A PRIMER ON CURRENCY UNIFICATION AND EXCHANGE RATE POLICY IN CUBA: LESSONS FROM EXCHANGE RATE UNIFICATION IN TRANSITION ECONOMIES

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Since the second half of the 1990s the Central Bank of Cuba (BCC) has operated a dual monetary and exchange rate system, in which a largely convertible currency (the convertible Cuban peso, CUC) coexists with the "official" non-convertible currency (the Cuban peso, CUP). The existence of dual markets for currency and associated dual exchange rate markets (including the existence of capital controls): (1) is a source of inefficiency as it distorts the relative prices between tradable and non-tradable goods, providing noisy signals for the allocation of resources; (2) complicates the implementation of monetary policy and hampers the development of financial markets; (3) generates opaque behavior and rent-seeking activities, which reduce potential income growth and generally result in income redistribution against weaker population segments; and (4) complicates price, income and wealth measurement, which in turn hampers a normal market functioning, among others.

Establishing a unified currency and adopting a unified exchange rate system is a complex problem, and its solution involves taking into consideration a number of (at times conflicting) factors. The objective of this paper is to present, in an orderly fashion, most of the factors that need to be analyzed and taken into consideration in unifying currency and exchange rate markets. After this introduction, the second section describes the elements of the Cuban Central Bank Charter that are related to exchange rate policy, as well as the functioning of the market for both domestic currencies. In turn, the third section analyzes the main factors to be considered for a successful unification of currency and exchange rate markets, in light of the experiences of transition economies, mainly of Eastern Europe and the former Soviet Union during the 1990s. Finally, the last section reviews the potential challenges in evaluating the options for exchange rate unification in Cuba, including those posed by the use of official exchange rates in the computation of aggregate fiscal and monetary statistics and suggests ways to overcome them.

BACKGROUND

Legal Framework for Exchange Rate Policy in Cuba

The Cuban Central Bank (*Banco Central de Cuba*, BCC), is the country's monetary authority. Created in 1997 by Decree-Law (DL) 172, the BCC assumed all monetary functions in the country, many of which were exercised before its creation by the National Bank of Cuba (*Banco Nacional de Cuba*, BNC). The functions assigned to the BCC are very broad, and include: (1) preserve the value of the national currency; (2) contribute to the orderly development of the economy; (3) ensure the normal operation of internal and external payments; (4) supervise the operation of financial institutions, including the representations of

1. The views expressed in this paper are those of the authors and should not be attributed to the International Monetary Fund, its Executive Board, or its management.

foreign financial firms (Art. 3, DL-172); and (5) establish the accounting procedures to be followed by the BCC and by the country's financial institutions (Art. 4, DL-172).

The Central Bank Charter gives the BCC the authority to establish the exchange rate system most suitable for the country. The Charter is very general in this regard, in that it allows the BCC to establish exchange controls, regulate the operation of foreign exchange, and propose and implement the system of exchange of the Cuban Peso (Art. 26, DL-172).

The Charter allows the BCC to finance the government, but up to limits established by the country's main executive body, the State Council (*Consejo de Estado*). Even though the Charter forbids the direct purchase by the BCC of government bonds, as well as the monetization of government deficits, it *de-facto* permits this by allowing the State Council to establish limits for such financing (Art. 20, DL-172). In addition, the Charter assigns to the BCC the function of financial agent of the government (Art. 19, DL-172), and also (in our understanding) assigns the management of the government's single treasury account to the central bank (Art. 18, DL-172).

The Charter also allows the BCC to issue means of payment different from the country's legal tender. Such payment means have legal validity for the time period established by the BCC and for the transactions that are covered (Art. 12, DL-172). The Charter clearly establishes that the country's legal tender is the CUP (Art. 9, DL-172).

The Dual Exchange Rate System

The BCC appears to be operating a dual monetary and exchange rate system. The first monetary system is built around the *Peso Cubano* (CUP) that, in spite of being officially fixed at par with respect to the U.S. dollar, is not convertible into foreign exchange. The main source of supply of CUPs appears to be the monetization of government deficits. The second monetary system is organized around an alternative means of payment, the *Peso Cubano Convertible* (CUC). The BCC seems to be operating the CUC system as if it were a currency board: it purchases (and sells) U.S. dollars in exchange of CUCs at a rate of 0.93 CUC/US$, with the selling of foreign exchange only allowed for authorized transactions, including (among others) the repatriation of profits by joint-ventures, limited purchases by private individuals, and imports of goods to be sold in the "Outlet System." The current CUC/US$ exchange rate was set during 2005; before that, the CUC and the US$ were exchanged at par.

In addition to the official exchange rate market, there is an "unofficial but legal" exchange rate market, where CUPs can be exchanged for CUCs. This market is operated by state-owned exchange bureaus (*Casas de Cambio, Cadecas*) that sell CUPs for CUCs at 24 CUP/CUC, implicitly setting the exchange rate between the CUP and the US$ at about 22 CUP/US$. A parallel exchange rate market also operates, but the exchange rate premium over the unofficial but legal market has decreased significantly during the last couple of years (see Table 1).[2]

Table 1. Cuba: Exchange Rate Markets

Official Market				Unofficial Market			
	CUC	CUP	US$		CUC	CUP	US$
CUC	1.00	1.00	0.93	CUC	1.00	0.04	0.93
CUP	1.00	1.00	1.00	CUP	24.00	1.00	22.22
US$	1.08	1.00	1.00	US$	1.08	0.04	1.00

Source: The Economist Intelligence Unit

The economic significance of the "CUC system" has increased markedly since mid-2003, when (in July) the government decreed the conversion of all dollar-denominated deposits to CUC-denominated ones. The "pesoization" of economic transactions was further strengthened in November 2004, when the government decreed that all US$-denominated transactions were to be cancelled in CUCs (*Resolución 80/2004*). In addition, the resolution established that the conversion of U.S. dollars to CUCs was to be subject to a 10–percent tax. Until then, the U.S. dollar together with the CUP and the CUC were accepted as means of pay-

2. The functioning of the *Cadecas* has likely had a negative impact on the profits of traders in the parallel exchange rate market, though their existence should not be threatened so long as capital controls continue.

ment for domestic transactions. The conversion of US$-denominated deposits to CUC-denominated deposits, and the obligation for all transactions previously denominated in U.S. dollars to be canceled in CUCs should, in principle, have increased the ability of the BCC to monitor the economy's liquidity; it should also have resulted in an increase in the BCC's international reserves.

ISSUES IN MONETARY UNIFICATION

There are two dimensions of monetary unification that need to be considered. The first one is of a *static* nature—namely, how to set the price at which one currency would be exchanged for the other (i.e., CUPs into CUCs or vice versa) or, if a new currency is to be created, the price at which each of the older currencies would be exchanged for the new currency. The second is more of a *dynamic* and complex nature, and is related to deciding on the rate of exchange between the unified currency and a foreign-currency benchmark (most likely the U.S. dollar). The latter involves the selection of an appropriate exchange rate system (ERS) and whether (and/or how) that system will evolve over time. In other words, dynamic considerations are behind the consistency of the new system with, among other factors, the expected evolution of the supply and demand for the unified currency, the pace of elimination of exchange rate controls for both current and capital account transactions, the (likely) impact of the liberalization of other markets and other structural reforms, the evolution of the fiscal accounts, and the needed flexibility of the system to adapt to unexpected circumstances and to shocks.

The Static Problem

Focusing on balance sheet considerations only, the choice of unification exchange rates for the CUP/CUC and CUC/US$ could be based on a targeted level of international reserve coverage of the unified monetary base. However, if the CUC were to be chosen as the unified currency, there are an infinite number of different combinations of CUP/CUC and CUC/US$ exchange rates that would be consistent with achieving a given target of international reserve coverage of the unified monetary base.

- Preliminary calculations based on our estimated construction of the BCC's balance sheet suggest that the current combination of the unofficial-but-legal CUP/CUC and official CUC/US$ exchange rates, would result in an international reserve coverage of the resulting unified monetary base of close to 90 percent.[3] Assuming, for simplicity, that the unified monetary base is denominated in CUCs, the current estimated level of gross international reserves (GIR) would provide a reserve coverage of about 90 percent if CUPs were to be exchanged for CUCs at end-2007 exchange rates, and the CUC/US$ exchange rate were to be left unchanged at end-2007 levels.
- Full GIR reserve coverage of the unified monetary base would require a CUC/US$ exchange rate of about 1.05, i.e., a 13 percent premium over the current CUC/US$ exchange rate of 0.93, provided CUPs were to be exchange for CUCs at the end-2007 unofficial exchange rate. Using exchange rates of 2 CUP/CUC and 2 CUC/US$ would result in an international reserve coverage slightly larger than 100 percent.

Table 2. Cuba: GIR Coverage of Unified Monetary Base
(for alternative combinations of exchange rates)

CUC/US$	CUP/CUC							
	1.0	2.0	3.0	4.0	5.0	10.0	20.0	25.0
1.0	26.0	41.9	52.6	60.4	66.2	82.1	93.3	95.9
1.5	42.4	72.2	94.3	111.3	124.8	164.9	196.5	204.3
2.0	59.1	104.0	139.2	167.6	191.0	264.9	328.4	344.9
2.5	76.0	136.5	186.0	227.1	261.9	377.4	484.1	513.1

Source: Authors' own

- Looking at other examples, a unification exchange rate of 4 CUP/CUC and establishing the CUC/US$ exchange rate at par post-unification would

3. Unfortunately, we do have official data on the BCC balance sheet. Thus, what follows in this section is a methodology and issues for consideration in unifying the exchange rate, more than an exact menu of exchange rate value options, which would depend on the actual monetary base data from the BCC balance sheet.

Table 3. Cuba. Currency Unification: Some Preliminary Calculations

	2003	2004	2005	2006	2007
BCC International Reserves (GIR-US$ bn)	0.77	2.25	2.75	3.75	4.25
International Reserves CUC bn, at official exchange rate)	0.77	2.25	2.60	3.47	3.93
CUP-denominated Monetary Base (CUP bn)	7.33	8.10	10.53	11.73	12.41
Currency	6.99	7.75	10.13	11.29	11.94
Currency outside banks	6.65	7.39	9.74	10.85	11.48
Cash in Banks	0.34	0.36	0.39	0.44	0.46
Banks' Reserves at BCC	0.34	0.36	0.39	0.44	0.46
CUC-denominated Monetary Base (CUC bn) (A)	0.77	2.25	2.54	3.47	3.93
CUP-denominated Monetary Base (CUC bn, at unofficial exchange rate) (B)	0.28	0.31	0.44	0.49	0.52
Unified Monetary Base (UMB, CUC bn) (A+B)	1.05	2.56	2.98	3.96	4.45
Implicit GIR coverage of UMB at current exchange rates)	73.1	87.8	87.1	87.7	88.4
Exchange Rates					
CUP/CUC unofficial market	26.00	26.00	24.00	24.00	24.00
CUC/US$ for full-GIR coverage of UMB (C)	1.37	1.14	1.09	1.06	1.05
CUC/US$ official market (D)	1.00	1.00	0.95	0.93	0.93
(C) / (D) (%)	36.8	13.9	14.8	14.1	13.1
Memorandum Items					
CUP-denominated Bank Deposits (CUP bn)	6.84	7.13	7.85	8.74	9.25
CUP-denominated M2 (CUP bn)	13.49	14.52	17.59	19.59	20.73

Source: ECLAC, ONE, EIU, and Authors' own

result in an international reserve coverage of about 60 percent of the unified monetary base, about the same coverage that would result from setting the CUP/CUC unification exchange at par and a post-unification exchange rate of 2 CUC/US$.

Moreover, the choice on the initial exchange rate combination is further complicated by wealth redistribution and competiveness factors. Anecdotal evidence suggests that, while most Cubans hold both currencies, a larger proportion may be holders of CUPs; thus, a unification involving some appreciation of the CUP vis-à-vis the CUC and some depreciation of the CUC vis-à-vis the U.S. dollar (with respect to end-2007 official values) may be better received than one that proceeds using the corresponding end-2007 values. At the same time, if wage setting occurs mainly in CUPs, a large CUP appreciation may result in an unwarranted loss of competitiveness.

The Dynamic Problem

The main challenge associated with currency unification is to choose an ERS that both takes into consideration the country's economic structure, while acknowledging the specific context in which unification proceeds. Among other issues, the pace of adjustment to a unified system would depend upon fiscal or monetary dominance.

Some Theoretical Considerations. From a theoretical perspective, the choice of the ERS to be adopted as a part of a stabilization strategy (loosely speaking, whether the ERS would lean towards a "fixed" or a "floating" variant), should be based on the following considerations:[4]

- *The costs of the ERS during the course of the stabilization program*. In this connection, the choice should be influenced by which of the potential ERS is more credible. Transition costs in output are likely to be lower the more credible the disinflation program, as credibility in the nominal anchor would result in lower real interest rates. The costs of alternative ERS would also depend on the type of shocks (other than the disinflation program itself) affecting the economy during stabilization (i.e., the likelihood of swings in velocity vs. that of real shocks affecting the demand for goods).[5] In this regard, it is important to point out that the nature of the shocks to which an economy is subject, depends *inter alia*, on the country's

4. See, for instance, Zettelmeyer in Citrin and Lahiri (1995).

5. Real shocks can be classified as internal (for instance those related with structural reforms, changes in the profitability of non-traded vs. traded sectors, etc), and external (such as increases in the prices of imported goods and inputs, natural disasters, etc.). Real shocks usually cause swings in the RER. In most cases it has proven difficult to establish, *ex ante*, whether monetary or real shocks will be more probable; however, the size of these shocks (either monetary or real) are likely to be less significant in comparison to other economic/political shocks (see Zettelmeyer in Citrin and Lahiri, 1995).

economic structure, location, size, factor endowment, etc.

- *The extent and pace of structural reforms to be applied during the stabilization effort*. In case reforms are deep enough to significantly alter the relative prices of goods and factors of production with respect to those prevalent before the stabilization effort, pegging the exchange rate would carry the risk of setting the real exchange rate (RER) beyond a sustainable value. In other words, the advantages of an exchange rate-based stabilization will be stronger if, for instance, price and trade liberalization are implemented before establishing the peg. Structural reforms, and in particular price and trade liberalization, have the nature of real shocks that would call for an ERS that leans towards a more flexible variant.
- *The effectiveness of alternative ERS in bringing down inflation*. This would depend on the strength of the link between the exchange rate and/or money (the intermediate target) and the price level. In cases where the demand for money is perceived to be unstable, it would be better to fix the exchange rate, as controlling the supply of money may be more difficult. However, it should also be said that, in general, the objective of a stabilization program is to decrease inflation from high levels to moderate ones, and in such a case, having loose control on money supply might not be as problematic. Moreover, controlling credit to the banking sector is always important to ensure the success of stabilization.
- *The costs of failure of alternative ERS*. The cost of abandoning a peg may involve a (relatively large) decrease in international reserves and a disruption in the functioning of banks. In this connection, the loss of credibility associated with the failure of a peg might also jeopardize the success of the program itself, as the peg is usually the most visible element of an exchange rate-based stabilization strategy. In contrast, failure to attain the stabilization objectives in the context of a money anchor, may result in just larger depreciations, and a reset of the objectives within the program, without the need of abandoning the program itself.
- *The conditions to minimize the probability of failure of the ERS*. This would largely depend on how committed a government is to fiscal restraint. In this regard, the high visibility of an exchange rate-based stabilization may increase such a commitment and decrease the probability of failure. At the same time, it is worth pointing out that only exchange rate-based stabilization programs are threatened by autonomous losses in confidence. Therefore a "fixed" ERS variant may be preferable only in cases in which the commitment to fiscal adjustment is high and the risks beyond the government's control (i.e., losses of confidence) are perceived to be small. In particular, a currency board would probably be more credible than a simple peg, although it would share all its disadvantages, including the impossibility for the central bank to act as a lender of last resort. In other words, a hard peg would increase the cost of discretion in conducting monetary policy and would therefore increase the central bank's credibility. In contrast, if commitment to fiscal restraint is low, an exchange rate-based stabilization will likely fail, with the associated costs that that failure implies, which in turn may jeopardize the overall stabilization effort. Therefore, in the transition to sustainable levels of fiscal deficits, fixing the exchange rate may be too costly; instead the authorities would need to opt for a more flexible ERS (Krugman, 1979).
- Finally, for all the reasons noted above, the optimal ERS for the stabilization period may not be the best one for a post-stabilization period.

The Experience in Transition Economies, 1992–1998. Some elements of the experience with ERS adoption in 29 transition economies during the period 1992–1998 are summarized in Table 4 below.[6] In particular:

- Only 6 countries succeeded in maintaining an unchanged ERS during the period analyzed; out of the 6, 3 countries adopted fixed ERS (Estonia, Bosnia Herzegovina and the former Republic of Yugoslavia), and the remaining 3 adopted flexible ERS variants (Poland, Slovenia, and Vietnam).

- Most countries (15) changed their ERS once during the period under consideration, and about half of them (7) changed their ERS from a fixed to a flexible ERS. Six countries changed to different variants of flexible ERS, while only 2 countries changed their ERS from flexible to fixed.
- More than a third of countries (8) changed their ERS two or more times; most of them (6) changed from a fixed to a flexible system, while only 1 country changed from a flexible ERS to a fixed one (Lithuania).
- Out of the 23 countries that changed their ERS at least once during the period under consideration, 20 involved changes associated with either gaining more flexibility or changing to a system within an otherwise flexible ERS; in particular 13 countries changed from a fixed to a flexible ERS.

Table 4. Exchange Rate Systems in Transition Economies 1992–1998

	# Times in which ERS was changed					Total
Exchange Rate System	**0**	**1**	**2**	**3**	**4**	
Always Fixed	3					3
Always Flexible	3					3
Flexible to Fixed		2	1			3
Fixed to Flexible		7	4	1	1	13
Back and Forth within Flexible ERS		6	1			7
Total	6	15	6	1	1	29

Source: Authors' own

The experience in transition economies underscores the difficulties inherent in adopting a sustainable ERS. Of particular note is the fact that a number of exchange rate-based stabilizations had to be abandoned and more flexible ERS variants put in place. On the other hand, successful ERS implementation has occurred using both flexible and fixed ERS variants. In this regard, even though exchange rate-based stabilization may be more effective in controlling inflation in the short term (due to the close link between the exchange rate's evolution and the price level), the eventual effectiveness of exchange-rate based stabilization programs depends on the ability and willingness to maintain a supportive fiscal policy stance. Money-based stabilization (associated with flexible ERS) has also been effective in a number of transition economies in Central Europe (see Zettelmeyer in Citrin and Lahiri, 1995). Finally, it is interesting to point out that most of the countries that changed their ERS most often are those whose economic performance was less satisfactory.[7] In other words, persistence in reform implementation and fiscal consolidation seem to be more important for successful stabilization and ERS sustainability, than the choice of the ERS itself.

Monetary Unification and the Transition to a Mixed Economy. In the context of the economies analyzed in the previous section, the choice of an ERS was usually only a part of a more comprehensive strategy to facilitate the transition to a mixed economy. Thus, as it was pointed out, the election of an ERS by itself was not enough to guarantee its sustainability and/or the success of the broader reform program. In this connection, most reform/stabilization programs that were formulated for transition economies consisted of actions in a number of different fronts (see Sachs, 1993, 2006).[8] In particular,

- *Actions to stabilize the economy*, control inflation and establish a unified and stable currency, including fiscal consolidation, controlling the growth of central bank financing to the public and private sectors, and setting up a safety net to cushion those sectors of the population that were likely to be most affected by the transition.
- *Actions to liberalize markets*, including lifting price controls, reduce and/or eliminate trade restrictions, regularize external debt arrears, legalize pri-

6. The countries included are Albania, Armenia, Azerbaijan, Belarus, Bosnia Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Mongolia, Poland, Romania, Russia, Slovak Republic, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, Vietnam, and Yugoslavia. The classification between different types of ERS was done following the methodology used by the IMF.

7. These countries are mainly those of the former Soviet Republics of Central Asia.

8. The implementation of a program of market reforms (of which the adoption of a new ERS would likely be a part) implies turning concepts into policies, which in turn will require paying attention to operational detail, as Sachs (2006) points out. Therefore, what it would otherwise appear to be simple concepts at the theoretical level, may turn into complex regulations.

vate economic activity, and privatize public enterprises.

- *Actions to revamp the legal framework*, including that needed to create the laws that regulate the functioning of a market economy. It is important to point out, however, that many attempts to "create" markets in transition economies have had, at most, mixed effects. Market functioning requires more than the creation of new legal frameworks and institutions, it requires learning and a change in agents' behavior, what usually takes long periods of time (Easterly, 2006).

CURRENCY UNIFICATION AND EXCHANGE RATE POLICY: THE CASE OF CUBA

While important information (see the section below on data issues) is not available to make a definitive assessment on whether conditions existing in Cuba suggest that a monetary anchor (associated with more flexible ERS) or an exchange rate anchor (associated with fixed ERS variants) would be preferred, we can describe key issues going forward. In particular, in support of a fixed ERS:

- Beyond the transition period, the potential for large trade between the United States and Cuba, should the embargo be lifted, suggests that the benefits derived from establishing a hard peg may be significant (Rose and Engel, 2000).[9] Thus, abstracting from the optimal ERS during the stabilization period, the structure of the Cuban economy seems to suggest that over the longer-run the country may be a candidate for a relatively hard peg.
- Even in the shorter-run, the nature and extent of Cuba's (of present and future) international trade points to a strong link between prices and the exchange rate (the intermediate target); therefore, it seems to be the case that a harder peg would be more effective in bringing down inflation if that is to happen at the outset of the program.

On the other hand, while the initial credibility of the stabilization effort may be higher if the choice is for a harder peg that is associated with bringing down inflation and interest rates faster, it is likely that during the stabilization period, the Cuban economy would be hit by a number of real shocks (including those derived from the implementation of structural reforms) that may cause significant swings in the relative prices of traded to non-traded goods. Thus, an ERS with some flexibility may be called for, even considering that swings in velocity will probably occur during the stabilization period. Moreover,

- Given the extent of price controls, market segmentation, and the extensive participation of the state in the economy that currently exist in Cuba, the implementation of a structural reform program aiming at lifting controls and ensuring a greater role for the private sector would result in significant changes in relative prices (see Appendix I). Therefore, in the case that the adoption of an ERS for a unified currency proceeds simultaneously with the implementation of structural reforms, it may be better to opt for a more flexible ERS.[10]
- Also, given the large costs of failure associated with abandoning a peg, the option for a more flexible variant of ERS should be more appropriate in case the implementation of structural reforms proceed simultaneously with the adoption of an ERS for a unified Cuban currency. This would allow for the accommodation of unexpected shocks into the stabilization program, even those related with erroneous estimations of the impact of the structural reforms themselves.
- It is not possible, at this point, to establish the type of commitment to fiscal restraint that may exist at the time a decision to unify the Cuban currency and establish an ERS is made. In general, uncertainty regarding fiscal restraint would call for a more flexible ERS. In this context, it should

9. Under the current embargo, the U.S. forbids all investment flows, limits the transfers of remittances, and blocks all bilateral trade except for food and agricultural exports.

10. In contrast, in the unlikely case that the implementation of structural reforms precedes the establishment of an ERS for the unified currency, the merits of a harder ERS variant would increase.

be noted that the fiscal consolidation that will be needed may be not as large as that which occurred in the early 1990s, after the collapse of the Soviet Union and COMECON. At that time, Cuba had to undertake a number of reforms, including fiscal consolidation, that allowed the country to accommodate to the decrease in financing flows and associated real exchange rate depreciation (see Hernández-Catá, 2001).[11]

Weighing these considerations (and only looking at the issue of ERS choice), appear to point to the need for Cuba to adopt a flexible ERS variant or a "softer" peg such as a pre-announced crawl during the transition period.[12] If a crawl were to be adopted, the pre-announced rate of crawl should be consistent with the expected size of deficit monetization, and some objective for international reserve accumulation, among other factors. Ideally, if the objective is to bring down inflation, the scheme should establish a period within which exchange rate depreciations would occur but whose magnitudes would decrease *pari passu* with the consolidation in the core fiscal balance. In this connection, a larger monetization of the fiscal deficit would require a larger increase in monetary base demand, for a given size of international reserve accumulation target, and thus would require larger pre-announced depreciation rates (and vice versa). In other words, if the rate of crawl chosen is not consistent with the magnitude of deficit monetization and the objective of reserve accumulation, the result would be a decrease in the international reserve coverage of the unified monetary base, the need to postpone the lifting of exchange rate controls in the current and capital accounts transactions, and the likely increase in the exchange rate premium in the parallel market.

In the case of the additional complication that needed structural reforms and fiscal consolidation proceed simultaneously with currency unification, the choice of the ERS for the transition should accommodate the sequential pace of implementation. The sequence and the specific timing of steps included in such a program would depend on the ability and the speed with which the government can close its *core* fiscal gap, and/or alternatively, the amount of non-monetization financing that it can secure, which is likely to depend on non-economic factors as well. In Cuba, even though fiscal disequilibria have decreased significantly from the high levels observed during the first half of the 1990s, fiscal deficits continue to be relatively high, and have averaged about 3 percent of GDP in the period 2000–07. *Ceteris paribus*, the greater the need for deficit monetization after currency unification, the larger will be the pressures for repeated devaluations/depreciation of the (unified) currency year after year.

A possible sequence of (rather general) actions to be taken together with the adoption of an ERS for the unified Cuban currency could be as follows:

- Define the sustainable *core* fiscal deficit for Cuba, i.e., the deficit, *excluding foreign-financed (reconstruction) investment*, that can be financed without debt default, including through a reasonable inflation tax derived from the partial monetization of fiscal deficits (i.e., beyond the demand for money balances at the targeted inflation rate). This requires identifying the amount of financing available from non-inflationary external financing and/or domestic debt, and also, defining a realistic time period within which such a sustainable fiscal deficit can be achieved, as well as the associated path for the fiscal deficit during the transition period.[13]
- Establish the program and calendar for structural reform, including the lifting of price controls, trade liberalization, privatization of public enter-

11. Since the early years of the current decade Venezuelan flows into Cuba (in the context of the ALBA initiative) appear to have increased significantly, and seemed to have helped the country to weather the large increase in oil prices without a decrease in international reserves.

12. Another possible choice would be a hybrid system of a pre-announced crawl between bands. A system like this may combine the advantages of providing an exchange rate anchor, but the added flexibility of having bands that can be enlarged or reduced in case there is a need for accommodation of unexpected events. Retaining flexibility is even more important in the context of the current large hike in commodity and oil prices (see IMF, 2008).

13. The lower the monetization, the lower devaluation and inflation rates will be, and thus, the larger the benefits associated with currency unification.

prises, etc., including whether this will proceed before or simultaneously with the adoption of a new ERS. It would be most helpful to attempt to ascertain the possible impact of such reforms on the real effective exchange rate (RER) to ensure that the choice of the unification exchange rate and the ERS more generally are consistent with avoiding unnecessary fluctuations in the RER.[14,15]

- Set the exchange rate at which one currency would be exchanged for the other (CUPs for CUCs or vice versa). This would be based on both *static considerations* (e.g. the desired international reserve coverage for the unified monetary base at the outset of the program), as well as *dynamic considerations* (which would be related to the objectives and calendar of the stabilization program of which the monetary unification and ERS adoption are only a part). With this in mind, a path for the exchange rate consistent with the expected path for the fiscal deficit, its financing, the lifting of exchange rate restrictions needs to be defined.
- Identify the ERS that is most appropriate for achieving the target exchange rate path referred to above, given the calendar for structural reforms to be implemented, as well as the timetable for fiscal consolidation. In a parallel fashion, a schedule for the lifting of exchange controls for current and capital account transactions needs to be established that is consistent with the path for the fiscal deficit, its financing, and the target path for the exchange rate. Countries that have implemented successful programs of market reforms have been rewarded with massive levels of foreign direct investment and other forms of external flows (e.g. the Baltics, Poland, the Czech Republic, Slovenia, etc.).

The results of a number of simulations performed with a simple monetary model underscore the main elements of a possible unification scheme. The numbers for the main economic variables were chosen to resemble those in Cuba. The simulations assume a unification exchange rate of 2CUP/CUC and a devaluation of the unified currency to 2CUC/US$. Such values for the unification exchange rates result in an international reserve coverage of the unified monetary base of 80 percent. It further assumes that at the outset of the unification there is a fiscal deficit of about CUC1 billion. The objective is to converge to a harder-peg after a number of periods (assumed to be 12 in the simulation). It is also assumed that over this period: (1) there is increased reserve coverage of the unified monetary base; (2) the core fiscal situation is consolidated; and (3) the rate of crawl decreases over time as the fixing of the exchange rate in period 13 approaches, as convergence to a harder peg (with associated low inflation rates) seems most appropriate in the long run.

The simulations also point to some of the main challenges of a post exchange-rate unification scenario. Announcing a decreasing rate of crawl, without tackling the fiscal deficit, and without external support would result in decreases in international reserves, increases in domestic credit, decreases in the international reserve coverage of the unified monetary base, and a likely inflation burst towards the end of the transition period (see upper left-hand chart in Figure 1). If exter-

14. The experience in Argentina during 2001–2003 is a good example of the fiscal nature behind the existence of a number of currencies. In the case of Argentina, a number of provinces (and in the end the national government itself), unable to secure sufficient resources from voluntary financing sources, ended up resorting to quasi-money creation that resulted in the simultaneous co-existence of a number of different payment means. At the height of the crisis, the circulation of quasi-monies constituted about 40 percent of total payment means in the country. The quasi-monies were eliminated and, thus the national currency unified, through the assumption by the national government of all provincial quasi-monies that were exchanged at par for national currency. In exchange, the provinces contracted an equivalent long-term debt with the national government, guaranteed by provincial tax income under the revenue-sharing agreement, while committing to consolidate their fiscal accounts and stopping the issuance of quasi-monies. The exchange was not inflationary as quasi-monies had already being incorporated as part of monetary base demand. See http://www.mecon.gov.ar/hacienda/ffdp/ .

15. Such a calendar is beyond the scope of this paper, but would be needed for a consistent exchange rate unification program. Overall, there is debate in the literature on whether market liberalization should be implemented immediately or proceed gradually. Proponents of rapid market liberalizations argue that slow liberalizations have a larger probability to be stopped before being concluded; proponents of gradual liberalizations call for longer periods to provide enough time for the economy to adjust. See Koen and Phillips (1993), for a description of price liberalization in Russia.

nal support is available for financing part of the fiscal gap, but no fiscal consolidation occurs, the international reserve coverage would also decrease and an inflation burst would also likely occur towards the end of the transition period (upper right-hand chart in Figure 1). If external support is coupled with gradual fiscal consolidation, the international reserve coverage of the unified monetary base will decrease at the beginning of the stabilization period, but as fiscal consolidation proceeds, it will stabilize and increase thereafter, pointing to a successful stabilization (lower left-hand chart in Figure 1). If in addition to external support and fiscal consolidation, the private sector increases its holdings of monetary base in real terms (i.e., a flow nominal demand increasing faster than inflation), the international reserve coverage of the unified monetary base will increase even faster, and the stabilization program would also succeed (lower right-hand chart in Figure 1).

Data Isues in the Unification Process. The decision to unify the CUP and the CUC will have consequences on usual measures of national well-being. All official national account statistics, as well as price levels, are measured in CUPs at official exchange rates. Using such statistics, Cuban GDP was about US$55 billion in 2006, implying a per-capita GDP of about US$5,000 per year. If national account statistics were converted to U.S. dollars at unofficial exchange rates, the value of Cuban GDP would plummet to about US$2.5 billion, with per-capita GDP decreasing to about US$225 per year. However, the latter calculation cannot be reflective of the true underlying value added generated by the Cuban economy, as exports of goods and services *alone* (which are mainly composed of nickel, tobacco, coffee and tourism) were estimated at about US$10 billion in 2006. In this case, two conclusions arise: (i) per-capita GDP calculated at official exchange rates is a misleading indicator of the country's relative well-being; and (ii) no matter how conservative calculations are, per-capita GDP appears to be larger than the threshold used for IDA-eligibility (a per-capita GNI of under US$1,025). It can be noted that exceptions to this rule have been granted to small island economies such as Dominica and Grenada.

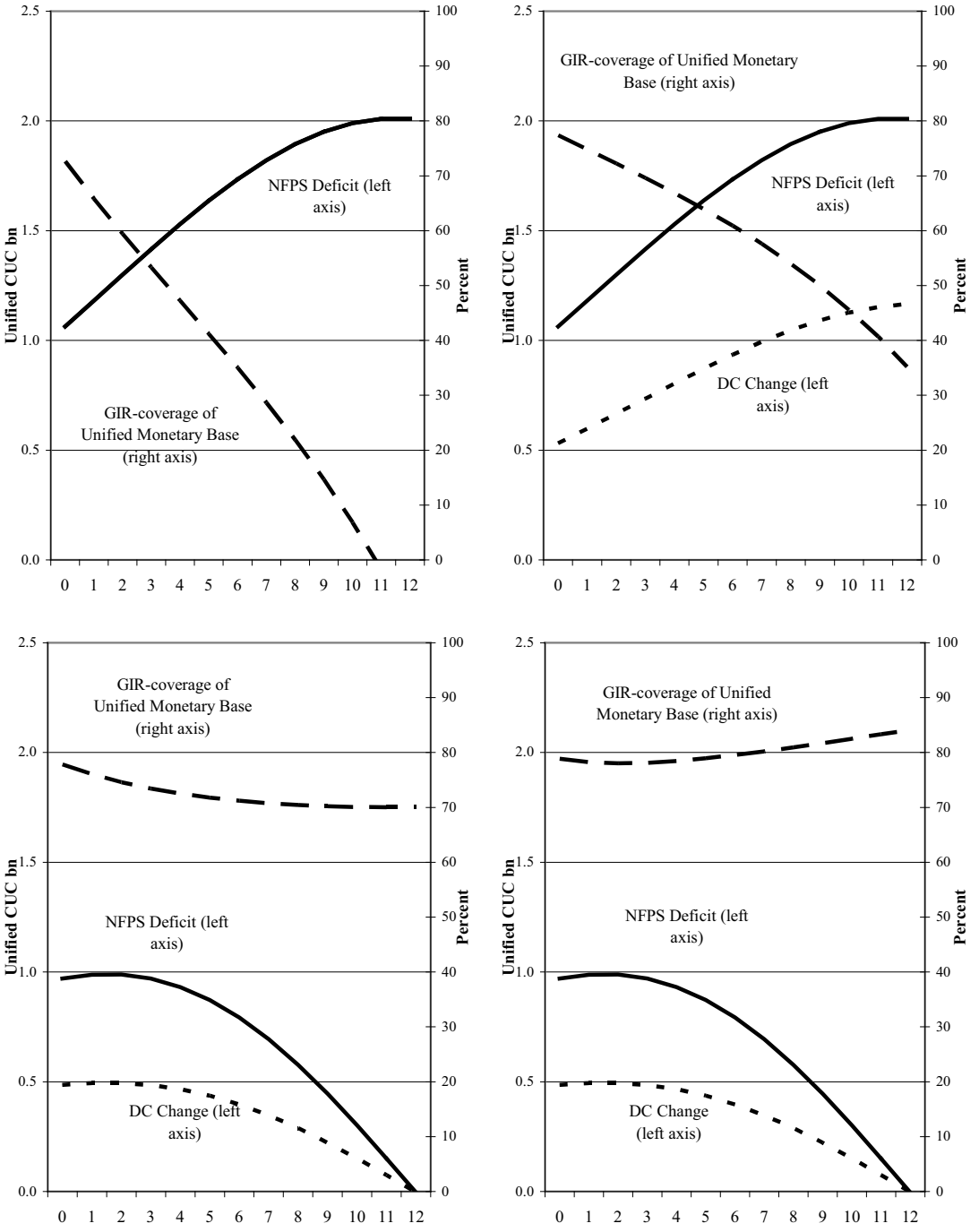
Monetary unification should only proceed after some revamping of the way the price level is measured. The CPI basket should include goods purchased in all market segments, and prices need to reflect underlying opportunity costs. If price indices are measured in CUPs, prices quoted in CUCs should be converted to CUPs at "unified" exchange rates, and the same procedure should be applied to imported goods. This will likely result in a one-time jump of the price level and some realignment of relative prices.[16] It will also result in a more meaningful measure of consumer price inflation going forward. An analogous revamping would be needed for GDP deflators.[17]

Fiscal accounts also need to be expressed in a common currency to allow a sound assessment of future financing needs. Government revenue and financing include receipts in U.S. dollars (and other foreign currencies). In order to have a precise picture, fiscal accounts should be expressed in a common currency (either the CUP or the CUC) at "unified" exchange rates. On the expenditure side, imports of capital goods should be valued at market prices and valued at "unified" exchange rates (as well as interest payments on external debt), while there should be an attempt to identify the cost and allocation of all subsidies granted. Operations below the line should also be expressed in a common currency at "unified" exchange rates.

16. This one-time jump refers to prices measured in CUPs, and it would occur provided the chosen unification CUP/CUC exchange rate is larger than its current official value. National accounts valuation in CUPs would also jump as a consequence, though the resulting U.S. dollar value of GDP at unofficial exchange rates will likely be lower.

17. The large range observed in the U.S. dollar value of income at alternative exchange rates is reflective of widespread distortions in relative and absolute prices that in turn reflects the structure of markets in Cuba (see Appendix II for a summary chart of the market structure).

Figure 1. Cuba: Some Simulations on Post-Unification Dynamics



Source: Fund Staff

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Appendix I

Cuban markets are very segmented. In the 1990s the government allowed some private initiatives, especially in agricultural markets (Unidades Básicas de Producción Cooperativa, UBPCs) and in the service sector. In addition, the government created the so-called Outlet System (managed by the government itself) in which goods (mostly imported) are sold at market prices (plus heavy sale taxes) quoted in CUCs. These relatively market-oriented segments of the economy co-exist with other "less market oriented" activities like the "rationed system," which is administered by the government and comprises basic foodstuffs at heavily subsidized prices, quoted in CUPs. Most basic services are provided for free by the government (including education and health). Alongside formal markets, there exist informal markets, mainly in services. It is not clear whether national accounts include an estimate for these kinds of activities. Price level statistics appear to be compiled mainly for goods in rationed markets for which official price lists exist and do not cover developments in the more market-oriented segments of the economy. As such, these price level statistics do not likely cover the consumption basket of the average Cuban citizen that probably comprises goods purchased in a variety of markets. Analogously, it is also likely that sources of monetary income for the average citizen come from a variety of sources in addition to that provided directly by the government.

Cuba: Structure of Markets

			Operated/owned by	
			Government/SOEs	**Private Sector**
Organization	**Market-like**	**Formal**		UBPC (Cooperatives): Agriculture, light manufactures, services
		Informal		Some goods and services
	Quasi-market		Outlets (both in CUP and CUC); Tourism;	
	Rationed		Basic Foodstuffs; medicines; electricity, water, transportation, telecommunications	
	Free		Health Services, Education	

Source: Fund Staff