

**“Currency Boards –Experience and Prospects”**

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**Commitment to and Exit Strategies from a CBA**

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**Introduction: commitment versus exit**

It is my honour and pleasure to have an opportunity to say something about currency board economics in this seminar organized by the Bank of Estonia. The topic that I am assigned to discuss today, i.e. commitment versus exit, is interesting as well as challenging. The more committed that one is to a cause, e.g. a fixed exchange rate, the more difficult it is for one to exit from that cause. The irony is that if one is perceived to be not committed enough, the cause of keeping to the exchange rate may be jeopardized. How to balance the commitment to and the freedom to exit from a cause, say a currency board arrangement (CBA), is therefore an important subject.

A CBA is by logic not a “fully committed” fixed exchange rate system because an exit option, i.e. re-pegging or floating, is always implicit. In comparison, dollarization or euroization is “fully committed”. If the fixed exchange rate is never to be forsaken, why not simply abolish one’s own currency and use the anchor currency instead? I know that I have to be very careful here because it is still possible to re-issue a national currency after abandoning it, voluntarily or otherwise. The experience of most of the countries represented in this seminar serves as the best testimony. In any case, the key issue that we are interested in, I presume for this session at least, is how to preserve the exit option, or how to manage the exit, without destabilizing a CBA. Putting the

question in another way, how committed should the currency board be to the fixed exchange rate, for the sake of stability?

### **Variety of currency boards**

A small piece of research that I did last year, the report of which was published in the August issue of the *Quarterly Bulletin* of the Hong Kong Monetary Authority (HKMA), produced interesting results (Tsang, 1999a). I focused on six existing currency board regimes (alphabetically Argentina, Bosnia-Herzegovina, Bulgaria, Estonia, Hong Kong and Lithuania); and I looked at three key aspects of their systems, namely,

- (1) The legal setting covering the relationships between the currency board system and the monetary authority/central bank, which may be explicit, implicit, or non-defined;
- (2) The extent of legal commitment to a backing rule and a convertibility undertaking; and
- (3) Legal coverage of other aspects of currency board operations, including (a) the lender of last resort function; (b) lending to government; and (c) the pursuit of transparency.

What did I find? Well, there was a large variety of legal and non-legal commitments (or the lack of them) to these three aspects of the currency board system, ranging from the loosest (interestingly Hong Kong, where there is as yet no legal commitment to the peg of HK\$7.80/US\$) to the most disciplined (Bosnia and Herzegovina, where the Constitution was invoked in defining the CBA). I attach for your reference here an annex from the paper (Tsang, 1999a) on the statutory provisions of these six regimes, which, I will be the first one to admit, may not be fully accurate and updated.

In any case, all six regimes seem to have been viable up to now; and I would draw two preliminary conclusions from this observed dispersion of stability conditions. (1) The degree of commitment required for stability is dependent on the specific conditions of each CBA. For some, very firm commitment is needed; while for others, particularly those with deep pockets like Hong Kong, even loose, non-legal commitments would suffice. (2) The case for the purist pursuit of currency board fundamentalists has probably been overdone. No one single dogmatic formula for currency board stability

and simplistic salvation exists.

Nevertheless, while the link between commitment and viability is not uniform or mechanical, there is no escape from the conclusion that commitment is positively correlated with exit cost. The more you are committed, the higher the cost for exit will be. So how much legal and policy commitment is needed to buttress a CBA?

### **The core mechanisms of modern CBAs and the AEL model**

It is instructive to step backward first and ask what a CBA actually means and how it differs from other fixed exchange rate systems. Very simply, it is a monetary regime under which the authority issues “money” (from the narrowest definition of currency notes to wider identifications) with full foreign reserves backing. As a result, strict discipline is imposed on the CBA in expanding “money”.

The problem is the definition of “money”. It was cash (notes and coins) in the past. Everyone used such narrow “money” for most transactions under the colonial CBAs. Life is no longer so simple. In a modern financial system whereby banks can create money through the multiplier effect, there is a problem of the correlations between the “monetary base”, over which the monetary authority has effective control because it consists essentially of its own liabilities, and the ultimate coverage of “money”, which banks and non-bank financial institutions can expand or contract on a fractional basis. The need has arisen for a CBA to change the coverage of reserves from the cash base in the colonial era to the expanded monetary base in the modern age. I have such a move dubbed as the “AEL (Argentina, Estonia and Lithuania) model” (Tsang, 1996; 1998b).

By covering the monetary base with 100% foreign reserves and providing a kind of convertibility undertaking, a modern CBA embraces monetary discipline. It also enables the operation of automatic and transparent adjustment mechanisms (involving in particular the arbitrage activity of market participants) that would cause the market exchange rate to converge to the official parity and restore macroeconomic equilibrium at much reduced costs. Government intervention in the foreign exchange market is also minimized (Tsang, 1998b; 1999b).

The system is actually quite similar to the old gold standard, under which governments just fixed the gold parities and affirmed convertibility. Market participants

would carry out arbitrage by shipping gold bullion around if the market exchange rate deviated from the official rate of gold parities. There were also some financial arrangements to reduce transaction costs (Bayoumi, Eichengreen and Taylor, 1996). The gold standard and the currency board system are based on broadly consistent principles. It is unfortunate that the literature has seldom directly compared the two regimes (Tsang, 1999b).

### **Efficiency and systemic risk: how to contain them?**

It does not mean that all is well with a CBA, even in the mode of the AEL model. Nor was it with the old gold standard. After all, the system did collapse and disappear. As I analyzed in some of my previous writings (Tsang, 1998b; 1999b), a CBA basically faces two types of risk: (1) efficiency risk; and (2) systemic risk. Efficiency risk would arise if the monetary authority fails to fix the spot exchange rate on a daily basis because of, say, insufficient reserves (e.g. Argentina in 1995), or as a result of the lack of a firm convertibility undertaking and therefore weakness in market arbitrage (e.g. Hong Kong before the seven technical measures of September 1998). Systemic risk, on the other hand, is the perceived danger that the authority may give up the currency board system for other considerations although it can technically fix the spot exchange rate. These other considerations can be economic in nature. For example, the pains, in terms of output loss and unemployment, of maintaining a fixed exchange rate (particularly one that is “misaligned”) are regarded as too high. They may also be political if, say, a new President of the country happens to be a well-known “free floater”.

It is not always easy to distinguish efficiency risk from systemic risk. The speculative attacks on the Hong Kong dollar from late 1997 to August 1998 were based on the perceived risk of both types. The same can be said of the Argentine crisis of 1995. People doubted the ability as well as the determination of the authorities to keep to the fixed exchange rate.

How did the two economies deal with their respective crises? Hong Kong implemented the seven technical measures in September 1998 and financial calm has since returned. The moves involved basically the announcement of a one-way convertibility undertaking and the establishment of a discount window. The term “technical measures”, officially used by the Hong Kong Monetary Authority (HKMA), is instructive. In HKMA’s view, those measures were just technical improvements,

aiming at enhancing the robustness of the system (HKMA, 1998). In my own terminology, their objective was basically to reduce the efficiency risk of Hong Kong's CBA.

In contrast, Argentina in 1995, and since 1995, has had to carry out various measures to deal with both efficiency risk and systemic risk. Reserves had to be augmented, convertibility was strengthened, and the external assistance of the IMF and banks based in the US was incurred. Despite all these, the East Asian financial crisis and the subsequent devaluation of the Brazilian real had continued to put pressure on the peso, so much so that dollarization (or "full dollarization") became an issue. Dollarization of course means the close of the exit. The implication, in my view, is that the Argentines were, and have been, more concerned than Hong Kong citizens about the systemic risk of their CBA.

One lesson from this tale of the two CBAs is that the form of commitment required to back up a CBA depends on the specific situation that it has to confront. Sometimes even legal commitments may not be sufficient.

### **Other forms of commitment and exit cost**

Other than a convertibility undertaking covering the monetary base, there are other forms of commitment that may strengthen a CBA. For example, with sufficient reserves, the monetary authority can always extend the undertaking beyond its own liabilities, say, to cover saving deposits of the citizens. These deposits are the liabilities of the commercial banks, not those of the currency board. Such a modification will more than fulfill classical currency board principles. Other than the technical issues involved, including deposit migration, it begs the question of why the monetary authority should start providing coverage for private sector liabilities directly, and to what extent. How useful such a move will be can also be debated.

In any case, even a widened convertibility undertaking is still just an undertaking, which may be legal, and legal to various degrees of detailed specifications; or not legal at all. In the latter case, it would just be a "proclamation of intent" on the part of the monetary authority or the government. Hong Kong is the best example. In any case, an undertaking may take many forms, generating different degrees of credibility as well as liability. If a CBA legislates the convertibility undertaking, like what Argentina, Bosnia-Herzegovina, and Bulgaria have done in a number of ways (Tsang, 1999a), the

credibility of the undertaking should be enhanced. But even such legalization has never spelt out liability provisions. In so far as there is liability, it is political, not financial in nature. If the authority reneges and devalues or floats the currency through the legal route or by exercising its discretionary power, who can claim what from whom? The answer is simply no. As I said in another piece of mine (Tsang, 1999c), dissatisfied money holders could pour abuses on embarrassed officials, and the government might even be brought down democratically or otherwise. Nevertheless, no bureaucratic institutions would pay one any money for putting faith in the previous ill-fated convertibility undertaking.

That is why some economists have suggested that the undertaking may be transformed into an explicit insurance instrument (Chan and Chen, 1999). “Putting money where the mouth is”, the CBA should issue currency options that spell out a monetary liability. A domestic currency put option, for example, writes all the following provisions into the contract: the size of commitment, the maturity period, the strike price, etc. A market participant would know exactly how he is hedged and what he will get, in financial terms, if the peg collapses (Mak, 1998). In case of default, he can sue the currency board that writes and sells the put option.

As far as I know, no CBAs have issued any instruments that have legal features resembling currency options. I do not think that Hong Kong dollar put options are useful for the defence of Hong Kong’s currency board under the current circumstances; and there are technical problems involved in launching them, e.g. how to determine the size and the pricing of the options? Should the options be embedded in a component of the monetary base? Or should they be stand-alone products, going beyond the monetary base? In the wider context, a recent IMF study on central bank participation in currency options markets (Breuer, 1999) suggests that the sale rather than the purchase of options by a central bank should “result in market makers dynamically hedging their long option exposure in a stabilizing manner”, thus leading to lower exchange rate volatility. That conclusion depends on the extent of delta hedging activity versus that of taking outright positions.

If one looks at the bigger picture, there are potential concerns about such “participation”. Currency options may themselves be destabilizing as they open up another channel for possible speculation against the domestic currency, particularly on the weak side. A scheme officially sponsored by a CBA could also run the risk of being caught in an irreversible downward spiral in a time of crisis: an increasing number of people might ask for more put options from the currency board. The political as well as economic costs of resisting that demand would be very high. In any case, the issues

involved are quite complex. I agree that the feasibility and desirability for CBAs to issue currency options should be investigated in more detail and in a cool-headed fashion.

### **Exit strategies: the possibly “easy” one**

How to exit from a CBA? It of course depends on how much commitment that the CBA has put in place to support the peg. In the case of Hong Kong, the exit seems to be simple. The HKMA, or more precisely the Financial Secretary of the Hong Kong SAR Government, can announce a re-peg or the float of the Hong Kong dollar at any time. There is no legal barrier to such a move. As I said in Tsang (1999a), Hong Kong's CBA has the “loosest” foundation in laws. There is no statutory provision on the currency board system, or an ordinance governing the HKMA. Article 111 of the Basic Law stipulates that “(t)he issue of Hong Kong currency must be backed by a 100 per cent reserve fund”, without specifying the reserve asset or the exchange rate. Section 4(1) of the Exchange Fund Ordinance, which governs the management of Hong Kong's foreign exchange reserves, calls for full backing for Hong Kong dollar bank notes, again without mentioning the US dollar or any exchange rate. In fact, the linked exchange rate of HK\$7.80/US\$ appears in no legal document in Hong Kong. Even the one-way convertibility undertaking announced by the HKMA in September 1998 was just that: an announcement, which could be changed without breaching any law (Tsang, 1999c). Hence, the exit cost would only be political, not legal or financial.

The case of Hong Kong being able to weather the storm with such a “weak” commitment incurring low exit cost is rather unique. It is not easily repeatable elsewhere. After all, Hong Kong is the only international financial centre that hosts a CBA. It also has very deep pockets: its foreign exchange reserves amounted to US\$93.8 billion at the end of March 2000, and ranked as the fourth largest in the world, after Japan, Mainland China and Taiwan. The reserves covered over three and a half times of the monetary base and more than 35% of HK\$M3 in Hong Kong.

Of course, the exit cost for Hong Kong would still be high in a time of crisis, when speculators guess forward. The expectations of abandonment, rightly or wrongly, could increase the pressure to exit, hence significantly raising the exit cost. The most recent example was the East Asian financial crisis. Several rounds of severe attacks had even forced the Hong Kong government to intervene in the stock and futures markets in August 1998 to ward off self-feeding speculation. The move touched off a huge controversy.

Before the 1997 political transition in Hong Kong, nobody dared to openly propose any changes to the US dollar peg. The peg was regarded as the most important anchor in a turbulent time. But I have to say that my "private" view before 1997 was that an exit "could" be made after the transition, if it was deemed desirable (Tsang, 1998a). After the political dust had settled, the HKMA might choose a hot and boring Friday afternoon in mid-summer, when most fund managers and top government officials had gone vacationing, and announce the floating of the Hong Kong dollar. Few of those still present or awake would notice the move. One or two weeks later, the government could disclaim any responsibility, whichever way the exchange rate would move. Well, such an easy exit to "freedom" does not seem to be one of Hong Kong's options in the short run now, after the recent financial crisis.

### **Exit strategies: the CBA as a transition to re-tracking or euroization**

It is a very different story if the CBA is designed as a transition to an eventual participation in a monetary union. Exit becomes quite well defined and some excitements could be lost. One may even argue that it is not really an exit (to something uncertain or to a land of "freedom", e.g. re-pegging or floating) but a "re-tracking", i.e. shifting from one track to another track, to take a railway metaphor.

In the case of Estonia, the CBA's pegging the kroon to the German mark and then to the euro showed clear intentions of re-tracking. As Lepik (1999) pointed out, since Estonia belongs to the first wave of accession countries to the European Union, the natural exit is joining the monetary union. "This is the reason why dollarization (or euroization ...) which is so popular in many countries today has never been an issue in Estonia."

With regard to Lithuania, the initial choice of pegging to the US dollar (rather than the German mark) created some problems. As the intention of joining the European Union and the eventual monetary union was made clear (Bank of Lithuania, 1997), a two-currency basket was proposed as a transitional measure to re-tracking (Niaura, 1998). If I understand correctly, though, the stability of the exchange rate between the euro and the US dollar, among other factors, led to Bank of Lithuania to announce that instead of the basket transition, the litas will be pegged to the euro in the second half of 2001 (Bank of Lithuania, 1999).



There are however still uncertainty and costs associated with the re-tracking process, as other speakers in this seminar have so ably explained. First, rate uncertainty exists even after the unilateral pegging to the euro by CBAs such as Estonia and Lithuania. Renegotiation of the central rate against the euro may take place to reach an agreement for the eventual joining of the monetary union. Depending on the perceived size of the required rate realignment, ranging from zero to something significant, speculative capital flows could emerge. Given that EU and then EMU membership will involve the fulfillment of many criteria, the re-tracking cost, i.e. costs incurred to facilitate the re-tracking by perhaps painful fiscal, monetary and other economic policies, could also be substantial; and various measures might not be fully consistent with each other. Finally, a CBA is a fixed exchange rate system; but the euro-system floats. There will therefore be other technical and behavioral adjustments that an economy making such an exit has to go through.

#### **“Exit” strategy in a crisis: *impromptu* official dollarization?**

Nevertheless, these uncertainty and costs appear relatively limited compared with the exit of a CBA that has not pre-announced a plan or is not widely anticipated to pursue the goal of re-tracking, e.g., Hong Kong and Argentina. Is dollarization then a viable “exit” strategy out of a crisis? The following two questions are of course different: (1) whether dollarization is optimal as a relaxed choice; and (2) whether dollarization can be used as a rescue to save an economy in a crisis.

With regard to the first issue, it depends on a whole lot of factors. As far as Hong Kong is concerned, my own view is that the optimal choice sometime in the 21<sup>st</sup> century should be a monetary union with the then freely convertible Chinese currency, i.e. the Renminbi (Barandiaran and Tsang, 1997). Using dollarization to solve a short term crisis will involve dramatic "exit cost" for Hong Kong.

Can dollarization serve as a useful rescue in a time of crisis, without forward planning and/or public anticipation? This is a tricky question, but I think that the distinction between official and unofficial dollarization is important. If there are no exchange controls, market driven dollarization might be a "natural" process. Anyone could do it any time he or she likes. The Argentine economy was “half dollarized” anyway without the government advocating it, long before the recent debate began. That may even have been a good thing for the stability of the country’s CBA (Tsang, 1998c). On the other hand, if there is a crisis, can and should the government push

dollarization as an “exit” strategy? A number of economists in Argentina and the US think “yes”. I do not know enough about Argentina to judge. As far as Hong Kong is concerned, the question of whether a large international financial centre can officially dollarize is a very controversial one, leaving aside what the long-term fate of the Hong Kong dollar should be.

The Hong Kong government actually considered the viability of official dollarization as a crisis response in its *Report on Financial Market Review* of April 1998 (FSB, 1998). Four difficulties were highlighted for Hong Kong: (1) transitional issues: huge legal and practical problems concerning existing HK\$-denominated contracts under *force majeure* and the possibility of massive shifting of even US\$-denominated assets out of Hong Kong, leading to a serious liquidity strain locally; (2) the loss of seigniorage with the disappearance of the Hong Kong dollar; (3) operational issues such as the lack of liquidity provision in Hong Kong while the US market closes; and (4) the political implications for "one country, two currencies" as Hong Kong is under Chinese sovereignty.

In my opinion, difficulties (1) and (3) are particularly serious for an economy with a very high degree of financial development. My worry focuses on the implied balance sheet adjustments that are required by the quick process of *impromptu* dollarization (Tsang, 1998c). Unlike a tiny economy dominated by cash transactions, there are all kinds of financial contracts, which are denominated in the domestic currency and extend one's rights and obligations to a lengthy time horizon ahead. This is particularly so for a mature financial economy like Hong Kong. People borrow mortgage loans for property units and corporations issue debt instruments in Hong Kong dollars at rates substantially different from the US dollar counterparts, whilst many are making various Hong Kong dollar investments for diverse rates of returns. However, as a crisis response, official dollarization needs to be implemented very quickly, perhaps even overnight, because it is tantamount to the government openly admitting failure. A lengthy transitional period may generate further complications and instability. But then rapid dollarization would throw all previous contracts and plans into chaos: some people gain; others suffer, both perhaps significantly. There might be a marked re-allocation of fortunes and misfortunes. The political as well as economic cost of using dollarization as an exit strategy could then be significant, even if all the legal and technical problems are manageable.

### **An irony and a reminder: what kind of crisis is dollarization solving?**

There is really an irony in this analysis of mine, assuming that it is valid. If dollarization has evolved “naturally” and through voluntary private agreements and contracts, there will be no such dramatic impact on balance sheet adjustments. Significant portions of the domestic liabilities and assets would have been denominated in the anchor currency anyway; so *impromptu* official dollarization would produce relatively little pain. But then the question is: why should market driven dollarization have proceeded so far in the first place, if not because of doubts about the robustness and the continuation of the CBA? Currency substitution within a CBA may be taken as an indictment of it, unless the CBA is designed as a transition to dollarization (euroization). Hence the irony is: a strong CBA, with no predicted close of exit, should not have been privately dollarized to a significant extent; but then it could not effectively use *impromptu* official dollarization as a rescue in a time of crisis. Only a weak CBA, perhaps quite dollarized already, can resort to that rescue.

Overall, leaving aside the question of the desirability of dollarization as a long-term solution, the technical viability of dollarization as a crisis response, in contrast to dollarization (euroization) as a planned target, hinges on how a CBA is prepared for the sudden shift. With regard to Hong Kong, official dollarization is in my view a sudden shift to a wrong track, and the economy is not prepared for it. However, it is always possible to reverse the argument. If, for all sorts of reasons, *impromptu* dollarization is deemed to incur relatively little, or acceptable, cost, it can of course be considered an “exit” option for a CBA. We should leave the semantic wrangling aside.

In any case, there remains the question whether dollarization would effectively address the problems that gave rise to the crisis in the first place. Here I think that the distinction between an internal crisis and an external crisis is useful (Tsang, 1998b; 1999b). An internal crisis is usually a result of wrong economic policies or weak leadership. A CBA or dollarization can be the appropriate response because it helps to impose discipline on policies and on the leadership. An external crisis, on the other hand, may arise even if the domestic government is strong and has done nothing wrong. For example, the East Asian crisis is an external crisis from Hong Kong’s perspective, perhaps also from Argentina’s. Because of huge structural changes in the international arena, the fixed exchange rate of a CBA may be perceived to be hopelessly “misaligned”. If that is the truth rather than a short-run misconception, re-pegging or floating should be the optimal exit, and dollarization as the close of exit would help to solve little, if anything at all.

## Concluding remarks

The issue of commitment versus exit is a controversial and sensitive one for a CBA, the strongest form of fixed exchange rate regime now practiced in the world. It is interesting to note that, because of different initial and prevailing conditions, various forms of commitments have been required to buttress the modern CBAs (Tsang, 1999a). These commitments may be legal or non-legal, or just declarations of intent.

Further down the road, possible “reinforced” commitments to a CBA may include extending the convertibility undertaking beyond the monetary base or even the official assumption of explicit financial responsibilities that a convertibility undertaking does not imply (e.g. by issuing currency options). More detailed and objective investigation is in my view necessary before accepting or vetoing these bold moves beyond the classical currency board principles and the AEL model of modern CBAs.

Regarding the exit from a CBA, it seems clear that the more (or the stronger) the commitment to the CBA is, the higher the exit cost from it will be. Without sufficient commitment, though, the stability of a CBA may be jeopardized. The balancing act is both a science and an art.

The question of exit depends on what one wishes to exit from, and to what or where ahead. A monetary union is one thing; a re-pegging is another. A free float, i.e. the “re-gaining of freedom”, is yet another. Dollarization (euroization) implies the close of the exit. If it is pre-planned or if it evolves in the market place over an extended period of time, transitional instability may be reduced. If it is *impromptu* and adopted as an official crisis response, the associated problems can be challenging, depending on the extent of private, market driven, dollarization that has already taken hold in the economy. In any case, a CBA should determine the nature of the crisis that it faces before making any dramatic jump to an exit, or to its own closure.

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**Statutory Provisions in Six Currency Board Regimes**  
**Argentina, Bosnia-Herzegovina, Hong Kong, Bulgaria, Estonia and Lithuania**

	<b>Argentina</b>	<b>Bosnia-Herzegovina</b>	<b>Hong Kong</b>	<b>Bulgaria</b>	<b>Estonia</b>	<b>Lithuania</b>
Law governing the Currency Board Setup	Convertibility Law of 1991 (CL).	Constitution of Bosnia and Herzegovina (Article VII); Law on the Central Bank of Bosnia and Herzegovina of 1997 (CBBH).	No legislation dedicated to the currency board setup.	Law on the Bulgarian National Bank (LBNB).	Law of the Republic of Estonia on the Security for Estonian Kroon (LRESEK) The law for the establishment of the Eesti Pank (LCBRE) makes no reference to the law providing for currency board system (LRESEK).	Law on the Credibility of the Litas (LCL).
Anchor Currency	US\$	Deutschemark	US\$	Anchor currency of Deutschemark is stipulated (Article 29, LBNB). When Euro becomes the legal tender of Germany, the anchor currency will be changed to Euro.	Anchor currency of Deutschemark is stipulated (Clause 2, LRESEK).	US Dollar. Article 3 of LCL states that in the case of extraordinary circumstances, the Bank of Lithuania upon coordinate of the government, may change the anchor currency or the official rate of Litas.
Official Exchange Rate	1 peso = US\$1	1 Convertible Marka = 1 Deutschemark	HK\$7.80 = US\$1	Official exchange rate of BGL1000 to DEM1 is stipulated (Article 29, LBNB). When Euro becomes the legal tender of Germany, the official exchange rate of lev to Euro will be determined by multiplying the official exchange rate to conversion rate of Deutschemark to Euro (Article 29.2, LBNB).	1 DM = 8 kroon. Official exchange rate is determined by Eesti Pank. Eesti Pank can only revalue the kroon exchange rate, but has no right to devalue the kroon (Clause 2, LRESEK).	US\$ 1 = 4 Lit. Official exchange rate is determined and can be changed by the Government "upon coordination with the Bank of Lithuania" (Article 3, LCL).
Backing Rule	Article 4 of the CL specifies a minimum of 100% backing of the Monetary Base.	Articles 0.2.3 and 0.2.3a state that the domestic currency will be issued with full backing in freely convertible foreign exchange. Article 31 provides a detailed rule for issuing currency.	Article 111 of the Basic Law required that the issue of HK currency must be backed by a 100% reserve fund. Section 4(1) of Exchange Fund Ordinance also specifies the requirement of full backing, in face value of the notes so issued, or in foreign exchange at the exchange rate determined by the Financial Secretary, of the bank notes issued.	BNB is obliged to maintain foreign exchange reserves to cover its monetary liabilities (Article 28.1, LBNB).	Eesti Pank is obliged to maintain foreign exchange reserves to cover its monetary base (Clause 1, LRESEK). In addition, Eesti Pank can only change the kroon in circulation with a correspondent change in foreign exchange reserves (Clause 4, LRESEK).	Bank of Lithuania is obliged to maintain foreign exchange reserves to cover the litas in circulation (Article 1, LCL). In addition, Bank of Lithuania can only change the litas in circulation with a corresponding change in foreign exchange reserves (Article 2, LCL).

	<b>Argentina</b>	<b>Bosnia-Herzegovina</b>	<b>Hong Kong</b>	<b>Bulgaria</b>	<b>Estonia</b>	<b>Lithuania</b>
(a) coverage of monetary base	Operationally, the monetary base is defined as the sum of cash in circulation and deposits of financial entities with the Central Bank.	No information.	Operationally, both the stock and flow of the monetary base are fully backed by foreign reserves.	Monetary liabilities consist of all bank notes and coins in circulation, account balances held with the BNB (Article 28.2, LBNB).	Monetary base includes cash in circulation, currency in current accounts and in accounts of a fixed date (Clause 1, LRESEK).	Litas in circulation includes bank notes and coins in circulation, account balances held with Bank of Lithuania and litas-denominated securities and other promissory notes of the Bank of Lithuania (Article 2, LCL).
(b) eligible assets for backing	Article 4 of CL specifies that reserves are to be invested in deposits, other interest-bearing transactions, or in national or foreign public bonds payable in gold, precious metals, US\$ or other foreign exchange. The Central Bank Charter, however, allows a maximum of 1/3 of backing assets to be provided in the form of US\$ government bonds ('Bonex').	No information.	The entire backing portfolio backing the monetary base is made up of US\$ assets. None of these assets are claims on the domestic government. A non-statutory requirement.	Eligible backing assets include (1) foreign currency denominated bank notes and coins, (2) foreign currency funds held with foreign financial institutions, (3) SDRs, (4) debt instruments issued by foreign institutions, (5) forward or repo agreements with foreign institutions and (6) gold (Article 28.3, LBNB).	Not specified.	Foreign exchange reserves include foreign currency denominated bank notes and coins, foreign currency deposits held in foreign institutions and foreign currency denominated securities held by Bank of Lithuania (Article 2, LCL and Article 31, LBL).
Convertibility Undertaking	Legally one-way although two-way in practice. Articles 1 and 2 of the CL require the central bank to sell foreign exchange for peso at the official exchange rate. Article 3 permits the BCRA to purchase foreign exchange at the market price.	Article 0.2.3a specifies that domestic currency will be issued at a one to one exchange rate with Deutschemark.	Section 4(1) of the Exchange Fund Ordinance stipulates the issue and redemption of Certificates of Indebtedness, as cover of bank notes, at the exchange rate determined by the Financial Secretary. Operationally, a one-way Convertibility Undertaking in respect of the Aggregate Balance is also provided to the licensed banks in Hong Kong. In other words, licensed banks can convert their HK\$ balance in their clearing accounts into US\$ with the HKMA at the Convertibility Rate.	The BNB is bound to sell and purchase Deutschemarks against levs at the spot exchange rate which should not depart from the official exchange rate by more than 0.5 percent (Article 30, LBNB).	There are no provisions obliging Eesti Pank to convert the kroon into foreign exchange, or vice versa. Nevertheless, Eesti Pank guarantees the free exchange of the kroon to foreign exchange, according to the official rate of Eesti Pank (Clause 3, LRESEK).	Bank of Lithuania guarantees the free exchange of litas into anchor currency according to the official rate of litas. In the opposite direction, the Bank guarantees free exchange of the anchor currency into Litass without specifying the applicable exchange rate. (Article 3, LCL).



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Role of Central Bank	Central Bank functions are governed by the CB Charter. Article 3 specifies that the primary function of the central bank is to preserve the value of the currency and the monetary and financial policy have to be in full compliance with legislation passed by the Congress.	Central bank functions are governed by the same CBBH. Articles 0.2.1 clearly specifies that 'the objectives of the Central Bank shall be to achieve and maintain the stability of the domestic currency by issuing it according to the rule known as a currency board' for the initial six years.	No separate legislation governing central bank functions. Operationally, the primary function of the HKMA is to maintain currency stability within the framework of the linked exchange rate system.	The establishment of the Bulgarian National Bank (BNB) and the currency board system are provided in one single legislation – the LBNB. In addition, the Issue Department, Banking Department and Banking Supervision Department are separated (Article 19, LBNB). The function of the Issue Department to maintain full foreign exchange cover for monetary liabilities of the bank is specified to make currency board operations distinct from other functions of the bank (Article 20, LBNB).	The law for the establishment of the Eesti Pank (LCBRE) makes no reference to the law providing for the currency board system (LRESEK).	The law for the establishment of the Bank of Lithuania (LBL) makes no reference to the law providing for the currency board system (LCL).
Lender of last resort function	Article 19 of the CB Charter prohibits the central bank from acting as the general lender of last resort but Article 17 permits it to grant rediscount and advances to financial institutions in temporary illiquidity.	No information.	The Exchange Fund Ordinance stipulates the use of the assets of Exchange Fund for defending the HK\$ exchange rate and for the maintenance of stability and integrity of the monetary and financial systems in HK. Operationally, the provision of liquidity to individual banks in stress will be determined on a case by case basis.	The BNB is not allowed to extend credits to banks except where emergence of a liquidity risk that may affect the stability of the banking system. Restrictions on maturity and collaterals are also stipulated. Such liquidity assistance is limited to the excess of foreign exchange reserves over the monetary liabilities of the BNB (Article 33, LBNB).	Eesti Pank is empowered to carry out monetary operations and grant loans to credit institutions without detailed restrictions (Article 14, LCBRE).	Bank of Lithuania can act as the lender of last resort (Article 8, LBL). It is empowered to carry out open market operations and perform rediscount operations (Article 26, LBL). It can also extend credits to banks and other credit institutions with a maximum amount of 60% of the liabilities of the given institution (Article 27 and 32, LBL).
Lending to Government	Article 19 of the CB Charter prohibits the central bank from lending to the national government, provinces and municipalities but Article 20 permits the central bank to buy at market price negotiable instruments issued by the Treasury.	No information.	No statutory specifications. Operationally, the government exercises fiscal discipline and has accumulated over HK\$400 bn of fiscal reserves.	The BNB cannot extend credits to the state or state agencies (Article 45, LBNB).	Eesti Pank is prohibited from granting credits to the state or local authorities. Neither can it buy securities issued by the Government (Article 16, LCBRE).	No special provisions.

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Pursuit of Transparency	No information.	No information.	Operationally, the HKMA has been moving towards greater transparency through regular publication of the monetary base, the currency board account, and records of discussion of the EFAC Sub-Committee on Currency Board Operations, etc.	Balance sheet of the Issue Department of the BNB has to be published weekly, while financial information of the BNB is published monthly (Article 49, LBNB).	Eesti Pank has to publish statistics on kroons in circulation and foreign exchange reserves on a monthly basis (Clause 5, LRESEK).	Bank of Lithuania has to publish statistics on litas in circulation and foreign exchange reserves on a monthly basis (Article 6, LCL).

Footnote : The following abbreviations are used in this Annex:

Argentina : Convertibility Law of 1991 – CL  
Central Bank Charter – CB Charter

Bosnia-Herzegovina : Law on the Central Bank of Bosnia and Herzegovina of 1997 - CBBH

Bulgaria : Law on the Bulgarian National Bank – LBNB

Estonia : Law on the Central Bank of the Republic of Estonia – LCBRE  
Law of the Republic of Estonia on the Security for Estonian Kroon – LRESEK

Lithuania : Law on the Bank of Lithuania – LBL  
Law on the Credibility of the Litas - LCL

Source: Tsang (1999a)