

INTERNATIONAL MONETARY FUND

Minutes of Executive Board Seminar 94/2

2:30 p.m., March 25, 1994

R. D. Erb, Acting Chairman

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M.-A. Autheman

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H. Fukui

D. Kaeser
A. Kafka

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K. Lissakers

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L. Van Houtven, Secretary and Counsellor
M. J. Miller, Assistant

1. Approaches to Assessing the Consistency of Exchange Rates with Economic Fundamentals Page 3

Also Present

Central Asia Department: J. M. Barrionuevo. European I Department: M. Russo, Director; J. R. Artus, Deputy Director; J. Baras, C. J. Bismut, P. R. Masson, U. Stiehler. External Relations Department: G. Hacche. IMF Institute: P. B. de Fontenay, Director. Legal Department: T. M. C. Asser. Middle Eastern Department: S. Eken, A. Mazarei. Monetary and Exchange Affairs Department: M. Guitián. Policy Development and Review Department: T. Leddy, Deputy Director; F. C. Adams, J. D. Crowley, S. G. B. Henry. Research Department: M. Mussa, Economic Counsellor and Director; M. Goldstein, Deputy Director; M. S. Khan, L. Bartolini, T. A. Bayoumi, P. B. Clark, H. Faruqee, R. A. Feldman, F. Larsen, D. M. Laxton, A. A. Symansky, S. P. Tokarick. Secretary's Department: J. M. Boughton, A. Leipold. South East Asia and Pacific Department: J.-H. Lin. Treasurer's Department: J. Berrigan, M. A. Wattleworth. Western Hemisphere Department: S. T. Beza, Counsellor and Director. Advisors to Executive Directors: J.M. Abbott, J. O. Aderibigbe, P. Cailleteau, A. Chang Fong, R. F. Cippa, S. K. Fayyad, T. K. Gaspard, M. F. Melhem, R. Meron. Assistants to Executive Directors: R. N. A. Ally, R. Bessone Basto, J. A. Costa, M. Dzervite, S. S. Farid, R. Ferrillo, H. Golriz, C. F. Pillath, R. K. W. Powell, M. Ryan, D. L. Stanton, Wang Y.

1. APPROACHES TO ASSESSING THE CONSISTENCY OF EXCHANGE RATES WITH ECONOMIC FUNDAMENTALS

The Executive Directors considered a staff paper on approaches to assessing the consistency of exchange rates with economic fundamentals (SM/94/57, 3/1/94).

Mr. Jonáš made the following statement:

The staff has presented an interesting analysis of the approaches used to assess the consistency of exchange rates with fundamentals. The most important conclusion I draw from the paper is that it is impossible to make a point or narrow-range estimate of the equilibrium exchange rate suitable for use as a benchmark for estimating the degree of misalignment of actual exchange rates. Given that an exchange rate can be viewed as the price of an asset that is constantly influenced by the decisions of a large number of economic agents, and because these decisions are based not only on actually observable variables, but also on expectations that are not directly observable, it is hardly surprising that it is difficult to estimate the value of the equilibrium exchange rate with sufficient precision.

The more comprehensive the analytical framework used for estimating the equilibrium exchange rate, the wider the range of estimates obtained. Exchange rate assessment based on indicators of competitiveness is the most straightforward, but has the obvious shortcomings listed by the staff.

Generally, competitiveness indicators are designed to capture the movements of relative prices of domestic (nontraded) and traded goods, and show which way the incentives of consumers and producers are tilting: whether consumers are being diverted from domestic to traded goods, and whether producers find it unprofitable to produce traded goods. Because there are many factors affecting the allocation of resources between the traded and nontraded goods sectors, there are likewise many competitiveness indicators, each focusing on some aspect of the allocation. The usefulness of competitiveness indicators depends on whether they are capable of indicating unambiguously the direction in which resources are reallocated. The successful identification of shifts of resources between the traded and nontraded goods sectors is the first step toward detecting possible overvaluations or undervaluations of currencies. The ability of this approach to identify misaligned exchange rates improves with the size and persistence of these shifts. The empirically verified existence of strong linkages between relative inflation rates and export competitiveness, on the one hand, and anticipation of exchange rate realignments, on the other, proves that changes in competitiveness are important for equilibrium exchange rates.

However, we must be careful what conclusions about policy responses we draw from this judgment.

The principal drawback of using competitiveness indicators to assess the consistency of exchange rates with fundamentals is the assumption of an unchanged equilibrium exchange rate. Actually, this drawback becomes serious only if we can make sufficiently accurate judgments--I exclude the possibility of accurate calculation--of the direction and size of the change in equilibrium exchange rates. This is what the macroeconomic balance approach strives to do.

Under this approach, the equilibrium exchange rate is defined as an exchange rate that ensures the simultaneous achievement of internal and external balance. It may be relatively simple to define and estimate the internal balance on the basis of estimates of potential output, although variations in the estimates of the natural rate of unemployment, used as a proxy benchmark for estimating capacity utilization, show that even this relatively simple task can be tricky. External balance is theoretically more difficult to define, and correspondingly more difficult to estimate. In terms of Chart 4 in the staff paper, it is therefore difficult to locate the Y^*Y^* , and especially the CA^*CA^* , schedules with precision, as must be done in order to estimate the equilibrium exchange rate. In fact, we can do no more than specify, with a certain degree of confidence, the range in which these schedules are located.

The staff admits that using different assumptions in calculating the equilibrium exchange rate yields different estimates; the estimated change in equilibrium exchange rates varied by 10 to 30 percent. On this point, the staff argues that since the advent of floating exchange rates, there have been periods when real exchange rates were extremely volatile, with swings even larger than the uncertainty of estimates varying by 10 to 30 percent. I do not agree with the conclusion that such large changes in competitiveness amount to proof that it is useful to estimate the equilibrium exchange rate and then assess its deviation from fundamentals. This reasoning would be valid only if actual--not calculated--equilibrium exchange rates did not change during the periods of extreme volatility. Moreover, the history of floating exchange rates also provides examples of many periods that were free of large swings in real exchange rates, which only shows that the regime of floating exchange rates neither causes nor prevents large real exchange rate variability. Certainly, the regime of floating exchange rates does not continuously produce variations in real exchange rates large enough to justify making judgments about the lack of correspondence between existing exchange rates and fundamentals.

In addition to the practical difficulties of making sensible judgments about the deviation of actual real exchange rates from their equilibrium values, there exist more fundamental problems with the whole concept of calculating and assessing the degree to which actual real exchange rates correspond to fundamentals.

First, the conclusion that actual real exchange rates are outside the range justified by fundamentals means that we postulate the existence of disequilibrium. The staff recognizes that estimating the deviation of exchange rates from equilibrium values does nothing to explain the reasons for the misalignment. However, without knowing what has caused the disequilibrium, and how economic agents are accommodating it, we cannot very well transform our simple recognition of a disequilibrium state into specific policy recommendations. In other words, it is a long way from the recognition of the disequilibrium state to the conclusion that some particular adjustment path will be more efficient in correcting the real exchange rate to fundamentals than all others, and it is an even longer way to the conclusion that the path that the markets would have taken is inferior to a path requiring the active involvement of governments.

Second, the literature contains several theoretical approaches to the determination of the real equilibrium exchange rate: asset market or portfolio balance models, monetary models with possible inclusion of expectations, balance of payments equilibrium models, and models based on the assumption of sticky prices. These models incorporate past and expected values of variables, both monetary and real, that play important roles in determining the equilibrium exchange rate; but the exchange rate that is theoretically in equilibrium in the macroeconomic balance model need not be theoretically in equilibrium in the other models. It is unclear how successfully the macroeconomic balance approach can capture all the real and monetary factors that together determine the equilibrium exchange rate, and how successfully it can incorporate the expected future values of these variables.

Third, because exchange rates are influenced by several factors, including information about future events, they change frequently. Let us suppose that we somehow become aware that the exchange rate is misaligned. It will take a certain amount of time to suggest a corrective action, and still more time to implement it. During this time, however, both the actually observed and the equilibrium exchange rates will change. We are then likely to face a problem familiar to us from the implementation of monetary policy, which is that our actions only aggravate, rather than correct, the departure from the desired equilibrium.

Fourth, and I believe most important, the process of calculating and assessing the consistency of real exchange rates with fundamentals will itself cause the equilibrium exchange rate to change. This risk would become even larger if this exercise loses its purely academic character, as watchful financial markets realize that it is likely to serve as a guide to policy decisions. Suffice it to say that the costs of making an erroneous judgment that real exchange rates are out of line with fundamentals could be calamitous.

However, I do not want to conclude by urging passivity and inactivity on the part of the staff. Exchange rate surveillance is certainly a legitimate, and indeed, one of the most important, responsibilities of the Fund. It is simply that I do not find an analysis directed toward assessing the consistency of exchange rates with fundamentals to be a useful way of addressing this responsibility. It could even be dangerous were the results of such an analysis to fall into the hand of policymakers and the financial markets. In the light of recent problems with the functioning of exchange rate systems, the Fund would be better advised to focus on the consistency of exchange rate regimes with particular systems of policy implementation and coordination. For example, if the Fund had expressed stronger views on the mutual (in)compatibility of independent monetary policies, the free flow of capital, and nonadjustable nominal parities, some serious past troubles might have been avoided. The expression of stronger views on such matters can still be beneficial now. Attempts to assess the consistency of exchange rates with economic fundamentals will do little to address the real causes of most exchange rate misalignments, namely, unsustainable combinations of exchange rate regimes with underlying macroeconomic policies. The staff begins its paper by quoting the Article stating that the Fund "...shall exercise firm surveillance over the exchange rate policies of members." I understand exchange rate policies to mean the rules by which exchange rates are determined, not their values. In the past, there have been many problems with members' exchange rate policies thus defined, and addressing these kinds of issues will better serve Fund members and the world economy than the intellectually attractive, but practically useless and even dangerous, exercise of assessing equilibrium exchange rates.

Mr. Lanciotti made the following statement:

The staff paper deals with an issue that has been widely discussed in the literature, and which has critical implications for Fund policies and operations. Exchange rate economics is a heavily researched area of the discipline, owing to the importance attached to the exchange rate in the success or failure of an open economy. However, many unresolved issues remain. Therefore, any attempt to come to general conclusions and policy prescriptions

must be undertaken with extreme care and with some degree of judgment.

The paper examines the basic approaches to determining the equilibrium exchange rate: the purchasing power parity approach and macroeconomic balance approach. An analysis based on purchasing power parity, which takes into account differential movements in international competitiveness, may certainly be helpful in assessing whether a country's real exchange rate is consistent with a sustainable external account. However, as the paper points out, it does not take into consideration the effects of real shocks or of major policy changes on the equilibrium between a country's saving and investment positions. All the same, it can be useful to look at trends over time in indicators of a country's external competitiveness as first-hand evidence of exchange rate consistency with economic fundamentals, keeping in mind that, at best, purchasing power parity is likely to hold in relative terms only in the long run, and strong and persistent deviations may occur in the short term. Some indicators may perform better than others in this respect. For example, some recent evidence seems to favor the use of industrial price indices as a good approximation for measuring the price trends of tradable goods, as they are more flexible and allow the effects of real shocks to be taken into account.

The central role played by the determination of the external balance in the macroeconomic balance approach is worth stressing. As noted in the paper, the identification of external balance with a particular equilibrium position of the current account is very difficult, on both analytical and empirical grounds. In fact, net capital flows between countries perform the task of allocating international resources, according to the insight of the modern intertemporal approach to the current account: persistent nonzero current accounts may result. Besides, as remarked in the paper, it is necessary to ensure that the saving-investment approach to the current account is consistent with the equilibrium pattern of net foreign assets. The dynamic interaction between the current account and the stock of net foreign assets may give rise to some hysteresis effects, which may be difficult to account for.

As long as the actual real exchange rate deviates from its equilibrium, producing exchange rate misalignments and changes in debt stocks, the level of the real exchange rate consistent with medium-term external balance will also be shifted. This implies that the final equilibrium exchange rate will be dependent on the initial misalignment position and on the length of the adjustment period.

A second difficulty relates to the estimation of the elasticities needed to make this approach operational. Estimates

of the relevant elasticities may be affected by the uncertainty of the parameters. This may be due to instabilities in the underlying structural equations--for example, money demand and purchasing power parity equations; changes in policy regime that are associated with Lucas's critique--by which underlying parameters are not unaffected by agents' perception of the overall macroeconomic policy framework; and finally, the heterogeneous beliefs of agents that lead to diverse responses to macroeconomic developments over time.

Concerning the relationship between the real and nominal exchange rate, it would be desirable in general to keep separate the estimation of the equilibrium level of both real and nominal exchange rates, as the nominal exchange rate component of the equilibrium exchange rate varies, depending on the sensitivity of domestic prices and wages to exchange rate changes. Focusing only on the real exchange rate risks being seriously misleading, for reasons similar to those developed in the theoretical literature to explain the difficulty of pinning down the concept of real money balances.

In general, it should be stressed that the objective of these exercises should not be to view the exchange rate as an ultimate target itself, but rather as a benchmark for a consistent formulation of macroeconomic objectives. Although further refinements might help to narrow the range of estimates for the equilibrium exchange rate, these estimates would remain subject to considerable uncertainty, and they should therefore be taken with some judgment. All the same, they can play an important role as an instrument for gauging the direction of adjustment of the exchange rate, or in assessing the consistency of macroeconomic and exchange rate policies with the achievement of internal and external balance. Another important forum where these exercises could provide useful guidance is in the discussions of blueprints for international policy coordination. In that context, stronger efforts should be made to improve the mechanism of international cooperation, in order to prevent market expectations from playing a destabilizing role in exchange rate parities.

In parallel with frustration about the empirical testing of the theory, most recent developments in the literature have highlighted several possible reasons for dissatisfaction with the existing approaches to exchange rate determination. A first line of research has suggested that exchange rates may deviate consistently from their underlying fundamental levels, owing to the presence of rational bubbles. Pure, fundamental economic theory appears, in particular, to fail to provide an adequate explanation of short-term movements in exchange rates.

Structural econometric models may be most useful in explaining the long-run equilibrium exchange rate. They represent a comprehensive framework for explaining changes in the equilibrium exchange rates, and they may constitute an alternative, profitable approach to the macroeconomic balance approach based on comparative static calculations. Large macroeconomic models have an important advantage insofar as they allow the interaction between internal and external variables to be taken into account automatically, fully capturing the impact of shocks and policy changes on the internal equilibrium. As the paper also reminds us, however, the quality of the results of macroeconomic simulations depends crucially on the correctness of the model's specification.

In this area, recent theoretical contributions may prove helpful. First, shifts in fiscal policy stances among countries have been shown to play an important role in determining the behavior of exchange rates. Monetary shocks can also affect the real exchange rate even in the long run through their effects on world wealth distribution. Further refinements in the specification of macroeconomic models could take into account an improved understanding of the mechanisms through which policies affect the main economic relationships.

Ms. Lissakers made the following statement:

When I first looked through the staff paper, I thought it was pretty much a survey of standard economic literature that was probably familiar to most of us. On further reflection, however, a fairly strong message emerges from it. That message is: exchange rate surveillance really is macroeconomic surveillance. If we want to assess the consistency of exchange rates with economic fundamentals, we need to take a macroeconomic balance approach. Indicators of purchasing power parity or international competitiveness are useful for some purposes, but they are only a subcategory of the evidence we need to judge whether exchange rates are or are not aligned with the fundamentals.

The macroeconomic balance approach is simply a variation of the standard internal/external balance analysis that is taught in contemporary international economics texts. A central feature of this approach is that the trade and current accounts are treated as macroeconomic balances determined by the underlying workings of the macroeconomy. That is, the external accounts are determined by all those relationships that determine saving and investment, borrowing and lending, employment, budgetary positions, interest rates, inflation rates, and--most important for our purposes--the real exchange rate. The real exchange rate is the most important relative price helping to equilibrate the current account. From this perspective, it is clear that the appropriateness of the

exchange rate can only be judged as part of a general assessment of the macroeconomic performance of an economy, and the relationship of that economy to the rest of the world.

Put this way, we would go a little further than the staff suggests in its second question for discussion. International competitiveness indicators should be thought of as a supplement to the macroeconomic balance approach, rather than the other way around. Without a macroeconomic framework, one cannot tell whether changes in competitiveness are part of the problem or part of the solution.

Let me illustrate what I mean by citing a couple of concrete cases the Board has had to grapple with recently. Consider the situation in which a country engages in fiscal expansion accompanied by monetary restraint. This was the situation in the United States in the early 1980s. Germany, following unification, is a more contemporary example of the same situation. In 1990, the staff--Messrs. Masson and Meredith--produced a working paper ("Domestic and International Macroeconomic Consequences of German Unification," in German Unification: Economic Issues, Fund Occasional Paper Number 75 (1990)) showing that the expansionary fiscal effects of German unification were likely to lead to excess demand in Germany, a deterioration in the current account, and incipient strengthening of the deutsche mark against other exchange rate mechanism (ERM) currencies. To the extent that inflationary pressures increased in Germany, tight monetary policy would be required, reinforcing the upward pressure on the deutsche mark.

We thought that this was a natural case for a nominal appreciation of the deutsche mark within the ERM. Others thought differently. But whether or not there was an adjustment in the nominal exchange rate, we would have expected to see a tendency for Germany's real exchange rate to appreciate. This would have shown up as a worsening of Germany's price and cost competitiveness as measured by the usual indicators. This is all perfectly natural. It is what we would expect to see as part of the equilibration process. The real appreciation is a response to a change in the underlying fundamentals. If the appreciation is considered undesirable, the analysis suggests which fundamentals would need to be changed to correct the problem.

Contrast this with the conclusion one might reach if one simply looked at a set of competitiveness indicators without considering the full macroeconomic context. The indicators would show Germany losing competitiveness. Without a macroeconomic frame of reference, one might arrive at the misleading conclusion that Germany's loss of competitiveness ought to be offset by a depreciation.

If it helps to make this point more clearly, the flip side of this argument is that these same fundamentals would have called for a depreciation of the French franc, even though competitiveness indicators showed an improvement in France's inflation performance relative to Germany's during this period.

Surges in capital inflows are another case in which competitiveness indicators, unguided by a macroeconomic framework, can give some confusing answers about the extent to which exchange rates are or are not moving in ways that are consistent with the fundamentals. For example, a pickup in capital inflows would generate expansionary pressures in the recipient country. Part of this would spill over to the external accounts, causing the real exchange rate to rise and the current account to deteriorate. This is all part of the normal transfer process. But if one looked only at competitiveness indicators, without taking into account the general macroeconomic backdrop, one might conclude that the country has suffered a loss of competitiveness that justified a nominal depreciation of the currency, even though the macroeconomic fundamentals are provoking a real appreciation.

Even if we can figure out whether the exchange rate is or is not moving in line with the fundamentals, this is still a step away from figuring out whether any policy response is needed, or what that response ought to be. To get on to this issue in a rigorous fashion, we would have to address a lot of questions about what a right, or appropriate, or normal, or sustainable current or capital account position is. If we could only nail down this payments norm, it ought to be possible to figure out the exchange rate that fits the fundamentals. Ah, the elusive quest! Directors will recognize that this is just the modern variant of the old "fundamental disequilibrium" issue that has dogged the Fund since its inception.

Modern researchers have continued this quest, and the staff paper brings us up to date on some of their computational work, whether it be on the fundamental equilibrium exchange rate (FEER), the desired equilibrium exchange rate (DEER), or the macroeconomic balance exchange rate (MBER). The research that goes into modeling and estimating equilibrium exchange rates is interesting and has sharpened some analytical issues. However, at the end of the day, the rates calculated are too fragile to be very useful for policymaking. The equilibrium exchange rates calculated from such models are too dependent on arbitrary quantification of assumptions regarding sustainable positions.

Computation of equilibrium exchange rates strikes me as an area open for further research. As I agree with the overall macroeconomic orientation to exchange rate surveillance, I would not want to rule out the possibility that someday we will be able

to produce usable calculations of MBERS. It would be nice to be able to get beyond qualitative judgments, but I do not think that we are there yet. The research has not coalesced enough to have strong confidence in either the levels, the changes, or the ranges of equilibrium exchange rates produced by different researchers. To be more concrete, at the present state of research, I do not think that it would be fruitful for the staff to use estimates of MBERS as reference rates for use in Article IV consultation discussions or for the world economic outlook surveillance exercise.

Putting quantitative issues aside, however, I think that a strong qualitative conclusion can be drawn from our discussion today. In carrying out our assigned task of exchange rate surveillance, we should not be too timid. We discussed this at the Executive Board retreat a couple of weeks ago, and today's paper dovetails neatly with what was said at the retreat.

To be effective in evaluating exchange rate relationships, we must get into general macroeconomic assessments. We need to look at growth, employment and inflation, and the underlying behavior and policies that produce these outcomes if we are to come to sensible judgments about either exchange rates themselves or the policies to deal with them.

Ms. Langdon made the following statement:

The staff has provided an interesting, lucid, and very thorough study on various approaches to assessing equilibrium exchange rates as a basis for evaluating potential misalignments. The concepts are clearly defined, the review of the literature is broad--with an appropriate emphasis on the important staff contributions in this area--faithful, and focused.

Generally, we agree with the findings, analysis, and conclusions of the paper. Specifically, we agree that it is desirable to use a number of alternative indicators in analyzing competitiveness, so as to get a better understanding of the general trend and the extent to which problems may be developing. In our own context, while acknowledging some shortcomings, we tend to favor unit labor cost measures over others, as cost pressures seem more relevant for competitiveness issues than relative prices, which include a large component of nontraded goods. Moreover, because of the complications of world commodity price movements, we do not find export unit values to be useful in Canada.

We also agree that the real equilibrium exchange rate is probably not a constant, although it may be mean-reverting and subject to very long cycles. We believe that commodity price

shocks are important factors that can affect the real exchange rate, and we note that the oil shocks of the 1970s and 1980s can account, in large part, for the major movements of key international currencies.

Shifts in fundamental economic conditions will alter the equilibrium balance and, as a consequence, the equilibrium exchange rate. The trick, of course, is to figure out how important and how permanent these shifts in economic conditions are.

We also agree that attempts to estimate macroeconomic balance exchange rates represent a substantial improvement over the simple competitiveness approach, and are a welcome addition to our analytical tool kit. Nevertheless, this approach also has its own shortcomings. For example, all the problems associated with the measurement of potential output are reflected in the identification of both the internal and external balances, thereby biasing the estimate of the equilibrium exchange rate. Similarly, estimates of the elasticities associated with both activity and relative prices vary considerably across empirical trade models, and this range of estimates needs to be taken into account in any assessments of equilibrium exchange rates. Finally, even the definitions of what characterizes equilibrium are subject to considerable debate.

In this regard, while it is fairly standard to define internal balance in terms of a nonaccelerating inflation rate of unemployment (NAIRU) for an unchanged level of inflation--irrespective of the level--the definition of internal balance should be refined, in our view, in terms of a level of inflation that is sufficiently low--and hopefully credible--to have no noticeable effects on economic decisions.

Given our current limited knowledge, the difficulties in pinning down key parameter values in macroeconomic models, the uncertainties that exist with respect to future developments that have to be taken into account, and the other caveats, which I would note are quite numerous, MBERs are likely to lie within a fairly wide range. Consequently, when addressing potential currency misalignment issues for individual countries, policy recommendations need to be couched in terms that allow for the uncertainty that surrounds the estimates of equilibrium exchange rates. Parroting the remarks of Messrs. Dawson and Peretz at last year's discussion of the World Economic Outlook on the issue of structural budget balances, the health warning "caution is advised when using this product" applies equally to MBERs.

While, admittedly, structural exchange rate models have a poor track record in general, in terms of robust and meaningful

empirical evidence, I wonder whether we can really say that we are more confident of estimating MBERs with macroeconomic models. There is a diversity of opinion as to the best modeling approaches and the most useful macroeconomic paradigms. Furthermore, key model properties can differ widely across models. Such differences can lead to a wide range of estimated MBERs, detracting from their policy relevance. We appreciate the fact that the staff explicitly recognizes these drawbacks and has taken--and we hope will continue to take--care not to oversell the product.

While MBERs provide estimates of the deviations of the exchange rate from a defined equilibrium, as the staff recognizes, this approach does not explain the reasons for such misalignments. An overvalued exchange rate could reflect a myriad of factors: an unsustainable fiscal position, too tight monetary policy, divergent cyclical positions, or speculative movements in the market. The appropriate policy response clearly depends upon the underlying causes of the misalignment.

We agree that the macroeconomic balance approach provides a useful formalized framework within which to analyze exchange rates and the policy implications. While the caveats and uncertainties surrounding this approach indicate that we have yet to find the "Holy Grail" on exchange rates, and we would not like to see the Fund's surveillance exercises focused on explicit exchange rate ranges, this framework helps us to focus on and think about the right issues. However, we are not at the point at which we can just put policy on automatic pilot.

Mrs. Srejber made the following statement:

The staff paper provides a useful review of the major problems of designing an appropriate measure of the deviation of exchange rates from their long-term equilibrium values. However, the staff paper does not address the crucial question of how the information derived from those measures can be translated into policy advice.

Turning to the questions that have been suggested for discussion, indicators of competitiveness do not completely determine the equilibrium value of the real exchange rate. There can hardly be a disagreement on this. Yes, the macroeconomic balance approach is a potentially useful supplement. The important question, however, is whether, or to what extent, these methods of evaluation translate into policy conclusions. As explained in the staff report, defining internal and external balance is not easy, even on a theoretical level, and still larger difficulties arise when coming to the practical estimates. Hence,

the margin of error in the evaluation of internal as well as external balance is large.

An important source of uncertainty is the calculation of potential output--that is, as defined in the staff paper, the real output consistent with the NAIRU. Indeed, the calculations of the NAIRU in itself are not without problems. For example, the flexibility of the labor market may be exaggerated if earlier real wage adjustments have been based to a large extent on exchange rate flexibility and the institutional lag in the wage setting process. Hence, the NAIRU would tend to be underestimated as economic policy priorities shift toward reducing inflation. In general, any structural change in the economy, including changes in restrictions on trade and capital movements, will lead to practical problems. How do you calculate internal and external balance when the economy has changed fundamentally in structure? Then past data may have limited relevance.

In this context, the effects of the growth of financial markets are not covered sufficiently in the staff paper. I am aware of the fact that many models in the real exchange rate equilibrium area focus on the current account and the adaptation of the real economy, but nowadays, with large and liquid financial markets, perceived future changes in the economy are already incorporated in the prices on the market; that is to say, expectations play a larger role today, which I think is important to recognize in analyzing the reasons for deviations from the REER.

The identification of a fairly broad range of values deemed to be consistent with underlying fundamentals could, in principle, provide useful information on the sustainability of prevailing exchange rates. However, the broader the range, the less there is to be gained from the macroeconomic balance approach, relative to more ad hoc methods of evaluating imbalances. Moreover, even if a broad range of values could be agreed upon, it would not automatically translate into advice on specific policy actions--for example, the respective roles that should be played by adjustment of nominal exchange rates versus other macroeconomic stabilization measures. Furthermore, such advice cannot be given without due regard to the economic and political motives of the authorities in each country--for example, whether or not they intend to join a monetary union in the near future.

Even if the macroeconomic balance approach could give us some indications about long-term equilibrium values--if that is a meaningful concept--and, hence, also of deviations of the actual exchange rate from fundamentals, the question of the appropriate adjustment path toward these equilibrium values is still unanswered. In cases in which the authorities have been leaning against the drive of market forces toward the estimated

equilibrium, and when other policy measures have not brought the exchange rate into line with the equilibrium rate fast enough, or when it is perhaps not politically possible, giving way to market forces seems to be a solution. A more difficult question arises when those same market forces generate excessive overshooting of these perceived equilibrium values. Should it be accepted that the path toward a new equilibrium may lead the real equilibrium exchange rate away from its estimated equilibrium values over a protracted period? How can we estimate the likelihood of a prolonged deviation of the exchange rate from the REER equilibrium causing structural change in the real economy, thus shifting the equilibrium values themselves? In this context, the relative speed of adjustment of the various equilibrium forces and the certainty of their path of adjustment become critical. To what extent is the macroeconomic balance approach of any help in providing answers to questions of this nature?

One of the major problems facing the macroeconomic balance approach is the availability of timely and reliable information. The forward-looking nature of exchange rates makes this problem even more challenging. The evaluation of long-term equilibrium exchange rates is like shooting at a moving target, in the dark, based on a video image that was recorded some time ago. In principle, one does not need information only about the recent past, but also about future movements of the fundamentals, which, in turn, are influenced by a variety of factors, including exchange rates. I believe that it is not the cost of the calculation that is the greatest obstacle here, but its timeliness. This raises the question of whether the macroeconomic balance approach will perhaps be more useful as a tool of ex post analysis, rather than ex ante policy advice. This is not to say that the macroeconomic balance approach will be useless; indeed, quite the contrary.

It may be worth considering to what extent the publication, if that is the intention, of estimates of the equilibrium exchange rates could, in itself, lead to market reactions, and whether such reactions would be desirable or not. In that regard, I do not think I share Mr. Jonáš's judgment that it could be dangerous if REER estimates fall into the hands of policymakers and the financial markets. Financial markets read the same literature on economics as everybody else, and all big investment banks have the potential to calculate the REER. For example, calculations of deviations of the major currencies from the REER are often published in the market newsletters. The same goes for policymakers--they have staff who can perform the same analyses as well.

The staff should continue its work in this area, but, besides refining the methodology of detecting deviations, there is a need for more analysis of the actual policy choices, past as well as

potential, that policymakers face. Case studies based on recent experience could supplement the theoretical and empirical analysis in this area.

This chair encourages continued work on methods to assess the consistency of exchange rates with fundamentals. We recognize the potential usefulness of developing better methods of assessing the sustainability of exchange rate policies. However, the current work has not yet reached a stage at which it is of great operational value. Until more extensive studies become available that demonstrate the operational value of the macroeconomic balance approach or other approaches, we will continue to be rather agnostic, and have a pragmatic view about the methods to evaluate the consistency of exchange rates with fundamentals.

Mrs. Wagenhoefer made the following statement:

We welcome the comprehensive staff paper on the different approaches to assessing the consistency of exchange rates with economic fundamentals. A careful study of this paper supports my view that there is no single indicator, single set of indicators, or generally acceptable model that would provide the real equilibrium exchange rate of a given country's currency. In this respect, I find that Professor Haberler's remarks of a few years ago remains valid:

With all due respect, it must be said that we, economists as well as ministers and other officials, simply do not know enough to say what the equilibrium exchange rate is.

However, we appreciate the fact that the paper provides a broad overview of the strengths and weaknesses of different competitiveness indicators based on partial analyses. The more general framework for the analysis of the determinants of real equilibrium exchange rates that the staff has presented is indeed most valuable.

We agree that, although indicators of competitiveness are needed for the appraisal of exchange rates, they do not completely determine the equilibrium value of the real exchange rate. The staff paper states correctly in the well-written survey and in the concluding remarks that each of the available measures of international competitiveness carries its own strengths and weaknesses. Furthermore, in the real world, there is indeed a host of factors that normally results in deviations of the real equilibrium exchange rate from the purchasing power parity exchange rate. I therefore share the staff's view about the limited usefulness of the various versions of purchasing power parity as a guide to assessing exchange rate behavior--and this holds true in

particular for the very short-, the short-, and the medium-term periods--exactly the time spans of interest to decision makers.

With regard to the question of whether or not the macroeconomic balance approach is a useful supplement to the analysis of a country's international competitiveness position, I would like to comment on the characterization of internal and external balance in the paper.

I welcome the staff's presentation of the macroeconomic balance approach in the analysis of the determinants of real equilibrium exchange rates. However, I must admit that I am not clear about the relationship between this approach, on the one hand, and the competitiveness approach, on the other. One of the advantages of the macroeconomic balance approach is the integration of aspects concerning the intertemporal reallocation of resources, and I agree with the staff that much more work has to be done to understand the optimal capital allocation process. It would be unjustified, both analytically and empirically, to assume an unchanged level of nominal net claims on the rest of the world. It is also certainly worthwhile integrating those stock aspects that have been discussed so intensively in international portfolio models.

However, I am not sure how this approach can be regarded as a supplement to the analysis presented in the first part of the paper. A major requirement for both approaches to be supplementary is consistency, that is, that the application of both models should be free from contradictions. Let me give an example regarding current account deficits. Looking at current account deficits from a saving-investment framework approach, current account imbalances may often be justified as an optimal response to different developments in individual countries--for example, terms of trade shifts or a shift in productivity. They may thus be regarded as an indication of beneficial developments in the economy. We would not have any difficulties with that. In contrast, according to the first approach, it is competitiveness that seems to determine a country's external payments position. According to this concept, the identification of a current account deficit would be interpreted as a loss of competitiveness--an interpretation that most of us would note critically.

Furthermore, whereas the distinction between traded and nontraded goods plays an important role in the competitiveness approach, there is practically no reference to that distinction in the macroeconomic balance approach. Therefore, by using the macroeconomic balance approach, it is hard to understand the role of the real exchange rate in allocating resources between the tradable and nontradable sectors.

We have very big problems regarding the concepts of internal and external balance in the broader approach. The staff states that internal balance is defined as the level of output consistent with both full employment and a low, sustainable rate of inflation. So far, so good, even if I am not sure whether such a definition of the target of price stability would be sufficient for my authorities. Unfortunately, a solid, unequivocal quantification of the elasticities of export and import demand with respect to changes in the exchange rate is practically not feasible. Accordingly, there seems to be a danger of overstating the effects of exchange rate changes on overall demand and growth, while at the same time understating inflationary risks in connection with exchange rate changes. To put it in other terms, we see the danger that the calculated equilibrium exchange rate could send wrong signals.

The staff states that a broad definition of the concept of external balance would be the net flow of international capital that corresponds to equilibrium levels of national saving and investment over the medium term. Here again, one is faced with enormous analytical and empirical difficulties in coming to a meaningful definition of external equilibrium. How should one assess the obvious volatility of international capital movements? How should one identify long-term asset preferences? To our knowledge, experts around the world have not been able to agree so far on a satisfactory analytical basis for the determination of the current account/capital balance equilibrium, and this holds true as well for attempts to explain such structural deficits or surpluses in savings owing to demographic factors, such as ageing populations and other structural factors. Much more work needs to be done. To sum up our skepticism in the staff's words, "a considerable degree of judgment is necessary to interpret the exchange rates that are derived from the macroeconomic balance approach as being consistent with economic fundamentals." The degree of judgment is exemplified by variations in the equilibrium exchange rates of up to 30 percent. This fact illustrates fairly well that contrary to what is being sought by such models, i.e., an objective, generally accepted analytical framework to assess exchange rates and exchange rate policies, you are again left with the need of judgments.

The staff puts forward the question whether Directors agree that, as the estimates of a country's equilibrium real exchange rate will necessarily lie within a fairly broad range of values, the entire approach is thereby vitiated, or whether that range provides useful guidance for the assessment of exchange rates and of macroeconomic and exchange rate policies in the home and partner countries. I concur with the staff that one of the restrictions on the scope of the staff paper is that no attempt has been made to analyze the policy issues that arise out of the

whole exercise. However, even if this meeting is supposed to be a seminar, we are never regarded as apolitical university professors by the public, and especially by the financial markets. The Board, as well as the staff, is well aware of the sensitivity of the issues we are discussing today. I fully agree with Mr. Jonáš's most important problem with the whole concept of calculating and assessing the degree to which actual real exchange rates correspond to fundamentals: financial market analysts and specialists, watchful as they are, would at some time or other use the same models as those discussed in this seminar and would, indeed, produce calamitous events. One of the lessons we should have learned since the breakdown of the Bretton Woods system is never to pinpoint in advance the indicators that might be used to assess the adequacy or misalignments of exchange rates. This is the policy message we have learned since the early 1970s.

Concerning the analytical message, the staff paper, as well as quite a few accompanying Working Papers, support my view that each individual case is different and has therefore to be treated differently, on a case-by-case basis. New phenomena come into play that seem self-explanatory in hindsight, but which did not enter the academic or political discussions beforehand. Therefore, we should be very prudent in going too far in the whole exercise. We could not agree more that surveillance over exchange rate developments is and remains a pertinent task of the Fund, but it would be disastrous were the Fund to develop agreed indicators that would be perceived as precursors of automatic actions.

The staff notes that, as Article IV of the Articles of Agreement stipulates a particular focus of the Fund's surveillance responsibilities on the exchange rate policies of members, it plans to continue its analytical work on the fundamental determinants of exchange rates, including the role of macroeconomic policies. The staff asks Directors whether they have suggestions for avenues that they regard as particularly promising and appropriate for the staff to pursue in its efforts in that area. We have no suggestions for specific avenues for the staff to follow in its future work. The purchasing power parity approach, and similar approaches to defining competitiveness, have their well-known strengths and weaknesses. The avenue of the macroeconomic balance approach may therefore well be the avenue of the future, at least in the short term. But, as in the wisdom of the ancient Greeks, everything changes. The staff may be well advised to watch closely the ongoing changes that may have a bearing on the assessment of the real equilibrium exchange rate. In future studies of this kind, we would expect that greater emphasis would be put on market expectations, based, inter alia, on the credibility of a country's policies. In that regard, Germany perceives credibility to be a very important factor in exchange rate determination. Another interesting factor is the

memory of markets. It would certainly be pertinent to ask the staff how it will include those and other factors in the model.

Mr. Kaeser made the following statement:

I would like to thank the staff for the excellent paper, which contains the recent academic contributions assessing the consistency of exchange rates with the economic fundamentals. As usual, the analysis is comprehensive, well presented, and of great pedagogical quality.

However, I am less enthusiastic about the restrictions on the scope of the study that the staff observed. I understand the need to keep this discussion within manageable proportions, as well as the sensitivity of some related issues, but the usefulness for the Board of discussing technical and theoretical aspects of matters at the very heart of the Fund's activity, while refraining from any policy-oriented considerations, can be questioned. Indeed, the underlying goal of the whole exercise should be to identify exchange rate misalignments with a view to correcting them. I am glad to note that such a discussion has only been postponed, if I interpret the fourth of the staff's questions, as listed in the staff paper, correctly.

Moreover, at the time of the discussion of the work program, I do not recall that we limited the scope of today's seminar only to industrial countries. I have difficulty accepting the idea that the developing countries should be ruled by conditionality, as stated on page 4, with the Fund telling them what their exchange rate and their exchange rate policy should be, whereas the industrial countries can hide under the blanket of academic controversies. Moreover, the developing countries, as well as the industrial countries, fall into different, but sometimes overlapping, categories.

I agree that the various indicators of international competitiveness do not completely determine the equilibrium value of the exchange rate. Although they constitute important elements, to quote the staff, they are far from the whole story. In the case of Switzerland, for example, both unit labor costs and relative export prices display a more stable intertemporal pattern than the exchange rate.

The macroeconomic balance approach is a useful supplement, and, in many respects, an improvement, to the analysis of a country's international competitiveness position. Potentially, however, it is more controversial than the previous approach, as it allows more judgment in the analysis. In particular, as clearly stated in the excellent Working Paper by Bayoumi, Clark,

Symansky, and Taylor, entitled Robustness of Equilibrium Exchange Rate Calculations to Alternative Assumptions and Methodologies (Fund Working Paper No. WP/94/17, February 1994), in this context the desired equilibrium exchange rate is not the one desired for its own sake, but rather the one consistent with achieving desired positions of internal and external balances. The characterizations of the external and internal balances becomes therefore the crucial point of any such analysis, as they will influence the final outcome inevitably and strongly. While I am not an expert on this issue, I have the feeling that we are confronted with yet another Pandora's box.

The definition of external balance in terms of a net flow of international capital that corresponds to equilibrium levels of national saving and investment over the medium term seems perfectly appropriate, even if it is difficult to calculate. The uncertainties surrounding the optimum path for international debt make such a balance difficult to forecast; I am impressed by the ingenuity of the profession in trying to provide a convincing answer to this problem.

I agree that internal balance should be closely connected with the concept of macroeconomic stability, a key element in the doctrine of the Fund. At most, what we mean by stability might be questioned; in this respect, the NAIRU concept is probably the most subject to possible criticism, especially in the light of the emphasis currently placed on reducing unemployment. For example, one could wonder for how long a rate of unemployment of, say, 10-15 percent--even if such a rate were consistent with nonaccelerating inflation--could be considered as a sustainable rate and linked to the notion of internal balance.

A second potential problem with the staff's internal balance concept is that it might be accused of being too narrow. Some indicators of sustainable development over the medium term, such as soil erosion, the deforestation rate, life expectancy, and energy reserves--indicators suggested by other international organizations such as the United Nations--are not yet taken into account. Perhaps the staff could comment on whether they intend to incorporate these indicators into their own models.

Notwithstanding these remarks, I have no problem conceptually with the macroeconomic balance approach. We are perhaps still relatively far away from a precise calculation of the equilibrium exchange rate, but I believe that the staff's opinion, based as it is on the best available methods and on its long and vast experience, and as reviewed by the Executive Board, represents the best possible assessment of the consistency of exchange rates with economic fundamentals.

The Fund's surveillance responsibilities over the exchange rate policies of members, and all the related macroeconomic policy issues, are of the utmost importance. However, what really matters for the world economy are the large and rapid shifts between the three major currencies with little or no relationship to the economic fundamentals. It would be of great help if we could know whether these shifts are the result of the exchange rate policy or policies of the country or countries concerned, or whether they just happen, and what could be done about them.

Mr. Fukui made the following statement:

I appreciate the staff paper, which summarizes the main points of the studies that have been done in the Fund and elsewhere. There are many technical points in the paper that deserve more study and discussion. Today, I would like to comment briefly on our basic thinking on this issue, apart from these technical issues.

There are many inevitable technical difficulties concerning the purchasing power parity approach, as elaborated in the paper. The approach may have valid points from a long-term perspective--perhaps the very long term--and the degree of transparency of the calculations makes it easily accessible and understandable. However, the simple fact of the divergence of the competitiveness indicators, as illustrated in the International Financial Statistics--which lists six different concepts of competitiveness--and the wide range of actual results, depending upon which concept is used, limits the usefulness of this approach, particularly in the case of Japan. Therefore, when purchasing power parity is used, clear mention should be made of the limited usefulness of the indicators. It is interesting to note that Fund Working Paper No. 94/29 (Competitiveness Indicators: A Theoretical and Empirical Assessment, by Ian Marsh and Stephen Tokarick, March 1994) concludes on these points by saying that there are no optimal indicators. More basically, when we try to measure competitiveness, I wonder how dominant a factor are costs or prices. For example, the price elasticity of demand could be very small for intermediate goods such as machinery or parts, which characterize Japan's trade pattern. I would appreciate the staff's comments on this point.

In contrast, the macroeconomic approach is far more intellectually provocative and theoretically interesting, but again, from a practical or operational viewpoint, it has crucial faults. In this sense, the macroeconomic balance approach is as supplementary an approach as is purchasing power parity. In particular, the concept of external balance cannot be easily defined or supported by empirical data. The staff paper fully recognizes this problem, and it presents some interesting tests to

try to capture this difficult concept in terms of tangible data. However, none of them seem robust enough or convincing. Among these tests is the life cycle theory of savings and investment, which appears enlightening at first, but is yet quite elusive. Some examples of calculations based on this approach assume the current account surplus for Japan and Germany to be 1.5 percent of GDP. Such a proposition is far from convincing, and makes this theoretically smart approach look unsophisticated. Some studies show historical cases in which countries generated significant current account surpluses or deficits for a number of years. For example, the United Kingdom had a continuous external surplus--estimated at about 4 percent of GDP--for about half a century, and Canada had a deficit of more than 5 percent of GDP for about ten years. Thus, I wonder what sustainability really means in the case of a particular country or group of countries in a world economy that has been changing and will continue to do so. Except in some extreme cases, in which external interest payments out-accelerate export growth, leading to debt diversion, sustainability remains a matter of judgment, and difficult to quantify.

The significance of the results of these studies and their possible policy implications and results depends on what kind of exchange rate system a country adopts. For countries like Japan that are following a freely floating system, the authorities have no intention of influencing the market rate, except to perform smoothing operations by means of occasional intervention. The authorities of those countries do not assign any policy instruments for the purpose of influencing the exchange rate.

Even if there may be some indicator that shows some misalignment of the exchange rate vis-à-vis the conceptual equilibrium point, the question of how to realign it is so puzzling that the policy implications of these studies are minimized. Therefore, this approach will not provide useful guidance for Japan in assessing the exchange rate and exchange rate policy.

More precisely, the difficulty can be illustrated by reference to Chart 4 on macroeconomic balance and the real exchange rate. In its present recession, Japan is likely to be located in the left quadrant of Chart 4--that is, with depressed output and a current account surplus. The need to expand total demand is obvious in view of the depressed economic situation, and fiscal measures have been taken for this purpose, but irrespective of the exchange rate position. However, Chart 4 implies that even after internal balance is attained, some other measures, either stimulative or constraining, will be necessary to achieve external balance, which was set in advance. What are the measures that can be assigned, solely and effectively, to attain exchange rate

equilibrium? In trying to effect an upward movement of the exchange rate to the equilibrium point--as is theoretically required--a monetary policy of reducing interest rates to stimulate demand can even be counterproductive in certain situations. I note that the staff sees no basic difference in the policy implications of actions under different exchange rate systems, but I would appreciate further comments by the staff on this point.

Having said that, we basically agree that exchange rate movements are an important issue for the Fund, and the Fund should continue to undertake further theoretical studies of the relationship of exchange rates with the fundamentals. However, today's paper is not solid enough to set the stage for a meaningful or practical policy discussion, given the various questionable preconditions and the obvious need for more refinement. We support further study. However, what is more necessary at present is further consultations between national authorities and the staff on the necessary preconditions for, assumptions underlying, and the implications of the results of, these studies. Moreover, the issue should not be a focal point in Article IV consultation discussions.

I would stress the importance of maintaining strict confidentiality with regard to these studies, including the results of simulations. Given the high esteem in which the Fund is held, it is likely that markets would respond in a rather unreasonable way to any leaks of information from the Fund, which would defeat the very purpose of the study.

Mr. Autheman made the following statement:

I welcome this stimulating study. It is sometimes difficult to understand it, and it is often difficult to draw conclusions. We are at the center of our mission. As Ms. Lissakers said, macroeconomic surveillance and exchange rate surveillance are closely interrelated.

Do I agree that indicators of competitiveness are insufficient? It depends. As a European whose economy is closely interrelated with other European economies, I am satisfied with competitiveness indicators. We follow them closely and we apply them, and we run into trouble when we do not apply them. Our central banks, like the Fund, provide us with various sets of indicators. In passing, I welcome the recent study published by the Bundesbank on the relevance of this indicator, which could have been usefully quoted in the background literature for this seminar. We also use indicators established by the Bank for International Settlements. We use many indicators, and we agree that the assessment of our mutual competitiveness is relevant.

That is so because our economies are highly integrated. I would not consider the same rule to apply on a global level. The degree of economic interdependence among the three major industrial areas is much smaller. Consequently, I am not surprised that competitiveness indicators are much less precise. They are useful, but they are obviously insufficient, as, depending on which indicator is used, great discrepancies might be found in the results.

In spite of the fact that this seminar has been narrowly focused on industrial countries, the high rate of productivity growth of some developing countries with very high rates of economic growth needs to be taken into account when measuring competitiveness.

What lessons should we draw from the fact that, between the major industrial areas, competitiveness indicators are insufficient to judge the appropriateness of exchange rates with economic fundamentals? Should we conclude that we do not know, or should we try to find some missing fundamentals? I agree with the staff that we should continue to search, but I am not fully convinced by the present attempt. We have to look at external balances, and we know that external balances are not unrelated to internal balances. Here again, among closely integrated countries, I consider external imbalances to be advance indicators of internal imbalances. Large swings in external balances of European countries were often advance indicators of inflationary pressures: whether sharp increases in the current account deficit, such as that faced by France in the early 1980s, by the United Kingdom in the late 1980s, and by Spain recently, or fast declines in the external surplus. It is interesting to note that, in such integrated areas, the external balance tells us what we know we will find, after the fact, with the competitiveness indicators; the external balance is forward-looking, while competitiveness indicators are backward-looking.

Among regions of the world, there are obviously many unsustainable current account positions, and from that fact comes the attempt to find another fundamental--in the internal balance. I am puzzled by the hypothesis in the staff paper in that connection, because as a layman and as a pragmatist, I try to figure out what sort of conclusion we could draw from the idea that the equilibrium exchange rate was represented by the conjuncture of the external and internal balances. Do we mean that, because asynchronous business cycles among the big regions are unwelcome, there is therefore a policy requirement that exchange rates fluctuate throughout the business cycle? I would tend to disagree; the asynchronous nature of business cycles around the world is a positive element. It means that when there is strong growth in one area, there is slower growth elsewhere, so

that the risk of worldwide inflation and recession is reduced. So the asynchronous nature of business cycles appears to be a factor of world stability, rather than instability, or an indication of exchange rate misalignment. Consequently, I do not find it surprising that, in recent years, asynchronous business cycles in Europe and the United States have been strikingly consistent with exchange rate stability.

If the output gap can be predicted, what is it? Unemployment in Europe is higher today than it is in the United States. Should our conclusion be that there is a misalignment of the dollar vis-à-vis European currencies, and therefore, that the fundamentals urgently require a dollar appreciation? I do not call for this at all. Therefore, I am not very confident of the conclusions this type of approach provides. One reason that Ms. Lissakers and Mrs. Srejber have mentioned is the time horizon. I was interested by the comparison drawn by Ms. Lissakers between recent German history and recent American history. However, if the exchange rate of the deutsche mark had followed the same path as the exchange rate of the U.S. dollar in the early 1980s, I wonder whether we would have considered such behavior to be consistent with the fundamentals. I recall that the interpretation that we finally agreed on in the 1980s was that the U.S. dollar misalignment had been the result of an inappropriate policy mix in the United States in that period. Therefore, why should there have been an assessment that exchange rates in Europe were misaligned as well?

The problem with the internal balance approach is an old one. The internal/external balance approach was first put forward in 1955 by Professor Swan, at a time when the movement of goods--but not yet of services--determined current account positions and the overall balance of payments. We are no longer in that world; now, capital movements do not necessarily follow current account developments, but rather, they are a leading feature of the global economy.

In regions like Europe, the integration of capital markets has gone as far as the integration of goods markets. However, as between the United States, Japan, and Europe, the integration of capital markets is much more advanced than the integration of goods markets. Assets are becoming more and more fungible, and investors quickly shift from one currency to another. We can no longer assess fundamentals without assigning the right weight to the importance of capital market integration. In fact, several past and recent works by Fund staff members have been dedicated to that topic.

Competitiveness, current account sustainability, and capital market stability are the three features which have been debated by

some finance ministers and central governors during the recent years. We can no longer look at exchange rates without taking due account of the fact that exchange rates and long-term interest rates cannot be disassociated from each other, and that the exchange rate is not only the relative price of goods and services produced in different countries, but the price at which we exchange domestic and foreign assets.

There is also a prudential dimension. In mid-January 1991, the United States Secretary of the Treasury asked some of his colleagues to meet with him because he was concerned that the beginning of a war could create great trouble in stock markets, bond markets, exchange markets. It was then agreed that clear signals had to be sent to markets about the fundamentals so as to prevent disorder.

I do not believe that we will know one day what are the true prices of the U.S. dollar, the Japanese yen, and the European currencies; but it does not matter. We do not know the true price of goods, but we have very clear ideas as to the appropriate evolution of prices and of a sustainable set of prices. Consequently, I would encourage the staff to continue its present studies. With other speakers, I call for more intensive research and for a greater focus on the interrelationship of the capital and current accounts.

These studies may have important consequences for policy coordination, but I agree that the more implicit we are, the more efficient we can be, at least for the time being.

Mr. Mirakhor commented that estimates of equilibrium exchange rates based on the fundamental balance of the external and internal situation had been available for some time. Indeed, the papers on that subject were listed in the references. He had seen an estimation of the phasing of re-entry of the United Kingdom into the ERM using a fundamental equilibrium exchange rate.

Ms. Lissakers said that she agreed with Mr. Autheman about the importance of the rapid and extensive integration of capital markets and its impact on exchange rates. Capital market integration probably played a role in the disequilibrium in short-term exchange rate fluctuations. The differential pace of integration of goods markets and capital markets could usefully be explored by the staff. She also wondered why barely a mention had been made of capital movements in the paper. She hoped that future treatment of exchange rate issues would address capital movements more directly.

Mr. Havrylyshyn made the following statement:

Since Nurkse, economic theory has gone some way in defining the concept of a real equilibrium exchange rate, particularly with the introduction of the concept of the macroeconomic balance real exchange rate. However, I agree with Mr. Jonáš's statement that the identification of the equilibrium rates remains elusive, and that the main question this research raises is how best to make it applicable and useful. A succinct answer based on the research paper might well be: carefully, and with continued reliance on several indicators.

Regarding the indicators of competitiveness, there has been an abundance of empirical work on comparative price measures. I have chosen my words carefully and have not referred to these measures as real exchange rates, for I am no longer certain that a real exchange rate, rather than an equilibrium real exchange rate, is in fact a meaningful concept.

The rationale for using various measures of competitiveness, which entail comparisons of trends in domestic and external prices and/or costs with the nominal rates, is to assess whether the current exchange rate is out of line with the equilibrium exchange rate. However, such measures are only useful if they in fact explain the behavior of an economy's external sector. The multiplicity of these measures--real effective rates based on consumer price index-measured inflation rates, export unit values, the relative price of traded to nontraded goods, unit labor costs, among others--would in itself suggest that there is no one good measure that explains the performance of the external sector. Some indication from the staff as to how good are the various measures of competitiveness in explaining external sector behavior, and specifically, what is the practical experience in using the various indicators of the Fund, would be helpful.

Related to this, I wonder to what extent does the staff consider the evolution of a country's market shares as another effective indicator of its competitiveness. I would add to the conceptual problems of the various relative price measures that are discussed in the paper that, in the various purchasing power parity approaches, it is not clear whether one measures prices or costs. Also, relative price changes that would indicate a real appreciation may in fact reflect price adjustments to an improvement in competitiveness. In passing, there appears to be some inconsistency in the assessment of the purchasing power parity indices on page 7--that they are generally a poor guide for short- and medium-run exchange rate behavior--and on page 14, where it is said that studies tend to support the predictions of purchasing power parity-based theories on the correlation between expected changes in exchange rates and inflation differentials.

Indices based on unit labor costs are perhaps more satisfactory, in that they are purely cost indices, although, as the staff points out, these are measures of average rather than marginal costs, and do not capture structural changes in the shares of labor and capital in GDP.

Concerning the theoretically more comprehensive and more satisfying framework, the MBER, the question of applicability becomes even more acute, because the statistical results are across an even wider range. On this latter conclusion, I agree with Mr. Jonáš, and I further agree with his most important comment, namely, that the Fund might do better to focus on consistency between exchange rate regimes and particular systems of policy, rather than on the value of exchange rates. However, I do not agree with his characterization of research on equilibrium exchange rates as practically useless, and even dangerous, for three reasons.

First, the possibility that research can be dangerously misused should never be a reason for not doing the research. Albert Einstein was wrong to feel guilty that his research contributed to development of nuclear bombs. Second, at a minimum, negative-result research that demonstrates implicitly the inability to give sufficient accurate statistical estimates of some phenomenon is also very useful. I am reminded here of the huge literature on development planning, models that demonstrated that the theoretically most sophisticated optimization approaches were subject to a huge margin of error, and hence, were not to be recommended for practical application. That was a very useful conclusion. Third, the MBER approach has more to recommend it than the mere conclusion that--so far, at least--estimates have wide margins of error. Indeed, it seems that the focus of analysis on the consistency of exchange regimes and other policies, which Mr. Jonáš highlights, can be very much better aided by the conceptual framework of the MBER than by any other framework. If one agrees that the real causes of misalignments are unsustainable combinations of exchange rate regimes with underlying macroeconomic policies, then surely it is helpful to have a broader framework such as the MBER, with the possibility of analyzing many factors, doing sensitivity analysis, and incorporating perhaps dynamic aspects, such as the costs of exchange rate volatility.

I have one specific suggestion on the characterization of external balance. I had expected to find in the paper more explicit reference to the notion of the sustainability of capital flows. While this may be implicit in the notion defined on page 19--a net flow that corresponds to equilibrium levels of national saving and investment--it might nevertheless be better to ponder explicitly the sustainability dimension of equilibrium. In

response to the obvious question of how to translate the concept of sustainability into numbers, I suspect that the answer is the same as for the question of how to translate the desired net flow of assets between economies into numbers.

Mr. Waterman made the following statement:

I join others in thanking the staff for its work on this subject. I actually like the internal/external balance framework because I cut my teeth on Swan diagrams at my university in the mid-1960s, so I feel as though I am getting some belated return on an investment made some 30 years ago--despite the damage I have done to my brain cells in the interim. It is a very useful analytical framework for defining the policy issues that need to be addressed, but like others, I have doubts about how precise one can be in practice in commenting about an exchange rate that will meet internal and external balance, because of the fluid nature of both of those concepts, especially the latter. It is interesting to recall, as others have noted, that this framework was developed before generalized floating of exchange rates. I recall that, in my lectures, when the question of floating exchange rates came up, the lecturer said to us, "We cannot spend much time on that subject, it is all rather too South American"--namely, it is exotic, unrestrained, and interesting.

It is interesting that, even in those cases in which there was probably broad agreement that exchange rates were out of kilter--such as the United States in the mid-1980s and some of the ERM countries more recently--while there may have been broad agreement on the direction of the required policy change and/or the exchange rate change, there was a wide range of views on the precise outcome required in both of those situations. I believe that that is understandable, given all the uncertainties.

In such cases, judgments on movements in equilibrium exchange rates and judgments on the relationship between real exchange rates and economic policies and conditions can be, and are, necessarily made based on a broad qualitative assessment of the situation. Given all the uncertainties, very detailed quantitative analysis is not likely to add a great deal.

It is also important to recognize that, for those Fund members for whom the exchange rate is determined by the market, the issue is not whether the exchange rate is consistent with fundamentals, but rather, whether current economic policies, both at the macro and micro level, are consistent with achieving both internal and external balance. In these cases, attempts at calculating an equilibrium exchange rate are of a more limited policy relevance, because the exchange rate is not a policy tool capable of direct manipulation. Rather, it is a price that

fluctuates according to demand and supply. A sharp movement in the nominal rate, however, can, if sustained, reflect the impact on the market of policy and other developments that need to be addressed by the authorities. That is generally recognized by governments around the world.

While the current study and the discussion today are useful in highlighting the pitfalls and dangers of trying to come to overly firm conclusions about the appropriateness of exchange rate levels, they are not problems that are likely to be resolved in any definitive way by further work. They are more in the way of uncertainties that we have to accept and live with.

In saying this, I am not advocating the resort to reading tea leaves and tarot cards, but by the same token, we should not expect to operate with the precision of brain surgeons in this or other areas relating to economic performance. We need not be apologetic about it, either, given the complexity of modern economies and the integration of world capital markets.

Mr. Dlamini made the following statement:

The need for enhanced effectiveness of the Fund's surveillance role in promoting orderly exchange arrangements to ensure financial and economic stability among its membership has been underlined by the recent experience of major currency crises, particularly in the European foreign exchange market. In this regard, we welcome the present exercise, which we hope will contribute to ongoing efforts toward forestalling a recurrence. It is important to recognize, however, that improvement in the analytical framework for assessing the consistency of exchange rates with economic fundamentals would not by itself guarantee a more stable international monetary system. Members should take appropriate remedial actions in a timely manner whenever real exchange rates get out of line with their fundamental determinants. A delay could trigger speculative attacks on the affected currencies, thereby compounding the economic costs of such a crisis, as the events in Europe in 1992 and 1993 aptly demonstrated.

Evolving a reliable analytical tool both for determining an equilibrium real exchange rate and for detecting any misalignment could pose a great challenge to policy makers, including the Fund. We note the strengths and shortcomings of the purchasing power parity-based international competitiveness approach, as identified in the paper, and we are in broad agreement with the staff conclusion that this approach does not provide a good guide for assessing exchange rate behavior, particularly in the short run and the medium term. An efficient framework, in addition to

signaling a misalignment, should be able to identify the root cause in order to guide policy action.

We note the staff's persuasive arguments that an analysis based on international competitiveness indicators, when conducted in the context of a comprehensive framework of macroeconomic balances, would yield much better results. As, in assessing real exchange rate behavior, the framework relies largely on the combined position of internal and external balances of the economy over the medium term, we agree that there is a better chance that the underlying causes of a deviation of an exchange rate from its equilibrium path would be more accurately identified. This should guide the framing of an appropriate policy response.

However, there are practical difficulties in defining and estimating major parameters that are required in assessing whether or not the underlying real exchange rate is consistent with economic fundamentals. A lot of informed judgment would be required that may create uncertainties and render the task of international comparison more difficult. Is the staff contemplating any action toward reducing such risks?

The prospect of adopting the macroeconomic balance approach in many developing countries seems even more remote because of statistical problems and other exogenous factors, some of which have been identified in the staff paper.

In retrospect, I am concerned that, although the misalignment of real exchange rates has long been recognized as a major source of economic difficulties for many developing countries, decisions on exchange rate actions continue to be influenced largely by developments in the parallel exchange rate market, and with reference to the real effective exchange rate. In those countries that are implementing adjustment programs, the performance target has always been to close the margin between the official and parallel market rates. Attempts to bring all rates to the parallel market level through successive devaluations very often result in a devaluation-inflation spiral, leading to the loss of confidence in the economies and the complementary policy of containing aggregate demand, resulting in the compression of investments. The objective of strengthening the external sector position through growth and export diversification is, therefore, invariably compromised.

Future exchange rate policy decisions would be more realistic if they were based on an equilibrium rate that reflects economic fundamentals. I hope that, with the completion of the analytical work on the fundamental determinants of the exchange rate, the Fund will have a new approach that would better serve the concerns of adjusting developing countries than has been the case so far.

Mr. Zoccali made the following statement:

We join other speakers in commending the staff for its comprehensive analysis of the factors determining the concept of equilibrium exchange rates. A good case has been made for assessing the consistency of exchange rates with economic fundamentals on the basis of the macroeconomic balance approach. Nevertheless, unless we are ready to apply it in a uniform manner, even this refinement over the narrower competitiveness approach is unlikely to enhance the effectiveness of the Fund's surveillance over members' exchange rate policies. Moreover, we consider that the purchasing power parities technique, by definition, fails to capture the whole range of factors impinging on the equilibrium exchange rate. Consequently, we fully endorse the assertion in the main paper that a considerable degree of judgment is required before concluding that a large present or prospective exchange rate misalignment exists.

While the logic is sound of basing the macroeconomic balance approach on an equilibrium exchange rate value consistent with a noninflationary level of domestic output close to potential and a sustainable current account position, the methodology for correctly identifying it is less clear. The large number of real, financial, and political variables to be taken into account in the calculation of the equilibrium real exchange rate, including the domestic and external interactions and their associated time lags, reduces the accuracy and usefulness of the estimates, particularly in the short run. Working with ranges rather than with point estimates does not really resolve the conflict, and should not automatically trigger a specific policy response. It is relevant to note that the practical applications of the two methodologies to calculate the equilibrium or fundamental real exchange rate--the comparative static approach, and the simulations using large macroeconomic models--assume a desired equilibrium level for the current account. That key assumption, if untested, generates an element of uncertainty that by itself would call into question the calculation. The definition of an optimal current account balance is increasingly dependent on the degree and stability of access to international financial markets. In this context, I fully support the notion of greater integration of current and capital account movements, notwithstanding the difficulty of modeling changes in market perceptions of creditworthiness, which as we know too well, can change unexpectedly. Mr. Williamson's approach for deriving a desired current account target by linking demographic factors to saving rates and output growth to investment is admittedly too informal. Moreover, in that approach, fiscal policy does not even seem to play a role in the saving-investment imbalance. We therefore consider that all policy aspects directly affecting private savings, including the incentives derived from the trend

to privatize social security benefits, should be explicitly included in the analysis.

We also associate ourselves with the staff's finding that identifying external balance as a zero current account position fails to recognize the potential gains from allocating international resources. This has been demonstrated by the experience of several successful countries with a persistent nonzero current account position during the gold standard period.

Another aspect that is worth highlighting is the fact that even market-based indicators of projected short-term movements in exchange rates, which supposedly embody all the expectations regarding economic fundamentals, fail systematically to provide accurate estimates of equilibrium exchange rates. In this regard, how is the staff's claim on page 13 of the paper that market-based exchange rate indicators are a promising area of research that may prove helpful in the assessment of exchange rates reconciled with the comment on page 30 of the same paper that the performance of short-hand indicators as predictors of exchange market pressures has been less than impressive?

Despite the weaknesses of external competitiveness indicators, highlighted in Working Paper No. 94/29 entitled Competitiveness Indicators: A Theoretical and Empirical Assessment, by Ian Marsh and Stephen Tokarick, March 1994, they are still the most commonly used to assess the degree of misalignment of a given currency. This being the case, one of the principal contributions of the analysis undertaken is that it recognizes the limitations of real exchange rate values based on purchasing power considerations. Consumer price index-based real effective exchange rates clearly mask shifts in the equilibrium level of exchange rates owing to widespread structural and technological changes taking place in today's world. Moreover, terms of trade shifts within the tradable sector, as for example from commodity price shocks, have an impact on the equilibrium level of exchange rates, and should similarly be taken into account.

The analysis of the problems with real exchange rate indices based on relative unit labor costs was particularly helpful, as it clearly brought out not only the limitations stemming from the unavailability of data or lack of comparability among countries, but more important, its conceptual disadvantages in the presence of changes in capital/output ratios or different cross-country shares in domestic value added. Statements in Fund documents referring to the degree of appreciation of a currency and the consequent loss of competitiveness, particularly in countries that have opted for a faster pace of structural reforms in the context of a fixed exchange rate, must be appropriately qualified.

Moreover, a real attempt should be made to capture the productivity developments in the tradable and nontradable sectors of the economy as an integral part of the Fund's surveillance exercise with member countries. In sum, to the extent that expectations and markets continue to be attracted to single indicators of external competitiveness, and that each of the commonly used definitions has serious shortcomings, their use by the Fund must be properly qualified. Further methodological work to refine the distinction between variations in the real exchange rate that affect competitiveness and those that result from the process of structural transformation could serve to enhance our surveillance discussions and ultimately to lessen the costs of eventual misalignments.

There is no doubt that the exchange rate is a key relative price for influencing the allocation of resources between domestic and foreign goods and services. As such, governments have been tempted to foster increases in competitiveness and domestic activity exclusively through real depreciation of the currency. Working Paper No. 94/22, entitled Targeting the Real Exchange Rate: Theory and Evidence, by Guillermo Calvo, Carmen Reinhart, and Carlos Végh, February 1994, presents convincing evidence that any attempt to gain competitiveness by targeting the real exchange rate is at the expense of higher inflation and/or higher domestic real interest rates, and that the impact on the targeted depreciation is only transitory. This conclusion heightens the link between structural reforms and competitiveness and the effectiveness of structural measures for bringing about permanent real exchange rate adjustment. Consequently, we see the need for further work on more integrated methods for assessing the consistency of exchange rates with fundamentals.

Mr. Al-Jasser made the following statement:

I join other Directors in commending the staff on a very interesting, informative, and sobering survey of the methodologies used to assess equilibrium exchange rates. One of the important points that the paper makes is to stress the theoretical and empirical limitations of competitiveness indicators and the need not to attribute to changes in such indicators more than they can reasonably bear. As shown in the paper, each of these indicators has its weaknesses. Moreover, different indicators could diverge markedly and, thus, send conflicting signals on competitiveness, as shown in Chart 1. The assumption of unchanged equilibrium exchange rates is another drawback. Data deficiencies in many developing countries further complicate this issue. In this regard, the staff rightly argues that the indicators should be examined as a group to assess the robustness of their signal, which in any case should be interpreted cautiously.

The macroeconomic balance approach is an appealing concept and has some analytical advantages over the competitiveness indicators. Moreover, the definitions of internal and external balances, as presented in the paper, appear to be appropriate. An external balance that takes into account debt cycle theory as well as investment and savings behaviors would seem to be more relevant. However, empirical estimation of an equilibrium exchange rate under this approach is more problematic. First, estimates of potential output have to be derived for the various countries. While these estimates have been used extensively in the Fund, this does not mean that they are not subject to margins of error. Estimating the natural rate of unemployment is not without its limitations. In addition, the equilibrium current account has to be estimated, which, as the staff paper indicates, is a more complex task. Indeed, problems could arise both in the specification of the model and in its estimation. Once positions of internal and external equilibrium have been identified, then they would be used to determine the underlying equilibrium exchange rate. Given this myriad of estimations, it is not surprising that using alternative, but plausible, assumptions could vary the results of the estimation by between 10 and 30 percent. This wide variation underlines the need for caution in identifying the appropriate equilibrium values, and limits its usefulness operationally. Again, data problems in many developing countries would further limit the usefulness of this approach. Nevertheless, such an approach provides a framework that can be used to generate additional indications for judging whether exchange rates are in line with economic fundamentals. To this end, further work in this area could be useful.

Having said this, the paper reinforces my belief that, despite the valiant attempts of many econometricians and mathematicians, economics remains as inexact a science as it ever was. Thus, evaluating the appropriateness of the exchange rates would be best achieved by using a wide set of indicators--that is, including competitiveness indicators, the macroeconomic balance approach, export performance, import performance, and capital markets. Moreover, given the uncertainties connected with pinpointing even a range of equilibrium exchange rates, it may be advisable to use extreme caution in estimating appropriate exchange rates.

Mr. Evans stated that the staff paper had confirmed that further staff work in the area of assessing the consistency of exchange rates with economic fundamentals would be useful. It was an area of particular interest to the Fund. He recalled many ministerial communiqués in which the Ministers and Governors had expressed the view that certain exchange rates were consistent with economic fundamentals.

Exchange rates depended on expectations about the future, Mr. Evans observed. Nominal and real exchange rates could be volatile to the point of developing sizable misalignments. A large part of exchange rate movements could not be explained by inflation or competitiveness indicators, or indeed, by any external factors at all. Government policy played a large role in exchange rate determination, partly because of its forward-looking nature, and partly because of the role of capital markets, to which a number of Directors had already referred.

Because of volatility and the role of expectations and of governments in exchange rate determination, many authorities saw the need for some form of anchor for the exchange rate, Mr. Evans pointed out. That anchor could be a domestic one, such as in monetary policy, or an external one, such as the exchange rate mechanism of the EMS, a currency board, the CFA franc zone, or the ranges that the Group of seven major industrial countries had agreed in 1987. All of those approaches implied the need for the authorities to take some account of real equilibrium rates.

With regard to the questions that the staff had raised for discussion, the macroeconomic balance approach was not only a useful supplement, but an essential one, Mr. Evans continued. As Ms. Lissakers had said earlier, it was easy to draw the wrong conclusions from ill-advised statements about competitiveness and current account positions. Moreover, it was commonplace for newspapers to talk about the competitiveness of a particular country being out of line, from which the conclusion was immediately drawn that the nominal exchange rate should be changed by an equivalent or larger amount.

A broad range of values for the real equilibrium exchange rate was useful, Mr. Evans commented. It would be essential that a range be specified, and not a point estimate.

The Fund had a role to play in reviewing the theory and concepts of exchange rate policy, Mr. Evans continued, as well as in collecting indicators within and between countries. Perhaps the key question was what the staff should do with their estimates of real equilibrium exchange rates, which could be very sensitive and affect markets and politics, in particular in countries the currencies of which were traded widely. Those estimates could be included in staff reports for Article IV consultations; they could be used to form judgments in Article IV consultations without specifying them explicitly; Mr. Jonáš's view was that they were too sensitive to use at all; or they could be used very occasionally to help form the view of the world economy held by the Managing Director and senior management. It seemed that the staff believed those estimates to be sensitive, because the paper itself contained no estimates of fundamental rates other than those from published sources.

In his view, Fund staff estimates of real equilibrium exchange rates should not appear in staff reports for Article IV consultations, Mr. Evans concluded. He would be happy to rely on the private sector to provide estimates of those rates, which were, after all, widely available. The Fund

would have difficulty fulfilling its mandate without giving some consideration to exchange rates, which continued to be an integral part of its macroeconomic surveillance responsibilities, and in that regard, the Managing Director and senior management should be prepared to deliver confidential messages to a group of members or to individual members about exchange rates even if such messages would often not be particularly popular with the recipients.

Mr. Shaalan made the following statement:

I join other speakers in commending the staff for a most interesting and thought-provoking paper, and I sincerely hope that the findings will be used to guide staff recommendations to member countries.

As the paper notes, Professor Nurkse's definition of an equilibrium rate appeared when I took his courses at Columbia University. It was very neat, very simple, and very straightforward--but only to a naive student like myself. Translating what appeared to be so simple into policy advice on the so-called right exchange rate is fraught with dangers and uncertainties, as the paper notes.

I agree with the proposition that, although indicators of competitiveness may be a useful tool for appraisal of exchange rates, they do not necessarily determine the equilibrium value of the real exchange rate. While I may lean toward the macroeconomic balance approach as a useful supplement to the analysis of a country's international competitiveness, I do so with some serious misgivings, for the numerous reasons given by the staff. The conclusion must be that precision in the question of the right exchange rate is elusive. It follows that, as Mr. Evans pointed out, ranges rather than point estimates of equilibrium rates should form the basis of the Fund's surveillance work, at least for now, given the present state of knowledge--or lack thereof. But again, the ranges may need to be so wide as to render them not very meaningful. The reference to surveillance work should be taken to encompass program design and monitoring. In this context, serious misalignments--and I underline the word "serious"--can be quite costly, and the earlier they are corrected, the better. That can be achieved by adjusting either the underlying macroeconomic policies and/or exchange rates.

However, given, first, the imperfect state of knowledge, and second, the fact that adjusting the underlying fundamentals or macroeconomic policies may in itself alter the judgment on what, if anything, needs to be done in exchange rate adjustments, it may not be appropriate to insist on precise links between program design and monitoring, on the one hand, and exchange rate levels, on the other. For these reasons, a note of caution is in order:

program design should take fully into account the limitations of the approaches used to determine the so-called right exchange rate. Failure to do that could well have serious adverse repercussions. Reflecting on the Fund's advice on exchange rate levels in a historical perspective, the Fund tended, especially in the earlier years, to recommend exchange rate policy to address other economic shortcomings in economic management.

I had the same questions as Mr. Autheman had on the absence of any discussion of the effects of capital movements on the level of the exchange rate. I look forward to hearing from the staff on that point.

Mr. Sarr made the following statement:

The recent experience of countries in the CFA franc zone demonstrated clearly the positive impact that Fund surveillance over exchange rate policies of member countries could have. In this case, the existing methodology for assessing the consistency of exchange rates with economic fundamentals was generally useful in providing broad indications of a misalignment in the exchange rate of the CFA countries, and it was possible, through Fund surveillance, to bring about, at an early stage, changes in the underlying macroeconomic policies, and subsequently in the exchange rate.

The staff paper is a good survey of the literature and the current approaches used in assessing the consistency of exchange rates with economic fundamentals. Some of the conclusions of the paper were to be expected, however, for example, that the various indicators of exchange rates, when used together, can improve substantially the degree of confidence as to the scope of the misalignment, and that, despite the shortcomings of our present indicators in estimating the right exchange rate, there are no readily available alternatives. As long as members are made aware of the limitations and shortcomings of the present indicators and they are used cautiously, these indicators can continue to be a useful means of assessing the appropriateness of the exchange rate.

What is important and beyond the immediate issue of refinements of the available measures of exchange rates is the need to improve our surveillance procedures, especially over countries whose exchange rate instability tends to have negative spillover effects on a large number of countries, with a more severe impact on developing countries. The Fund also needs to improve its macroeconomic policy recommendations with the aim of improving rapidly the economic fundamentals.

In the absence of a cost redistribution mechanism, as is now present in the case of the CFA franc zone, I wonder what the practical implications are for individual members that find themselves with an exchange rate that is out of line with their own economic fundamentals after the CFA franc adjustment. Perhaps the staff could comment on that point.

I welcome the indication that the particularities of exchange rate policies of developing countries will soon be addressed in connection with the forthcoming review of conditionality.

Mr. Wei made the following statement:

I thank the staff for providing an important paper on assessing the consistency of exchange rates with fundamentals. In general, we share the staff's analysis and findings. As one of the Fund's critical mandates is surveillance of members' exchange rate policies, it is particularly important for the Fund to discharge this responsibility through making better policy recommendations, which should be drawn from thorough research work.

It is worthwhile for the paper to identify the shortcomings of competitiveness considerations in appraising exchange rates. More important, such weaknesses are to a large extent addressed by the macroeconomic balance approach. I agree with the staff that such an approach is a useful supplement to the analysis of a member's international competitiveness position.

In practice, we cannot expect that either approach will generate a precise estimate of the equilibrium exchange rate. As the staff points out, either approach can yield a useful framework for drawing informed inferences about large present or prospective exchange rate misalignments. The Fund's present framework may facilitate a better understanding of the consistency of exchange rates with economic fundamentals. More work needs to be done to improve the analytical work on the consistency of exchange rates with economic fundamentals. I am fully aware that the focus of this paper is mainly on the industrial countries' exchange rates. I agree with the staff that, given the different features of the economies of industrial and developing countries, it is necessary to treat them separately. In this context, I hope that the exchange rate policies of developing countries will soon be addressed by the Board.

As there is no single approach that can explain satisfactorily the actual movements of exchange rates, it is necessary for the staff to compare the advantages and disadvantages of these approaches in evaluating Fund members' exchange rate policies. The macroeconomic balance approach is

seemingly better than the competitiveness approach in interpreting exchange rate developments. However, there are also areas in which improvements should be made.

Two main indicators are used for the domestic balance--output and inflation. I am still not sure that we can generate reliable potential output estimates. It might be easier to do so in the industrial countries, but in developing countries--even those with better statistical systems--it is more difficult to estimate potential output. Therefore, assessments of domestic balances may need more judgmental work, in particular in less developed member countries.

With regard to external balance, equilibrium levels of national saving and investment are sought to interpret the current account position. Conceptually speaking, saving and investment balance analysis is a useful tool for assessing the appropriate current account position. However, the practical statistical difficulties in many member countries will undermine the effectiveness of such an analytical tool.

In many developing countries, in particular, low-income ones, exchange rate developments are often affected by world market developments. Therefore, the authorities are sometimes forced to accept the exchange rate levels that may be out of line with economic fundamentals. In this context, an appropriate exchange rate policy will require a favorable external environment.

In order to better serve the mandate of surveillance over members' exchange rate policies, we encourage the staff to continue its analytical work on the fundamental determination of exchange rates, including the role of macroeconomic policies. A unique advantage of the Fund is that it is at the center of monitoring exchange rate developments and exchange rate policies in all member countries--industrial, developing, and economies in transition, alike--which gives valuable insight into the evolution of their exchange rate developments and policies. In this context, I believe that more experience can be drawn from members on a broader basis regarding their different exchange rate arrangements and policies. By doing so, we may gather experiences on exchange rate determination in different country groups that are in line with their economic fundamentals. Thus, we might be able to recommend the most suitable and appropriate exchange rate policies for different groups of countries.

Mr. Kafka made the following statement:

This is a very helpful paper. I am not sure that I agree with all its emphases, but it is admirably clear.

The paper first explores various ways in which international competitiveness indicators, such as various forms of purchasing power comparisons, may convey false signals. It may not be inappropriate to remind ourselves of what was perhaps the most famous case of misunderstood signals that Keynes examined in "The Economic Consequences of Mr. Churchill." I refer, of course, to the 1925 return of the pound sterling to its old gold parity, based erroneously on purchasing power parity calculated from wholesale prices in an open economy in which any exchange rate based on wholesale prices was likely to assure purchasing power parity.

Nevertheless, one cannot dissent from the staff paper's findings that while aggregate indicators of competitiveness may not be strongly correlated with changes in external imbalances, these indicators are useful in signaling the emergence of market pressures toward nominal exchange rate adjustments. In fact, I would be a little less skeptical of the relative usefulness of international competitiveness indicators than the staff paper. A strong divergence from equilibrium will be shown even by purchasing power parity indicators; and equilibrium exchange rates are unlikely--in most cases--to change quickly; and even the problem of finding the appropriate base year should not be insurmountable. However, can the macroeconomic balance approach really give--in practice--more precision than international competitiveness indicators?

On the one hand, the macroeconomic balance approach, even in the form of comparative static calculations, could--in principle--indicate deviations from equilibrium more securely than the international competitiveness indicators. On the other hand, the paper suggests that dividends from refining judgments about the appropriate fiscal--and, probably, other--policies for reaching macroeconomic balance over the medium term would be considerable. The paper concludes on this point that the identification and correction of relatively large misalignments at an earlier stage would be helpful. Is this really so much more than the international competitiveness indicators can give us?

I agree, of course, that the Fund must continue to pursue studies on the macroeconomic balance approach even if their practical results may not be overwhelming.

What should the Articles' injunction that the Fund should exercise firm surveillance over members' exchange rate policies mean? I do not quite know what "firm" has meant, but I believe that the Fund has always attempted to exercise surveillance--firm or weak--over macroeconomic policies. It should continue to do so, in an evenhanded manner.

I fully agree with Mrs. Wagenhoefer and Mr. Fukui on the need for extreme caution regarding equilibrium real exchange rate calculations by the Fund.

Mr. Torres made the following statement:

The staff paper gives a global and well-organized view of the different methods that can be used to evaluate exchange rates and their consistency with other economic fundamentals. I have said on purpose "their consistency with other economic fundamentals" because I think that the exchange rate is one of the most important economic fundamentals. In fact, we have to be careful when referring to the economic fundamentals, as they are a kind of hidden essence that is supposed to be somewhere at the very bottom of the economy, but nobody knows exactly where. Exchange rates are part of the fundamentals because they express, or should express, the average productivity of the economy.

Three main conclusions can be derived from the paper: first, that despite the significant theoretical development and empirical studies that have been undertaken on the subject, the concept of what is an equilibrium exchange rate--not to mention its calculation--continues to be extremely difficult to establish; second, that the most reasonable objective is to obtain a broad range of values when trying to define the equilibrium exchange rate, and that good judgment therefore needs to play an important role--we are reminded that economics is an art at least for the time being; and third, that the macroeconomic balance approach constitutes the most comprehensive method so far when trying to determine the right exchange rate.

The staff's characterization of internal and external balances as the two components required to develop the macroeconomic balance approach shows the complexity of trying to assess the exchange rate. The determination of what is the external balance is particularly difficult. The staff paper provides different alternatives to assess the external balance. In the paper, it seems as if the method chosen to determine the external balance does not have any implications for the way in which the internal balance has been estimated. In other words, both the internal and external balances may be determined independently, methodologically speaking, and then moved forward to calculate the macroeconomic balance exchange rate. I would appreciate some comments from the staff on this.

The conclusions from the paper have an important implication for the way the Fund undertakes its surveillance role. They call for great caution when judging any particular exchange rate arrangement. To say it more exactly, it seems necessary to always put any reference to exchange rates in a very precise context. An

improper use of different indicators of deviation from a national equilibrium exchange rate could produce unnecessary tension in financial markets. We therefore urge the Fund to use great caution and maintain confidentiality if it begins making these types of calculations.

Some important questions arise from the paper. For an institution that advocates free market policies, as the Fund does, it is important, when assessing exchange rates, to elaborate on when and why markets fail. There is a worldwide tendency in the direction of greater central bank independence, a tendency that we have favored. Central banks are key to determining exchange rates. The question then becomes what is the role of national or international institutional arrangements in the determination of exchange rates. These issues may be part of future research on the topic we are discussing today.

Mr. Mirakhor commented that he had had the impression that whether or not the Fund took the trouble to come up with an exact point estimate of real and equilibrium exchange rates for a particular country depended on how badly the country needed Fund resources. If a member country needed the resources quickly, the staff appeared to have an easier time coming up with exact point estimates. Almost every day, a staff paper was issued on a developing country that contained exact point estimates of equilibrium exchange rates. The example of Algeria could be raised in that connection at present. He had therefore been surprised in the view expressed by some directors that the suggestion to calculate a range of possible paths for the equilibrium exchange rate--rather than a point estimate--would have near-calamitous results. Perhaps the principles of evenhandedness and equality of treatment that the Fund said it espoused needed to be restated. While the Fund was doubtless sincere about applying them, it might wish to be more thoughtful in how it did so.

The staff had done a good job in pointing out the shortcomings of measures of competitiveness, Mr. Mirakhor observed. Almost all Executive Directors who had commented on that point had agreed with the staff's assessments. At the same time, while the staff had shown their shortcomings, on the one hand, it continued to use those same measures and indicators in papers on countries with Fund-supported programs, on the other hand. The suggestion of calculating a macroeconomic balance equilibrium exchange rate was a useful one because it provided an operational handle for integrating Sections 2 and 3 of Article IV of the Articles of Agreement--namely, on designing an exchange rate surveillance mechanism that took into account the aims of full employment and economic growth.

Despite the concerns that had been raised about further research in that area, therefore, he believed that with proper safeguards, on theoretical and empirical grounds, the staff might be able to make some groundbreaking discoveries, some of which had been hinted at in the staff paper, Mr. Mirakhor concluded. For example, the possibility of assuming a

nonzero structural capital flows position had been suggested, with the further possibility of broadening that concept to take into account some of the concerns that had been expressed by Mr. Autheman. He would encourage the staff to continue to think along those lines. Perhaps the staff could begin by examining the fundamental equilibrium balance for countries with Fund-supported programs using Fund resources, which might lead to better Fund advice to those countries.

The Acting Chairman commented that there might be cases in which a point estimate of the equilibrium exchange rate could be made, because that point estimate was at the very bottom of the range that the staff would judge as the range within which the exchange rate should be.

Mr. Mirakhor said that the staff often knew only the parallel market rate for a currency, even if it represented perhaps only 10 percent of the total exchange rate dealings in the country. That figure was often taken as the right equilibrium exchange rate. He was aware of the difficulties the staff confronted in trying to come up with a number for the exchange rate in the context of Fund-supported programs, but it might be useful for the staff to try to make operational some of the suggestions for applying a range for the exchange rate in such cases, rather than an exact point estimate. It might provide a broader and more solid basis for policy recommendations to developing countries.

The staff should examine more closely some of the major differences between the techniques suggested for calculating a macroeconomic balance equilibrium exchange rate and the fundamental equilibrium exchange rate, Mr. Mirakhor added. The staff had mentioned a number of those differences, but further examination might be helpful in pushing forward the conceptual frontier of exchange rate policies.

Mr. Kafka commented that what Mr. Mirakhor had just said reminded him of a statement attributed to Mr. McNamara, former President of the World Bank, in referring to a calculation by the World Bank staff. He had said that while the result was only a number, any number was better than no number.

Mr. Glazkov made the following statement:

At the outset, let me commend the staff for producing a highly professional paper on this difficult subject and for keeping it within manageable proportions.

At this stage of the discussion, I will limit myself to brief remarks on the issues that I believe to be the most important.

First, I concur with those speakers who are rather skeptical about the possibility of calculating equilibrium or fundamental exchange rates. It is not only the overwhelming point of view at this discussion, but it also appears to be the opinion of the

staff itself. As the staff rightly notes, competitiveness and purchasing power parity considerations are mere components-- although very important ones--of the assessment of exchange rates, while "a considerable degree of judgment is necessary to interpret the exchange rates that are derived from the macroeconomic balance approach." This is due to numerous uncertainties connected with the factors determining exchange rates: i.e., internal and external balance, financial market conditions, and the influence of a particular exchange rate regime--fixed or floating.

At the same time, the staff advocates the "right exchange rate," which, it says, is not achieved in the market.

It is difficult for me to agree with such an approach. I concur with Mr. Autheman that it is not feasible to determine the "right" exchange rate as it is not possible to calculate the "right" price for any goods.

Regarding the most direct policy implication of the exercise--calculating the equilibrium exchange rates--I do not think that it is by any means dangerous, as some speakers suggest, because, as the same speakers believe, it is hardly feasible. The financial markets are always guided by their own perception of economic fundamentals and can hardly be confused by the above-mentioned calculations made by the monetary authorities.

I concur with the view that it is the consistency of the exchange rate regimes that really matters. In this respect, it would be helpful to analyze the factors determining the right choice of exchange rate policies, such as the size of the economy, its openness--sometimes special openness toward a particularly big economy--and the financial markets' confidence, determined by the previous track record of the country and its monetary authorities.

On the specific approach used by the staff in the paper we are discussing today, the issue is, in my view, more academic than practical. Nevertheless, I concur with those speakers who encourage the staff to continue conducting research in this direction, because it is useful for deepening our understanding of the fundamental factors determining exchange rates.

The Deputy Director of the Research Department stated that there was a wide range of uncertainty surrounding the estimates that emerged from the exercises to establish an assessment of the appropriateness of exchange rates with the economic fundamentals, as Mr. Jonáš had pointed out. Even if the staff were to work very hard over the following two years on the subject, it was unlikely that the staff would be able to come up with a system that would determine precisely the equilibrium exchange rate. Simulation exercises in the paper showed that, even if the trade elasticities or the assumptions about current account imbalances were

doubled, fairly wide swings in estimates of exchange rates would continue to obtain, and the exercise was not really relevant unless a misalignment of the order of 30 percent was seen. That notwithstanding, he believed that the exercise worked better in practice than in theory; if the indicators resulting from using competitiveness indicators, the macroeconomic balance approach, and market signals all pointed in the same direction, fairly confident observations about the exchange rate could be made that most people would accept. Whether the right answer was 7 percent or 11 percent, therefore, became of less importance from a policy perspective.

In the exercises, the source of a disequilibrium that the indicators had identified would not be revealed, the Deputy Director continued, although in practice, often the source of the disequilibrium was fairly obvious. For example, if a country had been overheating for three or four years, had a very high inflation rate, was losing market share, and had not adjusted the nominal rate in a number of years, the root of the problem became apparent. Similarly, in looking at a combination of current account positions and departures from potential output or full employment, the general direction the policy prescription should take was usually not difficult to identify.

The choice of exchange rate regime was important and needed to be taken into account, the Deputy Director agreed, although he did not believe that the Fund should concentrate on that issue rather than on what the right exchange rate level should be. While the specification of the appropriate exchange rate should be subject to a wide range, the Fund was nevertheless mandated to make such a specification, and it had both the technical and judgmental competence to do so. That being said, while the exercises the staff had designed could not come up with exact results, that was not to argue that they were not worth doing.

Perhaps the most difficult estimate to make was the desired current account position and external balance, the Deputy Director observed, especially for the industrial countries. In that determination, capital flows became important. Theoretically, savings should move through the international capital markets to where the return to capital was the highest, and the best investment opportunities should be taken first. The marginal productivity of capital should therefore be highest in the areas with the least capital. In that sense, the return to capital ought to be higher in the developing world than in the industrial world, and, with more capital in the industrial world, a net outflow of capital to the developing world might be expected. By the same token, among the industrial countries, the industrial countries with more capital ought to have a lower rate of return than those with less capital. Of course, whether or not capital was directed in that theoretically ideal way depended upon the surrounding policies. If a country had inappropriate macroeconomic or tax policies, capital would not flow to it even if it had a higher potential rate of return than elsewhere. That was one--rather inexact--general approach for trying to determine the optimal current account.

Another approach was to determine the desired current account position, the Deputy Director went on. In that connection, an assumption of a current account position that was consistent with containing, inter alia, protectionist pressures would have to be made. An assessment of such factors as the saving and investment history, demographics, and the ratio of debt to GNP of the country would be made. The implications of a larger current account balance in the future would then be looked at, but it was hard to be precise. The assumptions underlying the factors he had mentioned were what drove the estimates of equilibrium exchange rates at present. Of course, in the case of a country with, say, a current account deficit of 12 percent to GNP, it was unnecessary to make fine distinctions, unless there was an obvious reason why the productivity of capital was so much greater in that country than elsewhere.

A number of attempts had been made to rely more on market variables and the role of market expectations in exchange rate determination, the Deputy Director pointed out. Markets were indeed much more important than they used to be. For example, prior to the ERM crisis, it might have been thought that interest rate differentials indicated what the expected path of exchange rates would be under certain circumstances. The experience of the ERM had shown that that need not be the case. In terms of interest rate differentials, therefore, the market clearly had not anticipated the currency crisis.

Mrs. Srejber commented that that was true only in terms of the spot market. In fact, the options market had been sending out such signals, but they needed to be interpreted correctly. She was not sure that she agreed with the Deputy Director's view.

The Deputy Director of the Research Department responded that the markets had been a poor predictor of exchange rate crises at least over the longer term. The market tended not to signal a coming crisis very far in advance. What appeared to happen was that the markets changed their mind at one point, and then moved. Of course, the evidence might be building up in their minds, but that was not easy to perceive.

The forward rate was also a poor predictor of the future expected spot rate, the Deputy Director went on. In fact, on average, not only was its prediction of the magnitude of the coming change incorrect, but often its prediction of its direction as well. The market was constantly processing information, and often the news on the expected direction of macroeconomic policies was enough to get it to change its mind. Useful research into those market signals was continuing, including in the futures markets, the options markets, and the swap markets. For example, research that tried to relate market signals of expected exchange rate changes to macroeconomic fundamentals to determine whether market expectations were correlated with the things that they might be expected to be correlated with, such as changes in competitiveness, had been undertaken. At present, however, that research had not shown that market expectations were a good indication of future exchange rate changes.

The staff had made a conscious decision to keep the paper focused on methodological issues, the Deputy Director related. The last comprehensive review of exchange rate determination had been done about a decade ago. It was useful to examine every few years the Fund's exchange rate tool box to see whether the instruments remained relevant. In terms of the policy implications of such reviews for individual countries, the analysis could not be done without also looking at the macroeconomic side. Exchange rate surveillance was really macroeconomic policy surveillance, which was covered in the informal sessions on world economic and financial market developments, the World Economic Outlook, and Article IV consultation discussions.

Exchange rate calculations were made only partly independently of the particular exchange rate regime, the Deputy Director explained. Of course, there were differences between floating-rate regimes and fixed-rate regimes. Under floating-rate regimes, the authorities were often willing to allow the exchange rate to serve as a buffer. Under fixed-rate regimes, the authorities essentially acted to make their forecast of the exchange rate come true by adapting other policies to the exchange rate policy. Greater variability might be expected under a floating-rate regime than under a fixed-rate regime. Nevertheless, even under a floating-rate regime, the question remained relevant as to whether or not the real exchange rate that emerged over a period of time was reasonable in the light of the best information that could be mustered on the fundamentals. Of course, there were also differences between industrial and developing countries. The most appropriate indicator of the exchange rate might differ on that basis, as could the relative margin of error obtained through any particular approach to assessing the exchange rate. The staff had focused on exchange rate policy in industrial countries.

The growth in the size, agility, and integration of international capital markets was indeed the major change in the international monetary system over the preceding 25 years, the Deputy Director concluded. That topic had been the focus of the 1993 international capital markets report on exchange rate management and international capital flows. Nevertheless, he was not sure whether that changed very much the way to go about analyzing whether an exchange rate was out of line with the fundamentals or not. The most serious implication appeared to be that, if it was out of line, it would be much harder to hold it at that level, because the private markets had become more powerful than the officials, and if the price that the officials tried to set was viewed by the market as out of line, the price would soon move.

The staff representative from the Research Department stated that the staff did not view the competitiveness indicators approach and macroeconomic balance approach to exchange rate assessment as being mutually inconsistent. The macroeconomic balance approach incorporated the key ideas of price competitiveness, but it was a broader approach. With respect to the role of the relative price of traded and nontraded goods, the real exchange rate was itself a major determinant of incentives to produce traded and nontraded

goods under both approaches. However, the macroeconomic balance approach allowed for a change in incentives to be analyzed in the broader context of the overall macroeconomic position. It was sometimes important to take into account how changes in macroeconomic developments could lead to changes in the relative price of traded and nontraded goods, as had occurred in the case of Germany following unification. More broadly, if the underlying assumption of the purchasing power parity approach were borne out--namely, that the real equilibrium exchange rate was unchanged--then only the relative price comparisons would be needed to assess whether the actual exchange rate was out of line with the fundamentals. However, it should be emphasized that the same comparison of competitiveness indicators would also be done in the macroeconomic balance approach. The important point was that other factors were also taken into account in the macroeconomic balance approach, which could then identify more readily those situations in which the underlying equilibrium real exchange rate had changed--something that the purchasing power parity approach could not do.

Regarding the role of intermediate inputs in competitiveness indicators, one indicator, which was based on export prices of manufactured goods, clearly did take into account intermediate goods, to the extent that those manufactured goods were intermediate goods and not final goods used by consumers. Also, unit labor costs in manufacturing included labor as an input, but they were obviously not a direct index of intermediate input prices. Overall price indices, GDP deflators, and consumer price indices did not take intermediate inputs into account directly. The elasticities of demand for those intermediate inputs were not taken into account.

The empirical results of using the competitiveness indicators had been mixed, the staff representative acknowledged. There was no one indicator that worked uniformly better than another, so there had been no definitive result regarding indicators per se. Nevertheless, that did not mean that the role of relative prices in affecting trade flows was insignificant or unsubstantial. A considerable body of evidence suggested that relative prices mattered a great deal, and that had been documented by papers at the Fund. For example, a Working Paper by Guy Meredith (Working Paper No. 93/52, entitled Revisiting Japan's External Adjustment Since 1985, June 1993) had documented that very well in the case of the Japanese external transactions.

The analysis that underlay the paper had been used to estimate the changes in the exchange rates that were needed to get the actual exchange rates closer to equilibrium rates, the staff representative pointed out. In principle, this calculated exchange rate change should be a movement toward the equilibrium one for the currencies of the countries included in the calculation period. Finally, it would be problematical to describe what the practical implications might be of the methods described in the paper for those countries in the CFA franc zone whose exchange rates were not equal to the equilibrium level.

The approach did not take account of such long-term developments as deforestation and pollution, the staff representative stated. However, the Fund's MULTIMOD had been used to take account of certain long-term developments that would be likely to affect equilibrium exchange rates over the medium to long run, in particular, demographics and the effects of reductions in military spending on the world economy. Outside the Fund, an attempt had been made to incorporate the effect of carbon dioxide emissions on international macroeconomic activity.

An article by the Bundesbank in November 1993 had noted that the European countries were highly integrated on measures of purchasing power parity, and the conclusions appeared quite robust, the staff representative observed. The question could therefore be raised whether price comparison indicators were more relevant for integrated economies, and that therefore the macroeconomic balance approach was more appropriate for less integrated economies. However, it needed to be borne in mind that even though Germany was highly integrated with its immediate trading partners--France, Belgium, and the Netherlands--the Fund staff's analysis of the effects of German unification showed that, despite that integration, unification had caused a change in the macroeconomic balance in Germany, with an impact on the real deutsche mark exchange rate vis-à-vis other European currencies. Therefore, economic integration per se did not make the macroeconomic balance approach less relevant.

The internal and external balance positions were not computed independently, although the analysis might give that impression, the staff representative concluded. In fact, they were really jointly interdependent. The potential level of output might affect the desired levels of savings and investment, so the direction of causation would be from that level of output to savings and investment; the underlying savings and investment positions affected the current account, and to that extent, the internal and external balance positions were related. The direction of causation could also be the other way, as a fiscal imbalance--a surplus or a deficit--affected the net private savings of the economy and the level of investment, which, in the macroeconomic balance approach, determined the current account position. In that case as well, the current account was jointly dependent on investment and, therefore, on potential output through the effects on saving.

Mr. Fukui observed that, in measuring competitiveness, the price structure was important. Unit labor costs played a role in the competitiveness of commodities. However, simple price movements did not necessarily determine a competitive edge. That was proved by the fact that sometimes prices rose, but market share remained unchanged, suggesting that competitiveness was unaffected. He wondered whether such apparent anomalies could be explained by purchasing power parity or other approaches to assessing the consistency of exchange rates with economic fundamentals. In his view, something was missing.

The staff representative from the Research Department agreed that prices were only one part of the total package that formed the basis for the exchange of goods and services. Other factors were reliability, quality, and servicing. Such factors were difficult to take into account, and they were not captured in the price measure itself. One measurement that was not part of the regular arsenal of competitiveness indicators, but which the staff had looked into, was the ratio of goods prices to unit labor costs. The purpose of that measurement was to obtain an idea of the profitability of an activity. If prices rose relative to unit labor costs, then there was more incentive to export the goods.

Mr. Autheman said that he agreed with the Deputy Director of the Research Department that the integration of capital markets was not more important than the choice of exchange rate regime, but capital market integration had consequences for the assessment of the fundamentals. The integration of capital markets had limited the size of fluctuations that would be tolerated. An exchange rate fluctuation of 30 percent within the range that authorities would find acceptable would not be seen very quickly as acceptable by the capital markets. Moreover, capital market integration had led to the correlation of exchange market prices and bond market prices--prices that had not been correlated before. In consequence, the key issue in exchange rate fundamentals had become not the right level for the exchange rate, but rather, that degree of variation of the exchange rate that was sustainable. Whether under a fixed or a floating exchange rate system, the degree of deviation that capital markets tolerated was more limited at present than it had been one or two decades previously. In his view, the reason for that was that in a more integrated capital market system, the authorities were constrained more tightly by inflation expectations.

The Deputy Director of the Research Department said that the growth and agility of international capital markets had made it more difficult to sustain departures from equilibrium rates, at least in the view of the markets. Increases in variability had also been seen over time; certainly, the variance of exchange rates had been larger, on average, over the period of floating rates than it had been under the Bretton Woods system. Variance in rates for ERM countries had declined a bit over the past decade, but not for the U.S. dollar.

The biggest effect of capital market integration was felt when the market saw an inconsistency between the exchange rate and economic policy fundamentals, the Deputy Director remarked. Whether that view was well founded or not was immaterial. The markets moved much faster than before, so the authorities' room for maneuver was much smaller than before, especially when they placed a high value on fixing the rate. Also, regional integration objectives made it costly to have greater variability, because that was seen as jeopardizing the establishment of a single market. The growth and integration of the capital markets was unlikely to be reversed, however, and countries would have to deal with it. For the most part, when the capital markets had put pressure on policies to change, it had been in

the right direction. The financial discipline that the markets imposed on exchange rate policy was a beneficial one, on the whole.

The Acting Chairman said that those comments led to the question of the right policy response to large capital movements. For example, should the exchange rate be allowed to appreciate, or should monetary and/or fiscal policy be changed? That probably demonstrated the need to look at the broader macroeconomic framework.

The macroeconomic balance approach appeared to include many of the indicators of the competitiveness approach, the Acting Chairman observed. Thus, it was not a choice between one or the other; rather, the macroeconomic balance approach encompassed the competitiveness approach, and provided a broader framework for analyzing and making judgments about exchange rates.

A number of Directors had stressed that the Fund should not be too explicit in its judgments about the equilibrium exchange rate because it could have dangerous consequences, the Acting Chairman recalled. At the same time, during discussions of individual Article IV consultations, the staff had sometimes been pressed to be more specific about what the right exchange rate was in the particular case, and to outline its judgments in that regard. There were therefore apparent differences of view about being explicit about exchange rate judgments.

A great deal of weight--perhaps too much--was given to real effective exchange rate indices, the Acting Chairman continued. More thought might be given to how explicit the Fund should be about the framework for, and the weights given to the different elements behind, the policy conclusions drawn on the exchange rate.

With respect to future work, many Directors had called attention to the importance of focusing on capital market developments and their implications for making judgments about exchange rates, the Acting Chairman commented. A few speakers had also called attention to the need to adapt the framework to a country's specific circumstances. For example, the exchange rate policies of countries that were closely integrated might be different from those that were less so, and the use of different tools and different emphasis might be appropriate. Another difference that might be taken into account was the type of exchange rate regime that had been chosen.

It was useful to review the methodology of exchange rates from time to time, the Acting Chairman concluded. The staff's analysis in the current paper should be kept in mind in the context of individual Article IV consultations and during consideration of requests for use of Fund resources, with a view to ensuring that the Fund was using the proper tools, and using them in the best way, in its work with individual countries.

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