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The International Monetary System or "Nonsystem"?

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Throughout his career John Williamson frequently has focused his considerable analytic skills and powers of persuasion on reform of the international monetary system (IMS). His second publication (Williamson 1963) examined international liquidity and the "multiple key currency proposal." His next publication was on the crawling peg (Williamson 1965). Exchange rates and international liquidity have been bookmarks of John's professional career. At least one-third of the entries on John's curriculum vitae address one aspect or another of the IMS and its reform.

John Williamson and the International Monetary System

As a consultant to Her Majesty's Treasury from 1968 to 1970, John Williamson was intimately involved in the policy process at the time of the collapse of the Bretton Woods system. Then, as advisor to the International Monetary Fund (IMF) Research Department from 1972 to 1974, he participated in efforts to rebuild the system during the operation of the Committee of Twenty (C-20). I first met John when he visited Yale University in the fall of 1971 to present a paper on customs unions (Bottrill and Williamson 1971), which was then a focus of my research as well. Our professional interactions multiplied after 1972, when I joined the staff of the Federal Reserve Board. We both worked on

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C-20 issues, participating together on several C-20 technical groups. We were also both members of a rather subversive organization called the Second Row Club that would meet over dinner at the time of various international meetings and criticize the lords and masters who sat in the first rows of the meetings we all attended.

John's experience with the C-20 left him with a very bad impression of prospects for reform of the IMS. Indeed, he wrote a book about the C-20 effort to reform the IMS, which he titled *The Failure of World Monetary Reform, 1971–1974* (Williamson 1977). John was one of the first to use the term "international monetary nonsystem" to characterize the IMS with which we have lived for the past 40-plus years (Williamson 1976). He elaborated on his views in his study of how the C-20 exercise failed to produce a set of well-defined rights and obligations.[1] As he put it: "There was no agreement on a set of rules for assigning adjustment responsibilities, no design of a viable adjustment mechanism, no introduction of an SDR standard [other than in empty words], no substitution account [to eliminate an overhang of reserve currencies in the system], and no curb on the asymmetries" (Williamson 1977, 73). Consequently, John's concise, 203-page account of the C-20 period provides a useful point of departure in considering his views on the IMS and its evolution.

John characterized the IMS as consisting of arrangements in five areas (Williamson 1977, 1): market convertibility (transactions in different currencies between private parties), the exchange rate regime, balance of payments adjustment, the supply of reserve assets, and the institution charged with managing the system. This last element brings in the IMF as the manager of the system. John favored then, as well as today, a system based as much as possible on rules and a major role of the IMF as the keeper and enforcer of those rules.

John considered the C-20 decision to try to perpetuate the adjustable-peg regime as "intellectual nihilism" (Williamson 1977, 125). He was, however, careful to note that two important components of the five elements of the Bretton Woods system—market convertibility and international management—remained even as arrangements governing the exchange rate regime, balance of payments adjustment, and the supply of reserves were swept away.

In John's view (Williamson 1977, 77), the participants in the C-20 reform negotiations shared a common interest in preserving the progress made under the Bretton Woods system in nine areas: (1) maintenance of a cooperative economic system, (2) incorporation of liberal trading policies, (3) maintenance of an international capital market, (4) minimization of global cyclical fluctuations, (5) provision of development finance, (6) absence of erratic exchange rate variations, (7) avoidance of competitive payments policies, (8) orderly methods

1. In John's view, circa 1977, the positive benefit of rules and automaticity (compared with indicators and discretion) was that they limit tensions and political maneuvering associated with attempts to link indicators to change in policies or behavior (Williamson 1977, 111).

of payments adjustment, and (9) provision of reserves through a fiduciary (fiat) reserve asset, that is, the then-nascent special drawing rights (SDR) system.[2]

Arguably, the post-C-20 system has been successful in the first four areas, which I would argue fall in the category of objectives achieved.[3] The fifth area (development finance) is not a feature of the IMS per se, though some may disagree. The remaining four areas are potentially desirable features of an IMS but have not been established. On the other hand, with the exception of the erratic exchange rate variations, which were constitutionally excluded under the Bretton Woods system, not much progress was made on them during the 25 years of the Bretton Woods system either. It is just that no progress has been made subsequently.

John attributes the failure of the C-20 negotiations to a lack of political will to cooperate on seeking common solutions, and to an intellectual failure, or technical inadequacy, when it came to devising a workable system, in particular with respect to the exchange rate regime (Williamson 1977, chapter 7).

The bulk of John's review of the C-20 negotiations (Williamson 1977) focused on the adjustment process, including the exchange rate regime (chapter 5) and reserve assets and liquidity (chapter 6). In his prescriptions for the future (chapter 8), John focused primarily on the exchange rate regime. He embraced the reference rate proposal of Wilfred Ethier and Arthur Bloomfield (1975) to establish foreign exchange market intervention rights but not impose intervention obligations.[4]

John was involved in the process that generated the IMF's guidelines for the management of floating exchange rates that were adopted by the IMF Executive Board in June 1974. The guidelines included some elements that were similar to those in the Ethier-Bloomfield approach—particularly the concept of an exchange rate target "within the range of reasonable estimates of the medium-term norm for the exchange rate in question"—but the guidelines went further in establishing the presumption that countries would "lean against the wind" in their intervention operations (IMF 1985, 487–91). When the IMF Articles of Agreement were formally amended in 1978 to legalize floating exchange rates—and when in anticipation of the approval of the second amendment, the IMF Executive Board in April 1977 adopted a decision governing the surveillance of members' exchange rate policies—the notion of a medium-term norm as well as the presumption that a member should lean against the wind in its exchange rate operations were not included (IMF 1985, 491–94). In John's view, these were steps backward that reinforced his sense that the C-20 process had created

2. The numbering and ordering are not those of John Williamson.

3. The first area relates to the role of the IMF. Whatever one thinks of the post–Bretton Woods IMS and the job that institution has done in that IMS, the IMF has retained its central role in international monetary cooperation, though it has been forced to share that role first with the G-7 and now with the G-20, just as before 1971 it shared its central role with the G-10.

4. The Ethier-Bloomfield approach had been presented at a conference in 1974.

a nonsystem. This setback has not deterred John from continuing to pursue the reference rate proposal, as documented by the contribution to this volume by Marcus Miller on target zones (see chapter 5 in this volume).

Although John's primary preoccupation with the IMS over the past 40 years has been the adjustment process and the role of exchange rates and exchange rate management in that process, he also has addressed the reserve asset system, and in particular the role of the SDR (Williamson 1977, chapter 8). In John's view at that time, the IMS should involve the collective management of international liquidity, preferably by providing reserve assets to participating countries in the form of fiduciary claims, in other words SDR. Although John was sympathetic to the European attachment to asset settlement as a means to discipline US economic and financial policies, and also to the SDR aid link as a mechanism for distributing SDR reserves to the system, his principal motivation appears to have been to redistribute the seigniorage associated with the provision of reserve assets that he saw accruing to the United States. He also held the view that controlling the volume of international liquidity was an important aspect of a healthy global economic, monetary, and (today some would emphasize even more) financial system. In recent years, as the topic of IMS reform has reemerged, some would say only marginally, on the international agenda John has returned to assessing the role of the SDR in the IMS (Williamson 2009a and 2009b).

In chapter 8 of Williamson (1977), he argued that, despite the failure of the C-20 negotiations and the modest adjustments to the IMS contained in the second amendment of the IMF Articles of Agreement, reform of the IMS was desirable. Based on the attention he has paid to IMS issues in his subsequent work, we can safely conclude that John still feels that way.

In Williamson (1977, 197–201), John presented five features of the post–Bretton Woods international monetary nonsystem as sources of economic concern: (1) the high volatility of exchange rates, (2) the lack of defenses against the pursuit of countercyclical exchange rate policies, (3) a lack of control over the volume of international liquidity, (4) the misdistribution or arbitrary distribution of seigniorage, and (5) the asymmetric position of the US dollar.[5] On each of these concerns, John offered arguments on both sides as to how serious these concerns might be in the future. In a later paper (Williamson 1985), John advanced a robust defense of the Bretton Woods system that rested on three rules: (1) exchange rates were normally to remain stable and not be subjected to short-run manipulation via monetary and fiscal policies; (2) monetary and fiscal policies were to be focused on the maintenance of internal stability in the form of full employment and price stability constrained by the first and

5. I have changed the order of the Williamson (1977) concerns somewhat to group the two concerns with respect to the adjustment process together; the other three relate to the reserve asset system. John did not include international capital movements in his list of concerns about the IMS in the mid-1970s. In the ensuing 40 years, as detailed by the contribution of Olivier Jeanne to this volume (chapter 8), John has directed considerable attention to global capital flows.

the third rules; and (3) countries were to restrict their deficits to what could be financed from available reserves, and drawing on the IMF and the United States would be constrained by the need to maintain confidence in the dollar. Although John's defense of the Bretton Woods system was vigorous and robust, he admitted that the system functioned as intended only from 1958 to 1967—less than a decade.

The balance of this chapter looks at John's five concerns about the post–Bretton Woods system in two groups: those about exchange rates and the adjustment process, and those about international liquidity, seigniorage, and the stability of the monetary system. I will to try to evaluate to what extent those concerns are or should be concerns today, as well as examine progress and prospects in these areas.

The Adjustment Process

This section examines two aspects of the IMS as it has evolved since the early 1970s: exchange rate variability and external imbalances. The two aspects are closely linked, although adjustment is not all about exchange rate movements, or nonmovements, and exchange rates are not all about maintaining external equilibrium.

Exchange Rate Variability

One frequently heard criticism of the IMS today is that there is excessive and unnecessary variability of exchange rates.[6] The argument is that exchange rate variability impedes trade and adversely affects growth and/or contributes to inflation. Joseph E. Gagnon (2011, chapters 4 and 5) exhaustively examines these arguments and finds little evidence to support them. Nevertheless, as Gagnon notes, lack of correlation does not establish a lack of causation.

It is difficult to believe that there are zero costs associated with the degree of exchange rate variability that has prevailed since the collapse of the Bretton Woods system. The question is, What is the appropriate comparison? As John Williamson in his many writings has stressed, the search for optimum exchange rate policies must start from the proposition that one can establish, in rough measure, equilibrium exchange rates for countries individually and collectively that are consistent with internal and external balance for each country and globally.

Exchange rate variability can be measured in several dimensions, including, for example, with respect to one or more time periods and with respect to one or more currencies. Concerns about the day-to-day variability in exchange rates distorting price signals in the short run differ from concerns about exchange rate variability over periods as long as a year or two, which are more relevant to the adjustment process and the costs of delaying adjustment. Those who advo-

6. Paul A. Volcker is a frequent critic. See Volcker (2012).

cate exchange rate stability, in general, focus on a particular bilateral exchange rate. It is more appropriate, in my view, to examine the behavior of effective, or average, exchange rates rather than bilateral exchange rates. In particular, the latter are more relevant for most economic questions. The economics profession over the past 40 years has failed to convince policymakers and the general public to focus not on a particular bilateral exchange rate but instead on an average exchange rate for the country.

Has exchange rate variability decreased in recent years? Table 3.1 examines this question in terms of month-to-month changes, 12-month changes, and 24-month changes for the G-20 countries and the euro area.[7] The summary results show that exchange rate variability has declined in all three time dimensions in a substantial majority of the 20 series, on average by 85 percent for the two tests, the two exchange rate series, and the three time periods.[8] Seventy-seven percent of the cases exhibited a significant reduction in variability, slightly more frequently for the nominal effective exchange rates, but the difference was not as pronounced as one might expect. This probably reflects the influence of nominal exchange rates on real exchange rates. On the other hand, the decline in variability has not been dramatic.[9] The mean 10-year effect ranges from 15 to 20 percent for most of the countries.

The apparent general decline in exchange rate variability suggests that markets today may be coping better with flexible exchange rates than several decades ago, but that does not necessarily mean that the external adjustment process has produced better results overall or that there has been a decline in the high volatility of exchange rates about which John was concerned (Williamson 1977, 197). On the other hand, from a medium-term perspective, adjustment of exchange rates may have been insufficient to contribute to an appropriate working of the adjustment process. The next subsection examines this issue.

External Imbalances

Turning to outcomes of the adjustment process, it is conventional to focus on external imbalances.[10] We worry about external imbalances for two reasons. First, for individual countries, external imbalances, and outsized deficits in particular, may trigger external payments crises that are disruptive to the

7. A companion working paper (Truman 2012) contains more detailed results.

8. Frequently, the exchange rates for the same countries exhibited an increase in variability. That was the case for India and Korea, which moved toward policies of greater exchange rate flexibility, but also for Canada and the United Kingdom.

9. Truman (2012) contains the background for this conclusion.

10. A case could be made that one should focus instead, or in addition, on broader indicators of macroeconomic performance such as growth, inflation, unemployment rates, and technical progress. However, such an examination is beyond the scope of this chapter.

Table 3.1 Summary of tests of trends in foreign exchange rate variability for G-20 countries (number of countries in each category)

Interval	Mean standard deviation test[a]	Regression standard deviation test[b]
	Nominal effective exchange rate	
Month-to-month		
Less variability	18	18
Significant	18	15
Not significant	0	3
More variability	2	2
Significant	2	1
Not significant	0	1
12-month		
Less variability	18	17
Significant	16	16
Not significant	2	1
More variability	2	3
Significant	0	3
Not significant	2	0
24-month		
Less variability	18	16
Significant	17	16
Not significant	1	0
More variability	2	4
Significant	1	1
Not significant	1	3
	Real effective exchange rate	
Month-to-month		
Less variability	13	17
Significant	11	17
Not significant	2	0
More variability	7	3
Significant	4	2
Not significant	3	1

(continues on next page)

Table 3.1 Summary of tests of trends in foreign exchange rate variability for G-20 countries (number of countries in each category) *(continued)*

Interval	Mean standard deviation test[a]	Regression standard deviation test[b]
	Real effective exchange rate *(continued)*	
12-month		
Less variability	16	17
Significant	15	16
Not significant	1	1
More variability	4	3
Significant	1	2
Not significant	3	1
24-month		
Less variability	17	18
Significant	11	16
Not significant	6	2
More variability	3	2
Significant	1	1
Not significant	2	1

a. Test of whether the mean of the rolling five-year standard deviations of the series is higher or lower in the second half of the period.
b. Test of whether in a regression of the rolling five-year standard deviations against time the coefficient is positive or negative.

Source: Truman (2012).

economy in question and potentially to its neighbors and the global economy. Second, for the global system, external imbalances, and deficits in particular but also potentially surpluses, can trigger a global crisis as a consequence of a forced process of adjustment or an increase in protectionism.

Has the incidence of significant external imbalances increased or decreased since the collapse of the Bretton Woods system? To answer this question, we looked at a sample of important countries and, first, scaled their current account positions by national GDP.

Over the past five years, William Cline and John Williamson (2008, 2012) have teamed up to examine current account balances relative to national GDPs for 33 economies plus the euro area as projected by the IMF staff in its *World Economic Outlook* (WEO) report. They use the ratios to estimate the degree to which the effective exchange rate of the relevant economy is out of line with

its fundamental equilibrium exchange rate; the rate that they estimate would produce a deficit or surplus less than their trigger, 3 percent of GDP.

In applying this approach to data and estimates for 1980 to 2017, I expanded the Cline-Williamson set of economies to 50 in order to cover the period before establishment of the euro area. Therefore, I added the 17 euro area countries individually.[11] I raised the cutoff for an imbalance to 4 percent of GDP because using the 3 percent cutoff generated an implausibly large number of imbalances.

As depicted in the top panel of figure 3.1, even applying the higher 4 percent cutoff, in 41 percent of the observations over the 32 years to 2012, the 50 economies recorded current account positions greater than that as an absolute value.[12] More than 40 percent of the countries had imbalances, by this measure, in the early 1980s. The incidence hit a low in 1990, but rose back above 50 percent in 2004, and hit a peak of 72 percent in 2007. The WEO projections are for the incidence to be in the 30 percent range over the next six years. For the historical period as a whole, the emerging-market economies accounted for a disproportionate share of total imbalances—44 percent of the observations for this group compared with 38 percent of the advanced economy group. The time series for the two groups are broadly similar, except that the incidence of imbalances was much larger for the emerging-market group in the 1980s. In 2007, however, both groups recorded rates of imbalance above 70 percent.

For the period as a whole, the average incidence of deficits and surplus was about the same, 21 and 20 percent, respectively. However, as shown in the lower two panels of figure 3.1, deficit imbalances were much more common in the early 1980s and surplus imbalances were more common in recent years. The IMF projects that this relative distribution will continue within a smaller overall total.[13]

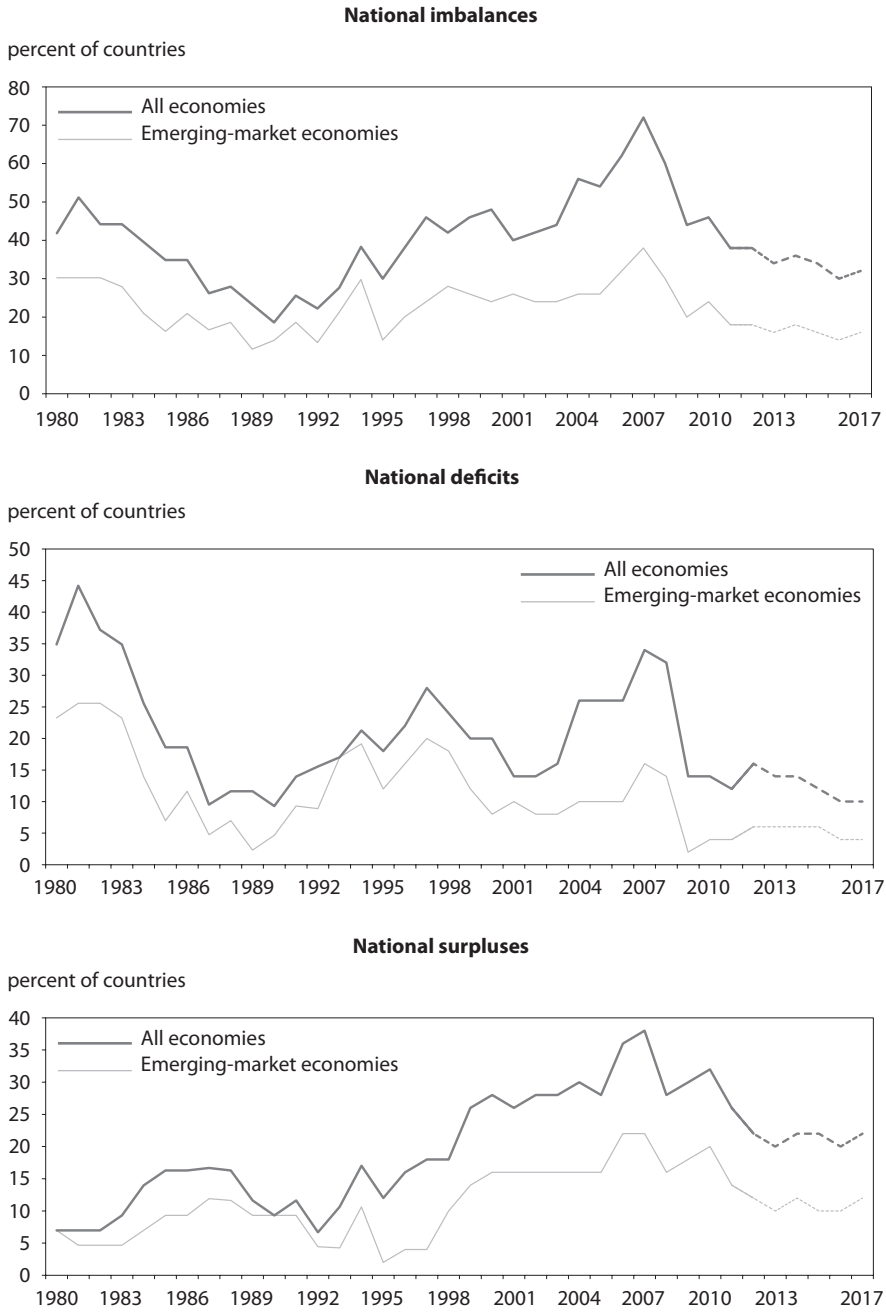
To get a better handle on imbalances that are more likely to have global significance, an alternative approach is to use world GDP as the scale factor, as advocated in Truman (2010a). Figure 3.2 presents the results of this exercise using as the cutoff 0.05 percent of world GDP. We can see that, on average, the incidence of imbalances is smaller than when they are scaled by national GDP, and the incidence increases rather steadily over the period with only a small dip in the early 1990s. The contribution of emerging-market economies to the overall total of imbalances also increases over time. On this criterion, however, deficits for this group of countries disappeared between 2002 and

11. See Truman (2012) for more details. The 50 economies accounted for 92 percent of world GDP in 2011 at market prices and exchange rates and 89 percent on a purchasing power parity basis.

12. Using a 3 percent cutoff produces a figure of 54 percent of the observations, although the pattern in the time series is very similar.

13. See Truman (2012) for more details.

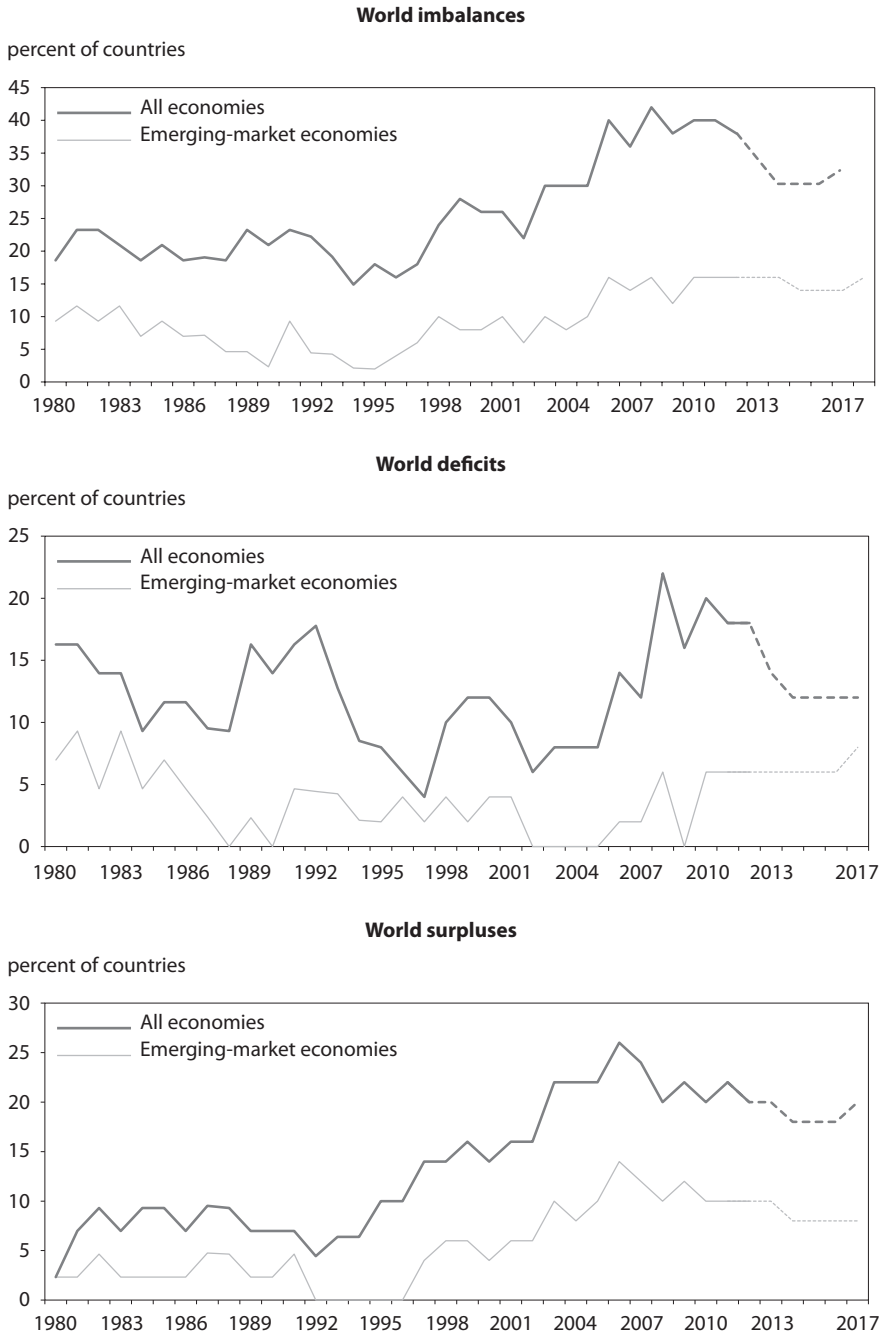
Figure 3.1 Current account imbalances relative to national GDP, 1980–2017



Note: Percent of countries with current account positions greater than or equal to 4 percent.

Source: IMF, *World Economic Outlook* database, April 2012.

Figure 3.2 Current account imbalances relative to world GDP, 1980–2017



Note: Percent of countries with current account positions greater than or equal to 4 percent.

Source: IMF, *World Economic Outlook* database, April 2012.

2005, and since 2003 the incidence of surplus imbalances for these countries has been high. Overall, when applying the world GDP criterion, emerging markets become relatively more prominent, reflecting the fact that the share of emerging-market economies in world GDP has increased substantially, in particular over the past decade.

Returning to what this evidence says about the working of the global adjustment process, has the incidence of significant external imbalances increased or decreased since the collapse of the Bretton Woods system? The clear answer is that the incidence of imbalances has increased. In 2011, the sum of the excess deficits and surpluses beyond the cutoff of 0.05 percent of world GDP was $1.36 trillion—$620 billion in deficits and $740 billion in surpluses.

The US contribution to the 2011 excess of deficits—$439 billion of its total deficit of $473 billion—accounted for 70 percent of the total excess of deficits. One might reasonably conclude that the external adjustment process definitely has not worked insofar as the United States is concerned. As under the Bretton Woods system, the United States has continued to have a more limited independent scope to manage its external position than other countries. For example, what would happen if the United States adopted, as some have advocated, an aggressive policy to depreciate the dollar and narrow its current account position? In other words, the present IMS, like its predecessor, has not facilitated a smooth and effective working of the international adjustment process, particularly for the United States.

Although there are imbalances among the advanced countries, particularly in Europe, the major development over the past decade has been the shift of the emerging-market and developing countries from aggregate positions in current account deficit to aggregate positions in current account surplus. This change in the pattern of deficits and surpluses might be taken as evidence supporting the view that capital is flowing uphill, contrary to view in the C-20 period that it is desirable to promote the transfer of real resources from "North" to "South." This is a mistaken interpretation of the evidence. As I have argued (Truman 2011a), the transfer of real resources from South to North has largely been facilitated by official sectors in the South accumulating reserves at a faster rate than their current account surpluses.[14] To the extent that policymakers in the South want to limit the overall net transfer from South to North, they have the means at their disposal: limit the accumulation of international reserves. This would tend to reduce their current account surpluses, increase their deficits, and encourage larger net private capital inflows to their countries and regions. The fact that they have not done so leads us to the next topic: international liquidity and its management.

14. See Truman (2012) for further demonstration of this point.

International Liquidity, Seigniorage, and the Stability of the Multicurrency System

This section examines three interrelated topics: international liquidity, foreign exchange reserves, and the role of the US dollar. In the wake of the final breakdown of the Bretton Woods system, John wrote a masterful, comprehensive review of the topic of international liquidity (Williamson 1973, 686).[15] He addressed three questions that had been debated since 1959: (1) Is there a need for additional liquidity? (2) What are the desirable characteristics of reserves? In particular, how should one design a fiduciary reserve asset, such as the SDR? and (3) In what quantity should reserves be provided? The updated counterparts of these three questions focus on (1) a lack of control over the volume of international liquidity, (2) the misdistribution or arbitrary distribution of seigniorage, and (3) the asymmetric position of the dollar in the IMS. We can examine these three issues today, but the difference is that they are embedded in a very different IMS than John envisaged in the early 1970s.

International Liquidity

In the 1960s and early 1970s, international liquidity was identified with international reserve assets. The analysis of international liquidity assumed that the IMS was based on at least heavily managed exchange rates. The focus was on the balance of payments as a whole and the need for most countries to settle their overall payments imbalances in reserve assets not on current account positions. In this context, the analysis presumed a rational demand on the part of each country for reserves, with the implication by many analysts that if a country held or accumulated more than its preferred optimum stock of reserves it would adjust, including via inflation, according to an international quantity theory of money.

One of the central controversies surrounding the collapse of Bretton Woods and the effort to reconstruct the IMS was whether the foreign currency component of international reserves, which was the only elastic element, was supply determined by an essentially capricious US overall balance of payments deficit that bore "no systematic relationship to the reserve-accumulation objectives of other countries...[but instead]...results from a complex of such factors as demand-management policies in the United States and the rest of the world and historically-determined relative cost structures" (Williamson 1973, 706). The alternative view was that the foreign currency component of reserves was demand-determined in that "the United States deficit is primarily a residual

15. John summarized the state of debate on international liquidity at the time, which was before the C-20 failed to agree on comprehensive reform of the international monetary system. In addition to clearly laying out the issues from a positive perspective (the optimal reserve holding for a single country) and from a normative perspective (the optimum supply of reserves to the system as a whole), John wrote with wit, clarity, and balance.

Table 3.2 Evolution of international reserves

	1970	1980	1990	2000	2011
Reserves and components			**World**		
Total reserves (billions of dollars)	95	997	1,293	2,282	12,103
Percent of world GDP	n.a.	9.3	5.8	7.1	17.4
Composition (percent)					
Foreign exchange	48	38	67	85	84
Gold	41	59	28	12	12
Special drawing rights	3	1	2	1	2
Reserve position in the IMF	8	2	3	3	1
			Advanced countries		
Total reserves (billions of dollars)	77	756	1,049	1,515	4,845
Percent of national GDP	n.a.	9.2	5.9	5.9	10.9
Percent of world GDP	n.a.	7.1	4.7	4.7	6.9
Composition (percent)					
Foreign exchange	43	30	65	80	70
Gold	44	66	30	15	23
Special drawing rights	3	2	2	1	4
Reserve position in the IMF	9	2	3	4	2
			Emerging-market and developing countries		
Total reserves (billions of dollars)	18	240	244	767	7,258
Percent of national GDP	n.a.	9.5	5.5	11.7	28.7
Percent of world GDP	n.a.	2.2	1.1	2.4	10.4
Composition (percent)					
Foreign exchange	67	61	76	94	94
Gold	25	35	20	5	4
Special drawing rights	3	1	1	1	1
Reserve position in the IMF	5	3	2	1	1

n.a. = not available

Source: IMF, *International Financial Statistics*, CD-ROM, June 2012 (accessed in June 2012).

which is determined by adjustment policies on the part of other countries designed to reestablish their desired rate of reserve growth" (Williamson 1973, 706).

Has this controversy been laid to rest? My answer is that it largely has been, and on the side of the demand-determined nature of the stock of international reserves. Table 3.2 provides a summary of the evolution of international reserves from 1970, before the United States closed its official gold window, to 2011. International reserves today are predominantly held in the form of

foreign exchange, the most elastic component. That was not always the case; less than 50 percent of international reserves were in foreign exchange in 1970. However, today gold is clearly at the bottom of the pile of countries' international reserves. The concerns John expressed in 1977 that gold would become remonetized and once again distort the IMS have not been realized.[16] Even with a special allocation of SDR of $33.5 billion and a general allocation of SDR of $250 billion in August 2009, the share of SDR in international reserves remains trivial. The share of reserve positions in the IMF also is very small, but this component fluctuates with borrowing from the IMF by member countries. The share reached a low of 0.3 percent at the end of 2007.

No country is forced to accumulate foreign exchange, but countries do so with a range of both precautionary and nonprecautionary motives. The authorities in each country choose the level and currency composition of their foreign exchange holdings. Countries set the demand for international reserves, and the supply, as a first approximation, is perfectly elastic.

The need today is not to control international liquidity because not doing so threatens to increase global inflation or deflation; rather the need is to limit distortions to the adjustment process associated with policies that lead to excessive accumulations of international reserves. With a near-unlimited demand for international reserves on the part of many emerging-market and developing countries—along with their capacity to control their exchange rates to permit a continuing increase in those reserves, or more precisely the associated current account surpluses—the international adjustment process has become severely distorted, as was amply demonstrated in the previous section. The notion that lack of access to temporary financing or that the so-called precautionary motive for accumulating reserves is the primary reason for the outsized accumulation of reserves by some countries is simply not credible in the current environment.

Seigniorage

One critique of the post–Bretton Woods IMS focused on the presumptive financial gains to the country, the United States, whose currency was almost exclusively used in international transactions, importantly including assets that are held in countries' foreign exchange reserves. As John wrote, "In so far as the issuer of money enjoys monopoly power, it is able to extract the difference between the value of produced money and the cost of producing it as 'seigniorage'" (Williamson 1973, 723).

John focused on the social saving that could be captured by international liquidity (reserve) management at the international level, via the issuance of a fiduciary reserve asset, and how that saving should be distributed. In the

16. See Truman (2012) for more detail on this point as well as evidence on the lack of connection between the growth of international reserves and inflation.

context of an SDR-based system, he favored distribution of the associated seigniorage to poor countries through a link between SDR allocations and aid.

Against this backdrop, what can we say about the volume and distribution of international seigniorage today? Historically, seigniorage was associated with a difference between the cost of producing currency and the face value of that currency in circumstances where the issuer enjoyed a complete monopoly or was in a privileged position because of the convenience associated with the use of that currency.

Four questions are addressed here. How large a benefit does the United States accrue from the expanding stock of foreign exchange reserves in dollars? How are the benefits accruing to other countries or areas whose currencies are used to denominate reserve assets? How have these benefits to the United States and other countries evolved over the past dozen years? And is the size and distribution of seigniorage associated with the use of assets denominated in national or regional currencies a major flaw in the IMS?

In answering these questions with some back-of-the-envelope calculations, I make the simplifying assumption that the benefit accrues to the government in lowering the cost of its borrowing.[17] Based on an assumption that this benefit is 30 basis points on the total stock of US gross general government debt, the estimated seigniorage gain to the United States in 2011 was $47 billion. However, in my view, that figure might well be overstated. The figure is two to three times the estimated seigniorage from the use of the dollar as a physical currency. Is this a big number? Compared with what? It amounts to 0.3 percent of US GDP in 2011.

If the reduction in the cost of financing US government debt were 100 basis points, rather than 30 basis points, the associated estimated annual flow of seigniorage would be $155 billion or 1 percent of US GDP. Abstracting from the fact that interest rates on US treasury obligations were very low at the end of 2011, it is implausible that for the entire prior decade the average interest rate on US government debt had been reduced to 3.6 percent from 4.6 percent.

Setting aside for the moment the evolution of the seigniorage benefit to the United States, we can use the same framework to estimate the seigniorage gain to the euro area from the demand for euro-denominated assets as part of other countries' international reserves. On the assumption that the gain to the euro area is proportionate to the gain to the United States, the estimated gain to the euro area from the denomination of reserve assets in euros was $18.7 billion, or 0.14 percent of euro area GDP. Table 3.3 estimates total seigniorage in 2011 of $75 billion and the results of calculations for the other three currencies in which members of the IMF reported the currency composition of reserves at the end of 2011 (sterling, yen, and Swiss franc).

What about reserves issued in "other" currencies, which are not individually allocated in the IMF's Currency Composition of Official Foreign Exchange

17. See Truman (2012) for more details on these calculations as well as estimates of the seigniorage associated with the physical use of the dollar and the euro internationally.

Table 3.3 Estimates of seigniorage from foreign exchange holdings in 1999, 2006, and 2011 based on 2011 effect of 30 basis points on US interest cost

Country/region	Share of reserves/ seigniorage[a] (percent)	Reserves in currency (billions of dollars)	Gross general government debt (billions of dollars)	Reserves/debt (percent)	Reserves/debt relative to the United States	Seigniorage (billions of dollars)	Seigniorage/ GDP (percent)
2011							
United States	62.2	6,343	15, 537	40.1	1.00	46.6	0.31
Euro area	25.0	2,552	11, 555	22.1	0.54	18.8	0.14
United Kingdom	3.8	390	1,994	19.6	0.49	2.9	0.12
Japan	3.5	359	13,466	2.7	0.07	2.6	0.04
Switzerland	0.1	12	309	3.9	0.10	0.1	0.02
All other	5.3	539	n.a.	n.a.	n.a.	4.0	n.a.
Total	100.0	10,195	n.a.	n.a.	n.a.	74.9	n.a.
2006							
United States	65.5	3,440	8,913	38.6	1.00	25.7	0.19
Euro area	25.1	1,318	7,374	17.9	0.46	9.9	0.09
United Kingdom	4.4	230	1,056	21.8	0.56	1.7	0.07
Japan	3.1	162	8,103	2.0	0.05	1.2	0.03
Switzerland	0.2	9	253	3.6	0.09	0.1	0.02
All other	1.7	94	n.a.	n.a.	n.a.	0.7	n.a.
Total	100.0	5,253	n.a.	n.a.	n.a.	39.3	n.a.

(continues on next page)

Table 3.3 Estimates of seigniorage from foreign exchange holdings in 1999, 2006, and 2011 based on 2011 effect of 30 basis points on US interest cost *(continued)*

Country/region	Share of reserves/ seigniorage[a] (percent)	Reserves in currency (billions of dollars)	Gross general government debt (billions of dollars)	Reserves/debt (percent)	Reserves/debt relative to the United States	Seigniorage (billions of dollars)	Seigniorage/ GDP (percent)
1999							
United States	71.0	1,255	5,691	22.2	1.00	9.45	0.10
Euro area	17.9	319	4,938	6.5	0.29	2.38	0.03
United Kingdom	2.8	51	656	7.8	0.35	0.38	0.03
Japan	6.4	114	5,845	2.0	0.09	0.84	0.02
Switzerland	0.2	4	164	2.4	0.11	0.03	0.01
All other	1.6	28	n.a.	n.a.	n.a.	0.21	n.a.
Total	100.0	1,782	n.a.	n.a.	n.a.	13.31	n.a.

n.a. = not available.

a. As explained in Truman (2012), a country or region's share in foreign exchange assets held in its currency is the same as its estimated share of total seigniorage.

Note: Elements may not add to totals because of rounding.

Sources: IMF COFER database, June 29, 2012, www.imf.org/external/np/sta/cofer/eng/index.htm (accessed on July 26, 2012); IMF, *World Economic Outlook* database, April 2012, www.imf.org/external/pubs/ft/weo/2012/01/weodata/index.aspx (accessed on July 27, 2012).

Reserves (COFER) database?[18] Statistical and anecdotal reports indicate that some countries hold their foreign exchange reserves in the currencies of at least eight advanced countries, using the IMF's WEO category of advanced countries: Australia, Canada, Korea, Singapore, Sweden, Denmark, New Zealand, and Norway. The $539 billion in estimated foreign exchange holdings in "other" currencies in 2011 would amount to 8.5 percent of the eight countries' combined GDP and 16.9 percent of their combined gross general government debt. This evidence suggests that the international financial and monetary system is evolving even more rapidly than thought toward a more extended multicurrency system.

What does the amount of seigniorage from foreign currency reserve holdings as of the end of 2011 tell us about trends in seigniorage? To make such comparisons, it is appropriate to make an adjustment to the rate of seigniorage gain for the United States in 2011, as described in Truman (2012). My estimate is that total seigniorage about doubled between the end of 2006 and 2011, from $39 billion to $75 billion and from 0.07 percent to 0.1 percent of global GDP (table 3.3). However, going back to the end of 1999, the first year of the euro, total seigniorage increased almost five times, from $13 billion, or 0.04 percent of global GDP.

This takes us back to the basic question of whether the size and distribution of seigniorage associated with the use of assets denominated in national or regional currencies is a major flaw in the IMS today. I am not convinced that this has been a significant issue affecting the system's performance, or even its fairness, as the system has evolved over the past 40 years.

First, even if one accepts an estimate that there is $250 billion in global seigniorage today associated with a benefit to the United States of 100 basis points on the cost of issuing its government debt (and I would argue that the true figure is less than $75 billion), this is a feature of the system that has manifested itself only over the past half a dozen years. For most of the past 40 years, the annual flow of seigniorage was trivial; at 100 basis points it would have been about $45 billion for the world in 1999 or 0.14 percent of world GDP.

Second, seigniorage has become increasingly widely distributed, in particular over the past dozen years. One can reasonably expect that the distribution of seigniorage will continue to widen as the international monetary and financial system evolves into even more of a multicurrency system.

Third, as a practical matter, it is difficult to envisage efficient mechanisms to capture and redistribute the seigniorage associated with the accumulation of reserve assets denominated in the currencies of other countries or areas. Of course, $250 billion or even $75 billion might be worth trying to capture, assuming that one is prepared to reject the view that seigniorage is payment for services rendered and risks taken. But it properly belongs way down the list of possible reforms of the IMS.

18. The IMF's COFER database is available at www.imf.org/external/np/sta/cofer/eng/index.htm (accessed on July 26, 2012).

Fourth, all this is not to say that there is not a strong case for limiting the accumulation of international reserves.[19] A case also can be made for regular allocations of SDR as part of such a reform, but that case rests on the distortion of the adjustment process introduced by that behavior.

Stability of the Multicurrency System

Over the past 15 years at least, the international monetary and financial system has evolved toward a multicurrency system. The concern raised by some observers is that a multicurrency system will be unstable, as private and official holders of assets denominated in the various currencies abruptly and in large volume change the currency composition of their portfolios. Not much could be done to affect the behavior of the private sector without returning to tight controls on all international financial transactions and portfolios. A case could be made that the official sector should be alert to abrupt changes in private sector asset preferences and be prepared to intervene to offset their effects, but there does not seem to be much appetite for doing so among the authorities issuing the major currencies, with the possible exception of the Japanese.

On the other hand, if changes in the asset preferences of the official sector were regarded as a problem, this would strengthen the case for creating a substitution account to take a large portion of reserve holdings in all currencies off the market in exchange for SDR-denominated assets. To be effective, the establishment of a substitution account would have to be accompanied by restrictions on the accumulation of additional sizable balances of foreign exchange reserves or by a code of conduct governing the composition of reserve portfolios and changes in that composition.

It would be preferable, first, to consider what evidence we have that there is a problem. Are changes in the currency composition of international reserves contributing to exchange rate volatility? To provide a partial answer to this question, we used estimates of exchange-rate-adjusted shares of international reserves from the IMF COFER database for 1999 to 2011, employing the method described in Truman and Wong (2006).[20] We estimated regressions of log changes in quarterly average exchange rates on log quarterly changes in exchange-rate-adjusted currency (quantity) shares of foreign exchange reserves. In general, we found no effect. The exception was in the case of changes in the share of the yen. The coefficient for the current quarter had the expected right sign, but it was only marginally significant. Moreover, the coefficient

19. See Gagnon (2011, 2012a, 2012b) for forceful presentations of this case.

20. If we did not adjust for the effect of exchange rate changes on shares of foreign exchange reserves, we would introduce a spurious positive correlation between changes in shares and changes in exchange rates even if the countries holding the reserves had not acted to adjust the currency composition of those reserves. If the dollar depreciates, the dollar's share in total reserves declines as the result of the devaluation of the existing stock of dollar-denominated assets relative to the dollar value of assets held in other currencies. See Truman (2012) for more details on these tests.

was small, and the change in the yen's quantity share over the period was a 55 percent decline, implying that the foreign exchange value of the dollar was boosted by the reduction in the yen's share.

How should these results be interpreted? The currency composition of international reserves at the aggregate level is influenced by many factors, including which countries are accumulating reserves, their asset preferences, and the factors affecting both their reserve accumulation and asset preferences. One cannot prove a negative: that the reallocation of official foreign exchange portfolios will never be a problem. But I conclude from this evidence that the evolving multicurrency international monetary and financial system is not at risk from this source. I further conclude that the substitution account proposal, whatever its merits may have been in a more structured IMS, today is a solution in search of a problem. The evidence presented earlier on the trend toward somewhat reduced exchange rate variability also suggests that the private sector portfolio reallocations have not been a source of instability in the global financial system. This is not to say that all private sector capital flows push exchange rates toward values consistent with external balance, but only that they are not a dominant source of instability.

Conclusion

This chapter has evaluated the extent to which the concerns that John Williamson had about the IMS 40 years ago are, or should be, concerns today. In this concluding section I also assess progress in reforming the IMS and prospects for future reforms.

Abiding Concerns?

Exchange rate variability appears to have been substantial over the past 40 years. However, because economists and policymakers lack a robust model of exchange rate determination, it is difficult to know how much variability is too much. The evidence provided in this chapter suggests that, in general, exchange rate variability has declined somewhat in recent years. However, John Williamson's concerns about exchange rate variability have been less about variability per se and more about countries' exchange rate policies or lack thereof and their consequences for the international external adjustment process. This process over the past 40 years has shown no improvement compared with the 1960s.

Turning to the management of international liquidity, the good news is that two of John's concerns 40 years ago have not materialized. Gold has not reemerged as a central reserve asset. International reserves, almost exclusively in the form of foreign exchange reserves, have expanded rapidly, in particular over the past 15 years. Moreover, the monetarists' link between rapid reserve growth and increased inflation has not been widely observed. Without a doubt, the expansion of international reserves has been demand-determined

by the policies of individual countries accumulating those reserves rather than supply-determined by the policies of countries whose currencies are used to denominate reserve assets. The policies of the former group are an important distortion to the international external adjustment process.

Over the past decade or so, we have observed the evolution toward a multicurrency international monetary and financial system. In this context, any concerns about the maldistribution of seigniorage associated with countries' choices of currencies for the denomination of reserve assets are being defused. Moreover, seigniorage is not, and probably never was, substantial.

Private and official portfolio diversification in an increasingly multicurrency international monetary and financial system has the potential to be destabilizing. But this chapter has provided indirect evidence that official reserve diversification has not magnified exchange rate movements.

Progress and Prospects for Reform

Although John Williamson's concerns about the IMS expressed 40 years ago have not materialized to the degree that the global economy and financial system have been substantially adversely affected, the system could have worked better. The principal failings, as was the case with the Bretton Woods system that preceded the current arrangements, involve the working of the adjustment process, not the management of international liquidity. However, both could be improved.

The central challenge posed by the adjustment process is an unwillingness of participating countries to establish rules and procedures and to abide by them. In Truman (2010a), I proposed a comprehensive approach to strengthening IMF surveillance that involves the establishment of norms, a procedure for reviewing compliance with those norms, and consequences in the form of escalating sanctions for countries that are found not to be in compliance.

It is unlikely that countries in the immediate future will agree to such an approach, although progress is always possible. An encouraging step is the *Pilot External Sector Report* recently released by the IMF (2012b). The report is a companion to the IMF Executive Board's approval, on July 18, 2012, of a new decision on bilateral and multilateral surveillance (IMF 2012a). The decision provides a formal framework for integrating the two types of IMF surveillance and establishing explicit procedures for multilateral surveillance, for example as part of annual Article IV consultations. Previously, only bilateral surveillance was covered by a formal decision and that surveillance was restricted to a limited set of policies. Multilateral surveillance and the stability of the global economic and financial system were in procedural limbo. Now, for the first time, the IMF Executive Board has recognized explicitly that a member's policies may affect other members and, consequently, the operation of the international monetary system as a whole. By agreeing to the decision, each member now implicitly accepts some responsibility in its own policies for global economic and financial stability. Operationally, the decision gives the

IMF staff and management the authority to discuss how a member's policies may affect the international monetary system and to report on those discussions to the Executive Board and to the public at large. In the past, members could, and did, decline to discuss such matters with IMF staff and management. For a number of years, some have been advocating addressing this loophole (Truman 2010a). More important, this type of framework would help to implement John's long-time recommendation, drawing on the reference rate proposal of Ethier and Bloomfield (1975), to establish norms for exchange rates, or, more formally, fundamental equilibrium exchange rates.

The *External Sector Report* itself provided for the first time a "multilaterally consistent analysis of the external positions of major world economies" (IMF 2012b, 1). The report defines an external imbalance for a country as the gap between its actual current account and the value of its current account that would be consistent with fundamental economic and financial conditions and desirable policies for the country (IMF 2012b, 4). For 28 major economies, the report provides estimates of differences between those countries' real effective exchange rates and the effective exchange rates that would be consistent with fundamentals and desirable policies (IMF 2012b, 11). The latter are exchange rate norms, fundamental equilibrium exchange rates, or reference rates even if the report did not use these precise terms that are associated with John's work.

One can quarrel with the estimates in the report, which are partly based on judgments and partly based on models, which are less normative than some would like because they include some variables that are merely a reflection of past behavior. Some of the results are far from intuitive, and the report itself is short on explanations. However, the report provides the basis for policy conversations between the IMF management and staff and the countries, between the particular country and its partners, and involving outside analysts.

Consequently, in my view, even if he has reservations about the *Pilot External Sector Report* itself, John Williamson should take some satisfaction and considerable pride that approaches to improving the international external adjustment process that he has advocated for 40 years are coming closer to fruition. These recent developments are evolutionary, not revolutionary. Moreover, the key to their success will be how the IMF staff and management implement the new integrated surveillance decision, including future External Sector Reports, and how responsive the general membership of the IMF is to that implementation. We are still a long way from a rules-based system of exchange rate norms that are supported by guidelines with respect to intervention and other policies influencing exchange rates and with sanctions for deviations (Williamson 2006, 158), but we are closer to that objective.

With respect to the management of international liquidity, the first requirement is to recognize that the global economic and financial system remains underprepared financially to deal with crises. I favor a doubling of IMF quotas to $1 trillion in effective available financing and a doubling of the IMF New Arrangements to Borrow to $500 billion, making a total potential IMF financing capacity of $1.5 trillion.

Turning to the SDR, I do not see it becoming the principal reserve asset in the IMS. Nor do I foresee the development of a private market in SDR-denominated assets; the demand is not there and a convincing case has not been made for official sponsorship. However, the SDR has a useful role to play in the IMS. In Truman (2010b), I advocated giving the IMF temporary expedited authority to allocate SDR in a crisis. I have also advocated an experiment under which $200 billion in SDR would be allocated per year for five years for a total of $1 trillion, with the authorities tracking whether such substantial cumulative allocation affects the propensity of countries to accumulate foreign exchange reserves (Truman 2011b). Absent such evidence, or a commitment on the part of IMF members to limit their reserve accumulations, I would not join John in support of a resumption of regular SDR allocations, and I doubt it will happen.

All of these steps would not turn the IMF into an international lender of last resort. For that reason, I favor an addition to the global financial safety net that would institutionalize a global network of swaps centered on the central banks that issue the principal international currencies: the US dollar, euro, sterling, yen, and Swiss franc.

The principal benefits of the Bretton Woods international monetary system remain today: an open and cooperative international trade and financial system, a generally prosperous global economy, and an IMF essentially in the center of the system. A more controversial issue is whether the international economic and financial system is more crisis-prone today than it was prior to 1971, and, if so, whether the post–Bretton Woods system can be held responsible. I would be inclined to argue no on both points. In the 1960s, the advanced countries of the day had their share of crises. Their global ramifications were smaller, but that is primarily because the global economic and financial system was not as integrated. Not everyone in the mid-1970s would have predicted that the international monetary nonsystem would have performed as well as it has.

This conclusion, to the extent that one accepts it, does not mean that, with a reformed or more coherent international monetary system, global economic and financial performance might not have been better in the past and be better in the future. Therefore, consideration should continue to be given to international monetary reform and the role of the IMF in this process, drawing on an impressive body of work by John Williamson. The most promising initiatives are enhancing the role of the IMF with respect to the international adjustment process and as the international lender of last resort. But any reforms will be evolutionary, rather than revolutionary.

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