Philippine Institute for Development Studies

Dollarization: Concepts and Implications for Monetary and Exchange Rate Policy in the Philippines

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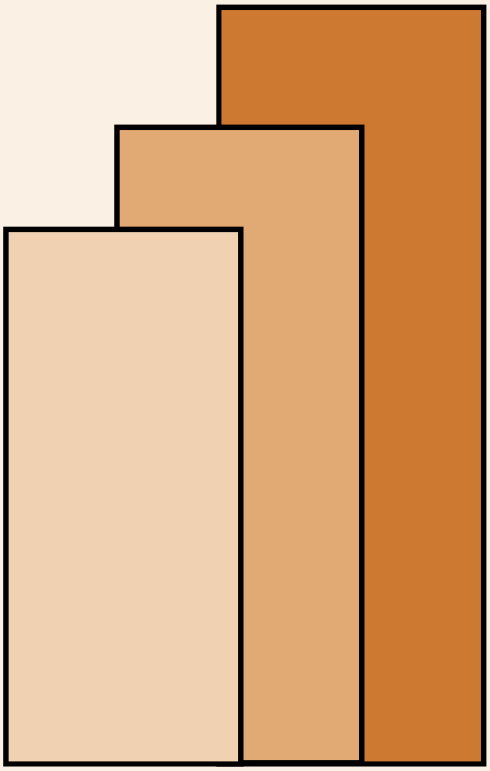
DISCUSSION PAPER SERIES NO. 2001-03



February 2000

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Abstract

Dollarization denotes the use of a foreign currency in any of its three functions: unit of account, means of exchange and store of value. In terms of the latter aspect, dollarization has been increasing in the Philippines. Empirical tests that confirm the significance of dollarization are generally flawed but what is more important is to determine the impact of dollarization on the efficacy of monetary policy and the choice of exchange rate regime. Full dollarization or official dollarization has both its costs and benefits but this is not a viable option for the Philippines at the moment.

Keywords: dollarization, seigniorage, exchange rate regime

Dollarization: Concepts and Implications for Monetary and Exchange Rate Policy in the Philippines

Josef T. Yap[1]

I. Introduction

Many economies have a significant amount of foreign currency in their monetary systems. This gives rise to the analysis of the role of the foreign currency in terms of its contribution to the economy and its effect on macroeconomic stability. The nature of its role provides basis for policy recommendations.

The presence of foreign currency implies a certain level of dollarization. Concepts related to this topic will be explained and clarified in the next section. A brief description of the dollarization process in the Philippines is presented in Section III. Analytical and empirical issues related to dollarization are discussed in Section IV. Policy considerations are the topic of Section V. This is followed by a concluding section.

II. Basic Concepts[2]

Dollarization denotes the use of a foreign currency in any of its three functions: unit of account, means of exchange and, in particular, store of value. It refers to the use of any foreign currency but the US dollar is the most common (hence the term). Meanwhile, the term currency substitution refers to the use of foreign currency as a means of exchange. Hence, an economy that is experiencing currency substitution is by definition also dollarized (partially) but an economy that is dollarized (partially) does not necessarily experience currency substitution.

Partial dollarization occurs when people hold a portion of their financial wealth in foreign assets. This is equivalent to "asset substitution", which results from the public's allocation decisions in view of the risk and return characteristics of domestic and foreign assets. In a later stage (sometimes called unofficial dollarization, depending on the extent of use of foreign currency), currency substitution occurs, even if foreign currency is not considered legal tender. Wages, taxes, and everyday expenses such as groceries and electric bills continue to be paid in domestic currency, but expensive items such as automobiles and houses are often paid in foreign currency.

Semiofficial dollarization occurs when an economy has an official bi-monetary system. Under this system, foreign currency is legal tender and may even dominate bank deposits, but plays a secondary role to domestic currency in paying wages, taxes and

[1] Senior Research Fellow, Philippine Institute for Development Studies (PIDS). The author would like to acknowledge the excellent research assistance provided by Merle G. Galvan. The usual disclaimer applies.
[2] Drawn heavily from US Senate Joint Economic Committee (2000).

everyday expenses. Semiofficial dollarized economies maintain a central bank or other monetary authority and have corresponding latitude to conduct their own monetary policy.

Official dollarization, also called full dollarization, occurs when foreign currency has exclusive or predominant status as full legal tender. That means not only is foreign currency legal for use in contracts between private parties, but the government uses it in payments. Domestic currency may still exist— as it does in Panama—but it is confined to a very minor role, usually coins that are used for small change.

Most economies, including the Philippines, are partially dollarized. Examples of semiofficially dollarized countries are Cambodia and Laos, with the Thai baht also considered legal tender in the latter. Panama is the largest country that is officially dollarized and uses the US dollar. Monaco is an example of an independent country that uses the French franc—and eventually the Euro—as an official currency.

Currency substitution arises when high and variable inflation rates discourage the use of the domestic currency. Asset substitution can also result from the flight from the domestic currency as people turn to foreign currency denominated assets as a store of value. However, in recent years, dollarization has become more prevalent because of institutional changes, particularly capital account liberalization. Hence, the increase in foreign currency assets in recent years is a consequence of portfolio decisions under stable macroeconomic conditions.

III. Dollarization in the Philippines

The extent of dollarization is usually measured by the ratio of foreign currency deposits (FCDs) held by residents to a broad money aggregate. Using the IMF standard, an economy is considered highly dollarized if the ratio is greater than 30 percent. Otherwise it is moderately dollarized. Theoretically, all assets must be considered including foreign currency circulating as cash in the domestic economy and cross-border deposits. However, data considerations limit the analysis to FCDs.

Table 1 shows that the ratio of FCDs to M3 for the Philippines increased from 11.8 percent in 1986 to 40.7 percent as of June 2000 (FCD/M3). However, if this ratio is corrected for exchange rate changes (FCD$/M3), then the increase is less pronounced. Meanwhile, the ratio of FCDs to M4, which is comparable to the IMF figures in Table 1, increased from 10.5 to 28.9 percent in the same period. The Philippines is nearing the threshold for a highly dollarized economy.

Table 1
Ratio of FCDs to Broad Money Aggregates

YEAR	FCD (Bill P)	FCD/M3	FCD$/M3	FCD/M4	Ratio Reported by IMF
1986	17.01	11.8	0.58	10.5	-
1987	20.54	12.7	0.61	11.3	-
1988	28.49	15.1	0.71	13.1	-
1989	42.70	16.8	0.76	14.4	-
1990	64.74	21.5	0.77	17.7	17.4
1991	79.02	22.8	0.85	18.5	18.0
1992	104.25	27.1	1.07	21.3	21.0
1993	147.25	30.7	1.10	23.5	22.6
1994	167.08	27.5	1.14	21.5	20.9
1995	216.30	28.4	1.08	22.1	21.5
1996	331.75	37.6	1.43	27.3	-
1997	426.91	40.0	1.07	28.6	-
1998	471.16	41.1	1.03	29.2	-
1999	506.12	37.1	0.91	27.0	-
2000*	533.27	40.7	0.96	28.9	-

*June
Data are end year.
Source: IMF (1999)
Bangko Sentral ng Pilipinas

The major reason for the increasing trend in dollarization is the rise in remittances from overseas workers and export receipts. From only $546 million in 1981, remittances from overseas workers increased to $6.8 billion in 1999 while exports rose from $5.7 billion to $35.2 billion in the same period (Table 2). Institutional factors also played a key role. The liberalization of regulations governing foreign exchange transactions in 1992 facilitated the return of foreign-based funds that had earlier left as capital flight. The new rules also allowed exporters to retain 100 percent of their receipts. Capital account liberalization also sparked the surge of portfolio investment to the Philippines (Table 2). These developments were reflected in the FCD ratio to broad money, which reached a pre-1996 peak in 1993.

Table 2

SOURCES OF FOREIGN CURRENCY
In Millions of (US) Dollars

YEAR	Overseas Filipino Workers' Remittances	Net Foreign Direct Investments	KB Foreign Liabilities	Net Portfolio Investment	Exports (nominal)
1981	545.87	175	4410	3	5722
1985	687.20	17	2953	5	4629
1990	1181.07	528	2324	152	8186
1991	1500.29	529	2140	212	8840
1992	2221.80	675	1911	451	9824
1993	2276.40	864	1115	955	11375
1994	3008.10	1289	2172	1641	13483
1995	3868.40	1361	2975	1997	17447
1996	4306.50	1338	7217	2179	20543
1997	5741.80	1113	8165	-351	25228
1998	4926.00	1592	7778	80	29496
1999	6794.60	864	6899	347	35260.6

Source: Bangko Sentral ng Pilipinas.

Meanwhile, the uniform currency act was repealed in June 1996. While the peso is recognized as the only legal tender, parties may agree that the obligation or transaction will be settled in any other currency at the time of payment. Hence, foreign currency is de facto legal tender in the Philippines. An interesting point is that there is no legal impediment for the Philippines to become a semiofficial dollarized economy.

A sharp increase in the FCD-broad money ratio was recorded in 1996 and this has been sustained until June 2000. While exchange rate movements can explain the behavior of the ratio for the period 1997-2000 (as seen from the FCD$/M3 ratio), the reasons for the jump in 1996 are not straightforward. One possible factor is the surge in foreign exchange liabilities of the commercial banks in 1996 (Table 2). Commercial banks took advantage of the arbitrage opportunity provided by the difference between international interest rates and domestic interest rates. This led to a sharp increase in what is called liability dollarization. However, by borrowing in foreign currency and lending to domestic borrowers, who were unhedged against exchange risk, commercial banks created one side of the double-mismatch problem. The other side was mismatch in maturity which was exacerbated by the fact that most of the foreign borrowing was short-term in nature.

IV. Analytical and Empirical Issues in Dollarization

Analytical Aspects

One of the motivations for the study of currency substitution was the Argentine experience in 1975 when a sizeable increase in the rate of expansion of money supply was accompanied by a strong depreciation of the real exchange rate (Calvo and Vegh, 1996). Since this observation was counterintuitive, existing models had to be modified. The existence of petrodollars in Argentina and the fact its citizens held substantial amounts of foreign currency for transactions purposes made currency substitution the most plausible element that could resolve the shortcomings of existing models.

The early model of currency substitution showed the demand for domestic money relative to foreign currency to be given by:

$$m/e \cdot f = L(i/i^*) \qquad \text{where } L' < 0 \qquad (1).$$

m denotes real money balances (in terms of domestic goods), f is the stock of foreign currency, e is the real exchange rate (defined as the relative price of traded goods in terms of home goods), and i and i* denote the domestic and foreign nominal interest rates, respectively. A key assumption of the early models is that foreign currency is the only internationally traded asset. Hence, the only way for the economy to alter its stock of foreign currency is through current account imbalances.

Consider a permanent increase in the rate of growth of the money supply. The resulting increase in steady-state inflation reduces the steady-state demand for domestic money relative to foreign money (the domestic interest rate i should increase along with inflation). The public reacts today by attempting to reduce its domestic nominal money balances by buying foreign currency, which leads to a nominal depreciation of the domestic currency. The early models assumed that prices were flexible hence the nominal depreciation does not necessarily translate into a real depreciation of the domestic currency. To close the model, it is assumed that the steady-state real exchange rate and total financial assets ($m + e \cdot f$) are constant. This implies that, in the steady state, f must increase for equation (1) to hold. Hence, the real exchange rate must depreciate on impact to generate the current account surpluses necessary for the economy to accumulate foreign assets.

Subsequent models dealt with the case when there is a foreign bond. This feature incorporates the aspect of an illiquid foreign asset. Earlier models obtained the key result—that an increase in money supply leads to a real exchange rate depreciation—on the assumption that the entire stock of net foreign assets in the hands of the public provided liquidity services. However, the same result was obtained with the presence of the foreign bond but in a completely different manner. This is through the wealth effect

that arises from a reduction in seigniorage payments to the foreign government that in turn results from lower holdings of foreign currency.

The details of the adjustment process can be obtained elsewhere (Calvo and Vegh, 1996). What is important is that the presence of an illiquid foreign asset makes the distinction between currency and asset substitution critical. Second, it has been shown analytically that the optimal choice of dollar assets depends only on the real return differential [i* - (i - ε)], where ε is the rate of depreciation of the domestic currency. It does not depend on nominal returns or on the liquidity services provided by currencies.

Empirical Tests

The empirical literature on dollarization revolves around variants of what have become the two standard tests of currency substitution (Savastrano, 1996). The first test consists of estimating an equation where the public's relative holdings of domestic and foreign currency is expressed as a function of their relative opportunity costs and other relevant determinants. A common general form of the equation is:

$$M/e \cdot F = f[(i - i^*);\ Ù), \qquad f_{(i - i^*)} < 0 \qquad (2)$$

where M represents nominal domestic money supply, e·F is foreign currency converted to local currency, i and i* are the domestic and foreign nominal interest rates, respectively and Ù is a vector of various other determinants.

The second test consists of including the expected rate of depreciation as an additional regressor in an otherwise standard domestic money-demand equation. The equation is of the following general form:

$$M/P = f(Y, i, i^*, ä), \quad f_i < 0, f_{ä} < 0 \qquad (3)$$

where P is the domestic price level, Y is the level of real income, and ä is the expected rate of depreciation.

Table 3 shows the estimation results for Equation 2 using quarterly data from 1986 to the second quarter of 2000. The negative coefficient of GNP indicates that FCD holdings increase with income. The 91-day Treasury bill rate and 90-day LIBOR represent the domestic interest rate and foreign interest rate, respectively. Their difference carries the expected negative coefficient. Seasonal dummy variables are included and the results indicate that FCD holdings increase relatively in the last quarter of the year. A lagged dependent variable was added to account for serial correlation. However, the latter problem has not been completely eliminated as indicated by the Durbin-Watson statistic.

Table 3

Dependent Variable: M3/FCD
Method: Least Squares
Date: 01/30/01 Time: 08:25
Sample(adjusted): 1986:2 2000:2
Included observations: 57 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.859125	0.811490	2.291003	0.0262
GNP	-0.005572	0.002739	-2.034296	0.0472
(TBILL – LIBOR)	-0.020670	0.008687	-2.379562	0.0212
M3/FCD(-1)	0.897631	0.044768	20.05084	0.0000
DUM1	-0.230634	0.104344	-2.210322	0.0317
DUM2	-0.316661	0.099770	-3.173904	0.0026
DUM3	-0.378324	0.109937	-3.441278	0.0012

R-squared	0.987410	Mean dependent var	4.308255
Adjusted R-squared	0.985900	S.D. dependent var	1.859130
S.E. of regression	0.220762	Akaike info criterion	-0.068880
Sum squared resid	2.436788	Schwarz criterion	0.182021
Log likelihood	8.963069	F-statistic	653.5917
Durbin-Watson stat	1.335032	Prob(F-statistic)	0.000000

The empirical results for Equation 3 are shown in Table 4. Expected depreciation is assumed to be equal to actual depreciation. However, if this variable is used as an explanatory variable, its coefficient is positive, which is not the expected sign. This implies that a rise in the depreciation rate increases the holdings of domestic money, which is a counterintuitive result. An alternative is to use the return to foreign assets measured in terms of domestic currency. This would be the nominal foreign interest rate plus the rate of depreciation. The results in Table 5 show that the higher return on foreign assets leads to lower holdings of foreign currency and hence higher demand for domestic currency.

Table 4

Dependent Variable: M3/CPI
Method: Least Squares
Date: 01/22/01 Time: 09:13
Sample(adjusted): 1986:1 2000:2
Included observations: 58 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.579633	0.841254	-4.255118	0.0001
GDP	0.053401	0.003477	15.35762	0.0000
TBILL	-0.105671	0.023176	-4.559409	0.0000
DEPN	0.024396	0.007421	3.287480	0.0018

R-squared	0.878471	Mean dependent var	5.173706
Adjusted R-squared	0.871719	S.D. dependent var	1.895467
S.E. of regression	0.678886	Akaike info criterion	2.129745
Sum squared resid	24.88785	Schwarz criterion	2.271844
Log likelihood	-57.76259	F-statistic	130.1127
Durbin-Watson stat	2.004080	Prob(F-statistic)	0.000000

Table 5

Dependent Variable: M3/CPI
Method: Least Squares
Date: 01/19/01 Time: 08:07
Sample(adjusted): 1986:1 2000:2
Included observations: 58 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.728939	0.823448	-4.528444	0.0000
GDP	0.053662	0.003441	15.59394	0.0000
TBILL	-0.109207	0.023510	-4.645210	0.0000
LIBOR + DEPN	0.024539	0.007348	3.339411	0.0015

R-squared	0.879113	Mean dependent var	5.173706
Adjusted R-squared	0.872397	S.D. dependent var	1.895467
S.E. of regression	0.677091	Akaike info criterion	2.124449
Sum squared resid	24.75639	Schwarz criterion	2.266548
Log likelihood	-57.60901	F-statistic	130.8992
Durbin-Watson stat	2.042732	Prob(F-statistic)	0.000000

Both tests have their shortcomings. Lack of data on holdings of foreign currency notes by residents makes it impossible to test directly for the presence of currency substitution as distinct from asset substitution. Hence, in Equation 2 the awkward result showing that an increase in LIBOR leads to lower FCD holdings is obtained. This can be remedied by using the return as discussed in Section III, which is $[i^* - (i - \varepsilon)]$ and test directly for asset substitution. However, the results in Table 6 show that this variable is not significant.

Table 6

Dependent Variable: M3/FCD
Method: Least Squares
Date: 01/30/01 Time: 08:31
Sample(adjusted): 1986:2 2000:2
Included observations: 57 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.676964	0.719830	0.940449	0.3515
GNP	-0.001978	0.002565	-0.770964	0.4444
TBILL-(LIBOR+DEP)	0.000567	0.002573	0.220482	0.8264
M3/FCD(-1)	0.951484	0.042035	22.63545	0.0000
DUM1	-0.146263	0.105439	-1.387175	0.1715
DUM2	-0.230198	0.100088	-2.299961	0.0257
DUM3	-0.273127	0.108986	-2.506083	0.0155

R-squared	0.985998	Mean dependent var	4.308255
Adjusted R-squared	0.984318	S.D. dependent var	1.859130
S.E. of regression	0.232814	Akaike info criterion	0.037429
Sum squared resid	2.710110	Schwarz criterion	0.288330
Log likelihood	5.933274	F-statistic	586.8347
Durbin-Watson stat	1.305248	Prob(F-statistic)	0.000000

As for the second test, it has been argued that domestic money demand will depend on the rate of exchange rate depreciation even in the absence of currency substitution, because the rate of depreciation affects the yield of foreign assets, which is an opportunity cost to domestic money (IMF, 1999). This dovetails with the reasons for using the variable (LIBOR + DEPN) in Table 5. To actually distinguish between currency and asset substitution, the equation should include both the rate of return on foreign bonds in domestic currency (LIBOR + DEPN) and the rate of depreciation itself in the money demand equation. Unfortunately, as the results in Table 7 show, these variables are closely correlated and their independent effects are essentially impossible to distinguish.

Table 7

Dependent Variable: M3/CPI
Method: Least Squares
Date: 01/22/01 Time: 09:42
Sample(adjusted): 1986:1 2000:2
Included observations: 58 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.790045	0.928962	-4.079869	0.0002
GDP	0.053782	0.003568	15.07498	0.0000
TBILL	-0.110254	0.024768	-4.451506	0.0000
ERDEPN	-0.008991	0.061090	-0.147172	0.8836
LIBORER	0.033398	0.060653	0.550649	0.5842

R-squared	0.879162	Mean dependent var	5.173706
Adjusted R-squared	0.870042	S.D. dependent var	1.895467
S.E. of regression	0.683309	Akaike info criterion	2.158523
Sum squared resid	24.74627	Schwarz criterion	2.336147
Log likelihood	-57.59716	F-statistic	96.40115
Durbin-Watson stat	2.055390	Prob(F-statistic)	0.000000

V. Policy Considerations

Even if the empirical tests could be improved, they would not be able to address the more fundamental issues.[3] These are to ascertain the impact of dollarization on the efficacy of monetary policy and its implication on the choice of exchange rate regime. The presence of dollarization leads to three distinct policy issues. First, what are the costs and benefits of full dollarization? Second, how does partial dollarization affect the choice of exchange rate regime? And third, how should monetary policy be conducted in the presence of foreign currency? The last two issues are pertinent for economies that are not considering official dollarization but have a significant amount of foreign currency in their monetary systems.

[3] One way to address this shortcoming is to determine empirically which monetary aggregate (M3 or M4) is able to track the price level or inflation more accurately. This can be done using a VAR framework. Some estimates done during the course of the study show that M4 predicts the price level more accurately but the difference is only marginal. The results can be provided by the author upon request.

Costs and Benefits of Dollarization

The primary cost of dollarization is the loss of seigniorage on the part of the monetary authority. Seigniorage is the revenue from issuing currency and it is sometimes—albeit mistakenly—referred to as the inflation tax. Benefits from seigniorage can be measured in both stock and flow terms. The latter stems from the foregone interest on international reserves that are used to purchase the stock of domestic currency held by the public. On the other hand, stock costs refer to the foregone future earnings that result from the flow of new currency that are printed every year to satisfy the increase in the demand for money. The seigniorage arises from the difference between the cost of producing and distributing paper money and coins and their purchasing power.

Some estimates show that seigniorage costs can be significant. For an average country the stock cost could be as much as 4-5 percent of GDP (US Senate Joint Economic Committee, 2000). Meanwhile, the flow cost has been estimated at 0.2 percent of GDP for Argentina. The present value would be about 20 percent of GDP. One way to reduce seigniorage costs would be for the dollarizing economy to enter into a treaty with the US to share its revenues from seigniorage specific to that economy. A bill has been proposed in the US Congress entitled the "International Monetary Stability Act." This allows the US Secretary of the Treasury to certify officially dollarized countries as eligible to receive rebates of seigniorage from the US (US Joint Economic Committee, 2000).

Another critical consideration would be the cost of losing flexibility in monetary and exchange rate policy. A fully dollarized economy has no choice but to adopt the monetary policy of the issuing country. This has led to what is called asymmetric shocks (Calvo, 1999). One could consider a shock that requires lower interest rates or a depreciation of the real exchange rate in the dollarized economy but has no effect on the US. Under these conditions, US monetary policy will not change and thus the dollarized economy may have to undergo a recession in response to the shock.

The third potential cost would be losing the domestic central bank as lender of last resort. It should be noted that the aforementioned International Monetary Stability Act explicitly states that the US would not be obligated to act as a lender of last resort. One solution is to arrange for lines of credit from foreign banks. Branches of foreign banks can also provide credit directly to domestic banks without government involvement (US Senate Joint Economic Committee, 2000). Another alternative is for the central bank to accumulate foreign exchange reserves and along with the treasury, establish a stabilization fund, which can be used to counter bank runs.

There is also the one-time cost of converting prices, computer programs, cash registers and vending machines from domestic currency to foreign currency. This is akin to menu costs. Finally, countries may be reluctant to abandon their own currencies because the domestic currency also acts as a national symbol.

Many of the costs cited above could be outweighed by benefits that are derived from the same factors. By adopting the monetary policy of the US, dollarized economies will experience lower interest rates and lower inflation. This will increase investment spending and spur economic growth. In addition, the absence of an exchange rate that has to be defended eliminates BOP crises and the rationale for exchange controls. Another way of looking at it is that the monetary authority will not have to be concerned about credibility problems with its exchange rate policy.

Meanwhile, by eliminating the government's power to create inflation, dollarization fosters the government's budgetary discipline. While this will not eliminate budget deficits, the latter will be financed through fairly transparent methods of higher taxes or more government debt. The rather risky option of printing money cannot be considered.

Finally, dollarization will lower transaction costs in international trade. These stem partly from the difference between the buying and selling rates for converting domestic currency to foreign currency. Hedging for currency risk will also become unnecessary.

Dollarization and Exchange Rate Policy

If currency substitution is prevalent, the conventional wisdom is that fixed exchange rates provide a more effective nominal anchor (Calvo and Vegh, 1996). This is because frequent and unexpected shifts in the use of domestic and foreign money leads to greater volatility of the exchange rate (IMF, 1999). Moreover, domestic money demand will be more sensitive to changes in the expected opportunity cost. Thus, a variable exchange rate would make it more difficult for the monetary authority to control the money supply.

In the case of asset substitution, the availability of dollar deposits in domestic banks serves to increase capital mobility. This will then strengthen the link among interest rates in dollar deposits at home, international dollar interest rates, and domestic currency interest rates. In turn, this would limit the control that the central bank can exert on monetary conditions, such as the level of interest rates on domestic currency. In this regard, a flexible exchange arrangement may be the more appropriate regime to increase monetary autonomy (IMF, 1999).

Meanwhile, the debate on full dollarization can also be interpreted to be a debate on the appropriate exchange rate regime. Following the Asian financial crisis, a more flexible exchange regime has been followed by most of the affected economies, except Malaysia. The main reason for this is the experience that an implicit dollar peg was one of the main factors behind the increase in liability dollarization. A more flexible exchange rate would have discouraged foreign-exchange-denominated borrowing, especially from the nontradeable sector, since the borrowers would face a larger currency risk.

However, this argument ignores the prevalent situation where economies are already partially dollarized—i.e. have existing dollar liabilities (Calvo and Reinhart, 1999). Partial dollarization increases the cost of exchange rate volatility, which, in turn, induces the central bank to intervene in the foreign exchange markets to prevent fluctuations in the nominal exchange rate. This results in an implicit or soft peg, and thus induces more liability dollarization, creating a vicious circle from which it is difficult to exit.

In order to avoid currency mismatch problems in a fixed exchange rate regime, the option would be full dollarization. This would make the country less vulnerable to sudden stops in capital flows (Calvo and Reinhart, 1999). Banks would not experience abrupt changes in the value of their assets and/or liabilities and the currency would not be subject to speculative attacks.

Dollarization and the Conduct of Monetary Policy

Dollarization will affect the choice of monetary target, the implementation of monetary policy and the structure of prudential supervision. Currency substitution implies that dollar monetary assets should be part of the relevant concept of money when targeting the price level. On the other hand, asset substitution does not affect the transaction demand for money and hence implies that FCDs should not be included in the relevant monetary aggregate. In practice, the choice of the more relevant monetary target is an empirical issue (see Footnote 3).

Heavily dollarized economies should consider the use of dollar-denominated instruments in affecting monetary conditions. However, the effectiveness of the instrument will be affected by the degree of substitutability between dollar-denominated government bonds and dollar assets available outside the home country. The higher is the degree of substitutability, the lower is the effectiveness of the instrument (IMF, 1999).

Meanwhile, in heavily dollarized economies, foreign currency reserve requirements can play a useful role as automatic liquidity stabilizers (IMF, 1999). Reserve requirements on FCDs can also be used to automatically sterilize or discourage capital inflows. Because the Philippines is not yet heavily dollarized, reserve requirements have not yet been imposed on FCDs. However, banks are required to provide 100 percent cover.

The 1997 financial crisis exposed the risks of liability dollarization. While the management of such risks is the broad responsibility of macroeconomic policy, prudential regulation and supervision need to account for the vulnerability imparted to bank balance sheets. Hence there is need to monitor the compliance with the Basle guidelines for capital adequacy. Moreover, limits on foreign exchange positions—following international standards—should be strictly enforced to contain foreign

exchange risk (IMF, 1999). Imposing restrictions on foreign currency loans is another option.

VI. Concluding Remarks

Since the Philippines is not a heavily dollarized economy, the issue of full dollarization is not relevant as of this time. Nevertheless, the presence of foreign currency deposits does affect the efficacy of monetary and exchange rate policy. This may partially explain why the inflationary effects of a currency depreciation have been muted, as compared to 1983 and also why the hike in interest rates in October, 2000 hardly made a dent on the rate of the peso's depreciation.

The choice of the appropriate exchange regime becomes critical in the presence of both asset substitution and liability dollarization. The more flexible exchange regime since July 1997 has corrected price distortions that led to misallocation of resources. It is also consistent with the argument that in the presence of asset substitution, a flexible exchange rate regime is necessary to increase monetary autonomy. However, the more volatile exchange rate has made it difficult for banks to manage their dollar loans. This may be one reason why the nonperforming loan ratio has not stabilized in the Philippines.

A recommendation for the choice of exchange rate regime is beyond the scope of this paper. However, it can be stated that even if the Philippines becomes heavily dollarized, full dollarization—in the context of using the US dollar—may not be an optimal strategy. Aside from the costs mentioned above, the Philippines has a large volume of trade with Japan. The volatility of the yen-dollar exchange rate should be reason enough for countries of East Asia—which are considered to be part of a yen bloc—to be cautious about moves toward dollarization.

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