

# Monetary Policy in East Asia: Common Concerns

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*The paper identifies and evaluates consequences for monetary policy of five features of East Asian development: export orientation, integrated regional trade, bank-dependent finance, the potential for persistent trade surpluses, and the aggressive accumulation of international reserves. The case for a flexible exchange rate is made in terms of the New Neoclassical Synthesis (NNS). NNS logic indicates why fluctuations in “export optimism” create problems for the sustainability of a fixed exchange rate. Cooperative credit policy in East Asia is discussed by analogy to a credit union. The paper outlines problems for monetary policy created by bank-dependent finance in East Asia. A two-country NNS model indicates that a revaluation of the renminbi against the U.S. dollar is likely to exert little effect on the U.S. trade deficit, although it should help control inflation in China. The paper argues that China can adopt a flexible exchange rate in a few years with modest reforms of its banking system. Finally, the paper considers various reasons for the accumulation of international reserves in East Asia.*

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## I. Introduction

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East Asia is home to a diverse collection of economies ranging in size from the largest countries to the smallest city states. The regional economies are in various stages of two great transitions—from central planning or extensive regulation to a reliance on markets, and from the use of traditional production processes to the application of modern industrial techniques.

Yet the countries of East Asia have a number of distinctive characteristics in common. For the most part, they have been export-oriented and many have succeeded consistently over time in improving the attractiveness of their exports to the developed world. Per capita products throughout the region have been converging to those of the industrialized world. Rapid productivity growth has been achieved by importing technology from abroad and building on it to produce ever more desirable goods for export and greater efficiency of labor at home.<sup>1</sup> Productivity growth and export success have moved the real terms of trade higher over time, providing an additional boost to well-being by steadily increasing the value of East Asian products at world prices.

Highly integrated regional trade is another manifestation of East Asian development. In particular, there is thriving regional trade in intermediate goods. The proximity of nations with vastly different labor costs and technological capabilities creates opportunities for savings in the production of high-value goods. The region is famous for locating the various stages of production of goods where they are most cheaply executed. Technologically advanced countries produce sophisticated core electronic components such as computer chips. Core components are shipped to less developed countries for assembly where labor costs are lower. The components are assembled, packaged, and shipped to export markets overseas as part of the so-called “processing trade” in countries with relatively cheap labor.

In the financial sphere, the economies of East Asia share a high degree of bank dependence accompanied by relatively thin corporate bond markets. In large part, this legacy derives from a history of government direction of economic activity. The relative absence of opportunities for direct borrowing and lending in the capital markets served to enhance the power of banking institutions to work closely with business allies and political officials to direct credit to favored borrowers. In recent years, banking crises in East Asian countries resulted in part from poorly run and inadequately regulated financial intermediaries. The relative lack of alternative nonbank financial intermediation, in turn, made entire economies more vulnerable to banking problems than is the case where corporate bond markets are more developed. In China, the banking system must be strengthened to enable the country to adopt independent monetary policy with a fully flexible exchange rate.

The economies of East Asia famously share a high savings rate. The high savings rate is related to the two great transitions and to the underdeveloped financial markets. Although many East Asian countries have absorbed domestic savings in domestic investment on average, investment has fallen short of desired saving for extended periods in many countries, producing large and persistent trade surpluses. For instance, Japan

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1. See, for instance, Goodfriend and McDermott (1998).

long has had persistent trade surpluses, and in the last few years China too has run an overall trade surplus.

The aggressive accumulation of international reserves by many East Asian central banks has been a prominent feature of East Asian economic development. Lately, an unprecedented acquisition of international reserves by the People's Bank of China (PBOC) has been claimed as evidence that China manipulates its currency for competitive advantage in international trade. As discussed below, East Asian central banks have had a variety of motives for accumulating international reserves.

This paper identifies and evaluates consequences for monetary policy of the five above-mentioned features of East Asian development: (1) export orientation; (2) highly integrated regional trade; (3) bank-dependent finance; (4) the potential for persistent trade surpluses; and (5) the aggressive accumulation of international reserves.<sup>2</sup>

We begin in Section II by presenting the case for inflation targeting with a flexible exchange rate in terms of the New Neoclassical Synthesis (NNS). The case against a fixed exchange rate is made with reference to fluctuations in "export optimism" such as appear to have occurred prior to the East Asian currency collapse of 1997. Section III considers the case for cooperative credit policy in East Asia in light of the potential for financial contagion that extensive regional trade entails. In Section IV, the paper describes the problems that bank-dependent finance, political interference in banking, and thin corporate bond markets create for monetary policy in East Asia.

Section V uses a two-country NNS model to argue that a revaluation of the exchange rate of the renminbi (RMB) against the U.S. dollar is likely to exert little if any direct influence on the U.S. trade deficit, although it should help to control Chinese inflation. Section V then insists that what China needs is a flexible exchange rate, not a revaluation or a sequence of managed revaluations, and argues that China can adopt an inflation target and float its currency in a few years with modest reforms of its banking system. Section VI considers three reasons, in light of monetary and exchange rate policies, why East Asian central banks have aggressively accumulated international reserves. A brief summary concludes the paper.

## **II. The Case for Flexible Exchange Rates and the Fragility of Fixed Rates in East Asia**

The case for a flexible exchange rate in the NNS is based on the case for targeting inflation in a closed economy originated in Goodfriend and King (1997).<sup>3</sup> The idea is that a monetary economy has a monopolistically competitive real business cycle (RBC) core in which firms have pricing power over the differentiated goods that they produce. If prices were costless to adjust, then monopolistically competitive firms would sustain the flexible-price profit-maximizing markup at all times, and the economy would display aggregate fluctuations due to supply shocks—shocks to productivity, the terms of trade, or the labor force, and so on. Monetary policy would have little role in

2. Bank for International Settlements (2006c) is a good overview of East Asian monetary policy in practice.  
3. See also Clarida, Gali, and Gertler (1999) and Woodford (2003).

stabilization policy, and business cycles would be efficient in the sense that they would occur in spite of the fact that prices were fully flexible.

However, frictions associated with the use of money—pricing in money units and the costly adjustment of differentiated product prices—cause the behavior of the NNS economy to deviate from that of its RBC core. Firms adjust employment to accommodate fluctuations in demand at sticky money prices. Fluctuating conditions in the labor market, in turn, influence unit labor costs. For instance, excessive aggregate demand increases employment, raises unit labor costs, compresses markups, and creates inflationary potential. If the central bank has credibility for low inflation, then firms adjust prices little in response to current shocks and policy actions, and instead expect interest rate policy to act on labor market conditions to restore the flexible-price profit-maximizing markup at unchanged prices.

Frictions associated with the use of money expose the NNS economy to inefficient fluctuations associated with temporary deviations of actual from flexible-price markups. By the same token, sticky prices provide the leverage for monetary policy to influence employment and output. The NNS perspective with its RBC core recommends that interest rate policy act to stabilize actual markups at profit-maximizing markups to make the NNS economy behave as if prices were fully flexible.

A key idea is that by stabilizing inflation, monetary policy also stabilizes actual markups at flexible-price profit-maximizing markups. Otherwise, firms would not be content to raise prices at the targeted rate of inflation. Hence, the NNS framework implies that inflation targeting is welfare-maximizing monetary policy. Of course, problems associated with modeling, forecasting, and measurement prevent interest rate policy from stabilizing inflation perfectly. So frictions associated with the use of money and with monetary policy inevitably superimpose inefficient fluctuations or “bad” business fluctuations cycles on “good” real business cycles.

Some prices, such as those for energy and food, are typically more flexible than others. So the question arises, should targeted inflation include flexible as well as sticky prices, or should a core measure of inflation be targeted? The NNS perspective suggests that monetary policy should target the measure of inflation that allows the economy to behave as much like its flexible-price RBC core as possible. Hence, core sticky-price inflation should be targeted and flexible prices should be allowed to adjust freely relative to core prices.

NNS reasoning carries over to an open economy that both imports a share of consumption goods and exports output at foreign-currency prices given in world markets.<sup>4</sup> Monetary policy should target a core index of domestic-currency denominated prices of goods and services produced for domestic use by monopolistically competitive firms. Export and import prices should be free to adjust relative to targeted core prices. Domestic currency prices of exports and imports would fluctuate due to movements in foreign-currency prices, and partly with respect to fluctuations in the foreign exchange rate. That said, import prices could be included in the targeted index to the extent that the domestic value added due to transportation and marketing, and so on, is a significant part of the cost.

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4. Goodfriend (2007) and references contained therein make this point.

The capacity for national monetary policies to overcome monetary frictions by targeting inflation depends critically on the nature of international monetary arrangements. For interest rate policy to target domestic inflation, a country must allow its exchange rate to float on the foreign exchange market. The exchange rate must be flexible to support fluctuations in the real terms of trade consistent with domestic real business cycles, since the national NNS economy must behave like its RBC core to stabilize inflation.

The case for a flexible exchange rate is particularly strong for rapidly developing export-oriented economies such as those in East Asia, economies that can expect to improve the attractiveness of their exports to the developed world over time and thereby steadily improve their terms of trade. The reason is that interest rate policy forced to support a fixed or managed exchange rate is no longer available to stabilize domestic inflation and employment. And fluctuations in “export optimism” subsequently found to be excessive can readily create a conflict between stabilizing the exchange rate and stabilizing domestic employment and inflation. Specifically, excessive optimism about the improvement of the terms of trade that is reversed subsequently can create a credibility crisis for a fixed exchange rate regime.<sup>5</sup>

The argument goes as follows.<sup>6</sup> Suppose that export optimism raises the expected East Asian terms of trade. Since both East Asian and U.S. residents wish to smooth consumption over time, East Asian residents borrow against the brighter future income prospects associated with the improved terms of trade and U.S. residents lend against the expected deterioration of their terms of trade. Hence, capital flows from the United States to East Asia, and East Asia runs a trade deficit with the United States.

Given the home bias in consumption, the East Asian trade deficit increases demand in East Asia. Because prices are sticky initially, employment rises, wages rise, and markups are compressed relative to profit-maximizing markups. Firms raise prices to restore their profit-maximizing markups, and inflation raises East Asian real exchange rates relative to the United States. These outcomes resemble those of the East Asian “miracle” in the years preceding the 1997 currency crisis.<sup>7</sup>

The problem is this: a subsequent moderation of excessive export optimism may narrow or reverse the East Asian trade deficit and contract demand in East Asia. In this case, East Asian price levels that have already adjusted upward in response to excessive export optimism are exposed to deflationary pressure. At this point, the East Asian fixed exchange rate commitment is called into question. A devaluation of the exchange rate obviates the need for a period of unemployment to cut wages, elevate markups, and induce East Asian firms to deflate their prices. A credibility crisis invites speculators to attack the fixed exchange rate regime. East Asian countries are faced with a dilemma: raise interest rates to deter speculation and incur an inefficient recession, or devalue the currency to relieve speculative pressure and risk more frequent speculative attacks in the future.

To sum up, the plausibility of rapid improvement in the terms of trade in East Asia creates circumstances that jeopardize a fixed exchange rate regime any time a period

5. Obstfeld and Rogoff (1995) and Husain, Mody, and Rogoff (2005).

6. The discussion is based on analysis developed in Goodfriend (2007).

7. Glick (1999).

of export optimism subsequently proves to be excessive. A flexible exchange rate handles fluctuations in export optimism smoothly by allowing the exchange rate to appreciate in response to export optimism and to depreciate if that optimism subsequently proves excessive.

### III. East Asian Financial Cooperation

Highly integrated regional trade and processing of intermediate goods for export ties the economies of East Asia closely to each other and to fluctuations in the West's demand for exports. Tight trade linkages, in turn, create the potential for financial contagion in East Asia. Since the currency crisis in the late 1990s, the countries of the region have taken steps to cooperate on exchange rate policy. For instance, with the Chiang Mai Initiative agreed at the ASEAN+3 Finance Ministers' meeting in May 2000, East Asian nations moved to establish a network of bilateral foreign exchange swap agreements to provide liquidity support to countries experiencing balance of payments difficulties.<sup>8</sup> Although further cooperation on financial matters has moved slowly, the nations of the region continue to explore the possibility and desirability of closer financial and exchange rate cooperation.<sup>9</sup>

The case for regional financial cooperation can be explored by thinking of a "credit union." A credit union is a financial intermediary that accepts deposits from and makes loans to a group of eligible members. The key is that the members already share some prior association, such as employment in a company. A credit union economizes on the evaluation of creditworthiness, on the monitoring of loan covenants, and on enforcement costs of recovering a loan. For instance, the incentive to repay is strengthened if failure to repay is known to cost a credit union member his job. A credit union exploits information produced in a prior association to reduce the cost of financial intermediation.

Loans in a credit union rotate among the membership. The credit union keeps a share of its assets in "reserves," external securities that can be sold on short notice to fund emergency advances to its members. The credit union can make funds available to a member on short notice because the member's circumstances are well known. By exploiting the mutual knowledge of its membership, a credit union makes funds available to its members on better terms than an ordinary commercial bank, and more cheaply than can be provided individually by holding a portfolio of low-yielding liquid securities for self-insurance.

The case for financial cooperation among the governments of East Asia rests on the strength of the analogy to a credit union. East Asian nations constitute an association to the extent that they interact regularly as a result of geographical proximity, common export orientation, regional integration, and intergovernmental relationships. If the countries of East Asia can exchange information and implement surveillance processes cheaply enough on the basis of these common factors, then it may make sense for the countries of East Asia to engage in international credit cooperation based on bilateral

8. Rana (2002).

9. See Eichengreen (2006), Fujiki and Terada-Hagiwara (2007), and Kose *et al.* (2006).

foreign exchange swaps or by setting up a regional financing facility such as a regional monetary fund. East Asian credit cooperation would allow the countries to economize on their holdings of international reserves.

That raises the question: what can international credit policy do in addition to domestic interest rate policies? After all, in Section II we saw that if interest rate policies are employed independently to target domestic inflation and the exchange rate is allowed to float freely, then inefficient fluctuations due to sticky prices could be eliminated. There is no need for international cooperation on monetary or exchange rate policy to achieve efficient fluctuations relative to the international RBC core. In fact, the countries of East Asia should allow their exchange rates to float freely with each other to accommodate fluctuations in relative terms of trade that inevitably occur due to differences in the nature and pace of development.

To pursue this question further, we must distinguish credit policies from interest rate policies. Whether done collectively or bilaterally, international credit cooperation is an arrangement by which one country borrows international reserves from another country or group of countries to finance officially a net capital outflow in its balance of payments. Credit transactions need not affect national interest rates if the central banks of the countries involved adjust their balance sheets to sterilize the effect of credit flows on the monetary base.

Access to borrowed international reserves helps a country to defend its exchange rate without raising interest rates. A policy of “financing” a balance of payments outflow with borrowed international reserves as opposed to “adjusting” the interest rate or the exchange rate may be appropriate when a government believes that a capital outflow will be reversed soon of its own accord. The essence of international credit policy is that it allows a government to “buy time” without resorting to potentially disruptive interest rate or exchange rate adjustments.

However reasonable the potential benefits seem, there are a number of reasons to question the usefulness of regional credit cooperation in practice. First of all, the premise presupposes that there are instances when a government has information about the duration of net capital flows that markets do not have, otherwise one might expect private capital flows to stabilize exchange rates tolerably well. On the other hand, if an underlying shock turns out to require an adjustment of the exchange rate, then credit policy can be counterproductive and expensive by delaying the necessary adjustment and incurring additional costs to repay borrowed reserves.

The main benefit to East Asia of creating bilateral or multilateral mechanisms for borrowing international reserves is that such mechanisms could deter a speculative attack on a particular country that otherwise could spread throughout the region. However, even this benefit of cooperative credit policy would be offset to the extent that it provides an incentive for investors to move capital into East Asia on a short-term rather than on a long-term basis with the expectation that a quick reversal could be financed by borrowed international reserves.

On balance, the scope for mutually beneficial governmental credit cooperation in East Asia would appear to be relatively limited. The key to efficient exchange rate behavior in East Asia is for each country to strengthen the institutional credibility of its own inflation targeting regime and to allow its exchange rate to float freely on

the foreign exchange market.<sup>10</sup> At best, credit cooperation can supplement but not substitute for strong, independent monetary policies throughout the region.

#### **IV. Bank-Dependent Finance and Corporate Bond Markets in East Asia**

Corporate bond markets are relatively undeveloped in East Asia, making the region depend heavily on banks for financial intermediation.<sup>11</sup> Bank dependence is a legacy of relatively rapid development in East Asia. When economies are in a traditional state, firms are small, and self-funding and funding by close relatives overcome problems in identifying reliable borrowers and enforcing repayment. Relationship lending is efficient. As economies develop further, banks direct deposits to larger enterprises by recreating relationship lending through credit evaluation, loan monitoring, and managing firms in default.

In the West, where development progressed relatively slowly over the centuries, prominent firms in need of large external funding gradually bypassed information-intensive bank lending and accessed lenders directly with corporate bonds. In the United States, the development of direct finance occurred simultaneously with the development of legal frameworks to deal efficiently with bankruptcy and investor protection.<sup>12</sup> Corporate governance standards were established over time to minimize agency costs of debt. Financial authorities promoted self-regulation of debt markets and encouraged rules for the disclosure of financial information.

Today, even firms large and visible enough to access corporate debt markets directly continue to employ banks for a variety of services such as lines of credit, borrowing on the basis of customized securities, and debtor-in-possession borrowing in bankruptcy. Moreover, firms diversify their sources of credit to insure against shocks to the cost of funds in either banking or bond markets.<sup>13</sup>

Nonfinancial development in East Asia proceeded too fast for institutions to develop in support of a corporate bond market, with consequences that became evident in the last decade. Greenspan (1999) emphasized the “spare tire” role of a deep market in nonbank bond finance to cushion financial distress. The 1997 East Asian currency crisis was exacerbated by the bank-dependent finance, because when banks collapsed there were few alternative ways for credit to flow to deserving borrowers. On the other hand, the 1990 collapse of real estate collateral in the United States that hurt bank lending did not interrupt mortgage lending much, because of the deep market in mortgage-backed securities. The protracted banking crisis in Japan hurt the economy more than it might have if nonbank capital markets had been widely developed in that country.

The direct negative consequences for monetary policy of such developments are clear. Real interest rates have to be lower for longer than otherwise to deliver a given

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10. Genberg (2006).

11. Bank for International Settlements (2006a, b).

12. La Porta *et al.* (1998).

13. Sundaresan (2005).

stimulus to aggregate demand in situations where the firms lose access to credit because of a weak banking system. This is one reason why short-term interest rates were driven to the zero bound in Japan in the 1990s. The lack of deep corporate bond markets affects monetary policy indirectly too, by depriving the banking system of competition at the margin. Banks must compete to retain borrowers with access to direct finance. That discipline is likely to cause banks to be better managed, more innovative, and more efficient than otherwise.<sup>14</sup> Bank regulators benefit, too, because banks are healthier, and also because regulators have greater leeway to credibly enforce tough standards on banks when alternative avenues of finance are available to pick up the slack if need be. Regulators can exercise more discipline over the banking system if they are not held hostage to the fact that there is no alternative to bank intermediation. A financially robust banking system, in turn, is more likely to withstand a period of high interest rates needed from time to time to stabilize inflation. Thus, a deep corporate bond market indirectly enhances a central bank's credibility for low inflation.

Financial authorities throughout East Asia are aware of the vulnerabilities of excessive dependence on the banking system and have been working to broaden domestic and regional bond markets. The problem is that developing a corporate bond market means breaking the monopoly of banking on financial intermediation. Banking long has been home to well-connected wealthy businessmen and powerful political officials who collude to dominate finance and who will resist the loss of their monopoly. To succeed in diversifying financial intermediation fully, East Asia must find a way to deal effectively with the political economy of finance and develop the legal, regulatory, and market infrastructure to allow deep and resilient bond markets to take root.

## V. RMB Revaluation, the U.S. Trade Deficit, and Banking Reform in China

The U.S. trade deficit with China is commonly ascribed to the fact that China keeps the RMB undervalued against the U.S. dollar.<sup>15</sup> The argument suggests that if China revalues the RMB, then the U.S. trade deficit should shrink. A benchmark two-country version of the NNS model suggests otherwise—that a revaluation of the exchange rate fixed by country B has little effect on country A's trade deficit measured in units of country A's output, if country A's monetary policy targets inflation credibly.<sup>16</sup> What China needs is not a one-time revaluation of its exchange rate or a sequence of managed revaluations, but a flexible exchange rate to secure stable inflation and employment at home and to anchor the financial stability of East Asia. China can undertake modest banking reforms in a few years to make its banking system sufficiently robust to interest rate fluctuations to adopt a credible inflation target and float its currency on the foreign exchange market. These points about the Chinese exchange rate policy, the trade balance, and banking reform are elaborated below.

14. *Economist* (2007).

15. Yu (2007) provides a useful perspective on related issues.

16. Devereux and Genberg (2007) also stress the ineffectiveness of nominal currency appreciation as a means of current account adjustment.

### **A. Invariance of the Trade Surplus to a Revaluation of a Fixed Exchange Rate**

Goodfriend (2007) develops a two-country, two-good, two-period benchmark NNS model of international adjustment to explore the behavior of the balance of payments, the terms of trade, and aggregate fluctuations with respect to interest rate and exchange rate policies followed by two large countries. In the model, countries A and B each specialize in the production of a distinct composite of differentiated consumption goods. Representative households in A and B live for two periods: the present and the future.

Households choose how much of each composite good to consume each period and supply work effort each period to firms, which produce the consumption goods. Firms are owned domestically by households, so household income each period is the sum of domestic wages and profits. Households have access to a credit market where they can borrow or lend internationally to consume more or less than their current income allows.

Households maximize lifetime utility taking as given the current and future world terms of trade, current and future real wages in A and B, and real interest rates in the two countries. A no-interest-arbitrage condition links the two financial markets. As is standard in the benchmark NNS model, there is no capital and all output is consumed each period. Borrowing by country A from country B in period 1 is reflected in a trade deficit for A and a trade surplus for B. All international borrowing is repaid in period 2. There are three household optimality conditions: one for the allocation of consumption between the two composite goods, a second for the allocation of time between work and leisure, and a third for the allocation of consumption over time. The model determines the endogenous variables in terms of exogenous variables in the two countries reflecting productivity levels, home good biases in consumption, and impatience to consume.

Country A (representing the United States) is assumed to target domestic inflation with interest rate policy, and thereby to stabilize its actual markup at the flexible-price markup. Importantly, monetary policy in country A makes A's economy behave like its RBC core, regardless of what country B does. Country B (representing China) is assumed to employ its interest rate policy to stabilize the B-money price of A-money (the RMB/U.S. dollar exchange rate).

Of particular interest for the question at hand is that country A's trade balance measured in A-good units is independent of the terms of trade. The sign of the trade balance depends on relative current and future home biases in consumption in the two countries and on relative impatience to consume. For instance, country A has a trade deficit (and country B a trade surplus) if A households are more impatient than B households or if country A is expected to improve the attractiveness of its exports relative to country B—in other words, if the B-household home bias in consumption is expected to decline. (Recall the discussion in Section II.)

What happens if country B (China) revalues B-money relative to A-money (appreciates the RMB against the U.S. dollar), still maintaining a fixed exchange rate? Assume that central bank A continues to stabilize the dollar price of A goods exactly. If the RMB price of B goods in country B is sticky, then the revaluation of the RMB versus the dollar makes Chinese goods more expensive relative to U.S. goods. In other words, the revaluation temporarily improves the competitiveness of U.S. exports to China and hurts the competitiveness of Chinese exports to the United States.

According to the benchmark model, however, the revaluation of B's exchange rate has no effect on country A's trade balance measured in A-good units. The reason is as follows. First of all, monetary policy in country A stabilizes inflation and the markup in A, and thereby stabilizes A-country output and income measured in A-good units.

Second, the exchange-rate-induced deterioration of A's terms of trade induces A households to substitute away from B goods and toward A goods in consumption. However, the deterioration in A's terms of trade also reduces the value of A-good income in terms of B goods. For separable log utility, the substitution effect exactly offsets the income effect, leaving unchanged the A-household demand for A goods. Also, the A-good value of A-household expenditure on B goods remains unchanged.

Third, the real interest rate in country A is invariant to the exchange rate revaluation. Hence, current relative to future A-household spending measured in A-good units is also stabilized. Since A-household aggregate income and aggregate consumption expenditure (both measured in A-good units) are each invariant to the revaluation-induced change in the terms of trade, country A's trade balance measured in A-good units is invariant also.

This invariance of country A's trade balance to the revaluation of country B's exchange rate is a consequence of features of the benchmark NNS model. Yet those features are not unreasonable. And the fact that invariance holds in this case suggests that one should not expect a revaluation of the RMB against the U.S. dollar to have much if any effect on the U.S. trade balance measured in units of U.S. output.

That said, an RMB revaluation against the U.S. dollar could be helpful in another respect—to contain inflation inside China. According to the model, an RMB revaluation would create a deficiency of demand for Chinese output that would weaken labor markets and elevate markups in China. Such deflationary pressure on prices inside China could be useful to offset a preexisting inflationary compression of markups. What could cause preexisting inflationary pressure? The fixed exchange rate regime in China is subject to the same kind of inflationary pressure described in Section II with respect to fixed exchange rates in East Asia more generally. Under a fixed exchange rate regime, one might expect inflation to develop inside China as it improves the attractiveness of its exports to the developed world and thereby improves its terms of trade. From this perspective, an appreciation of the RMB against the dollar would allow China to improve its terms of trade while maintaining domestic price stability.<sup>17</sup>

## **B. Banking Reform and Exchange Rate Flexibility in China**

The debate about Chinese exchange rate policy is reaching a critical point. If the RMB's value continues to be tightly managed, the United States might increase protectionist pressure against China to try to force a revaluation. In light of the discussion above, such actions would be needlessly confrontational. Goodfriend and Prasad (2007) argue that modest reforms of China's banking system would enable China to float its currency in a few years and put in place an independent interest rate policy regime that would improve Chinese macroeconomic performance at home and defuse tensions abroad.

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17. Higgins and Humpage (2005) describe the actual behavior of the RMB's exchange rate.

Independent interest rate policy requires a flexible exchange rate, not a one-off revaluation or a sequence of managed revaluations. But then the exchange rate can no longer serve as the nominal anchor for monetary policy. China must put in place the institutional capacity to target low long-run inflation credibly so that an inflation target can serve as the new nominal anchor.

To prepare China for independent interest rate policy, Chinese banks must be made financially robust to fluctuations in short-term interest rates. Financial robustness is necessary to allow interbank interest rates to fluctuate credibly as needed to manage independent monetary policy effectively.

The source of the robustness problem in the Chinese banking system is that Chinese banks have long been a primary means of financing state-owned enterprises (SOEs), and many Chinese banks are run by local managers politically motivated (or under pressure from regional government officials) to direct credit to well-connected borrowers. Chinese banks are assured of a large and growing stock of deposits as a result of the high savings rate, capital controls, and thin debt and equity markets. Under these conditions, Chinese banks have had a tendency to build up nonperforming loans (NPLs) over time with the tacit approval of the government.

The problem is that banks whose interest earnings are significantly impaired due to NPLs may have cash flow sufficient only to pay relatively low interest on deposits. Since banks are tightly connected through the payments system and a network of interbank balances, financial distress anywhere threatens the entire system. A fragile banking system could make the PBOC reluctant to raise interest rates to head off inflation. Even the perception that the PBOC is reluctant to raise interest rates would threaten the credibility of the central bank's commitment to low inflation.

In recent years, many Chinese banks have been recapitalized with funds from the large stock of international reserves, so balance sheets are currently in reasonably good shape. However, going forward the banking authorities must strengthen incentives for bank managers to make prudent loans to viable enterprises. Bank managers cannot be asked to lend prudently, with the expectation that a loan be repaid and bank capital preserved, when managers are rewarded by the political system for directing credit to connected borrowers or SOEs, and then largely excused for loan losses.

The Chinese authorities could put in place in a few years the necessary reforms to blunt the incentive for banks to accumulate NPLs, in part because the authorities have been working hard to strengthen the banking system for some time now. Much is at stake. The NPL problem must be addressed to make the banking system financially robust to interest rate fluctuations to improve monetary policy and exchange rate policy in China.

## **VI. International Reserve Accumulation in East Asia**

Many central banks of East Asia have accumulated international reserves at unprecedented rates in recent years both absolutely and as a percentage of GDP.<sup>18</sup> Yet aggressive

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18. Alberola and Serena (2007) and Higgins and Klitgaard (2004).

international reserve accumulation has had very different motives. Foreign exchange accumulation in Japan may have helped to deter deflation when Japanese interest rate policy was immobilized at the zero bound. Korea and Singapore, among others, acquired international reserves after the East Asian currency crisis to self-insure against another external shock. In China, the accelerated pace of international reserve accumulation in recent years reflects the trade surplus and the fact that capital controls to protect the banking system limit the private movement of capital abroad.<sup>19</sup> This section reviews the various motives for acquiring international reserves and their relationship to monetary policy.

### **A. International Reserve Accumulation at the Zero Bound**

When interest rate policy is immobilized at the zero bound in an effort to deter deflation, a central bank must continue to expand its balance sheet to stimulate the economy. However, base money and domestic short-term securities are perfect substitutes at the zero bound, so stimulus can no longer be provided by conventional open market purchases of short-term domestic securities. In that case, however, a central bank can provide stimulus by purchasing such assets as long-term bonds or foreign exchange on an unsterilized basis, that is, with newly created base money. By choosing to acquire long-term bonds in the 1990s, the Bank of Japan was able to provide additional monetary stimulus at the zero bound. If the outstanding stock of long-term bonds or other domestic assets to buy is deemed insufficient to provide the necessary stimulus, then the acquisition of international reserves can play an important, even essential, role in the implementation of monetary policy at the zero bound.

### **B. International Reserve Accumulation for Self-Insurance**

When interest rate policy is not immobilized at the zero bound and the exchange rate is flexible, operations in international reserves are not needed to implement monetary policy if there is an adequate stock of short-term securities for a central bank to buy. Nevertheless, central banks of highly open, export-oriented economies build up a stock of international reserves with which to intervene on an unsterilized basis against turbulence in foreign exchange markets. For example, Korea and Singapore have each accumulated very large stocks of international reserves even though each has a flexible exchange rate.

As discussed in Section III, however, intervention in foreign exchange markets is likely to be of relatively limited value. Moreover, the accumulation of a very large stock of international reserves can be counterproductive if it causes the public to believe that the central bank will employ interest rate policy to stabilize the exchange rate at the expense of domestic price stability. Benefits believed to derive from foreign exchange operations must be balanced against credibility problems that such operations can create for the central bank's commitment to targeting low inflation.<sup>20</sup>

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19. Green (2007).

20. Broaddus and Goodfriend (1996).

### **C. International Reserve Accumulation with a Managed Exchange Rate and Capital Controls**

In China, the accumulation of international reserves is dictated by the managed exchange rate and capital controls. The PBOC acquired its large stock of international reserves mainly by accommodating years of net inflows of foreign direct investment at a fixed exchange rate and by accommodating the overall trade surplus that emerged in the last few years. To curb the inflationary potential of such reserve accumulation, the PBOC has sterilized its acquisition of international reserves with sales of non-monetary central bank debt called PBOC bills.

Many observers regard the acquisition of international reserves by the PBOC as evidence that China undervalues its exchange rate.<sup>21</sup> In the absence of capital controls, however, Chinese residents would likely move capital out of the country privately to earn higher interest at banks abroad and to diversify their growing wealth in mature corporate bond and equity markets overseas. In light of the discussion in Section V.B, it seems reasonable to regard the acquisition of international reserves by the PBOC in large part as a consequence of controls on the outflow of capital to protect the weak Chinese banking system. If Chinese banks were made financially robust to higher interest rates, then interest rates could move higher to stabilize investment. Interest rate policy could freely and credibly target inflation, the exchange rate could be floated, and capital controls could be lifted.

Unfortunately, higher interest rates could hurt China's external balance according to the "current account identity" by encouraging savings and discouraging investment.<sup>22</sup> Even if internal stability were secured by a worsening external balance, however, the external situation would be improved greatly in one critical respect. China's trade surplus could no longer be ascribed to its manipulation of the exchange rate. The PBOC would no longer need to acquire international reserves, and instead flexible exchange rate adjustments could encourage private capital outflows to accommodate China's current account surplus.

## **VII. Conclusion**

The paper addressed a set of common concerns that pertain to monetary policy in East Asia. Broadly speaking, the concerns are rooted in the fact that the countries of East Asia have developed relatively quickly from command-oriented, traditional economies to modern industrialized market economies. The problem is that nonfinancial development has outrun financial development. The countries of East Asia recognize the problem. Governments throughout the region are working to improve the financial robustness of banks and deepen nonbank financial markets to strengthen the institutional capacity to target inflation and facilitate exchange rate flexibility to secure macroeconomic stability in the future.

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21. U.S. Treasury Department (2006).

22. Given the current high savings rate in China, the positive income effect of higher interest on spending could offset much of the substitution effect of higher interest on savings.

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## Comment

ENRIQUE ALBEROLA ILA

Banco de España

### I. Introduction

Today's paper presents a very broad set of issues in a compact and smart presentation. I will start by briefly summarizing what in my view are the main points of the paper and then highlight some issues worth discussing.

### II. Five Key Points of the Paper

Let me set out what are, in my view, the five main points of the paper:

- (1) The case for inflation targeting and flexibility versus fixed exchange rates. This conclusion is based on the New Neoclassical Synthesis (NNS) model. The point of the paper is that the large terms-of-trade shocks and the tendency to benefit from them have to be accommodated through flexible exchange rates, and the openness-convergence dynamic is best served through exchange rate flexibility.
- (2) There is not a clear-cut case for Asian financial cooperation, but I think this is a natural corollary of the previous point to the extent that financial cooperation, compared by the author to a credit union, is seen as an instrument used to sustain pegs.
- (3) The financial structure of Asian countries is unbalanced, since it is too biased toward banks and implies low corporate bond market development. I completely agree with this and also with the need for this situation to be corrected.

- (4) On China's exchange rate policy, the author underscores that the flexibility of the renminbi is not a panacea for solving the U.S. trade imbalance, and again he uses his model. I think this is quite honest because, in the first place, the paper bets on flexibility. There are good reasons for China to avoid this sudden flexibility of exchange rate, and the paper stresses very smartly the reasons. The author argues that this has to be done with patience, because previously there is the need to develop an adequate internal financial infrastructure. This justifies the exchange rate gradualism currently taken by the Chinese authorities.
- (5) On reserve accumulation, the author mentions that this policy was fine for a central bank facing the zero bound because it allowed the bank to have an additional effective liquidity instrument. This is fine for East Asia on the basis of self-insurance, and this is fine for China in the current context, although he underscores that this may tend to enforce the incentives for higher accumulation and for keeping the exchange rate control. Again, the assessments to some extent refute the case for flexibility, since we know that reserve accumulation has been used in most cases to back exchange rate rigidity.

### III. Comments

I find the ideas conveyed in the paper very interesting, and tend to agree with most of the conclusions; maybe not with all of them, and maybe in some cases for reasons different from the author's.

A first comment on the paper is the broadness I mentioned at the beginning. The large number of ideas in the paper are scattered around, and there are some loose ends. I think an effort to link these ideas and the different sections would greatly strengthen the paper. Therefore, my comments in part are intended precisely to tie some of these loose ends together and refute or discuss some other points the author makes.

First, on the applicability of the model to emerging market economies, it is possible to raise some reservations from three perspectives:

- First, on the assumptions. The author recognizes in the paper that there are large financial imperfections in these countries. I presume this matters for the model, and it is doubtful that the results or the conclusions can be maintained under these different assumptions.
- Second, on shocks. Shocks in emerging economies differ in terms of magnitude and impact. Financial shocks are arguably more important and relevant than real shocks in emerging economies, for the time being.
- Third, on the adjustment. The conclusions are based on the steady-state solution, and then the author recognizes that these economies are going through an important process of transformation and transition. The relevant issue is which is the optimal regime in the transition. Is the flexibility justified within this financial transition, also?

Furthermore, an important body of literature argues that the case for flexible regimes is less applicable to emerging market economies. For instance Lahiri, Singh, and Vegh (2007) argue that with segmented markets the rigidity of pegs has a point.

Also, Caballero and Lorenzoni (2007) focus on Dutch disease and the optimality of keeping some control over the exchange rate under these conditions. In the end, I think the author recognizes that in the paper when he tackles China and says that the underlying financial conditions are for some gradualism in the flexibility of the exchange rate. This goes back to the transition point. Then the author mentioned regarding Asia that the rationale for accumulated reserves has been self-insurance, but it is possible to argue that this accumulation is linked to exchange rate management. So in the end, this also backs the idea that rigidity is maybe suboptimal under these circumstances.

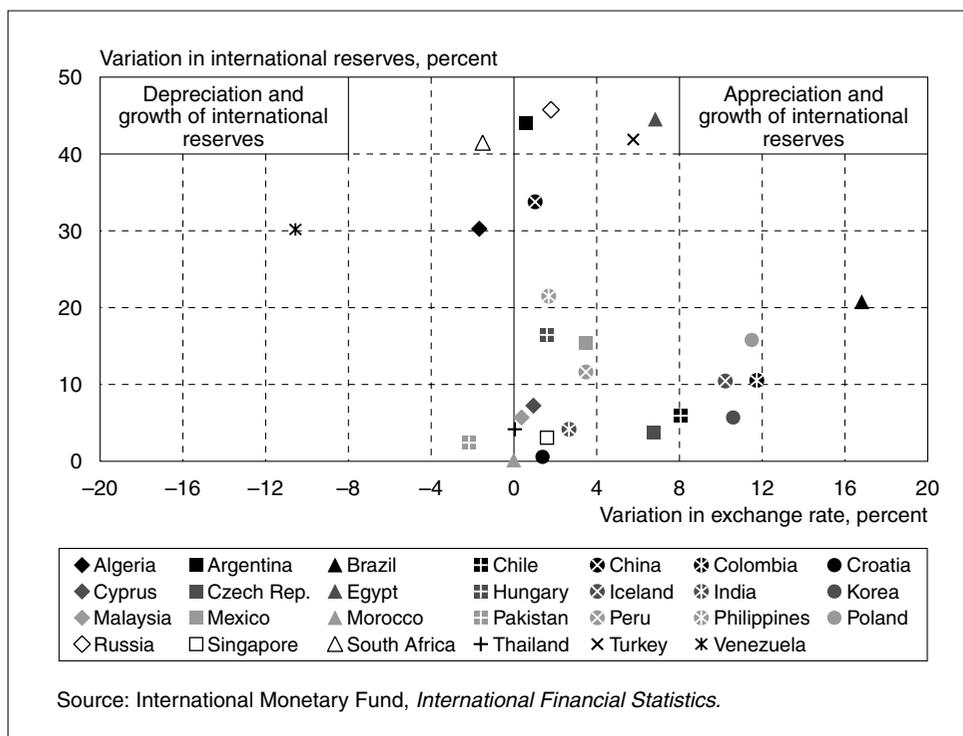
Let me develop this last point. First, on self-insurance. There are two main indicators of the adequacy of the stock of reserves for self-insurance against crises. The first is the ratio reserves over months of imports, and the second is the ratio reserves over short-term external debt, also known as the Greenspan-Guidotti rule. The thresholds usually admitted are four and one, respectively. The level of reserves in 2005—and even more now—is above the thresholds, and Asia and in particular China are far above. Looking at these numbers, it is difficult to admit that self-insurance is the still the driver. A recent paper by Jeanne and Ranciere (2006), in which the optimal level of reserves is computed, confirms this intuition, since they show that the level of reserves is excessive in Asia under this criterion.

Rather, Figure 1 suggests that reserves in emerging countries are accumulated for exchange rate management. The figure plots the variation in the exchange rate against the increase in reserves for 27 countries. The countries that are accumulating most reserves are those that have the exchange rate more pegged, the exception being Brazil, which by the way is currently accumulating reserves very intensively.

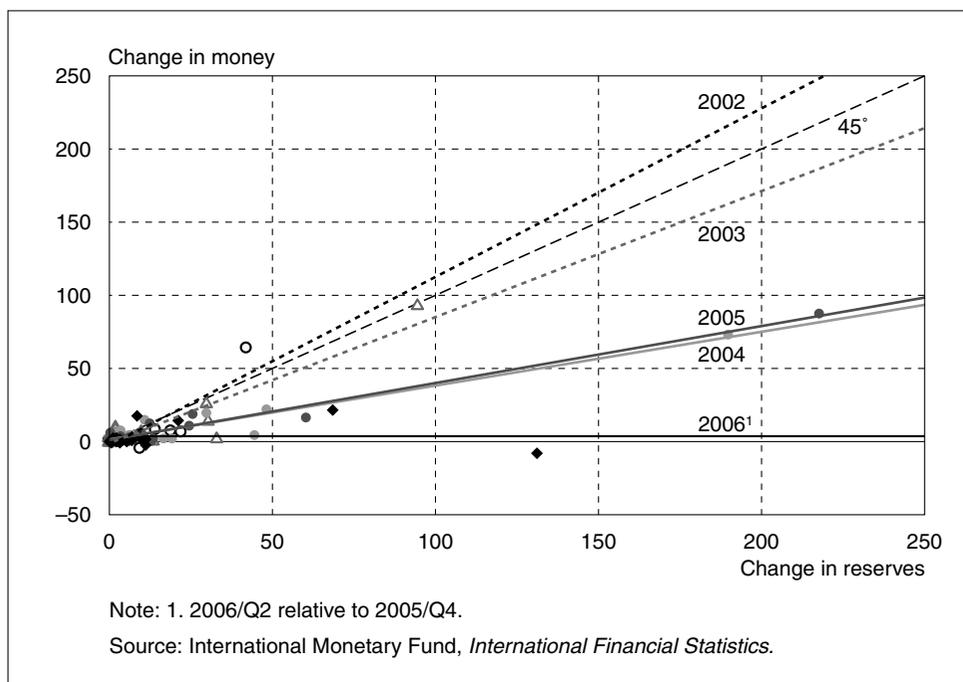
The policy that consciously limits exchange rate appreciation adds one additional concern to the ones that the author conveys in the title of the paper. Figure 2 plots the increase in reserves against the increase in money. Here the 45-degree line implies no sterilization at all. You see that emerging economies are sterilizing increasingly their expanding reserves. Indeed, in 2006 on average they sterilized the entire increase in reserves. Up to this point that has not created unsurmountable problems for monetary management, but as long as this sterilization proceeds, countries may be forced to put too much sterilization paper into the economy, and that brings about different problems. This process may eventually produce a dilemma between sterilizing and enduring the side effects of such actions (fiscal costs, disturbance to the financial system, future central bank domestic liabilities, etc.). Economic growth, implying strong money demand and low inflation, has helped to manage this increase in reserves, but the question is whether these countries are reaching the limits; Alberola and Serena (2007), from where these graphs have been extracted, show that this is not the case yet. Even so, there are increasing costs in accumulating reserves and the scope for sterilization is shrinking, but at the moment these increasing costs are not impinging on accumulation. Maybe today's paper could emphasize more strongly these issues, which I think are very relevant at this stage due to the evolution of the sterilization.

The other comment I have concerns the corporate debt markets. I completely agree with the author: the system is too biased toward banking, massive change is necessary, and probably fixed regimes disturb that development. An interesting fact in the last few years is the deepening development of local debt markets in emerging countries;

**Figure 1 Exchange Rate and Reserve Accumulation, 2004–05**



**Figure 2 Increases in Reserves and Sterilization, 2002–06**



it is true that this hardly includes corporate bond markets, it is just government paper. However, what governments are trying to do, and this was discussed in a working group at the Bank for International Settlements (2007) recently, is to set the basis to allow further development also of corporate markets. This is done very specifically in some countries through the construction of a yield curve through local debt issued in local currency with different maturities. Furthermore, we have just seen that a lot of sterilization is occurring. Thus, it might be a good idea in this process of transition to use this sterilization instrument as a complement to build up this yield curve in terms of maturity.

To conclude, I sympathize with the model's main thrust, that flexibility and inflation targeting are a good endpoint for these economies. My view, however, is that not all the countries are ready currently, but in the end I think the author and I view things in a similar way, since the paper justifies the status quo: both implicitly (because the paper endorses reserve accumulation, which I think this is basically the other side of fixed exchange rates) and explicitly (when it talks about China's underdevelopment and imbalances of the financial markets). The message in this case is, be careful flexibilizing your exchange rates. The last point, which I mentioned earlier, is that the paper would clearly benefit from a more consistent presentation linking the different loose ends within it.

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## Comment

LAWRENCE SCHEMBRI

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### I. Introduction

I would like to begin by thanking the organizers for inviting me to participate in this excellent conference at the Bank of Japan. It is a great pleasure for me to have the opportunity to discuss this very interesting and insightful paper by Goodfriend (2007). Please note that the usual central banker's warning label applies to my

comments: the views expressed are my own and should not be attributed to the Bank of Canada.

The motivation of the paper is neatly summed up by Governor Fukui's third question in his opening address: "What kind of monetary and exchange rate regimes are appropriate for East Asian emerging economies to pursue sustained economic growth under price stability?" To address this question, the paper considers several important characteristics of East Asian economies: namely, export orientation, highly integrated regional trade, bank-dependent finance, the potential for persistent trade surpluses, and the aggressive accumulation of official foreign reserves.

## II. Summary of the Paper

In reviewing monetary and exchange rate policies in the East Asia, the paper uses a variety of analytical approaches, but the principal one is the New Neoclassical Synthesis (NNS) model developed by Goodfriend and King (1997). Goodfriend (2007) uses the model to analyze the relationship between monetary and exchange rate policies and he (rightly) places particular emphasis on the importance of policy credibility. He also examines the interdependence between the banking system and financial markets; this issue is also very important in the context of East Asia. Finally, the focus of the paper is mainly on China, despite the title's reference to "East Asia."

The paper comes to three significant conclusions. First, flexible exchange rate regimes are desirable in East Asia, especially for the larger countries, primarily because they are credible. In particular, flexible regimes are not subject to the problems that fixed exchange rate regimes often have; that is, they are not susceptible to speculative pressure or attacks when there are inconsistencies between domestic policy goals and the fixed exchange rate. Moreover, a flexible exchange rate regime allows for an independent domestic monetary policy. Second, inflation targeting is the best way to implement an independent monetary policy, because it duplicates the flexible price equilibrium, as shown with the NNS model. Third, financial sector underdevelopment in the region, primarily in China, is delaying the implementation of a market-determined flexible exchange rate and an independent domestic monetary policy based on inflation targeting.

There are two other notable findings in the paper. Despite the fact that trade in the region is heavily integrated, regional monetary arrangements are unlikely to have a significantly positive welfare benefit. In general, the larger East Asian countries would be best served by keeping their own houses in order by adopting the first-best policies: an inflation target and a flexible exchange rate. The other useful result is that a nominal revaluation of the Chinese renminbi would have little impact on the U.S. trade balance deficit.

## III. Commentary: Four Quibbles

Given that I am from the Bank of Canada, a central bank that has been very successful with a monetary policy based on an inflation target in conjunction with a flexible

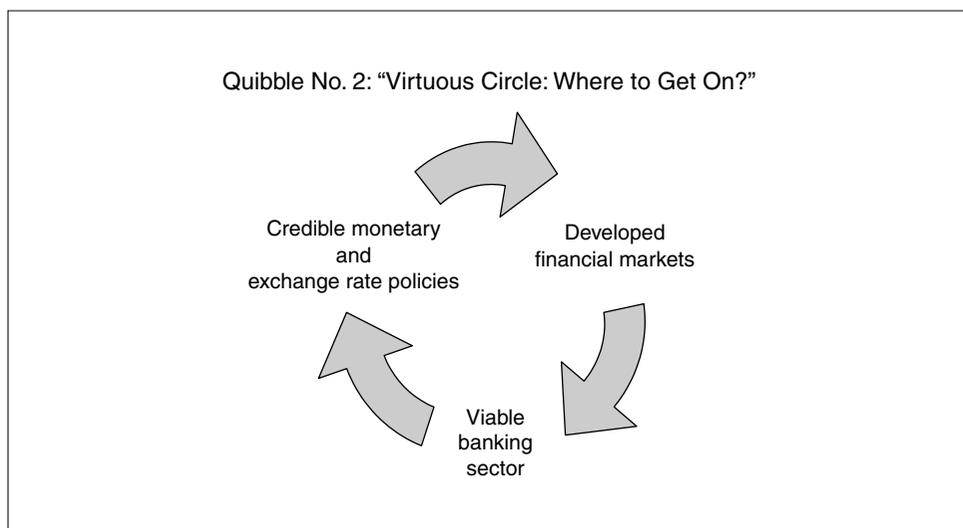
exchange rate, I cannot disagree with the main message of the paper, so I will call my comments “quibbles.” The four quibbles could be entitled “slow boat to reform,” which is really about timing of reform; “virtuous circle—where to get on?”; “neighborhood effects”; and “rules of the game.”

Regarding the first quibble, “slow boat to reform,” the author states, “*Modest reforms* (emphasis added) of China’s banking system would enable China to float its currency in a few years.” Almost exactly four years earlier, on May 19, 2003, China’s *People’s Daily* wrote, “Full liberalization of China’s renminbi exchange rate is inevitable, but not now,” and “China’s foreign exchange market is still quite thin and imperfect.” After four years, the outlook for reform remains essentially unchanged. The paper does not provide a complete explanation of what these “modest reforms” are, nor why they have not yet been achieved. My concern is that given the lack of progress on bank reform after four years, it is not clear that sufficient reforms will be attained after a few more years along the current policy path.

The past experiences of other countries suggest that the adoption of a more flexible exchange rate and an independent domestic monetary policy could, in fact, accelerate financial sector reform in China. Canada and Mexico’s experiences are good examples. In 1950, Canada floated its exchange rate under pressure to appreciate—a situation similar to what China is currently experiencing. One year later, Canada was able to remove capital controls (becoming one of the first countries to do so in the postwar period), and the following year a short-term money market started. In Canada’s case, the adoption of a flexible exchange rate forced commercial banks to adapt to the challenge of coping with financial market forces. Essentially the same lesson can be drawn from Mexico’s experience after the collapse of the peso in 1994. The banking system was initially in disarray, but by adopting a flexible exchange rate and an independent (and credible) monetary policy based on inflation targeting, Mexico was able to achieve banking sector reform and significant financial market development in a few years.

It is also worth noting that the increased presence of foreign banks in China could have also accelerated the reform process. Countries such as Poland, Estonia, and Mexico have achieved rapid financial sector development as result of the presence of foreign banks, which have transferred their knowledge of banking operations from the head office to local subsidiaries.

My second quibble is illustrated in Figure 1, which shows a virtuous circle of financial reform. At one point on the circle are credible monetary and exchange rate policies. As argued in the paper, these credible policies for the larger East Asian countries are the combination of a flexible exchange rate and inflation targeting. Because these credible policies create what Caballero, Cowan, and Kearns (2005) call “currency trust,” they facilitate the growth of financial markets. More developed financial markets provide prospective borrowers sources of finance that compete with the commercial banks, which in turn forces the banks to respond by becoming more efficient intermediaries. Because financial markets are underdeveloped in China, this competitive pressure on domestic banks is missing. To close the virtuous circle, a viable banking sector implies that the transmission of monetary policy via the interest rate channel should be relatively effective, which in turn will enhance the credibility of monetary and exchange rate policies.

**Figure 1 Virtuous Financial Circle**

Given this virtuous circle, the key question is where does a country like China get on the circle? Goodfriend (2007) maintains that the banking sector must be viable before this virtuous circle can begin. In contrast, I would argue that the starting point should be credible monetary and exchange rate policies. I do not want to exaggerate the differences between our two positions; it is more a question of emphasis. Clearly, there are weaknesses in the Chinese banking sector that need to be addressed; nonetheless, I maintain that a faster movement toward increased exchange rate flexibility and a more independent monetary policy is possible and would be beneficial for China and its trading partners.

My third quibble concerns neighborhood effects: that is, the repercussions of China's current monetary and exchange rate policies on neighboring countries in East Asia. After the 1997 financial crisis, several countries in the region took on board the liberalizing reforms recommended by the International Monetary Fund (IMF). In particular, several did exactly what the author proposes; they adopted a flexible exchange rate and inflation targeting, and reduced capital controls. As a result, the currencies of these countries (e.g., Korea) have appreciated dramatically and now there is serious tension between maintaining competitiveness in third markets, particularly with China, and staying on the path of reform. While Korea has largely stayed on course, Thailand has slid back. The concern I have is that we may see more backsliding in East Asia if reform in China does not take place more quickly.

I call my fourth quibble "the rules of the game" because it refers to China's practice of preventing real exchange rate adjustment by sterilizing the impact of balance of payments surpluses on the domestic money supply in the presence of capital controls.<sup>23</sup> I agree with the author's argument that the current debate on China's exchange rate policy misses the point because it focuses primarily on the level of the exchange rate.

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23. Dodge (2006) provides a more complete argument.

Instead, more attention should be paid to the coherence of exchange rate policy to the goals of domestic monetary policy and to the extent to which the exchange rate regime facilitates relative price adjustment to preserve external stability. While most observers, including myself, the author, and the Chinese authorities, recognize that increased exchange rate flexibility would be desirable for China to obtain an independent domestic monetary policy,<sup>24</sup> there are different views on timing, which were discussed above, and on what policy path China should follow in the interim. I maintain that China should follow the “rules of the game” for external adjustment under the current pegged exchange rate by permitting domestic price and wage adjustment in the face of large balance of payments surpluses. Sterilization of the resultant reserve accumulation with capital controls in place forestalls the adjustment process. Moreover, sterilization distorts the incentives and behavior of domestic banks because they are required to hold more and more central bank debt (rather than higher-yielding private assets), through the imposition of higher reserve requirements. This implicit tax retards bank reform. If China is reluctant to move sooner to a more flexible exchange rate, it should refrain from extensive sterilization activities to allow relative prices to adjust to reduce external imbalances.

#### IV. Concluding Remark

My concluding remark concerns the role of the IMF in China’s policy reform process. The paper examines and is skeptical of the proposal of an East Asian “credit union,” because it would not be needed if the best-practice policies of a flexible exchange rate and inflation targeting were followed. The IMF was also originally designed as a “credit union” to pool risk to foreign reserves, but its mandate has expanded because best-practice policies were not always followed by systemically important countries. In particular, the IMF undertakes bilateral and multilateral surveillance to encourage countries to follow the “rules of the game” by adopting policies that prevent negative spillovers and preserve stability of the international monetary system.

The IMF is currently undergoing a reform process called the Medium Term Strategy, which includes a review of the 1977 decision on surveillance of exchange rates and a review of quota formulas.<sup>25</sup> This reform process represents a genuine effort to modernize the IMF so that it can meet the challenges of maintaining international financial stability in a rapidly integrating global economy and to increase the legitimacy of the IMF by giving a larger voice to fast-growing East Asian countries. It is, however, important to emphasize that as East Asian countries obtain a greater voice in the IMF, they must be willing to take on greater responsibility for maintaining the stability of the international financial system.

24. Several other arguments could be made in favor of China’s adopting a more flexible exchange rate. Not only would it allow more rapid relative price adjustment to reduce external imbalances, but it would also facilitate a needed rebalancing of demand toward consumption and away from investment and net exports.

25. An *ad hoc* quota increase for China, Korea, Mexico, and Turkey was approved by the IMF’s Board of Governors in September 2006, and a new surveillance decision was approved by the Executive Board of the IMF on June 15, 2007.

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## General Discussion

Responding to the comments by the discussants, Marvin Goodfriend stressed that reform in China was a delicate issue and that more open discussion was called for on this matter. He agreed with Enrique Alberola Ila (Banco de España) on the argument that sterilization created pressure on domestic markets. Goodfriend claimed that sterilization mainly buys time so that a country can delay exchange rate or interest rate adjustments which may be required to achieve external balance. He also addressed the point made by Lawrence Schembri (Bank of Canada) on the "virtuous circle" by agreeing that the three elements are interrelated. Goodfriend argued that the sequence of reform should be decided by Chinese policymakers familiar with Chinese markets, but he emphasized that China should move quickly to make the modest financial reforms needed to float the currency and free interest rate policy to stabilize domestic macroeconomic conditions.

In the general discussion, there were several comments regarding the applicability of the New Neoclassical Synthesis (NNS) model to the East Asian economy. Michael Devereux (University of British Columbia) claimed that with incomplete markets or with partial exchange rate pass-through (which may be important in East Asia), inflation targeting may not be the optimal policy. Már Gudmundsson (Bank for International Settlements) pointed out that several East Asian countries are small open economies that may have benefited from fixed exchange rates by reducing exchange rate uncertainty in trades with large trade partners. Jong-Wha Lee (Asian Development Bank) added that the paper's discussion was mostly relevant for China, whereas crisis-hit countries such as Korea have already allowed the currency to float and faced exchange rate appreciation and a rapid rise in asset prices due to the increase in portfolio investment. In response, Goodfriend agreed that in some models absolute price stability was not the welfare-maximizing monetary policy, but emphasized that his own work and prior work with Robert King indicates that optimal departures from price stability are likely to be minor quantitatively. He also agreed that exchange rate stability may be important in small open economies. However, he pointed out that there are also countries such as Singapore which are managing exchange rate flexibility quite well as they stabilize inflation, despite being small countries.

Akinari Horii (Bank of Japan) warned that with the large volume of turnover on the Shanghai exchange market, the payment system may not be able to withstand the

volume of transactions once China let its exchange rate fluctuate. He also claimed that China had yet to build a financial system infrastructure which enables loans to be effectively repaid and, if not, to be liquidated, and thus the transition to the first-best policy was challenging. Goodfriend claimed that resources and expertise to update the payments system in China were readily available and all that was needed now was recognition of the urgency of policy change.

With respect to the credit union example, Akira Ariyoshi (International Monetary Fund) argued that global financial institutions such as the IMF still had a role to play in an imperfect capital market, while acknowledging that regional insurance mechanisms could also serve as a line of defense against liquidity shocks. Anton Braun (University of Tokyo) also claimed that it was premature to dismiss the credit union idea without discussion of the nature of risks. Mark Spiegel (Federal Reserve Bank of San Francisco) claimed that the crisis in 1997 was an episode proving the high correlation of shocks within the region. Further, he argued that this may justify the necessary role of the IMF rather than a regional monetary fund. Goodfriend agreed that the IMF plays a useful role, but emphasized that emergency credit assistance provided by the IMF or by an East Asian credit union might encourage excessive short-term international capital flows.

Regarding the revaluation of the renminbi (RMB), Shaghil Ahmed (Board of Governors of the Federal Reserve System) pointed out that even if this had no effect on the U.S. trade balance in terms of U.S. goods units, as in the model laid out by Goodfriend, it could have an effect on real expenditure components of Chinese GDP and, therefore, lead to rebalancing of growth and to changes in the Chinese trade balance measured in terms of Chinese goods units. Yu Yongding (Chinese Academy of Social Sciences) claimed that the revaluation of the RMB would affect the Chinese trade balance because China was competing with other Asian countries, not just the United States. Goodfriend agreed that a revaluation of RMB would affect the Chinese trade balance. He further explained that a revaluation of the RMB would lower the demand for Chinese exports, which, if the Federal Reserve stabilizes dollar prices in the United States, would lead to a deflation of money export prices in China. Thus, a revaluation of the RMB against the dollar could offset preexisting inflationary pressures inside China.

There were also several comments on sterilization and its distortionary effects on the Chinese economy. Michael Moskow (Federal Reserve Bank of Chicago) claimed that sterilization in China is enormous and that one should consider the long-term effects it builds into the economy while the banks are reforming. Hans Genberg (Hong Kong Monetary Authority) claimed that to consider the second-best policies under capital control in China, it is important to identify where sterilization makes distortions. Georges Pineau (European Central Bank) pointed out that China uses central bank paper for sterilization, unlike India, which uses government paper: this leads to additional market segmentation and hinders financial market development. Made Sukada (Bank Indonesia) added that if the central banks fully sterilized the intervention, the negative spread on interest earning would cause a negative impact on the balance sheet of the central bank, while any adjustment in the interest rate would undermine the credibility of inflation targeting. Goodfriend agreed that capital controls make a difference to the impact of sterilization to the extent that controls block potentially offsetting private-sector financial actions.