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Combating Widespread Currency Manipulation

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INTRODUCTION AND SUMMARY

Widespread currency manipulation, mainly in developing and newly industrialized economies, is the most important development of the past decade in international financial markets. In an attempt to hold down the values of their currencies, governments are distorting capital flows by around $1.5 trillion per year. The result is a net drain on aggregate demand in the United States and the euro area by an amount roughly equal to the large output gaps in the United States and the euro area. In other words, millions more Americans and Europeans would be employed if other countries did not manipulate their currencies and instead achieved sustainable growth through higher domestic demand.

This Policy Brief identifies the 20 most egregious currency manipulators over the past 11 years. Four groups of countries stand out: (1) longstanding advanced economies such as Japan and Switzerland; (2) newly industrialized economies such as Israel, Singapore, and Taiwan; (3) developing Asian economies such as China, Malaysia, and Thailand; and (4) oil exporters such as Algeria, Russia, and Saudi Arabia.

Although currency manipulation to boost trade balances is a violation of the Articles of Agreement of the International Monetary Fund (IMF), there is currently no procedure to punish or curtail it. The best forum for sanctions against currency manipulators is the World Trade Organization (WTO), operating in consultation with the IMF. Countries affected by currency manipulation would be authorized to impose tariffs on imports from manipulators. In order to get manipulators to agree to this change in international rules, the main targets of currency manipulation—the United States and the euro area—may have to play tough. One strategy would be to tax or otherwise restrict purchases of US and euro area financial assets by currency manipulators.

An unresolved question is whether the growth of sovereign wealth funds (SWFs)—especially in oil exporters such as Kuwait, Norway, and the United Arab Emirates—should be considered a form of currency manipulation. For now, I have not included SWF activities as currency manipulation, but there is a strong case for international rules to limit SWF expansion.

WHAT IS CURRENCY MANIPULATION?

A government can take many actions to influence the value of its currency. In this brief I define currency manipulation as follows:

> Currency manipulation occurs when a government buys or sells foreign currency to push the exchange rate of its currency away from its equilibrium value or to prevent the exchange rate from moving toward its equilibrium value.

The equilibrium value of a currency is that which is sustainable over the long run. An exchange rate is sustainable if the current account balance is not generating an explosive path for net foreign assets relative to both domestic and foreign wealth. Sustainability generally implies a small value of the current account balance, but fast-growing economies can maintain moderate current account deficits as long as the associated liabilities do not grow faster than their economic output and the liabilities are small relative to liabilities in the rest of the world. For further discussion, see Cline and Williamson (2011) and Lee et al. (2008).

Manipulation through Official Financial Flows

To push down the value of its currency, a government would sell domestic currency to buy foreign currency. The government must hold the foreign currency acquired in the form of a foreign financial asset, typically a bond or a bank deposit. Currency manipulation can be measured in terms of the net cross-border flow of financial assets held by the official sector.

In the past decade, currency manipulation has been overwhelmingly aimed at boosting current account surpluses through an undervalued currency.

Official purchases of foreign assets, or net outflows, push down the value of a currency. Official sales of foreign assets, or net inflows, push up the value of a currency.

Sometimes governments engage in cross-border financial transactions to achieve objectives other than currency manipulation. For example, a government may borrow on international markets to fund a development project or to finance a budget deficit. But, regardless of the government's intent, cross-border official flows affect the exchange rate. Of course, nongovernment factors also influence the exchange rate, such as the preferences of private investors at home and abroad as well as the current account balance, which summarizes the net flow of incomes associated with trade, cross-border investment, and expatriate workers.

The size of the effect of official flows on the exchange rate depends on the ability and willingness of private investors to absorb the associated change in their portfolios. When a government sells domestic currency for foreign currency, private investors must be induced to give up foreign currency in exchange for domestic currency. The inducement comes from the decline in the value of domestic currency, i.e., an exchange rate depreciation. If legal barriers prevent some investors from holding the domestic currency, then the depreciation will be greater than otherwise. If there are no legal barriers, and the financial markets are deep and liquid, then the depreciation will be small.

In the past decade, currency manipulation has been overwhelmingly aimed at boosting current account surpluses through an undervalued currency. However, in previous decades, manipulation often was aimed at maintaining an overvalued currency because devaluation was seen as politically unpopular and potentially inflationary. This brief focuses on the past decade, during which currency manipulation—and current account surpluses of manipulators—reached an unprecedented magnitude.

Other Policy Influences on the Exchange Rate

Government spending, tax rates, and money creation also influence the value of the exchange rate, primarily through the interest rate. A higher domestic interest rate makes the domestic currency more attractive to private investors, thus putting upward pressure on its exchange value. With the exception of monetary policy under a fixed exchange rate, these policy tools are primarily used to achieve goals for economic activity and inflation.[1]

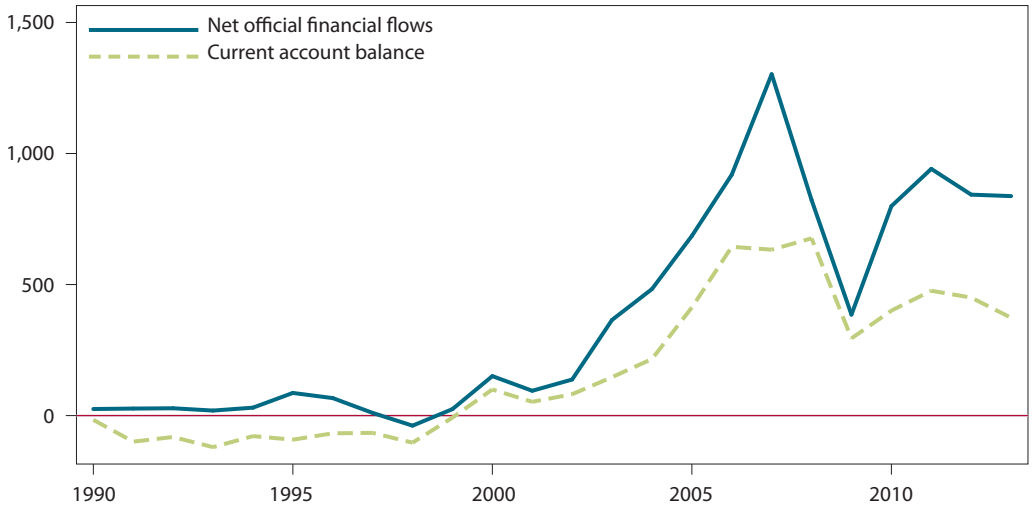
Another set of policy tools that influences the exchange rate is capital control measures such as taxes or regulatory restrictions on private capital inflows and outflows. A tax or restriction on capital inflows tends to depreciate a currency, whereas a tax or restriction on capital outflows tends to appreciate a currency. The primary motivation for such controls is domestic financial stability (Ostry et al. 2011).

A government seeking to achieve a large current account surplus through these other policies would adopt some combination of a tight fiscal policy, loose monetary policy, tight restrictions on capital inflows, and few restrictions on capital outflows. Tight fiscal policy has a strong empirical connection to current account surpluses, but it is generally difficult for politicians to deliver. On its own, monetary policy has little effect on the current account, but a loose monetary policy would help to offset the negative effects of tight fiscal

1. If the central bank prints money to buy foreign exchange (referred to as unsterilized intervention) the action operates through two channels, the foreign exchange market and the domestic interest rate. Sterilized intervention occurs when the central bank sells domestic assets to buy foreign exchange, keeping the domestic interest rate constant. Unsterilized intervention has a bigger initial effect on the exchange rate, but most of this effect is offset over time through higher inflation. To the extent that both types of intervention cause higher cumulative net official financial flows, both have a similar long-run effect on the exchange rate.

Figure 1 External accounts of developing economies, 1990–2013

billions of US dollars



Note: Data exclude newly industrialized economies and most sovereign wealth fund flows. 2012 and 2013 are IMF forecasts.

Source: IMF, *World Economic Outlook* database.

policy on domestic economy activity and inflation. Tight restrictions on capital inflows may prevent a current account deficit, but loose restrictions on outflows cannot guarantee a current account surplus because private domestic investors may choose not to send their capital abroad.

MANIPULATION IS BIG

In Gagnon (2012), I show that, over the past 30 years, currency manipulation through official financial flows has been the most important explanatory factor behind the pattern of current account balances across countries and over time. Fiscal policy is a distant second. Other factors play a role in some countries and time periods, but none is as consistently important as currency manipulation (official flows) and fiscal policy.

Currency manipulation is predominantly, though not exclusively, a phenomenon of the developing and newly industrialized economies. Figure 1 displays IMF data and forecasts for net official financial flows and the current account balance of the developing economies. (The IMF does not forecast official flows of the newly industrialized or other advanced economies.)

In the 1990s, the developing economies had a small current account deficit of about $100 billion and net official flows were close to balanced. Beginning around 2000, this pattern changed abruptly as both net official flows and the current account balance soared to unprecedented levels. The Great Recession partially reversed these trends, but both the official flows and the current account are projected to remain at extremely elevated levels through 2013.

The two lines in figure 1 are strongly correlated. One explanation for this correlation, consistent with more detailed statistical analysis of my own (Gagnon 2012), is that currency manipulation (the solid line) held down the values of developing-economy currencies against those of advanced economies, making developing-economy exports cheaper to advanced-economy consumers and making advanced-economy exports more expensive to developing-economy consumers.[2] The result was a large current account surplus (the dashed line). In the absence of this manipulation, the developing-economy current account likely would have remained near its 1990s average as a share of GDP, reaching around –$200 billion by the late 2000s. So the net effect of currency manipulation as of 2011 was to raise the current account of the developing economies by roughly $700 billion relative to where it otherwise would have been.

Note that the current account of developing economies increased by less than the increase in net official flows, reflecting an increase in net private flows from advanced econ-

2. In many developing economies, manipulation prevented the normal trend appreciation associated with rapid economic growth rather than causing any outright depreciation. The point is that without a trend appreciation, such countries experience growing trade and current account surpluses.

omies into developing economies. By accounting identity, the current account balance equals the sum of net official financial flows and net private financial flows. Analysis suggests that about one-third of an increase in net official outflows shows up in an offsetting net private flow and two-thirds shows up in a higher current account balance (Gagnon 2012).

Most of the increase in reserves has occurred in developing Asia, with advanced economies also displaying an increase of more than 1 trillion SDRs.

A rough estimate of currency manipulation by advanced economies and official purchases by SWFs—neither of which is included in figure 1—is $500 billion per year. Thus, total currency manipulation, broadly defined, may be as high as $1.5 trillion per year. IMF data suggest that about three-fifths of these flows are into dollar assets and one-quarter into euro assets.[3]

Taking into account the total amount of currency manipulation in US dollars and applying the estimated effect on the current account described above suggests that the current account of the United States may have been pushed down by about 4 percent of GDP. This negative external demand shock is roughly equal to the estimated US output gap (IMF *World Economic Outlook,* April 2012). In other words, currency manipulation is responsible for millions of lost jobs in the United States. It also is responsible for a large number of lost jobs in the euro area.

The largest component of net official flows is the accumulation of foreign exchange reserves. Figures 2a and 2b display foreign exchange reserves by region. Reserves are displayed in terms of IMF special drawing rights (SDRs) to minimize the effect of exchange rate movements on their value in any one currency.[4] Most of the increase in reserves has occurred in developing Asia, with advanced economies also displaying an increase of more than 1 trillion SDRs. Nevertheless, all regions show a pronounced increase, particularly after 2004.

3. According to the IMF's Currency Composition of Official Foreign Exchange Reserves data, about 60 percent of reserves are in US dollars, 25 percent in euros, 5 percent each in sterling and yen, and 5 percent in other currencies. Some countries do not report a currency breakdown of their foreign exchange reserves. These data also do not include assets of most sovereign wealth funds.

4. The SDR is a composite of fixed amounts of the main reserve currencies: dollar, euro, sterling, and yen.

IDENTIFYING MANIPULATORS

As discussed above, all official financial flows have an impact on currency values, regardless of their underlying motivation. In this section, I attempt to identify harmful currency manipulators by screening out official flows that may be justified on other grounds. The focus here is on countries' holdings of foreign exchange reserves.

By focusing on large and growing stocks of foreign exchange reserves over a long period of time, I deliberately exclude currency manipulation that is only temporary in nature. For example, the IMF (2006, 9) encourages governments to intervene in foreign exchange markets to calm disorderly market conditions. Such intervention should occur in both directions to damp volatility. In contrast, the IMF (2006, 9) proscribes "protracted large-scale intervention" in the foreign exchange market.

Debt Repayment Is Excluded

Official flows that involve repayment of public external debts are excluded. Many countries have greatly reduced their official borrowing, especially in foreign currencies. This has a negative effect on the value of their currencies and boosts their current account balances, but I do not wish to label this behavior as harmful.

Sovereign Wealth Funds Are Excluded (for Now)

Official purchases through SWFs are excluded.[5] This exclusion is controversial because a key goal of SWFs is to channel saving abroad rather than at home, which involves pushing the domestic currency lower than otherwise and maintaining a large current account surplus. In that sense, foreign investment by SWFs clearly is currency manipulation. It may be justified in the case of exports of an exhaustible resource, although even in that case there should be international agreement on limits to such behavior.

Edwin M. Truman (2011) develops estimates of the foreign asset holdings of SWFs, which totaled nearly $3 trillion as of 2010. Countries with the largest holdings of foreign assets in SWFs include the United Arab Emirates, Norway, Kuwait, Singapore, Russia, Qatar, China, Libya, and Algeria.

Improving data on SWFs and developing metrics for appropriate size and behavior of SWFs is an important goal for global policymakers. I return to policy implications in the final section.

5. Saudi Arabia includes all official foreign assets in its reported reserves back to 2005, although some of these assets may be viewed as similar in purpose and characteristics to those in SWFs.

Figure 2a Foreign exchange reserves, by region, 1990–2011

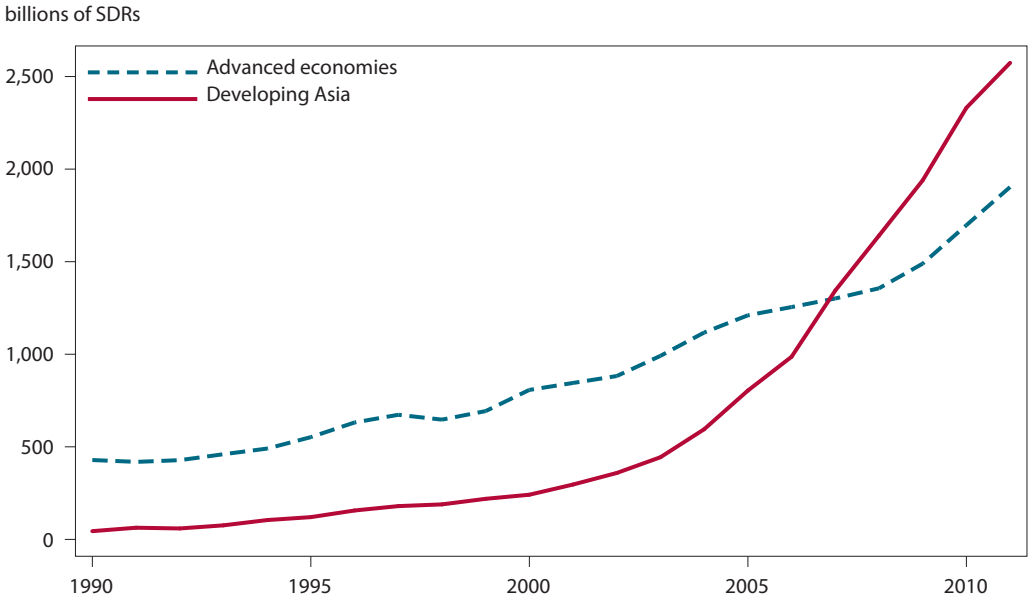
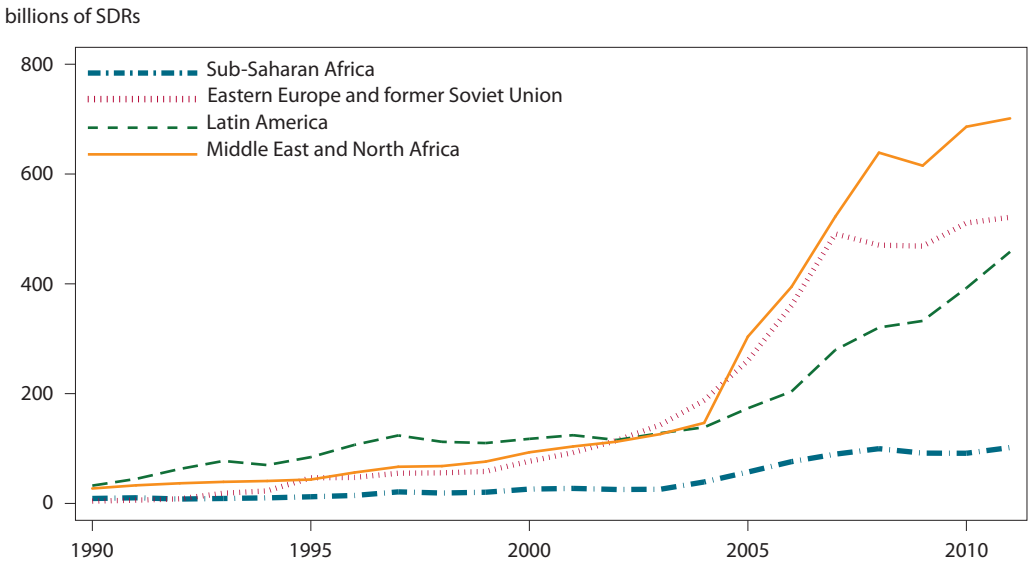


Figure 2b Foreign exchange reserves, by region, 1990–2011



SDRs = Special drawing rights

Source: IMF, *International Financial Statistics* database.

What Is a Reasonable Level of Foreign Exchange Reserves?

The IMF (2011) discusses various metrics for assessing appropriate levels of reserves. There are two broad points: (1) Middle-income countries are exposed to sudden stops in capital flows, and (2) low-income countries are exposed to trade shocks because they tend to have a limited range of exports. To guard against the first risk, the Greenspan-Guidotti rule recommends that countries hold foreign exchange reserves equal to 100 percent of their short-term external debt (Jeanne and Ranciere 2006). To guard against the second risk, countries

should hold reserves in proportion to their imports and/or exports. The most common rule of thumb is three months of merchandise imports (IMF 2011).

The IMF (2011) inexplicably ignores a key change in global financial markets that has an important implication for reserve adequacy. This change is the decline of borrowing in foreign currencies in many developing economies. The Greenspan-Guidotti rule implicitly assumes that external debt is in a foreign currency, but that is no longer always the case. In Gagnon (forthcoming) I show that foreign-currency debt has declined dramatically in eight Asian developing economies. When domestic central banks are in control of credit conditions, sudden stops are no longer economically damaging. Indeed, by depreciating the domestic currency, sudden stops actually stimulate economic activity.[6] This important development suggests that many middle-income countries need fewer reserves than implied by the Greenspan-Guidotti rule. Indeed, it is an open question as to whether middle- and high-income countries with flexible exchange rates and without significant foreign-currency debts need any reserves at all.

Table 1 lists currency manipulators based on excessive levels of foreign exchange reserves. Because the external debt data are missing for some countries, I do not use short-term debt as a criterion; instead they are displayed in table 1 where available. To be included, a country must meet *all* of the following criteria.

1. Countries must have foreign exchange reserves that are greater than the value of six months of goods and services imports.[7] This criterion is considerably more demanding than the conventional three months of merchandise imports discussed above. Moreover, given that the fourth criterion excludes all low-income countries, it is not even clear that having reserves equal to three months of imports is necessary or useful for the remaining countries. A reduction of this requirement to three months of imports, while retaining the other three criteria, would add Brunei, Oman, Timor Leste, Namibia, and Ukraine to table 1.

2. Countries must have an average current account balance (as a percent of GDP) between 2001 and 2011 that is greater than zero. This criterion focuses on countries that are deliberately trying to increase or maintain current account surpluses. I do not explore the possibility that some developing economies are engaging in harmful currency manipulation that narrows their current account deficit. This criterion excludes about a dozen countries that would otherwise be in table 1, notably including Brazil, India, Jordan, Mongolia, Peru, Romania, Syria, and Uruguay.

3. Countries must have increased their reserve stocks relative to their GDP over the past 10 years. This criterion identifies only the most active purchasers of foreign exchange reserves. Countries excluded by this criterion are Botswana, Chile, Indonesia, and Kuwait.

4. Low-income countries, as defined by the World Bank, are excluded on the principle that they should have greater freedom than other countries to pursue economic development policies that may have negative externalities.[8] Low-income countries that would otherwise appear in table 1 are Myanmar and Nepal.

The Extreme Manipulators

Table 1 displays the countries that meet all of the above criteria. The first column shows foreign exchange reserves as a percent of 2011 GDP. As a share of GDP, foreign exchange reserves are largest among the advanced-economy and Middle Eastern manipulators.[9] The second column shows the change in reserves as a percent of GDP between 2001 and 2011. Again, the most pronounced growth is in the advanced and Middle Eastern economies, as well as among some Asian economies.

The third column displays the average current account balance from 2001 through 2011 as a percent of GDP. The fourth column displays the net external asset position of the public sector (as a percent of GDP) according to the IMF's international investment position data. None of the countries for which data are available have negative net public external assets.

The final column displays gross short-term external debt (public and private sector).[10] Foreign exchange reserves equal

6. For example, Australia was hit by a sudden stop in 1997–98 that caused a sharp depreciation of its currency. The Reserve Bank of Australia held interest rates constant. The depreciation enabled Australia to boost its exports to other countries to offset the loss of demand from countries hit by the Asian financial crisis. Australia continued to have strong and steady growth with stable inflation (Gagnon and Hinterschweiger 2011, 192).

7. Owing to missing data for some countries, I use 2010 imports.

8. The WTO subsidies code allows countries with per capita incomes below US$1,000 (which is comparable to the World Bank criterion for low-income countries) to use export subsidies that are otherwise prohibited (Mattoo and Subramanian 2008, 12).

9. The large value for Libya is distorted by the drop in GDP in 2011 associated with the armed rebellion. In 2010 Libya's reserves equaled 119 percent of GDP and they had grown by 78 percentage points since 2001.

10. These data (from the World Bank) are not reported for the advanced economies. For the advanced economies, the column displays gross short-term external debt securities from the Bank for International Settlements.

Table 1 Currency manipulators, 2001–11 (percent of GDP)

Country	2011 foreign exchange reserves	Increase in foreign exchange reserves since 2001	Average current account, 2001–11	2010 net public-sector external assets (IMF)	2010 gross short-term external debt[a]
Advanced economies					
Denmark	24	14	4	25	2
Hong Kong	121	53	9	120	3
Israel	31	12	2	28	0
Japan	21	12	3	25	0
Korea	27	7	2	29	0
Singapore	93	7	19	99	1
Switzerland	44	32	11	47	1
Taiwan	83	24	8	n.a.	n.a.
Latin America					
Argentina	9	4	2	9	9
Bolivia	40	30	4	40	1
Developing Asia					
China	45	29	5	49	6
Malaysia	48	16	13	45	15
Philippines	32	14	2	21	3
Thailand	49	21	3	53	12
Sub-Saharan Africa					
Angola	28	20	7	8	3
Middle East and North Africa					
Algeria	97	64	14	n.a.	1
Libya	271	230	24	n.a.	n.a.
Saudi Arabia	94	85	18	n.a.	n.a.
Eastern Europe and Former Soviet Union					
Azerbaijan	17	4	8	n.a.	n.a.
Russia	25	14	8	35	3

n.a. = not available

a. For advanced economies, securities only (Bank for International Settlements). For developing economies, external debt stock (World Bank).

Sources: Bank for International Settlements, *Securities Statistics*; IMF, *International Financial Statistics*; IMF, *World Economic Outlook*; World Bank, *World Development Indicators*; and Central Bank of the Republic of China (Taiwan).

or exceed the Greenspan-Guidotti rule in all of these countries for which data are available, often by a large amount.

A striking feature of table 1 is the large number of Asian countries it contains—both advanced and developing. Some have argued that the Asian manipulators are motivated by a desire to build a large war chest to avoid a repeat of their experience during the Asian financial crisis of 1997–98. That may have been appropriate in the early part of the last decade, but Olivier Jeanne and Romain Ranciere (2006, 1) argue that "the recent [as of early 2006] buildup of reserves in Asia seems in excess of what would be implied by an insurance motive against sudden stops." And figure 2a shows that developing Asia's reserves have tripled since Jeanne and Ranciere wrote their study.

Reduced foreign-currency debt and better macroeconomic policy frameworks contributed to relatively good economic performance in Asia during and after the global financial crisis of 2008–09. Even Korea, which experienced the most severe financial-market pressures, had only a mild slowdown in growth

and stable inflation in 2008–09.[11] It is not clear that the reserve build-up helped much, and countries used little or no reserves during the crisis. Indeed, when a country faces a sudden loss of export demand, a war chest of foreign exchange reserves provides no economic help, since their use keeps the exchange rate from falling far enough to restore net external demand. Reducing foreign-currency debt and establishing a sound macroeconomic policy framework are far more important for the future stability of Asian economies than piling up foreign exchange reserves that cannot be used in a crisis.

A more plausible explanation for why Asian governments continue to add to their stocks of foreign reserves is that exporters are politically powerful and maintaining a current account surplus is viewed as a convenient way of maintaining steady growth.

POLICY IMPLICATIONS

According to Article IV, Section 1 of the IMF's Articles of Agreement, IMF members commit to

> avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members.

What is to be done about the widespread violation of this commitment? Undoubtedly, the IMF should be more aggressive in citing countries for currency manipulation during its regular review of economic policies under Article IV.[12] Since the adoption of the Article IV language on currency manipulation in 1978, the IMF has never publicly declared a member country to be in violation of the prohibition against currency manipulation.[13] Morris Goldstein (2006) and Truman (2010) argue that the IMF should adopt a graduated approach to currency manipulators from calling for special consultations, publicly criticizing offending countries, freezing their SDR allocations, suspending their voting privileges, and ultimately expelling them from the IMF. However, these steps appear to be either relatively weak or not very credible. What is needed is a sanction tool that can hurt a creditor country without completely alienating it from the global system.

Unlike the IMF, the WTO does provide a framework for countries to lodge complaints and impose sanctions on those who violate its rules. Article XV of the agreements that underlie the WTO states that "contracting parties shall not, by exchange action, frustrate the intent of the provisions of this Agreement." However, this provision likely was intended to prevent countries from imposing exchange controls to offset the trade impact of negotiated cuts in tariffs (Irwin 2011). It has not been tested as a tool against currency manipulation. Moreover, the WTO is required to defer to the IMF on matters relating to currencies and foreign exchange reserves, and—as discussed above—the IMF has been unwilling to designate countries as currency manipulators.

Aaditya Mattoo and Arvind Subramanian (2008), Douglas Irwin (2011), and Gary Hufbauer and Jeffrey Schott (2012) have proposed that the WTO work in cooperation with the IMF to restrict currency manipulation. The details of their proposals differ, but the essential point is that countries that feel they are harmed by currency manipulation should be able to file a complaint with the WTO. The WTO would then ask the IMF to rule on the presence and magnitude of currency manipulation. If the IMF agreed that the target country is manipulating its currency, the WTO would authorize the plaintiffs to impose countervailing tariffs against imports from the offending country in proportion to the implied currency undervaluation. If the IMF executive board is viewed as unwilling to rule impartially, the decision might be delegated to the IMF staff or to an appointed committee of outside experts.

The question then arises as to how to get members of the IMF and the WTO to agree to this new procedure. Changes in the WTO agreements require consensus and changes in the IMF articles require 85 percent of voting shares. Currency manipulators have no incentive to change the governing statutes of the IMF and the WTO in a way that would curtail their freedom to manipulate.

Hufbauer and Schott (2012) suggest that a coalition of WTO members could enter a "plurilateral agreement" that would be binding only on those who choose to join. The hope is that peer pressure might eventually induce currency manipulators to change their ways. Mattoo and Subramanian (2008) suggest that manipulators are beginning to see that they are harmed by the manipulation of others and thus might become more amenable to rules that would bind all. They also propose that countries could offer inducements to manipulators in the form of guaranteeing investment opportunities for their SWFs. With respect to the IMF, Goldstein (2011) suggests that a grand

11. Korea's financial pressures arose from a maturity mismatch in bank funding and a currency mismatch in some corporate funding (Gagnon forthcoming).

12. For blistering critiques of IMF inaction over Chinese currency manipulation, see Mussa (2008) and Goldstein (2011).

13. This assertion is based on a search of the IMF website and conversations with IMF staff who work in the area of exchange rate surveillance. Goldstein (2006) notes that special consultations were conducted with Sweden in 1982 and Korea in 1987. Boughton (2001) records that the IMF concluded that the Swedish and Korean exchange rates were undervalued, but it did not invoke the charge of currency manipulation.

bargain could include more generous emergency credit lines and more executive directors and voting shares for developing economies.

However, it is possible that carrots alone will not suffice. One stick that the United States and the euro area could wield would be to prohibit or to tax purchases of their financial assets by currency manipulators (Gagnon and Hufbauer 2011). Such a tax would be permissible under international law and would provide currency manipulators with a powerful incentive to bargain for a comprehensive deal that would both allow for sanctions against manipulators in the context of a multilateral process and proscribe the freedom of reserve-issuing countries to unilaterally impose capital controls and taxes. Indeed, it might be useful to combine rules against currency manipulation with rules on capital controls and taxes for all countries (Jeanne, Subramanian, and Williamson 2012).

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