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SEQUENCING AND INFLUENCE**

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# The Full Convertibility of Renminbi: Sequencing and Influence

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## Abstract

This paper examines the issue of achieving full convertibility for the Chinese currency, Renminbi (RMB), and its impact on the economies of both mainland China and Hong Kong. It focuses on the sequencing of Renminbi's full convertibility, clarifying the different concepts of currency convertibility, i.e. current account convertibility, capital/financial account convertibility, and full convertibility. It also discusses the differences between removing restrictions on international transactions and removing restrictions on the exchange of foreign currencies. There still exist various extremely strict restrictions on capital/financial account convertibility in China. There is still a long way to go before these restrictions can be removed completely. China's accession to the World Trade Organization (WTO) will surely drive the course of Renminbi's full convertibility. However, the Renminbi may not become a fully convertible currency within the five years after China's accession to the WTO. This paper comes to the conclusion that there does not exist a uniform or fixed sequence in adopting the full convertibility of a currency due to the differences between countries. At the same time, based on the common practices and basic sequence taken by most countries in the world, drawing on the experience and lessons from other countries' practice and given the fact that China is a large developing country, we also conclude that a progressive and prudent sequential process is needed for the full convertibility of Renminbi.

### **JEL codes:**

F31 - Foreign Exchange, G18 - Government Policy and Regulation, O11 - Macroeconomic Analyses of Economic Development, O41 - Multisector Growth Model for Developing Countries

**Keywords:** convertibility of Renminbi, WTO, China, Hong Kong.

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# Contents

## 1. Introduction

## 2. The Sequencing of Renminbi's Full Convertibility

- 2.1 A Review: The Experience of Individual Countries and International Debates
- 2.2 Three Stages in Renminbi's Full Convertibility
- 2.3 Two Steps in Capital Account Liberalization

## 3. An Open Macroeconomic Model of China and the ROW

- 3.1 The Behavior of Representative Consumers
- 3.2 The Behavior of Representative Firms
- 3.3 Market Equilibrium Conditions

## 4. The Impact of Renminbi's Full Convertibility on the Economies of Both Mainland China and Hong Kong

- 4.1 The Impact on the Economy of Mainland China
- 4.2 The Impact on the Economy of Hong Kong

## 5. Conclusion

## References

## Tables

- 1. The Establishing of Currency's Convertibility in Developed Industrial Countries (in order of the time when establishing the capital account convertibility)
- 2. The Establishing of Currency's Convertibility in Developed Industrial Countries (in order of the interval time between the current account convertibility and capital account convertibility)
- 3. The Establishing of Current Account Convertibility in Developing Countries
- 4. The Establishing of Current Account Convertibility in Some East Asian Countries/ Regions
- 5. Sequencing of Renminbi's Full Convertibility
- 6. Capital Account Liberalization
- 7. China's Utilization of Foreign Investment
- 8. Budget Deficit, Inflation Rate, and Money Supply in China

## Charts

- 1. The Effect of Massive Inflow of Foreign Investment

## Symbol Sheet

# 1. Introduction

In 1979, mainland China launched the market-oriented economic system reform and the policy of opening to the outside world. It was also at that time that China started the course of adopting Renminbi's full convertibility. The convertibility of the current account in international payments and transfers had been established by 1996. China's accession to the World Trade Organization (WTO) will effectively push the process of Renminbi's full convertibility. This paper discusses the sequencing of Renminbi's full convertibility and the possible impacts of Renminbi's full convertibility on the economies of both mainland China and Hong Kong.

This paper focuses on the sequencing of Renminbi's full convertibility. We disagree with two current viewpoints appearing in the related debates about the Renminbi's full convertibility. One viewpoint states that there is no need to set the sequencing of Renminbi's full convertibility at present since it is a complex and distant process. We believe this viewpoint is inappropriate. For one reason, it is exactly because of the complexity that a careful setting of sequence is much needed in order to achieve the goal in a smooth way and to avoid going through an unnecessary zigzagged path that is full of risks. In addition, the process is of course lengthy, but is not as distant as imagined. So we need to make full preparations before hand and lose no time in approaching the target step by step.

The other viewpoint holds that the Renminbi's full convertibility will soon be established. Foreign banks will be allowed to make corporate loans in foreign currency immediately upon China's accession to the WTO. They will be allowed to make corporate loans in local currency within two years of entry and to deal with individual Chinese customers within five years after entry. Some have thus pointed out that this means the Renminbi will soon become a fully convertible currency. We believe this viewpoint is incorrect.

According to the 5th edition of the IMF's Balance of Payments Manual (BPM5) (IMF, 1993), international transactions are divided into three accounts: a current account, a capital account, and a financial account. The BPM5 defines the current account as encompassing transactions in goods, services, income, and the receipts/payments of current transfers. The capital account covers all transactions that involve (a) the receipt or payment of capital transfers, and (b) the acquisition/disposal of non-produced, nonfinancial assets (IMF, 1995). Generally, capital transfers result in a change in the stock of assets in an economy, while current transfers affect the level of disposable income and influence the consumption of goods and services.

The financial account covers all transactions associated with changes in ownership with nonresidents of foreign financial assets and liabilities in an economy. Such changes involve the creation, exchange, and liquidation of claims on, or by, the rest of the world (IMF, 1995). In most countries including China, the U.S. and the U.K., the size of the capital account is relatively small. For simplicity, when we mention the 'capital account' in this paper, we mean both the 'capital account' and 'financial account' defined by the BPM5. The 'current account' mentioned in this paper, however, remains the same as defined in the BPM5.

In our opinion, the whole course of adopting Renminbi's full convertibility should be broken down into three major stages in principle. The first stage is adopting current account liberalization, which had been

established by 1996. The second is adopting capital account liberalization, which is currently going on. The third is adopting Renminbi's full convertibility, which will take place in the future. As to the courses of adopting current account and capital account liberalization, each course should be further broken down into two successive steps. The first step is removing restrictions on current account or capital account transactions. The second step is removing restrictions on the exchange of foreign currencies for the purpose of international transactions of the current account or capital account, namely establishing current account or capital account convertibility respectively.

In order to demonstrate the sequence, this paper clarifies in a concrete way that the three concepts of convertibility, i.e. current account convertibility, capital account convertibility and Renminbi's full convertibility are different, and that practices of removing restrictions on transactions and on the exchange of foreign currencies are also different. Furthermore, we make a detailed investigation of various legal rules and policies on capital account convertibility currently in effect in China. These legal rules and policies indicate that there still exist various extremely strict restrictions on capital account convertibility at present in China. It is no doubt there is a long way to go for China before removing these restrictions completely.

Adopting the convertibility of a currency will involve economic coordination in a very broad range of areas, including macro-economy and micro-economy, real economic activities and financial activities, internal and external economic balances, and the level and flexibility of price, interest rate and exchange rate. In order to analyze the possible effects of Renminbi's full convertibility on the economy of mainland China, this paper develops an open economy macro model for the mainland. By analyzing relationship between the variables in the model, we identified a number of necessary conditions to achieve the successful full convertibility of Renminbi, including appropriate macroeconomic policy, microeconomic reform of enterprises, financial system reform, market-oriented interest rate reform and more flexible exchange rate policy. Furthermore, adopting Renminbi's full convertibility and hence the promotion of economic development in mainland China will also have extensive effects on Hong Kong's economy. These effects, generally speaking, are conducive to promoting Hong Kong's economic development, though it may also produce certain pressure on the transition of Hong Kong's economy.

The paper is organized as follows. Section 2 focuses on the sequencing of Renminbi's full convertibility. Section 3 constructs an open economy macro model of the mainland. Section 4 analyzes the possible impacts of adopting Renminbi's full convertibility on the economies of both Chinese mainland and Hong Kong. Section 5 provides the conclusions.

## 2. Sequencing of Renminbi's Full Convertibility

### 2.1 A Review: The Experience of Individual Countries and International Debates

First we take a look at developed industrial countries. After World War II, developed industrial countries started the process towards capital account convertibility in a step-by-step, relatively cautious way. By the mid-1990s, almost all the developed industrial countries had established capital account convertibility (see Table 1), with the United States establishing it in 1973, Germany, Great Britain, Switzerland and

Japan establishing it in succession during the period of mid- to late-1970s, and a large group of developed industrial countries establishing it in the 1980s (1983-1990).

Among these developed industrial countries, those whose interval time between the current account convertibility (the time when accepting Article 8 of the IMF's Articles of Agreement) and the capital account convertibility exceeded 20 years are (see Table 2): Italy, Belgium, Luxembourg and Ireland (29 years), France, Sweden and Austria (28 years), USA (27 years), Netherlands (25 years), Norway (23 years) and Denmark (21 years). Countries with an interval time in the range of 10 to 20 years are: Great Britain and Australia (18 years), Japan (16 years), Germany (14 years), Iceland (12 years) and Finland (11 years). Only four countries have a comparatively short length of the interval, namely Spain (7 years), Portugal (5 years), Greece and New Zealand (2 years). Switzerland is a special case, which first established capital account convertibility in 1980 and then established current account convertibility in 1992.

Next we take a look at developing countries. From the mid/late 1970s to the early 1980s, three Southern Latin American countries, Argentina, Chile and Uruguay, rashly carried out the reform towards capital account liberalization in a relatively short period of time without making full preparations for it. Following the reform was the outbreak of the debt crisis of the 1980s (starting from Aug. 1982 and lasting until 1992), which was the early unsuccessful attempt of opening-up made by developing countries (Mathieson and Rojas-Suarez, 1993). With respect to the formerly centrally-planned-economies, from the end of the 1980s to the early 1990s, countries like former East Germany, Poland and Russia abruptly opened up free trade and adopted current account liberalization without full preparations, which led to a sharp decline of industrial production and caused high inflation (Greene and Isard, 1991).

Against the background of what had happened in the developing countries and in the formerly centrally-planned-economies, it opened the first round of international debates about the sequence in adopting the convertibility of a currency and the liberalization of an economy. The representative and the mainstream viewpoint was that the sequence in establishing the liberalization of an economy should be carefully designed. A rush towards current account liberalization might result in an extensive breakdown of the domestic manufacturing industry. The capital account liberalization, which is the last stage in the optimal sequence for liberalizing an economy, should take place after the liberalization of the domestic capital market and the liberalization of the current account (see, for example, McKinnon 1982 and 1993; Frenkel 1982; Edwards 1984).

By the end of the 1980s, generally speaking, controls on the capital account among the developing countries were still rather strict. However, in the early 1990s, new and great changes in relation to capital account liberalization took place in developing countries. A group of developing countries (mainly Latin American countries), such as El Salvador, Honduras, Peru, Jamaica, Costa Rica, Guyana, Argentina, Turkey, and Gambia, quickened their opening-up steps. These countries adopted a wide range of liberalization measures in a short period of time and removed rapidly the controls on their capital accounts. Table 3 lists the time when these countries established current account convertibility.

Some of these countries established currency's full convertibility, while others established the liberalization of both the current account and the capital account. The implementation of liberalization in these countries was accompanied by an improvement in the balance of payments, which stood as a sharp contrast to

the negative experience of implementing capital account liberalization that South Latin American countries had at the end of 1970s.

In the early 1990s, developed countries fell into a recession and their domestic investment opportunities thus lessened, which resulted in the massive flow of international capital into developing countries. As a response to this external shock and also as a way to promote domestic financial reform, many developing countries sped up the process of capital account liberalization. This led to the second round of international debates about the sequence in adopting the convertibility of a currency and the liberalization of the economy. The representative and the mainstream viewpoint at this time was that success of the omni-directional implementation of liberalization measures in these developing countries cast doubt on the traditional view that currency's convertibility should be carried through by stages. The latest experience of developing countries shows that very few preconditions are needed for capital account liberalization (see, for example, Quirk, 1994a,b,c).

With respect to the East Asia region, as early as the 1960s, such countries/regions as Hong Kong, Singapore and Malaysia began to deregulate the capital account and implemented a relatively liberalized capital account management system. Indonesia established capital account convertibility in 1971 and this came before the current account convertibility in 1988. From the mid-1980s to the mid-1990s, countries/regions like Korea, Thailand and Taiwan also quickened their steps in the opening-up of the capital account. Table 4 lists the time when some East Asian countries/regions established current account convertibility.

Just when the East Asia region was experiencing a booming economy, the financial crisis broke out in July 1997. The Asian financial crisis brought forth the third round of international debates about the sequence in adopting the convertibility of a currency and the liberalization of the economy. The representative opinion holds that the focus of debates several years ago was completely different from that today. That is to say, the focus has moved from the so-called full liberalization of the capital account on to how to exercise the necessary government interventions effectively. Because financial markets, capital market and the ordinary goods and service markets are fundamentally different, and because capital market liberalization, as far as the system-side is concerned, are usually accompanied by a relatively large degree of economic instability, capital account liberalization should be implemented in an orderly way. To avoid a future crisis, governments should take various effective measures to intervene in short-term speculative capital movement (see, for example, Stiglitz, 2000).

## **2.2 Three Stages in Adopting Renminbi's Full Convertibility**

Regarding the adoption of a currency's full convertibility, there does not exist a uniform or fixed sequence since each country has its own circumstances. However, based on the common practice and basic sequence taken by most countries in the world, drawing on the experience and lessons from other countries' practices and given the fact that China is a large developing country, we believe that a progressive and prudent sequential process is absolutely necessary for the full convertibility of Renminbi. The whole course of Renminbi's full convertibility may be broken down into the following three major stages in principle (see Table 5):



- Stage One:** Adopting current account liberalization. (It had been established by 1996.)  
**Stage Two:** Adopting capital account liberalization. (It is currently going on.)  
**Stage Three:** Adopting Renminbi's full convertibility. (It will take place in the future.)

As to the stage of adopting current account liberalization and the stage of adopting capital account liberalization, each should be further broken down into two successive steps as follows:

- Step One:** Removing restrictions on current account or capital account transactions.  
**Step Two:** Removing restrictions on the exchange of foreign currencies for the purpose of international transactions of current account or capital account, namely adopting current account or capital account convertibility respectively.

In order to demonstrate the above sequence, we need to make clear two points.

**Firstly, the three concepts of convertibility, i.e. current account convertibility, capital account convertibility and Renminbi's full convertibility are different.**

In current account convertibility or capital account convertibility, convertibility means removing restrictions on exchange, but does not mean full convertibility of a currency. First take a look at current account convertibility. The IMF makes clear stipulations for current account convertibility. According to Article 8, Section 2(a) of the IMF's Articles of Agreement, current account convertibility means that "*no member shall, without the approval of the Fund, impose restrictions on the making of payments and transfers for current international transactions*". It can be interpreted from two angles.

Firstly, when residents need to obtain or use foreign exchanges for the making of payments to non-residents in current international transactions, members shall not excessively delay, restrict or hinder the obtaining or using of foreign exchange.

Secondly, members shall allow transfers of currency balance received through current international transactions by non-residents. Consequently, current account convertibility only means meeting the needs of currency exchange really occurring in current international transactions, but does not mean meeting all the needs of currency exchange. It is stipulated in Clause 5 of Rules on Foreign Exchange Administration of the People's Republic of China, promulgated in Jan. 1996 and revised in Jan. 1997, that "*the State shall not impose restrictions on current international payments and transfers*" (State Council, 1996 & 1997). However, this is not equivalent to Renminbi's full convertibility.

Even after adopting current account convertibility, member countries are still allowed to take some relevant measures on exchange (IMF, 1994a). For example,

- (1) Allow retaining auditing on the authenticity of transactions. That is to say, allow demanding for presentation of relevant bill of document for a check on the authenticity of a payment;
- (2) Allow members to stipulate that payments and transfers be made in a specific form or through a specific channel in circumstances of no restrictions on the making of payments and transfers themselves;
- (3) Allow taking some registration measures with the aim of checkup and not the aim of restriction;

- (4) Allow granting import licenses bearing no exchange restrictions, the holders of which can obtain foreign exchange automatically and need not apply for the approval;
- (5) Allow member countries to set surrender requirements of foreign currency received by their residents, since Article 8, Section 2(a) of the IMF's Articles of Agreement only applies to the paying side and not the receiving side in the making of payments and transfers.

In order to get a better understanding of the meaning of current account convertibility, we need to draw a clear distinction between **removing exchange controls and removing restrictions on current account exchange**. Removing exchange controls has a broader sense than removing restrictions on current account exchange. The former means removing all the restrictions on the obtaining, holding and using of foreign currencies. The latter only means removing restrictions on the making of payments and transfers for current international transactions (IMF, 1994a).

The IMF only stipulates for adopting current account convertibility and not for adopting capital account convertibility. Article 8, Section 2(a) of the IMF's Articles of Agreement only applies to the current account and not to the capital account. Article 6, Section 3 of the IMF's Articles of Agreement states that "*members may exercise such controls as are necessary to regulate international capital movements, but no member may exercise these controls in a manner which will restrict payments for current transactions or which will unduly delay transfers of funds in settlement of commitments*". As a consequence, members may impose restrictions on international capital movement without the IMF's approval.

Based on the above demonstration of the meaning of current account convertibility, we can learn that what is meant by capital account convertibility is removing restrictions on the making of payments or transfers for capital international transactions and still retaining auditing on the authenticity of transactions. So adopting capital account convertibility is not equivalent to Renminbi's full convertibility, either. Foreign banks will be allowed to make corporate loans in foreign currency immediately upon China's entering the WTO. They will also be allowed to make corporate loans in local currency within two years of entry and to deal with individual Chinese customers within five years after entry.

Without doubt, the course of Renminbi's full convertibility will speed up as a result of China's WTO entry. Although it has been asserted that this means Renminbi will become a fully convertible currency, this assertion is apparently inaccurate. The measures that China will take after the entry into the WTO are just an important step towards removing restrictions on capital account transactions. They are not yet equivalent to adopting capital account convertibility and also not equivalent to adopting Renminbi's full convertibility. For instance, after WTO entry, Chinese residents may deposit Renminbi in foreign-funded banks residing in China, but what they can withdraw from these banks is still Renminbi and not foreign currency. If residents want to withdraw Renminbi to pay for capital international transactions, they still need, in accordance with the State's relevant regulations, to go through the procedures relating to foreign exchange control.

Renminbi's full convertibility means (a) removing in all respects exchange controls relating to the Renminbi, (b) removing auditing on the authenticity of current account and capital account transactions, and (c) allowing Renminbi's convertibility without the occurrence of any real transactions. All of these clearly may not be established within five years after China's entry to the WTO. Furthermore, the above-mentioned

measures that China will take within five years after the entry into the WTO are still far from Renminbi's full convertibility.

To sum up, current account convertibility, capital account convertibility and Renminbi's full convertibility are three different concepts, with each having its own specific meaning.

**Secondly, the meaning of removing restrictions on transactions and that of removing restrictions on the exchange of foreign currencies are also different.**

We have mentioned above that the courses of adopting current account and capital account liberalization may be further broken down into two successive steps. The first step is removing restrictions on current account or capital account transactions. The second step is removing restrictions on the exchange of foreign currencies for the purpose of international transactions of the current account or capital account, namely adopting current account or capital account convertibility respectively.

The meanings of removing restrictions on transactions and of removing restrictions on the exchange of foreign currencies are different. Let us explain first the difference relating to the current account. On the one hand, it is the activity of international transactions itself. On the other hand, it is the exchange of foreign currencies related to the current account transactions. Removing restrictions on current account transactions means removing restrictions on current international transactions themselves whilst still retaining restrictions on the exchange of foreign currencies for the purpose of international transactions of current account, i.e. retaining the examination and approval system relating to the exchange of foreign currencies related to the current account transactions.

On the basis of having removed some or most restrictions on current account transactions, a country may further remove restrictions on the exchange of foreign currencies for the purpose of international current transactions, namely removing the examination and approval system relating to current account exchanges and only retaining auditing on the authenticity of transactions.

To illustrate the difference between removing restrictions on transactions and their related foreign currency exchanges, we present a practical example. Before 1996, the Chinese government relaxed the restriction on export and import activities considerably. A Chinese firm with export/import licences was allowed to retain a certain proportion of foreign currencies that it earned. If it wanted to import from overseas, it was allowed to import as much as possible subject to its availability of foreign currencies. However, if it intended to import a bigger volume than the amount of foreign currencies it retained, it had to obtain the permission from the authorities to exchange its Renminbi into foreign currencies before its import transactions took place. This is a typical example of removing restrictions on international transactions of the current account whilst retaining restrictions on their related exchange of foreign currencies.

Although foreign exchange swap was gradually being developed and the sellers of foreign currencies, including domestic and foreign invested firms as well as individuals, were gradually free to enter the swap markets during this period, the buyers of foreign currencies were strictly controlled by the government to safeguard the foreign currencies earned by Chinese firms (Dai, 1997).

A nationwide unified interbank foreign exchange market was established in January 1994. The current account was fully convertible after December 1996 (Dai, 1997). Since then, if an import firm is short of foreign currencies, it may convert Renminbi into foreign currencies as much as possible provided that all the conversions are for the purpose of international trade. This is the example of removing restrictions on exchange of foreign currencies for the purpose of current account transactions. Clearly, this step of liberalization has generated a greater impact on the Chinese official foreign reserves, due to the managed floating exchange rate system adopted by the central bank, the People's Bank of China (PBoC). To maintain a stable Renminbi, the PBoC has to intervene from time to time at the interbank foreign exchange market.

Yet after removing restrictions on the current account exchange, a country may still retain restrictions on some current international transactions, such as imposing embargoes or quantitative restrictions on the imports of some products. Article 8, Section 2(a) of the IMF's Articles of Agreement only applies to exchange relating to current international transactions, but not to transactions themselves (IMF, 1994a).

Such a distinction also holds true for the capital account. On the one hand, it is a transaction itself. On the other hand, it is the exchange of foreign currencies related to the capital account transactions. Removing restrictions on capital account transactions means removing restrictions on capital international transactions themselves whilst still retaining restrictions on capital account exchange, namely retaining the examination and approval system relating to capital account exchange.

On the basis of having removed some or most restrictions on capital account transactions, a country may further remove restrictions on capital account exchange, namely removing the examination and approval system relating to capital account exchange and only retaining auditing on the authenticity of transactions (see Section 2.3 for a detailed discussion and some practical examples). Yet after removing restrictions on capital account exchange, a country may still retain restrictions on some capital international transactions.

As regards Renminbi's full convertibility, some restrictions on current account and capital account transactions may still be retained after the establishing of the full convertibility. In addition, when confronted with some major shocks, a country may still temporarily and partially restore restrictions on the foreign exchange.

Up to now, we have analyzed the three major stages necessary to go through for the Renminbi's full convertibility and the two steps involved in each of the first two stages. Below we will explain in more detail the two steps in capital account liberalization.

### **2.3 Two Steps in Capital Account Liberalization**

It is necessary for the process of capital account liberalization to be broken up into two successive steps. The first is removing restrictions on capital account transactions. The second is removing restrictions on capital account exchange, namely adopting capital account convertibility. China has been engaged in the process of removing restrictions on capital account transactions since 1979 when she began the policy of reform and started to open to the outside world to attract foreign direct investment.

China has established current account liberalization since December 1996. Until now, some transaction restrictions have been lifted and some others remain to be further lifted. However, there still exist strict capital account exchange restrictions currently that need to be lifted step by step in due course. The capital account mainly comprises three parts, i.e. direct investment, portfolio investment and loans. We will next analyze these three parts respectively in the above two-step framework (see Table 6).

### **Step One, removing restrictions on capital account transactions.**

#### (1) Direct Investment

As regards foreign direct investment, transaction restrictions have up till now been partially lifted and foreign direct investment has been permitted. Yet in respect of Sino-foreign equity joint-ventures, restrictions on the percentage of foreign stake and on admission to some industries, such as banking, insurance, telecommunications and other service sectors are still retained. These restrictions need to be further lifted in years to come. After China's entry to the WTO, restrictions on direct investment in banking will be immediately lifted, while restrictions on the percentage of foreign stake will be temporarily retained. Five years after the entry into the WTO, restrictions on percentage of foreign stake in banking will be lifted.

Concerning China's direct investment abroad, restrictions are still very strict. According to the existing rules, institutions residing in China must apply to the relevant authorities before investing abroad, and before applying they must receive an auditing on the source of their exchange capital by the foreign exchange administrative agency (State Council, 1996, 1997). Individuals residing in China also must win the approval of the relevant domestic authorities and the State Administration of Foreign Exchange before making a direct investment abroad (SAFE, 1998). Restrictions on direct investment abroad should be lifted step by step in due course in years to come.

#### (2) Portfolio Investment

With regard to issuing securities to foreigners and opening the home securities market, transaction restrictions have been partially lifted, such as issuing H-shares abroad and issuing B-shares at home. Transaction restrictions that remain to be further lifted are opening A-shares market in the future and allowing enterprises abroad to be listed in China. Apart from opening the equity securities market, China may also open its debt securities market. At present, China's equity securities market is still in its infancy, while the debt securities market is even more undeveloped.

Similar to the restrictions on China's direct investment abroad, current restrictions on purchasing foreign securities by institutions and individuals residing in China are also very strict.

#### (3) Loans

As for raising international commercial loans by institutions residing in China, current restrictions are extremely strict. According to the existing rules, before taking out international commercial loans, institutions residing in China must obtain the approval of the State Administration of Foreign Exchange (SAFE) of the People's Bank of China. Unauthorized signing of international commercial loan agreements will be viewed as invalid. Without the approval of the State Administration of Foreign Exchange, institutions residing in China must not deposit the international commercial loans raised abroad, or use them for direct payment abroad, or even convert them into the Renminbi.

To raise the medium- and long-term international commercial loans, it must be incorporated in the State's plan for introducing foreign investment. To raise short-term international commercial loans, it comes under the balance administration, with the balance controlling index being checked and ratified annually by the State Administration of Foreign Exchange (SAFE, 1997).

In respect of the Renminbi credit operations run by foreign banks, there could be a rapid development after China's entry into the WTO. Foreign banks will be allowed to handle Renminbi loans towards China's enterprises within two years after China's entry to the WTO and to handle Renminbi deposits and loan towards individuals residing in China within five years. Note that this refers to the transactions themselves relating to credit operations, with foreign banks being one party and enterprises and residents in China being the other party. It does not imply free exchange of the Renminbi and foreign currency between the two parties in credit operations.

### **Step Two, removing restrictions on capital account exchange.**

#### (1) Direct Investment

As regards foreign direct investment, some exchange restrictions have already been lifted. In foreign-funded enterprises, remittance abroad of foreign investors' after-tax profits and dividends falls into the current account. They can be made in a manner of being paid by their foreign currency account, or being honored in authorized banks for dealing in foreign exchange. The mere requirement is to the board's written resolution on allocation of profits (PBoC, 1996). When foreign-funded enterprises terminate in accordance with law, the Renminbi that falls under foreign investors' name after liquidation and tax payment can be claimed back in the following way. They could be exchanged into foreign currencies in an authorized bank for dealing with foreign exchange and then be remitted or carried out abroad (State Council, 1996, 1997). Currently, the remaining restrictions are that foreign exchange remitted into China as an investment by overseas legal persons or natural persons could only be settled when approved by the State Administration of Foreign Exchange (PBoC, 1996).

Regarding China's direct investment abroad, restrictions on the exchange are also currently very strict. In respect of the investment-related expenditure, when making an investment abroad, institutions residing in China must, before applying to relevant authorities in charge of the examination and approval, receive an auditing on the source of their exchange capital by the foreign exchange administrative agency, and after approved, go through procedures concerning the remittance abroad of exchange capital in accordance with the State Council's rules on foreign exchange administration relating to investment abroad (State Council, 1996, 1997). It is also stipulated that exchange capital used by institutions residing in China for investment abroad must be funds in enterprises' possession, including foreign exchange and purchase of foreign exchange using the Renminbi (SAFE, 1995).

As regards the earnings from investment, institutions residing in China shall, unless otherwise stipulated by the State Council, transfer their capital account foreign exchange earnings from abroad and open a foreign currency account in China in an authorized bank for dealing with foreign exchanges in accordance with the State's relevant regulations. For those who want to sell their foreign exchange to an authorized bank, they must win the approval of the foreign exchange



administrative agency (State Council, 1996, 1997).

As regards overseas investment made by individuals residing in China, exchange restrictions are also very strict. Before making overseas direct investment of any kind, residents must first win the approval of the relevant domestic authorities and the State Administration of Foreign Exchange (SAFE) and then provide all kinds of relevant evidence documents to the banks to settle the relevant formalities. Foreign exchange used by individuals residing in China for overseas investment must only be disbursed from their foreign currency account and must not be disbursed through purchase. It is also stipulated that capital account foreign exchange earnings transferred from abroad by resident individuals must be paid in the form of foreign currency or be converted into the Renminbi only with the approval of the State Administration of Foreign Exchange (SAFE, 1998).

## (2) Portfolio Investment

With regard to issuing securities to foreigners and opening the domestic securities market to foreign investors, exchange restrictions are still very strict. Foreign exchange received from issuing foreign currency stocks and bonds cannot be settled without the approval of the State Administration of Foreign Exchange (PBoC, 1996).

With respect to purchasing foreign securities, exchange restrictions are also very strict. Institutions residing in China are forbidden to purchase foreign exchange for the purpose of purchasing foreign currency stocks issued abroad (SAFE, 1999). Before making overseas indirect investment of any kind, individuals residing in China must first win the approval of the relevant domestic authorities and the State Administration of Foreign Exchange and then provide all kinds of relevant evidence documents to the banks to settle the relevant formalities. Foreign exchange used must be disbursed from their foreign currency account and cannot be disbursed through purchase (SAFE, 1999).

## (3) Loans

As for loans, restrictions on the exchange are also extremely strict currently. Without the approval of the State Administration of Foreign Exchange, institutions residing in China must not deposit abroad the raised international commercial loans, or use them for overseas direct payment, or convert them into the Renminbi (SAFE, 1997). In addition, foreign exchange received from the raising of overseas loans must not be settled without the approval of the State Administration of Foreign Exchange (PBoC, 1996).

In respect of repayment of loans, when institutions residing in China use foreign exchange for repaying the principal of foreign loans, they must bring with the registration certificate for foreign loans, the contract of debit and credit and credit institutions' letter of notice about repayment of principal to apply to the State Administration of Foreign Exchange (SAFE). Only with SAFE's document of ratification, foreign exchange used can be disbursed from their foreign currency account or be honored in authorized bank for dealing with foreign exchange (PBoC, 1996). Furthermore, foreign exchange used for repayment of the principal and interest of non-cash external debt, formed by way of foreign exchange leasing and the use of export credit, must be applied for

to the State Administration of Foreign Exchange with the presentation of relevant certificates and with SAFE's document of ratification. Then they can be disbursed through purchase or from the foreign currency account (SAFE, 1999).

We can see from the above analysis that on the whole, there is still a lot to do in the removal of various restrictions on capital account transactions and their related foreign currency exchanges. The removal of restrictions and the adoption of liberalization cannot be accomplished in a single step. In the course of the multi-step realization of capital account liberalization, in order to avoid unnecessary risks, we should, based on the experience and lessons from other countries, set up a sequence incorporating all the aspects involved in capital accounts.

Regarding the type of capital flows, the sequence in removing restrictions can start from direct investment first and then move on to portfolio investment and loans in principle. In respect of the direction of capital movement, first liberalize the inflow and then the outflow. As regards the term of capital movement, liberalize the long-term first and then the short-term capital flows. With respect to capital movement, the detailed sequence of liberalization should be flexible and be determined by the circumstances and must not be set very rigidly beforehand. The actual sequence and its implementation are very complicated and are beyond the scope of this paper.

To achieve Renminbi's full convertibility, apart from the above-mentioned various steps and tasks related to the realization of capital account liberalization, it is also necessary to remove gradually the auditing on the authenticity of current account and capital account transactions. For instance, concerning the conversion of the Renminbi into foreign exchange made by individuals residing in China for private reasons (falling into current account), current auditing on the authenticity is still very complex and is subject to various additional regulations.

According to the existing rules, Chinese residents must present such documents as passports, visas, household register certificates and certificates for using foreign exchange for the purpose of auditing on the authenticity of their private-reason-related conversion of the Renminbi into foreign exchange. Furthermore, it is also stipulated that there is only one branch of the Bank of China entitled to handle such matters in one and the same city (region), in principle. Foreign exchanges are only supplied once per year, within certain quotas. The quota of the supply of foreign exchange is lowered by half for children below 14 years of age who are going to leave the country. Personnel of foreign nationality working in China must present such documents as engagement certificate and duty paid proof when they need to convert their lawful Renminbi earnings into foreign exchange (SAFE, 1998).

### 3. An Open Macroeconomic Model of China and the ROW

Adopting the convertibility of a currency will involve economic coordination in a very broad range of areas, including macro-economy and micro-economy, real economic activities and financial activities, internal and external economic balances, and the level and flexibility of price, interest rate and exchange rate. In order to analyze the possible effects of Renminbi's full convertibility on the economy of mainland



China and to analyze the interaction of the economies of the mainland with the rest of the world (ROW) including Hong Kong, we will develop an open macroeconomic model with micro-foundations. Each economy, the Chinese economy and its foreign counterpart such as Hong Kong, in the model is assumed to be composed of a representative consumer and a firm. The model will describe their behaviors and the equilibriums in related markets.

### 3.1 The Behavior of the Representative Consumers

The representative consumer of each economy is assumed to earn income from labor and savings interest. The consumer's income is then divided into six expenditures:

- (1) Consumption of domestic goods,
- (2) Consumption of foreign goods,
- (3) Investment in domestic bonds,
- (4) Investment in foreign bonds,
- (5) Domestic currency held by consumers, and
- (6) Foreign currency held by consumers, i.e. with currency substitution behavior (Tsang and Ma, 2002).

Unlike the sticky-price monetary model in which perfect asset substitutability is assumed, our model assumes that domestic and foreign bonds and money are imperfect substitutes. As Frankel (1983) indicated, "there are many reasons why two assets can be imperfect substitutes: liquidity, tax treatment, defaults risk, political risk, and exchange risk". Similar to the assumptions made by Sargent (1987) about deposits and government bonds, government debt enters the utility function directly in our model on the grounds that "individuals prefer to hold government debt rather than private debt", given the exogenous rate of time preference and a constant rate of interest.

In fact, the long-run equilibrium can be solved only by allowing bonds to enter into an individual's utility function (see Calvo, 1980). Otherwise, either an agent's subjective rates of time preference have to be allowed to be endogenously determined as in Obstfeld (1981), or the interest rate has to be assumed to be an endogenous variable as in Auenheimer (1987) and Calvo (1991). Chen (2000) also emphasized this point of view in her study. In our model, we allow bonds to go into the utility function to solve for the long-run equilibrium with endogenously determined interest rates.

Following Calvo (1980) and Tsang and Ma (2002), the representative consumer in mainland China with rational expectations is assumed to maximize the present value of his life utility  $U_t$ :

$$U_t = \sum_{s=t}^{\infty} \beta^{s-t} [u_1(C_{cc,s}) + u_2(q_s C_{ch,s}) + u_3(B_{cc,s} / P_{c,s}) + u_4(B_{ch,s} q_s / P_{h,s}) + u_5(M_{cc,s} / P_{c,s}) + u_6(M_{ch,s} q_s / P_{h,s})] \quad (1)$$

where variables of the domestic economy, with subscript  $c$ , are for mainland China and variables of the foreign economy, with subscript  $h$ , are for the rest of the world (ROW) including Hong Kong:

$\beta$  : subjective time discount rate,

$B_{cc}$  : bonds issued by domestic firms and bought by domestic consumers,

$B_{ch}$  : bonds issued by foreign firms and bought by domestic consumers,

- $C_{cc}$  : consumption goods consumed and produced in mainland China,  
 $C_{ch}$  : consumption goods consumed in mainland China and imported from abroad, such as Hong Kong,  
 $c$  : subscript, for mainland China,  
 $h$  : subscript, for the rest of the world (ROW) including Hong Kong,  
 $M_{cc}$  : nominal domestic currency held by domestic households,  
 $M_{ch}$  : nominal foreign currency held by domestic households,  
 $P_c$  : price of domestic goods,  
 $P_h$  : price of foreign goods,  
 $q$  : real exchange rate,  
 $s$  : period,  
 $t$  : time,  
 $U_t$  : present value of consumer life utility at time  $t$ ,  
 $u_1$  : one-period utility from domestic commodity consumption,  
 $u_2$  : one-period utility from foreign commodity consumption,  
 $u_3$  : one-period utility from domestic bonds claims,  
 $u_4$  : one-period utility from foreign bonds claims,  
 $u_5$  : one-period utility from holding domestic currency, and  
 $u_6$  : one-period utility from holding foreign currency.

In maximizing equation (1), the household is subject to the flow budget-constraint at time  $t$ :

$$\begin{aligned}
 C_{cc,t} + q_t C_{ch,t} + (B_{cc,t} - B_{cc,t-1})/P_{c,t} + q_t (B_{ch,t} - B_{ch,t-1})/P_{h,t} + (M_{cc,t} - M_{cc,t-1})/P_{c,t} \\
 + q_t (M_{ch,t} - M_{ch,t-1})/P_{h,t} = w + r_{c,t-1} B_{cc,t-1} / P_{c,t} + q_t r_{h,t-1} B_{ch,t-1} / P_{h,t}
 \end{aligned} \quad (2)$$

where the new symbols of equation (2) are given as follows:

- $w$  : domestic real wages,  
 $r_c$  : nominal interest rate of domestic bonds, and  
 $r_h$  : nominal interest rate of foreign bonds.

The nominal exchange rate  $e_t$  is defined as domestic currency per unit of foreign currency. Hence an increase of  $e_t$  implies a depreciation of domestic currency Renminbi. The real exchange rate  $q_t$  is related to the nominal exchange rate  $e_t$  by the following identity:

$$q_t = \frac{e_t P_{h,t}}{P_{c,t}} \quad (3)$$

The expression  $r_{c,t-1} B_{cc,t-1}$  and  $r_{h,t-1} B_{ch,t-1}$  in equation (2) are respectively the household interest earnings from domestic bonds and foreign bonds at the end of  $t-1$  period.

Let  $\lambda_t$  be the multiplier associated with equation (2) at time  $t$ . The Lagrange function is

$$\begin{aligned}
 L = \sum_{s=t}^{\infty} \beta^{s-t} \{ [u_1(C_{cc,s}) + u_2(C_{ch,s}) + u_3(\frac{B_{cc,s}}{P_{c,s}}) + u_4(\frac{B_{ch,s} q_s}{P_{h,s}}) + u_5(\frac{M_{cc,s}}{P_{c,s}}) + u_6(\frac{M_{ch,s} q_s}{P_{h,s}})] \\
 + \lambda_t [C_{cc,s} + q_s C_{ch,s} + (B_{cc,s} - B_{cc,s-1})/P_{c,s} + q_s (B_{ch,s} - B_{ch,s-1})/P_{h,s} + (M_{cc,s} - M_{cc,s-1})/P_{c,s} \\
 + q_s (M_{ch,s} - M_{ch,s-1})/P_{h,s} - w - r_{c,s-1} B_{cc,s-1} / P_{c,s} - q_s r_{h,s-1} B_{ch,s-1} / P_{h,s}] \}
 \end{aligned} \quad (4)$$

The first-order conditions are

$$u_1'(C_{cc,t}) = \lambda_t \quad (5)$$

$$u_2'(C_{ch,t}) = \lambda_t q_t \quad (6)$$

$$u_3'\left(\frac{B_{cc,t}}{P_{c,t}}\right) = \lambda_t - \beta\lambda_{t+1}(1+r_{c,t})\frac{P_{c,t}}{P_{c,t+1}} \quad (7)$$

$$u_4'\left(\frac{q_t B_{ch,t}}{P_{h,t}}\right) = \lambda_t - \beta\lambda_{t+1}(1+r_{h,t})\frac{q_{t+1}}{q_t}\frac{P_{h,t}}{P_{h,t+1}} \quad (8)$$

$$u_5'\left(\frac{M_{cc,t}}{P_{c,t}}\right) = \lambda_t - \beta\lambda_{t+1}\frac{P_{c,t}}{P_{c,t+1}} \quad (9)$$

$$u_6'\left(\frac{q_t M_{ch,t}}{P_{h,t}}\right) = \lambda_t - \beta\lambda_{t+1}\frac{q_{t+1}}{q_t}\frac{P_{h,t}}{P_{h,t+1}} \quad (10)$$

The multiplier  $\lambda_t$  in equation (5) represents the marginal utility of domestic consumption of domestic goods, which is also called the shadow price of consumption goods. The larger the current shadow prices of consumption goods, the smaller the demand for it.  $\frac{q_{t+1}}{q_t}$  in equations (8) and (10) is the expected change in the real exchange rate.

For simplicity, we assume that individuals are risk neutral with respect to domestic consumption goods,  $u_1(x) = x$ , but all the other utility functions have the same form  $u_i(x) = \phi_i \ln x$ ,  $i=2,3,4,5,6$  with substitution elasticity “-1”. With these assumptions, (5) to (10) can be rewritten as

$$1 = \lambda_t \quad (11)$$

$$\frac{\phi_2}{C_{ch,t}} = \lambda_t q_t \quad (12)$$

$$\phi_3 \left(\frac{B_{cc,t}}{P_{c,t}}\right)^{-1} = \lambda_t - \beta\lambda_{t+1}(1+r_{c,t})\frac{P_{c,t}}{P_{c,t+1}} \quad (13)$$

$$\phi_3 \left(\frac{B_{cc,t}}{P_{c,t}}\right)^{-1} = \lambda_t - \beta\lambda_{t+1}(1+r_{c,t})\frac{P_{c,t}}{P_{c,t+1}} \quad (14)$$

$$\phi_5 \left(\frac{M_{cc,t}}{P_{c,t}}\right)^{-1} = \lambda_t - \beta\lambda_{t+1}\frac{P_{c,t}}{P_{c,t+1}} \quad (15)$$

$$\phi_6 \left(\frac{q_t M_{ch,t}}{P_{h,t}}\right)^{-1} = \lambda_t - \beta\lambda_{t+1}\frac{q_{t+1}}{q_t}\frac{P_{h,t}}{P_{h,t+1}} \quad (16)$$

Let

$$b_{cc,t} = \frac{B_{cc,t}}{P_{c,t}}, b_{ch,t} = \frac{B_{ch,t}}{P_{h,t}}, m_{cc,t} = \frac{M_{cc,t}}{P_{c,t}}, m_{ch,t} = \frac{M_{ch,t}}{P_{h,t}}, \pi_{c,t+1} = \frac{P_{c,t+1}}{P_{c,t}}, \pi_{h,t+1} = \frac{P_{h,t+1}}{P_{h,t}},$$

represent real terms of bonds, money and inflation rate for the economies of mainland China and ROW.

Notice that the right-hand-sides of the following identities

$$(1+i_{c,t}) = (1+r_{c,t}) \frac{P_{c,t}}{P_{c,t+1}}, (1+i_{h,t}) = (1+r_{h,t}) \frac{P_{h,t}}{P_{h,t+1}}$$

are respectively the real interest rates of domestic bonds and foreign bonds. As a result, (12) to (16) can be rewritten as

$$\frac{\phi_2}{C_{ch,t}} = q_t \quad (17)$$

$$\phi_3 b_{cc,t}^{-1} = 1 - \beta(1+i_{c,t}) \quad (18)$$

$$\phi_4 (q_t b_{ch,t})^{-1} = 1 - \beta(1+i_{h,t}) \frac{q_{t+1}}{q_t} \quad (19)$$

$$\phi_5 m_{cc,t}^{-1} = 1 - \beta / \pi_{c,t+1} \quad (20)$$

$$\phi_6 (q_t m_{ch,t})^{-1} = 1 - \beta \frac{q_{t+1}}{q_t} / \pi_{h,t+1} \quad (21)$$

From formula (17) to (21), we have

$$C_{ch,t} = \frac{\phi_2}{q_t} \quad (22)$$

$$b_{cc,t} = \frac{\phi_3}{1 - \beta(1+i_{c,t})} \quad (23)$$

$$q_t b_{ch,t} = \frac{\phi_4}{1 - \beta(1+i_{h,t}) \frac{q_{t+1}}{q_t}} \quad (24)$$

or

$$b_{ch,t} = \frac{1}{q_t} \cdot \frac{\phi_4}{1 - \beta(1+i_{h,t}) \frac{q_{t+1}}{q_t}} \quad (25)$$

$$m_{cc,t} = \frac{\phi_5}{1 - \beta / \pi_{c,t+1}} \quad (26)$$

$$m_{ch,t} = \frac{1}{q_t} \cdot \frac{\phi_6}{1 - \beta \frac{q_{t+1}}{q_t} / \pi_{h,t+1}} \quad (27)$$

The constant marginal utility of domestic goods consumption implies that domestic consumption of domestic goods  $C_{cc}$  is simply a residual from the consumer's budget constraint (2).

By symmetry, we assume that the foreign consumer has a similar type utility function and budget-constraint. The demand functions of consumption, bonds and currency for foreign consumers can be written as

$$C_{hc,t} = \phi_{h2} q_t \quad (28)$$

$$b_{hc,t} = \frac{\phi_{h3}}{1 - \beta_h (1 + i_{c,t})} \quad (29)$$

$$q_t b_{hh,t} = \frac{\phi_{h4}}{1 - \beta_h (1 + i_{h,t})} \frac{q_{t+1}}{q_t} \quad (30)$$

$$m_{hc,t} = \frac{\phi_{h5}}{1 - \beta_h / \pi_{c,t+1}} \quad (31)$$

$$q_t m_{hh,t} = \frac{\phi_{h6}}{1 - \beta_h \frac{q_{t+1}}{q_t} / \pi_{h,t+1}} \quad (32)$$

where the new symbols of equation (28) to (32) are as follows:

$C_{hc}$  : goods consumed in foreign countries that are exported from mainland China,

$b_{hc}$  : real term of bonds issued by domestic firms and bought by foreigners,

$b_{hh}$  : real term of bonds issued by foreign firms and bought by foreigners,

$m_{hc}$  : real term of domestic money held by foreigners, and

$m_{hh}$  : real term of foreign money held by foreigners.

Again, the constant marginal utility of consumption implies that foreign consumption of foreign goods  $C_{hh}$  is simply a residual from the consumer's budget constraint.

### 3.2 The Behavior of Representative Firms

We assume that a representative firm in each economy produces a flow of a single commodity,  $y_t$ , with the aid of physical capital stock. However, physical capital can be converted either from domestic goods or from foreign goods, which are different in quality and therefore are not perfect substitutes. The price of output,  $p_t$ , is perfectly flexible. We also make assumptions similar to Barro and Sala-i-Martin (1995) that the depreciation rate of capital is 100%, and capital goods employed in production are used up completely in one period.

The function of production of a representative domestic firm is

$$Y_{c,t+1} = A(K_{cc,t}^\alpha + K_{ch,t}^\alpha)L_{c,t+1}^{1-\alpha} \quad (33)$$

where:

$Y_c, K_{cc}, K_{ch}$  respectively denote domestic aggregate output and demand for capital goods produced by domestic and foreign firms,

$A$  is the productivity of domestic production,

$\alpha$  is the capital share, and

$L_c$  is labor force used in production.

Dividing both sides of equation (33) by  $L_{t+1}$ , and let  $y_{c,t+1} = Y_{cc,t} / L_{c,t+1}$ ,

$k_{cc,t+1} = K_{cc,t} / L_{c,t+1}, k_{ch,t+1} = K_{ch,t} / L_{c,t+1}$ , which represent variables in per capita terms, we have

$$y_{c,t+1} = A(k_{cc,t}^\alpha + k_{ch,t}^\alpha) \quad (34)$$

Since our main focus is the impact of currency convertibility on the economy, the labor forces of both domestic and foreign firms are assumed to be inelastic and time-invariant,

$$L_{c,t+1} = L_c, \text{ and } \bar{b}_{cc,t} = b_{cc,t} / L_c, \bar{b}_{hc,t} = b_{hc,t} / L_c.$$

The objective of the firm is to maximize profits  $\pi$ :

$$\begin{aligned} \pi &= A(K_{cc,t}^\alpha + K_{ch,t}^\alpha)L_c^{1-\alpha} - (b_{cc,t} + b_{hc,t})(1+r_{c,t})/\pi_{c,t+1} - L_c w_{c,t+1} \\ &= \left[ A(k_{cc,t}^\alpha + k_{ch,t}^\alpha) - (\bar{b}_{cc,t} + \bar{b}_{hc,t})(1+i_{c,t}) - w_{c,t+1} \right] L_c \end{aligned} \quad (35)$$

subject to

$$K_{cc,t} + q_t K_{ch,t} = b_{cc,t} + b_{hc,t} \text{ or } k_{cc,t} + q_t k_{ch,t} = \bar{b}_{cc,t} + \bar{b}_{hc,t} \quad (36)$$

where  $w_{c,t+1}$  is the domestic wage rate.

The first-order conditions are:

$$\begin{aligned} \alpha A k_{cc,t}^{\alpha-1} &= (1+i_{c,t}) = (1+r_{c,t})/\pi_{c,t+1} \\ \alpha A k_{ch,t}^{\alpha-1} &= (1+i_{c,t})q_t = q_t(1+r_{c,t})/\pi_{c,t+1} \end{aligned} \quad (37)$$

The domestic demand for investments, domestic wage rate and domestic per capita output are:

$$\left\{ \begin{aligned} k_{cc,t} &= \left[ \frac{\alpha A}{1+i_{c,t}} \right]^{\frac{1}{1-\alpha}} \\ k_{ch,t} &= \left[ \frac{\alpha A}{(1+i_{c,t})q_t} \right]^{\frac{1}{1-\alpha}} \\ w_{c,t+1} &= (1-\alpha)y_{c,t+1} \\ y_{c,t+1} &= A \left[ \left[ \frac{\alpha A}{1+i_{c,t}} \right]^{\frac{\alpha}{1-\alpha}} + \left[ \frac{\alpha A}{(1+i_{c,t})q_t} \right]^{\frac{\alpha}{1-\alpha}} \right] \\ &= A^{\frac{\alpha}{1-\alpha}} \left[ \frac{\alpha}{1+i_{c,t}} \right]^{\frac{\alpha}{1-\alpha}} \left[ 1 + \left[ \frac{1}{q_t} \right]^{\frac{\alpha}{1-\alpha}} \right] \end{aligned} \right. \quad (38)$$

By symmetry, the foreign demands for investments, foreign wage rate and per capita output can be expressed as

$$\left\{ \begin{array}{l} k_{hc,t} = \left[ \frac{\alpha A_h q_t}{1 + i_{h,t}} \right]^{\frac{1}{1-\alpha}} \\ k_{hh,t} = \left[ \frac{\alpha A_h}{1 + i_{h,t}} \right]^{\frac{1}{1-\alpha}} \\ w_{h,t+1} = (1 - \alpha) y_{h,t+1} \\ y_{h,t+1} = A_h \left[ \left( \frac{\alpha A_h q_t}{1 + i_{h,t}} \right)^{\frac{\alpha}{1-\alpha}} + \left( \frac{\alpha A_h}{1 + i_{h,t}} \right)^{\frac{\alpha}{1-\alpha}} \right] \\ = A_h^{\frac{\alpha}{1-\alpha}} \left( \frac{\alpha}{1 + i_{h,t}} \right)^{\frac{\alpha}{1-\alpha}} \left( q_t^{\frac{\alpha}{1-\alpha}} + 1 \right) \end{array} \right. \quad (39)$$

where the new symbols of equation (39) are given as follows:

- $k_{hc}$  : per capita capital goods used in foreign countries and produced by Chinese firms,
- $k_{hh}$  : per capita capital goods used and produced in foreign countries,
- $w_h$  : real term of foreign wage rate, and
- $y_h$  : per capita foreign output.

Domestic goods and foreign goods are assumed to have different qualities. A firm regards the principal and the real interest payment of a domestic bond as investment cost, which has to be paid back in full after one period of time. As a result, the firm has to make the marginal product equal to the marginal cost of capital to maximize its profits.

### 3.3 Market Equilibrium Conditions

Five market equilibrium conditions can be obtained for our model.

#### 1. Export goods market equilibrium

Under this equilibrium, the domestic supply of export goods (the left-hand-side of the following formula) and the foreign demand for these export goods (the right-hand-side) will be equalized:

$$Y_{c,t} - (C_{cc,t} + K_{cc,t}) = C_{hc,t} + K_{hc,t} \quad (40)$$

#### 2. Import goods market equilibrium

This equilibrium condition implies that foreign supply of import goods (the left-hand-side of the following formula) and domestic demand for these import goods (the right-hand-side) are identical:

$$Y_{h,t} - (C_{hh,t} + K_{hh,t}) = C_{ch,t} + K_{ch,t} \quad (41)$$

### 3. *The equilibrium of domestic demand for investment and bonds market*

In equilibrium, domestic demand for investment (the left-hand-side of the following formula) and debt financing of domestic firms (the right-hand-side) are the same:

$$K_{cc,t} + K_{ch,t}q_t = b_{cc,t} + b_{hc,t} \quad (42)$$

### 4. *The equilibrium of foreign demand for investment and bonds market*

In equilibrium, foreign demand for investment (the left-hand-side of the following formula) and debt financing of foreign firms (the right-hand-side) are equalized:

$$K_{hh,t}q_t + K_{hc,t} = (b_{hh,t} + b_{ch,t})q_t \quad (43)$$

### 5. *International payment equilibrium*

Define

$$\text{Net export: } [K_{c,t} - (C_{cc,t} + K_{cc,t})] - (C_{ch,t} + K_{ch,t})q_t \quad (44)$$

$$\text{Net capital inflow: } (b_{hc,t} - b_{hc,t-1}) - q_t(b_{ch,t} - b_{ch,t-1}) \quad (45)$$

$$\text{Net gain from bonds: } q_{t-1}i_{h,t-1}b_{ch,t-1} - i_{c,t-1}b_{hc,t-1} \quad (46)$$

Under a flexible exchange rate regime, equilibrium in the balance of payment is attained when the trade balance, the balance of service account and capital account sum up to zero:

$$\begin{aligned} & [Y_{c,t} - (C_{cc,t} + K_{cc,t})] - (C_{ch,t} + K_{ch,t})q_t + (b_{hc,t} - b_{hc,t-1}) - q_t(b_{ch,t} - b_{ch,t-1}) \\ & + (q_{t-1}i_{h,t-1}b_{ch,t-1} - i_{c,t-1}b_{hc,t-1}) = 0 \end{aligned} \quad (47)$$

## 4. The Impact of Renminbi's Full Convertibility on the Economies of both Mainland China and Hong Kong

### 4.1 The Impact on the Economy of Mainland China

The open macroeconomic model built up in the previous section gives us an analytical framework for the study of the impact of Renminbi's full convertibility on the economy of mainland China. Through model-based analysis, we identified a number of necessary conditions for the full convertibility of Renminbi, including appropriate macroeconomic policy, microeconomic reform of enterprises, financial system reform, market-oriented interest rate reform and more flexible exchange rate policy.

The process of Renminbi's full convertibility will have an extensive effect on mainland China's economy. As is known from the experience of other countries in the world, the most noticeable consequence of capital account liberalization is the massive inflow of foreign investment. Below we will focus on the analysis of foreign investment inflow.



Regarding China's utilization of foreign investment, currently the main form is still foreign direct investment (FDI). Other important forms such as international commercial loans and issuing stocks and bonds abroad have rarely taken place as yet. Take the year 1999 for example (see Table 7), in the total amount of the utilized foreign investment, the percentage of FDI reaches as high as 76.57%, while the percentages of commercial loans from foreign banks, external bonds and sale of shares are only 4.68%, 1.52% and 1.16% respectively. Whilst Ma (2002) extends the theory of the foreign direct investment, Tsang and Ma (1997) analyzed the macroeconomic impact in China of increased FDI intake. With the gradual removal of various restrictions on capital account transactions and exchange, the scale of foreign investment in China will without doubt go up and the form of investment will become diversified.

In the macro model we developed in the previous section, foreign investment is represented by the external bonds issued by domestic firms and bought by foreign investors,  $b_{hc}$ , given by equation (29):

$$b_{hc,t} = \frac{\phi_{h3}}{1 - \beta_h(1 + i_{c,t})} \quad (29)'$$

In equation (29)',  $i_{c,t}$  is the real interest rate of the bonds issued by Chinese firms in the mainland. Equation (29)' indicates that foreign demand for domestic bonds,  $b_{hc}$ , is positively related to their real interest rate,  $i_{c,t}$ . That is, the higher the rate of return on the Chinese bonds, the greater the amount of foreign investment in mainland China. This is an important reason for the foreign investment inflow after the opening of the capital account in mainland China.

From the experience of many countries in the world, we find that there are four main reasons for the potential massive inflow of foreign investment after the opening of the capital account. Reason one bears a relation to the return on investment. When foreign investors are optimistic about the economic future, after the opening of the capital account of the country to be invested in, they expect to earn a high return from their investment.

Reason two is associated with the lifting of restrictions. The lifting of various restrictions on capital account transactions and exchange is conducive to strengthening foreign investors' confidence and to encouraging the entry of foreign investment that was once restrained.

Reason three is linked to information. Information needed for direct investment is mainly related to that of the specific industries and enterprises of the country to be invested in, while information needed for portfolio investment bears a relation to that of the securities market of the country to be invested in. In fact, the exaggeration by some intermediaries and the media about the lucrative investment opportunities in the mainland may also mislead to the massive inflow of foreign capital.

Reason four is connected with international economic situations. If major developed countries are in recessions or remain low growth, international capital tends to flow into other countries that have realized capital account liberalization and are experiencing a rapid development. In our model, equation (29)' shows consolidated reasons for the potential massive inflow of foreign investment.

With respect to the effect of massive inflow of foreign investment, we can make an analysis from two angles, namely the effect on real economic activities and the effect on financial activities (see Chart 1). We begin our analysis with the effect on real economic activities.

The massive inflow of foreign investment, namely an increase in  $b_{hc}$ , will bring forth an increase in domestic capital goods. This is reflected in the equilibrium condition (42) of our model:

$$k_{cc,t} + k_{ch,t}q_t = \bar{b}_{cc,t} + \bar{b}_{hc,t} \quad (42)'$$

The increase in  $b_{hc}$  (means increase in  $\bar{b}_{hc}$ ) will lead to the increase in domestic capital goods (including capital goods produced at home,  $k_{cc}$ , and capital goods imported from abroad,  $k_{ch}$ ), which in turn, through equation (34)

$$y_{c,t+1} = A(k_{cc,t}^\alpha + k_{ch,t}^\alpha) \quad (34)'$$

of our model, namely the production function, will lead to an increase in domestic output,  $y_c$ .

The increase in domestic output,  $y_c$ , will, through the solution to the domestic wage rate in our model,  $w_c$ , namely equation (38):

$$w_{c,t+1} = (1 - \alpha)y_{c,t+1} \quad (38)'$$

further result in a rise in the domestic wage.

The rise in domestic wages will, through consumers' budget constraint equation (2), raise domestic consumption,  $C_{cc}$ , and the increase in  $C_{cc}$  will, through consumers' objective function (1), lead to the maximization of consumers' welfare and utility at a higher level (see Chart 1).

Among the above financial transmission mechanisms, the key linkages are equation (42)' and equation (34)'.

The massive inflow of foreign investment, however, may not automatically be converted into the real productive capacity of capital to lead to an increase in real domestic output. If the foreign investment that is flowing in on a large scale is just in pursuit of short-term profits from the securities market or real estate market, rather than ultimately entering the sphere of the long-term real production, a bubble economy may occur.<sup>1</sup> To prevent such a bubble economy, certain preconditions, including pushing forward the reform of domestic enterprises during the process of the liberalization of the capital account, enhancing the efficiency of domestic enterprises in utilizing foreign investment, and promoting the healthy development of the domestic securities market, are needed for the conversion of massive inflow of foreign investment into the real productive capacity of capital and thus to increase real domestic output. Without these preconditions being satisfied, massive inflow of foreign investment could be destructive to the real economy both before and after the bubble is burst.

So far we have analyzed the possible effect of a massive inflow of foreign investment that may come after the capital account liberalization on real economic activities. Below we will analyze the effect on financial activities.

<sup>1</sup> For a review of the recent literature on the relationship between exchange rates and the economic fundamentals including the bubble economy, see Ma and Kanas (2000).

A massive inflow of foreign investment will lead to an increase in domestic foreign exchange reserve, which will, under the fixed exchange rate regime, result in an increase in the corresponding issuance of the Renminbi (see Chart 1). A large increase in domestic money supply will cause inflation and affect the real exchange rate. In our model, the real exchange rate is given in (3):

$$q_t = \frac{e_t P_{h,t}}{P_{c,t}} \quad (3)'$$

Equation (3)' indicates that, with the nominal exchange rate,  $e$ , held constant, a rise in domestic price level,  $P_c$ , will lead to a fall in the real exchange rate,  $q$ , i.e., a real appreciation of the Renminbi (RMB). For example, with the exchange rate of a U.S. Dollar vs. RMB changing from 8 RMB/US\$ to 7 RMB/US\$, the Renminbi has actually appreciated.

The effect of a real appreciation of the Renminbi on the real interest rate in the mainland can be found from equations (23), (29), (38) and (42). Totally differentiating (42) gives:

$$\begin{aligned} & \frac{\partial K_{cc,t}}{\partial i_{c,t}} di_{c,t} + q_t \frac{\partial K_{ch,t}}{\partial i_{c,t}} di_{c,t} + K_{ch,t} dq_t + q_t \frac{\partial K_{ch,t}}{\partial q_t} dq_t \\ &= \frac{\partial b_{cc,t}}{\partial i_{c,t}} di_{c,t} + \frac{\partial b_{hc,t}}{\partial i_{c,t}} di_{c,t} \end{aligned}$$

From (38) we have  $\frac{\partial K_{cc,t}}{\partial i_{c,t}} < 0$ ,  $\frac{\partial K_{ch,t}}{\partial i_{c,t}} < 0$ , and  $K_{ch,t} + q_t (\partial K_{ch,t} / \partial q_t) = -[\alpha/(1-\alpha)]K_{ch,t} < 0$ .

And from (23) and (29) respectively, we have  $\frac{\partial b_{cc,t}}{\partial i_{c,t}} > 0$  and  $\frac{\partial b_{hc,t}}{\partial i_{c,t}} > 0$ . Hence

$$\frac{di_{c,t}}{dq_t} = \frac{K_{ch,t} + q_t \frac{\partial K_{ch,t}}{\partial q_t}}{\frac{\partial b_{cc,t}}{\partial i_{c,t}} + \frac{\partial b_{hc,t}}{\partial i_{c,t}} - \frac{\partial K_{cc,t}}{\partial i_{c,t}} - q_t \frac{\partial K_{ch,t}}{\partial i_{c,t}}} < 0$$

This implies that a real appreciation of the Renminbi, i.e. a fall in  $q_t$ , will raise the real interest rate,  $i_{c,t}$  in the mainland, which in turn will attract more foreign capital inflow (cf. (29)). Therefore, the financial transmission of real interest rate - foreign inward investment - inflation - real exchange rate - real interest rate is a self-enhancing mechanism.

However, the fall in the real exchange rate,  $q_t$ , namely the real appreciation of the Renminbi, will bring about a rise in import volumes and a fall in export volumes. As is indicated by equation (22)

$$C_{ch,t} = \frac{\phi_2}{q_t} \quad (22)'$$

and equation (38)

$$k_{ch,t} = \left( \frac{\alpha A}{(1 + i_{c,t}) q_t} \right)^{\frac{1}{1-\alpha}} \quad (38)'$$

of our model, domestic demand for imported consumer goods,  $C_{ch}$ , and imported capital goods,  $k_{ch}$ , are both negatively related to the real exchange rate,  $q_t$ . If the real exchange rate,  $q_t$ , falls, i.e., the Renminbi appreciates in real terms, imports of both consumer goods and capital goods will rise.

As is shown by equation (28)

$$C_{hc,t} = \phi_{h2} q_t \quad (28)'$$

and equation (39)'

$$k_{hc,t} = \left[ \frac{\alpha A_h q_t}{1 + i_{h,t}} \right]^{\frac{1}{1-\alpha}} \quad (39)'$$

of our model, domestic exports of consumer goods,  $C_{hc}$ , and capital goods,  $k_{hc}$ , are both positively related to the real exchange rate,  $q$ . A fall in the real exchange rate,  $q$ , i.e., a real appreciation of the Renminbi, will lead to a fall in exports of both consumer goods and capital goods (see Chart 1).

If the rising imports and falling exports persist, that will cause China to run a current account trade deficit, which eventually will bring about a stop of the real appreciation of the Renminbi and will result in a real devaluation of the Renminbi. A severe real devaluation of the domestic currency may lead to the massive capital outflow and maybe even a financial crisis.

Therefore, the Chinese government should implement a more flexible exchange rate regime during the course of capital account liberalization to avoid the occurrence of these problems. A flexible exchange rate is also conducive to preserving the independence of domestic monetary policy so that the government can exercise a better macro-control when experiencing business cycle fluctuations and thus maintain the stability of the domestic economy. Currently, according to the stipulation of Rules on Foreign Exchange Administration of the People's Republic of China (State Council, 1996, 1997), the Renminbi exchange rate regime is a unified and managed floating exchange rate system that is based on market demand and supply. With the establishment of capital account convertibility, the floating band for Renminbi exchange rate may gradually be expanded.

To conclude, we have made an analysis of the possible effect of a massive inflow of foreign investment from two angles, namely the angle of real economic activities and that of financial activities (see Chart 1). In the meantime, the Chinese government should, during or after relaxing the restrictions on capital inflow, also relax the restrictions on capital outflow further in order to (a) keep the balance of international payments, (b) offset the over-sized balance of payments surplus possibly produced by a massive inflow of foreign investment, and (c) avoid the excessive upward pressure on the Renminbi (RMB). The analysis of the balance of international payments explains why the Chinese government should also take the "outward investment" strategy while or after taking the "inward investment" strategy.

Another important issue in the course of capital account liberalization is strengthening the fiscal discipline. In the optimal sequence of liberalizing a developing economy, McKinnon (1991, 1993) put forward the strengthening of fiscal discipline in the first place, followed by liberalization of the domestic capital market, the current account and the capital account. Strengthening fiscal discipline, which aims to avoid the occurrence of high inflation and to create stable macro-economic conditions for the subsequent steps towards the liberalization of the economy, has two meanings. One is to control government expenditure and to achieve balance in the central government finance. The other is to impose extensively-based and relatively low-level taxes on enterprises and households.

The process of establishing the euro also gave us some important lessons. In the convergence criteria of the Maastricht Treaty, the issue of controlling the government's budget deficit was particularly stressed to ensure the stability of the value of the euro. In respect to China's public finance, a budget deficit occurred in each year during the 1990s, but the ratios of the budget deficit to GDP were low, only at 0.8 to 1.2 per cent during 1991-1998 (see Table 8). Although the inflation rate of the retail price is correlated with the one-year-lag growth rate of broad money supply, M2 (see Table 8), there is hardly any direct correlation between the budget deficit and the movement of the price level. Yet, in spite of that, we should still pay special attention to the issue of fiscal discipline in the course of adopting the Renminbi's full convertibility, to avoid high inflation as a result of expanding budget deficits. At the same time, we should also pay attention to the issue of controlling money supply to maintain the stability of the Renminbi.

In addition, in the course of capital account liberalization, there are also some other important issues, such as deepening the financial system reform, enhancing the competitiveness of domestic commercial banks, achieving the goal of market-oriented interest rate (see, for example, Zhao, Ma, Kueh, Tsang, Yiu, and Liu, 2002), and reinforcing financial supervision. These issues are beyond the scope of this paper due to space constraint.

#### **4.2 The Impact on the Economy of Hong Kong**

The process of establishing capital account liberalization and Renminbi's full convertibility in the mainland also will no doubt have a far-reaching effect on Hong Kong's economic development. The effect can be summarized to the following seven aspects.<sup>2</sup>

- (1) *Direct investment aspect.* Up till now, Hong Kong's direct investment in the mainland has developed to a certain scale (Ma, Tsang, and Tang, 1998). With the lifting of various restrictions on capital account transactions and exchange, mainland China will provide the inflow of foreign investment with a wider range of investment opportunities and a better legal and institutional environment, which are conducive to further expanding Hong Kong's direct investment in the mainland. At the same time, the mainland will relax restrictions on capital outflow, which will increase the mainland's direct investment in Hong Kong and hence help to promote Hong Kong's economic development and to increase local employment in Hong Kong.

<sup>2</sup> For research focused on Hong Kong's linked exchange rate system, see Ma, Meredith, and Yiu (2002) and Tsang and Ma (2002). Ma and Tsang (2000) studied the relationship between the Renminbi and the Hong Kong dollar.

- (2) *Portfolio investment aspect.* With the mainland's gradual lifting of various restrictions on portfolio investment, there will be development in both foreign-funded enterprises' getting listed on the mainland stock market and mainland residents purchasing stocks and other securities issued outside of the territory. This will be conducive to getting Hong Kong's firms listed in the mainland and to enlarging the size of Hong Kong's local securities market.

Recently, Hong Kong's firms hope of getting listed in the mainland has become a hot issue debated in Hong Kong. Chief Executive of the Hong Kong Monetary Authority, Joseph Yam (2001), once stated his views about this issue on the web page of the Hong Kong Monetary Authority. He came up with some instructive proposals on how the mainland should gradually lift restrictions to enable Hong Kong's firms to get listed in the mainland, and he also put forward some quite meaningful opinions on how to outline the sequencing of financial liberalization. He holds that, on the one hand, further steps to liberalize should be taken since "rules designed to restrict the free flow or use of money are made to be broken or to be circumvented"; on the other hand, "for those in a position to decide should rightly be careful about the pace of financial liberalization. Only when the attendant risks have been clearly identified and a prudent risk management mechanism put in place should the relevant steps, however beneficial, be taken" (Yam, 2001).

This is also part of the reason that China waited for 15 years before finally joining the WTO in 2001. The waiting is worthwhile and the value of waiting is positive. Ma (2001) applied the financial option theory to investigate the optimal timing and strategy of China's entry to the WTO. This theoretical analysis is consistent with the viewpoint of Yam (2001).

- (3) *Imports and exports aspect.* With the mainland's accession to the WTO and its continuous opening of the capital account, the scale of the mainland's imports and exports will be further enlarged. This will offer Hong Kong more commercial opportunities. Hong Kong's role as a bridge in the field of trade will be performed in a better way.
- (4) *Financial service aspect.* Just like the past few decades of co-development of Hong Kong and Singapore, with both as international financial centers, and like the co-functioning of London and Frankfurt, New York and Chicago, which jointly act as financial centers, Shanghai and Hong Kong will join their hands together in playing the role of international financial centers. With the mainland's accession to the WTO, her continuous opening-up of the capital account, and the full convertibility of Renminbi in the future, the overall scale of capital inflow and outflow of the mainland will dramatically be increased. This will not only favor the development of Shanghai as a newly rising international financial center, but also, due to the inadequacy of the mere reliance on Shanghai, offer new and substantial room for the further development of Hong Kong as a mature international financial center.

Influenced by the East Asian financial crisis several years ago and the recent slowdown in economic growth in major countries such as the United States, the world financial market is in a phase of adjustment with fewer commercial opportunities. That is part of the reason why currently some Hong Kong-based financial institutions are transferring part of their business to Shanghai to seek new commercial opportunities. Once the world economy regains its vigor, coupled with the new development of the mainland's economy, Hong Kong's financial industry will achieve new and greater development.

- (5) *New financial derivative instruments aspect.* The rapid development of financial globalization and the intensified competition in the global financial market encourages constant development of financial innovation. Hong Kong, as a well-grounded international financial center and bearing a specific advantage, will play an important role in developing new financial derivative instruments.
- (6) *Interregional links aspect.* Hong Kong has the vast market of the mainland as a backup, especially the very large market of some southern provinces adjacent to Hong Kong like Guangdong that are very closely linked to it in all aspects of economy, history, culture and life. These southern provinces, Guangdong in particular, have achieved great development since the mainland's opening-up and reform, and based on that, are expected to gain further development with the mainland's accession to the WTO and her opening of the capital account. This will also offer very large room for Hong Kong's economic development.
- (7) *Qualified personnel aspect.* On top of the ever-expanding capital flow, commodity flow and information flow, qualified personnel flow is also getting larger. In the presence of the intensified competition in financial markets, commodity markets and service markets, qualified personnel will surely play an increasingly important role. In order to retain the favorable position and bring it into full play, Hong Kong should, in the long term, make greater effort in the cultivation of qualified personnel.

## 5. Conclusion

To sum up, this paper comes to the following main conclusions:

- a) There does not exist a uniform or fixed sequence in adopting the full convertibility of a currency due to the differences in circumstances among countries. However, based on the common practice and basic sequence taken by most countries in the world, drawing on the experience and lessons from other countries' practices and given the fact that China is a large developing country, we conclude that a progressive and prudent sequential process is absolutely necessary for the full convertibility of Renminbi.
- b) The whole course of Renminbi's full convertibility may be broken into three major stages in principle. The first stage is adopting current account liberalization that had been established by 1996. The second is adopting capital/financial account liberalization that is currently going on. The third is adopting Renminbi's full convertibility that will take place in the future. As to the course of current



account liberalization and the course of capital/financial account liberalization, each should be further broken into two successive steps. The first step is lifting restrictions on current account or capital account transactions. The second is lifting restrictions on current account or capital/financial account exchange, namely adopting current account or capital/financial account convertibility.

- c) Foreign banks will be allowed to handle the foreign exchange business of China's enterprises in the same year that China enters the WTO, to handle Renminbi loan business of China's enterprises within two years after China's accession to the WTO, and to handle Renminbi deposits and loan business of individuals residing in China within five years after China's WTO accession. Without doubt, the course of Renminbi's full convertibility will speed up as a result of China's WTO entry. Some commentators have thus asserted that this means that Renminbi will soon become a fully convertible currency. Our analysis shows that this assertion is inaccurate.
- d) Achieving Renminbi's full convertibility will have an extensive effect on the economy of mainland China. Through the analysis of an open macroeconomic model, we identified a number of necessary preconditions to achieve the successful full convertibility of Renminbi, including appropriate macroeconomic policy, microeconomic reform of enterprises, financial system reform, market-oriented interest rate reform and more flexible exchange rate policy.
- e) Achieving Renminbi's full convertibility and hence the promotion of mainland China's economic development will also have extensive effects on Hong Kong's economy. These effects, generally speaking, are conducive to promoting Hong Kong's economic development, though it may also exert certain pressure on the transition of Hong Kong's economy, especially on the cultivation of qualified personnel.
- f) With the mainland's accession to the WTO and with its continuous opening-up of the capital/financial account and the full convertibility of Renminbi in the future, the overall scale of capital inflow and outflow of the mainland will dramatically be enlarged. This will not only favor the development of Shanghai as a newly rising international financial center, but also, due to the inadequacy of the mere reliance on Shanghai, offer new and substantial room for the further development of Hong Kong as a mature international financial center. The economic recovery of major countries in the world and that of the East Asia region, coupled with the new development of the mainland's economy, will ensure Hong Kong's financial industry a new and greater development.



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Table 1: Currency's Convertibility in Developed Industrial Countries

(in order of the time when establishing capital account convertibility)

Countries	Time when Establishing Current Account Convertibility	Time when Establishing Capital Account Convertibility	Length of the Interval between Current Account Convertibility and Capital Account Convertibility (years)
USA	1946	1973	27
Germany	1961	1975	14
Great Britain	1961	1979	18
Switzerland	1992	1980	- 12
Japan	1964	1980	16
Australia	1965	1983	18
New Zealand	1982	1984	2
Netherlands	1961	1986	25
Denmark	1967	1988	21
France	1961	1989	28
Sweden	1961	1989	28
Austria	1962	1990	28
Italy	1961	1990	29
Belgium	1961	1990	29
Luxembourg	1961	1990	29
Norway	1967	1990	23
Ireland	1961	1990	29
Finland	1979	1990	11
Spain	1986	1993	7
Portugal	1988	1993	5
Greece	1992	1994	2
Iceland	1983	1995	12

Sources: Time when establishing current account convertibility (IMF1994b); Time when establishing capital account convertibility, Quirk (1994a,b).

Table 2: Currency's Convertibility in Developed Industrial Countries

(in order of the interval time between current account and capital account convertibility)

Countries	Length of the Interval between Current Account Convertibility and Capital Account Convertibility (years)
Italy	29
Belgium	29
Luxembourg	29
Ireland	29
France	28
Sweden	28
Austria	28
USA	27
Netherlands	25
Norway	23
Denmark	21
Great Britain	18
Australia	18
Japan	16
Germany	14
Iceland	12
Finland	11
Spain	7
Portugal	5
New Zealand	2
Greece	2
Switzerland	- 12

Source: see Table 1.

Table 3: Current Account Convertibility in Developing Countries

Countries	Continent where the Country is Located	Time when Establishing Current Account Convertibility
El Salvador	Latin America	1946
Honduras	Latin America	1950
Peru	Latin America	1961
Jamaica	Latin America	1963
Costa Rica	Latin America	1965
Guyana	Latin America	1966
Argentina	Latin America	1968
Turkey	Asia	1990
Gambia	Africa	1993
Trinidad and Tobago	Latin America	1993
Grenada	Latin America	1994
Paraguay	Latin America	1994

Source: IMF (1994b).

Table 4: Current Account Convertibility in Some East Asian Countries/Regions

Countries/Regions	Time when Establishing Current Account Convertibility
Hong Kong	-
Singapore	1968
Malaysia	1968
Indonesia	1988
Korea	1988
Thailand	1990

Source: IMF (1994b).

NB: Hong Kong has always allowed full convertibility, except during the Second World War, when the UK Government imposed exchange control on sterling transactions. For details, see Jao (1974) and the literature cited therein.

Table 5: An Example of the Sequencing of Renminbi's Full Convertibility

<b>Stage One</b>	
<b>Current account liberalization</b>	
Step One	Remove restrictions on current account transactions
Removing restrictions on transactions	Retain restrictions on exchange
Step Two	
Removing restrictions on the exchange of foreign currencies	Remove restrictions on the exchange of foreign currencies for the purpose of international transactions of current account, namely adopt current account convertibility
	Retain auditing on the authenticity of transactions <b>(already established since Dec. 1996)</b>
<b>Stage Two</b>	
<b>Capital account liberalization</b>	
Step One	Remove restrictions on capital account transactions
Removing restrictions on transactions	Retain restrictions on exchange.
Step Two	
Removing restrictions on the exchange of foreign currencies	Remove restrictions on the exchange of foreign currencies for the purpose of international transactions of capital account, namely adopt capital account convertibility
	Retain auditing on the authenticity of transactions
<b>Stage Three</b>	
<b>Renminbi's full convertibility</b>	Remove auditing on the authenticity of current account and capital account transactions (this implies allowing Renminbi's convertibility without the occurrence of any real transaction)

Table 6: Capital Account Liberalization

	Direct Investment	Portfolio Investment	Loans
<b>Step One</b>	<b>Foreign Direct Investment:</b>	<b>Issuing Securities to Foreigners and Opening Home Securities Market:</b>	<b>Foreign Currency Loans:</b>
Removing restrictions on transactions	Be partially lifted, needs to be further lifted.	Be partially lifted, needs to be further lifted.	Be strictly restricted.
	<b>Direct Investment Abroad:</b>	<b>Purchasing Foreign Securities:</b>	<b>Renminbi Loans:</b>
	Be strictly restricted.	Be strictly restricted.	Foreign banks are allowed to handle Renminbi loan within 2-5 years after China's entry into the WTO.
<b>Step Two</b>	<b>Foreign Direct Investment:</b>	<b>Issuing Securities to Foreigners and Opening Home Securities Market:</b>	<b>Borrowing:</b>
Removing restrictions on the exchange of foreign currencies	Be partially lifted, needs to be further lifted.	Be strictly restricted.	Be strictly restricted.
	<b>Direct Investment Abroad:</b>	<b>Purchasing Foreign Securities:</b>	<b>Repayment of Bank Loans:</b>
	Be strictly restricted.	Be strictly restricted.	Be strictly restricted.



Table 7: China's Utilization of Foreign investment (1999)

Item	Value of Actually Utilized	
	Foreign investment (US\$ 100 million)	Percentage(%)
<b>Total</b>	<b>526.59</b>	<b>100.00</b>
<b>A. Foreign Direct Investment</b>	<b>403.19</b>	<b>76.57</b>
<b>B. Foreign Loans</b>	<b>102.12</b>	<b>19.39</b>
(1) Government Loans	33.16	6.30
(2) Loans from International Financial Institutions	26.06	4.95
(3) Export Credit	10.25	1.95
(4) Commercial Loans from Foreign Banks	24.65	4.68
(5) External Bonds	8.00	1.52
<b>C. Other Foreign Investment</b>	<b>21.28</b>	<b>4.04</b>
(1) Sale of Shares	6.10	1.16
(2) International Leasing	1.85	0.35
(3) Compensation Trade	0.12	0.02
(4) Processing and Assembling	13.21	2.51

Source: *Statistical Abstract of China*, Beijing: China Statistical Press, 2001.

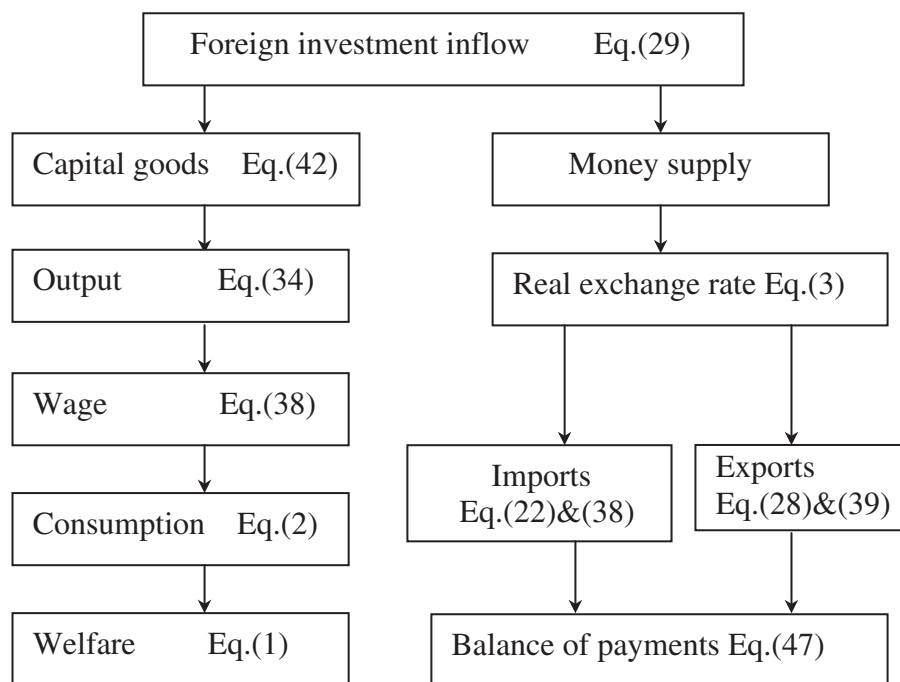
Table 8. Budget Deficit, Inflation Rate, and Money Supply in China

Year	Inflation Rate of Retail Price (%)	Growth Rate of Broad Money Supply, M2	Budget Deficit (RMB¥ 100 Million)	Ratio of Budget Deficit to GDP (%)
1991	2.9	26.5	-237.1	1.1
1992	5.4	31.3	-258.8	1.0
1993	13.2	37.3	-293.3	0.8
1994	21.7	34.5	-574.5	1.2
1995	14.8	29.5	-581.5	1.0
1996	6.1	25.3	-529.6	0.8
1997	0.8	19.6	-582.5	0.8
1998	-2.6	14.8	-922.2	1.2
1999	-3.0	14.7	-1743.6	2.1
2000	-1.5	12.3	-2499.3	2.8

Source: *China Statistical Yearbook* and *Statistical Abstract of China*, various years.

NB: M2 is defined as M1 + enterprise time deposits + self-financing capital construction deposits + individual savings deposits + other deposits. M1 is defined as cash in circulation (M0) + enterprise demand deposits + rural deposits + deposits of government agencies and organizations and military units.

Chart 1. The Effect of Massive Inflow of Foreign Investment



## Symbol Sheet

NB. Variables of domestic economy, with subscript  $c$ , are for mainland China, and variables of foreign economy, with subscript  $h$ , are for the rest of the world (ROW) including Hong Kong.

1	$A$	Parameter of the domestic production function
2	$A_h$	Parameter of foreign production function
3	$B_{cc}$	Bonds issued by domestic firms and bought by domestic consumers, nominal bond stock
4	$B_{ch}$	Bonds issued by foreign firms and bought by domestic consumers, nominal bond stock
5	$b_{cc}$	Real term of bonds issued by domestic firms and bought by domestic consumers
6	$b_{ch}$	Real term of bonds issued by foreign firms and bought by domestic consumers
7	$b_{hc}$	Real term of bonds issued by domestic firms and bought by foreign consumers
8	$b_{hh}$	Real term of bonds issued by foreign firms and bought by foreign consumers
9	$C_{cc}$	Consumption goods consumed and produced in mainland China
10	$C_{ch}$	Consumption goods consumed in mainland China and imported from abroad
11	$C_{hc}$	Consumption goods consumed in foreign countries and exported from China
12	$C_{hh}$	Consumption goods consumed and produced in foreign country
13	$c$	Subscript, for domestic economy of mainland China
14	$e$	Nominal exchange rate (an increase in $e$ implies a depreciation of the Renminbi)
15	$h$	Subscript, for foreign economy of the rest of the world including Hong Kong
16	$i_c$	Real interest rate of domestic bonds
17	$i_h$	Real interest rate of foreign bonds
18	$k_{cc}$	Per capita capital goods used and produced in mainland China
19	$k_{ch}$	Per capita capital goods used in mainland China and produced by foreign firms
20	$k_{hc}$	Per capita capital goods used in foreign countries and produced by mainland firms
21	$k_{hh}$	Per capita capital goods used and produced in foreign countries
22	$l$	Labor used in production
23	$M_{cc}$	Domestic currency held by domestic consumers, nominal money stock
24	$M_{ch}$	Foreign currency held by domestic consumers, nominal money stock
25	$m_{cc}$	Real term of domestic money held by domestic consumers
26	$m_{ch}$	Real term of foreign money held by domestic consumers
27	$m_{hc}$	Real term of domestic money held by foreign consumers
28	$m_{hh}$	Real term of foreign money held by foreign consumers
29	$P_c$	Prices of domestic goods
30	$P_h$	Prices of foreign goods
31	$\pi$	Profit of firms
32	$q$	Real exchange rate (an increase in $q$ implies a real depreciation of the Renminbi)
33	$r_c$	Nominal interest rate of domestic bonds
34	$r_h$	Nominal interest rate of foreign bonds
35	$s$	Period
36	$t$	Time
37	$U_t$	Present value of consumer life utility at time $t$
38	$u_1$	Utility from domestic commodity consumption
39	$u_2$	Utility from foreign commodity consumption
40	$u_3$	Utility from household's domestic bonds claims

41	$u_4$	Utility from household's foreign bonds claims
42	$u_5$	Utility from holding domestic currency
43	$u_6$	Utility from holding foreign currency
44	$w$	Real term of domestic wages
45	$w_c$	Real term of domestic wage rate
46	$w_h$	Real term of foreign wage rate
47	$y_c$	Per capita domestic output
48	$y_h$	Per capita foreign output
49	$\alpha$	Parameter of the domestic production function
50	$\beta$	Subjective time discount rate on future utility for domestic consumers
51	$\beta_h$	Subjective time discount rate on future utility for foreign consumers
52	$\lambda$	Lagrangian multiplier
53	$\phi$	Parameter of the utility function for domestic consumer
54	$\phi_h$	Parameter of the utility function for foreign consumer
55	$\pi_c$	Inflation rate of mainland China
56	$\pi_h$	Inflation rate of foreign countries/regions