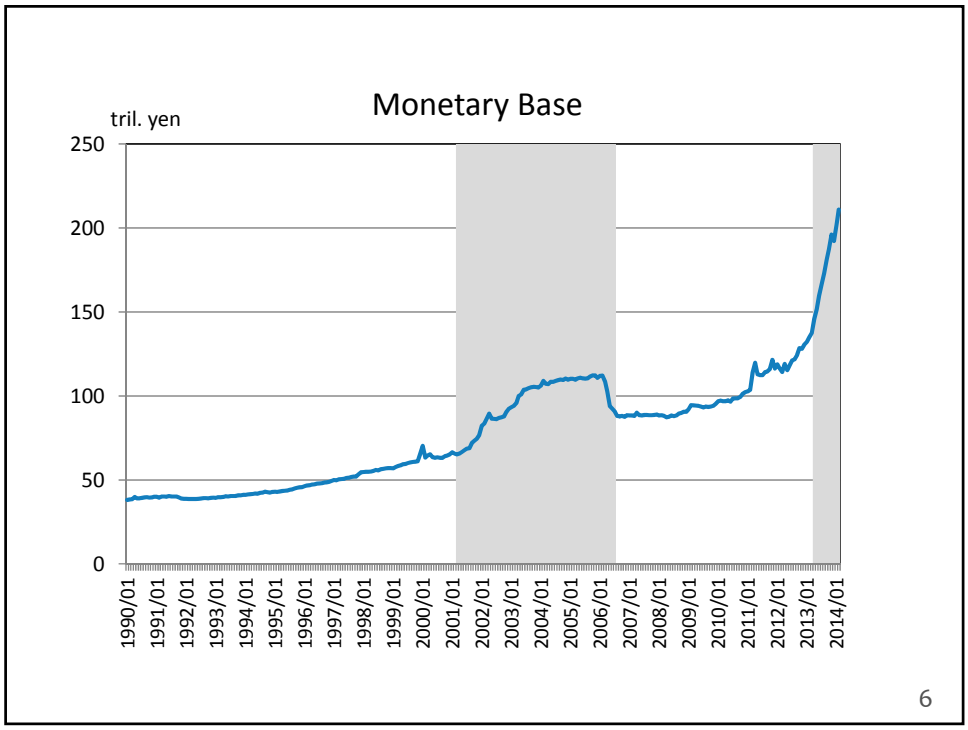
"The full employment equilibrium real interest rate --the Wicksellian natural rate that equates full employment investment and saving --is below zero."

Tobin, J., *Asset Accumulation and Economic Activity*, 1980

Klein, L. R., *The Keynesian Revolution*, 1947

4


Natural Rate of Interest in Japan
Actual Real Rate
One sided Laubach-Williams estimate of R*
Two sided Laubach-Williams estimate of R*
8
6
4
2
0
-2
-4
-6
-8
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
5


Monetary Base
tril. yen
250
200
150
100
50
0
1990/01
1991/01
1992/01
1993/01
1994/01
1995/01
1996/01
1997/01
1998/01
1999/01
2000/01
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2002/01
2003/01
2004/01
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2006/01
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2010/01
2011/01
2012/01
2013/01
2014/01
6

Three Arrows of Abenomics

1. Aggressive monetary easing
2. Flexible fiscal policy
3. Growth strategy that promotes private investment

7

Monetary policy

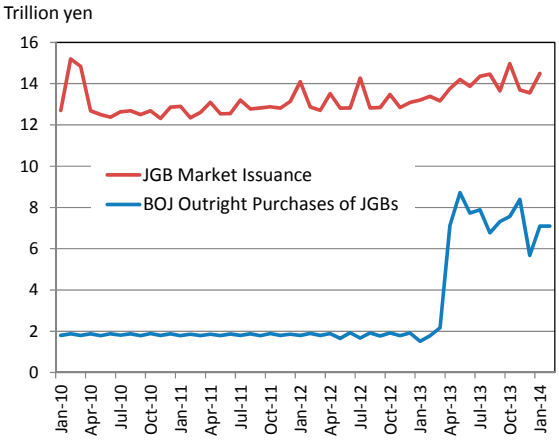
- January 22, 2013
  Joint statement of the Government and Bank Japan on overcoming deflation and achieving sustainable economic growth
  BoJ set the inflation target at 2 percent

- April 4, 2013
  BoJ introduced Quantitative and Qualitative Monetary Easing (QQME)
  - "The Bank will achieve the price stability target of **2 percent** in terms of the year-on-year rate of change in the CPI at the earliest possible time, with a time horizon of about **two years**."
  - " will **double** the monetary base and the amounts outstanding of Japanese government bonds (JGBs) as well as exchange-traded funds (ETFs) in two years, and more than double the average remaining maturity of JGB purchases."

8

- The Bank will purchase JGBs so that their amount outstanding will increase at an annual pace of about **50 trillion yen**.
- The average remaining maturity of the Bank's JGB purchases will be extended from slightly less than three years to about **seven years**.

BOJ statement on April 4, 2013



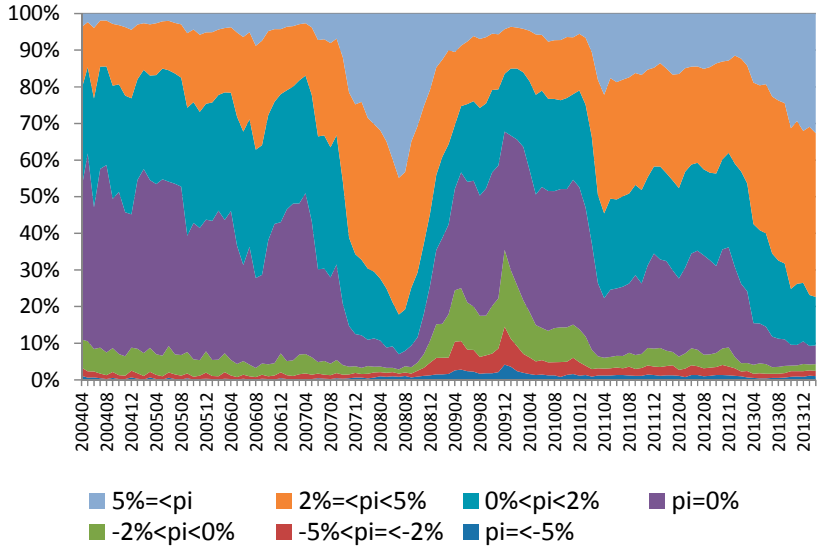
10-Year JGB
Issue Number 332

Issued by MOF
2.7 tril. yen on Dec 20, 2013
2.7 tril. yen on Jan 9, 2014

Purchased by BOJ
0.3 tril. yen in Dec 2013
0.8 tril. yen in Jan 2014
2.1 tril. yen in Feb 2014

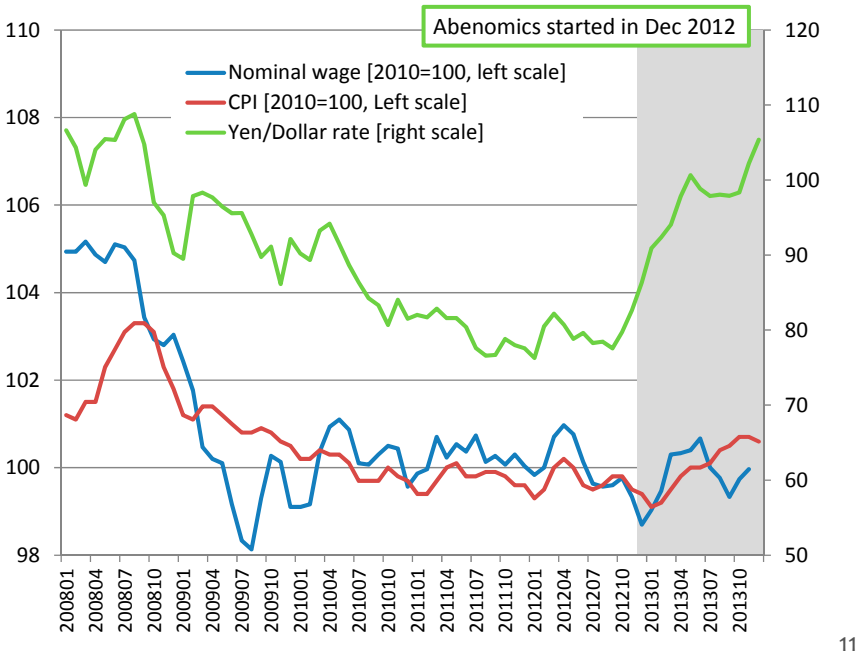
9

Inflation Expectations of Japanese Households



Source: Consumer Confidence Survey, Cabinet Office

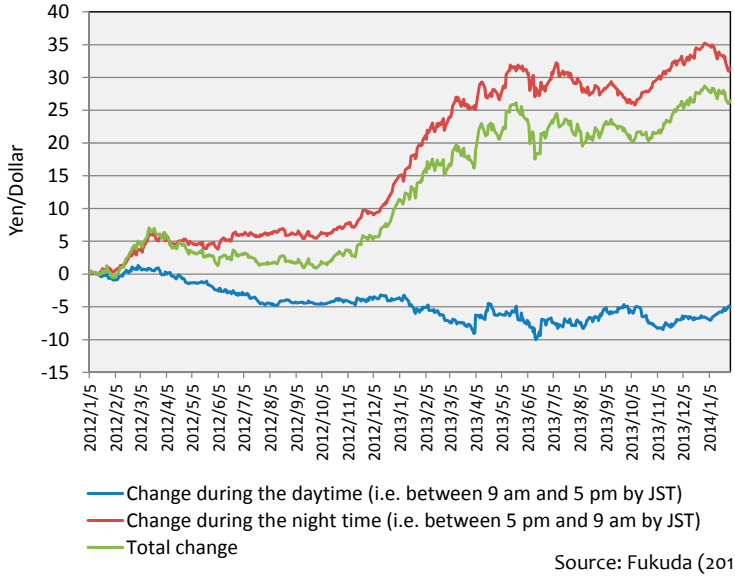
10



11

Yen Depreciates At Night

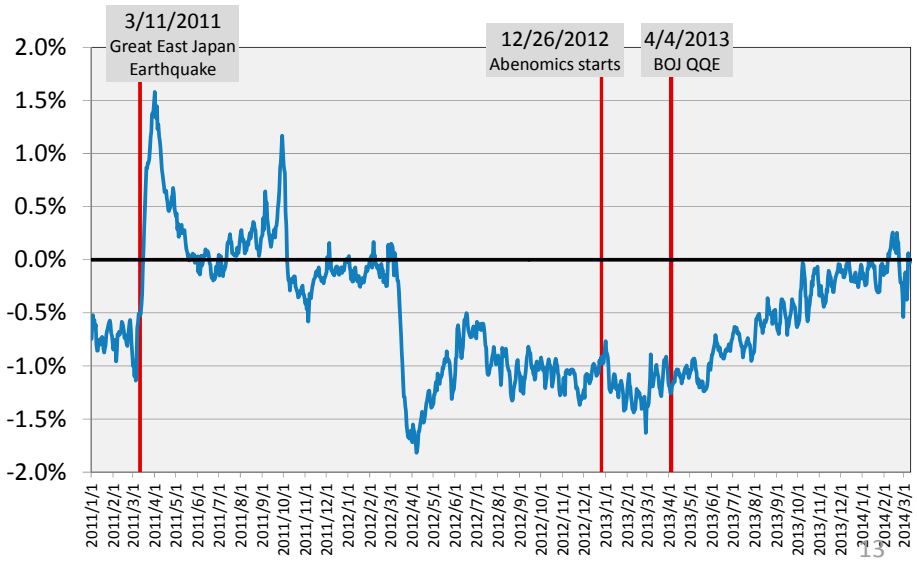
Accumulated Change in Yen/Dollar Rate since Jan 2012



Source: Fukuda (2013)

12

UTokyo Daily Price Index
1/1/2011-3/10/2014



13

Quarterly Consensus Forecast
March 10, 2014

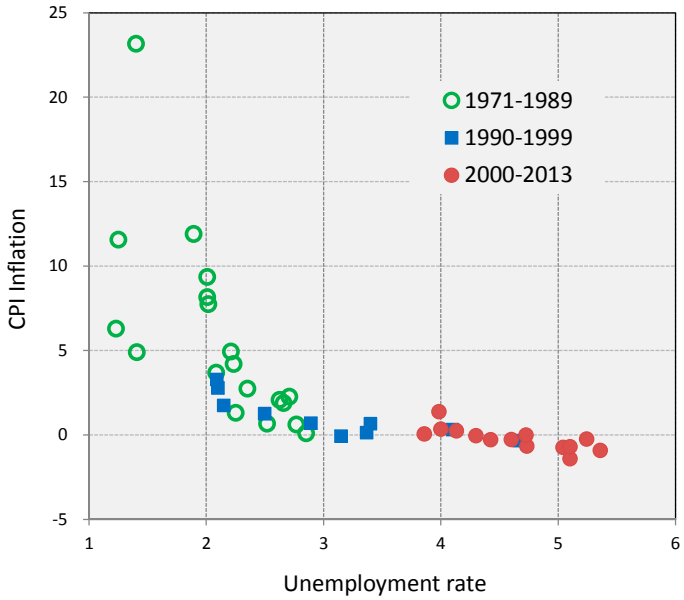
	2013 Q3	Q4	2014 Q1	Q2	Q3	Q4	2015 Q1	Q2	Q3	Q4
Real GDP Y/Y percent	2.4	2.7	2.7	0.6	1.0	1.2	0.5	1.9	1.9	0.7
CPI Y/Y percent	0.9	1.4	1.4	3.2 (1.4)	2.9 (1.1)	2.7 (0.9)	2.8 (1.0)	0.9	0.9	2.1 (0.9)

Note: Numbers in parentheses indicate the inflation rate without consumption tax increases planned in April 2014 and in Oct 2015.

Source : Consensus Economics Inc.

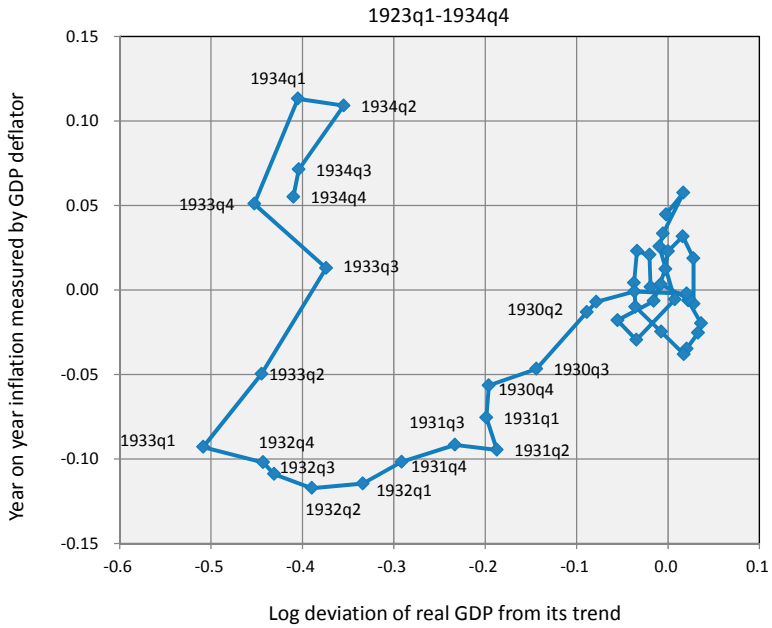
14

Flattening of Japan's Phillips Curve



15

US Phillips curve in 1923-1934



16

Firms' price setting behavior behind the flattening of the Phillips curve

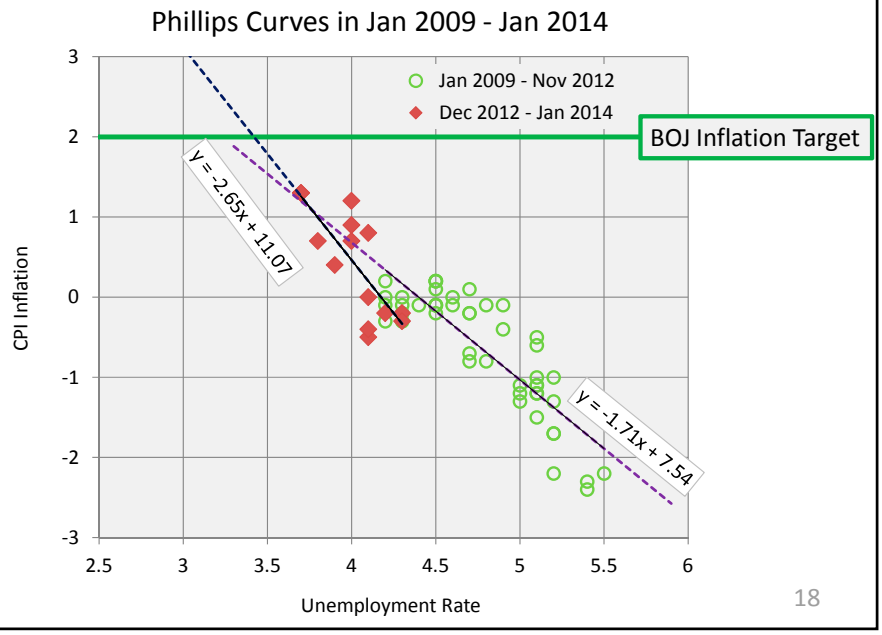
- **To what extent do you raise your product prices in response to a marginal cost increase?**
  - Almost 100% pass-through: **21%**
  - Half: **23%**
  - Less than half: **12%**
  - No pass-through: **26%**
  - Other: **18%**

- **Why you do not raise your price?**
  - Need to keep long term relationship with customers: **53%**
  - Rival firms may not raise their prices: **44%**
  - Need to avoid substantial decline in sales: **34%**
  - Prices are determined not by sellers but by customers: **20%**

Source: Annual Report on the Japanese Economy and Public Finance, July 2013

17

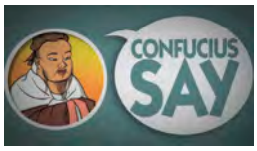
Any sign of upward shift in the Phillips curve?



18

Key Takeaways

- The Japanese economy has been in a liquidity trap since mid 1990s, in which the natural rate of interest stays close to or below zero (due to low productivity growth, financial disorder, aging etc.) and the rate of inflation is slightly negative.
- The theory tells that the best strategy to escape from a liquidity trap is to raise inflation expectations. But the Japanese experience over the last fifteen years shows that it is extremely difficult to do so once deflation is built into expectations.



子貢問師與商也孰賢乎、子曰、師也過、商也不及、曰、然則師愈與、子曰、過猶不及也。

– More than enough is too much!

19

PART II

SESSION II: CHANGING TOOLKIT OF CENTRAL BANKS

- Chinese Monetary Policy Tools
  SUN Guofeng

- Some Thoughts on the Design of Monetary Policy Strategy and Communications
  Andrew Levin

- China's Evolving Monetary Policy Framework
  WANG Tao

Chinese Monetary Policy Tools

Sun Guofeng, Deputy Director General
Monetary Policy Department of the PBC
March 2014

Summary

- Evolution of Monetary Policy Tools
- New Developments and Challenges in Choosing Monetary Policy Tools
- Thoughts on the Use of Monetary Policy Tools during the Next Phase

Evolution of Monetary Policy Tools

Choosing Tools for the Shift from Direct to Indirect Mode of Control

- **1984-1997: direct control framework based on credit size management.**
  - Direct control of the volume of credit and cash as the main tool.
- **From 1998 to the present: indirect control of aggregate money and credit.**
  - Monetary base controlled through such tools as open market operations, the reserve requirement ratio, central bank lending and rediscounting.
  - Gradual transition to a focus on interest rates and other price-based tools for adjusting interest rate level and structure.
  - Creation of central bank bills in an attempt to improve ability to take action, which is a response to excess liquidity pressure caused by continued surpluses in both current and capital accounts.

Introduction of Macro-prudential Policy Tools in the Aftermath of International Financial Crisis

- **Macro-prudential management is not new for China. As early as 2004, the PBC began to use differentiated required reserve to implement monetary policy**
- **Improving macro-prudential management primarily through tools such as dynamic adjustment mechanism of the differentiated required reserve ratio.**
  - Factors considered: deviation of credit expansion from the needs of economic growth, systemic importance and resilience of financial institutions and etc.
  - Guiding and encouraging financial institutions to provide more support for small and micro businesses as well as agro-related industries.
- **A new monetary policy system has taken shape, composed of quantitative, price-based tools as well as macro-prudential policy tools.**

Launching New Tools Such As the SLF and the SLO for Liquidity Management

- **Motivation: volatility of supply and demand for short-term liquidity in the banking system has increased as a result of unstable external situation, volatile capital flows and other factors.**
- **Standing Lending Facility (SLF):** meeting the large-scale demand for long-term liquidity of financial institutions and usually with maturities of one to three months.
  In Jan. 2014, the PBC launched pilot programs for the PBC regional offices to conduct SLF operations in 10 provinces and municipalities including Beijing , Jiangsu, so as to improve regular liquidity provision channel by the central bank to small and medium sized financial institutions.
- **Short-term Liquidity Operations (SLO):** mainly repurchase operations with maturities up to seven days, and are conducted via market-based interest rate biddings.
- **Besides, in order to strengthen and improve liquidity management, the PBC adjusted its classification of central bank lending into four categories,** namely liquidity lending, credit policy support lending, financial stability lending, and special–purpose policy lending, each of which has its particular role to play in liquidity supply.

Enhancing Policy Transparency and Guide Public Expectations

- **Paying more and more attention to the role of expectations in monetary policy transmission and great efforts to strengthen policy communications, enhance transparency and guide public expectations.**

•Using website and micro-blog to release statements
•Releasing *China Monetary Policy Report* on a quarterly basis
•News release after monetary policy committee meeting in each quarter
•Governors will reveal relevant information on proper occasions
•Spokes-person will answer questions in press conference
•Reporting regularly to the NPC Financial and Economic Affairs Committee

New Developments and Challenges in Choosing Monetary Policy Tools

More Complicated Balance of Payment Patterns Requiring More Sophisticated Liquidity Management

- **Previous context: persistent surpluses on both current and capital accounts.**
- Fully utilizing "small pools" for absorbing liquidity
- Using open market operations, central bank lending and other tools to fine-tune the supply of liquidity
- Making monetary policy more proactive

- **Current context: balance of payments not always featuring large surplus**
- Intensity, timing and direction with which each tool is used will change accordingly.

Financial Innovations Making Traditional Quantitative Tools Less Effective

- **With financial innovations, the traditional regulatory framework focusing on RMB loans has been impacted.**
- **For example, inter-bank business and wealth management products of financial institutions greatly affect credit expansion.**

Soft Financial Constraints on Micro-entities Reduce the Role of Price-based Tools.

- **Financially troubled economic entities can avoid bankruptcy and survive by borrowing from outside sources, downplaying the role of market mechanism in eliminating weaker players.**

- **Local government entities and large state-owned enterprises insensitive to interest rates.**

- **With new strategies for full-scaled, deeper reforms recently launched at the 3rd Plenary Session of the 18th CPC National Committee, the problem of soft financial constraints is expected to be resolved over time.**

Thoughts on the Use of Monetary Policy Tools during the Next Phase

Continue to Use a Mix of Monetary Policy Tools to Manage the Aggregate Liquidity

- **Control the "source" of monetary base to rein in the all-system financing aggregates.**
- **The reserve requirement is only one of the tools for liquidity management and shall not be over-interpreted. What matters is the result of liquidity management by the central bank rather than the tools it uses.**

Innovate Financing Mechanisms and Monetary Policy Tools to Promote Economic Restructuring

- **Improvement of China's international balance of payments.**
- **Emphasizing the role of monetary policy tools such as central bank lending and rediscounting in guiding economic restructuring, and further innovating financing mechanism and monetary policy tools.**
- **Restructuring base money according to the principle of "stabilizing credit aggregates, optimizing structure and making good use of credit stock" to support key areas like shanty town renovation and weak links of agro-related, small and micro businesses, with a view to reducing financing cost of the real economy and promoting economic restructuring and upgrading.**

Exploring Ways to Build "Interest Rate Corridor" and Increasing the Use of Price-based Tools

- **Cultivating central bank policy rate and improving "interest rate corridor" mechanism.**
- **Initially, the central tendency of interest rates may move upwards, which is normal, but not necessarily with increased volatility.**

  Considerable swings of the market rates in 2013 mainly due to added factors including seasonal over-shooting and external shocks.

- **The main objective of liquidity management is to maintain aggregate liquidity at proper level and keep interest rate swings in check.**

Some Thoughts on the Design of Monetary Policy Strategy and Communications

Andrew Levin
Resident Scholar, IMF Research Department
March 2014

The views expressed are solely my own responsibility and should not be interpreted as reflecting the views of the IMF or of any other individual or institution.

The Rationale for Clarity in Monetary Policy Communications

- **Over recent decades, economists have reached a broad consensus regarding the benefits of clear monetary policy communications, including clarity about the central bank's goals and policy strategy, its assessments of the economic outlook and the balance of risks, and its judgments about the appropriate path of policy.**
- **Central bank communications contribute to economic prosperity by facilitating well-informed decisions of households and businesses and by reducing economic and financial uncertainty.**
- **Clear communications also enhance the effectiveness of the monetary transmission mechanism by helping financial market participants and the general public understand how the stance of policy is likely to evolve in response to changes in economic and financial conditions.**

Recent Clarification of the U.S. Monetary Policy Framework

"...monetary policy actions tend to influence economic activity and prices with a lag. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals."

FOMC Statement of Longer-Run Goals and Policy Strategy (adopted Jan. 2012, reaffirmed in Jan. 2013 and Jan. 2014)

3

Monetary Policy Transparency and Central Bank Independence

- **Over the past several decades, economists have also arrived at a broad consensus regarding the importance of insulating monetary policy decisions from short-term political pressures.**
- **Public support for the central bank's operational independence is only sustainable if the government provides a clear legal mandate regarding its policy objectives and instruments and then holds the central bank accountable over time for fulfilling that mandate.**
- **Transparency about the central bank's policy framework and the rationale for its specific decisions facilitates accountability and thereby reinforces the central bank's operational independence.**

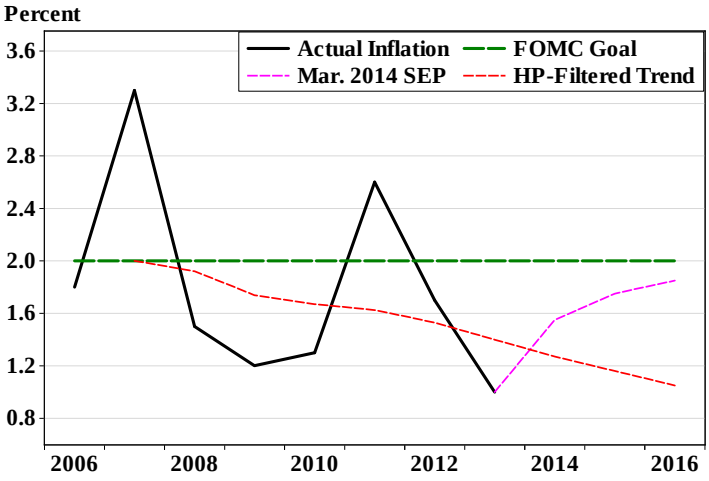
4

The Rationale for Specifying a Numerical Inflation Goal

- A clear inflation goal helps keep inflation expectations firmly anchored, thereby fostering price stability and providing the central bank with greater flexibility to promote macroeconomic and financial stability.
- The numerical value of the inflation goal is appropriately determined in light of assessments of the relative costs of inflation, the extent of downward nominal wage rigidity, and the costs and risks associated with the zero lower bound on nominal interest rates.
- When the inflation goal is framed using a broad measure of consumer price inflation, the time horizon over which inflation is projected to converge to its goal appropriately reflects the central bank's assessments of the medium-term outlook and the balance of risks.

5

The FOMC's Outlook for U.S. Consumer Price Inflation



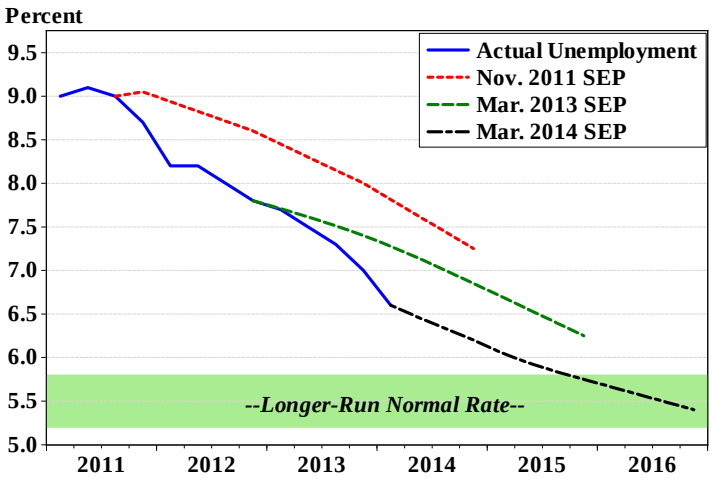
6

Clarification of Other Monetary Policy Goals

- There is a broad consensus among economists that monetary policy can influence real economic activity over the short-to-medium run but *not over the longer run.*
- The goals of macroeconomic stability and price stability are generally complementary, but policy tradeoffs between these goals can arise.
- There is a growing consensus that those goals are inextricably linked to financial stability, along with growing recognition of potential interactions between monetary policy and macroprudential policies.
- These considerations underscore the benefits of regular communication of policymakers' assessments of resource slack and emerging financial imbalances as well as the uncertainty surrounding such assessments.

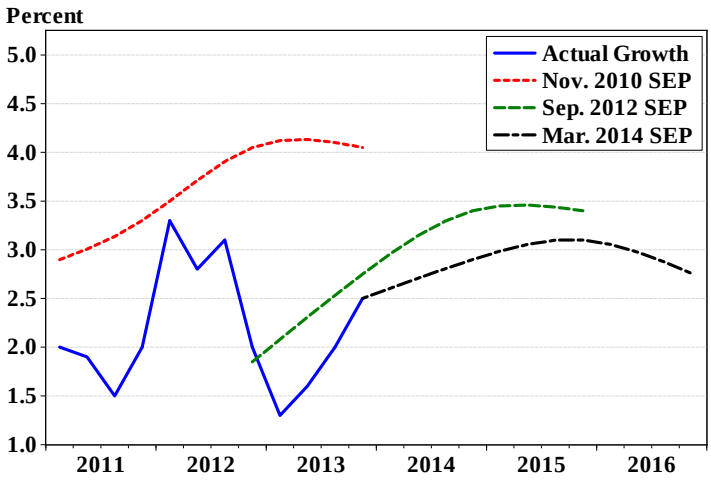
7

The Evolution of the FOMC's Outlook for the U.S. Unemployment Rate



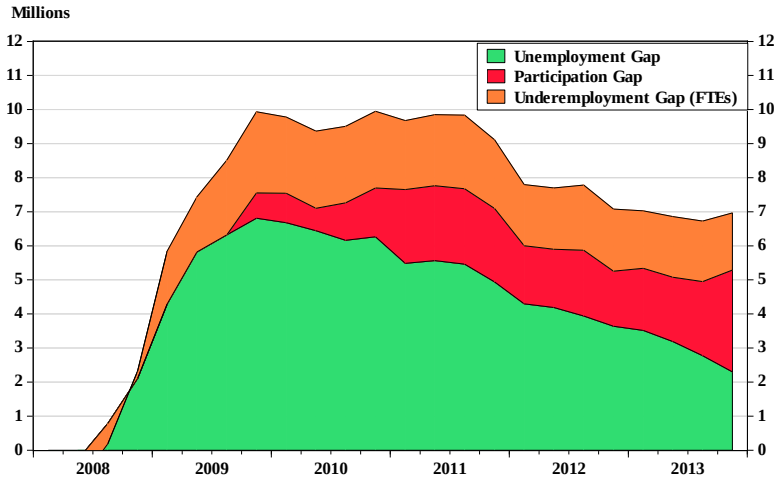
8

The Evolution of the FOMC's Outlook for U.S. Real GDP Growth



9

Gauging the Size of the U.S. Employment Gap
(number of full-time equivalent jobs)



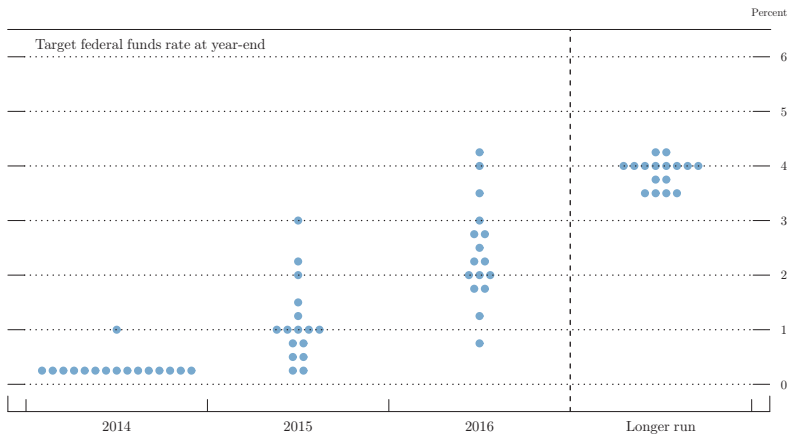
10

Transparency about Monetary Policy Instruments

- **The central bank may be able to deploy a number of distinct monetary policy tools, depending on its legal mandate and on the characteristics of the domestic financial system. For example, such tools may include direct lending to financial institutions, payment of interest on reserves, and transactions in publicly-traded securities or foreign exchange.**
- **Thus, clarity about the central bank's monetary policy framework necessarily involves transparency about its choice of instruments, including its assessments of the efficacy, costs, and risks of each tool.**
- **There are also substantial benefits of clarifying the central bank's judgments regarding the appropriate path of policy as well as the conditions that could warrant significant adjustments to that path.**

11

FOMC Participants' March 2014 Projections of the Appropriate Path of U.S. Monetary Policy



12

Risk Management and Contingency Planning

- **Forecasters have tended to focus on providing precise assessments of the modal outlook rather than on gauging the evolution of the balance of risks.**
- **Scenario analysis is a valuable tool for examining key risks and formulating contingency plans aimed at mitigating such risks.**
- **In effect, it may be beneficial for central banks to conduct and publish stress tests for monetary policy, analogous to the stress testing that is becoming standard practice for private financial institutions.**

13

The Benefits of Diversity and Dissent

- **Historically, the institutional culture of central banks has tended to be quite conservative, with a strong inclination towards presenting a unified front in all public communications.**
- **However, effective risk management and contingency planning requires "outside-the-box" thinking and creative problem-solving.**
- **These considerations also underscore the institutional benefits of ensuring that policymakers and staff represent a diverse set of backgrounds and perspectives.**
- Moreover, transparent communications about the diversity of viewpoints can help strengthen the public's confidence in the central bank's decision-making process.

14

Conclusions

- **Clarity and transparency of communications play a key role in enhancing the effectiveness of monetary policy and in sustaining the central bank's operational independence over time.**
- **In recent years, many central banks around the world have made significant improvements to the clarity of their communications.**
- **However, such communication will inevitably be a work-in-progress that requires continual effort and engagement with the public.**
- **There are numerous dimensions of policy strategy and communication for which further research is warranted by economists at central banks and international organizations as well as at academic institutions.**

UBS

UBS Investment Research

China's Evolving Monetary Policy Framework

Tao Wang
Managing Director
Head of China Economic Research
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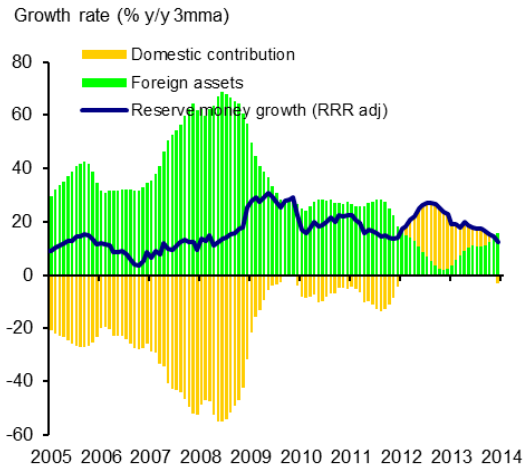
March 2014

China's monetary policy tools

- China has used a combination of monetary policy tools
- Mainly quantitative measures, capital flow management, prudential regulation
- Pricing tools less developed
- Financial liberalization is changing the landscape and effectiveness of the existing tool mix
- Moving to a more price-based policy framework, aided by other tools

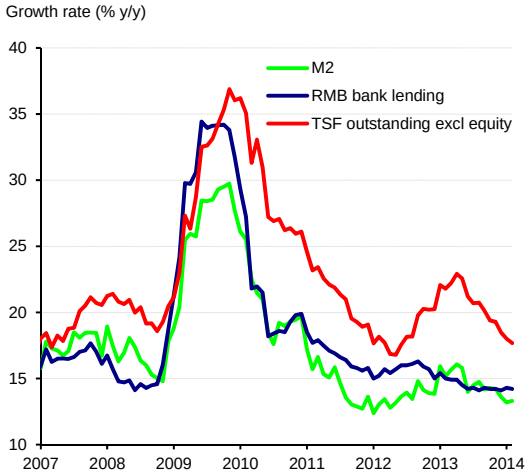
Managing base money supply: capital flows and sterilization



Source: CEIC, UBS estimates

UBS

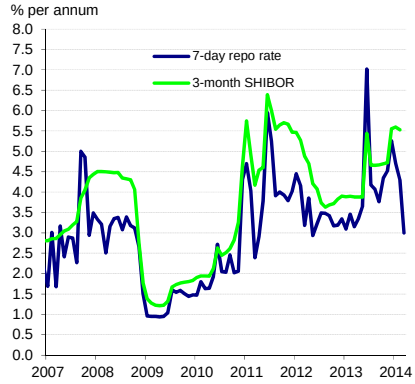
Broad money and credit growth are also managed through quantitative and prudential measures

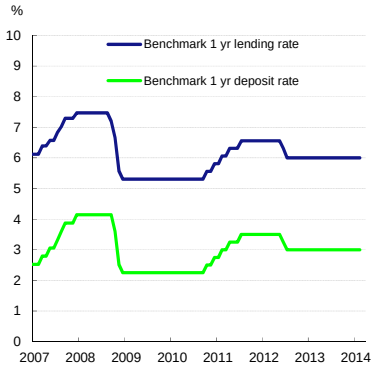


Source: PBC, CEIC, UBS estimates

UBS

Benchmark rates and money market rates matter less



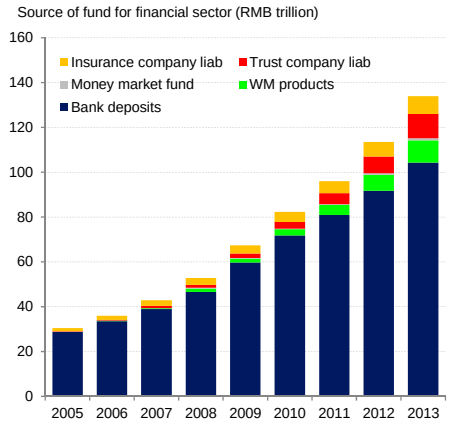


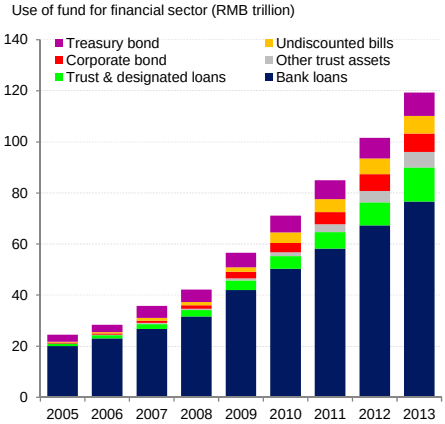
Source: PBC, CEIC, UBS estimates

UBS

4

Financial liberalization: moving away from bank intermediation



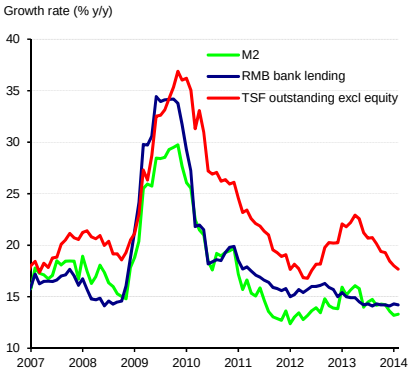


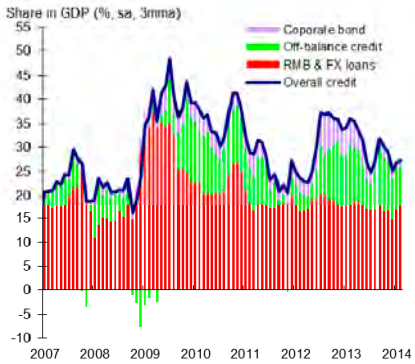
Source: CEIC, CBRC, UBS estimates

UBS

5

Rapid and more volatile non-bank credit growth





Source: PBC, CEIC, UBS estimates

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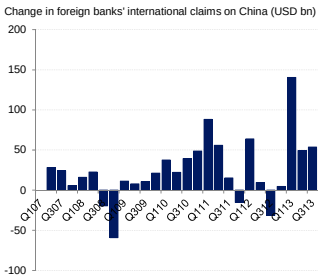
Increasing and volatile FX flows



Source: BIS, Haver, UBS estimates

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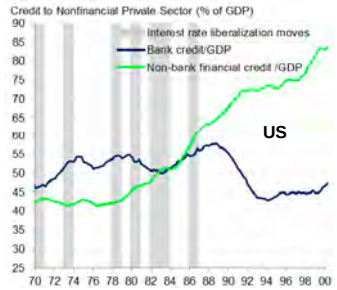
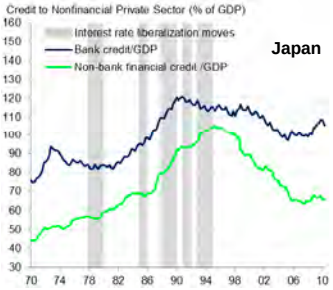
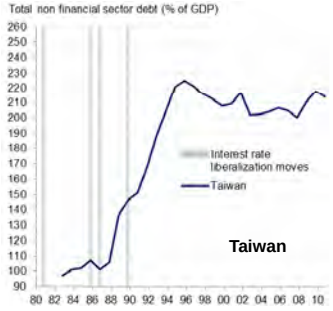
Will leverage go up or down following liberalization? Experience of other economies







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Source: Haver, BIS, UBS estimates

Transitioning monetary policy framework

- **Moving towards a more price-based monetary policy framework, establish a clear and stable short-term policy rate.**

  In an environment where interest rates are market-determined, the central bank must ensure the smooth functioning of financial markets by providing necessary liquidity and anchoring expectation.

  – This is typically done via short-term policy rate – a stable short-term policy rate can help transmit necessary and clear policy signal and reduce destabilizing market volatility.

  – China needs to separate the interbank market where banks obtain liquidity from the bond and credit market (currently at "interbank") where corporate and non-bank institutions get liquidity, so it is clear the PBC is providing liquidity through banks, not instead of banks.

- **Need to rely on a mix of tools to keep aggregate credit growth well behaved.** Need to learn from lessons from other countries where liberalization was often accompanied by credit bubbles and busts. Total quantity of credit is critically important to monitor.

- **Need to improve coordination with other agencies and communication with the market.**

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PART III

SESSION III: RAPIDLY CHANGING FINANCIAL SYSTEMS: CHALLENGES FOR THE COORDINATION OF FINANCIAL SECTOR AND MONETARY POLICY

Central Bank, Monetary Policy and Macroprudential Supervision

Wang Yu
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Central Bank, Monetary Policy and Macroprudential Supervision

- I. Monetary policy and price level
- II. Monetary policy and asset price
- III. Central bank and macroprudential supervision

- I. Monetary Policy and Price Level

3

Monetary Policy and Price Level

- Throughout the 20th century, mankind faced the challenge of inflation. Price stability thus became the main objective of monetary policy.
- The Great Depression of 1929-1933 led to the emergence of Keynesianism. Keynes believed the root cause of economic crisis lied in the lack of demand and therefore should be dealt with by raising aggregate demand through “discretionary monetary policy”.
- In the 1960s, led by Milton Friedman, Monetarism proposed the Single Rule----using money supply as the main tool to ensure the rate of increase in money supply is consistent with the rate of potential economic growth.
- In the 1990s, some countries began to adopt inflation targeting. Under this policy framework, central banks conduct monetary policy operation according to inflation expectation and guide inflation expectation close to inflation target.

4

Monetary Policy and Price Level

- Price stability is monetary policy's biggest contribution to the economic development around the world.
- Since the 1990s, as result of efforts by the central banks, global inflation level has come down significantly.

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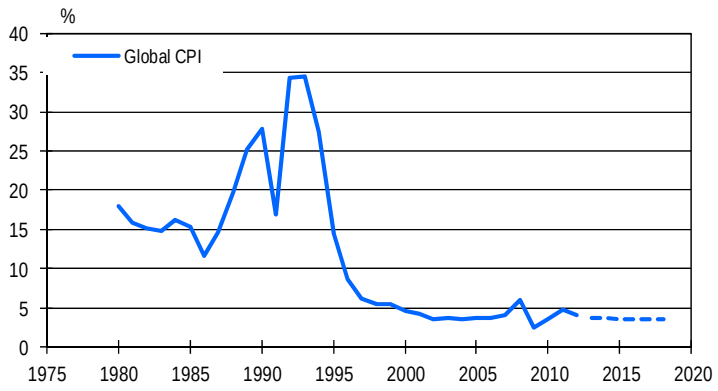
Global Price Level Fluctuation



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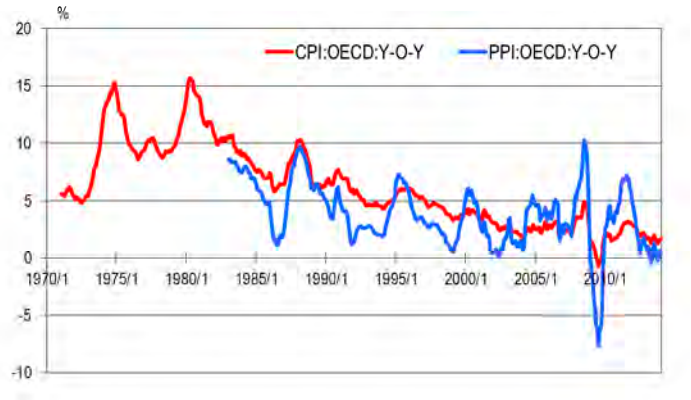
OECD Countries Price Level Fluctuation



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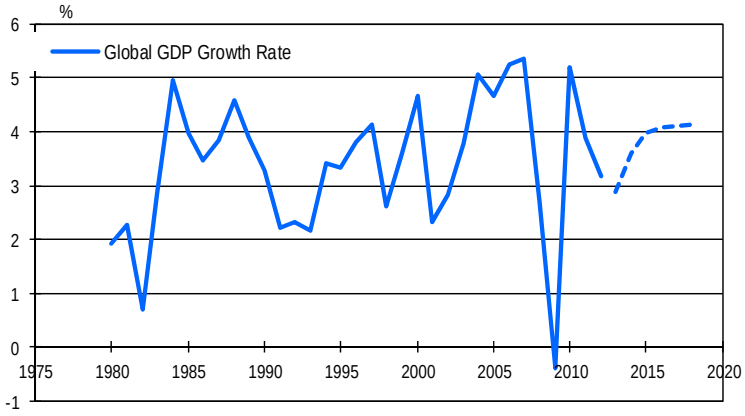
Fluctuation of Global Economic Growth Rates



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Monetary Policy and Price Level

- Since 2007, responding to the shock of crisis, the central banks of major developed countries have significantly lowered benchmark interest rates to zero or near zero, and have adopted a variety of unconventional monetary policy tools.
- Some economists believe the wide implementation of quantitative easing policies have blurred the boundary between monetary and fiscal policies and once again caused concern over the prospect of inflation.

9

II. Monetary Policy and Asset Price

10

Monetary Policy and Asset Price

- Since the beginning of the 21st century, asset bubble has become a major problem facing the world. A new challenge for the central banks is managing the relationship between monetary policy and asset price, as well as achieving the objective of price stability and financial stability.

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Monetary Policy and Asset Price

- Over a long period of time, it was believed that maintaining both price and output stability would ensure financial stability.
- In fact, there is no direct connection between price stability and financial stability. On the contrary, under the traditional monetary policy framework, central banks' obsession with price level may cause them to overlook other problems including asset bubble.
- Examples: the 1985-1992 asset bubble in Japan, the 2007 sub-prime crisis in the United States and the 2008-2009 global financial crisis.

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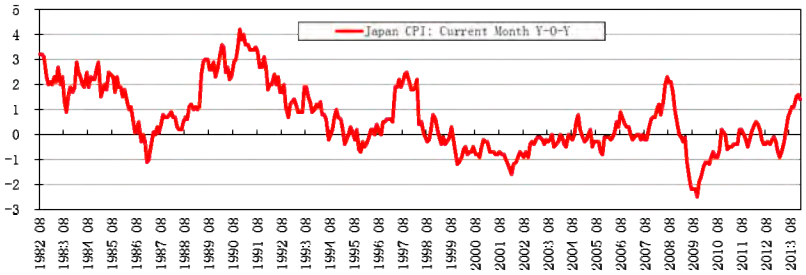
Fluctuation of Consumer Price Index in Japan



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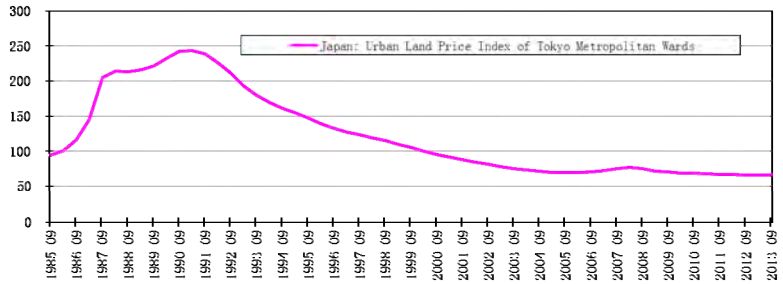
Fluctuation of Real Estate Prices in Japan



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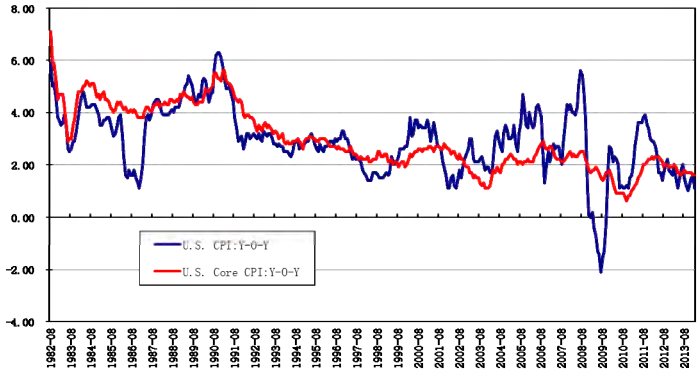
Fluctuation of Stock Prices in Japan

15

Fluctuation of Consumer Price Index in the U.S.



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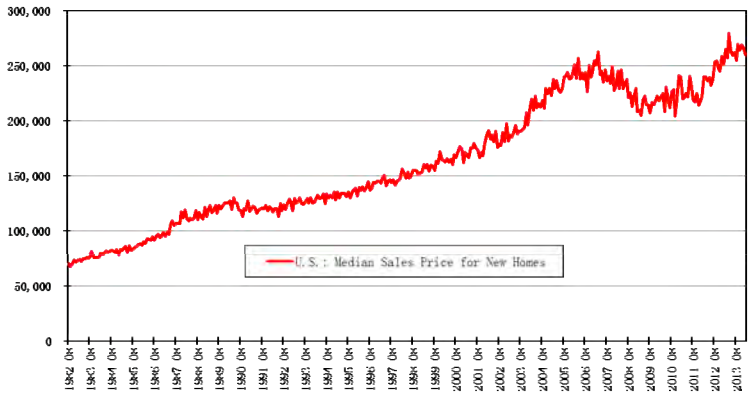
Fluctuation of Real Estate Prices in the U.S.



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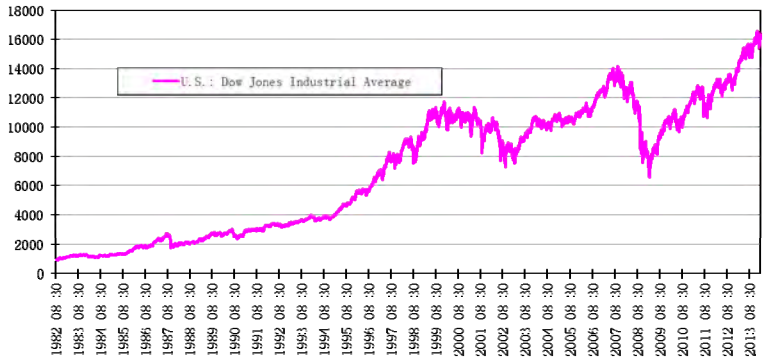
Fluctuation of Stock Prices in the U.S.



18

Monetary Policy and Asset Price

- Before the latest global financial crisis, many economists did not support incorporating asset price into monetary policy objectives. They believed the link between asset bubble and monetary condition is weak, and that it is neither necessary nor possible for monetary policy operation to directly respond to fluctuations in asset price.

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Monetary Policy and Asset Price

- With the crisis, people have begun to realize that central banks need to pay attention to asset price. As result, more economists have joined the discussion.
- Some economists have proposed a “lean against the wind” approach. Regardless of price fluctuations, interest rate should remain above the Taylor’s Rule level in order to prevent bubble from forming.
- Some economists insist on an ex post “clean up” approach, namely, the central bank may take the position of benign neglect when the bubble is forming but must make appropriate monetary policy adjustment when asset price declines so as to prevent recession.
- Still other economists propose to separate two types of asset bubble: credit driven bubble such as real estate bubble, and irrational exuberance bubble such as the internet bubble. A Lean Against Wind approach may be chosen to respond to credit driven bubble while a Clean Up approach may be chosen to deal with irrational exuberance.

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Monetary Policy And Asset Price

- The key is how to incorporate asset price into monetary policy framework. It is in this context that central bank researchers start to look at macroprudential supervision.

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III. Central Bank and Macroprudential Supervision

22

Central Bank and Macroprudential Supervision

- Among all the tool boxes, there is probably no policy tool that can play the dual role of maintaining price stability and suppressing asset bubble.
- Both tools of monetary policy and macroprudential supervision may be needed to achieve the dual objectives of price stability and financial stability.

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Central Bank and Macroprudential Supervision

- A further question is: who conducts macroprudential supervision?
- Central bank may have an advantage: price stability and financial stability are inherently consistent; as lender of last resort, central bank has both the responsibility and capacity to maintain financial stability.
- Some economists, however, believe central bank's conducting of macroprudential supervision may affect the efficacy of monetary policy; counter-cyclical operation by the central bank may exacerbate economic fluctuation.

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Central Bank and Macroprudential Supervision

- The debate continues. But practice always precedes theory.
- In the aftermath of the crisis, the first changes occurred in financial supervision regimes.
- The U.S., U.K. and EU have established macroprudential supervision systems, clarifying the status and role of the central bank.
- The People's Bank of China and relevant financial supervisory agencies have taken a proactive approach to establish and perfect China's macroprudential policy framework.
- As the theory and practice continue to evolve, we shall better understand the relationship between central bank, monetary policy and macroprudential supervision, so as to make our policy choice more effective.

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Housing Price Inflation, Non-Bank Credit, and Monetary Policy: Some Lessons from Israel

by

Leonardo Leiderman

Berglas School of Economics
Tel- Aviv University, Israel

Joint PBC and IMF Conference, March 27, 2014

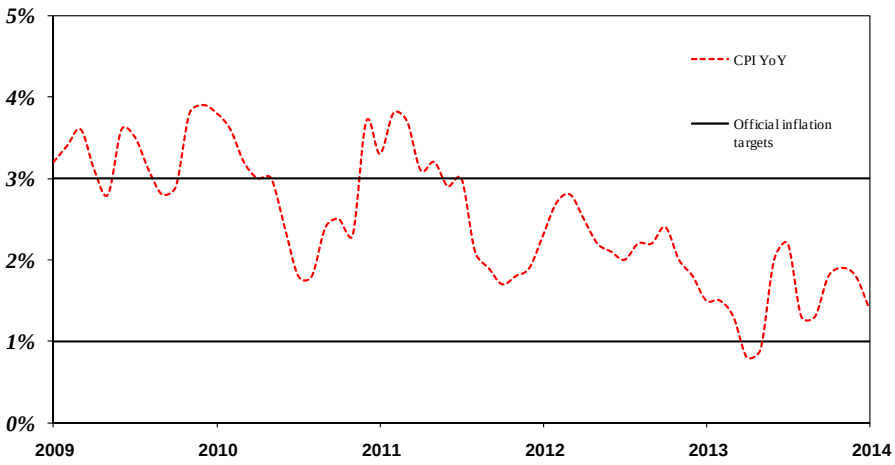
1

BANK OF ISRAEL'S NEW CHALLENGES

- How to deal with the sharp decline in policy rates by the Fed and the ECB?
- How to manage policy when there is a risk of a housing price bubble?
- How to react to the emergence of a non-bank credit market?
- How to divide the tasks between standard and macro prudential policy steps?

2

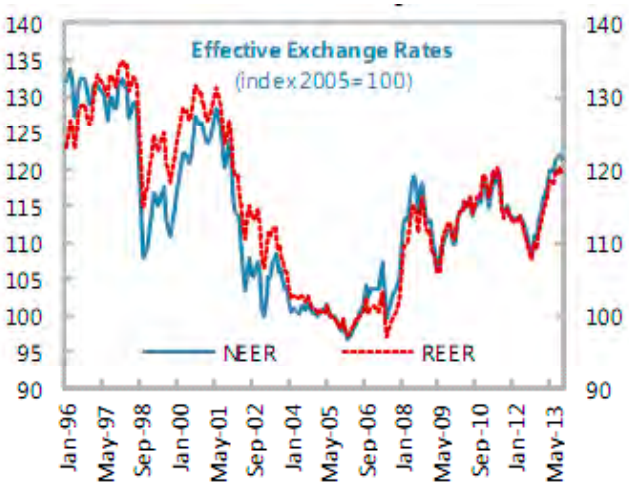
NO MAJOR RISKS TO ISRAEL'S INFLATION TARGET IN RECENT YEARS



Source: BIS

3

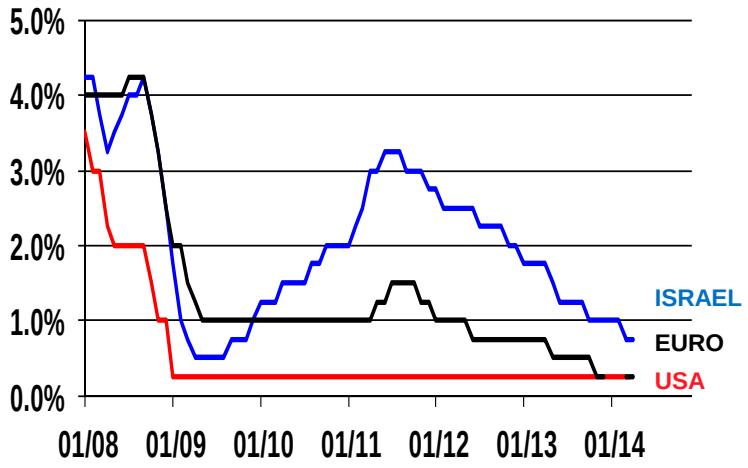
SOUND FUNDAMENTALS GAVE RISE TO A TREND OF REAL EXCHANGE RATE APPRECIATION



Source: IMF

4

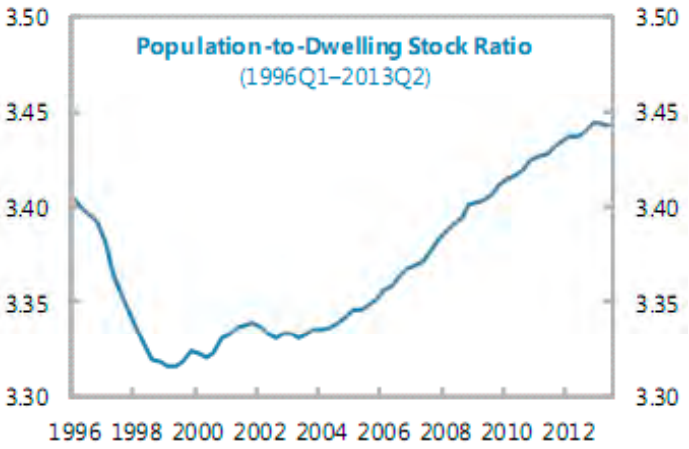
KEEPING THE DOMESTIC POLICY RATE IN LINE WITH THE FED AND ECB



Source: BLOOMBERG

5

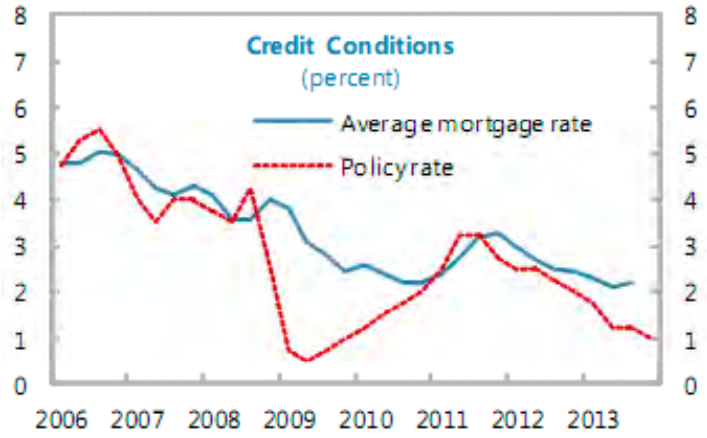
EXCESS DEMAND IN THE HOUSING MARKET



Source: BIS

6

EASY CREDIT CONDITIONS

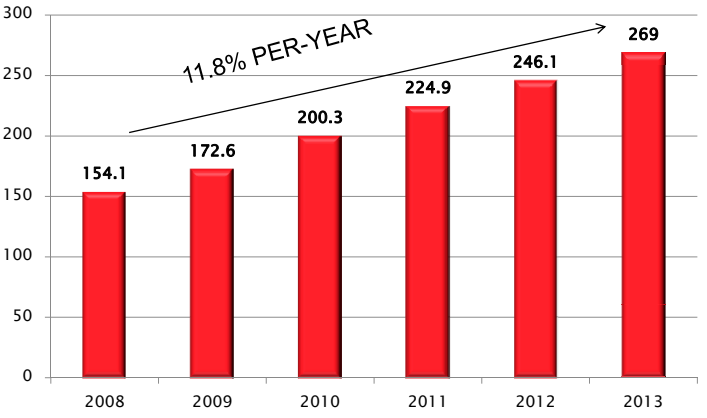


Source: IMF

7

A BOOMING MORTGAGE MARKET

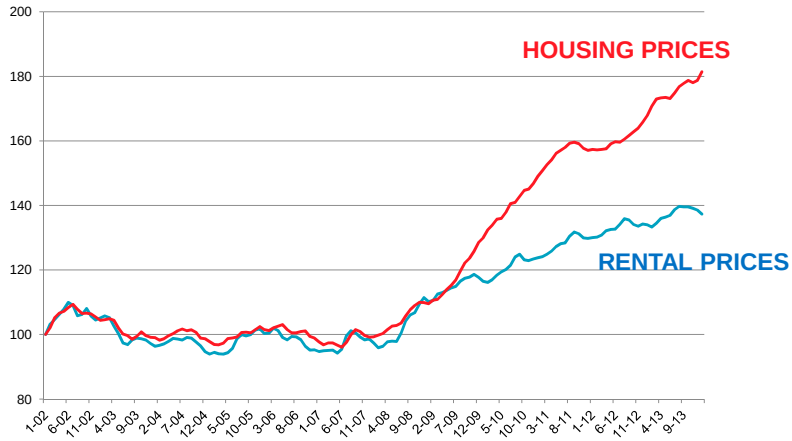
NIS BILLIONS



Source: BOI

8

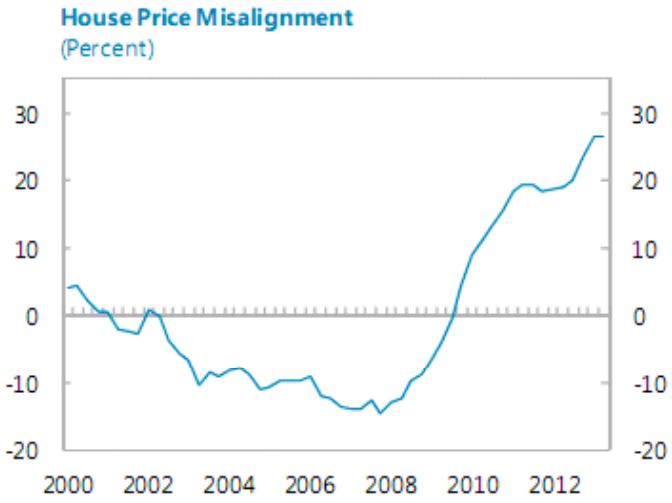
A HOUSING PRICE BUBBLE?
JAN. 2002=100



Source: CBS

9

HOUSE PRICE MISALIGNMENT

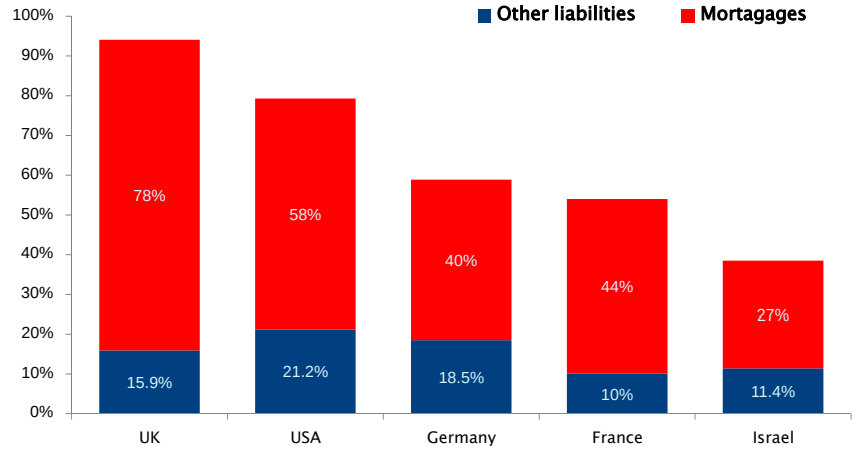


Source: IMF

10

HOUSEHOLDS' LEVERAGE: NOT HIGH

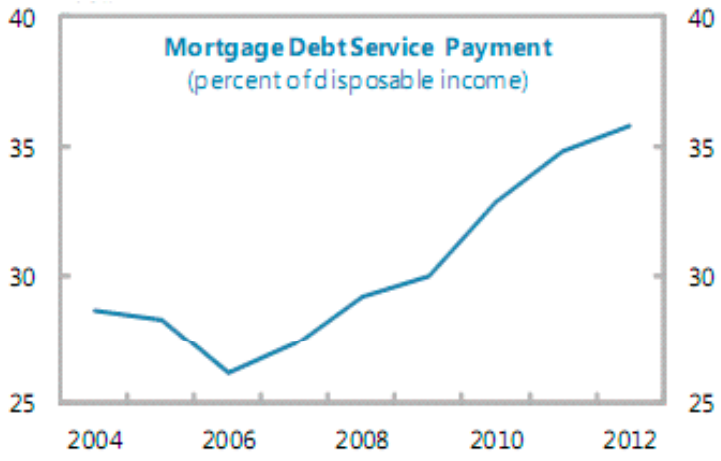
% OF GDP



Source: OECD AND BOI

11

A KEY RISK: RISING MORTGAGE DEBT SERVICE PAYMENTS



Source: IMF

12

MORTGAGES: MACRO PRUDENTIAL MEASURES

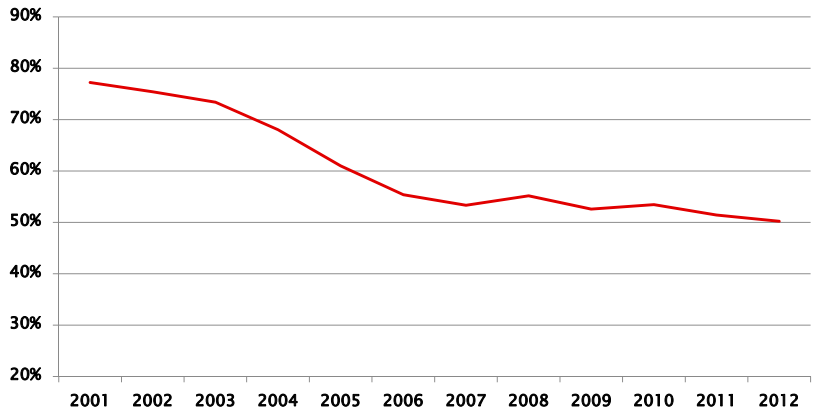
- Borrowers:
  - imposed LTV (loan-to-value) limits of 70% for first home and 50% for investors
  - restricted the debt payments to no more than 50% of disposable income
- Banks:
  - increased various capital requirements and provisions against mortgage lending
  - limited the floating rate part of any mortgage to 33% of the total
- Overall impact:
  - the extent to which the foregoing measures have attenuated housing price inflation remains controversial

13

THE RISE OF THE NON BANK CREDIT MARKET

14

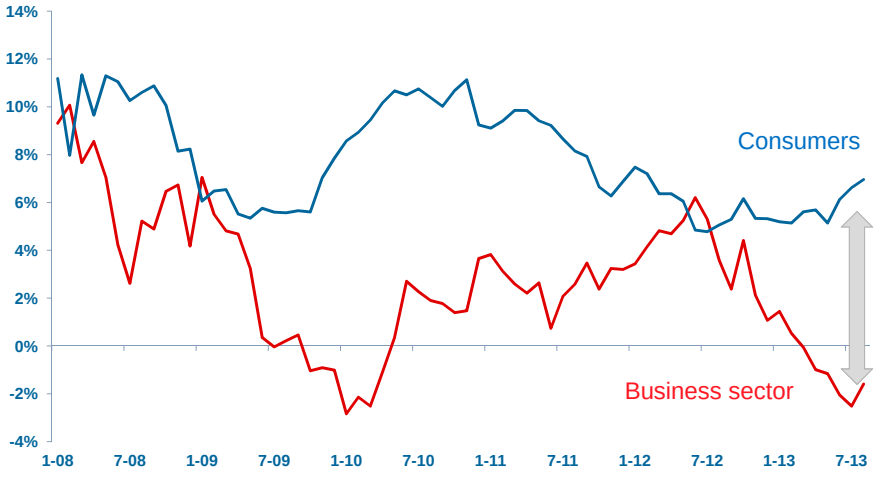
THE SHARE OF LOCAL BANKS IN CREDIT TO THE BUSINESS SECTOR DECLINED



Source: BOI

15

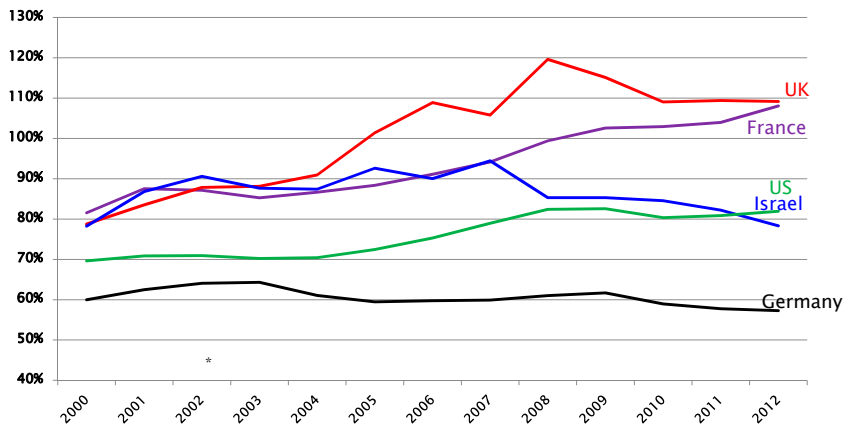
DELEVERAGING OF THE BUSINESS SECTOR Y.O.Y. RATE OF CHANGE



Source: BOI

16

BUSINESS SECTOR CREDIT
% OF GDP



Source: BIS

17

ADDRESSING THE NEW RISKS

- Corporate lending by non bank institutions has increased sharply in recent years (40% growth in 2012)
- There are 3 relevant supervisory agencies: the Bank of Israel, the Capital Markets Division at the Ministry of Finance, and the Israel Securities Authority
- As recommended by the IMF, it is imperative to establish a Financial Stability Committee to coordinate the measures of these 3 agencies, yet progress has been slow

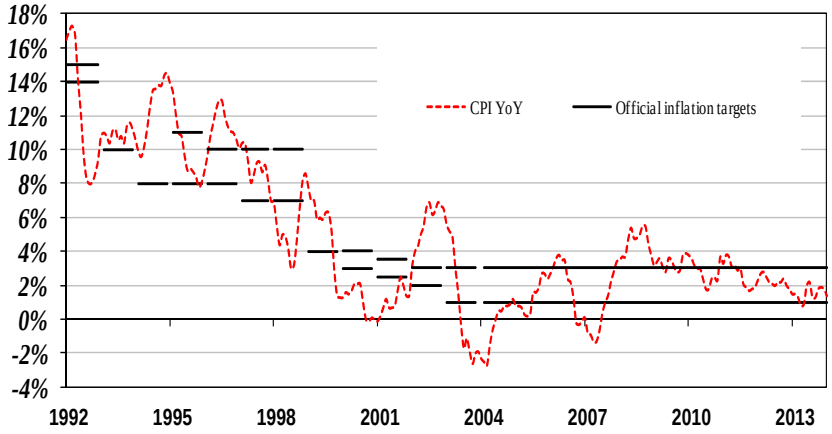
18

MAIN CONCLUSIONS

- Israel's economy has exhibited strength and resilience vis-a-vis the global shocks
- Sound policy fundamentals and natural gas discoveries have improved the outlook ahead
- The key dilemmas for monetary policy are related to the strength of the currency and the risk of a boom-bust cycle in the housing market
- The financial system remains sound, yet a Financial Stability Committee needs to be established

19

APPENDIX: DISINFLATION UNDER INFLATION TARGETING – THE ISRAELI EXPERIENCE



Source: BIS

20

Cyclical Macroprudential Policies

Nellie Liang, Federal Reserve Board

NEW ISSUES IN MONETARY POLICY:
INTERNATIONAL EXPERIENCE AND RELEVANCE FOR CHINA
March 27, 2014

Financial stability and policies

- Systemic risk may lead to financial externalities, such as fire sale of assets and contagion
  - Potential large negative impact on output and inflation
  - Unalike externalities described in textbooks, they only occur in certain countries
  - Difficult to measure and without link to particular entities
- Implement macroprudential policies to reduce externalities
- Monetary policy strengthens recovery and reduces probability of a recession
- Monetary policy improves financial conditions but could pose risk to future financial stability

Organization

- **Monitoring**
- Framework of vulnerabilities and possible shocks
  - Vulnerabilities transmit and amplify shocks
  - Shocks are hard to predict or prevent

- **Governance**
  - Domestic regulatory agencies
  - FSOC
  - International groups

3

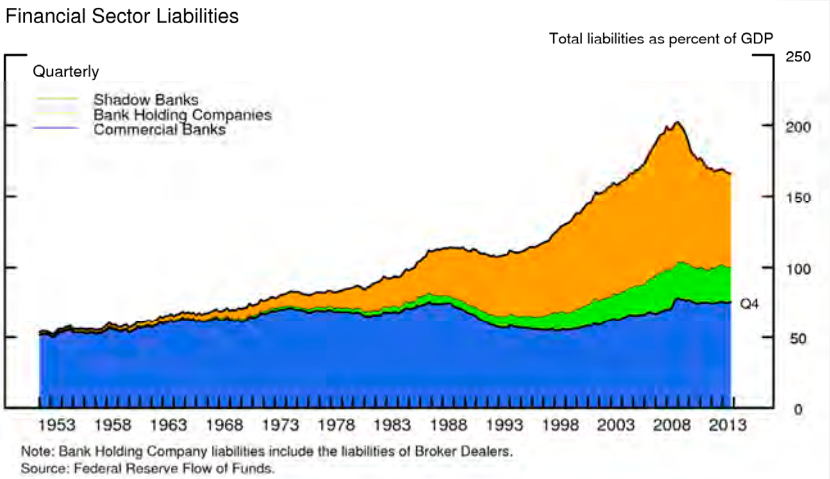
Monitoring Framework: Cyclical Vulnerabilities

- Price of risk
  - Compressed risk premiums
  - Low volatility and perceived risk
- Leverage
  - Risk transfer and lower credit quality
  - Endogenous leverage of dealers
- Maturity transformation
  - Endogenous short-term secured funding
- Interconnectedness

- Sectors: regulated banks, shadow banks, asset markets, nonfinancial sector

4

Bank and shadow bank liabilities

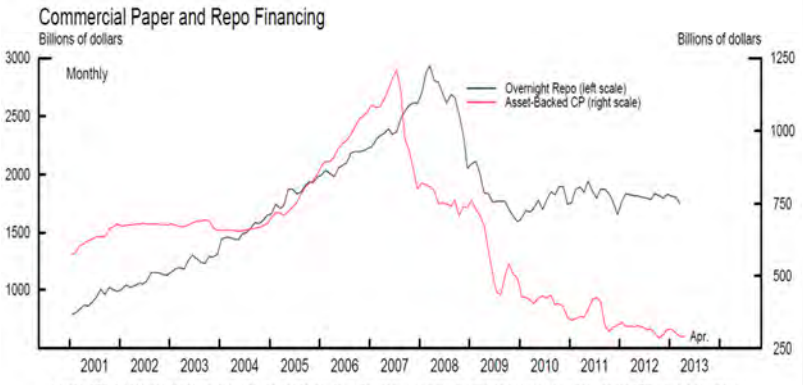


Note: Bank Holding Company liabilities include the liabilities of Broker Dealers.
Source: Federal Reserve Flow of Funds.

5

Runs on ABCP and Repo

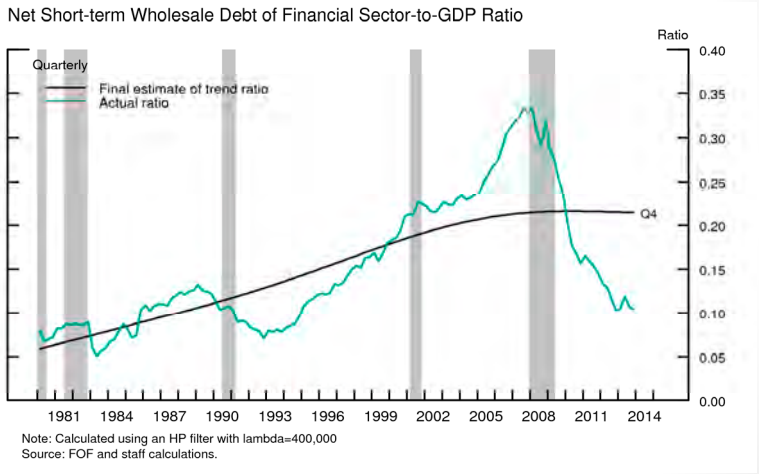
Covitz, Liang, Suarez (2013) Collapse of the Asset-Backed Commercial Paper Market
Gorton and Metrick (2012) Securitized Banking and the Run on Repo



Source: FR2004 primary dealer statistics and the Depository Trust Company. For more information see the About page on the FRB's public commercial paper release website.

6

Wholesale short-term funding



Considerations

- Both macroprudential and monetary policy can reduce emerging systemic risk

Macroprudential	Monetary
Single objective	Other objectives
Targeted	Broad
Lean against Build resilience	Lean against
Longer lead time – interagency	Short lead time
Credit allocation	All sectors

Cyclical Macroprudential Policies

	Macroprudential policies	Monetary policy
Regulated banks	• Supervisory guidance and inspection to reduce target risk. • Stress tests to build capital buffers to address significant risks. • Countercyclical capital buffer.	• Reducing risk-taking channels in lending.
Shadow banks	• Public communications. • Margins for secured financing transactions to reduce leverage. • Stricter underwriting standards for secured loans.	• Reducing pro-cyclical leverage of dealers and short-term secured funding.
Asset markets	• Public communications on excesses.	• Increases discount rate for financial assets.
Nonfinancial sector	• Stricter underwriting standards.	• Lowering excessive credit growth and preventing deterioration in underwriting standards.

9

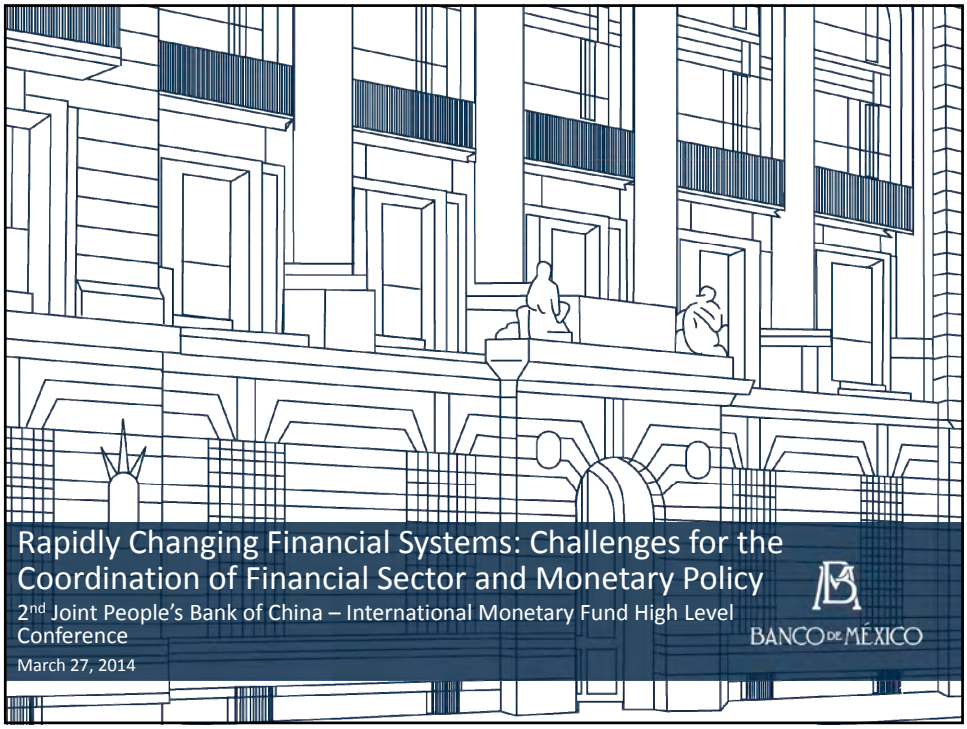
Macroprudential policies: Asset markets and shadow banks

- More targeted macroprudential policies can build resilience.
- Ensuring emerging risks are detected
  - Stricter banking regulations push activities to lower cost areas
- Ensuring tools are effective
  - Usually tied to regulated banking
  - Short-term funding markets are not reformed in DFA
  - Margin authority is limited

10

Monetary policy: Asset markets and shadow banks

- Financial conditions or financial stability
  - Risk taking and leverage are endogenous
- Excessive streamlining
  - Unable to detect risk or ineffective
  - Maybe easier to identify leverage
- Sequential or simultaneous
  - Not targeted and has other mandates
  - Effectiveness of macroprudential policies untested
  - "thorough and complete"



Introduction

- The financial crisis has led to an intense debate about implications of financial stability for monetary policy frameworks. Overall, there are two extreme views:
  - ✓ *The traditional view: Monetary authorities should keep their mandate of price stability, while macro-prudential authorities should pursue financial stability, with each having their own policy instruments.*
  - ✓ *Leaning against the wind view: Financial stability should be part of the objectives of central banks. Financial stability concerns should be taken into account when deciding the appropriate monetary policy stance.*

Introduction

- Based on the current characteristics of EMEs, those extreme views might not be plausible.
- A **more balanced view** that emphasizes coordination might be appropriate:
  - ✓ *A monetary policy with a primary objective of price stability.*
  - ✓ *A Central Bank involved in the design and implementation of macroprudential policies along with other authorities.*
- In order to do that, it is necessary **a solid reputation and credibility and appropriate coordination between monetary, fiscal and macro-prudential policies**.
- When assessing the proper approach for EMEs, it is crucial to take into account some issues such as **capital controls and financial stability**.

Outline

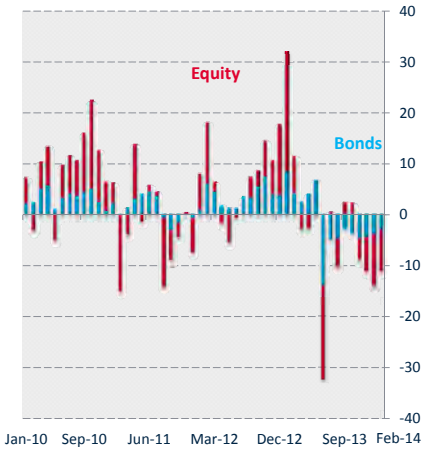
Considerations for EMEs

Capital flows and financial stability

- Short term capital flows are mainly driven, among other factors, by interest rate differentials between advanced and emerging economies.
- In this setting, the scope for addressing financial stability risks through monetary policy may be limited:
  - ✓ *Higher domestic interest rates with respect to interest rates in advanced economies may simply lead to additional capital inflows, exacerbating the financial imbalances.*
- Therefore, in the case of EMEs, a **comprehensive policy response** involve the use of macro-prudential tools with the participation of central banks in their design.

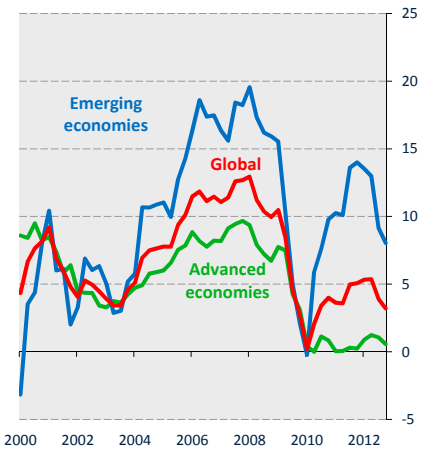
Considerations for EMEs

Emerging Economies: Monthly Portfolio Flows
Billions of USD dollars



Source: Emerging Portfolio Fund Research.

Real Credit Growth
Annual % change



Source: International Monetary Fund.

Macro-prudential policies

- **Preventive in nature**. Designed to mitigate the built up of risks during expansionary phases.
- **State dependent.** Effectiveness depends on circumstances.
  - ✓ *Higher probability of success when vulnerability is originated or affects the banking system.*
  - ✓ *Policies might not work or be necessary when bubbles are not fueled by leverage (e.g. foreign investors buying real state in London).*
  - ✓ *Macroprudential policies are more difficult to implement when flows are intermediated through the bond market.*
- **Not clear cut between macro-prudential and other policies.** Micro-prudential and monetary policies are often labeled as macro-prudential.

Outline

1 Considerations for EMEs

2 The Case of Mexico

3 Conclusions

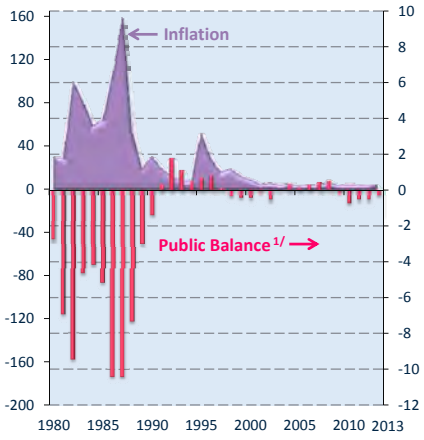
The Case of Mexico

- Mexico, like other emerging economies, has significantly strengthened its macroeconomic policy framework and improved its economic fundamentals over the last decade.
  - ✓ *A monetary policy framework committed to price stability.*
  - ✓ *Fiscal discipline.*
  - ✓ *A flexible exchange rate regime.*
  - ✓ *A healthy domestic financial system.*

⇨ This has significantly improved the credibility of Banco de México and increased the degrees of freedom of monetary policy in México. However, credibility should not be taken for granted.

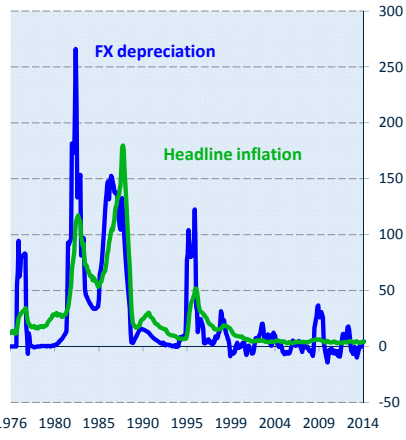
The Case of Mexico

Public Balance and Inflation
% of GDP and annual % change



1/ Public balance without Pemex investment.
Source: Banco de México, INEGI and Mexico´s Ministry of Finance (SHCP).

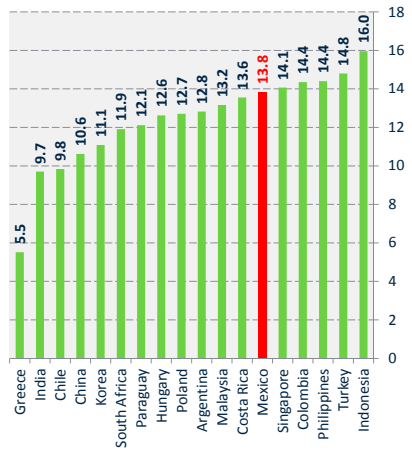
Headline Inflation and Nominal Exchange Rate Depreciation: 1976-2014
Annual %



Source: Capistrán, C., R. Ibarra and M. Ramos-Francia. (2011). "El Traspaso de Movimientos del Tipo de Cambio a Precios: Un Análisis para la Economía Mexicana," Banco de México working paper.

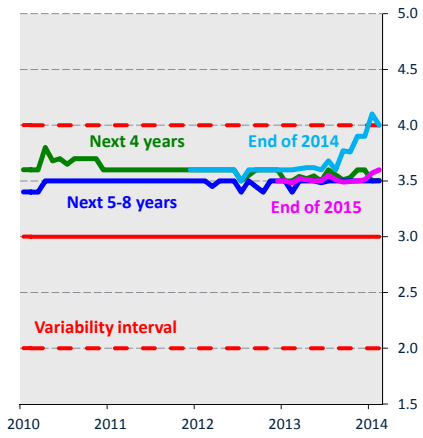
The Case of Mexico

Banks' Capital Adequacy Ratio [1/]
%



1/ It refers to regulatory Tier 1 capital to risk-weighted assets. Data for 2012. Source: Financial Soundness Indicators, IMF.

Annual Headline Inflation Expectations
Median, %



Source: Banco de Mexico´s Survey.

The Case of Mexico

- Regarding financial stability, the resilience of the Mexican banking system is mainly due to reforms that strengthened the financial regulatory framework in the aftermath of the 1995's financial crisis.

- That crisis made evident that the regulation and the supervision of banks were inadequate. In order to overcome this situation:

  ✓ *Mexico adopted several measures to reinforce the capital and liquidity of banks, as well as to improve their risk management.*

  ✓ *Accordingly, Mexico has been able to reduce the currency mismatches in its financial system, especially among commercial banks.*

The Case of Mexico

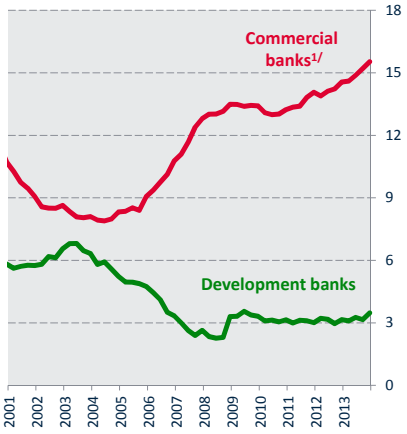
- Mexico has continued strengthening its financial regulatory framework in order to further improve the resilience of the domestic financial system:
  - ✓ *In 2010 Mexico's Central Bank created an area specialized in Financial Stability issues.*
  - ✓ *Mexico's banking system is largely compliant with Basel III.*
  - ✓ *In 2010 Mexico established a Financial Stability Council with the participation of the Central Bank and government financial authorities.*
    - o The purpose of the council is to identify financial and macroeconomic risks that could have systemic effects, and recommend macro-prudential measures.

The Case of Mexico

- In addition, a financial reform was recently approved by the Congress. The reform considers policy actions aimed at:
  - ✓ *Increasing competition in the banking sector.*
  - ✓ *Encouraging financing to sectors excluded from the financial markets.*
  - ✓ *Improving the regime of guarantees.*
  - ✓ *Preserving the soundness of the financial sector.*
- It is expected that all of the above contribute to an orderly growth of credit markets in Mexico.

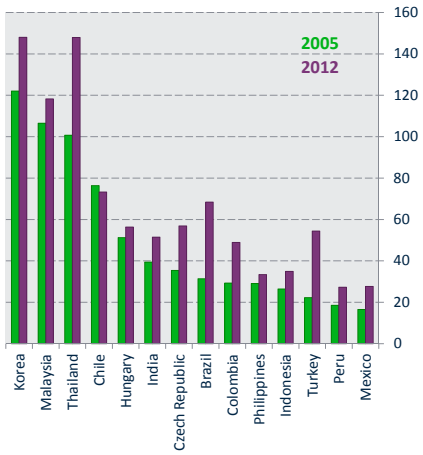
The Case of Mexico

Mexico: Commercial Bank's and Development Bank's Credit
% of GDP



1/ It refers to the credit to non –financial private sector.
Source: Banco de México.

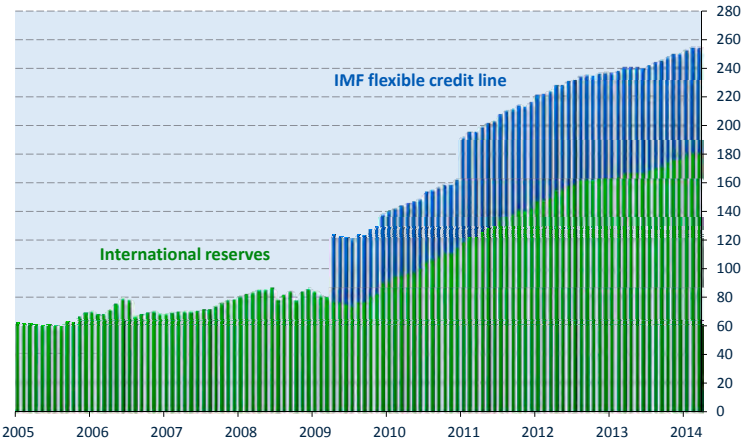
Total Domestic Credit to Private Sector
% of GDP



Source: International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates.

The Case of Mexico

International Reserves and IMF Flexible Credit Line
Billions of U.S. dollars



Note: Data up to March 7, 2014.
Source: Banco de México and International Monetary Fund.

Outline

1 Considerations for EMEs

2 The Case of Mexico

3 Conclusions

Conclusions

- In order to address the financial stability risks associated with capital inflows, Mexico has mainly focused on improving its economies fundamentals:
  - ✓ *Given the recent international financial turmoil, it can be argued that those countries that have created a sound macroeconomic framework based on solid fundamentals tend to be relatively less affected by adverse external events.*
  - ✓ *That is, although an adverse international shock may affect all the economies, the severity of the impact on each economy may be related, to some extent, to domestic factors.*
- Strong macroeconomic fundamentals include a monetary policy focused on price stability. However, Banco de México also plays a leading role in the design of macro-prudential policies.

PART IV

SESSION IV: EXPERIENCES IN MOVING TOWARD MARKET BASED POLICY INSTRUMENTS

- Korea's Experience with Monetary Policy Instruments
  Woon Gyu Choi

- Moving Toward Market-Based Policy Instruments: The Malaysian Experience
  Sukudhew (Sukhdave) Singh

- China: Moving Toward Interest Rate Targeting
  MA Jun

- From Direct to Indirect Instruments in Monetary Policy: the European Experience of the 1980s
  Heinz Herrmann

Second Joint Conference PBOC and IMF (March 27, 2014, Beijing, China)
New Issues in Monetary Policy: International Experiences and Relevance for China
Session IV: Experiences in Moving Toward Market Based Policy Instruments

Korea's Experience with Monetary Policy Instruments

March 27, 2014

Woon Gyu Choi
Deputy Governor
Director General, Economic Research Institute
The Bank of Korea

Prepared by: Woon Gyu Choi, Junhan Kim, Jiho Lee, and Jieun Lee

Outline

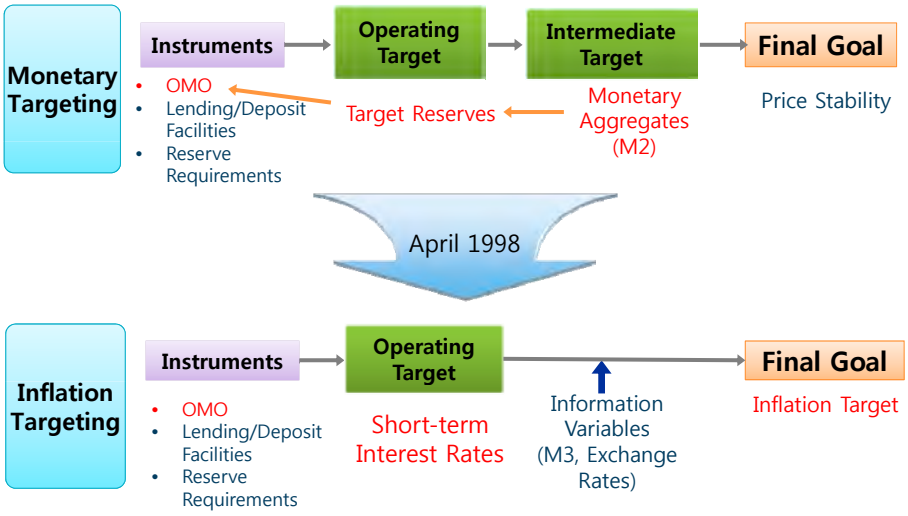
Key Issues

- How has monetary policy moved toward market-based operations in Korea?
  - Adopting indirect instruments and moving further to inflation targeting
- What are flagships in monetary policy operations?
  - Dominating price-based instruments complemented by quantity-based indicators?
  - Interest rate pass-through
- Challenges to the monetary policy framework and innovative prospects
  - Increased emphasis on financial stability in the aftermath of the GFC
  - Coordinating monetary policy tools and macro-prudential measures
  - Modern reincarnation of credit policy

3

4

Evolution of BOK's Policy Framework

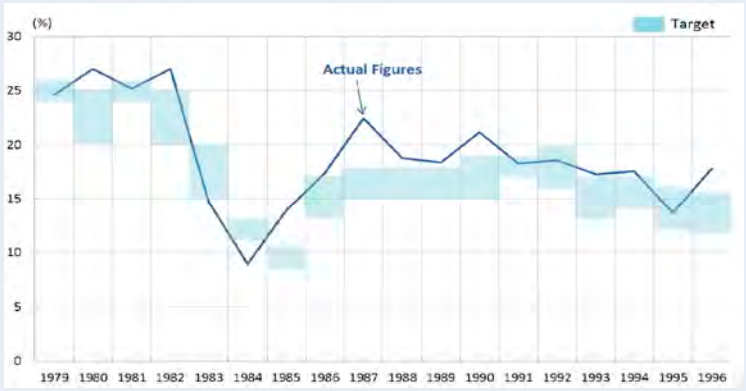


5

Monetary Aggregate Targeting
before the 1997 Asian Crisis

- It had worked relatively well until early-1980s in Korea, but became rather loose since then except for the first half of the 1990s.

M2 Growth in Korea – Target and Actual Figures



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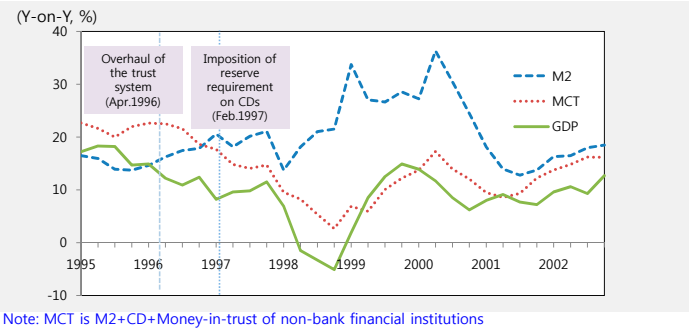
Evolution of BOK's Policy Framework (1)

- **Nominal Anchor**: Intermediate Target → Final Target
  - Intermediate Target (Monetary or Exchange Rate Targeting?)
  - Final Target (Inflation Targeting?)
- **(Motivation)** Weakened relationship between monetary aggregates and economic activities.
  - Seeking effectiveness, controllability, and simplicity

M2 and MCT Growth vs. Nominal GDP Growth



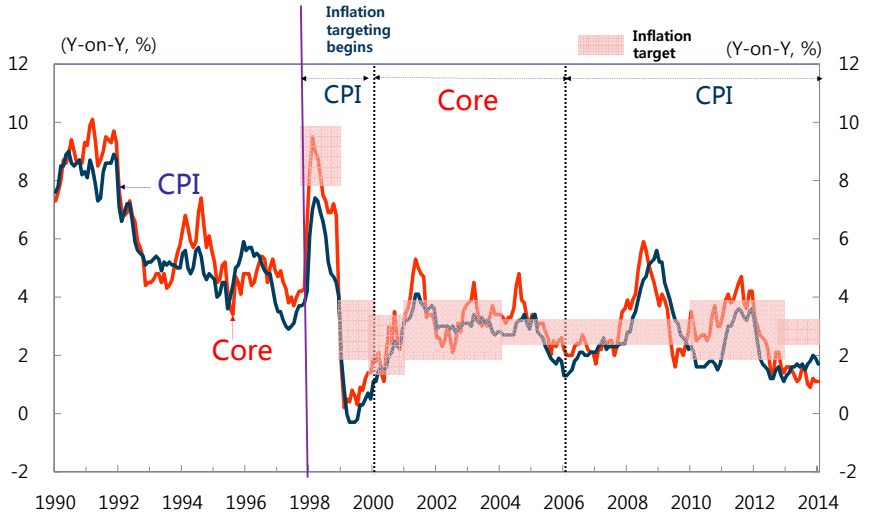
Note: MCT is M2+CD+Money-in-trust of non-bank financial institutions

Evolution of BOK's Policy Framework (2)

- **Focus: Monetary Aggregates → Policy Rates**
  - Easily Observable (clear signal of changes in policy)
  - Financial Stability (avoiding the volatility of interest rates)
  - Predictable Effects (transmission mechanism is relatively well understood)

- **Policy Rate: Call Rate (1998~2008) → BOK Base Rate (2008~)**
  - Uncollateralized overnight call rate (≈ federal funds rate target)
  - Reference rates such as RPs and lending & deposit facilities between BOK and financial institutions (≈ BOE's Bank Rate)

Actual Inflation and Inflation Target



9

Preconditions for Transition

- Financial Liberalization
  - 4-stage liberalization of interest rates from 1991 to 1997 (order: lending rates to deposit rates, long-term rates to short-term rates)
- Bond Market Development
  - Treasury bond outstanding ('90: 3 trillion won to 2013: 401 trillion won)
- Flexible Currency
  - Impossible Trinity
- Independent and Credible Central Bank
  - The revision of the BOK Act gave operational independence to the BOK (1998)

⇒ So, given underdeveloped financial markets and chronic excess demand for funds in the past, direct measures (banks' deposit and lending rates and the control of the scale of their lending) were inevitable and probably more effective.

10

I. Key Issues

II. Evolution of BOK's Policy Framework

III. Current Market Based Policy Tools and Related Issues

IV. Challenges Ahead

V. Concluding Remarks

Motivations of Transition

Market friendly policies are highlighted in the BOK Act

"In implementing monetary and credit policies, the Bank of Korea shall emphasize the **market mechanism**." (Article 4.2)

- To lead and promote financial market development
- To obtain information and signals from the markets
- To respond to the complexities of financial markets and instability of monetary aggregates

Current Instruments and Objectives

Monetary Policy Instruments

Policy Rate

- Reserve Requirements
- Open Market Operations (OMOs)
- Lending and Deposit Facilities

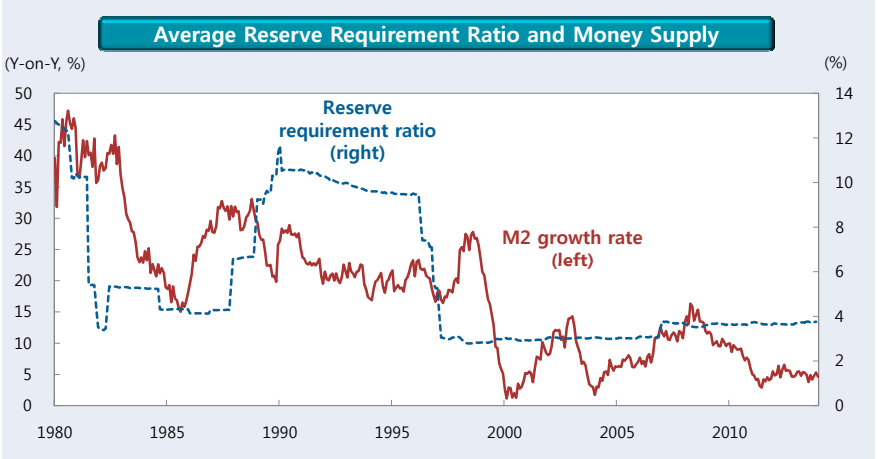
Objectives BOK Act (Article 1)

Price Stability + **Financial Stability**

13

Reserve Requirements (1)

- An effective liquidity management tool until 1980s
  - Since 1990s, OMOs have been the main tool.



14

Reserve Requirements (2)

Classification	Key contents
Reserve requirement ratios	Differ depending on the type of pertinent liabilities
Financial institutions subject to reserve requirements	Banks and bank holding companies
Liabilities subject to reserve requirements	Deposit liabilities and some financial debentures
Method of calculating and maintaining reserves	Calculation: 1 to 28 February Maintenance: 13 March to 9 April
Method of holding reserves	Reserve deposits with the central bank, vault cash (up to 35% of required reserves)
Sanctions in case of a shortfall in reserves	(Penalty) 2% of average deficiency (Ban on new lending, etc.) If the reserve shortfall continues for three months in a row, the ban may be continued until required reserves are met for more than a month.
Interest payment	Can be made, if necessary

15

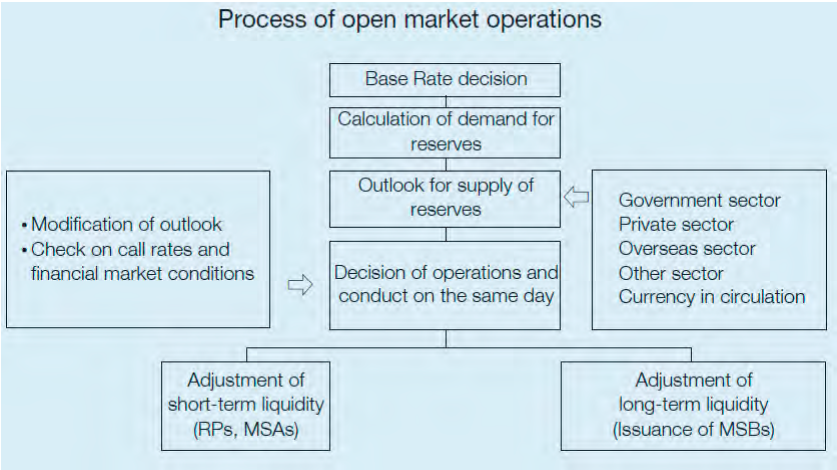
Reserve Requirements (3)

- Remunerate or not?
  - The BOK usually does not remunerate banks' reserve holdings but it can and indeed remunerated (November 2008, 0.5 trillion won).
  - Financial burden, especially for central banks with large foreign reserves
  - The Fed and BOE remunerate banks' reserves
- Which liabilities of banks?
  - The BOK can set reserve requirements on financial debentures if necessary (December 2011).
  - Banks' large debenture issuance during the 2000s led to difficulties in their rollover in 2008, posing liquidity risk to banks and undermining foreign investors' confidence.
- Potential threat from the Liquidity Coverage Ratio (LCR)
  - If LCR is too high, reserve requirements are not binding.

16

Open Market Operations (1)

- Purchases or sales of securities including government and public bonds with financial institutions in open markets



17

Open Market Operations (2)

		Type of operation	Eligible securities
Long-term adjustment	Withdrawal	**Issuance of long-term MSBs**	—
		Outright sales of securities	Government bonds and government-guaranteed bonds held by the BOK
	Supply	Repurchases of MSBs with long-term remaining maturities	—
		Outright purchases of securities	Government bonds and government-guaranteed bonds held by institutional counterparts
Short-term adjustment	Withdrawal	**Sales of RPs**	Government bonds and government-guaranteed bonds held by the BOK
		Acceptance of MSA deposits	—
		Issuance of short-term MSBs	—
	Supply	Purchases of RPs	Government bonds, government-guaranteed bonds, and MSBs held by institutional counterparts
		Early withdrawal of MSA deposits	—
		Repurchases of MSBs with short-term remaining maturities	—

18

Open Market Operations (3)

MSB (88.2%)

- Introduced in 1961
- Issued once a week in different maturities from 14 days to 2 years for structural adjustments in market liquidity (2-year bonds ≈ 2/3)
- Competitive bidding (1993) led bond market developments.
- Financial burden to the BOK

RP (7.5%)

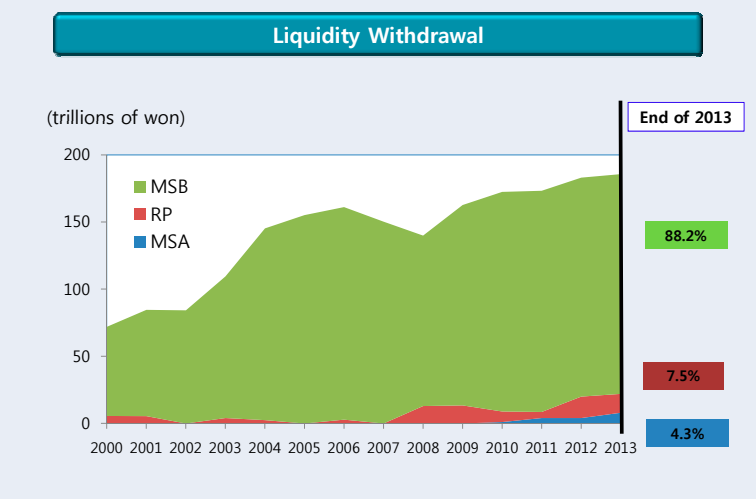
- Used for short-term liquidity management, mostly 7-day maturity (up to 91-day)

MSA (4.3%)

- Introduced in October 2010, mostly 28-day (up to 91-day)
- Early redemption is restrictedly possible.

19

Open Market Operations (4)



20

Lending and Deposit Facilities

- The BOK provides four facilities

Standing facilities for the effective control of policy rates (M-Policy)

Bank Intermediated Lending Support Facility (C-Policy)

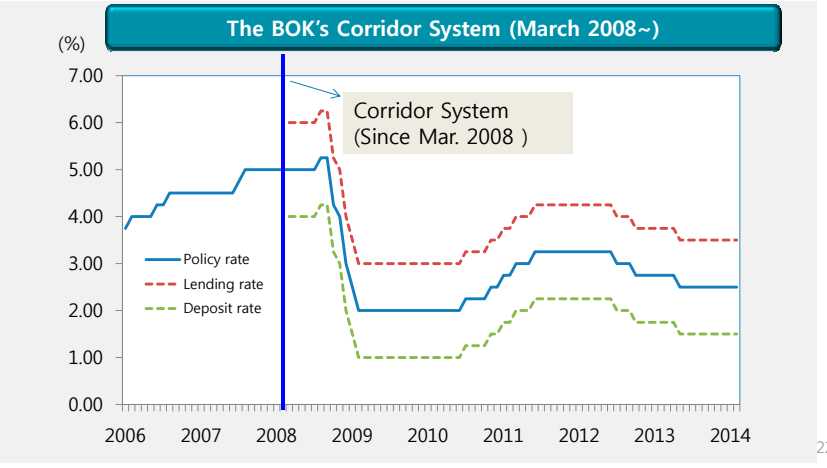
Intraday overdraft (Smooth Operation of Settlement System)

Special loans for emergency (FS-Policy)

21

Liquidity Adjustment Loans and Deposits (1)

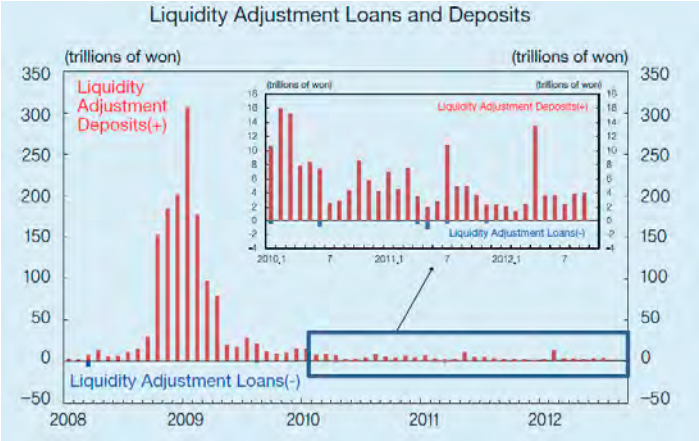
- To contain the volatility of overnight market interest rates, a symmetric corridor (BR±100bps even at the final day of reserve maintenance period) was introduced;
- This is 'not discount window,' and borrowing banks should not suffer from the stigma effect at least in principle.



22

Liquidity Adjustment Loans and Deposits (2)

- (Deposit facility) very successful in absorbing excess liquidity and reining the volatility of overnight market rates during the GFC
- (Lending facility) still very cautious to use (stigma effect)



23

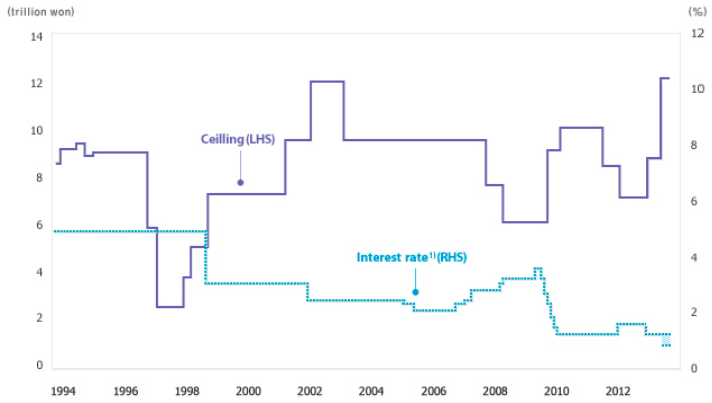
Bank Intermediated Lending Support Facility

- The BOK's credit policy (Goodfriend and McCallum, 2009)
  - Information asymmetry and market failures in the financial sector have affected the efficacy of M-Policy in the aftermath of the GFC.
  - Sectorial liquidity shortage amid ample aggregate liquidity: Funneling aggregate liquidity by the CB into market liquidity and loans for investment could be called a "modern reincarnation" of C-Policy.
  - Reduce banks' funding costs (like BOE's FLS) to help funnel liquidity to the private sector by covering the managing cost of credit risk.

24

Bank Intermediated Lending Support Facility

Ceiling and Interest Rate of Bank Intermediated Lending Support Facility

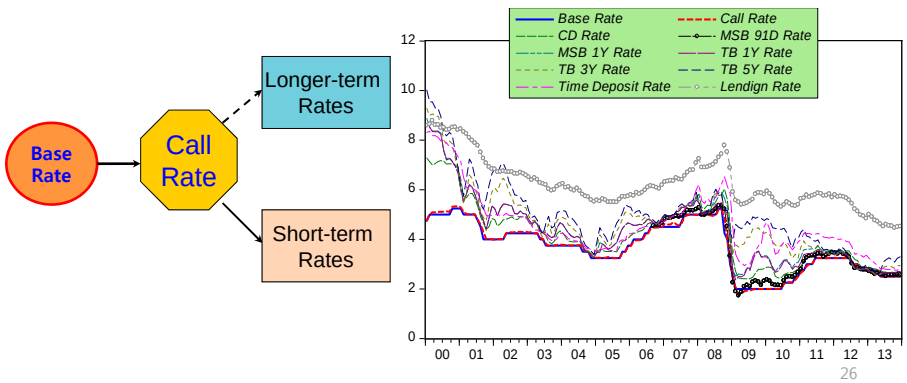


Note : 1) Applying within the range of 0.5~1.25% since April 11th

25

Interest Rate Pass-Through

- (Short-term Rates) The policy rate is closely linked to call rates, CD rates, and 3-month MSB rates in the short run and in a one-for-one long-run correspondence (perfect pass-through).
- (Longer-term Rates) The policy rate affects longer-term MSB rates, government bond rates, deposit rates, and lending rates, with quite close links both in the short run and long run (imperfect pass-through).



26

I. Key Issues

II. Evolution of BOK's Policy Framework

III. Current Market Based Policy Tools and Related Issues

IV. Challenges Ahead

V. Concluding Remarks

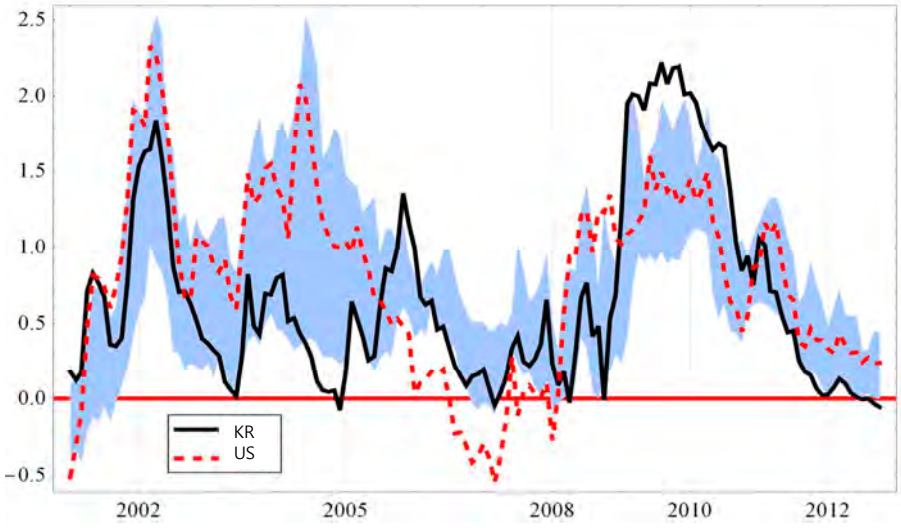
27

Financial Integration and the Controllability of Long-End of Yield Curve

- Although central banks have tight control over the short-end of yield curve, the controllability of longer-term yields can be attained through 'interest rate path-through.'
- Factors affecting interest rate path-through include:
  - expectations about the future path of policy rates
  - risk aversion, liquidity of bond markets, etc.
- More important in practice, however, is a global factor owing to international financial integration.
  - For the most part of the 2000s, term-spreads in AEs and EMEs alike show strong co-movements.
  - Inversions of yield curves in 2012 in Korea are attributable to falling U.S. term spreads (Kang and Lee 2013).

28

Co-movements of Term-Spreads

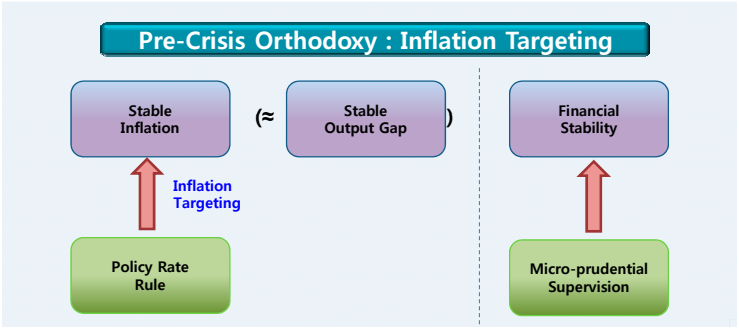


Note: Blue band indicates trimmed (25%) term-spreads of 23 countries (9 AEs and 13 EMEs).
Source: Kang and Lee (2013)

29

Challenges Ahead (1)

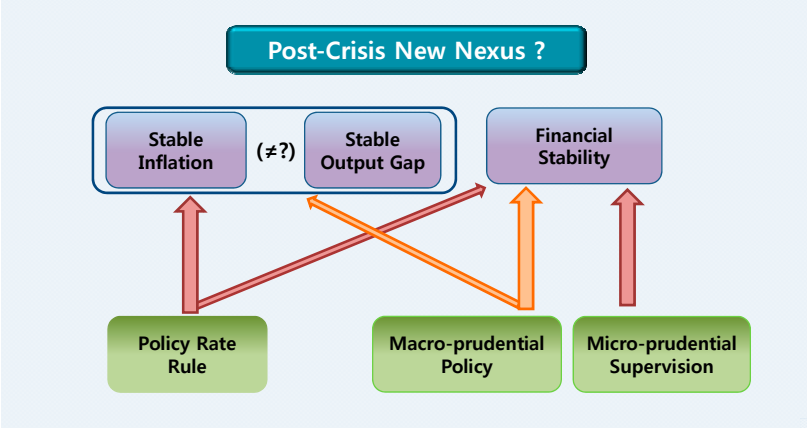
- Under inflation targeting, the BOK's transition to a market-based framework has been successful in:
  - achieving price stability
  - reducing the volatility of real economy
  - facilitating financial market developments



30

Challenges Ahead (2)

- However, the experience of the GFC and the subsequent Great Recession brought about substantial criticism on the roles and responsibilities of central banks



31

Challenges Ahead (3)

- Coordination between Monetary Policy and Macro-prudential policy
  - Potential tradeoff between economic growth and financial stability
  - We now know that macro-prudential policy is essential but we don't know much how it would interact with monetary policy.
- Implementation of Credit Policy
  - To avoid excessive intervention in credit flows and to reduce distributional distortions, C-Policy relies on market mechanism and does not intend to replace markets.

    * It affects banks' decision on credit extensions through incentives or market prices.

  - Nevertheless, to minimize distortions, if any, C-Policy should be based on clear pre-set **principles**.

    * Consistency with M-Policy to minimize policy tradeoffs and avoid pro-cyclicality
    * Transparency to ensure accountability and to minimize policy uncertainty
    * Simplicity to prevent seeking arbitrage
    * Through market mechanism to ensure efficiency and to minimize distortions
    * Feedback and monitoring to maintain effectiveness, minimizing side effects

32

Concluding Remarks

- There is no one-size-fits-all monetary policy operation for all.
  - Need to take into account developments in domestic and global financial markets and real economies.
  - Also, during a crisis, unconventional measures could be effective.
- Nonethess benefits (largely long-term) from transition to market-friendly policy framework still seem to outweigh the associated costs (largely short-term).
- As financial market develops and its global linkage intensifies, the controllability of longer-end of yield curve could be harder.
- Central banks should develop new tools and rediscover old tools in response to their extended roles and responsibilities.
  - For example, reserve requirements could be reinvigorated for the sake of financial stability.
  - Still, however, we should be cautious of too much reliance on required reserves because this may cause distortions between banks and non-bank financial institutions and/or the increase of shadow banking.

Thank you!

33

New Issues in Monetary Policy:
International Experience and Relevance for China

2nd Joint Conference of the People's Bank of China and the International Monetary Fund

Moving Toward Market Based Policy Instruments: The Malaysian Experience

Sukhdave Singh
Deputy Governor
Central Bank of Malaysia

Significant milestones in Malaysian financial markets

… up to the 1980's

1963 : First **discount house** established

1978 : Introduction of **BAs** and **NIDs**

1983 : Start of Islamic banking - Bank Islam established

Introduction of Govt Investment Issues (GII),

1986 : Setting up **Cagamas** – national mortgage corporation

1987 : Introduction of Kuala Lumpur Interbank Offered Rate (**KLIBOR**) as the official indicator of conditions in interbank market

1989 : Introduction of **Principal Dealer system** as market makers for certain classes of debt securities

the 1990's

1990 : Establishment of first credit rating agency i.e. **Rating Agency Msia**

1993 : Setting up of Securities **Commission**

1994 : Issuance of first **mortgage sukuk** i.e. Cagamas Mudharabah

Issuance Malaysian **Code of Conduct** for dealing in the FX and money market

1995 : Establishment of second credit rating agency i.e. **Malaysian Rating Corp**

1996 : Implementation of Fully Automated System for Issuing / Tendering (**FAST**) to conduct monetary operations and primary market issuance activities

1997 : Setting up of Bond Information and Dissemination System (**BIDS**) to provide transparency in securities trading

1999 : Establishment of National Bond Market Committee (**NBMC**) to provide policy direction and rationalise bond market regulatory framework

Replacement of deferred net settlement protocol with real-time gross settlement (**RENTAS**)

2000's and beyond…

2000 : Announcement of Government Securities **Auction Calendar**

2001 : Launch of **Financial Sector Masterplan** (FSMP)

2002 : Issuance of first global sovereign USD 600m based on Ijarah

2004 : Active use of **repo** as monetary instrument

2005 : Inaugural issuance of 20 yr MGS

2006 : Establishment of first bond pricing agency i.e. **Bondweb**

2007 : Introduction of MGS switch auction to manage maturity profile and improve market liquidity

2009 : Introduction of 6 Islamic Principal Dealers

2010 : Issuance of 2nd global sovereign sukuk of USD1.25n

5 yr Government Investment Issue (GII) reopened – world's first reopening of a sukuk

2011: Launch of **Financial Sector Blueprint**

2013 : Further lengthening of the govt yield curve with first issuance of 20yr GII and 30 yr MGS

Moving to market-based financial system, market-based instruments and market-based monetary operations

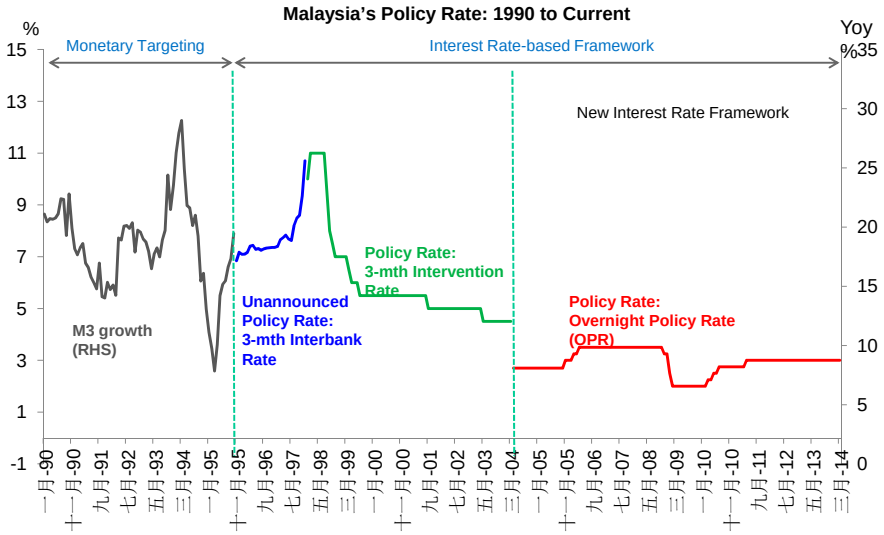
i. AFC 1997-98 highlighted vulnerabilities in the financial system & lack of policy instruments to deal with the external forces that influenced our economy and financial system

ii. Developing the domestic financial system became a priority – Financial Sector Masterplan 2001 & Capital Market Masterplan 2001.

iii. Given the vulnerability to external shocks, active rethink on the framework for monetary policy formulation:
   i. Using interest rates to send clear signals to markets
   ii. Allowing the exchange rate to act as a buffer when fundamentals change

iv. Putting in place the infrastructure for more effective monetary operations and having more market-based instruments

Evolution of monetary policy framework reflects shift towards a more market-determined interest rate structure



Evolution of Retail Interest Rates to Being Market Based and More Responsive to Monetary Policy Changes

Prior to 1978	1978	1983 to 1997	1998	2004 to present
Administered Interest Rates	**Abolition of administered rates**	**Adoption of Base Lending Rate (BLR)**	**Improvement to BLR**	**New Interest Rate Framework**

• Prescribe maximum deposit rates and minimum lending "prime" rate
• Banks to observe maximum interest rates charged to special groups
• Banks required to extend minimum of 50% of net increase to special group and manufacturing sector
	• Banks allowed to determine deposit rates and prime lending rates
	• Maximum lending rates to special group still apply
	• Introduction of two new monetary instruments i.e. BAs and NIDs
		• ABM rule for commercial banks to tie lending rates to BLR except loans to special groups
		• BLR based on cost of funds after providing for statutory reserves, liquid assets requirements and overhead costs
		• 1995 – BLR based on daily 3 month interbank rate of previous month – lagging feature
			• 3 month intervention rate as the anchor rate for the BLR – reduce lag effect of changes to policy rates within 7 days	• 2004 – Overnight Policy Rate (OPR) to signal MP stance
				• Removal of ceiling on BLRs and prescribed lending spreads
				• 2014 –Review of BLR as the reference rate for pricing of loans
				  ◦ Review to ensure the reference rate for loan pricing better reflects:
				  ✓ Funding costs of each financial institution
				  ✓ Changes in monetary policy
				  ◦ Eliminate practice of retail lending rates being at a substantial discount to BLR
				  ◦ Base Rate + Spread
				Announced on 19 March 2014. To be effective from 2 January 2015

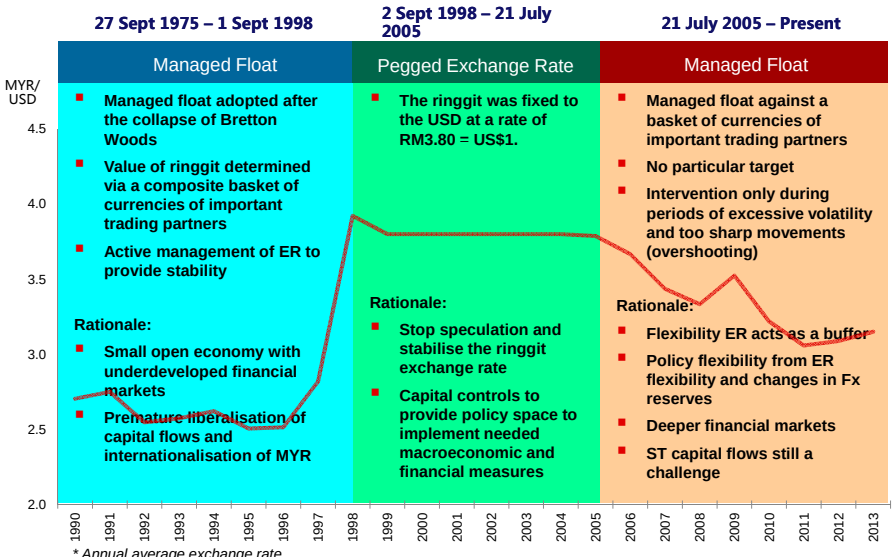
Note: Discount rates on govt treasury bills determined by open tender since Aug '73

BLR maximum lending rates
1 Nov 1983 : Declared BLR + Freely determined margin
1 Sep 1987 : Quoted BLR + Risk premium (max of 4%)
1 Oct 1998 : Quoted BLR + Risk premium (max of 2.5%)

BANK NEGARA MALAYSIA
CENTRAL BANK OF MALAYSIA

5

The evolution of the exchange rate regime in Malaysia



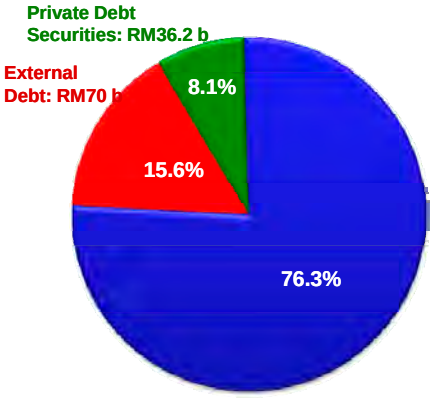
** Annual average exchange rate*

BANK NEGARA MALAYSIA
CENTRAL BANK OF MALAYSIA

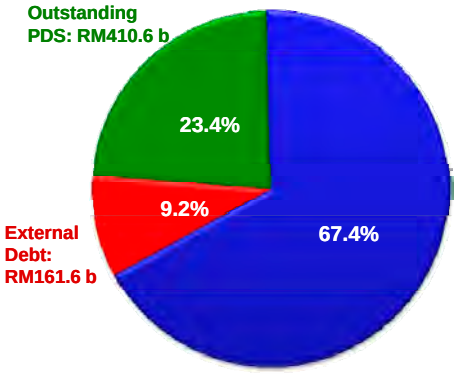
6

Change in Financing of Private Sector: Growing Role of Bond Market

Debt Financing of the Private Sector
Jan 1997: RM447.8 b

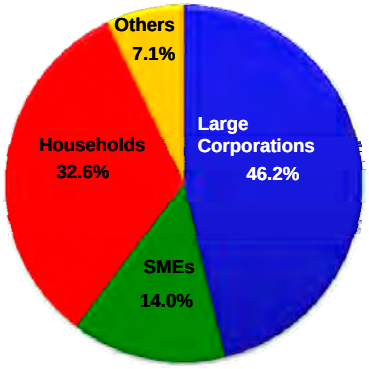


Debt Financing of the Private Sector
Dec 2013: RM1,753.2 b

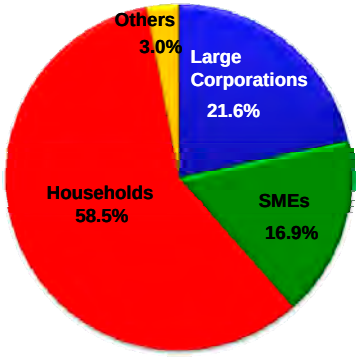


Development of Capital Market Transformed Banks' Customer Profile

Outstanding banking system loans to the private sector
Jan 1997: RM341.6 b

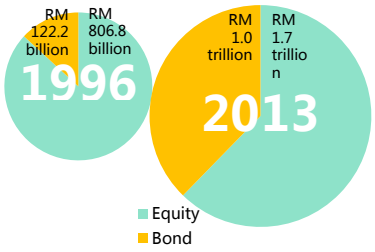


Outstanding banking system loans to the private sector
Dec 2013: RM1,181.0 b

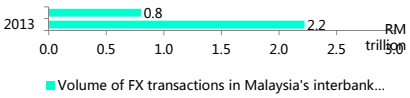


More diverse financing instruments and hedging options

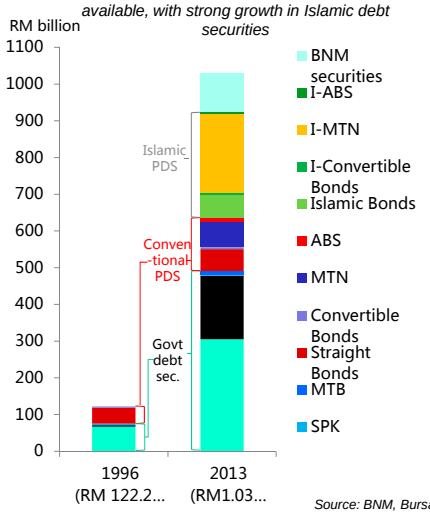
Since 1996, Malaysia's capital markets have grown in size, especially the bond market



Size of the derivatives market has also increased



Wide variety of instruments are now available, with strong growth in Islamic debt securities



Source: BNM, Bursa

The deepening of the financial system has contributed to the greater diversity of monetary instruments

1970's to early 1990's

Statutory reserve requirements (SRR)

- 1970's – SRR considered the main instrument for monetary policy
- Frequent variations of SRR were required due to inadequate discretionary monetary tools

Liquidity Asset Ratio Requirement

- Banks to observe minimum liquidity ratio prescribed by BNM
- Imposed for two key reasons:
  - ✓ Prudential measure to ensure banks maintain liquid assets to safeguard depositors' interests
  - ✓ Selective credit policy – encourage direct credit to desired areas such as development of govt papers and Cagamas bond market

1990's to present

Direct borrowing (unsecured)

- Short-term borrowings used to sterilise large inflows in early 1990's
- Have since been the main instrument to manage liquidity

Bank Negara Bills (BNB) / Bank Negara Monetary Notes (BNMN)

- 1993 – BNB issued as discounted paper (up to 1 yr) to increase the types of monetary instrument available
- 2006 – Amendments to CBA to enable larger issuance sizes to absorb growing liquidity (renamed BNMN)

Repo

- Collateralised borrowing using MGS as collateral to absorb excess liquidity at lower cost, actively used since 2005

Foreign exchange swaps

- Exchange of foreign currency against ringgit as an additional tool to manage domestic liquidity

Centralisation of Government Account with BNM

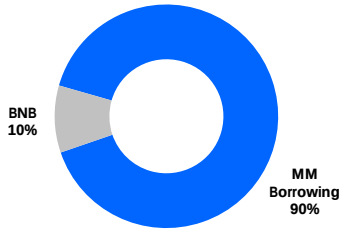
- Allows for better liquidity management as BNM is able to forecast flows from the govt account to the banking system

Purchase and sale of government papers (open market operations)

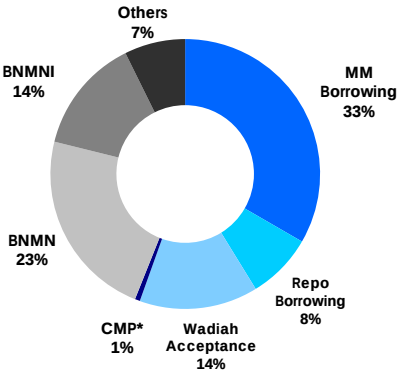
***SRR** – used less often but remains important to lock-in large excess liquidity on long term basis whilst the Liquidity Asset Ratio requirement was replaced with New Liquidity Framework in 1998*

Monetary operations leverage on increasing diversity of instruments

Monetary Policy Instruments as at 1996



Monetary Policy Instruments as at Feb 2014



*CMP – Commodity Murabahah Programme

Monetary operations support and leverage on the development of the financial system

Critical infrastructure put in place to support monetary operations

BNM

Interbank Institutions
Commercial Banks:
- Primary Dealers (12)
- Non Primary Dealers

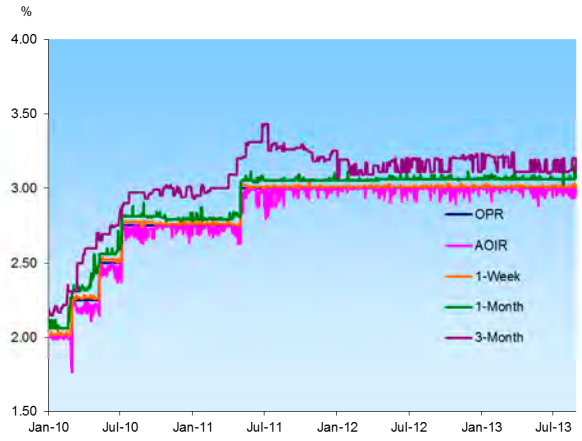
Islamic Banks
- Primary Dealers (6)
- Non Primary Dealers

Investment Banks

Money Brokers

	Operations	**Payment and settlement**
Monetary instruments • Unsecured borrowing • Repo • Central bank bills • Outright sales and purchase of government securities	**Fully Automated System for Issuing/Tendering (FAST)** • Secured primary market operations via web-based • Transparency of daily operations an auction results • Results accessible to public	**Real-time Electronic Transfer Funds and Securities (RENTAS))** • Inter-bank funds transfer • Securities settlement system • Script-less securities depository for all unlisted debt instruments

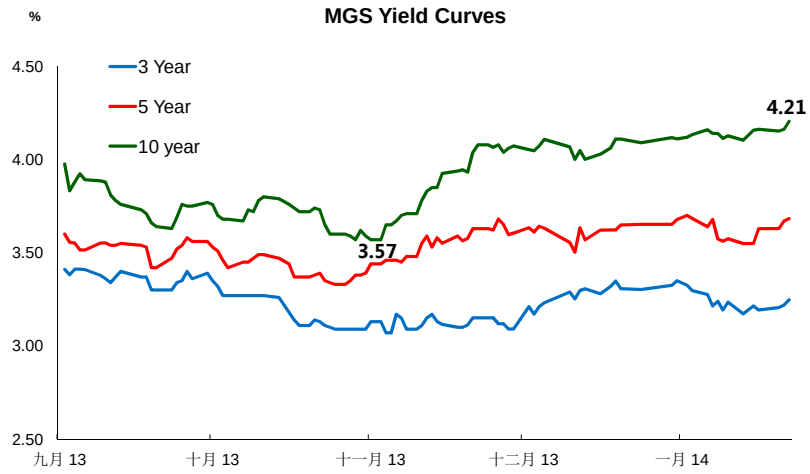
Current monetary policy framework allows market based pricing of different financial products



Source: Bank Negara Malaysia

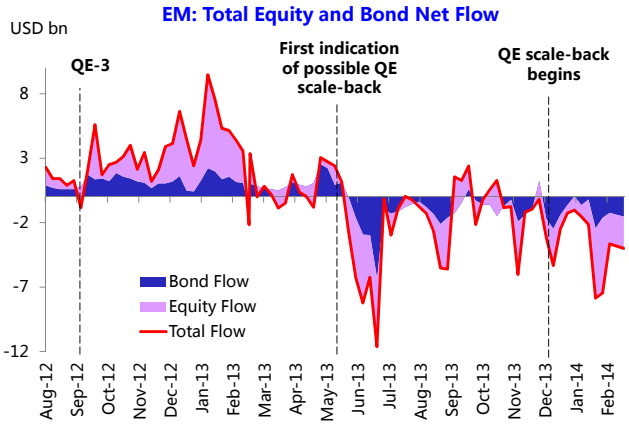
- Monetary policy seeks to influence only the overnight interbank rate
- Changes in the policy rate have been effectively transmitted to money market rates at other maturities
- Also transmitted to the short-end of the bond market
- Transmission at the longer end of the bond market has been more problematic recently due to the large inflow and outflow of foreign funds in this market

Inflows and outflows of foreign funds contribute to increased volatility of longer-term bond yields



Source: Bloomberg

Like other EMs, Malaysia continues to be affected by monetary conditions in the AEs

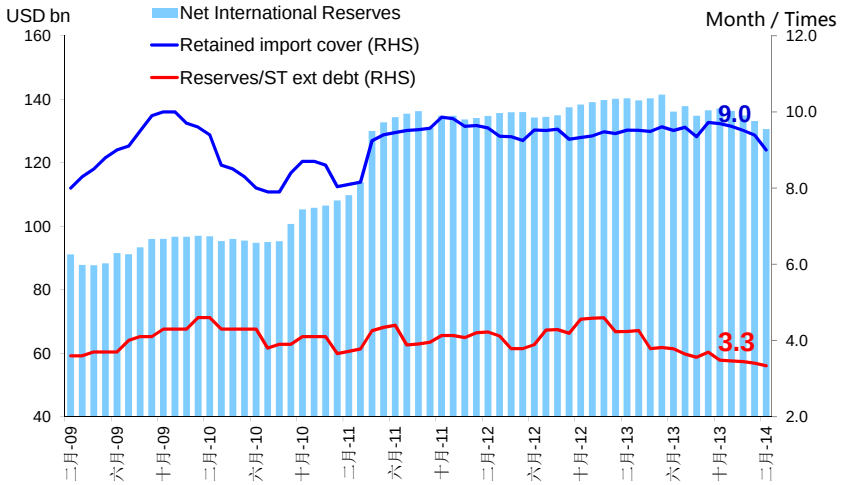


2013: Heightened volatility of capital flows following uncertainties surrounding the Fed's QE scale-back

2014: Financial markets remain vulnerable to setbacks and changes in sentiments

Source: EPFR
Note: EPFR refers to net portfolio flows (both equity and bonds) by non-resident investors. These data are compiled based on surveys of fund managers and do not capture investments by institutional investors.

Less intervention but Fx reserves remain a critical buffer at times of increased volatility in the external sector

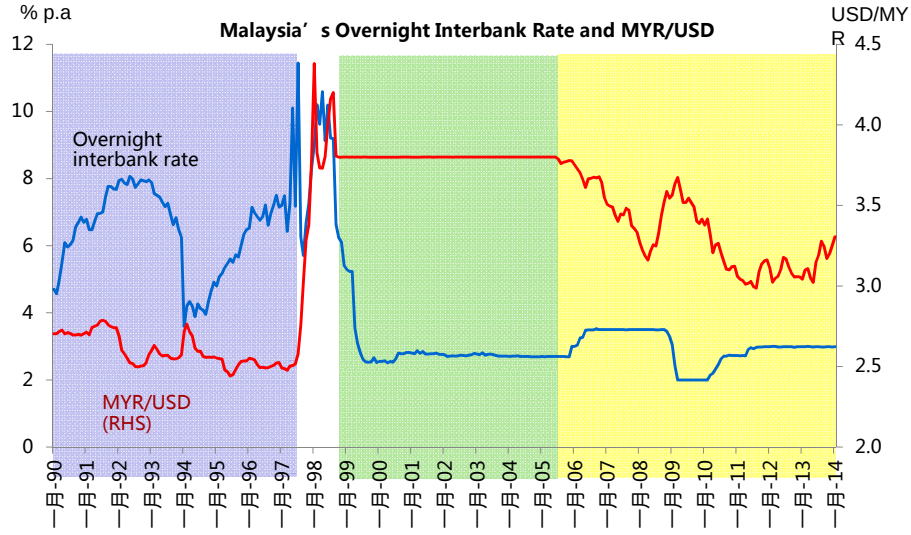


Source: Bank Negara Malaysia

Ringgit movements have reflected shocks to the economy and capital flows

(Source: Bloomberg @ 24/03/2014)

Monetary policy based on domestic considerations, supported by managed float exchange rate regime



Deutsche Bank AG

China: moving towards interest rate targeting -- relevance of international experience

Jun Ma, Deutsche Bank

Passion to Perform

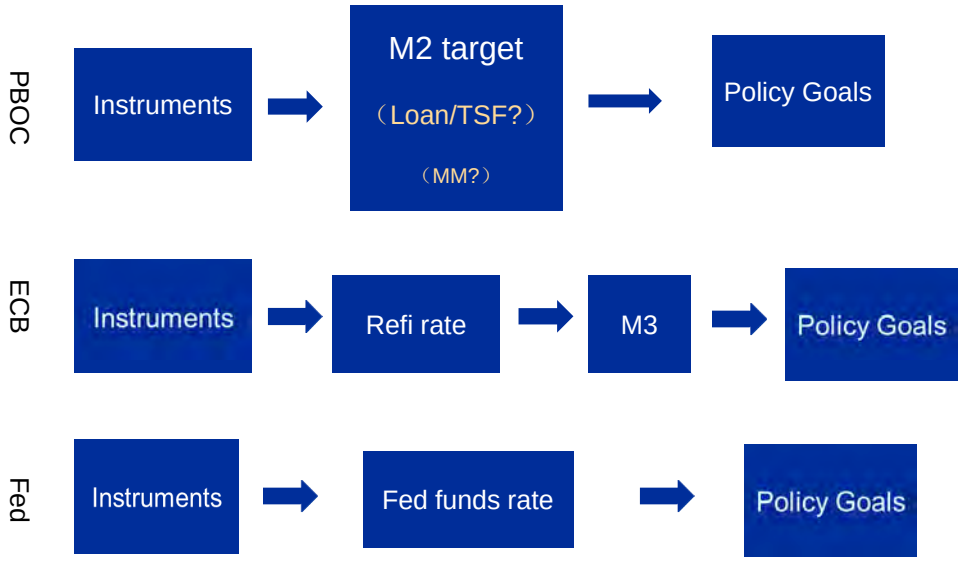
March, 2014

Jun Ma (852) 2203 8308, jun.ma@db.com

China's current monetary policy framework

Policy instruments	Intermediate target	Policy goals
Reserve requirement ratio (RRR)	**Explicit:** M2 growth target	Low inflation
Differentiated RRR	Implicit: reasonable loan and TSF growth	Stable economic growth
	(MM stabilitiy?)	Relatively high employment rate
OMOs		Balance of payments equilibrium
Standing facilities (eg. SLF)		
Benchmark deposit/lending rates and ranges		
Interest rate on required reserves		
Interest rate on excess reserves		
re-discount rate		
re-lending rate		

An international comparison: PBOC vs. ECB and Fed



2

In past decades, most economies moved towards interest rate targeting

	Operational Target	Time of shift to rate targeting
US	Fed funds rate	1980s
Eurozone (Germany)	Refinance rate	1980s
Japan	Overnight call rate	1980s
Korea	Base rate	1990s
India	Repo and reverse repo rate	1990s
Taiwan	Discount rate	1990s
Australia	Cash rate	1980s
Canada	Overnight rate	1980s

Source: authors' compilation

3

The move towards interest rate targeting was not very straightforward: the case of the US

Table 1: Examples of operational target specifications

	Explicit (X) or not	*Quantified (X) or not*	*Immediately published (X) or not*	*Unique (X) or not*	*Short term interest rate (SID) vs. Reserve concept (RPD)*
US, 1994-2004	*X*	*X*	*X*	*X*	*SID*
US, 1990-1993	*X*	*X*		*X*	*SID*
US, 1983-1990					*RPD/SID*
US, 1979-82					*RPD/SID*
US, 1974-1979	*X*	*X*		*X*	*SID*
US, 1920-1974					*RPD/SID*

Note: SID = short term interest rate doctrine (targeting interest rate);
RPD = reserve position doctrine (targeting quantity)

Source: Bindseil (2004)

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Typical reasons/conditions for adopting interest rate targeting

- Weakening correlation between quantity targets (e.g. m1 or bank reserves) and policy goals (e.g., inflation) due to, among others, financial innovations
- Focus on quantity targets in the short term results in excessive volatility in MM rates
- A more developed capital market, which allows more reliable price inflation and better transmission from MM to corporate funding costs
- Improved liquidity forecasting capacity

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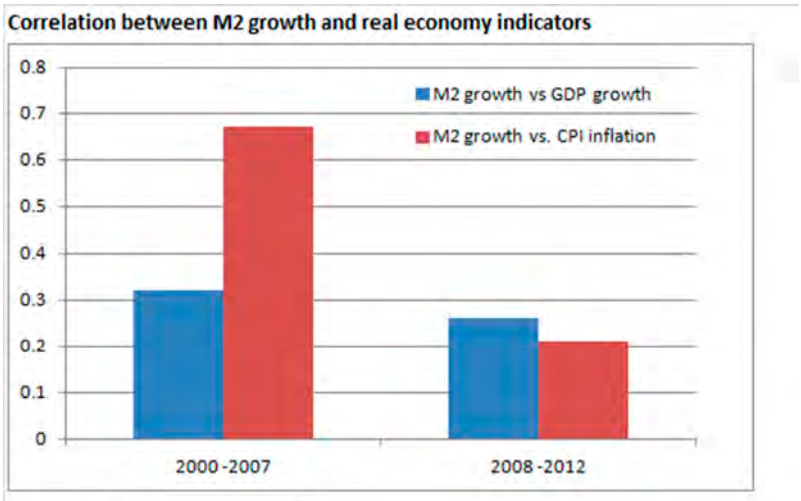
China: reasons for moving towards (some kind of) interest rate targeting

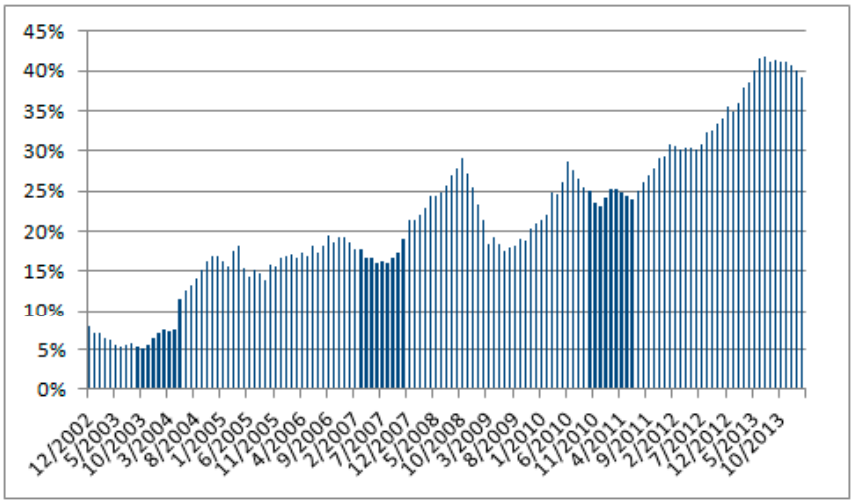
China: Correlation between broad money and real economy has been declining



Source: authors' calculation, CEIC

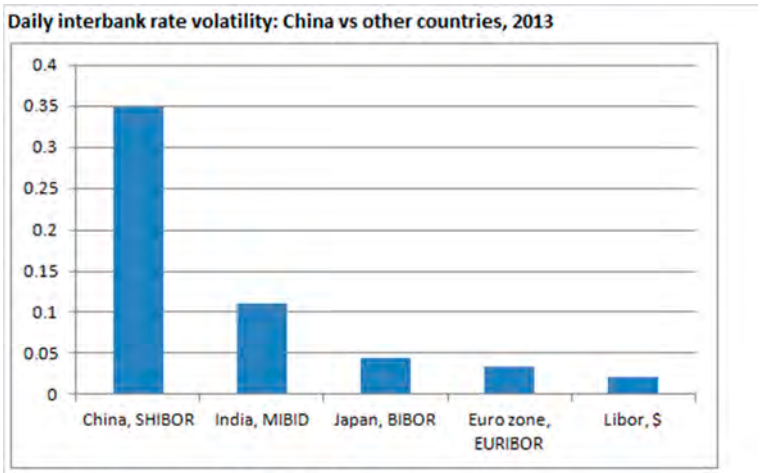
Non-bank financing as % of total financing has increased rapidly in past decade

Non-bank financing as % of total social financing (12MA), 2002-14



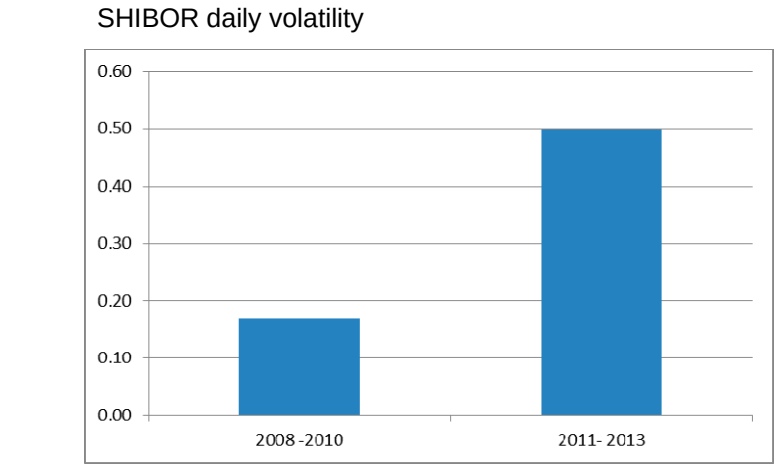
Source: CEIC

Interest rate volatility has been too high relative to those in other countries



Source: calculated based on data from Bloomberg.
Note: Volatility is standardized deviation of daily rates over a month.

Money market volatility has been rising



Source: WIND

Note: Volatility is based on daily rates over a month.

Reasons for 1) decline in correlation between M2 and economy, and 2) for volatility of MM rates

1. Greater role for money to facilitate transactions of assets (e.g. land and real estate) as oppose to goods and services (which are more related to GDP/CPI), and in store of value (holding of assets). The pace of this change is unstable.
2. Opening of the capital account, leading to less predictable shocks to demand and supply of liquidity.
3. Rapid development of the shadow banking /Interbank finance activities, which may affect money demand, create substitutes for money, or change the velocity of money.
4. The way the LDR cap is implemented distorts the seasonal profile of demand for liquidity.
5. Less predictable fiscal operation and its impact on liquidity conditions.
6. Distorted incentives for banks; seasonal demand (e.g. for cash); IPOs; uncertain expectations; float, etc.

Although other reforms are needed to reduce unnecessary (and predictable) shocks to MM, there will be many unpredictable new shocks. So moving towards interest rate targeting is becoming necessary for a stable MM.

Negative repercussions of unstable MM rates：

-- Unstable expectation for interest rates and credit availability affects investment decisions and thus growth

Even though the actual lending rates did not moved much in H2 2013, the market perception of funding cost increase was much stronger due to interbank rate spikes

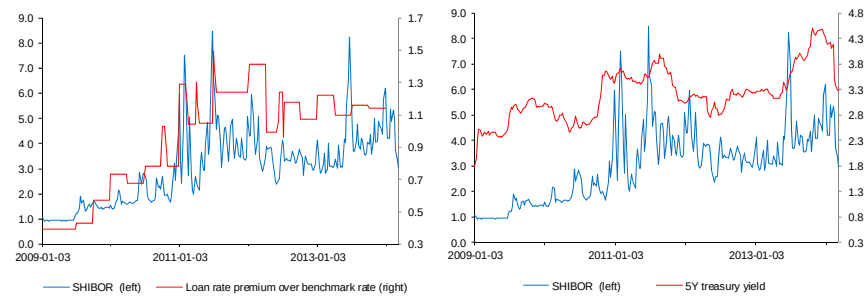
Spikes of short-term rates did push up long-bond yields in late 2013 (e.g., BBB+ 5y bond yield rose nearly 300bps in H2)

-- Short-term rate spikes encouraged carry trades

Markets are reasonably mature for a transition towards interest rate targeting

1. Sufficient depth and liquidity of the MM market;
2. Empirical studies have shown that 7-day repo rate does lead/influence MM rates, long bond yields, and to a lesser extent, bank lending rates.

SHIBOR is correlated with treasury yield and bank loan rate premium over benchmark lending rate



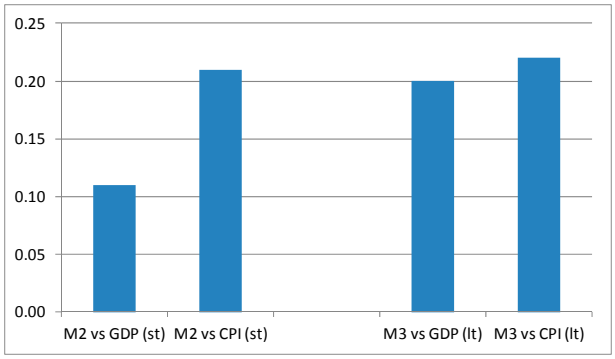
Source: WIND

Note: SHIBOR is the weekly average of 7D SHIBOR; Loan rate premium data are quarterly reported by PBOC.

The ECB framework (s.t. policy rate + m.t. reference to M3 growth) may be more suitable for China in next few years, while the Fed model could be a reference for longer-run

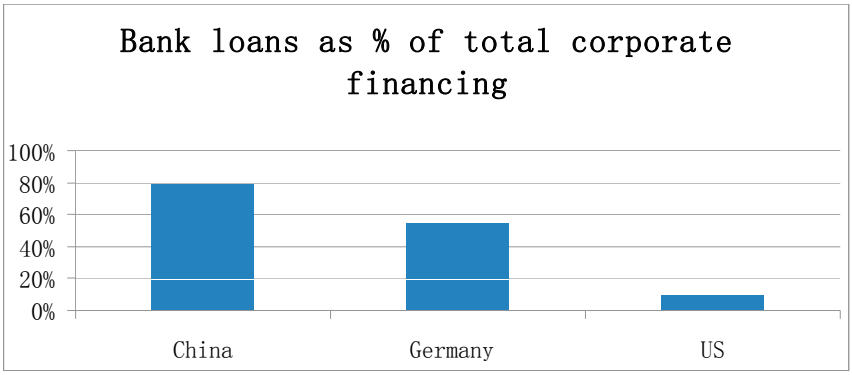
Longer-term correlation between M3 and economy is stronger than short-term correlation, suggesting that a medium-term reference to M3 growth may still be necessary

Long term correlation between M3 and economy is stronger than s.t correlation, 2005 - 2013



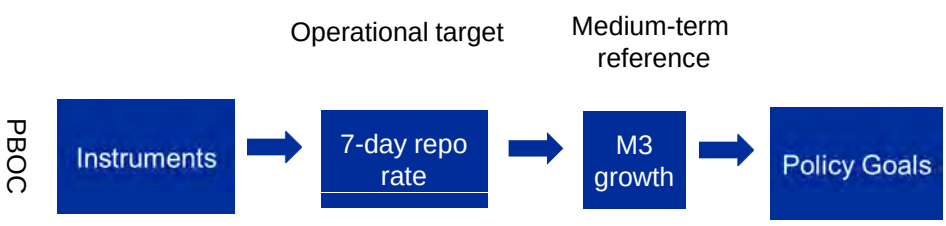
Source: authors' calculation
Note: Long-term correlation is calcualted based on 12mma. Both with 12m lag.

China is similar to Eurozone as banks still play a key role in the financial system, while capital markets dominate in the US



Source: CEIC, DB estimates

A possible new framework for China modeled after that of ECB



A possible roadmap for China's move towards interest rate targeting

Establish a de facto interest rate corridor for 7-day repo (via mainly OMOs) in Year 1, narrow the corridor in Year 2, and move towards a "short-term rate target + medium term M3 growth reference" framework in Year 3.

A possible roadmap for China			
Year 1	**Year 2**	**Year 3**	**Year 4**
Establishing a de facto corridor for 7- day repo			
	A narrower corridor		
		Abolishing benchmark deposit rates	
		Announcing a 7-day target rate and m.t. M3 reference; abolish annual M2 target	
Preparing M3 statistics and its analytical relationship with MM rates and economy			
Relaxing LDR control	Abolishing LDR cap		
Developing the securitization market to establish transmission mechanism between FI and loan markets			
Improving liquidity projection by enhahcing inter-govt coordination and analytical/forecasting capacity			
Permitting greater RMB exchange rate flexibility			
Permitting more privately owned banks, to establish linkage between interbank market and SME financing			

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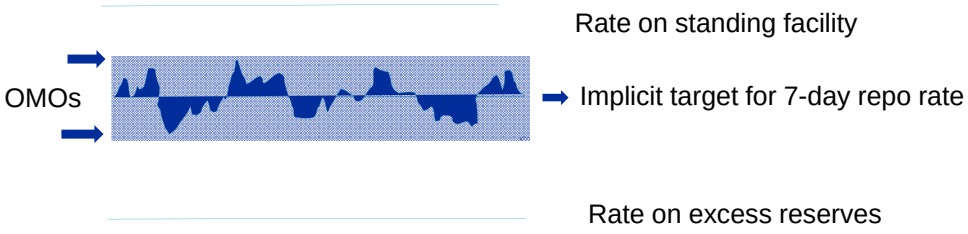
A possible framework of a "corridor system" which involves an official corridor (ceiling = rate on standing facility, floor = rate on excess reserves) and a de facto corridor (maintained by OMOs)



-- The corridor system can substantially reduce MM volatility;
-- Start to signal a policy rate today, to help build the transmission mechanism around that rate. As it will take years;
-- Need to have uniform access to the standing facility for it to serve as a circuit breaker in case of liquidity crisis;

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Efforts needed to further improve the transmission mechanism

1. Developing the securitization market, to enable transmission from the policy rate to the loan market;
2. Developing the derivatives' market (IRS especially), to improve transmission between different segments of yield curve;
3. Improve the liquidity and maturity structure of the government bond market, to facilitate OMOs in all segments of the FI and MMs；
4. Removing the LDR cap, which distorts the seasonal pattern of money demand；
5. Improving coordination between MOF's Treasury and PBOC Monetary Policy Dept, to help liquidity projection
6. Gaining experience in "operation twist", to influence the shape of the yield curve

Summary of recommendations

- Step 1 (e.g., Year 1): Establish a de facto corridor around an implicit policy rate target (e.g. 7 day repo) which does not need to be announced. The corridor could be +/-0.5% around the implicit target.
- Step 2 (e.g., Year 2): Narrow the de facto interest rate corridor.
- Step 3 (e.g., Year 3) At the time the PBOC abolishes the benchmark deposit rates, announce the short-term policy rate target and a M3 growth rate as a medium-term reference for monetary policy implementation. When the policy rate moves, the official corridor moves along with it.
- During the transition towards the new monetary policy framework, efforts should also be made to improve monetary policy transmission, establish analytical links among rates/M3/economy, and improve liquidity forecasting capacity.

Appendix
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DEUTSCHE BUNDESBANK EUROSYSTEM

From direct to indirect instruments in monetary policy: The European experience of the 80s

Heinz Herrmann, IMF/PBoC Seminar, March 2014

The general macroeconomic situation in Europe in the 80s

- Fixed but adjustable exchange rates among nine countries (including Germany, France, Italy)
- Attempts to reduce inflation differences between countries and make monetary policy more compatible
- Among others: stepwise harmonization of monetary policy instruments

The general banking situation in Europe in the 80s

- Government ownership (e.g. France) versus private banks (e.g. UK) versus mixed system (e.g. Germany)
- Large variety of monetary policy instruments in countries
- Indirect/market based methods clearly dominant in Germany, UK
- Direct methods very relevant in others (France and most southern European countries)

Several reasons why countries preferred direct methods:

- Attempt to control several goals (exchange rates via interest rates, credit volume or monetary aggregates via direct measures)
- Attempt to control not only credit volume but also allocation of credit (in sectors, provinces)
- Poorly developed financial markets limit effective open market policy
- Uncertainty about appropriate interest level (high and volatile inflation expectations)

Types of direct methods:

- Administrative ceilings to bank loans
- High and marginal reserve requirements (to influence credit growth and bank interest rates)
- Mixture of both elements (e.g. reserve requirements on net credit growth to dampen monetary growth or to attract foreign capital inflows)

Problems with direct methods:

- Impede efficiency in the banking sector and the economy
- Provokes circumventions (via shadow banks, via credit from foreign financial markets)
- Controls became less effective, needs more and more administrative regulations

Transition period I:

- Softening direct control measures and use them more as a safety net (make reserve requirements and ceilings stepwise less binding)
- Reduce interest rate regulations step by step. (e.g. Spain: long-term rates first, short-term rates later; lengthy process)
- Strengthen preconditions for indirect control (foster better developed financial markets, better instruments to create and absorb liquidity in a flexible way)
- Temporary but short-lived reactivation of direct measures in emergency cases (e.g. Italy 1986 under exchange rate pressure)
- Some times difficulties to interpret credit and interest rate developments

Transition period II:

- Stepwise transmission from direct to indirect control in monetary policy in ERM countries without major problems (in particular: No problems for financial stability.)
- Conditions were rather favorable (inflation had come down from high rates, exchange rate turbulences limited)
- However: No guarantee for smooth transition (see Sweden's banking crisis in early 90s, badly designed reforms)

AGENDA

NEW ISSUES IN MONETARY POLICY:
INTERNATIONAL EXPERIENCE AND RELEVANCE FOR CHINA
SECOND JOINT CONFERENCE PEOPLE'S BANK OF CHINA AND INTERNATIONAL MONETARY FUND

March 27, 2014
Ritz Carlton Financial District, Beijing

The joint conference will discuss new issues in monetary policy in an international context and assess their relevance for China. Against the backdrop of the global financial crisis and the use of unconventional monetary policy, it will look at the implications for monetary policy frameworks, as well as the changing toolkit of central banks. As China transitions toward an increasingly open and complex financial system, the conference will also review the experience of other major economies as they moved toward interest rate-based tools and how they addressed rapidly changing financial landscapes. The conference will bring together international experts, Chinese academics, PBC and IMF staff.

AGENDA	
Wednesday, March 26, 2014	
18:30 - 20:00	**Dinner Reception hosted by the International Monetary Fund** ***Location: Temple of Heaven I, Ritz Carlton Financial District***
Thursday, March 27, 2014 ***Location: Ballroom 2, Ritz Carlton Financial District***	
09:00 -0 9:15	**Opening Remarks** ***Zhou Xiaochuan***, Governor, People's Bank of China
09:15 - 10:45	**Session I: Evolving Monetary Policy Frameworks after the Global Financial Crisis** Conventional wisdom about optimal policy frameworks has been

	challenged. Although inflation targeting delivered low and stable inflation in many advanced economies and emerging markets prior to the global crises, there is a debate about optimal monetary policy frameworks that go beyond narrowly defined inflation targets of the past, including taking into consideration growth, unemployment and financial stability. This session will discuss the latest views on optimal monetary policy frameworks and their implications for China. **Moderator**: ***He Jianxiong***, Director General, International Department, People's Bank of China **Speakers** (10-15 minutes each): ***Li Bo***, Director General, Monetary Policy Department II, People's Bank of China ***John Murray***, Deputy Governor, Central Bank of Canada ***Philipp Hartmann***, Acting Director General, Research Department, European Central Bank ***Tsutomu Watanabe***, Professor of Economics, University of Tokyo *Discussion*
10:45 - 11:00	***Coffee Break***
11:00 - 12:30	**Session II: Changing Toolkit of Central Banks** This session will review the changing and expanding toolkit of central banks, including forward guidance, balance sheet operation, capital flow management, and macro-prudential policies. **Moderator**: ***Zhou Hao***, Professor of Economics, PBC School of Finance, Tsinghua University **Speakers** (10-15 minutes each): ***Sun Guofeng***, Deputy Director General, Monetary Policy Department, People's Bank of China ***Arminio Fraga***, Gávea Investment and former Central Bank Governor, Brazil ***Andrew Levin***, Research Fellow, Research Department, IMF and former Federal Reserve Special Advisor

	Wang Tao, Head of China Economic Research, UBS, Hong Kong *Discussion*
12:30 - 14:00	**Lunch** **Keynote speaker: *Marek Belka***, President, National Bank of Poland ***Location: Ballroom 1, Ritz Carlton Financial District***
14:00 - 15:30	**Session III: Rapidly Changing Financial Systems: Challenges for the Coordination of Financial Sector and Monetary Policy** Rapidly changing financial systems, financial innovations, and the surge of non-bank/shadow banking activities, go hand-in-hand with strong economic growth and structural transformation. While this is beneficial, it presents challenges both for financial sector regulation and supervision and the conduct of monetary policy. This session will look at the international experience of how best to approach a rapidly changing financial sector landscape and how best to coordinate macro prudential and monetary policy. **Moderator**: ***Heinz Herrmann***, Head of Research, Deutsche Bundesbank **Speakers (10-15 minutes each):** ***Wang Yu***, Deputy Director General, Research Bureau, People's Bank of China ***Leonardo Leiderman*****,** Professor of Economics**,** Berglas School of Economics, Tel-Aviv University ***Nellie Liang*****,** Director**,** Federal Reserve Board's Office of Financial Stability Policy & Research ***Ana María Aguilar***, Director of Research, Central Bank of Mexico *Discussion*
15:30 - 15:45	***Coffee Break***

15:45 - 17:15	**Session IV: Experiences in Moving Toward Market Based Policy Instruments** As countries move from quantitative targets to price based monetary policy tools, they have to determine the appropriate anchor, instruments and operational targets. This session will look at how countries managed the transition and the lessons and implications for China. **Moderator**: ***Alfred Schipke***, Senior Resident Representative, IMF **Speakers** (10-15 minutes each): **Woon Gyu Choi**, Deputy Governor, Central Bank of Korea ***Sukhdave Singh***, Deputy Governor, Central Bank of Malaysia ***Ma Jun***, Chief Economist, Deutsche Bank, Hong Kong ***Heinz Herrmann***, Head of Research, Deutsche Bundesbank ***Zhou Hao***, Professor of Economics, PBC School of Finance, Tsinghua University *Discussion*
17:15 - 18:00	**Session V: Concluding Roundtable** The panel discussion will draw on the main conclusions from the day's discussion. Panel members will summarize their main takeaways with a focus on lessons that may be relevant for China's next steps. **Moderator**: ***He Dong*****,** Executive Director, Hong Kong Monetary Authority **Panelists**: ***Yi Gang***, Deputy Governor, People's Bank of China ***Marek Belka***, President, National Bank of Poland ***Arminio Fraga***, Gávea Investment and former Governor, Central Bank of Brazil ***Stephen Green***, Head Research China, Standard Chartered
18:00 - 18:15	**Closing Remarks** ***Markus Rodlauer***, Deputy Director, Asia and Pacific Department, IMF

18:30 - 20:00	**Dinner Reception hosted by *Yi Gang***, Deputy Governor, People's Bank of China ***Location: Minzu Hotel, Yi Pin Restaurant, 2/F, Room Shan Si Xuan***