

IMF Staff Papers

Vol. 42, No. 4 (December 1995)

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Fifty Years of Exchange Rate Research and Policy at the International Monetary Fund

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This paper reviews the development over the past fifty years in the IMF of research on, and policy attitudes toward, exchange rate matters. Three successive phases are noted. In the first ten to fifteen years, within the confines of the par value system, research was mainly focused on achieving a better understanding of the working of exchange rates. From the early 1960s to the mid-1980s, the focus shifted toward discovering and, if possible, enforcing "correct" exchange rates. More recently, the limitations of that approach have led to increased attention to the merits of alternative exchange rate regimes, both among the industrial countries and for developing countries. [JEL F31, F33]

The International Monetary Fund will begin exchange transactions on March 1, 1947. The transactions of the Fund will be at the initial par values which have been determined in the manner laid down in the Fund Agreement. . . . This is the first time that a large number of nations have submitted their exchange rates to consideration by an international organization and thus a new phase of international monetary cooperation has begun. The major significance of the present step is not in the particular rates of exchange which are announced, but in the fact that the participating nations have now fully established a régime wherein they are pledged to promote exchange stability, to make no changes in the par values currencies except in accordance with the Fund agreement, and to assist each other in attaining the general objectives of the Fund. (IMF Press Release, December 18, 1946)

The [Interim] Committee considered that recent exchange rate movements for some major currencies had gone farther than warranted by fundamentals and agreed that orderly reversal of these movements is desirable. In this context the Committee agreed that stronger efforts were needed to reduce internal and external imbalances. (Interim Committee Communiqué, April 26, 1995)

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IN MANY PLACES in the world, especially universities and research institutes, the economics of exchange rates are the object of intensive research; and in many other places—governments and central banks, policy councils and newspaper offices—exchange rate policies are matters of active and often heated discussion. But nowhere in the world is the interaction between the scientific and the policy aspects of exchange rates—between “how do they work?” and “what should be done about them?”—as close and intense as in the International Monetary Fund. Over its entire 50 years, from the proud announcement setting the initial par values in 1946 to the almost pained admission of a misalignment (since reversed) of the major currencies in the spring of 1995, the IMF has been at the very center of thought and action—research and policymaking—about exchange rates.

This paper focuses primarily on research and the interaction between research and policy. The broad developments of the international monetary system, from a par value regime to floating, first of certain major currencies and more generally thereafter, are too well known to need description; and the details, insofar as they are still of general relevance, can be found in the hundreds of pages that successive IMF histories have devoted to exchange rate questions.¹

The linkage between the research activities on exchange rates in the IMF and the policy outcomes is in no sense simple or direct. If there was any straight line in research, its moving force was the search for improved understanding on how exchange rates and exchange rate regimes worked. Policies were no doubt in part influenced by the outcome of this research, but to a large extent they followed from the situations in which individual countries, or groups of countries, found themselves. Often, moreover, the task of the economist in the IMF was to find the best specification for, and sometimes merely the best rationalization of, the policy that had become inevitable in the circumstances.

From the earliest days—including its prenatal period at Bretton Woods—until the present, the IMF has been dominated by economists at all levels of its hierarchy: from ministers of finance to senior treasury and central bank officials, to executive directors, to the overwhelming majority of the professional staff. Two of its Managing Directors, Per Jacobsson (1958–63) and Johannes Witteveen (1973–77), came to the Fund with strong reputations as professional economists. In one sense, the high degree of communality in professional background facilitated

¹On the first 20 years of the Fund, see in particular Margaret de Vries's extensive treatment of exchange rate questions in the second (“analytical”) volume of the first Fund history (M. de Vries (1969)).

the blossoming of economics in the institution and the absorption of any new scientific findings into policy prescription. The success of the Bretton Woods conference is probably the best example of fruitful cooperation among economists who shared certain fundamental ideals even though motivated by differing national objectives. Another example was the technical development of the SDR mechanism, as distinguished from the laborious political process of reaching agreement on whether, how, and with what safeguards SDRs should be created. In numerous instances, moreover, research in the Fund benefited directly from the fact that the policy issues that rocked the institution rubbed economists' noses into real world problems and sometimes helped them find serendipitous answers to these problems.

But in another sense the symbiosis of economic science and economic policy (or perhaps sometimes plain politics) under one roof carried the risk of contamination of the former by the latter. Up to a point, this could be prevented by the erection of firewalls, protecting the independent work of the staff from too much direct influence of the Executive Board; indeed, at times an important part of the job of the Director of Research seemed to consist in acting as such a firewall. But, to cite the most important instance in which closeness to the action interfered with rather than promoted research: in the crumbling of the par value system between 1971 and 1973, it would have been impossible for management and staff of the Fund to have labored simultaneously at shoring up the old system and at preparing the transition to a new world of floating rates. Thus, while some work on floating exchange rates had been done in the Research Department (see below), the staff—I believe inevitably, but also wholeheartedly—opted for the former task, which was also what the overwhelming majority of the membership wanted them to do.

These introductory remarks should make it clear why there was not necessarily a close connection between the work of the staff on the operation of exchange rates in the international monetary system and the exchange rate policies pursued by individual member countries or indeed by the Fund. Most of the analysis in the remainder of this paper will be devoted to the work of the staff, mostly but not exclusively in the Research Department, on the economics of exchange rates, but attention will also be paid to the policy questions that stimulated the research undertaken and the policy positions that sometimes (and sometimes not) flowed from the findings of that research.

The wide variety of research activities concerned with exchange rates conducted by many economists over a period of 50 years cannot, of course, be neatly straightjacketed into a few distinct categories. But the following trichotomy attempts to assign a substantial proportion of

total research on this subject into three reasonably distinct subject categories, which moreover broadly succeeded one another in time as leading research themes over the fifty-year period.

1. In the first ten or fifteen years of the IMF, when the par value system constituted the unquestioned regime for the great majority of the Fund's members, and when the influence of the young institution on the particular par value adopted by any member was modest at best, the staff's main research effort with respect to exchange rates was devoted to seeking improved understanding of how exchange rates worked.

2. In the next phase, which lasted from the early 1960s until the middle 1980s—well beyond the breakdown of the par value system—the research activities of the staff became increasingly focused on, and (it appeared at least initially) successful in, finding the “correct” exchange rate and inducing member countries to adopt that rate.

3. In the most recent phase—say in the 15 years since 1980—the staff appears to have become less confident of its ability to discern the correct exchange rate, especially for the major currencies, and increasingly concerned with the question of the optimum exchange rate regime for these currencies. Widespread dissatisfaction with the volatility of the rates among these currencies and instances of extreme misalignment of some of them have kept the discussion about the best regime for these currencies boiling, in many forums including the IMF. At the same time, with an ever-growing number of member countries linked to the Fund by a variety of financial arrangements, questions of exchange rate regimes also play an increasing role in the conditionality that the IMF attaches to the use of its resources. This third phase was also characterized by the emergence in the Fund of a much sharper distinction than had existed before between the industrial countries, which no longer used the Fund's resources, and the rest of the membership, among which use of Fund resources became more widespread. For these reasons the regime questions that are relevant to these two groups of members are treated separately in the last two sections of this paper.

I. Learning About Exchange Rates

By the second half of the 1940s, when the Fund began its activities, there was a broad common understanding of the economic principles on which the postwar world was to be based. Briefly, these principles envisaged the international application of the main tenets of Keynesian economics in a spirit of cooperation among sovereign countries. This approach had indeed, as noted at the time, become part of “the general

trend of social-economic thought in the United Nations today” (League of Nations (1943), p. 8).² But the broad consensus on international financial policy still left many questions of application unsolved. Moreover, the IMF had, by its Articles of Agreement, been charged with a number of specific obligations concerning exchange rates whose execution was by no means self-evident. Before it could begin its financial operations, the Fund would have to agree to “initial par values” for the currencies of its members. Changes in these par values would only be permissible in the case of “fundamental disequilibrium.” Members would have to avoid “competitive exchange depreciation”—but there was no comparable injunction against a country maintaining an overvalued currency, even though major instances of that form of misalignment in the interwar period counseled otherwise.³ It soon became clear to the newly assembled research staff that much economic work, both theoretical and applied, would be required on such issues as: how could the theoretical concepts of the Articles be given operational content; by what mechanisms do exchange rates affect the balance of payments and employment; and what other variables play a role in determining balance of payments outcomes.

The question of initial par values was solved rather easily by accepting for most member countries the fixed rates they were maintaining at the time, on the ground that, although these rates were probably not suitable as medium-term equilibrium rates, they did not seem to impede the modest flow of exports that these countries were able to spare from their domestic economies, while widespread scarcities would in any event make it necessary to restrain imports by controls rather than by the workings of the price mechanism. Having finished the task of agreeing initial par values in December 1946, the research staff, in addition to its work on individual countries, set out to produce a wide range of applied-theoretical papers touching on many questions related to exchange rates. Once the Fund had started to publish *Staff Papers*, this journal provided

² An important part in the educational process that led to this broad policy consensus had been played by the work of a group of economists at the League of Nations (De Marchi (1991)), whose publications included Nurkse’s justly famous (1944) *International Currency Experience* (League of Nations (1944)) as well as two less well-known League of Nations committee reports (League of Nations (1943 and 1945)).

³ “. . . countries whose currencies have for whatever reason become grossly overvalued may have to be urged or persuaded to devalue their currencies in the general interest. The initiative in international consultation regarding possible exchange adjustments should therefore not be confined to individual countries desiring a change in their own currency values” (League of Nations (1944), p. 142).

a suitable outlet for the papers that appeared to be of lasting interest. A few for which this expectation has proved particularly accurate have been singled out in one of the other contributions to this issue (Blejer, Khan, and Masson (1995)). Other papers provided building blocks for a growing body of Fund expertise on the working of exchange rates. In the first decade of *Staff Papers* these included, with a thumbnail indication of their contribution: Alexander (1951)—the welfare costs comparison of devaluation versus import restriction; Alexander (1952)—development of the absorption theory of balance of payments adjustment; Bernstein (1956)—a synthesis of ten years' work on exchange rates in the Research Department; B. de Vries (1950)—effects of devaluation on raw material prices; Fleming (1958)—effects on domestic price level; Gardner and Tsiang (1952)—competitive depreciation; Polak and Chang (1950)—effects on export price level; Polak (1951)—payments effects of the 1949 devaluations; and Wyczalkowski (1950)—the economic meaning of the ruble exchange rate. A number of papers dealing with the few available cases of fluctuating exchange rates may also be noted: Rhomberg (1960)—Canada; Tsiang (1957)—Peru; and Tsiang (1959)—some European countries.

Although the Articles leave the formal initiative for par value changes with the member country, the Fund in its early years was not squeamish about making suggestions for change, either confidentially or (leaving little doubt as to the countries considered ripe for such action) in its publications. As early as 1947, the Managing Director (Camille Gutt) advised the French government that the exchange rate for the French franc would need to be changed. The third *Annual Report*, that for 1948, spoke out clearly against any notion that the Fund “would regard any changes from the agreed par value . . . as highly abnormal and to be sanctioned only reluctantly and in the most unusual circumstances” (IMF (1948), p. 21). It observed that there were indications “that in some countries [an obvious reference at the time to the United Kingdom and other countries in Western Europe] the exchange rate is becoming a restraining factor on exports and that it is adding to the difficulties of earning convertible currencies” (p. 23). And the *Report* reminded the reader of the Fund’s “obligation to keep the exchange rate situation constantly under review” and of the propriety of expressing its views in its informal consultations with members (p. 24).

When, a little over a year after the publication of this *Report*, the devaluation of sterling (followed by that of many other currencies) was actually proposed, the Fund may have been only mildly surprised as to its precise timing, but it had had no inkling of the magnitude of the devaluation proposed (30.5 percent). Indeed, there is no indication that

the Fund had formed an opinion as to how large a devaluation would appear appropriate, which it could have communicated to the U.K. authorities. Thus, while the Fund was more than sympathetic to the need for par value adjustments, it had not yet moved into a clear quantitative mode on this subject. It recognized a wrong exchange rate but was not yet ready to put forward its own views on the correct rate.

II. The Search for the Correct Exchange Rate

A number of currencies were devalued in the decade of the 1950s, but the first par value change of systemic importance after 1949 occurred in March 1961, when the deutsche mark was appreciated by 5 percent, followed two days later by the Netherlands guilder. On this occasion the staff had a view: that the devaluation was too small, and that 15 or at least 10 percent would have been more appropriate.⁴ Over the following years, the staff sharpened its tools to enable it to get a clearer view of what exchange rates were or were not reasonably close to equilibrium levels, and how large a change might be appropriate for rates that it believed to be (to use a term that came into use only later) “misaligned.”

At the same time, official opinion in the major countries became increasingly reluctant to envisage any changes in the par values of their currencies. When in October 1963 the Ministers and Governors of the Group of Ten (G-10) asked their deputies to review the working of the international monetary system, they instructed them to accept two characteristics as given: “fixed exchange rates and the established price of gold.” The report of the deputies to their masters in June 1964 indicated how rigidly they interpreted their instruction with respect to exchange rates. In discussing the process of adjustment, they listed six instruments of economic policy that countries might need to use to counteract a tendency toward a sustained deficit or surplus in their balances of payments: fiscal policies, income policies, monetary policies, capital controls, commercial policies, and selective policies directed to particular sectors of the economy—but, conspicuously, not exchange rate policies. Since it was not possible to wholly ignore the obvious, a cauda was

⁴Erin Jacobsson (1979), p. 336. The Managing Director (Per Jacobsson) had written to the President of the Bundesbank in September 1960 strongly counseling against revaluation (Emminger (1986), p. 114). He was in any event opposed to a small revaluation, which “would only disturb exchange relationships” and he showed himself furious with Otmar Emminger, who came to Washington to inform the IMF Executive Board of Germany’s decision (Emminger (1986), p. 126).

attached to the list of six recognized policies: "Such instruments must be employed with proper regard for obligations in the field of international trade and for the IMF obligation to maintain stable exchange parities which are subject to change only in cases of fundamental disequilibrium." (G-10 (1964), pp. 4 and 5). The driving force behind this new attitude on exchange rates, which was sharply at variance with the ideas expressed in the early Annual Reports of the Fund, was Robert Roosa, the U.S. Under Secretary of the Treasury for Monetary Affairs and the first chairman of the G-10 Deputies. His fear was that any hint of flexibility of the parities for the main currencies might ultimately undermine the other postulate of the Deputies' study, the established dollar price of gold. Three years later the same fear inspired a last-minute U.S. Treasury attempt to save sterling from an inevitable devaluation by offering a large credit package (Solomon (1982), p. 94).

In contrast to the doctrine espoused by the G-10 of near-absolute fixity of par values for the major currencies, the staff continued to hold the view that changes in par values should remain a realistic option, and it was successful in having a balanced description of countries' adjustment options included in the next *Annual Report*:

Deficit countries . . . will need to choose whether to seek a solution to their problem in a degree of deflation or at least a slowing down of the rate of growth, in the adoption of measures to restrain payments for visible or invisible imports or capital transfers, in an adjustment in their exchange rate, or in some combination of these various broad policy approaches. Surplus countries may similarly find themselves forced to choose between inflationary pressure, the adoption of steps to restrain the inflow and promote an outflow of capital, and revaluation of their currencies (IMF (1965), p. 11).

In the course of its statistical work, including model building, in the area of international trade, the staff gradually acquired an ability to derive quantitative views on appropriate changes in par values. But before I turn to the staff's increasingly sophisticated models to determine the appropriateness of exchange rates I must refer briefly to what is sometimes seen as—and sometimes *is*—the most naive indicator of the extent to which the prevailing exchange rate deviates from the "correct" rate. That indicator is purchasing power parity, usually known by its initials (PPP). It has been studied in the Fund from the earliest days, with essential agreement that its relevance can be summed up in three propositions: (1) Relative (that is, foreign over domestic) prices have a major impact on international trade and hence on a country's balance of payments; (2) For any attempt to measure this impact, the choice of indices of (home and foreign) prices is crucial: prices for fully identical traded commodities do not diverge significantly, and prices for commodities that

are entirely untradable have no direct bearing on international trade; and (3) Factors other than relative prices also have important effects on international trade: equilibrium exchange rates are a function of more than PPP alone.

The most interesting work on PPP done in the Fund relates to the second of these propositions. It is published monthly, with some explanation of the rationale for the choices made, in *International Financial Statistics*, in the form of "real effective exchange rate indices" (see, for example, issue of July 1995, pp. 60–1). For 17 industrial countries, price index comparisons, adjusted for exchange rate changes, are made on the basis of 5 different price indices at home and in the other industrial countries: unit labor costs, normalized unit labor costs, value-added deflators, wholesale prices, and export unit values. Weighing systems reflect both bilateral trade and trade in third markets. For the same countries and some 120 developing countries, similar real effective exchange rate indices are calculated on the basis of consumer price indices.⁵

In the process of learning to appraise the economic validity of exchange rates, the staff's experience with the 1967 devaluation of sterling was crucial. This experience was applied a year later in the case of the French franc, and then, with the benefit of substantial model building in the meantime, in that of the U.S. dollar in 1971. In the following years, the staff further refined its statistical techniques to make them serviceable to the IMF's new task of the surveillance of members' exchange rate policies.

Sterling, 1964–67

Ever since the Labor Government's accession in the United Kingdom in November 1964, the staff had believed that there was a convincing case for a devaluation of the pound; but it had also learned of the domestic and international political arguments against such a step. By the late summer of 1967, however, the staff was made aware that the U.K. authorities themselves were giving serious consideration to devaluation. This led to the assignment to a small group of economists in the Research Department, under the leadership of Marcus Fleming, to use the available lead time of perhaps two or three months to make the best possible estimate of the required magnitude of a devaluation of sterling. The assignment proved difficult, but feasible. With the help of estimated elasticities of demand and substitution, calculations were made of the

⁵ For a more extensive discussion of these alternatives, see Clark and others (1994), pp. 6–10.

impact of a given devaluation on rather detailed classes of British imports and exports; the counterpart deterioration of the current accounts of competing countries was also calculated and found generally to be small, on the order of 1 percent of these countries' exports. By the time of the 1967 Annual Meetings (held in Rio de Janeiro in late September 1967) the staff team had reached the conclusion that a devaluation of sterling on the order of 15 percent would suffice to bring the U.K. balance of payments into equilibrium. It gradually transpired that the U.K. authorities had arrived at a similar conclusion: the devaluation that they ultimately proposed to the Fund on November 17 was from \$2.80/£ to \$2.40, or by 14.3 percent. The staff's thorough preparatory work made it possible for the IMF to make two contributions to the smooth adjustment of the par values of sterling and a limited number of other currencies that it could not have made on the occasion of the September 1949 devaluations. First, the staff was able to play an active role in the difficult diplomatic process of persuading the United Kingdom's main trading partners that a 15 percent devaluation was sufficient and deserved to be supported by a large stand-by arrangement from the IMF.⁶ And second, having found that the impact of a change of sterling of that magnitude on the balances of payments of the great majority of other countries would be bearable, the staff was able to mount a massive effort to contain the number of secondary devaluations and thus to avoid a chain reaction such as the one that had occurred in 1949.⁷

The French Franc, 1968–69

Probably the most bizarre par value change of the Bretton Woods period was that of the French franc in 1968–69: discussed semipublicly—without a French proposal—at the emergency G-10 conference held in Bonn in November 1968; agreed as to its magnitude by the other countries present, which offered to support it with \$2 billion in central bank

⁶In what our other luncheon partners may well have regarded as the ultimate in Dutch boorishness, I spent the whole of a long social function in Rio explaining the findings of the Fund staff to my neighbor, Emile van Lennep, then the chairman of Working Party 3 of the OECD. Initially skeptical but persuaded by the time of the dessert, he then used his influence over the following weeks to bring a number of OECD members, in particular France, around to accepting the move by the United Kingdom without a change in their own par values.

⁷The second activity is described in the Fund history as being organized in a single business day (M. de Vries (1976), Vol. I, p. 434). It would not have been possible to do this without the staff's lengthy preparatory work.

credits; withdrawn from discussion the next day by orders of General de Gaulle (the support credits remaining in effect); and finally announced by the French Government (before being proposed to the IMF) in August of the next year.

Of interest in the present context are not the theatrics of the Bonn conference (which also discussed a possible revaluation of the deutsche mark, to which the German Government was adamantly opposed), but the fact that the new par value "agreed" (though not by France) in Bonn was proposed to the conference by Managing Director Schweitzer and, like the devaluation of sterling the year before, reflected staff calculations, in this instance hurriedly communicated between Washington and Bonn, that pointed to the need for an adjustment of between 10 and 15 percent. As in the British case, the precise percentage devaluation would have to result from an operation in terms of suitable round numbers. In the case of France, it seemed obvious to the staff that these would have to be round numbers in terms of gold: the franc was valued at precisely 180 milligrams of gold, making 160 milligrams of gold the natural outcome of a devaluation of an adequate size. That was the content of Mr. Schweitzer's proposal at the conference: it implied a devaluation by 11.11 percent (M. de Vries (1976), p. 454).⁸

The U.S. Dollar, 1971

In the aftermath of the Bonn Conference, the Executive Directors initiated a two-stage process to re-examine the par value system. It began as a highly informal, but very active, set of meetings in the winter and spring of 1969, the results of which were laid down in the 1969 *Annual Report*, which in turn led to a spirited discussion at the 1969 Annual Meetings. This was followed by resumed study by the Executive Directors, an analytically excellent report (IMF (1970)), on which they found it very difficult to agree, and a new round of discussions by the Governors at the 1970 Annual Meetings. These proceedings over a period of nearly two years have been carefully documented in the Fund's history (M. de Vries (1976), Vol. I, pp. 500–16). What is evident from this record, as was

⁸The first press reports from Paris in August 1968 announced a devaluation of 12.5 percent. That figure perplexed us. Did the French want to devalue more (but only slightly more) than had been agreed in Bonn? Had we misread the magic of round numbers in terms of grams of gold? Our doubts were soon relieved: the French did want to devalue the franc to 160 milligrams, but in calculating the percentage devaluation they had divided the shaving of 20 milligrams by 160 instead of—as the Fund rules prescribed—by 180.

recognized by the staff at the time, is the extremely slim support then existing among member governments, comforted by the absence of exchange rate turbulence since September 1969, for anything but the smallest modifications (for example, a slight widening of the margins) of the par value system. There was lukewarm support for further study from the Governor for the United States (Treasury Secretary David Kennedy), but that was about it; almost all other Governors, including those for Germany and the United Kingdom, rejected any pursuit of the idea of greater exchange rate flexibility to the point of amending the Articles of Agreement.

The world was thus ill prepared for the onset of the 1971 crisis of the dollar, which began when, in May of that year, massive inflows of capital from the United States swept a number of European currencies off their par values. Although the authorities in Germany, the Netherlands, and Belgium denied at the time any intent to revalue their currencies (M. de Vries (1976), p. 523), it rapidly became clear that the stage was set for a major currency realignment, although it remained equally unclear for many months thereafter *how* this realignment was to be brought about.

Following up on its work on the U.K. devaluation, the staff had constructed its Multilateral Exchange Rate Model (MERM), which enabled it for the first time to make consistent estimates of the trade effects of simultaneous changes in the exchange rates for the currencies of all industrial countries.⁹ Starting with estimates of the required improvement in the current account of the balance of payments of the United States—which the staff estimated at \$8 billion—and compensating changes in the balances of payments of the other industrial countries, the staff used this model to derive a consistent set of new parities among these currencies.¹⁰

The exchange rate changes adopted at the Smithsonian conference in December 1971 were not greatly different from those calculated by the Fund staff half a year earlier. Experience over the next year or so suggests, however, that the degree of adjustment agreed at the Smithsonian was insufficient. The reason for the failure to achieve an adequate depreciation of the dollar was, of course, in part political: the U.S.

⁹The model was not published in full detail until 1973 (Artus and Rhomberg (1973)), but an earlier version of it, based on work by Armington and Rhomberg, had become available in 1970.

¹⁰As part of the negotiating process that ultimately led to the Smithsonian agreement, the IMF staff in October 1971 presented a paper estimating desirable changes in payments balances on current account for the OECD countries to a G-10 meeting. (There is a reference to this paper in IMF (1984a), p. 19.) The paper shows in detail the estimating methods used by the Fund staff.

starting point had been that an improvement in the current account of some \$13 billion would be needed, but creditor countries could not be induced to accept the correspondingly large adjustments in the opposite direction of their balances of payments (Volcker and Gyohten (1992), p. 81). But hindsight also suggests a technical explanation for the underestimation by the Fund staff of the required average depreciation of the dollar: the fault did not lie with the response coefficients of trade to the exchange rate changes but in the staff's underestimation in mid-1971, on the basis of information that did not go much beyond the end of 1970, of the magnitude of the underlying deficit that needed to be corrected.

A Correct Level for Floating Rates?

All in all, the technical work on exchange rates with sterling, the French franc, and the dollar gave the staff confidence that it had, in principle, developed a serviceable method of calculating equilibrium rates, or at least, until certain recognized weaknesses of the approach used would be overcome, "rather vaguely defined equilibrium zones" (Polak [1972] (1994), p. 395).¹¹ In subsequent years, much staff effort was devoted to making technical improvements in the search for equilibrium rates; World Economic Outlook papers in particular became the vehicles to acquaint the Board with the staff's views on the rates for major currencies, often through the use of "scenarios" that showed how the payments positions of certain countries were expected to develop on certain assumptions with respect to exchange rates. The fact that the exchange rate regime gradually became more flexible over the 1970s did not diminish the IMF's interest in equilibrium rates; on the contrary, it led to an intensification of this type of work.¹²

This was in line with the development of the IMF's attitude toward exchange rates as reflected in the second Amendment to its Articles of Agreement. Even after the notion of "stable but adjustable rates" that had dominated the early phase of the 1972–74 reform exercise had been

¹¹ It should be noted here that at any moment of time—that is, at a given level of prices in all countries—the calculations could aim at finding an equilibrium *nominal* rate. However, with differential rates of inflation, it was the corresponding equilibrium *real* exchange rate that was more likely to be the constant of the model—subject always to two important qualifications: the use of the correct price index and the realization that equilibrium real rates are changeable too (see the discussion on PPP above).

¹² IMF (1984a) describes the active consultation with member countries under which this research was conducted in the course of the 1970s.

given up, the principle that members, whatever their exchange rate *regime*, should see to it that they had the right exchange *rate*, remained the law of the Fund; indeed, it would be more accurate to say that the second Amendment made it the law of the Fund. The rule contained in the new Article IV, Section 1(iii), that members should “avoid manipulating exchange rates . . . in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members,” conveyed, in much stronger terms than the par value regime had ever done, the notion that members should avoid serious deviations of their exchange rates from an equilibrium rate, either upward (overvaluation) or downward (undervaluation). To ensure a system of correct exchange rates, the Fund, under Section 3(b) of the same Article, was to “exercise firm surveillance over the exchange rate policies of members.” The guidelines for surveillance that the Fund adopted in 1977 after long debates made it clear that both fixed and floating rates were to be appraised on their compatibility with the Articles. The guidelines spelled out the warning signs that might indicate that something was amiss with the rate (IMF (1992), pp. 8–14). Section 2(i)–(iv) of the principles of Fund surveillance, adopted as part of this decision, lists indicators that might typically apply to countries with pegged rates, such as large-scale intervention, borrowing, or tightening of restrictions. This listing is followed by an additional indicator—Section 2(v)—which makes it clear that surveillance applies also to floating rates. It reads: “behavior of the exchange rate that appears to be unrelated to underlying economic and financial conditions including factors affecting competitiveness and long-term capital movements.” The opening sentence of the staff’s most comprehensive paper on the applied economics of exchange rate surveillance (IMF (1984a) takes its cue from the provision just quoted.

By 1984, however, the basis for calculating equilibrium exchange rates had already considerably eroded.¹³ In a formal sense, such rates must correspond to a demand and supply situation reflecting both internal and external balance (Clark and others (1994), p. 12). But the traditional criterion of internal balance, whether defined as “full employment” or “NAIRU” (the non-accelerating inflation rate of unemployment), had already ceased to be realistic by the mid-1970s; the staff had found it

¹³ As early as August 1982, the Managing Director, in his opening statement at an IMF-NBER conference on Exchange Rate Regimes and Policy Interdependence, had commented on the difficulty the Fund had in making pronouncements on the exchange rates of major currencies; the Fund, he noted, appeared to have clearer ideas on what an equilibrium exchange rate was for the currency of a small country than on that of a large country (de Larosière (1983), p. 1).

necessary to replace it by the expected degree of activity for the medium term (IMF (1984a), p. 20). But once it is acknowledged that some governments may lack the domestic-policy instruments to bring about the desired cyclical position and the use of the exchange rate for this purpose is therefore no longer ruled out, the concept of an objectively determinable equilibrium exchange rate is at risk of evaporating. The well-orchestrated effort in July–August 1995 to bring about a depreciation of the yen deserves special scrutiny in this context. Although generally believed to be justified by evidence that the yen was overvalued and the dollar undervalued, it appears to have been inspired also by the desire, shared by Japan and the United States, to help jump start the Japanese economy; and press reports extolled the benefits to the U.S. economy that would result from larger exports to a more prosperous Japan.

External balance had also been a relatively uncontroversial criterion for the industrial countries in the 1960s and the early 1970s. At that time, capital movements in many countries were still subject to control and, in any event, international capital markets were much less developed than they are now; thus, there was little likelihood of any country changing from one pattern of capital exports (or capital imports) to a radically different one within a few years' horizon. In the 1971 staff paper referred to above (footnote 10), the staff could feel confident estimating "target current account balances" for 1972 for each of the OECD countries. It did so by combining estimates of what, in the light of past experience, countries appeared likely to be able to finance in 1972 through normal net capital flows and government transfers, with figures derived from official balance of payments aims; these figures were then subjected to some scale adjustments. By the early 1980s, the opportunities provided by widening and deepening capital markets had undermined the plausibility of any assumption that each country had an implicit or explicit normal current account position (or target) that was relatively constant over time. Yet, although stressing the difficulty of determining a normal level of current account balances, the staff (in 1984) still went on to estimate this level for each industrial country as equal to the average ratio of capital flows to GNP for the period 1975–82 (IMF (1984a), pp. 24–25). For the United States (and for Japan) this yielded an estimated normal capital *outflow* of \$5–10 billion, which contrasted with the paper's calculation of an underlying U.S. current account *deficit* of close to \$90 billion (p. 21).

With hindsight, the assumption of a small structural surplus for the United States was obviously a poor call. But more is at stake here than an incidental mistaken estimate. A consistent set of current account balance targets is, as Williamson ((1994), p. 91) points out, an essential

ingredient in the derivation of a set of equilibrium exchange rates. Williamson “solves” this problem by having all “significant countries” (which would include not only the G-7 countries but many others, developed and developing as well) “select a current account target, which would need to be consistent with the expected saving-investment balance and therefore with medium-run fiscal intentions. . . . The secretariat [of the IMF] would then have to appraise the realism and mutual consistency of the various targets. If an inconsistency emerged, a formula would have to be developed to reduce target surpluses to a uniform level consistent with the aggregate of target deficits.” Many would probably share the view on this approach expressed by Cooper that there is “no basis for establishing such targets in today’s world” (Cooper (1994), p. 112). That then leaves as the only possible approach the choice of a formula that would impose on all “significant countries” a current account target that the IMF found reasonable. One such formula, which had considerable support with reference to the industrial countries in the 1960s, was a current account surplus of 1 percent of GNP. That formula was still used recently by a team of Fund economists to test the robustness of equilibrium exchange rate calculations (Bayoumi and others (1994)¹⁴); it is obviously not suitable for calculations that would include developing countries. An alternative formula recently developed in the IMF focuses on the stock of net foreign assets, assuming a target current account balance that would keep this stock at a constant percentage of GNP (Clark and others (1994), p. 15; Faruqee (1995)). But until the realism of formulas of this nature is established,¹⁵ equilibrium exchange rates calculated on the basis of them must inevitably remain only illustrative, and the Fund’s surveillance over the major currencies will continue to have to rely on its ability to recognize situations of clear misalignment without the benefit of agreed analytical procedures. At the same time, the positive calculations on balance of payments effects that can be made with MERM or successor models fully maintain their value in assessing

¹⁴ The exercise was presented as a test of the Smithsonian rates but was in fact less refined than the staff work in 1971. For example, the model does not include invisibles; the target used is that for a trade balance, not a current account balance, which is set equal to 1 percent of GNP, whereas the staff in 1971 incorporated separate estimates for individual countries, including a current account deficit for Canada.

¹⁵ It is clear, for example, that, in this form, the net foreign asset approach could not explain the transition of the United States from a net foreign creditor to a net foreign debtor position and would also conflict with a commonly held view on the optimum pattern over time of borrowing and debt repayment for countries developing with the help of foreign capital.

the balance of payments effect of alternative policies with respect to exchange rates and other policy variables.

In concluding this section on the search for the “right” exchange rate, a brief reference is needed to some of the contributions by the Fund staff to what has, on the whole, been the most disappointing branch of modern exchange rate economics: the attempts to explain, and then to predict, the movement of exchange rates under a regime of floating rates. This is not the place to go in depth into this subject; a rather recent issue of *Staff Papers* provides a comprehensive survey (MacDonald and Taylor (1992)). The main contributions made in the IMF to this vexed subject relate to the role played by nonmonetary factors in the determination of exchange rates. Dooley and Isard (1983) drew particular attention to the element of country risk (as distinguished from the narrower element of exchange risk), which made itself clearly felt in the large real depreciations of the countries suffering from the 1982 debt crisis; in a somewhat similar approach, Boughton (1988) stressed the importance of the long-term real interest rate in the determination of the exchange rates among major currencies, given that financial markets for long maturities are much less internationally integrated than those for short maturities.

III. The Choice of an Exchange Rate Regime for the Major Currencies

The difficulties encountered in the search for an objective measurement of equilibrium rates largely shifted the IMF's research away from this task—at least for the time being—and stimulated interest in the relative merits of alternative exchange rate regimes. After the demise of the par value system, that subject had been slow to get off the ground. The Committee of Twenty (1972–74) never discussed the future exchange rate regime in any depth (T. de Vries (1976), p. 587). A high-level conference held in the Fund on “the new international monetary system” focused mainly on the contribution that monetary policy coordination could make toward exchange-rate stability (Mundell and Polak (1977)). The first paper in the Fund to address the regime question head-on appeared only in 1979 (Artus and Young (1979)). Appraising the experience of the 1970s, that paper finds that flexible exchange rates do not (as some had claimed) guarantee policy independence, but also that their drawbacks have not proved as damaging as others had feared. The paper contains prophetic comments on the difficulties of pegged rate systems and concludes that if countries want to marry floating with reasonable exchange rate stability, the most valuable policy indicator would proba-

bly be the exchange rate itself rather than some monetary aggregate or interest rate differential.

Most of the writing in the Fund on regime questions of the last decade takes its cue from a 1984 paper by Morris Goldstein (IMF (1984b)), written as a response to “a resurgence of calls for a re-examination, or perhaps even a reform, of the international monetary system” that had become evident in the preceding few years (p. 1). After a lengthy evaluation of the present exchange rate system, the paper draws six lessons, which can be highlighted as follows: (1) Do not *overestimate* the capacity of the exchange rate system per se to do good or evil. (2) Do not *underestimate* the importance of disciplined and coordinated macroeconomic policies for the successful operation of floating rates. (3) The present wide diversity of exchange arrangements reflects the fact that the optimal degree of exchange rate flexibility differs across countries. (4) It is important to distinguish the *effects* of floating rates from the array of economic troubles that characterize the current *period* of floating rates. (5) The present exchange rate system has shown considerable *strengths*: it has promoted payments adjustment and maintained a market mechanism of conflict resolution that has avoided the suspension of currency convertibility and large-scale restrictions of trade and capital movements. (6) But the present system has also manifested serious problems, the most critical of which have been instances of major misalignment, which in turn have led to inefficient resource allocation, adjustment costs, and a wide range of restrictive measures (IMF (1984b), pp. 47–49, italics in original).

In the subsequent decade, calls for the reform of the international monetary system did not abate and the Research Department responded with a series of further papers on the exchange rate system, including Frenkel and Goldstein (1986), Crockett and Goldstein (1987), Frenkel, Goldstein, and Masson (1991), Goldstein and others (1992), and Mussa, Goldstein, and others (1994).¹⁶ Although the arguments presented in these papers covered broadly the same ground as the 1984 Goldstein paper, the conclusions became increasingly precise. Most specifically, while Frenkel and Goldstein in their 1986 “Guide to Target Zones” had gone out of their way not to express their view on the desirability of target zones (p. 633), the most recent (1994) paper explicitly rejects this proposal. And it bases this negative conclusion not, as is often done, on the defeatist argument that the major countries are simply unwilling to take account of international considerations in setting their

¹⁶ A book by Goldstein written while at the Institute for International Economics (Goldstein (1995)) can perhaps be considered the conclusion of this series.

monetary policies. Rather, the paper invokes, at least implicitly, the proposition that the world is too large to be treated as an optimum currency area; hence “for [the three largest] countries, sacrificing domestic stability to pursue a narrow concept of exchange rate stability would probably be harmful from a worldwide, as well as from a domestic, economic perspective” (p. 32).

The growing consensus among the staff on the principal issues relating to the most desirable exchange rate regime for the major countries was not reflective of a similar consensus in the Executive Board. The issuers of the three main reserve currencies—the United States, Germany, and Japan—have made it clear that they share the staff’s negative attitude toward target zones, however attractive that concept may appear to a wider audience.¹⁷ But some of the other industrial countries are less outspoken on the subject and among the rest of the Fund membership there remains an understandable hankering after the blessings of a regime that would again deserve the hallowed name of “Bretton Woods.”

IV. Exchange Rate Policies in the Context of Fund Financial Arrangements

In the learning phase of the IMF’s work on exchange rates, the experience gained from the observation of developing countries—where the Fund staff had at the time a strong comparative advantage compared to academic economists—was of particular importance. The development in the IMF of the absorption theory of balance of payments adjustment, for example, was a direct consequence of the soul-searching that went on in the Research Department in response to the Mexican exchange crisis of 1948.¹⁸

In those early years, transactions were still rare in the IMF and its policies on conditionality had not yet been fully developed. But over time, the situations in which the IMF exercised the greatest influence on the exchange rate policies of member countries became those in which

¹⁷ The point was made decisively in the interventions of Lawrence H. Summers (United States), Gert Haller (Germany), and Kosuke Nakahari (Japan) in the July 1944 discussion of the Report of the Bretton Woods Commission. That report had endorsed “a more formal system of coordination, involving credible commitments . . .,” which was understood to refer to a target zone system—but only as a second step, *after* the major industrial countries had achieved more macroeconomic convergence (Bretton Woods Commission (1994)).

¹⁸ See the first sentence of Polak [1948] (1991): “This paper has been written in connection with Mexico’s proposal for exchange depreciation.”

members sought the IMF's financial assistance. Thus the history of the policies pursued by the Fund in the context of its financial arrangements sheds much light on the development of thinking on exchange rates in the institution.¹⁹ Over the years, these policies were increasingly directed at ensuring that countries that borrowed from the Fund adopt economically justifiable exchange rates.

In the 1950s and 1960s, most stand-by arrangements were granted to countries that faced only moderate balance-of-payments problems, not compounded by structural distortions (Johnson (1985), p. 6); in these circumstances a change in the exchange rate was frequently not needed as part of the country's adjustment program. But the greater distortions of the 1970s and the even more serious disequilibria of the 1980s did typically require action on the exchange rate as well as on other policy levers. Thus, while exchange rate action was included in only 32 percent of the Fund programs agreed in 1963 to 1972, the percentage rose to 59 percent in the period from 1973 to 1980, to 82 percent from 1981 to 1983, and nearly 100 percent in the later 1980s.²⁰ Most programs of the 1980s called, moreover, for adjustments during the program period to sustain the real depreciation initially achieved or to "prevent a loss of competitiveness"; 18 of the 25 arrangements concluded in 1983 that began with exchange rate actions contained follow-up provisions of this general nature (Johnson (1985), Table 3).²¹

Even so, few Fund-supported adjustment programs in the early 1980s provided for the early elimination of restrictions, and exchange rate policy continued to rely on the government setting new rates rather than on permitting market forces to do so (Johnson (1985), pp. 3, 18, 19), leading to adjustment results that were often unsatisfactory. This experi-

¹⁹ I have covered a few of the observations in this section in an earlier paper (Polak (1991), pp. 36–8).

²⁰ All figures refer to arrangements with countries that did not belong to a currency union.

²¹ In the same spirit, the staff started in 1982 to circulate to the Board monthly tabulations of real effective exchange rate indices for all members. Moreover, "information notices" were sent to the Executive Board whenever the index for any country had moved by more than 10 percent since the last Board discussion of the country concerned. These statistical activities seemed to imply a degree of confidence in PPP that was not shared by the staff as a whole: some theoretical papers (e.g., Frenkel and Goldstein (1986), Clark and others (1994)) go to considerable lengths to restate the well-known limitations attaching to PPP. Because of concerns that the approach was too mechanical and with the increasing awareness of the perils of a real exchange rate rule (see below), the interest in these routine PPP calculations has declined and it was decided in 1995 to discontinue the information notices.

ence led to a further shift of Fund thinking on exchange rate policy for developing countries in the direction of "flexibility." Free floating in conjunction with a serious liberalization of trade and payments began to be seen as the only way to induce certain countries in extreme payments difficulties to accept an economically correct exchange rate. The adoption of a free float gave the authorities in these countries an opportunity to liberalize exchange and trade restrictions and "to shed political responsibility for the adjustment of the exchange rate" (Quirk and others (1987), p. 4).

In more recent years, however, the pendulum has to some extent swung back again to a more balanced appraisal of the merits and demerits of floating rates. Even if floating is efficient in inducing countries to abandon economically unrealistic exchange rates, does it provide the best exchange rate regime for those developing countries for which the avoidance of inflation is also an important policy objective? In addressing this question, the paper that probably most clearly signals the turning point in Fund staff thinking starts out with the dual role performed by the exchange rate in small open economies: "Its movements can achieve and maintain international competitiveness and so ensure a viable balance of payments. At the same time, a stable exchange rate can anchor domestic prices" (Aghevli, Khan, and Montiel (1991), p. 1). In this formulation, the reference to the exchange rate as an "anchor" for price stability is relatively new in the Fund, but the concept is by no means new: in the 1970 Report of the Executive Directors cited above, the term "discipline" was used to convey the same notion.

The Aghevli, Khan, and Montiel paper attributes its new insights to "recent theoretical developments" in economic theory that focus on a policy conflict of many developing countries, in particular those that have recourse to the Fund's resources, between the balance of payments constraint to which they are subject and the difficulties they encounter in controlling inflationary tendencies. The balance of payments requires a sufficiently competitive exchange rate, while inflation in excess of that abroad makes any fixed rate soon overvalued. In the 1980s, the standard Fund remedy for this problem had been a "real exchange rate rule," involving automatic depreciation at the country's differential inflation rate. But certain objections to this approach had become evident. If applied mechanically, the rule takes no account of possible changes in the equilibrium exchange rate since the real rate was first set. Such changes, or an initial choice of an excessively low real rate, might result in persistent but futile attempts at undervaluation, with disastrous inflationary effects without any benefit to the balance of payments (Adams and Gros

(1986); Calvo and others (1994)). Even if application of the real exchange rate rule steered clear of these pitfalls, it would leave the country without any anti-inflationary anchor. Even a country that is too weak to adopt a fixed rate as an anchor, should—it is stressed—nevertheless meet at least some of the pressure brought about by domestic inflation through restrictive financial policies rather than offsetting all of it painlessly by automatic adjustments in the nominal exchange rate. The paper concludes by suggesting that countries in this situation could to some degree combine the elements of discipline and competitiveness in their exchange rate policies by adopting a nominal crawling peg with a pre-set rate of crawl (p. 21).

These new theoretical insights occurred at a time when certain developments in the real world made IMF opinion more receptive to them. One such development was the transformation of the European Monetary System (EMS) in the second half of the 1980s. Before 1985, exchange rates in the EMS had been adjusted frequently, almost as soon as differential rates of inflation had brought about any significant change in real exchange rates. After 1985, by contrast, the EMS became a disciplinary regime in which the greater fixity of exchange rates became an anchor to force down other countries' inflation rates to the German norm. The success of this regime (until the emergence of some major question marks in 1992/93) strengthened the position, in both the Executive Board and the staff, of those who emphasized the positive policy aspects of a fixed exchange rate.

Equally relevant were the experiments with heterodox stabilization plans—the first of which by Israel in 1985—in which the exchange rate, wage rates, and certain prices were frozen for a certain period to cut through what had begun to be called “inertial inflation.” Although most of the heterodox plans of the next few years failed after a short period for lack of sufficiently strong fiscal support, the notion did gain currency that in certain extreme inflationary situations pure orthodox stabilization attempts, not backed by a suitable anchor, were bound to fail also. By the late 1980s, many countries with high inflation rates—such countries constituted as many as half the countries receiving Fund assistance at the time—saw a radical reduction in the rate of inflation as a key objective of their programs with the Fund. In almost all of the transition economies too, the mastering of inflation surfaced as a central problem.

These considerations with respect to the optimal exchange rate regime for developing countries are reflected in the staff's most recent appraisal of the actual exchange rate policies of 36 countries that had stand-by or extended arrangements in the period 1988–91 (Schadler and others

(1995)).²² Of these, 21 did *not* adopt an exchange rate anchor; instead, their exchange rate policies were designed with primary emphasis on maintaining, or sometimes improving, competitiveness. In that they succeeded, but in the course of their programs, these countries' inflation rates typically remained high or even increased, leading the staff to conclude that a nominal anchor is virtually a necessary (though not a sufficient) condition for a successful disinflation program.

The 15 countries in the study that did adopt exchange rate anchors were, curiously, those with the *highest* and the *lowest* inflation rates of the sample, the former choosing the anchor in the hope of breaking inflationary expectations and introducing discipline into policies, the latter to maintain discipline, sometimes in the face of expected price increases. In general, the countries that adopted anchors²³ improved fiscal discipline more than the other countries and were able to reduce inflation—but not enough to avoid a gradual loss of competitiveness, which forced many of them over time to move either to a more depreciated rate or to a more flexible regime.

The paper concludes that the results of the study do not provide a clear choice between the containment of inflation and the quest for competitiveness as the primary objective for exchange rate policy. Rather, the lesson is drawn that a short-term trade-off between these two objectives has to be considered, taking into account such factors as the strength of the country's financial policies and the adequacy of its external reserves (Mecagni (1995), p. 70–1). Two other conclusions drawn by the staff are likely to remain of key interest in the future consideration of exchange rate policy issues. First, the countries that did not feel strong enough to trust their fate to an exchange rate anchor would not have been better off if they had tried to do so anyway; they might indeed have been worse off as they had to contend with repeated exchange crises. Second, countries adopting the exchange rate as an anchor need both the determination to stick to a sufficiently restrained fiscal policy *and* the flexibility to adopt a timely exit when, as is probable, the anchor becomes an excessive drag on the economy.

Taking the past fifty years as a whole, the exchange rate problems that the Fund has had to deal with in connection with requests for the use of

²² This extensive study is limited to countries with stand-by or extended arrangements approved between mid-1988 and mid-1991; there is unfortunately no comparable treatment of the exchange rate policies that the Fund supported for the low-income countries with which it had arrangements under the structural and enhanced structural adjustment facilities (SAF and ESAF).

²³ These included not only the countries that adopted a fixed rate but also a few that followed a pre-announced crawl.

its resources, or more generally in the surveillance of the policies of the great majority of its members, have been problems of overvaluation. In policy advice handed out by the Fund, "exchange rate flexibility" has almost always served as an only slightly veiled euphemism for devaluation or depreciation. In the most recent years, however, this is no longer necessarily so. As an increasing number of developing countries are faced with large inflows of capital, some real appreciation of their currencies can usually not be avoided. Although strong fiscal action (as practiced by Thailand in recent years, for example) is probably the best policy response, the staff has also advocated nominal appreciation to relieve the pressure on the economy, noting that this has the side benefit of containing inflation (Schadler and others (1993), p. 30). A few developing countries (such as Chile and Colombia) have in recent years taken steps toward some revaluation of their currencies. These steps have, however, been quite modest, providing confirmation of an asymmetry in countries' exchange rate policy that can be observed over the entire period covered by this paper: countries often fail to take action needed to improve competitiveness, but they hesitate to take any action that would reduce it.

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