CUBAN PESO UNIFICATION: MANAGED RATE AND MONETARY ANALYSIS

Luis R. Luis[1]

The Cuban government has firmly stated since 2013 its desire to achieve monetary and rate unification of its two currencies, the peso (CUP) and the convertible peso (CUC).[2] In a speech to the National Assembly on December 21, 2017, Raúl Castro once more stressed the importance of monetary unification.[3] So this is taken to mean that soon there will be progress in this area although previous pronouncements regarding the urgency of policy action have been disappointing. In this note I present tentative calculations regarding monetary and exchange rate unification.

At present the exchange rates for private individuals against the US dollar are CUP 24 = $1 and CUC 1 = $1. In general, state enterprises carry out foreign trade at an exchange rate of CUP 1 = $1 though this has been adjusted for many state companies to a higher rate.[4] Full unification implies the elimination of the CUC and establishment of a single exchange rate of the peso against the dollar.

ACCOUNTING EXCHANGE RATE

Cuban national income accounts (NIA) are denominated in CUP. A rate of CUP 1 = CUC 1 is used for CUC accounts at state and private entities. Foreign trade is converted into pesos at CUP 1 = $1. It is possible to obtain an average exchange rate from the data published by the Oficina Nacional de Estadística e Información (ONEI).[5] This is not the effective exchange rate used in transactions but a rate to convert CUP-denominated GDP into dollars and a point of reference in gauging

THE PATH TO PESO UNIFICATION.

The calculation involves basic national income accounting. The aggregate expenditures identity GDP(Y) is equal to the sum of its components, household consumption (C), investment (I) and government consumption expenditure (G) plus net exports of goods and services (X-M).

$$Y = C + I + G + X - M \qquad (1)$$

This can be written as

$$Y = C_d + C_m + CP + I_d + I_m + G_d + G_m + X - M \qquad (2)$$

Where the $_d$ and $_m$ subscripts indicate domestic-origin and imported-origin expenditure components provided by the state sector. So C_d and I_d, for example

1. Comments by Ernesto Hernández-Catá were very helpful on an earlier version of this paper.

2. "Cuba anuncia proceso para eliminar dualidad monetaria." BBC Mundo, October 22, 2013.

3. "Aunque la eliminación de la dualidad monetaria y cambiaria por sí misma no solucionará mágicamente todos los problemas acumulados en la economía cubana, constituye el proceso más determinante para avanzar en la actualización del modelo económico por el impacto que tendrá en todas las esferas del quehacer económico y social de la nación. Sin resolver eso es difícil avanzar correctamente. "Raúl en la Asamblea Nacional," discurso de Raúl Castro, cubadebate, December 22, 2017.

4. Ernesto Hernández-Catá, "A Triumph of Intelligence: Cuba Moves Towards Exchange Rate Unification." ASCE Blog, December 12, 2013.

5. ONEI, *Anuario Estadístico de Cuba*, Cuentas Nacionales 2015, Edición 2016.

are consumption and investment provided domestically by the state while C_m and I_m are imported and also supplied by the state. CP is consumption provided by the private sector. We have imports of goods and services, $M = C_m + I_m + G_m$ so that we can write:

$$Y = C_d + CP + I_d + G_d + X \qquad (3)$$

Consumption provided by the private sector (CP) is domestic in origin. This is reasonable since *cuentapropistas* offer services with few or no imported inputs. The other private component of consumption is farmers' markets, which also have few or no imported inputs.

We can show GDP in dollar terms at an average exchange rate e (in dollars per CUP) as:

$$Ye = (C_d + I_d + G_d)e_2 + (CP + X)e_1 \qquad (4)$$

Where e_1 and e_2 are the two official exchange rates, so that e_1 corresponds to CUP 1 = \$1 and e_2 to CUP 1 = \$0.042. Keep in mind that *cuentapropistas* and agro markets expressed as CP transact in CUCs and so are valued in dollars at rate e_1.

From (4), dividing both sides by Y:

$$e = e_2 (C_d + I_d + G_d)/Y + e_1(CP + X)/Y \qquad (5)$$

Identity (5) says that the average exchange rate is the weighted sum of expenditures valued at CUP and CUC. CUP is the currency used in transactions of domestic origin within the state sector while CUC is used in the private sector and foreign trade. It is possible to estimate e from NIA statistics available from ONEI. Household consumption data for 2010–2015 for *cuentapropistas* and agro markets are used to arrive at CP.[6]

Table 1 shows the resulting values of the average GDP exchange rate expressed as 1/e, that is, in pesos per dollar. Accounting values for the CUP and CUC were CUP 24 = \$1 and CUC 1 = \$1 for all years, except 2010 when CUC .93 = \$1 before it reverted to parity the following year.

Table 1. Exchange Rates 2010–2015

	e1: $/CUC	e2: $/CUP	1/e
2010	0.93	24	2.92
2011	1.00	24	2.88
2012	1.00	24	2.82
2013	1.00	24	2.83
2014	1.00	24	2.92
2015	1.00	24	3.21

Note: 1/e is the average exchange rate in CUP per \$1

Source: Estimates by the author from ONEI data.

The calculation shows the NIA imply an average exchange rate between CUP 2.82 and CUP 3.21 per dollar in 2010–2015. In a recent study Pavel Vidal, using an alternative calculation methodology, estimates an accounting exchange rate for 2010–2014 of CUP 2.38 as against the average estimate here of CUP 2.87.[7] Vidal values consumption in the state sector at CUP 1 = \$1 and consumption in private firms at CUP 24 = \$1. In addition, Vidal does not take into account investment expenditure and exports of goods and services. His calculation is centered on consumption, while the exercise here focuses on obtaining an exchange rate for GDP in its totality.

The rate e is the average exchange rate that applies to GDP. It is the average exchange rate for overall expenditures in the economy. It can be called the *average managed exchange rate* as its dual components, e_1 and e_2 are set by the government.

Dual exchange rates with a spread between CUP and CUC of 2300% point to the difficulty in arriving at an equilibrium rate of exchange. There is a CUC/dollar black market in Cuba which is said to vary within a 5% discount of the after-tax dollar rate available in exchange houses (CADECA).[8] This marginal market suggests relative stability of the official CUP 24 = CUC 1 = \$1 possibly with some intervention by Cuban monetary authorities.

A gauging of an equilibrium or market-clearing exchange rate would also need to incorporate financial

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6. ONEI, Consumo final de los hogares por fuentes de oferta.

7. Pavel Vidal, ¿Qué lugar ocupa la economía cubana en la región? Banco Interamericano de Desarrollo. Resumen de Políticas No. IDB-PB-269, 2017.

8. The black market varies around the *after-tax* value of the dollar. There is a 10% tax on dollar trades.

flows, including monetary transfers. The managed exchange rates calculated in this paper only consider goods and services transactions as they relate to GDP. Broadening the calculation to cover the foreign exchange market would need to consider such things as loan disbursements and repayments, direct investments and reinvestments and trade finance. These transactions also take place at multiple exchange rates. Insofar as most of these transactions are done at CUP 1 = $1, it will lower the average accounting rate calculated here.

INTERNATIONAL ASSET COVERAGE OF THE MONETARY BASE

Monetary analysis is useful to gauge the viability of a market-set unified rate.[9] This involves analyzing international reserves and foreign currency flows in relation to the money stock. A first step in this process is to compare the monetary base to international reserves. Since there are no published data series of either variable, estimates need to be made from related data and summary balance sheets of the Central Bank of Cuba. Cuban assets at banks reporting to the Bank for International Settlement (BIS) are used as an estimate of gross international reserves.

Cuban published monetary data comprises series for CUP currency in circulation and the CUP monetary aggregate M2A, the sum of currency, demand deposits and savings accounts in the financial system. Available balance sheets of the Central Bank for 2010–2012 allow the calculation of the CUP monetary base for 2009–2012 but not thereafter.[10] So rough estimates of the CUP monetary base for 2013–2016 are derived on the basis of the currency series and 2012 parameters.[11]

The CUC monetary base was estimated from NIA data on expenditures in *cuentapropista* establishments and agro markets using 2012 parameters of the CUP monetary base.[12]

Table 2 shows the coverage ratio of the combined monetary base for 2010–2016 at the average exchange rates in Table 1.[13] It also shows the full coverage exchange rate. This is the exchange rate needed to cover the combined monetary base with dollar assets available at BIS banks. Full coverage means that the Central Bank has sufficient assets to convert the money supply into foreign currency thus potentially quelling a surge in demand for dollars. This is theoretical. Private citizens including, god forbid, hedge funds hold only small sums of peso currency assets, and there are no peso bonds in private hands. Given this and exchange controls, a speculative attack on the peso is unlikely. On the other hand Cuba has unknown foreign currency liabilities to foreign exporters that press its international reserves.

Cuba could manage with less extensive reserve coverage in case flexible exchange rates are adopted after currency unification. This could be a freely floating currency or some other arrangement such as periodic foreign exchange auctions. Even in that situation robust foreign currency assets would allow the central bank greater ability to conduct monetary policy and help stabilize the currency if need be.

Table 2 places some perspective on the delays in Cuba's exchange rate and monetary unification. The coverage ratio declined from 0.71 in 2010 to 0.11 in 2016. It looks as if Cuba might have considered currency and exchange rate unification in 2010 as it accumulated foreign assets. As these assets dwindled from $5.4 billion to $2.0 billion at the end of 2016, prospects for successful currency unification looked rather feeble.

9. For a monetary analysis of foreign exchange policy in Cuba see Gabriel Di Bella and Andy Wolfe "A Primer on Currency Unification and Exchange Rate Policy in Cuba: Lessons from Exchange Rate Unification in Transition Economies." *Cuba in Transition*, Volume 18, 2008.

10. Financial Statements of Banco Central de Cuba, December 31, 2012, Interaudit, Ciudad de La Habana.

11. 2016 currency data is reported by CEPAL, Balance Preliminar de las Economías de América Latina y el Caribe ? 2017.

12. A velocity parameter involving currency and CUP *circulación mercantil* is used.

13. The exchange rate used in 2016 is 3.21, the same as in 2015.

Table 2. Dollar Asset Coverage of the Estimated Monetary Base, 2010–2016

	2010	2011	2012	2013	2014	2015	2016
CUP Monetary Base (million CUP)	18202	22982	26445	29070	35749	40074	46446
CUC Monetary Base (million CUC)	1424	1545	1905	2648	3434	3717	3957
Combined Monetary Base (million $)	7663	9522	11279	12932	15694	16186	18472
Cuban Assets at BIS banks (million $)	5403	4110	2747	2270	2608	2083	2038
Coverage Ratio at estimated exchange rate {e}	0.71	0.43	0.24	0.18	0.17	0.13	0.11
Full coverage exchange rate	3.63	5.97	10.32	13.97	15.02	21.02	24.73

Source: Balance Sheets of the Central Bank of Cuba 2010–2012, ONEI, Bank for International Settlements, Locational Statistics, and estimates by the author.

Figure 1. Estimated Full Coverage Exchange Rate 2010–2017

Source: Estimates by the author
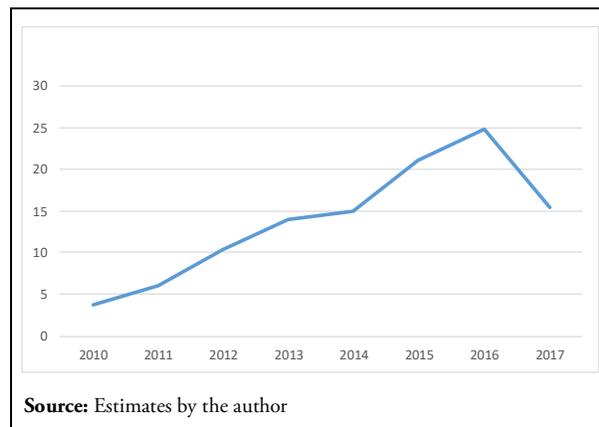
There is some good news. Cuba's assets at BIS increased by $1.55 billion in the year to the end of 2017, providing better reserve coverage and lowering the full coverage exchange rate from 24.7 in 2016 to a rough estimate of 15.4 (Figure 1). It is unlikely that authorities would want to proceed with unification at the managed rate, as the coverage ratio is only .18. International liquidity demands on Cuba remain high with reported arrears on payments to suppliers.[14] There are policy options with continuing exchange controls on capital transactions and full or partial use of flexible exchange rates. However, until Cuba opens up access to international financial markets it remains a tough task to unify exchange rates while bringing substantial convertibility to the Cuban peso.

ROADS TO EXCHANGE RATE UNIFICATION

This paper focuses on the monetary angle of the problem of currency and exchange rate unification. Important elements such as the adjustment of domestic costs and prices, the lifting of subsidies, changes to the accounting system and rebalancing of assets and liabilities of financial and non-financial enterprises are not considered here. An assessment of alternative paths to unification will need to look into these.

This paper, by focusing on the monetary dimensions of the problem, provides insight into the feasibility of a new stable rate of exchange of the Cuban peso. Weak international assets and stagnant exports make it unlikely that a fixed peso rate could be maintained with broad convertibility in the absence of sizable inflows of capital, be it official lending, international aid or investment flows. Such inflows are not envisaged. These would require a turnaround of Cuban economic policies including wide liberalization of markets and broad lifting of trade and investments restrictions as well as substantial revision of foreign exchange controls. Needless to say an easing of US restrictions on trade, travel and investments with Cuba could help improve Cuba's external balance.

What is feasible in view of modest international reserves, timid liberalization of the economy and the isolation from international financial markets? While Cuba is in a weak position to have a stable, convertible currency in the near term, it must nonetheless aim at currency unification to derive much needed gains in efficiency and equity.

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14. *Granma*, "Comportamiento del plan de la economía 2017: Primer Semestre." July 15, 2017, report presented by Ricardo Cabrisas, Minister of the Economy and Planning.

What are feasible options for a future unified peso? Options would naturally depend on the prospects for Cuba's external accounts as well as the extent of market reforms. Given the current outlook with the timorous pace of reforms and no change in US policy, two alternatives come to mind: (1) A fixed peso rate with exchange controls; or (2) A flexible rate system with recurrent foreign currency auctions by the central bank.

Option 1, a fixed peso rate to the dollar with exchange controls, can be implemented if reforms are enacted regarding allocation of foreign exchange to state enterprises alongside corresponding action to fully shift to the fiscal accounts the exchange rate subsidies to state enterprises and agencies. The initial peso/dollar rate could be below the average managed rate. A rate somewhere in the range between 3 and 13.5 pesos per dollar, the estimated full coverage ratio for 2017, may be considered. The appropriate level would have to be determined after assessing the fiscal impact of the new rate, the implications for domestic prices and the balance of payments.

Option 2, a flexible rate system with foreign exchange auctions, will require reform of the current procedures of hard currency allocation. Currency controls can be lessened in this system while crucially lowering fiscal costs. The initial dollar offer range could likewise be set between 3 and 13.5 pesos. Option 2 would require foreign exchange for non-essential imports to be secured through auction participation of state enterprises and agencies as well as private firms. As long as the state sector has a monopoly of merchandise exports and extensive control of services exports, the auction mechanism will consist of foreign exchange offers by the central bank. Further liberalization in the export sector and in the financial system will entail bid-side auctions with the central bank purchasing hard currency from exporters and banks. Double-sided auctions will be able to proceed once broad liberalization of export and import restrictions on firms are in place.