

The Currency Board System in Hong Kong: An Alternative Perspective

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Abstract

With the revival of the currency board system in the 1980-90s, the theory of the currency board system has been a hot topic in monetary economics. In contrast to the conventional viewpoint, the paper argues that, in the currency board system, the money supply is not completely determined by the balance of payment, and that there is no trade-off between currency board systems and central bank institutions. The currency board system, which is called the linked exchange rate system in Hong Kong, coexists with the central bank institution. The Hong Kong Monetary Authority (HKMA), as the manager of the Exchange Fund in Hong Kong, is de facto the central bank in Hong Kong. Through the analysis of the Exchange Fund balance sheet, the paper points out that, while observing the basic rules of the currency board system, the HKMA can buffer the external shocks through the management of the Exchange Fund, and as a result the evolution of the money supply in Hong Kong is not determined by the balance of payment.

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I. Introduction

The linked exchange rate system¹, which was founded on October 17, 1983, and which stabilized the value of the Hong Kong dollar, has existed for twenty years. Many important events that influenced Hong Kong's economy have occurred during these twenty years. For example, China resumed its sovereignty on Hong Kong, the economy of China has grown fast, and the role of China in the international economy has risen. While the economic relations between Hong Kong and the United States have declined, the economic relations between Hong Kong and Mainland China have increased gradually. After the Asian financial crisis of 1997-98, most of the South East Asian countries gave up pegged exchange rates and adopted floating exchange rates, but the linked exchange rate system survived the financial crisis. But while some East European countries have chosen a currency board system, Argentina had to give up its currency board system in 2002 due to the domestic political and economic crises.

Whenever some shock impacts the Hong Kong's economy, people invariably question the linked exchange rate system. During the post-colonial times, the future maintenance of the linked exchange rate system in Hong Kong was in doubt. The central government of China had to claim time and time again that China would impose its basic Hong Kong policy, that is "one country, two systems", after the return of Hong Kong to China. Monetary economists in Hong Kong think the linked exchange rate system is the optimal option for Hong Kong, even if there are some problems with the linked exchange rate (Tsang, 1996). During and after the East Asian financial crisis, when Hong Kong's economy bore the pressures of recession, the linked exchange rate system was the focus

¹ The linked exchange rate system is the special name of the currency board system in Hong Kong. The basic rules of the linked exchanged rate system are identical to those of the currency board system. Economists call the monetary rule in Hong Kong a currency board system, but it has its own name in Hong Kong, that is the linked exchange rate system.

point once again. The government of Hong Kong insisted that the linked exchange rate system was not to be changed, although some economists asserted that Hong Kong should abandon the linked exchange rate system and adopt either the orthodox currency board system (Schuler, 1999) or dollarization (Schuler, 1998).

Completely grasping the future is difficult for everyone despite advancements in sciences and technologies. However, humans always seek to predict the future in order to choose optimal options. Any good prediction should stand on facts, as completely as possible. When we try to outline the perspectives for the linked exchange rate system in Hong Kong, the primary question that we should answer is what the linked exchange rate system is. Therefore, answering this question is the main purpose of the paper.

Examining the theory on the currency board system is the starting point of the paper since the linked exchange rate system is a kind of currency board system. Part two deals with the theory of the currency board system. In part three, the paper will explore the relationship between the currency board system and the central bank system because both of them are related to the currency issue system. After knowing what the currency board system is and what the central bank system is, it is easy to grasp what the linked exchange rate in Hong Kong is. In part four, the paper will outline the basic characteristics of the linked exchange rate in Hong Kong. The last part, part five, offers some conclusions.

II. The theory on the currency board system

The currency board system was invented by the British. It was imposed in the British colonies as a kind of monetary system, substituting for British currency at the time of the British colonies. For more than a hundred years, the practices and the theory of the currency board systems have evolved. In an environment of world globalization and with the volatility of the international financial markets, some small countries prefer to choose the currency board system in order to stabilize their economies and currencies.

However, the forms of the currency board system that were imposed in the last two decades are different even if the basic function is the same. In this part, I describe the theory of the currency board system through its mechanism, functions and shortcomings.

Section 2.1 The currency board system and monetary policy

With the revival of the currency board system in the 1990's, the literature on the theory of the currency board system has increased quickly. What the currency board system can do and cannot do seems to form a certain consensus in academic circles. Especially, the main conclusion on the shortcomings of the currency board system, which is that currency board arrangements cannot have an active monetary policy, prevails in academic circles. The argument seems to be clear.

The currency board system is the monetary arrangement under which the board issues the national currency backed by 100% foreign currency (also called reserve currency) at the fixed exchange rate. The currency board has the obligation to redeem the national currency when the public wants to give up the national currency and prefers the foreign currency. If the public demands foreign currency, it can buy the foreign currency from the currency board with the national currency. Similarly, the currency board may issue the national currency only if it has the equivalent foreign currency (reserve currency). When there are capital inflows and with a balance of payment surplus, commercial banks buy the national currency from the currency board with the foreign currency, as a result of which the money supply in the country increases; on the contrary, with capital outflows and balance of payment deficits, the commercial banks buy foreign currency with national currency, and the money supply in the country decreases. If domestic agents seek to expand their economic activities by getting extra credit, but without foreign currency, they cannot get the extra domestic credit from the currency board. Similarly, if the currency board tries to expand the national economy by increasing domestic credit or money supply, but without additional foreign currency, it cannot do it. In the currency board arrangement, the change in money supply is completely determined by the balance of payments, and the currency board is only the agent who passively

performs the function of exchange between the foreign currency and national currency (Basu, 1974; Collyns, 1983; Williamson, 1995; Schuler, 1999; Hanke, 1999, 2002a, 2002b). This is the conventional viewpoint on the currency board arrangement.

This argument is explained clearly by the T account (Williamson, 1995). In the balance sheet account of the currency board, the liabilities side is the currency issue, and the assets side is only foreign currency. On the contrary, in the case of central bank institutions, the assets side includes domestic assets, like government securities, plus foreign reserves. The central bank can perform an active monetary policy by expanding or contracting the domestic assets that it holds, but the currency board cannot perform an active monetary policy since it does not hold domestic assets.

The view that currency boards cannot perform active monetary policy was regarded as one of the critical shortcomings of currency board systems in British African colonies in the 1960's. It is still the prevailing view today, but was criticized by some economists already in the 1960's. In 1967, R. A. Sowelem pointed out that "the operation of a 100 percent foreign exchange currency reserve system does not represent, at least in principle, an absolute limitation on the ability of the domestic authorities to exercise any influence on commercial banks' liquidity and lending policies.", the difference between currency boards and central banks being only a matter of degree (Sowelem, 1967, p.213). He provided three reasons: (1) The currency board can transfer the funds to "be invested in Treasury bills or similar liquid assets". This can reduce the effect of the increase of foreign exchange on the domestic money supply when there is a balance of payments surplus; (2) The government can influence domestic liquidity by changing the balance between the local banking system and the external banking system accounts. When there is an export boom, and the balance of payments is in surplus, the currency board can transfer the acquired funds from the local banking system to the external banking system, so that the effect of the increase of the foreign exchange on the money supply will be reduced. On the other hand, with a balance of payments deficit, the government can transfer the external balances to the local banking system account, so that the effect of the decrease in foreign exchange on the money supply will also be reduced; (3) The

government can exercise an active monetary policy by “moral suasion”. In 1952, the government with the currency board system in Southern Rhodesia, Africa, “issued a directive to the banks asking them to exercise restraint in their local lending operation”(Sowelen, 1967, p.214). After examining the currency board system and the money supply in British colonial Africa, Newlyn and Rowan assert that the money supply can be influenced by the commercial banks (expatriate banks) and the money supply is not completely determined by the balance of payments (Chapter 8, Newlyn, and Rowan, 1954). In the above arguments, the basic rule of the currency board system that the local currency issue be backed by 100 percent foreign exchange is not changed, but the government can perform active monetary policies by adjusting the structure of their assets.

In addition, more recently, some post-Keynesian articles assert that the government is able to perform active monetary policies even in the case of currency board arrangements. The mechanism of domestic liquidity is demand-led, not supply-led, in contrast to what is depicted by the neoclassical economists. The government with the currency board system can influence the effects of the variations in foreign exchange on the domestic money supply by adjusting the assets structure. On the liabilities side of the balance account of the currency board, there is “the money deposits held by (the) government”(Lavoie, 2003), in addition to domestic currency issued by the currency board. These money deposits are the buffer, to absorb the impact on the variation of the foreign exchange. In reality, the mechanism of the buffer appears in the currency board arrangement of Bulgaria (Lavoie, 2003)².

Section 2.2 One form or many forms?

In the world of neoclassical economics, there is only one form for the currency board system---a pure or orthodox currency board system. In the pure currency board system, domestic liquidity is completely determined by the inflow or outflow of foreign

² See also the doctoral thesis of Jean François Ponsot (2002) “Le currency board ou la négation de la banque centrale”, Université de Bourgogne”,

exchange. The market mechanism works automatically and the money market reaches the equilibrium by movements in domestic interest rates. The government is supposed not to do anything on the monetary markets except to fulfill its obligations. The government issues domestic currency by getting foreign exchange, or it redeems national currency by the sale of foreign exchange. It is indeed a beautiful picture, but in reality, both in the past and now, there are many forms of currency board systems.

Let us focus on the heyday of the currency board system. When the British government imposed the currency board system on its African colonies, there were many forms of currency board systems, but not the unique form that the neoclassical economists long for. In the British African colonies, there were three kinds of currency board systems: a fully automatic currency board system, a fully automatic, income generating currency board system, and a discretionary currency board system. (a) The fully automatic currency board system is the pure currency board system that neoclassical economists are pursuing, for instance the West African Currency Board. (b) In the fully automatic income generating currency board system, the national currency issue was still backed by 100% foreign exchange, but the components of the foreign reserves were different from that of the pure currency board system. Parts of the foreign reserves were the government or government guaranteed securities of the foreign country or countries. The colonies' government could earn interest from the securities. (c) In the discretionary currency board system, domestic currency issue was not backed by 100% foreign currency, i.e., part of the domestic currency issue was backed by foreign currency and another part of the domestic currency issue was backed by domestic government securities, like Treasury bills. Domestic currency that was backed by domestic government securities was called the fiduciary issue (Onoh, 1982, pp. 27-28).

With respect to the currency board system in the 20th century, the actual currency board systems are different from the theoretical currency board systems. There is the so-called AEL model (Tsang, 2002), which describes currency board systems in Argentina (1991), Estonia (1992) and Lithuania (1994); Singapore's currency board model (Chan and Jin, 1997); and Bulgaria's currency board model. The currency board arrangement in

Bosnia and Herzegovina is not of a pure form (Coats, 1999). Of course, Hong Kong has its own special currency board model (I will discuss Hong Kong's currency board model in part four of the paper)

In reality, with the many variants of the currency board system, there is room for governments with a currency board system to perform active monetary policies. The orthodox doctrine on the currency board system, according to which there is no active monetary policy, disappeared in the new forms of the currency board system. No matter the theory, theories must be consistent with reality. Although we can paint a beautiful picture with abstract tools, if the picture is only a picture, not a map of reality, why do we pursue it?

Section 2.3 What is the core function of the currency board system?

Despite the many forms of currency boards in reality and the fact that governments with currency board systems can perform active monetary policies, neoclassical economists are analyzing pure currency board systems in which the market mechanism can work freely without the adjustment of the government. Are the non-pure currency board systems parts of the family of the currency board systems? We should know what the core functions of the currency board system are before answering the question.

Historically, the primary purpose of the implementation of the currency board system in British African colonies was to increase the colonial government income by seigniorage, and hence to reduce the cost of the shipment of British coin and to solve the problem of the shortage of the sterling in England (Onoh, 1982). The main aims of the implementation of the currency board system in Hong Kong and Argentina are to stabilize the local currency and reduce the pressure of inflation. Some East European countries hope that the adoption the currency board system is their first step to get into the gate of the euro area and become the members of the euro area. Therefore, the basic

mechanism in the currency board system does not change, but the purposes of the implementation of the currency board system are completely different.

In his notable article (Williamson, 1995), Williamson analyzed the virtues and disadvantages of the currency board system and pointed out that currency board systems “assure convertibility, instill macroeconomic discipline that limits budget deficits and inflation, provide a mechanism that guarantees adjustment of balance-of-payments deficits, and thus create confidence in the country’s monetary system” (Williamson, 1995). In the above statement, Williamson points out how the currency board system can create confidence for the country’s monetary system. But what are the core functions of the currency board system?

The currency board system is the currency issue arrangement under which local currency is backed by 100% foreign currency at the fixed foreign exchange rate regime. The currency board guarantees the convertibility between the local currency and foreign currency at the fixed foreign exchange rate in the currency board system. The local currency is linked with the foreign currency by the guarantee of convertibility and the fixed exchange rate. Therefore, the confidence in the local currency is linked with that in the foreign currency by the currency board arrangement, and the local currency acquires the properties of the foreign currency with respect to the basic functions of the money. Accordingly, the core function of the currency board system is to link the confidence in the local currency with the foreign currency.

The limits on budget deficits and inflation, or the bridge to the currency union are the derivative functions of the core function of the currency board system. Embracing the aim of near zero inflation, some developing countries choose the currency board system. One of the reasons why inflation occurs is that the confidence in the local currency is getting lower and lower, and the local currency becomes “the hot potatoes” that everyone wants to get rid of. Then, the currency crisis occurs, and the local monetary system will be threatened. So, linking the local currency with the foreign currency that has high confidence is the optimal option to quickly get rid of inflation. The currency board

system is a variant of the optimal option. Indeed, the reason why the currency board system was founded in Hong Kong on October 17, 1983 was try to get rid of high inflation and resume the confidence in the Hong Kong Dollar. In fact, the purposes of the establishment of the currency board system in Argentina, and North Soviet countries are the same as that of Hong Kong. In central bank institutions, the budget deficits of the government are financed by the central bank through the currency issue in most developing countries. As a result, inflation occurs. In the pure currency board system, the currency board cannot be permitted to hold government securities, so the door is closed on government budget deficits in currency board systems. In short, because the public has low confidence in the local government and in the local currency, or because the local government has low credibility, countries have to choose the currency board system in order to stabilize the local monetary system and revive the local economy. Of course, the country that establishes the currency board system in its monetary system links the confidence in its local currency to the foreign currency, but the country cannot control the budget deficits and the inflation rate in the foreign country. The credibility of the foreign country's government per se is in doubt. The topic on the credibility of the foreign country's government extends the range of the paper.

In addition, one of the reasons that the British government chose the currency board system instead of the central bank institution is that it expected the new currency, issued by the currency board, to acquire as much credibility as the British currency (Onoh, 1982). Resuming the confidence of the local currency is the core purpose of the choice of the currency board system nowadays.

In short, the pure currency board system is the extreme form of the currency board system in which the automatic market mechanism works and active monetary policies are not needed. We should accept other forms of currency board systems, where active monetary policies are possible and where market mechanisms can be adjusted by the government, but only if these variants of the currency board system contain the core function of the currency board arrangement.

III. The currency board system and the central bank institution

As a monetary rule, the currency board system is considered in opposition to the central bank institutions, and it seems to be correct to claim that there is a trade-off between the currency board system and the central bank institution. Because of this belief, the claim that a monetary regime with a currency board system has some functions of a central bank is criticized by some economists (Schuler, 1999). The lack of a trade-off between the currency board system and the central bank institution has been pointed out by some economists however (Ho, 2002), and I try to expand on this argument.

Section 3.1 The implicit assumption

With the success of the establishment of the currency board system in some countries and territories in the 1980-90s, for example, East European countries and Hong Kong, the literature on the currency board system has increased. In addition, the literature on the currency board system in British former African colonies in 1950-1960s has been revived. By examining the literature, we can find the implicit assumption that there is a trade-off relation between the currency board system and central bank institutions. In the modern literature, most economists compare the currency board system with central bank institutions. For example, in currency board systems, there is no lender of last resort, and bank runs occur easily, while with central bank institutions the function of the lender of last resort will work, and hence bank runs hardly appear (Chang and Velasco, 1998). The lack of independent active monetary policies are always the main target of the opponents to the currency board systems, who prefer the central bank institution that has all the functions of monetary policy. Williamson points to the differences between the currency board system and the central bank institution with the help of T accounts (Williamson, 1995). Steve H. Hanke who is said to be the father of the modern currency board system, points to the virtues of the currency board system by using empirical research on the differences of the outcomes between the currency board system and central bank

institution (Hanke, 2002a). When economists study the currency board system, comparisons with the central bank institution is a necessary topic (Haan and Berger, 2003). The option between the currency board system and the central bank institution is also the main issue of the literature on the monetary system in the developing countries (Collyns, 1983). In the literature of the 1950-1960s, the evaluation of the currency board system was always grounded on a comparison with the central bank institution. The outstanding viewpoint on the disadvantage of the currency board system, that is the lack of independent monetary policies, is based on the mechanisms of the central bank institution (Onoh, 1982). It seems to be the premise that a country can only choose the currency board system or the central bank institution when it creates its own monetary system. The implicit assumption is that there is a trade-off between the currency board system and the central bank institution.

Furthermore, British African colonies in the 1950-1960s gradually abandoned the currency board systems and founded central banks, because the central banks were considered a signal of monetary sovereignty, after they became independent states. From then on, the concept that the currency board system is the opposite of the central bank institution has been rooted in monetary economics.

Section 3.2 Non trade-off relations

The above analysis has shown the basic characteristics and mechanisms incarnated in the currency board system. One of the features is the currency issue backed by 100% foreign currency (in a pure currency board system); another feature is that the convertibility of the currency, from the local currency to the foreign currency, or the opposite convertibility, is guaranteed by the currency board. The main purpose of the establishment of the currency board system is to increase the confidence in the local currency. The currency board system includes two rules: the money issue rule and the foreign exchange rule. These rules guarantee that the confidence in the local currency is linked with that of the foreign currency.

It is more than a century since the birth of the central bank institution. With the evolution of the financial industry, many functions have been assigned to the central bank institution during these hundred years. Today, we may say that we know what the central bank institution is at least from its functions. Glancing over the literature on the theory of the central bank, we find the standard central bank functions: currency issue and management of the foreign reserves, the role of the banker for the government, the role of the banker to the domestic commercial banks, the regulation of domestic financial institutions; and the operation of the monetary and credit policy (Sayers, 1970; Kock, 1974; Collyns, 1983).

What is the core function of the central bank institution? How does a bank become the "central bank"? In order to answer these questions we should examine the origins of the central bank briefly. The Bank of England was the first central bank in the world, and is the model that the other central banks follow. The main reason why the Bank of England evolved as the central bank institution is that it had special relations with the British government, conducting the government's financial business (Sayers, 1970, p.102). On the basis of the special relations with the government, the Bank of England got the right to issue the national currency. The reason why the Bank of England accepted "its position of lender of last resort" is that "it could not stand idly by and see London's financial structure collapse in the time of stress" due to its special relation with the British government (Sayers, 1970, p.102).

In contrast with the natural evolution of the Bank of England, the United States and Japan founded their central bank institutions only after a financial panic or crisis. The Bank of Japan was established in 1882 in response to the failure of the national banking system to provide a stable and reliable national currency. In the United States, the Fed was established in 1913 after a lengthy study to prevent the type of financial panics that occurred in 1907 (Cargill, 1989, pp. 21-22).

From the main purposes of the establishment of these central bank institutions, we may conclude that the core functions of the central bank institution are national currency

issue, the role of the banker for the government and the role of the banker to the domestic commercial banks. The other functions assigned to the central bank institution, for instance, the operation of the monetary policy and credit control, the adviser to the government, the lender of last resort, and the management of foreign reserves, derived from these core functions. The central bank institution's power to enforce monetary policies is based on its special position in the domestic financial industry: the banker of the government, the banker of the domestic banks and the national currency issue. The central bank institution can influence the balance of the commercial banks by adjusting its own assets or liabilities. Similarly, the lender of last resort, one of the functions of the central bank institution, is derived from one of its core functions: the banker of the bank.

If we focus on the currency issue, we may say that there is a trade-off between the currency board system and the central bank institution, since completely different currency issue mechanisms are rooted in their systems. On the one hand, in the pure currency board system, there is no fiduciary issue, and the local currency issue must be backed by 100% foreign currency. The currency issue rule in the currency board system can be reflected in the T account. In the pure currency board system, the liabilities side of the currency board is only the notes issued, and the assets side is only the foreign currency backing the national currency issue. On the other hand, in the central bank institution, there is the fiduciary issue. The currency issue in the central bank institution may not be backed by foreign currency, and the central bank can create the currency. This currency rule appears in the T account of the central bank. On the assets side of the T account, the central bank holds government securities and lends funds to the commercial banks, besides holding foreign reserves. On the liabilities side of the account, the liabilities include the deposits of the commercial banks plus the notes in circulation. On the basis of the different structure of the T accounts, it can be argued that the pure currency board system performs the functions that are different from that of the central bank institution.

However, if we expand the range of our vision, we can find the relations between the currency board system and the central bank institution. The currency board system

includes not only the pure form, but also the other non-pure forms. The central bank institution performs not only the function of the currency issue, but also the other functions such as the management of foreign reserves, the regulation of the domestic financial institutions and the operation of monetary policies, etc. In the non-pure currency board system, the currency board can not only perform monetary and credit policy, but also it can manage its foreign reserves. The same functions are performed through both the non-pure currency board systems and the central bank institutions. Therefore, generally speaking, there are no trade-off relations between the currency board system and the central bank institution.

Section 3.3 The limits of the pure currency board system

In the pure currency board system, on a theoretical level, the automatic market mechanism works well. With an influx of capital, the currency board buys foreign reserves and issues local currency, thus increasing the money supply. The increase of the money supply results in a decrease of interest rates on local money markets, thus stopping the influx of capital. With a low interest rate, when the interest rate is lower than that of the foreign country, an outflow of capital appears. The public buys foreign currency from the currency board, with the local currency, at a fixed exchange rate. With the outflow of capital and the redemption of the local currency, the money supply decreases, and interest rates begin to increase. At last, the outflow of capital stops and so on. The currency board does nothing, except passively performing the purchase or sale of the foreign currency according to the demand of the markets. The market mechanism can solve the problems in the movement of the funds, and can find the equilibrium point. How beautiful the picture is!

Among academic circles, a great number of economists hope to solve all economic problems through automatic market mechanisms since the publication of Adam Smith's *An Inquiry into the Nature and Cause of the Wealth of Nations*. Neoclassical economists push the functions of the market mechanism to its apex by the use of mathematics. It seems to solve all problems in economics by the market mechanism.

In the 1980s, both the Thatcher administration in Britain and the Reagan administration in the United States implemented economic policies that liberalized markets. At the same time, in the eastern world, China began to reform its economic system by using market mechanisms. The extension of the market mechanism played a critical role in the high growth of the economy of China during the last twenty years. Many East Asian countries and territories seemed to benefit from market mechanisms in the development of their economies, and began to expand the function of the market mechanism, especially in the financial industry. They wished to create international financial centers in their countries. The World Bank appreciated the liberalization of the economy by *The East Asian Miracle*³ in its Report in 1993. Russia, surviving from the collapse of the Soviet Union, accepted the “shock therapy” in its reform of the economy in 1992. So far, the market mechanism seems to be the panacea to cure all kinds of economic problems.

However, market mechanisms also create problems for the development world. In 1994, a financial crisis broke out in Mexico. It was only an episode of the marketization of the economy and did not induce the neoclassical economists to reassess market mechanisms. In 1997, the financial crisis, which began in Thailand, prevailed quickly over the New Emerging Economies of the East Asia, and even in South Korea, a new member of OECD, as well as in Japan, the strong economy in the East Asia, by the end of 1997. The contagion of the crisis did not stop. In 1998, Russia was involved in the financial crisis. At last, we have to bear the bitter results that are induced by the failure of the market mechanism in the economy. With negative economic growth, the East Asian countries and territories needed large readjustments of their economies. The economy of Russia did not take off by accepting the “shock therapy”.

These bitter experiences have had some modern economists to question neoclassical economics. One of the assumptions of neoclassical economics is that the

³ See the World Bank Report: *The East Asian Miracle: Economic Growth and Public Policy*, September 1993.

market is perfect and completely competent⁴, but in reality, the market is not perfect and completely competent partly due to information asymmetry. In the financial industry, information asymmetry is an issue. Hence, it is necessary to impose regulations on the financial industry in order to strengthen and stabilize the financial industry even if deregulation in the financial industry is a trend all over the world.

Because of the failure of the market mechanisms, the central bank institution is assigned functions that can compensate for the shortcomings of the market mechanisms and can influence economic activity, to achieve stable growth in the economy. The pure currency board system is the automatic market mechanism that provides variations in interest rates to adjust the movements of foreign capital. But market failure is also involved in the pure currency board system. The functions by which the central bank can influence the macro-economic activities may be assigned to the currency board system in order to get a sound and stable financial industry. For example, the regulation of the financial industry, the lender of last resort, monetary policy, all these functions that have been assigned to the central bank institution, may also be assigned to the currency board system in order to compensate for the shortcomings of the market mechanisms.

What are the differences between the currency board system and the central bank institution since the currency board system can have some functions of the central bank institution? The currency board system has been considered the optimal option as a monetary rule for the small and open economies⁵ (Williamson, 1995); the central bank institution is regarded as luxury consumption for the developing countries because of the lack of experts in finance (Collyns, 1983). On the contrary, in Africa, when the British former colonies became independent, they abandoned the currency board system because of the belief that the central bank institution helps the development of the economy and is

⁴ One of the bases of neoclassical economics, that the market is perfect, was criticized by Keynesian and Post-Keynesian economists.

⁵ The viewpoint that the currency board system only fits the small and open economy was criticized by Steve H. Hanke. In his article *Currency Board*, Hanke argued that "Argentina and Hong Kong are not small", "Argentina and Hong Kong rank as the seventeenth and twenty-fourth largest economies in the world" in 2000 (Hanke, 2002a).

the sign of an independent country (Onoh, 1982). The above observations are based on the analysis of the pure currency board system.

The currency issue in the currency board system is constrained by the amount of foreign reserves, but in the central bank institution the currency issue is not limited by the amount of foreign reserves. In addition, the currency board must set a fixed exchange rate regime. On the contrary, the central bank can choose any foreign exchange rate regime.

What are the relations between the currency board system and the central bank with the fixed foreign exchange rate regime? With respect to the adjustment mechanisms linking the balance of payments to the money supply, Mundell thinks the central bank with a fixed exchange rate is the same as the pure currency board system. When the capital flows in, the central bank must buy foreign currency in order to stop the domestic currency from appreciating, so that the money supply increases. On the contrary, if there is a balance of payments deficit, the central bank sells foreign reserves and gets back domestic currency, so the money supply decreases. In the course of the adjustment, the market mechanism works automatically, and the central bank just hangs on to the fixed exchange rate regime⁶(Mundell, 1999). The preceding viewpoint is criticized by the Post-Keynesians. The Post-Keynesians think that the surpluses (deficits) of the balance of payments do not result in the increase (decrease) of the money supply. The compensation thesis⁷ is the buffer between the variation of the balance of the payments and the change of the money supply (Lavoie, 2003).

In fact, the compensation thesis can be understood explicitly by the T account of the central bank (see Tables 1, 2). On the assets side of the T account, the central bank holds the government securities, foreign reserves and the loans to the commercial banks. On the liabilities side of the T account, the central bank's liabilities include notes in circulation and the commercial banks' deposits. In the fixed exchange rate regime, when

⁶ This observation is the notable "Mundell Triangle" or "the Mundell- Fleming Model".

⁷ "The compensation thesis asserts that increases (decreases) in the foreign assets of central banks are automatically compensated by decreases (increases) in other assets of the central bank. As a result, balance-of-payments surplus or deficits do not jeopardize in any way the ability of the central bank to set interest rates" (Lavoie, 2003).

the capital flows in, the commercial banks sell the foreign exchange to the central bank while decreasing their loans (debts) from the central bank instead of getting extra notes (currency) from the central bank. Then the money supply does not increase even if the foreign reserves of the central bank increase. Similarly, when the outflow of capital occurs, the commercial banks need foreign exchange, so that the foreign reserves of the central bank decrease. In order to avoid the decrease of the money supply, the central bank may increase the loans to the commercial banks. Hence, in the fixed exchange rate regime, the central bank can adjust its assets structure instead of the amount of the money supply in order to stabilize the foreign exchange rate. István Gyöngyössi analyzed this mechanism by studying the experience of the Banque de France (Gyöngyössi, 1984, Chapter 5).

Table 1 The balance sheet of the Central bank (Simplified)

<u>Assets</u>	<u>Liabilities</u>
Foreign reserves	Currency in circulation
Government securities	Deposits of the commercial banks
Loan to the commercial banks	

Table 2 The balance sheet of the commercial banks (simplified)

<u>Assets</u>	<u>Liabilities</u>
Currency	Borrowing from central bank
Deposits at central bank	Demand deposits

Therefore, with respect to the adjustment mechanism of the effect of the balance-of-payments on the money supply, the outcome of the adjustment in the currency board system is the same as that of the central bank institution with the fixed foreign exchange rate regime. The critical difference between the currency board system and the central

bank institution with the fixed foreign exchange rate regime is that the central bank has the right to choose and modify the price of the foreign exchange, but the currency board has no such right (Lavoie, 2003).

IV. The monetary system in Hong Kong: the mixture of the currency board system and the central bank institution

With the development of the financial industry, it is necessary to assign regulating functions to either the central bank institution or the pure currency board system in order to achieve stability of the financial industry, even if the deregulation and liberalization in the financial industry seem to be a trend. The currency board system in Hong Kong evolved since it was established in 1983, and it is not a pure currency board system, but a mixture system of the currency board system and the central bank institution. The name of the currency board system in Hong Kong is *the linked foreign exchange rate system*, which is a variant of the currency board system. The linked foreign exchange rate system contributed to the transformation of Hong Kong's sovereignty from Britain to China, and the growth of the economy in Hong Kong. The linked foreign exchange rate system, as a currency board system, was appreciated by some economists (Hanke, 2002a). However, it is still criticized by other economists (Schuler, 1999). In part four, I outline the basic characteristics of the linked foreign exchange rate system and the core mechanism of the monetary policies.

Section 4.1 The evolution and basic mechanism of the linked exchange rate system

The linked exchange rate system is not new; it is a revival of the currency board system in Hong Kong. It is an "old bottle with new wine". In 1935, Hong Kong established the currency board system under which the Hong Kong dollar was fully backed by the British sterling. The sterling standard exchange rate system lasted until the British government decided to float the pound sterling on July 6, 1972. Then, the Hong Kong dollar was linked with the U.S. dollar at a fixed exchange rate of HK\$5.65 per US\$. In 1974, Hong Kong had to implement the floating exchange rate system due to the

weakness of the U.S. dollar. The floating exchange rate system in Hong Kong almost lasted ten years. In September 1983, when the disagreement appeared in the Sino-British talks over the future of Hong Kong, the confidence in the Hong Kong dollar decreased fast, HK dollars became “the hot potatoes”, and the exchange rate fell by 13%, only in two days of September. On October 17, Hong Kong reestablished the currency board system in order to stabilize the Hong Kong dollar and resume the confidence in the Hong Kong dollar. Under the currency board system, the Hong Kong dollar is linked with the U.S. dollar at the fixed exchange rate of HK\$7.8 per U.S. dollar. After the establishment of the currency board system in Hong Kong, the Hong Kong dollar has been stable for twenty years (HKMA, 2000a).

Although Hong Kong observes the basic rule of the currency board system in its money regime, the linked exchange rate system has its own properties. The bank notes (currency) are not issued by the currency board, but by two British banks: the Hong Kong and Shanghai Banking Corporation (HSBC), and the Standard Chartered Bank. In 1994, the Bank of China became the third note-issuing bank. When the note-issuing banks issue bank notes, they must buy Certificates of Indebtedness (CIs) from the currency board with their U.S. dollars (Jao, 2003).

At the beginning of the establishment of the linked exchange rate system in Hong Kong, the basic mechanism of the linked exchange rate system was the same as that of the general currency board system, except for the purchases of the Certificates of Indebtedness by the note-issuing banks. When capital flows in and there is a balance of payment surplus, the public needs more Hong Kong dollars (bank notes). Under the pressure of the demand for bank notes, the note-issuing banks intend to expand the issue of bank notes. With the purchase of Certificates of Indebtedness, with an identical value in U.S. dollars, the note-issuing banks can issue their bank notes (Hong Kong dollars). As a result, the foreign reserves in the currency board increase. With capital outflows, the direction of all funds flow is in reverse, and the foreign reserves in the currency board decrease. In the mechanism of the linked exchange rate system, the interest rate is the adjusting instrument of the money markets. On a theoretical level, the differences in the

interest rates between the HK dollar and U.S. dollar induce the inflow (outflow) of capital into (from) Hong Kong. The main object of the currency board is to retain the stability of the external value of the Hong Kong dollar.

The mechanism of the linked foreign exchange rate system seems simple and not different from the other currency board systems, but with the decision of the economic and political system in Hong Kong after 1997 and the development of the financial industry, the mechanism of the linked foreign exchange rate system is changing, even if it still observes the basic rule of the currency board system. The changes were implemented in three stages: 1988-1996, 1996-1998 and 1998 to now.

In the period of 1988-1996, the changes in the linked foreign exchange rate system revealed the "New Accounting Arrangement", the establishment of the Liquidity Adjustment Facility, and the creation of the Hong Kong Monetary Authority (HKMA). Before 1996, the Hong Kong and Shanghai Banking Corporation (HSBC) had been running the clearing system in Hong Kong, and assuming the function of the lender of last resort in Hong Kong's financial industry. Every licensed bank⁸ has a clearing account at the HSBC. This clearing system gives HSBC a special role in Hong Kong's financial industry. The main purpose of the introduction of the New Accounting Arrangement in 1988 was to remove the clearing system from the HSBC and create equal competition among the banks in Hong Kong. In 1992, the Liquidity Adjustment Facility was established, and its main intention was to reduce the excessive interest rate volatility in Hong Kong. The licensed banks could get overnight liquidity through the Liquidity Adjustment Facility (HKMA, 1998). In April 1993, the Hong Kong Monetary Authority (HKMA) was established by combining the Exchange Fund Office with the Commissioner of Banking Office. The main purpose of the establishment of the HKMA was to ensure the stability of the financial industry during the transition period towards sovereignty in Hong Kong. Then, the HKMA became the manager of the Exchange Fund.

⁸ There is a three-tier banking system, which comprises licensed banks, restricted license banks and deposit-taking companies in Hong Kong. All of them are called the Authorized Institutions in Hong Kong.

On December 6, 1996, with the creation of Real Time Gross Settlement (RTGS), the linked exchange rate system entered a new stage. The system of RTGS is run by the HKMA, and every licensed bank gets a clearing account at the HKMA. The aggregate balance of the clearing account of the licensed banks at the HKMA becomes a part of the money base. The HKMA assumes the function of the lender of last resort and provides the intra-day and the overnight liquidity for the licensed banks through the Liquidity Adjustment Facility.

In September 1998, the HKMA introduced “seven technical measures” in order to strengthen the linked exchange rate system. The seven technical measures include:

1. The HKMA provides a clear undertaking to all licensed banks to convert Hong Kong dollars in their clearing accounts into US dollars at the fixed rate \$7.75 to US\$ 1.
2. The bid rate of the Liquidity Adjustment Facility is abolished.
3. A discount window replaces the Liquidity Adjustment Facility with the base rate (formerly know as the Liquidity Adjustment Facility offer rate) to be determined from time to time by HKMA.
4. The HKMA removes the restriction on repeated borrowing in respect of the provision of overnight Hong Kong dollar liquidity through repo (repurchase agreement) transactions using Exchange Fund Bills and Notes.
5. New Exchange Fund Papers will be issued only when there is an inflow of funds.
6. A schedule of discount rates is applicable for different percentage thresholds of holdings of Exchange Fund Papers by the licensed banks for the purpose of accessing the Discount Window.
7. The restriction on repeated borrowing in respect of repo (repurchase agreement) transactions involving debt securities other than Exchange Fund Papers is retained (HKMA, 1998).

The seven “technical measures” feature in two categories: (a) they allow the licensed banks to convert their HK dollar balance of the clearing account at HKMA into the U.S. dollars at the fixed exchange rate of HK\$7.75 per US\$, (b) they replace the Liquidity Adjustment Facility with formal Discount Window. By the first measure, the licensed banks can convert their Hong Kong dollar assets in the clearing accounts at the HKMA

into US dollar assets. In August 2000, the exchange rate of HK\$7.75 per US\$ was replaced with HK\$7.8 per US\$, i.e., the fixed exchange rate at which the licensed banks convert their HK dollar balance into the U.S. dollars is the same as the official exchange rate (HKMA, 1998). The second measure encourages the licensed banks to get rid of their liquidity surplus first through the inter-bank markets. The bid rate in the Liquidity Adjustment Facility is the interest rate that the licensed banks get from their deposits at the HKMA, and the bid rate is 150 basic points below the U.S. Fed target rate. The purpose of the sixth measure is to encourage the licensed banks to get liquidity first through the inter-bank markets. In term of the sixth measure, when the licensed banks get the liquidity from the Discount Window, the first 50% of the liquidity is charged at the Base Rate, and the next 50% of liquidity is charged at the Base Rate plus 5% or overnight HIBOR⁹ for the day which is higher. The Exchange Fund Papers are the components of the Monetary Base in Hong Kong, so the fifth measure ensures that all the monetary base is backed by 100% US dollar. Therefore, the seven technical measures showed that the Hong Kong's government maintains the linked exchange rate system, and increases the confidence in the Hong Kong dollar.

Through the measures mentioned above, the mechanism of the linked exchange rate system is the following. When the capital flows in, there are three choices for HKMA. The first one is that the HKMA can sell the Certificates of Indebtedness to the note-issuing banks. The second, the HKMA can issue government Bills and Notes. The third, the HKMA can increase the balance of clearing account of the licensed banks at the HKMA. Therefore, the linked foreign exchange rate system is not a simple currency board system.

⁹ HIBOR is the Hong Kong Interbank Offered Rate. It is the rate of interest offered on Hong Kong dollar loans by banks in the interbank market for a specified period ranging from overnight to one year.

Section 4.2 The functions of the central bank institution in the monetary rule in Hong Kong

The linked exchange rate in Hong Kong is a special case of the currency board system. It is not like the theoretical pure currency board system, and in the beginning of the establishment of the linked foreign exchange rate system in Hong Kong, some functions of the central bank institution coexisted with the rule of the currency board system. For example, the lender of last resort, one of the functions of the central bank institution, was assumed by the HSBC, one of the note-issuing banks. The interest rates were not determined by the markets, but by the Hong Kong Association of Banks¹⁰. After the establishment of the Hong Kong Monetary Authority (HKMA) in 1993, which is de facto the central bank of Hong Kong, the functions of the central bank institution were enforced in Hong Kong. The HKMA, the manager of the Exchange Fund, manages the foreign exchange reserves in Hong Kong, and the currency issue, even if the notes issue is still performed by the note-issuing banks. In December 1996, the establishment of the Real Time Gross Settlement (RTGS) system for inter-bank clearings in Hong Kong revealed the beginning of the monetary policies in Hong Kong. Under the arrangement of the RTGS, the licensed banks must hold clearing accounts at the HKMA, and the HKMA can offer overnight liquidity for the licensed banks through the Discount Window. In addition, the HKMA can adjust the demand for liquidity by the offer rate (the equivalent of the Bank Rate). In 1990, the HKMA began to issue Bills and in 1993, Notes (the equivalent of bonds) on behalf of the Hong Kong government. The licensed banks can get liquidity from the Discount Window by the collateral of their Bills and Notes. Moreover, the Bills and Notes can provide the interest rate benchmark for the money market in Hong Kong.

¹⁰ In the 1960s, there was an interest war in Hong Kong that resulted in distortions in the money markets. The interest cartel, Interest Rate Rule, was formed in the Hong Kong Association of Banks. Its main purpose was to stop the interest war. The interest rate restriction focused on Hong Kong dollar time deposits and covered the member of the Hong Kong Association of Banks. Under the arrangement of the interest rate rule, the banks were classified into several classes. The largest international banks were permitted to offer the lowest rates, and the small local banks the highest rates (Jao, 2003). The interest rate rule was abolished in 2001.

According to the *Banking Ordinance*, the function of the regulation of the financial industry is assigned to the HKMA. Promoting “the safety and stability of the banking system through the regulation of banking business and the business of taking deposits and the supervision of authorized institution” (HKMA, 2002a) is one of the objectives of the policies for the HKMA.

Compared to the modern central bank institution, the HKMA has all the functions of a central bank, even if the HKMA still observes the rule of the currency board system in currency issue. After its evolution over the last ten years, the monetary system in Hong Kong has become a mixture of the currency board system and the central bank institution. The HKMA seeks to exploit the advantages that both of institutions have in the management of the economy in Hong Kong.

Section 4.3 The HKMA can buffer the external shock through the Exchange Fund

In Hong Kong, the linked exchange rate system means that the issue of the currency must be backed by 100% U.S. dollars, but it does not mean that the money supply is completely determined by the variation of the foreign reserves of Hong Kong. The HKMA can buffer the external shock and retain the stability of the Hong Kong dollar. In fact, one of the objectives of the monetary policies in Hong Kong, determined by the Financial Secretary on behalf of the government and performed by the HKMA, is to retain the stability of the foreign exchange rate (Yam, 2000) or keep the Hong Kong dollar stable. The HKMA, as the manager of the Exchange Fund, achieves its objective through the management of the Exchange Fund.

Although the primary purpose of the establishment of the Exchange Fund in 1935 was to create the currency board system in Hong Kong, and the foreign reserves in the Exchange Fund backed the issue of the Hong Kong dollar, the Exchange Fund has changed both in its asset components and functions. In its assets components, the foreign assets in the Exchange Fund are greater than the assets that back the issue of the Hong Kong dollar. “In 1976, the assets of the Coinage Security Fund (which held the backing

for coins issued by the Government), as well as the bulk of foreign currency assets held in the government's General Revenue Account, were transferred to the Exchange Fund" (HKMA 2004a). At the same time, the Hong Kong government began to transfer its fiscal reserves to the Exchange Fund. In November 1998, the assets of the Land Fund were merged into the Exchange Fund. Hence, the Exchange Fund holds a number of government assets. In the management of the Exchange Fund, its portfolio is divided into two distinct parts: one is "the Backing Portfolio to ensure that the Monetary Base related to the Currency Board operations is fully backed by highly liquid, short-term U.S. dollar" (HKMA, 2004a) assets; the other is "an Investment Portfolio to preserve the fund's value for future generations in Hong Kong" (HKMA, 2004a). Therefore, the foreign assets in the Exchange Fund are different from those that back the currency board system.

In addition, examining the balance sheets of the Exchange Fund and the currency board that are released by the HKMA, we can find that the currency board is part of the Exchange Fund (see Table 3 and Table 4). On the assets side of the Exchange Fund balance sheet, there are foreign assets and Hong Kong dollar assets; but on the assets side of the currency board balance sheet, there are only foreign assets. Furthermore, the value of the foreign assets on the Exchange Fund balance sheet is greater than that of the currency board account. For example, on 31 December 2001, the foreign currency assets on the Exchange Fund were 878,847 million HK\$, but on the currency board balance sheet, it was only 256,570 million HK\$. On the liabilities side of the Exchange Balance sheet, we find the monetary base (including Certificates of Indebtedness, Coins in circulation, Balance of the banking system, and Exchange Fund Bills and Notes), placements by banks and other financial institutions, placements by other Hong Kong government and placements by Hong Kong statutory bodies. By contrast, on the liabilities side of the currency board account, there is only the monetary base.

Table 3 **The Exchange Fund Balance Sheet**¹¹, 31 Dec. 2001, Unit: mill. HK\$

<u>Assets</u>	<u>Liabilities</u>
Foreign assets 878,847	Certificate of Indebtedness 107,545
Hong Kong dollar assets 101,717	Aggregate Balance 671
	Exchange Fund Papers 118,157
	Placements by banks and other financial institutions 47,011
	Government deposits 380,602

Source: HKMA (2002c)

Table 4 **The Currency Board Balance Sheet**¹², 31 Dec. 2001, Unit: mill. HK\$

<u>Assets</u>	<u>Liabilities</u>
Foreign assets 256,570	Certificates of Indebtedness 107,545
	Aggregate Balance 671
	Exchange Fund Papers 118,157

Source: HKMA (2002c)

In its functions, the Exchange Fund expands its primary function, which is to control the exchange value of the Hong Kong dollar and to maintain the stability and integrity of the monetary and financial systems. In fact, in the 1980s, the Hong Kong's government bailed out a bank run with the help of the Exchange Fund, and in August 1998, in order to retain the stability of the Hong Kong dollar and the financial system, the HKMA fought the speculators' attack through the Exchange Fund. Therefore, the

¹¹ The detailed information on the Exchange Fund balance sheet is in Appendix 1.

¹² The detailed information on the currency board balance sheet is in Appendix 2.

Exchange Fund is not only to back the currency board system, but also to maintain the stability of the whole financial system in Hong Kong.

The HKMA, as a representative of the Hong Kong government, does the day-to-day management of the Exchange Fund. Moreover, the HKMA achieves its objectives through the management of the Exchange Fund. In other words, the Exchange Fund balance sheet reveals the activities of the HKMA management. I have mentioned in section 4.1 that the creation of the HKMA occurred by combining the Exchange Fund Office with the Commissioner of Banking Office. Thus, the Exchange Fund is an integral part of the HKMA. For example, in the RTGS system, all the licensed banks must hold a clearing account at the HKMA. Actually, by examining the Exchange Fund balance sheet, the clearing accounts are in the Exchange Fund. In addition, the HKMA balance sheet in the International Financial Statistical (IMF, 2002) does not reveal all the assets and liabilities of the HKMA (see Table 5). In Table 5, the listed foreign assets are only a

Table 5 **The balance sheet of the HKMA in 2001** unit: billion HK\$

<u>Assets</u>		<u>Liabilities</u>	
Foreign assets	822,50	Reserve money ¹³	229.74
		Foreign liabilities	42.08
		Government deposits	380.60
		Capital accounts	302.59
		Other items (net)	-132.51

Source: IMF *International Financial Statistics*, Dec.2002

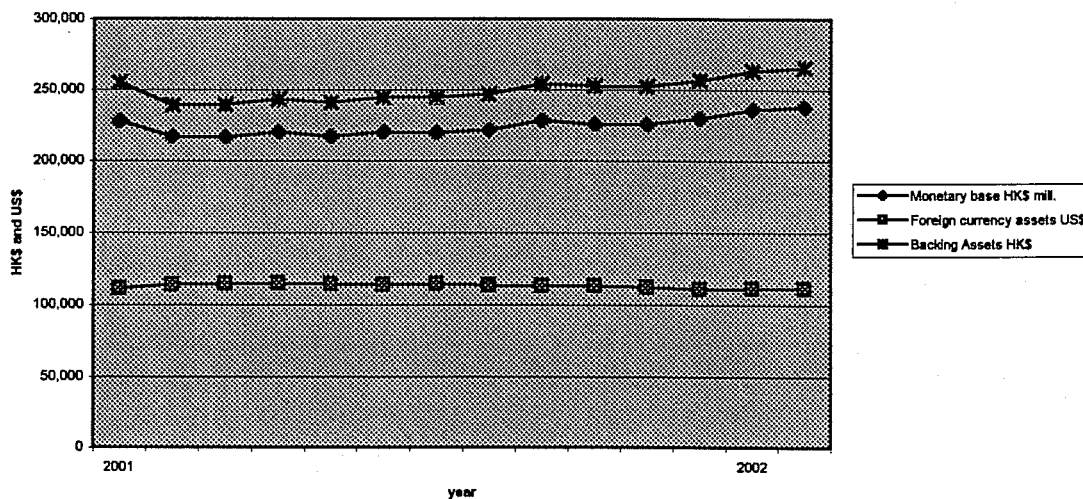
partial measure of all the foreign assets that the HKMA holds. It excludes the domestic assets of the Exchange Fund and excludes foreign currency deposits placed with banks in

¹³ The reserve money comprises currency in circulation. Please see the introduction in *International Financial Statistics*, IMF Dec. 2002, p. xviii. In addition, comparing with the data in the HKMA, I find that reserve money actually is the Monetary Base in Hong Kong. Please see *the Exchange Fund Balance Sheet Data*, press release of the HKMA on 15 Feb. 2002, website: www.info.gov.hk/hkma.

Hong Kong. The term “reserve money” just represents the monetary base in Hong Kong¹⁴.

Furthermore, examining the time series data on the foreign reserves of the Exchange Fund and the Monetary Base, we can see that the Monetary Base does not vary with the variation of Foreign Reserves. For example, in October, November and December 2001, the monetary base was 225,686 million HK\$, 225,750 million HK\$ and 229,741 million HK\$, respectively, with an increasing trend, but at the same time the foreign reserves of the Exchange Fund were 113,096 million US\$, 112,285 million US\$ and 111,159 million US\$, respectively, with a decreasing trend (see Chart 1 and Table 6). That is, with the increase of the monetary base, the foreign reserves do not increase. It is the opposite of the mechanism of the theoretical currency board system. In Hong Kong, only the backing assets have the same trend as that of the Monetary Base. The fact that foreign reserves in the Exchange Fund have a different trend from that of the monetary base shows that there is a mechanism in the HKMA that can buffer external shocks.

Chart 1 monetary base, foreign reserves and backing assets



¹⁴ See Table 8.2, Analytical Accounts of the Exchange Fund, in *Monthly Statistical Bulletin* on the website of the HKMA: www.info.gov.hk/hkma/.

Actually, in its explanation of the term *foreign reserves* in the Exchange Fund, the HKMA says: “foreign reserves are also used for making payment in foreign currencies without the need to sell the domestic currency in the market” (HKMA, 2000b). That is, the HKMA can decrease its foreign reserves when making payments in foreign currency without influencing the money supply. In the Exchange Fund balance sheet, the external payments were achieved by decreasing the foreign reserves on the assets side and the foreign liabilities on the liabilities side. This fact reveals that the domestic money supply is not completely determined by the variation of the foreign reserves, even if Hong Kong maintains the currency board system.

Table 6 Monetary base, Foreign currency assets and Backing assets in Hong Kong

As at end of	Monetary base HK\$ mill.	Foreign currency assets US\$ mill.	Foreign currency assets HK\$ mill.	Backing assets HK\$ mill.
2001 Jan.	227,857	111,512	885,128	255,015
Feb.	217,045	114,282	905,403	239,238
Mar.	216,681	114,602	911,880	239,807
Apr.	220,449	115,135	914,436	243,542
May	217,210	114,665	911,680	241,309
Jun.	220,442	114,091	906,158	244,891
Jul.	219,825	114,612	908,415	244,868
Aug.	221,820	113,651	900,077	247,088
Sep.	228,419	113,434	901,312	254,365
Oct.	225,686	113,096	894,979	252,705
Nov.	225,750	112,285	889,792	252,642
Dec.	229,741	111,159	877,427	256,570
2002 Jan.	236,033	111,277	882,299	263,069
Feb.	237,803	111,330	884,212	265,349

Source: The HKMA *Monthly Statistical Bulletin* (2004b)

Section 4.4 Aggregate Balance: one of the monetary policy instruments in Hong Kong

With the establishment of the RTGS system, the HKMA can implement monetary policy through controlling the size of the Aggregate Balance. In the RTGS system, all the licensed banks in Hong Kong must hold a clearing account¹⁵ with the HKMA at the Exchange Fund. So on the liabilities side of the Exchange Fund balance sheet, there is an item of Aggregate Balance of the banking system (see Table 3), and on the assets side of the balance sheet of the licensed banks, there is an item describing the balance of the clearing account (see Table 7). The Aggregate Balance links the HKMA with all the licensed banks, and the HKMA can influence the size of the Aggregate Balance to achieve its objective of monetary policy.

Table 7 The balance sheet of the licensed banks in Hong Kong¹⁶ (simplified)

<u>Assets</u>	<u>Liabilities</u>
1. Foreign reserves	1. Amount due to the restricted licensed banks
2. Balance of the clearing account	2. Amount due to the deposit-taking companies
3. Notes and coins	3. Deposits from customers
4. Certificates of Indebtedness	
5. Exchange Fund Papers	
6. Loans and advances to customers	

In the RTGS system, the balance of the clearing account just serves to make transactions among the licensed banks or between the licensed bank and the HKMA. The positive balance of the clearing account does not bear interest for its holder—a licensed bank, but a licensed bank with a negative balance of the clearing account during a

¹⁵ Before the establishment of the RTGS system, the Monetary Authority (or the HKMA) could not influence liquidity because banks in Hong Kong did not have to hold non-interest bearing reserves at the HKMA.

¹⁶ The detailed balance sheet of the licensed banks is in Appendices 3, 4.

transaction day cannot do any transactions. If the balance of a licensed bank's clearing account is negative, the licensed bank can get intraday or overnight liquidity from the HKMA with a collateral. But the interest rate of liquidity is higher than the market rate. So every licensed bank tries to maintain a small but positive balance of the clearing account.

Since December 1996, the Aggregate Balance has become one of the monetary bases in Hong Kong, and with the implementation of the "seven technical measures" in 1998, the new contents were assigned to the Aggregate Balance. As I have mentioned in a previous section, in Hong Kong the money base includes three components: the Certificates of Indebtedness, Aggregate Balance (of clearing account), and the Exchange Fund Papers (Bills and Notes). The Certificates of Indebtedness are convertible into U.S. dollars at the fixed exchange rate of HK\$7.8 per US\$ both ways, but cannot transfer towards other components of the money base. The Aggregate Balance is convertible into U.S. dollars at HK\$7.8 per US\$ since 12 August 2000, and convertible from U.S. dollars at the market exchange rate (both for value spot T+2). Generally, the market exchange rate is less than the official exchange rate of 7.8 HK\$ per US\$. So if a licensed bank converts its Aggregate Balance into US dollars, then converts its US dollars into its Aggregate Balance through the HKMA, it will make a loss due to the difference in the official and the market exchange rates.

In addition, The Aggregate Balance is transferable with the Exchange Fund Papers. The Exchange Fund Paper cannot convert directly into U.S. dollar assets but can indirectly convert with US dollars through the Aggregate Balance. That is, the licensed banks can get liquidity from the intra-day purchase facility or get overnight liquidity from the Discount Window by the collateral of the Exchange Fund Paper (Yam, 2000, 2002 and 2004).

Now let us see how the mechanism of the monetary policy works through controlling the size of the Aggregate Balance of the clearing account. When capital flows in, the HKMA may increase the size of the Aggregate Balance instead of increasing the

Certificates of Indebtedness. Although the increase of either the Aggregate Balance or the Certificates of Indebtedness will induce the increase of the monetary base, their effects on the money supply are different. The balance of the clearing account just serves for the transactions among the banks and between the licensed banks and the HKMA, and from the previous analysis, we know that every licensed bank seeks to keep the size of the balance of its clearing account low enough, so the extent of the creation of the money supply through the licensed banks is limited by the licensed banks' interest. If the HKMA increases the Certificates of Indebtedness, when the capital flows in, instead of increasing the Aggregate Balance, the licensed banks can create new money, so the money supply (see Box 1) increases. Therefore, in the currency board system, when capital flows in, the monetary base increases, but the capability of the creation of the money supply through the licensed banks is transferred through an increase in the Aggregate Balance by the HKMA.

Another instrument of monetary policy in Hong Kong is the Discount Window. Under the arrangement of the Discount Window, the HKMA influences the liquidity by setting the Base Rate (the equivalent of the Bank Rate in the central bank institution). The Base Rate is set at either 150 basis points above the prevailing U.S. Fed Funds Target Rate or the average of the five-day moving averages of the overnight and one-month HIBORs whichever is higher. The HKMA announces the Base Rate at the beginning of the inter-bank market every day (HKMA, 1998). The Base Rate is the interest rate that the HKMA charges to the licensed banks when the licensed banks get liquidity from the HKMA. In terms of the Base Rate, the HKMA can adjust the liquidity in the money market of Hong Kong. The Base Rate is the penalty interest rate, so the licensed banks first try to get the liquidity from the inter-bank money market when the licensed banks need the liquidity. So, getting the liquidity from the HKMA is the last option for the licensed banks. Although the HKMA can set the Base Rate for the interbank money market in Hong Kong, the Base Rate is counted through the reference to the Fed Funds Target Rate, so the HKMA has to recognize that the impact of the interest rate policy is limited by the currency board system (HKMA 2000a).

Box 1 The definition of the money supply in Hong Kong

M_1 = currency held by public + demand deposits

M_2 = M_1 + savings and time deposits with licensed banks + NCDs¹⁷ issued by licensed banks and held by the public

M_3 = M_2 + deposits with restricted licensed banks and deposit taking companies + NCDs issued by restricted licensed banks and deposit taking companies and held by the public

Source: *the HKMA Quarterly Bulletin*, May 2002 (HKMA 2002b)

With more than a 6 million population, and a very open economy¹⁸, Hong Kong chooses the currency board system as its basic monetary regime, but Hong Kong has revised the currency board system by introducing the functions of the central bank institution. It seeks to exploit the advantages of both of them. The stability of the Hong Kong dollar and of its financial system, through many internal and external shocks, proves that the linked exchange rate system has exerted its functions effectively.

V. Conclusion

The currency board system was invented by the British government in the 19th century, and revived in 1980s-1990s. The pure currency board system has been recommended by some economists, since market mechanisms can work automatically in the pure currency board system. In theory, market mechanisms are indeed perfect, to retain the equilibrium of the economy. But in reality, market mechanisms have failures. Therefore, in order to face reality, many different forms of currency board systems have appeared over the last century.

¹⁷ NCDs are the Negotiable Certificates Deposits.

¹⁸ The degree of openness of an economy is evaluated by the ratio of the foreign trade to the GDP. The ratio of the foreign trade to the GDP is 330% in Hong Kong in 2003.

The linked exchange rate system is a special form of the currency board system, with its establishment in October 1983. With the development of the financial industry in Hong Kong, the monetary system in Hong Kong is not a simple currency board system. It has become a mixture of the central bank institution and the currency board system. The Hong Kong Monetary Authority is both the manager of the Exchange Fund and the central bank in Hong Kong. Observing the basic rule of the currency board system, the HKMA performs the monetary policies on day-to-day business. The main objective of the monetary policies is to stabilize the external value of the Hong Kong dollar. The HKMA achieves its objective by adjusting the assets structure of the Exchange Fund, controlling the size of the Aggregate Balance and influencing the interest rates of the inter-bank money markets through the Discount Window.

In the short run, both the HKMA (Yam, 1998b) and the economists who are experts of the monetary system in Hong Kong (Tsang, 1996) believe that Hong Kong should continue to retain the linked exchange rate system. However, in the long run, the evolution of the linked exchange rate system has to cope with the reality of the emergency of the economy in Mainland China, and the integration and globalization of the world economy. Although there are many differences in the economic system between Hong Kong and Mainland China, and while "one country, two systems" is the basic principle under which the central government of China deals with Hong Kong, the economic relations between Hong Kong and Mainland China are quickly increasing. In the future, Hong Kong will have to face the question of whether there should be a currency union in Big China (including Mainland China, Hong Kong, Macao and Taiwan). This question will be the core issue when dealing with the future of the monetary system in Hong Kong.

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Appendix 1

**Exchange Fund Abridged Balance Sheet
as at 31 December 2001
(Expressed in millions of Hong Kong dollars)**

	Notes	31 December 2001	30 November 2001
ASSETS			
Foreign currency assets	1	878,847	889,792
Hong Kong dollar assets	2	<u>101,717</u>	<u>113,746</u>
Total Assets		<u><u>980,564</u></u>	<u><u>1,003,538</u></u>
LIABILITIES AND FUND RESOURCES			
Certificates of Indebtedness	3	107,545	103,575
Coins in circulation	3	5,691	5,674
Balance of the banking system	3	671	864
Exchange Fund Bills and Notes	3	118,157	115,504
Placements by banks and other financial institutions		47,011	61,381
Placements by other Hong Kong Special Administrative Region government funds		380,602	387,434
Placements by Hong Kong statutory bodies		5,124	5,084
Other liabilities	4	<u>13,019</u>	<u>17,537</u>
Total Liabilities		<u>677,820</u>	<u>697,053</u>
Accumulated surplus		<u>302,744</u>	<u>306,485</u>
Total Liabilities and Fund Resources		<u><u>980,564</u></u>	<u><u>1,003,538</u></u>

Notes:

1. These include US dollar assets for backing the Monetary Base, which amounted to HK\$256,570 million as at end-December 2001 and HK\$252,642 million as at end-November 2001.
2. These include lending collateralised by Exchange Fund paper under the Discount Window, which amounted to HK\$375 million as at end-December 2001 (HK\$501 million as at end-November 2001).
3. A component of the Monetary Base.
4. These include interest payable on Exchange Fund paper and accounts payable under Currency Board operations.

Source: The HKMA website: www.gov.hk/hkma

Appendix 2

Exchange Fund

Currency Board Account

as at 31 December 2001

(Expressed in millions of Hong Kong dollars)

	31 December 2001 (Market Value)	30 November 2001 (Market Value)
MONETARY BASE		
Certificates of Indebtedness	107,545	103,575
Coins in circulation	5,691	5,674
Balance of the banking system	671	864
Exchange Fund Bills and Notes issued	118,157	115,504
Interest payable on Exchange Fund Notes	624	656
Net accounts (receivable)/payable	(2,947)	(523)
Total	229,741	225,750 (a)
BACKING ASSETS		
Investment in designated US dollar assets	254,200	250,819
Interest receivable on designated US dollar assets	2,370	1,823
Net accounts receivable/(payable)	-	-
Total	256,570	252,642 (b)
BACKING RATIO [(b) / (a)] * 100%	111.68%	111.91%

Source: The HKMA website: www.info.gov.hk/hkma

Appendix 3 The information collection form of the balance sheet of authorized institutions

<u>Assets</u>	<u>Liabilities</u>
1. cash	1. Capital and reverses
2. Certificates of Indebtedness	2. Qualifying capital instruments
3. Due from Exchange Fund	3. Other capital-type instruments
4. Loans and advances to customers	4. Notes in circulation
5. Amount receivable under reverse repo	5. Due to Exchange Fund
6. Due from banks	6. Deposits from customers
7. Negotiable certificates of deposits (NCDs) held	7. Amount payable under repos
8. Investments	8. Due to banks
9. Investment in land and buildings	9. Negotiable debt instruments issued and outstanding
10. Other assets	10. Other liabilities

Source: The HKMA www.info.gov.hk/hkma/eng/bank/

Appendix 4 The Balance sheet of all authorized institutions 12 Dec. 2001 HK\$ mill.

Assets	Liabilities
Notes and coins 13,938	Amount due to authorized institutions in Hong Kong 469,834
Amount due from authorized institutions in Hong Kong 468,318	Amount due to banks abroad 1,458,927
Amount due from banks abroad 2,159,637	Deposits from customers 3,406,502
Loans and advances to customers 2,184,986	Negotiable certificates of deposit outstanding 172,325
Negotiable certificates of deposits held 127,563	Other debt instruments outstanding 44,944
Negotiable debt instrument held other than NCDs 907,642	Capital reverses and other liabilities 601,424
Investment in shareholdings 44,878	
Investment in land and buildings 64,445	
Other assets 182,549	
Total assets 6,153,957	Total Liabilities 6,153,957

Note: The consolidated balance sheet of authorized institutions excludes Certificates of Indebtedness issued by the Exchange Fund and the counterpart bank notes issued.

Source: The HKMA *Monthly Statistical Bulletin* March 2004 www.info.gov.hk/hkma