

0404

INTERNATIONAL MONETARY FUND

Minutes of Executive Board Meeting 88/4

4:00 p.m., January 11, 1988

M. Camdessus, Chairman

Executive Directors

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J. E. Ismael

M. Massé

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J. Ovi
H. Ploix
G. A. Posthumus
C. R. Rye
G. Salehkhoul

K. Yamazaki
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J. R. N. Almeida, Temporary
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N. Kyriazidis

L. Van Houtven, Secretary and Counsellor
K. S. Friedman, Assistant

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Also Present

European Department: J. R. Wein. Exchange and Trade Relations Department: L. M. Valdivieso. External Relations Department: N. Worth. IMF Institute: O. B. Makalou. Legal Department: J. V. Surr. Research Department: J. A. Frenkel, Economic Counsellor and Director; A. D. Crockett, Deputy Director; M. Goldstein, Deputy Director: J. M. Boughton, E. Hernández-Catá, P. Isard, N. M. Kaibni, F. Larsen, P. R. Masson, A. Muttardy, B. E. Rourke, J. J. Soladay, P. Wickham. Secretary's Department: C. Brachet, Deputy Secretary. Treasurer's Department: M. P. Blackwell. Bureau of Statistics: C. A. Patel. Personal Assistant to the Managing Director: H. G. O. Simpson. Advisors to Executive Directors: A. A. Agah, M. B. Chatah, S. M. Hassan, Khong K. N., K.-H. Kleine, R. Morales, A. Ouanes, P. D. Péroz, G. Pineau, D. C. Templeman. Assistants to Executive Directors: N. Adachi, F. Di Mauro, W. N. Engert, S. K. Fayyad, P. Gorjestani, S. Guribye, M. A. Hammoudi, G. K. Hodges, L. Hubloue, A. Iljas, S. King, K. Kpetigo, S. Rouai, G. Schurr, C. C. A. van den Berg, Wang X., R. Wenzel.

1. SURVEILLANCE - INDICATORS - COMMODITY PRICE BASKETS

The Executive Directors considered a staff paper on commodity price baskets as possible indicators of future price developments (SM/87/291, 12/11/87).

Mr. Enoch made the following statement:

I found the staff paper to be a useful and stimulating first step in response to the suggestions made by the Chancellor of the Exchequer, among others, during the 1987 Annual Meetings.

The Chancellor suggested that commodity prices--among other possible indicators--could play a useful role in monitoring economic conditions, with a view to avoiding persistent inflationary (or, for that matter, deflationary) bias in the stance of macroeconomic policy in the industrial countries as a whole. The evidence in the staff's paper is indeed consistent with the view that, in general, commodity prices are much more sensitive to changes in supply and demand conditions than are other prices, and that they could provide useful additional indicators of aggregate inflationary conditions. However, this responsiveness to supply and demand means that considerable care is needed in selecting and interpreting commodity price indicators.

There seems to be a good case for developing not one but several commodity price indicators, including a broad index and indices including just commodities whose prices have proved particularly sensitive to demand pressures or monetary conditions in the industrial countries.

The broad index would be designed to indicate the direct effects of changes in commodity prices on consumer prices in the industrial countries. Its weight could reflect the importance of commodities in industrial countries; imports or consumption, and the staff have set out a number of possibilities in Table 2 of its paper. The importance of oil and the huge fluctuations in its relative price present considerable problems in assigning weights in such an index, not all of which are discussed by the staff. There is a case for compiling separate indices, with and without oil. There is little point in attempting to include gold or other precious metals in such an index, as their value as indicators depends on their responsiveness to speculative forces rather than their weight in consumption, which is tiny.

A broad-based index may act to some degree as a sensitive indicator of demand pressure in industrial countries, but a narrower index might be preferred which excludes commodities whose price is heavily influenced by supply-side factors or market rigidities; oil is an obvious example. As an indicator of monetary conditions, one might also wish to look at a much narrower range of commodities--including gold and other precious metals.

Econometric analysis can give guidance as to the weighting of commodities in indices designed to monitor demand and/or monetary conditions. However, the technical difficulties are considerable. Superficially impressive results can be achieved by data mining, selecting any combination from 40 commodities. Interpretation of the staff's results would in this respect be helped by more diagnostic test statistics, for autocorrelation, stability, and forecasting performance. Is it right that weights should be determined solely by the degree of correlation rather than by, say, length of lead? Oil and gold prices seem to be highly correlated with inflation but with short leads. And finally, if we decide to undertake further work along these lines, it would be important to check the plausibility of the estimated weights.

The staff paper is thus a helpful first step, but more work could usefully be done. The consumption-weighted index that has been constructed is useful, although the problems of incorporating oil remain to be tackled. It could also be worthwhile undertaking further work on developing a sensitive indicator of demand pressures; this would include metals and probably agricultural materials, but would exclude at least some foodstuffs and certainly oil. It might be better to study prices of gold and other asset prices separately rather than attempt to combine them with other commodity prices.

It is probably premature to consider at this stage how we should use any indicators that we eventually decide upon. One possibility would be to use the indicators as additional information, together with the latest staff forecast, in assessing the outlook for inflation in the industrial countries in our world economic outlook discussions. We could also enhance the discussion and analysis of recent developments in the commodity markets, and how these are influenced by policies in the industrial countries, by considering the sorts of information I have suggested.

I hardly need to say that we must continue to exercise judgment in this area. No single indicator or group of indicators will ever be an infallible guide. Policymakers will always need to bear in mind the full range of indicators together with all the other available information.

Mr. Posthumus made the following statement:

The staff study shows that there is no fixed relationship between commodity prices and consumption prices, and that there is a question about in which direction the relationship runs. Commodity prices fluctuate more, tend to overshoot, and may give false signals. Even when indices are constructed in such a way

that there is such a fixed relationship, false signals may still be given, while it is not certain that past experience (the basis for such indices) is indeed indicative of future relationships. One factor may be that the relationship is different in different periods. Is this indicated by differing correlation coefficients for both periods in Table 5 of SM/87/291, which means in fact that there is an instability in the relationship?

I have reservations about giving a commodity price index the same status as other indicators mentioned on page 3. As a global indicator it may even elicit procyclical policy reactions; the commodity and oil price decreases of the past two years would, on the basis of such an indicator, have pointed to a still more expansionary monetary policy. I agree with the staff that analysis of the causes of the commodity price changes (possibly changed demand and supply conditions, for instance) and of other determining factors of inflation remains necessary.

I have strong reservations about the suggested use of a commodity price index, in national currency, as a policy indicator. The consequences of increased commodity prices are different for different countries. Furthermore, inflation is caused by different factors, such as labor costs, productivity developments and exchange rate movements.

If a commodity price index would be considered useful as a global inflation indicator, I suggest that the expansion of international credit and the development of official reserves be taken into consideration as well.

Though it may be useful to develop an arsenal of commodity price indicators and then decide what to do with them, I am afraid that such an approach would be a substantial burden on the limited staff resources. I wonder whether the lack of an indicator for future price developments is a crucial factor in the difficulties we face, both nationally and in international cooperation, in obtaining support for, or agreement on, financial and economic policies which are perceived as the right ones on the basis of the indicators we already have. In other words, it is not the lack of or weakness of the indicators we have which hampers coordinated policymaking.

Mr. Ovi made the following statement:

During the Board discussion in July 1987, this chair expressed strong support for the use of indicators in the coordination of international economic policies and urged that the deliberations reach a practical stage as soon as possible. Against this background, the staff paper is very welcome.

Unfortunately, the results of the present analysis of the possible use of commodity prices as an indicator for future inflation in the major industrial countries are far from being unambiguous. Although it would be desirable, it seems problematic whether a single indicator showing a sufficiently stable relationship to future inflation can be constructed. Rather, the paper confirms the general experience that, when considering index application in general, it would be useful to have a variety of indices at hand depending on the exact nature of the question being asked.

Turning more specifically to the topics raised for discussion, econometric analysis undertaken does seem to suggest that there is some value in using a commodity price index as an adjunct to other indicators of future inflation. However, it is important to stress that no commodity price index can be used as a mechanical guide to reaching conclusions about inflationary prospects and thus eventually the need for changes in economic policy making. A judgmental approach is always needed. Furthermore, one might fear that the use of such an indicator could result in unwarranted contractive effects, as the policy reactions to the index might turn out to be asymmetrical; in other words, no policy response when inflationary pressures are low, and policy tightening when the indicator shows rising inflationary pressures.

Given the stated purpose of predicting future inflation, it is understandable that the staff places particular emphasis on forecasting qualities. However, it is important that weights can also be given a reasonable economic interpretation. Clearly, this is a balancing act. The calculations of the staff suggest that indicators that include oil and gold with fairly substantial weights would give a high explanatory value. On the other hand, special factors apply in both of these commodity markets. Furthermore, there is a risk that the mere inclusion of gold in such an index might give rise to market interpretations of a return to some sort of monetary role for gold. Therefore, this chair is very reluctant to include gold in such an index. On oil, we have a more open attitude, although we would prefer that oil prices--as well as gold prices--be evaluated separately as part of the supplementary judgmental approach referred to above.

Clearly, if a commodity price indicator is to be introduced, further analysis is called for regarding both the construction and the utilization of such an indicator. In this regard, it will be important to identify price effects stemming from supply shocks--including cartel developments--from those arising from general demand factors.

Given the nature of this indicator, it seems to me that analysis of commodity price developments could in any case best be carried out within the framework of our ongoing world economic outlook deliberations on interaction between major countries or

groups of countries. As suggested by Mr. Enoch, it would also seem useful if the commodity indices presently produced by the Fund could be supplemented by a broad index designed to indicate the direct effects of changes in commodity prices on consumer prices in industrial countries.

I agree with the last point in Mr. Posthumus's opening statement, namely, that it is clearly not the absence of a commodity indicator which is causing today's difficulties in international economic policy coordination. Indeed, this issue is only a minor aspect of the overall surveillance process. In this regard, I wonder what is happening more generally to the indicator exercise. We have a mandate from the latest Interim Committee communiqué. What kind of work is envisaged over the coming months?

Mr. Finaish made the following statement:

The staff has provided a useful paper on the question of whether and how commodity prices could be used as an inflation predictor for the large industrial countries that have a major influence on global economic developments. The staff has noted that commodities enter the production process at an early stage and commodity prices tend to respond fairly quickly to changes in underlying supply and demand conditions. Furthermore, since commodity prices are traded at fairly uniform prices throughout the world, the differences in individual country commodity indices are expected to be minor and to give similar signals regarding global inflation when expressed in the same currency or basket. The dynamic model of the interaction between commodity and industrial prices present in Appendix I of the paper illustrates the important role of expectations in determining movements of commodity prices and how commodity prices serve as an inflation hedge. The paper does not address the issues of whether and how commodity prices themselves should be stabilized, which is understandable because these issues are beyond the scope of the paper. Nevertheless, it should be clear that these issues are of great interest to a large number of countries, and the interest, or more appropriately, the concern regarding these issues, has increased in recent years because of the plummeting of real commodity prices.

The use of objective indicators of economic policy and performance can serve to improve the compatibility of major industrial country policies. Insofar as commodity price indices are useful in predicting industrial country price movements, I can see the potential merit of incorporating such price indexes in the inflation forecasting exercise in order to strengthen the basis for the examination of the interactions of economic policies and performance of major countries. However, I have certain doubts about commodity price indices as indicators of further price developments in industrial countries. In many instances, commodity price

movements have reflected relative price shifts rather than aggregate demand conditions and there is feedback between commodity prices and industrial country prices. There are also the issues of significantly greater fluctuations in commodity prices than in industrial country prices and the stability across different time periods of the relationship between commodity and industrial country prices. In any event, the use of commodity price indices as an indicator must be seen in conjunction with other indicators, such as interest rates and unit labor costs. Notwithstanding these reservations, I will comment on some of the specific issues raised by the staff.

As to the question of whether the commodity indices should be selected on the basis of the reasonableness of weights or on the ability of the indicator to predict inflation, the staff has noted that there is a trade-off between obtaining an index that has economically meaningful weights and obtaining one that is an optimal predictor of inflation. The commodity price indices estimated econometrically appear to predict future changes in consumer prices slightly better than the more traditional price indices, but this is to be expected because the weights of the estimated indices are chosen so as to provide as close a fit as possible with consumer prices. However, the estimated indices have weights that are very different from those based on consumption or trade, which makes it difficult to explain the movement in indices estimated from reduced-form equations in terms of underlying behavioral or structural relationships. Furthermore, there is the problem of the breakdown of sample period relationships in out-of-sample simulations. In other words, the estimated relationship may change over time, and, in particular, if there is a change in the policy regime, then the forecasts from the estimated reduced-form equations would become less reliable. The staff is correct to note that this problem may be partially alleviated by ensuring that the index is not too narrowly based or too divergent from observed patterns of consumption or trade. On balance, however, it seems appropriate to focus initially on the indices that use the traditional basis of international trade along with weights based on the pattern of consumption in industrial countries. The staff could also do further work on the econometrically estimated indices and, when more information becomes available, particularly with regards to the stability properties of the reduced-form equation, the estimated indices may then be considered as additional indicators. Needless to say, the exercise for predicting inflation should not focus on just one variable, and the information set should include other variables in addition to commodity prices.

An important point noted by the staff is that when using the commodity price index as an indicator of inflationary conditions, it is essential to start from an appropriate base period for commodity prices. If the base period chosen for the analysis is one where commodity prices are significantly below their long-run

equilibrium level, then this could result in a deflationary bias in the indicators exercise. Since the real price of primary commodities is at present substantially below its historical trend, the inflation forecasting exercise must distinguish general inflationary pressures from a rise in commodity prices that might simply be shifting relative prices back toward more normal levels. A closely related point is that of separating out supply-induced movements in commodity prices from those caused by aggregate demand within the framework of analysis underlying the indicators exercise. In particular, the inflation forecasting exercise would be based on aggregate commodity price indices, and the staff could usefully comment on how supply shifts or other significant developments in any one commodity market would be taken into account in the analysis.

On the question whether it would be appropriate to include gold and oil in the commodity price index, the staff's empirical analysis indicates that the inclusion of these commodities generally improves the correlation with consumer prices. Gold is traded in auction markets, and to the extent that gold is regarded as a good hedge against inflation, its price may be expected to be sensitive to changes in market perceptions of inflationary conditions; however, gold markets can also be subject to excessive speculation. With regard to oil prices, I would emphasize the point that these prices have moved substantially in response to shifts in conditions specific to the oil market rather than in response to shifts in financial conditions affecting inflation. The major changes in oil prices may be attributed to the particular characteristics of crude oil, such as its strategic importance and low short-term price elasticity of demand. In recent years, another important factor in oil price determination has been the strong shifts in inventory demand, which were influenced in part by structural changes in the world oil industry. The staff has noted that the oil price movements have been important enough by themselves to induce shifts in monetary policies and have thereby contributed to more generalized and sustained changes in inflation rates. In this regard, it is more the large weight of oil in the commodity index and the monetary validation of oil price increases rather than the inflationary expectations incorporated in oil prices, that explain the statistical significance of oil prices in the regression equations. Furthermore, in several years of the sample period used for estimation, the increase in oil prices was primarily a lagged response to inflation in the industrial countries. It is important to keep in mind that the way in which oil prices affect industrial country inflation is quite different from that of other commodity prices. For these reasons, if oil prices are to be used as an indicator for future inflation, particular attention should be given to the specific conditions of the oil market and caution would need to be exercised in interpreting the empirical results.

Mr. Faria made the following statement:

The staff's innovative and academically honest paper has its origins in the references made by the U.K. and U.S. Governors during the 1987 Annual Meetings to the need to strengthen economic policy coordination among the G-7 countries through the use of commodity prices as an additional indicator. However, while this overall objective was clearly common to both proposals, the U.K. and U.S. Governors were less clear about how the objective could be achieved in principle. The U.K. proposal appears to stress the use of commodity price trends for the industrial country group as a whole, on the basis of contemporaneous information, in order to better understand the inflation process, thereby helping to correct in future for the effects of persistent price bias in past economic policy management. On the other hand, the U.S. proposal appears to emphasize as a basis for policy coordination a more country-specific analysis of prospective real exchange rate movements that recognizes the importance of commodity prices as an early warning signal or a predictor of potential price trends. Because there is some ambiguity in the mandate provided by the U.K. and U.S. Governors to the staff, and in the staff's own interpretation of this mandate, it would be useful to have the Executive Directors from the United Kingdom and the United States as well as the staff provide us with some understanding of their respective views of the nature of this mandate.

In any event, even though a number of indicators are already being used in the policy coordination process because of their central importance, the staff could have considered several interesting directions in its study of the role of commodity prices: on the basis of the U.K. view, the role of commodity prices as an anchor for macroeconomic policy, in general, and monetary policy in particular; the possible substitution of commodity prices for other indicators; the extent to which the stabilization of commodity prices could be made a specific policy objective; or, following the apparent U.S. view, how commodity prices could be used as preliminary deflators to predict cross-rate movements in real exchange rates as an early warning signal of the need for corrective policies. Instead, the staff decided--quite sensibly--to ignore these siren-like possibilities for the much less ambitious and more computationally manageable examination of commodity prices as a possible leading indicator of future price developments. In so doing, however, the staff may well have so narrowed the scope of its study as to call into question the usefulness for policy coordination of the study's conclusions.

Against this background, and with the benefit of clarifying discussions that I have held with the staff, I will respond to the four topics for discussion proposed by the staff in its paper.

The first, and most important question is whether commodity price indices are a useful indicator, as an adjunct to other indicators, of inflationary pressures. In one sense, any increase in the information on which policy coordination is based must be encouraged. Indeed, given the established narrow objective for commodity prices--namely, that they should be a leading indicator of future price developments--the staff paper plausibly argues, particularly in Appendix I, that it would be appropriate to use commodity prices as an additional indicator; at the same time, the staff notes the predominance of demand-induced (essentially monetary) shocks over supply-induced shocks in fluctuations in commodity prices. As the Executive Board considers this matter, it should compare the benefits of such an indicator for the Fund's surveillance role to the opportunity cost involved in the use of already stretched staff resources to develop and apply the indicator. In my view, given such a limited and aggregated objective, the indicator is unlikely to satisfy the the country-specific needs of individual G-7 country authorities and will be of limited use to the Fund. Moreover, the effort is bound to have high opportunity costs for the Fund. In this connection, it is useful to recall that this and other chairs have asked the Research Department, in fuller cooperation with area departments, to undertake more meaningful work on such important projects as the core, interactive G-3 model, and the incorporation of growth considerations into financial programming exercises. In any event, as Mr. Posthumus explained, it is not the lack or weakness of indicators that hampers policy coordination, but the absence of political will. In addition, the recent emergence of the procyclical bias of commodity indicators has weakened the policy role of such indicators. Therefore, I am, at best, agnostic about the usefulness of this exercise on pragmatic grounds.

I will now comment on the measurement aspects of this exercise--reflected in Sections III and IV of the staff paper--which subsume in one form or another the other three questions posed by the staff. While the presentation in Section II is clear, Sections III and IV are convoluted. The staff paper is an academically honest one because it traces the development of various commodity price indices as inflation indicators and evaluates them in a detailed and scholarly fashion. But the treatment is overdone relative to the Executive Board's need to know and thus may well represent a case of the best being the enemy of the good in terms of the audience to which it is addressed. Closer editorial scrutiny could have relegated much of the detailed discussion to the Appendices, particularly through a strengthening of Appendix II.

The staff has constructed four basic commodity price indices--the world export-weighted, the industrial import-weighted, the consumption-weighted, and the econometrically-estimated indices--and has sought to evaluate them on the basis

of their correlative and causal significance, as shown in Tables 4 and 5, respectively. The first three indices are estimated in disaggregated forms--without gold or oil, including only gold, and including both oil and gold. The fourth index straightforwardly includes both oil and gold, and the number of commodities varies from 40 to 8. In general, the staff has argued persuasively that including both oil and gold strengthens the predicted power of the model, although I noted Mr. Enoch's ambivalent view on which of the broader or narrower based indices would be appropriate. In passing, I wish to note that the underlying set of data on which these indices are based extend from global data for the export-oriented index, through G-21 country data for the import-weighted index and G-7 data for both the consumption-weighted and econometrically estimated indices.

A straightforward answer to the third question raised in the staff paper is that, while all three characteristics mentioned by the staff are basically desirable, the rank order probably should be the following: predictive capability, reasonableness of weights, and general behavior over time. However, the staff paper could be clearer on the nature of the prediction entailed. How unambiguously can the measurement procedure help us to respond to the key question posed by the staff on page 12, namely, whether commodity prices add significantly in an explanatory sense to the information already provided in the history in inflation itself? This seems to be essentially a matter of causal correlation versus either simple correlation or a composite of the two. If commodity prices are to be a leading indicator of prospective inflation, significant unidirectional causal correlation is necessary. However, there is apparently a two-way linkage between commodity prices as a leading indicator of general inflationary pressure and the aggregate consumer price index with its feedback effects on commodity prices through aggregate demand. How efficient can commodity prices be as a predictor when their variability is markedly higher than that of consumer prices as a whole? Is the predictive power to be evaluated in terms of cardinal or ordinal measure; in other words, is it the direction of future change that is being measured or the extent of future change? The most important benefit of an appropriate forecasting procedure is the prediction of turning points, and little about this is said in the paper.

In commenting on the estimation procedure used, especially for the econometrically estimated indices, I wish to make the preliminary observation, based on Tables 4 and 5, that for both simple and causal correlation, explanatory power is very high when computed for variances in the price level but declines markedly for variances in inflation rates and variances of changes in inflation rates. In order to emphasize causal correlation between future changes in the consumer price index and changes in commodity prices in its estimation procedure, the

staff makes all data stationary on a single-time basis. Thereafter, for the various disaggregated indices, the monthly changes in 12-month inflation rates for the aggregate consumer price index are regressed on lagged values of similarly transformed data representing a small statistically significant set of principal components of commodity prices. Accordingly, it is not surprising that the further incorporation in the estimation procedure of a distributed lag should help yield statistically significant and robust relationships between the indicators and the consumer price index, and further to facilitate the estimation of mean lags between prior movements in the indicators and future movements in the consumer price index. This procedure would clearly be relevant if the object was solely to predict the direction of future change. However, if, as seems likely, the overall purpose of this exercise is to forecast the extent of inflation on average over time, having known the history of inflation up to and including the current period, then it would not appear to be appropriate. Also, it appears from Table 5 that causal correlation--established presumably through the application of reverse causality tests--is better for the shorter sample period, and that for each case the sum of the causal correlation of individual regressors is greater than the causal correlation for the estimating equation itself, although both are relatively weak in terms of overall prediction power. In its paper, the staff readily admits that the overall purpose, strictly defined, is not secured, but the staff goes on to insist nevertheless that, in most cases, the indicators do provide significant information about prospective movements in inflation rates. As a result my agnosticism about this whole exercise is, if anything, reinforced, although I remain open to being convinced by the staff of the error of my thinking.

The staff's fourth question concerns the appropriate index on which to concentrate future work. In one sense, my previous observations imply that, apart from the index selected, the estimating procedure itself needs to be reconsidered. One direction may be that suggested by the staff itself, namely, deriving optimal weights linking commodity prices to consumer price index inflation rather than a single index of future inflation. I am not confident that the eight-price econometrically estimated index preferred by the staff is the best choice; after all, over both the short and long run, it appears to be outperformed by the world export-weighted commodity price index, including gold and oil, with both having the same mean lag of eight months and the same 99 percent confidence level. The world export-weighted commodity price index also goes some way toward meeting Mr. Ismael's preference for a more broadly based indicator. Moreover, as the staff recognizes, smaller indices that diverge from the observed pattern of consumption or trade are inherently susceptible to the breakdown of sample period relationships in out-of-sample simulations. In the final analysis, there may

be a trade-off between obtaining an index that has causal correlation through economically meaningful weights and obtaining one that, through simple correlation, is an optimal predictor of inflation. Under both scenarios, however, the greater variability of commodity prices over consumer prices, in both the short and long run, is clearly a constraint.

Mr. Yamazaki made the following statement:

Vigilance against inflation is the mandate for economic policy in every country. I believe that the discussion today will certainly contribute to the attainment of this objective through the indicator process. Since I am in general agreement with the staff's analysis, I would like to address myself only to the topics suggested by the staff.

First, I would like to comment on the usefulness of commodity indices as an indicator of global inflationary pressures.

Historically, commodity price indices have moved broadly in advance of consumer prices of G-7 countries, as illustrated by such upward index movements preceding price movements from 1978 to 1980, as well as by such downward movements of indices from 1984 to 1985. The staff's empirical analysis also shows the significant relationship between commodity price indices and the general price level.

However, various economic factors affect the degree to which the general price level responds to a commodity price change. To be more concrete, this degree of response certainly depends on the economic structure, the financial situation, the speed of technological changes, and so on. It would therefore be possible for a shift among inputs or a change of technologies to accommodate a rise in commodity prices in the long run, although this would not be possible in the short run.

Moreover, the movement of commodity prices might reflect not only the expectation of future inflation, but also irrational speculation. Cornering or rigging would hamper the efficiency of the commodity market.

When these issues are taken into consideration, I, at this stage, cannot conclude that a change in commodity prices always leads to a change in the general price level. Similarly, I think that the tendency of commodity price indices to lead the general price level may not remain statistically significant enough in the future. The commodity indices, therefore, do not seem to be reliable and stable enough as an anchor of the international monetary system or of monetary policy. However, I must stress

the possible useful role commodity indices could play as an early warning signal of future inflation and would like to encourage the staff to explore this issue further.

I will now elaborate on the issues that I think should be borne in mind when the Board incorporates the commodity price indices into the indicator process in the future.

I think that it is important to use the commodity price indices as a supplement to existing procedures. In assessing the economic situation and policies of a member country, the Fund should take into account not only commodity price indices, but also other indicators, such as the consumer price index, the wholesale price index, and the money supply.

Moreover, it is also necessary to pay due attention to the various situations of member countries. The importance of commodities in an economy varies from one country to another, as does the influence of a change in commodity prices on the general price level. For instance, a country like Japan, which depends heavily on imported commodities, would be affected by the rise in commodity prices more than others, since a rise of the prices of imported commodities would depreciate the domestic currency, and this depreciation would cause an incremental rise in the prices of imported commodities. In addition, commodity price indices would provide us with a sign of future movements of the current account, since commodity prices have an influence on the current account.

I will now turn to the second topic for discussion, the component of commodity indices. I recognize the importance of gold and petroleum. However, the gold price, however, tends to be volatile, owing to changes in international political and economic situations, as well as changes in the credibility of the international monetary system. The gold price, therefore, has not always shown movements commensurate with inflation. While considering these facts, one might think of the use of the gold price as an independent indicator, I cannot agree with such an idea, which might lead to a misunderstanding, namely, that gold is resuming the role of an international currency, which might induce speculative buying up of gold. In this respect, I cannot agree with giving excessive weight to gold in the commodity index. Nevertheless, it seems appropriate to assign a small weight to gold, based on the pattern of international trade or consumption.

Regarding petroleum, the addition of oil prices to the commodity indices enhances the statistical relationship between commodity price indices and the consumer price level. This empirical result supports the incorporation of oil prices into commodity indices. However, there still remain issues to resolve.

The heavy share of petroleum in international trade and consumption raises the question of the adequate weight attached to petroleum. Also, it is necessary to note the parallel existence of market prices and agreed prices of oil. If a country imports oil mainly through bilateral agreement with oil producers, the market price increase would not affect the country very much. Moreover, there are some issues related to the supply of petroleum. Therefore, I urge the staff to make a further study of oil prices.

I would like to touch upon the third and fourth topics suggested by the staff. The selection of appropriate commodity indices should depend on the purpose of their use. When the commodity price index is used as a leading indicator for inflation in industrial countries, it would be suitable to choose the commodity index based upon the consumption pattern in industrial countries.

It would be appropriate to consider modifying the index by increasing the weight attached to commodities of high correlation with the subsequent consumer prices, if the ability of the index to predict inflation falls short. In so doing, it would be necessary to revise the weights promptly, since these weights are based on past data and the computed results would change continuously.

In conclusion, I wish to associate myself with Mr. Enoch's comments that the development of several indices would be most useful. It would not be fruitful to be preoccupied with the notion of selecting one index. Therefore, it would be important to make use of several indices while fully recognizing the advantages and disadvantages of each one.

Mr. Nimatallah noted that in his opening statement, Mr. Yamazaki had suggested that commodity prices typically led consumer prices. In his view, consumer prices in the industrial countries had been leading commodity prices. A table prepared by the staff (Appendix I) clearly showed that over time consumer prices had pulled up commodity prices.

The Director of the Research Department said that it was certainly possible to infer from the table to which Mr. Nimatallah had referred that, when plotted against some indices of commodity prices, consumer prices seemed to have led those prices. However, the same data base, when translated into rates of inflation over the two indices shown--namely, the rate of change of prices rather than the price level itself--produced the inference that Mr. Yamazaki had mentioned.

More generally, the Director of the Research Department noted, some of the relevant statistical methods were subject to the basic criticism that they lacked an element of judgment; a fundamental question was

whether it was particularly meaningful to look at one endogenous outcome--one price--in order to make an inference about another price, rather than to take a basic look at the fundamental conditions underlying both statistical series.

Mr. Nimatallah remarked that one of the issues at hand was the usefulness of commodity price indices. The latest world economic outlook paper contained a paragraph discussing commodity prices and a table showing a sharp increase in commodity prices in November 1987 compared with the first quarter of 1987. An analysis of the rate of change of commodity prices could not be meaningful; policymakers needed to recognize and react to the trend in prices. There had clearly been a declining trend between the end of November 1987 and the first quarter of 1988. The increase in prices shown in the relevant table of the latest world economic outlook paper was in effect an overreaction to the decline in the value of the dollar and was not particularly informative and helpful for policymakers.

Mr. Grosche made the following statement:

The proposals submitted by Chancellor Lawson and Secretary Baker at the 1987 Annual Meetings rightly stressed that the policies resulting from the coordination process should not be inflationary. The maintenance of price stability is, indeed, essential for more stable exchange rates and thus for a better convergence of international economic performance.

Price stability has been and continues to be the main focus of monetary policy, even when monetary authorities allow monetary growth to exceed targets temporarily because of exchange rate considerations. Clearly, however, the assessment and conduct of monetary policy has become more difficult than in the past. For example, financial innovations have influenced monetary aggregates in a somewhat unpredictable manner. Against this background, policymakers are well advised to search for additional information relevant for assessing the stance of monetary policy. In that connection, commodity price baskets may perhaps serve as another useful indicator of future price developments. However, we must bear in mind that commodity prices are only one factor influencing overall price developments. Other factors, such as wages, or the cost of capital, may add to the inflationary pressure, but they may also compensate for the inflationary impact of rising commodity prices.

These considerations suggest that a commodity price index, added to the indicators already in use, could play a useful role in the context of a comprehensive judgmental approach. Federal Reserve Board Chairman Greenspan put it very nicely when he recently said before the Committee on Banking, Finance and Urban

Affairs of the House of Representatives that "...we should distinguish between what we must evaluate, in a technical sense, and what we do. In particular, we should avoid any automatic policy response to movements in commodity prices."

The staff paper is very useful for our discussion. The staff's analysis of past experience with commodity price indices and computations of new indices shows the complexity and the ambiguity that often arise from the interpretation of index movements. I thus agree with the staff's conclusion that "no single variable should be expected to provide, by itself, reliable predictions of future inflation."

Even though the staff's analysis is already highly complex and comprehensive, I missed answers to some questions that I had in mind. However, as they may be taken up in the coming paper on anchors for the international monetary system, I will be brief in putting my questions.

First, the staff concludes that commodity price indices, when compared with other aggregate indicators, may provide relatively early indications of shifts in inflation. However, the staff itself notes that one has to distinguish between structural changes and changes caused by supply or demand pressures when interpreting the information from movements in the commodity price indices. I wonder how this distinction can be made in practice without undue delay and, more importantly, in advance.

Second, what is the implication of expressing--as the staff does--an index in SDR terms when significant changes in exchange rates occur? This may lead to substantial changes in the index as well, which would not reflect the underlying movement in commodity prices. Mr. Ismael pointed rightly to this problem and offered a solution.

Third, would the particular implications of commodity price index changes for industrial countries that are major exporters of commodities not be different for those that are major importers?

On the proposed topics for discussion, I can offer only some tentative remarks, since we are at a very preliminary stage of our discussion.

First, the decision to include certain commodities, most notably gold or oil, should be based on whether or not these commodities improve the indicator function of the index. Although gold and oil prices have in the past been particularly sensitive to noneconomic developments, their inclusion seems to improve the index.

In constructing an index, the weight structure is of crucial importance. The weight structure should reflect the relative importance of the commodities for the individual economy to indicate as precisely as possible potential dangers of inflation. The import or consumption structure of an economy seems to be preferable to technical or econometrically estimated weights which are difficult to reconcile with a judgmental approach.

Much work remains to be done before we can decide which index or indices we should adopt and how we should use them in the context of the Fund's multilateral surveillance procedure. If we consider that further work by the staff is needed, it might be helpful not to be overambitious and not to aim at constructing an "ideal" index, but to improve existing and accepted indices. In addition, I suggest relating past figures of monetary growth and commodity price developments to inflation in order to get a better feeling for how the more traditional indicator of future price developments performed compared with commodity price indices.

In concluding, I wish to stress that I am skeptical about commodity price indices serving as an anchor for the international monetary system. Also, like Mr. Posthumus, I have strong reservations about adopting a commodity standard for the control of monetary policy.

Mr. Rye made the following statement:

I find it difficult to generate any great enthusiasm for involvement by the Fund in constructing yet another indicator of commodity price movements. There certainly are ample technical and operational grounds for questioning the usefulness of such an effort. The staff paper itself raises a number of technical questions. In particular, it notes that a rise in commodity prices need not be followed by a generalized rise in price levels; commodity prices typically undergo periods of rapid increase that are later reversed--that is to say, in the staff's words, "they have a tendency to overshoot substantially and for extended periods"; many commodity price movements simply indicate changes in relative prices; and there have been over time large unsynchronized movements in most commodity price series.

Given this background, it is hardly surprising that, despite the efforts lavished by the staff to find new commodity price indices that might serve the desired purpose, the case for such indices as a useful indicator of global inflationary pressures, even as an adjunct to other indicators, seems at best to be unproven. A consistent and reliable interpretation of the reasons for changes in commodity prices would be crucial if the commodity index were to have any effective policy application. However, the paper does not convince me that this can be achieved.

My doubts are reinforced by operational considerations. Even if an aggregated commodity index could be regarded as a reliable signal of global resurgence or decline in inflationary pressures, it would most likely not be taken as giving definite directions for policy changes in specific countries, which, I assume is the main aim of the indicator exercise. Policymakers will certainly pay greater attention to trends in the more traditional, and country-specific, indicators of inflation, such as wages or unit labor costs, money aggregates, and domestic consumer price indices. My own experience in advising governments on economic policy matters suggests that it is virtually inconceivable that governments that are unconvinced by movements in domestic indicators that anti-inflationary action is appropriate would be swayed by some international index, even one formulated by the Fund. In practice, the early warning of inflationary trends provided by a commodity index would be rarely, if ever, heeded.

I am quite skeptical about other possible uses of a commodity index, such as those suggested by Mr. Ismael. Of course, I fully support Mr. Ismael's objectives; for example, anything that would underscore for economic policymakers the evils of their protectionist measures would certainly be worthwhile. However, the returns for the considerable work that would be involved would probably be marginal at best. It is not information that is lacking, but political will.

All in all, it would be preferable for the Research Department to devote its scarce resources to higher priority work, of which there is, of course, a considerable amount.

Mr. Prader made the following statement:

I welcome this opportunity to discuss an idea that was floated during the 1987 Annual Meetings, namely, to examine whether it would be useful to add an indicator based on a basket of commodities, perhaps including gold, to the list of indicators that is already included in the indicator exercise.

Since most industrial countries import the commodities that they need as inputs to the production process, such an indicator could in principle determine the extent to which inflation is imported and, therefore, is beyond the authorities' control. Such analysis has been conducted many times during the world economic outlook exercise with a view to protecting world economic growth and predicting inflationary pressures. This experience shows that it is difficult and risky to make such predictions. For example, in 1986, the steep drop in oil prices led the staff to predict a strong surge in economic growth that never materialized.

I am reluctant to attach great importance to such an indicator for three additional reasons. First, commodity prices are not of central importance to economic performance, because the importance of commodities themselves in the whole production process has taken a back seat to other factors and the effect of commodity prices on consumer prices is smaller than in the past. Furthermore, the production costs of most commodities have fallen.

Second, commodities might not provide an early warning of changes in inflationary pressures, because the prices of different commodities tend to move in opposite directions.

Third, commodities are often subject to large price swings that are caused by conditions that are specific to certain markets, rather than by inflationary expectations. These price swings tend to overshoot, whatever their direction. The volatility of commodity prices is so great that, even when consumer prices are stable, large movements in commodity prices may still occur. Accordingly, using commodity prices as the basis of an indicator could run the risk of discrediting the whole indicator exercise.

It is interesting to see that, apart from a short note on page 5, the staff paper is silent about the possible use of a commodity price index in the conduct of monetary and exchange rate policy. This chair has always favored a reference approach to exchange rates, provided that it would be directed by a commonly accepted reference framework for exchange rates and external payments patterns that are capable of imposing a certain systemic discipline on the participating countries, similar to the discipline imposed by a system of target zones or by the European Monetary System. However, I do not see how an instrument as controversial and as sensitive to statistical problems as a commodity price index can possibly play the role of an anchor for the international monetary system. For instance, in certain parts of its paper, the staff admits that the longer-run pattern of commodity prices differs from the trend of consumer price indices, apparently because unit labor costs have a much greater impact than commodity prices on consumer price indices.

Oil and gold tend to be treated separately from other commodities, and the staff wonders whether gold could not be considered a candidate for the role of a sensitive indicator of inflationary expectations. Although gold is actively traded in certain currencies and might therefore, other things being equal, be more neutral vis-à-vis exchange rate movements, gold prices are very sensitive to changes in the supply of gold, speculation, and political tensions in the world. Economic history provides ample evidence of hyperinflation induced by sudden and massive gold finds. In addition, the correlation

between the price of gold and inflation is too contemporaneous--that is to say, too lacking in leads and lags--to permit its use for predictive purposes. This is especially true at present, because high real interest rates are making people increasingly aware of the opportunity cost of holding gold, which not only earns no interest, but also can carry a high storage cost.

Despite my serious reservations, and although I am unconvinced by the econometric results, I can go along, for the sake of achieving a consensus, with the use of a commodity price index as an adjunct to other indicators, if a majority of Executive Directors wish to do so. Nevertheless, like Mr. Posthumus, I would prefer to see this indicator carry a smaller weight than the other indicators. I am skeptical about the inclusion of gold in the index if the purpose of the index is to provide an early warning of inflationary developments. The inclusion of gold makes sense only as an indicator of monetary movements, as Mr. Enoch noted in his opening statement. In other words, before deciding on the construction of the index or of several indices, we need to build a consensus on the purpose that it is to serve and the manner in which it is to do so.

As to the choice of the other ingredients of the commodity basket, I prefer a selection designed to favor the indicator's ability to predict inflation in the short term. The econometrically estimated commodity price index shows somewhat disappointing correlation coefficients in comparison to the consumption-weighted, export-weighted, and import-weighted indices. The 22-commodity index suggested by the staff shows an especially poor performance. In my view, none of the proposed indices is satisfactory.

Mr. Hodgson made the following statement:

The staff's thorough examination of the technical merits of commodity price indices contributes both to examining the overall role of global economic indicators and to answering the specific technical question of how best to construct an indicator of commodity price movements.

The staff paper leads me to conclude that no single index is sufficiently attractive or superior to the others to justify giving it special emphasis. The inclusion of gold and petroleum in the indices seems to improve the correlation between the indices and consumer prices. Creating an index in which individual weights are determined by econometric estimates of the impact of the individual commodities on domestic prices is interesting, although the results are similar to those of trade and consumption-weighted indices that include gold and petroleum.

Unlike the other indicators that are now part of the surveillance process, the present study addresses the development of an aggregate or global indicator. This raises a number of complex aggregation issues that are addressed in the paper. In trying to assess the predictive value of any commodity index, an important issue is the crucial role played by monetary policy in determining the strength of the pass-through from commodity price shocks to domestic inflation. Since monetary authorities may or may not choose to accommodate commodity price shocks, the link between such shocks and domestic inflation will vary substantially, both across time and across countries, making the statistical relationship examined in this study particularly fragile. This fragility suggests that the staff may wish to examine specific key periods in greater detail.

Moreover, the critical link between commodity price changes and policy responses to them implies that a disaggregated approach might be at least as valuable as the global approach adopted in the staff paper. The disaggregated approach would entail using commodity prices to help predict inflation rates for individual countries followed by an aggregation of the predictions into one for global inflation. From this perspective, commodity prices would take the role of other secondary variables that might be used in constructing inflation forecasts.

In the effort to develop leading indicators of inflation, it should be recognized that each country already has a number of obvious candidates, including such variables as monetary aggregates, wages or unit labor costs, interest rates, and exchange rates. Ideally, analysts would like to allow all these potential leading indicators to compete on an equal footing, which would require evaluating the usefulness of commodity prices alongside those other variables within the same regression. The study by Horrigan referred to on page 9 in the staff paper is interesting in this respect. The study apparently concludes that, while commodity prices are statistically significant in predicting inflation, they are qualitatively unimportant relative to money growth. Indeed, my authorities found it surprising that the staff regressions show even a limited predictive value for money growth. Recent work in both the United States and Canada suggests that significant leading information has been found in various monetary aggregates, despite the presence of financial innovation. Perhaps the staff's results are simply a manifestation of the kind of aggregation problems to which I have referred.

Another reservation that I have about the global approach has to do with the volatility of commodity prices and the availability of daily price data. There is a risk that focusing on commodity prices might give undue attention to short-run movements or overshooting, rather than emphasize as appropriate

medium-term trends. There is also the question of the likely reaction of financial markets to incorporating a commodity price index as an indicator of global inflation into the policy formulation process. Would placing emphasis on such an indicator induce great volatility in financial and exchange markets by encouraging market participants to focus on commodity prices in anticipation of policy action?

The question of the predictive value versus the explanatory value of the commodity price indices is important. Even if commodity price indices have some good predictive value, it does not follow that such indices explain the causes of inflation, since any such explanation would seem to require a broader examination of factors. Furthermore, the two-way causality that is recognized in the staff paper suggests that one could argue that changes in world inflation lead to changes in commodity prices, rather than the reverse.

In sum, the staff has made a very good start on examining the relationship between the commodity price indices and inflation; further thinking seems to be required. The selection of an appropriate commodity index should depend on the purpose of their use. If that index is to be used as a leading indicator of inflation in industrial countries, the choice of the index should be based on the consumption pattern of industrial countries. If the ability of the index to predict inflation falls short, the index could be modified by increasing the weights attached to commodities that have a high correlation with subsequent consumer prices. In doing so, it would be necessary to revise the weights promptly.

I agree with Mr. Enoch that the development of several indices would be most useful. It would not be fruitful to become preoccupied with the notion that just one index should be selected. It will be important to use several indices while fully recognizing the advantages and disadvantages of each one.

Mr. Ismael made the following statement:

I support the use of indicators of commodity price movements to enhance international policy coordination. Such indicators would be useful additions to those that are now being used to promote international economic cooperation and to ensure that the policies of the major industrial countries are compatible, in a medium-term framework, with sustainable noninflationary growth and the reduction of the external imbalances of the largest economies.

The staff paper focuses on the use of commodity prices as a predictor of inflation in the major industrial countries. While this approach may be important in avoiding a persistent inflationary or deflationary bias in the world economy, it may be too narrow. Given the objectives of international economic policy--namely, long-term noninflationary growth in the major industrial countries, restoration of growth in developing countries, and more sustainable external balances among the largest economies, the commodity indicators should aim at achieving three objectives. First, as the staff has suggested, they should predict inflation by providing early indications of major changes in inflationary or deflationary conditions. Second, commodity price indicators should measure relative monetary conditions in the major industrial countries, a subject that is only briefly mentioned in the staff paper. Third, the indices should provide indications of changes in relative commodity prices that may point to the need for changes in structural adjustment policies. For example, the present unusually depressed level of real prices of commodities underscores the distortions caused by agricultural policies in industrial countries, especially the production and export subsidies that reduce the efficiency of domestic and global resource allocation.

In addition to the proposed indicator of commodity prices in SDR terms, a broader approach would require indices of commodity prices to be expressed in different key currencies and in real terms. Such a broader approach would better meet the mandate for the Executive Board to develop indicators that are helpful in judging the sustainability and desirability of the evolution of key economic variables. For example, inflation rates in the major industrial countries are likely to be less sustainable when real commodity prices are unusually depressed and when a correction in relative prices is due. I have in mind the proposed extension of the coverage of the medium-term scenarios in the world economic outlook exercise to major groups of developing countries. A variety of indices of commodity prices should be an important feature of the world economic outlook exercise, since such prices are as critical to the developing countries as exchange rates are to the industrial countries.

As to the staff's general proposal for a commodity price indicator to predict inflation, I find it difficult to make a final judgment on a specific indicator without knowing fully the purposes for which it would be used. An anchor for monetary policy would need to be tested vigorously; it would have to be intuitively more credible and reasonable than a mere additional statistic. The choice of a commodity price indicator should be considered together with the question of possible anchors for the international monetary system.

Nevertheless, I will offer preliminary views on the specific issues that are raised in the staff paper. Commodity price indices are useful indicators of world inflationary pressures, but they need to be used as adjuncts to other indicators. As always, using judgment in the evaluation of the indices would be critically important, since the theoretical framework and empirical evidence of the predictive power of commodity price indices are not always unambiguous.

Both gold and petroleum should be included in any overall index, since they reflect inflationary expectations and affect monetary conditions. In addition, the weights for those commodities should be higher than those derived from their trade or consumption shares.

The ability to predict inflation in a consistent manner should be the most critical criterion in selecting a commodity price index, although a compromise may have to be reached with respect to the reasonableness of the weights. In addition, I prefer the 22-price econometrically estimated index, given its more reasonable weights and intuitive appeal. Furthermore, its predictive power is not significantly different from the eight-price index.

I have some reservations about two of the assumptions behind the staff's model, namely, that all consumers pay the "market" prices in commodity exchanges, and that they face similar "SDR prices." Market prices are not necessarily the same as the prices actually paid by consumers, given purchases through long-term contracts, based on producer prices and the use of future markets as hedging mechanisms to protect against price volatility. For example, copper fabricators in the United States pay the producers' price rather than prices quoted in commodity exchanges. Moreover, agriculture is the most highly protected and subsidized sector; therefore, consumers of some commodities in the EEC, the United States, and Japan are subject to their own domestic price mechanisms rather than to "world prices." In addition, consumers pay prices in national currencies for commodities that are usually quoted in U.S. dollars. At present, both Japanese and German consumers are paying in their national currencies much less for commodities than they did two years previously, despite the higher U.S. dollar prices. I suspect that these are the reasons underlying the varying empirical findings in the staff's and other studies.

It would be difficult to refine commodity prices for the first factor that I have mentioned, but the second factor would be reflected in price indices expressed in different currencies. Hence, there is a need for a series of commodity price indices.

The purpose of the indicator exercise is to encourage international economic cooperation in a medium-term framework in order to maximize growth and human welfare in a sustainable manner. World growth cannot be optimal if growth cannot be restored and strengthened in the developing countries. When the world economic outlook medium-term scenarios are broadened to encompass the developing countries, we should have a better idea about how to address that question.

At this stage, one issue of immediate concern is how to reduce the wide swings in relative prices of commodities and other goods and services. In retrospect, the importance of the commodity price stabilization schemes that the Fund supports through its buffer stock financing facility pales before the importance of both protection of commodity production and a more stable world economic and financial environment. It was not coincidental that commodity prices began to be more volatile after the breakdown of the Bretton Woods system, which itself was a symptom of the serious economic and financial imbalances in the major industrial countries. Of course, an objective of the indicator process is to reduce the present imbalances. To address the present unusually depressed real commodity prices, the Fund would need to stand more strongly behind policies that seek to dismantle the industrial countries' protection of agriculture and costly subsidy schemes for commodity exports.

Mr. Salehkhov made the following statement:

Given the task facing it, the staff has done a credible job of, in effect, hunting for the wild geese it was sent after. The purpose of the paper was to search for a signaling device to be used as a benchmark for inflation in the industrial countries. In presenting its findings the staff has missed a golden opportunity to question why the preoccupation with inflation must deflect the world's attention away from a much more crucial issue, namely, the need for industrial countries to stimulate growth. Even though the staff acquiesced in preparing a paper on the irrelevant objective of fighting inflation, the paper has not critically questioned why the benchmark that is ostensibly needed for policy coordination among industrial countries has to be commodity prices. The staff has not asked the simple question why, if an indicator of inflation is needed for policy coordination, consumer prices in industrial countries are not the most relevant measure. The staff paper has found that one cannot justify empirically with conviction the use of commodity prices as a stable and robust predictor of inflation in the industrial countries. If Tables 1 and 6 are any indication, one cannot comfortably and honestly argue whether commodity prices either individually or collectively lead or are led by inflation. In fact, these tables indicate that one cannot easily ignore the

strong feedback of consumer prices into commodity prices. Indeed, Chart 1 should have been sufficient to render untenable any notion that commodity prices can be used as a reasonable predictor of consumer prices.

During the review of the work program in November 1987, I expressed my doubts about the usefulness of an index of commodity prices for the stated purpose for two reasons. First, given the available data for 1975-85, it was clear that commodity prices are not a major ingredient of the cost of production in the industrial countries. For this reason, I suggested at that time that a basket of traded manufactured goods would be a far better predictor of inflation in industrial countries, and that the staff should look at such an index while working on the index of commodity prices. Unfortunately, the staff did not consider my suggestion. Had it done so, I am confident that the staff would have found that such a basket clearly and efficiently reflects costs and purchasing power in the industrial countries and would be a far better indicator of inflation in these countries than any of the commodity price indices that it has been able to construct. Such an index would undoubtedly meet the requirements and criteria that the staff itself considers to be paramount--as mentioned on page 22--for the needed index.

The second reason that I expressed doubts about the usefulness of a commodity price index as a basis for policy coordination is that such an index would not be an efficient benchmark because of the historical volatility of commodity prices. Indeed, the present paper has confirmed that all three indices constructed by the staff reveal the extreme volatility of commodity prices.

Even if the Executive Board is convinced that fighting inflation must be given priority over stimulating growth in the sagging economies of the industrial countries, and even if an early warning device is all that is needed for industrial countries to coordinate their economic policies, why not consider a basket of traded manufactured goods in the industrial countries? Such an index would help not only the industrial countries in their policy coordination efforts, but also the rest of the membership in its policy-making tasks.

Mr. Nimatallah made the following statement:

I am not certain that the topic under discussion means the same thing to everyone. In his statement at the 1987 Annual Meetings, Secretary Baker said that he had in mind "the relationship among our currencies and a basket of commodities, including gold, that could be used as an early warning signal of potential price trends as an additional indicator for coordination." Secretary Baker did not mention the words "price" or "index."

The staff, however, entitled its paper "commodity price baskets as possible indicators of future price developments." It is interesting to note that, in comparison to Secretary Baker's statement, the staff added the word "price," deleted the word "currencies," and replaced "early warning signal" with "future price developments."

The U.K. Chancellor of the Exchequer suggested that commodity prices could play a useful role in monitoring economic conditions--a difficult challenge--with a view to avoiding a persistent inflationary bias in the stance of macroeconomic policy in the industrial countries in general. Obviously, Governor Lawson thinks that commodity prices are causing that inflationary bias. In my view, that bias is caused by treasuries directly, when they pursue deficit financing, and indirectly, when they insist on attaining certain real growth and employment targets, thereby forcing their central banks to expand the money supply.

In his opening statement, Mr. Enoch spoke of a double-headed animal that is to be created for different purposes, something that is more modest than Governor Lawson spoke about. Mr. Enoch mentioned a broad-based commodity price index that may "act to some degree as a sensitive indicator of demand pressure in industrial countries." Mr. Enoch also spoke of a narrow index that does not include oil and some other commodities but does include gold and other precious metals "as an indicator of monetary conditions."

With all these confusing concepts in mind, it seems to me that we are either trying to create a mountain out of a molehill--an effort that does not need to be continued--or that there is actually something important in this area that is not easy to comprehend, but that needs to be further examined. There seem to be three issues at hand. First, on the statistical level, some feel that it might be useful to construct one or two kinds of commodity price indices--a broad index that might include oil and gold, and a narrow index that might not include oil, but might include gold. The second issue is the purpose or purposes of these indices, and particularly whether they can help the effort to coordinate policies among the G-7 countries. The third issue is whether central banks actually base their monetary policies on such indices, in addition to consumer price indices, in their efforts to stabilize prices in the G-7 countries.

The stage of constructing indices is the most difficult one on the technical level, as it is hard to select the appropriate number of commodities to include in the index and to assign appropriate relative weights to each. Moreover, the index has to be expressed in a basket of currencies, rather than merely in terms of the dollar or any other single currency. If the indices

were expressed in national currencies, the indices would mean different things to different countries. In Table 6 of the latest world economic outlook paper (EBS/88/1), the November 1987 index of all commodities shows an increase in comparison with the first quarter of 1987, but it does so in dollar terms; it does not show as large an increase in SDR terms. Of more fundamental importance, the short-term comparison is meaningless if the intention is a change in monetary policy in the opposite direction. It is better to look at medium-term developments, which, in this instance, show an actual decline in the 1987 index in SDRs compared to the index for November 1984, for example.

I will now comment on the purposes for constructing such indices. Assuming that it is possible to put together broad and narrow indices, I do not believe that a broad index, which is influenced mainly by supply and demand factors, could provide an early warning signal of demand pressures. This index is characterized by sharp fluctuations in supply and demand, and the fluctuations themselves are reactions to changes in demand, consumer price indices, and, more generally, are influenced by the stance of financial policies in the industrial countries themselves. Commodity supplies tend to react--and sometimes to overreact--to such changes in demand with lags. That fact suggests that the commodity price index is a follower--not a leader--of inflationary forces. I do not need to prove that conclusion, but the chart that I mentioned earlier, which contains both consumer and commodity prices, shows that consumer prices have tended to lead commodity prices. In fact, before 1983, commodity prices, including both petroleum and gold, remained stable for many years, unable even to follow the lead of the consumer price indices. This trend was particularly evident in the case of oil prices. It was only during the early and late 1970s that reaction to high demand and inflation in the industrial countries led to what the staff refers to as a two-way interaction. Actually, that was a period of overshooting and overreaction by some commodities, and the chart shows that it was only in that period that commodity prices, excluding gold and petroleum, were above consumer prices.

Consumer price indices constitute a leader that could give a better indicator of demand pressures than commodity prices. It follows, therefore, that any fluctuation in broad commodity price indices should not immediately lead to policy reaction in the industrial countries. Otherwise, there would be expansionary monetary policies each time that there was a decline in commodity prices and a tightening of monetary policy whenever there was an increase in the commodity price index. Inflation can be caused at different times by different factors, including cost and productivity factors in each of the G-7 countries.

As to the narrow indices and indicators of monetary conditions, at present, if gold prices are included in a basket of currencies, the basket still can give only very little technical information to central banks. The trouble with gold, silver, and other precious metals is that consumers consider themselves as being among the suppliers when they become owners of ornaments, jewelry, or bullion. Therefore, consumers not only want to maintain gold's value when the U.S. dollar depreciates, they also speculate and make gold a more desirable asset to move into as they move out of the dollar. Therefore, even if a narrow index includes gold and other precious metals expressed in a basket of currencies, this index would probably be misleading. This conclusion is particularly applicable if inappropriate policies lead to pronounced speculation and flight from currencies as assets into precious metals as a hedge.

The third issue at hand is the role of central banks in the use of these indices as an additional element in designing their monetary policy. Central banks are supposed to concentrate on maintaining price stability in their countries. To that end, they can use their powerful control over the money supply. According to Markus Lusser, Vice Chairman of the Governing Board of the Swiss National Bank, if central banks are given other objectives, such as smoothing fluctuations in economic activity, stimulating economic growth, and/or using international commodity prices as an indicator for monetary policy, the central banks would have too many objectives to handle. The means to achieving those objectives go beyond the control of the money supply and, therefore, central banks could not achieve those objectives.

If one accepts that the function of G-7 central banks is to stabilize prices and narrow inflation differentials, and if consumer price indices are actually the leaders and not commodity price indices, it makes more sense to assign the G-7 central banks the task of stabilizing prices with the help of their consumer price indices. Furthermore, if the ultimate purpose is to stabilize prices in each of the G-7 countries and to narrow and eventually eliminate inflation rate differentials, it would be more appropriate to work on a mechanism to reduce and eventually eliminate trade barriers among those countries. Free trade and capital movements can secure sufficient flexibility to bring price levels closer together. In addition, it is important to remove differentials in savings rates among the G-7 countries. To that end, considerable structural adjustment will be needed over the coming years.

I can join Mr. Enoch in ignoring, for now, the issue of how generally to use commodity price indices as indicators and the very precise purpose of their use. Assuming that appropriate indices can be constructed--a doubtful assumption--I can imagine

using them as additional information alongside the world economic outlook exercise, as we have been thus far. I agree with Mr. Enoch that "we could also enhance the discussion and analysis of recent developments in the commodity markets, and how these are influenced by policies in the industrial countries." It is in this area that commodity price indices can be helpful. The Fund in particular can use commodity price indices to detect fluctuations in export incomes of commodity exporters, help those countries when their incomes decline temporarily, and provide additional help if there is a clear declining trend, so that the countries can adjust to lower income levels. The Fund could benefit from the help of these exporters when they experience higher income levels.

Mr. Vasudevan made the following statement:

Before addressing the questions raised by the staff, I wish to make a few general observations.

First, it is important to include in multilateral surveillance an indicator of inflation, which is often a significant yardstick by which policy choices are made. Second, the staff paper explores how effectively commodity prices could be used as a predictor of general inflation only in the large industrial countries. The purpose of the exercise is not to seek stability in commodity prices--an objective that is commendable in itself in view of its relevance to the external payments positions of many developing countries--but to use commodity prices as an indicator of the need for policy actions that would help to alleviate the general inflationary pressures in the major industrial countries. It is conceivable that such policy actions, when undertaken in a coordinated manner, would eventually affect commodity prices, which would have implications for the external adjustment of many countries that rely on one or a few commodities for their export receipts. Therefore, the participants in policy coordination efforts should take into account their effect on not only the industrial world, but also the developing countries.

I will now comment on the specific issues for discussion raised by the staff. The usefulness of commodity price indices as an indicator of global inflationary pressures should be examined after we are certain that the conventional measures of inflation cannot be used in the indicators' exercise. After all, the world economic outlook paper provides data on consumer prices and GNP deflators for major industrial countries as well as for the group of industrial countries. Why these measures cannot be used as an indicator is not discussed in the staff paper. The staff should look into this matter.

The staff has shown that it is possible to construct commodity price indices that bear a close relationship to the pattern of general movements in the large industrial countries. The theoretical framework explaining this relationship is helpful and impressive. More important, empirical testing has shown that the indices have a good predictive value, as the correlations are high. While this information would suggest that commodity prices could be a useful indicator of general inflationary pressures, the staff should examine the stability of the estimates in its paper both for the sample period and for periods outside the sample.

The predictive value of a commodity price index that includes both gold and petroleum would be higher than an index that excludes them; therefore, a broader index could be more useful for the indicators' exercise. However, the prices of both gold and oil could be influenced by supply conditions or shocks, these commodities are produced in only a small number of countries. It would be necessary to isolate the supply shocks and to ensure that changes in the commodity price index essentially reflect changes in demand. For this purpose, additional information may have to be sought on the supply conditions of the commodities whenever it is felt that commodity price changes are being unduly influenced by supply bottlenecks.

The selection of an index should be based mainly on the criterion whether the index is the best predictor of future movements in consumer prices. Econometrically estimated indices show a pronounced inflation trend during periods in which the consumer price index was also rising rapidly, as in 1983-84; these estimated indices tended to overshoot in 1984-86, when the consumer price index was flattening out while commodity prices were falling rapidly. The estimated indices have led the major swings in the consumer price index by several months, but they also show considerable volatility. It is clear that more work needs to be done to ensure that the estimates pass the stability tests. In any event, a change in a policy regime could make it difficult to interpret the results of the exercise.

On the basis of the information provided in the staff paper, it seems that at present there is little to choose between the indices using different types of weights. The staff has argued that the econometrically estimated 40-price index mimics the broad movements of the consumer price index better than other econometrically estimated indices. However, Table 5, which compares several inflation indicators, shows that for 1979-87, the correlation values of the world export-weighted index, which is akin to the Fund's commodity price index, and of the industrial country import-weighted index, without gold or oil, are as high as those of the econometrically estimated 40-price index. In addition, the predictability value of indices constructed

with world export weights, without gold or oil, or with both gold and oil together, seems to be high, as can be seen in column 1 of Table 6. If gold alone is included in the world export-weighted commodity index, commodity prices cannot be regarded as leading consumer prices, even though the feedback effects could be strong. With the exception of this result, all other indices performed well when measured by evidence of causation running in both directions. Tables 5 and 6 show that there would be no special disadvantage in looking at the Fund's existing commodity index, even though it would not include gold or oil, while having, if necessary, additional information on these two commodities separately.

The staff paper indicates the need to exercise judgment in choosing an indicator, at least at the present stage of research. I agree with the staff and urge the staff to undertake further work to improve the results in this area.

Mrs. Ploix made the following statement:

This discussion is a welcome opportunity to consider the possible use of certain indicators. For many years, this chair has emphasized the helpful role of indicators in Fund surveillance. During the previous discussion on the world economic outlook, many Executive Directors welcomed the progress that was made in extending the use of indicators.

At the same time, after reading the staff paper, it is clear that we should proceed cautiously. The staff paper is a substantial first step in helping us to understand the impact of commodity prices on inflation. However, it has underscored the complexity in developing such an indicator and has brought to our attention three significant areas of inquiry. First, between 1975 and 1987, the paths of commodity prices and consumer prices do not appear to have always followed the same trend; a systematic parallelism in the two is essential. Second, the possible indices proposed by the staff do not seem to have a sufficient predictive ability. Third, the basis for assigning weights to gold and petroleum in a commodity price basket requires additional explanation.

Although I suspect intuitively that changes in commodity prices can predict changes in consumer prices, because commodity prices are usually more sensitive to fluctuations in supply and demand conditions, and because they enter the production process at an early stage, Table 1 of the staff paper is not very convincing in this respect. Furthermore, several periods--1977, 1980, and 1982--disprove this theory. Moreover, the staff paper clearly shows that commodity prices and consumer price indices generally do not share common trends over long periods; in the

absence of a constant relationship between the two, it is difficult to interpret the inflationary consequences of sizable changes in commodity prices. Shifts in commodity prices can result from specific conditions that do not necessarily affect inflation.

The staff notes only two brief periods in which movements in commodity prices seem to have anticipated similar movement in consumer prices, namely, from the end of 1978 to late 1979, and in 1984. However, even the experience of these two periods is not convincing: during the first period, the sharp increase in commodity prices clearly anticipated a particular acceleration of inflation because the consumer prices seemed to be rising constantly over the whole period; and the sharp fall in commodity prices anticipated only a stabilization in consumer prices. Moreover, in 1985-87, commodity prices dropped 50 percent in real terms; as a result, a new upward trend in commodity prices would not necessarily be inflationary.

The predictive ability of the indices proposed by the staff is mixed. Although there is a close correlation between the trend of commodity price indices and the trend of overall price levels over the past 30 years, which is reinforced by the staff's method of using one-year moving averages of monthly data, there are sharp fluctuations in the trend. Commodity prices are known to fluctuate sharply and often, and it is difficult to base a short-term prediction on a trend. I recognize that the correlation between the price indices and the inflation rate is acceptable, but these statistics were compiled over a specific period in the past; in recent years, the correlation has not been particularly close. The indices constructed econometrically by the staff do not seem to have a better predictive ability than the other indices, and they have the same reference period weaknesses. In the circumstances, any further extrapolation from this data would yield uncertain results at best. Moreover, it is not clear that the most recent period is an appropriate base, and, as is shown in Table 6, consumer prices have been known to lead commodity prices.

Further explanation of the basis for assigning weights to gold and petroleum in the basket is required. Gold can be usefully included, as it is regarded as a good hedge against inflation. However, including gold in the calculation of indices does not seem to significantly improve the indices' predictive ability. Furthermore, in order to enable gold to have a significant impact on the index, it must be given a substantial weight; such a weight is difficult to justify from an economic viewpoint. Petroleum has a definite effect on inflation, but we must be careful in extrapolating from the correlation shown in the staff paper. In fact, the price of petroleum products is affected by factors that are not necessarily economic in nature; the price

is not fully determined by market forces. Consequently, fluctuations in the price of petroleum products are not likely to be reliable in anticipating general price movements. The staff paper could have usefully provided additional specific information on both the formation and influence of gold and petroleum prices.

The staff paper is an interesting first step. Including commodity prices in surveillance in addition to the other indicators would be useful. At this stage, it is too early to tell which index should be chosen. We need to deepen our understanding of the relationship between commodity and consumer prices. I do not rule out the possibility of including gold and petroleum in calculating indicators, but an index with these two commodities should be used only as a complement to an index that includes more stable commodities. As Mr. Enoch noted in his opening statement, it is necessary to investigate the plausibility of the estimated weights in the past. In addition to the questions that have been raised during this discussion, it is important to reflect further on the use of all the indicators in order to improve the coordination of economic policies. It is possible that the use of indicators could lead to an increase in a member country's external deficit on a value basis. Therefore, I am worried that the markets would continue to overshoot by bringing about a further depreciation as a part of a vicious circle that would be difficult to keep under control and that could spread to all markets. In that event, the only possible response would be an overall increase in interest rates, which would have damaging consequences for growth in the United States and abroad. Such an increase would significantly affect stock markets and would have substantial effects on consumer and business spending, thereby increasing the risk of a recession. These possibilities underscore the need to reinforce cooperation. Recent market developments probably stem from the impression that cooperation has decreased.

Mr. Zecchini made the following statement:

During the 1987 Annual Meetings, the Governors for the United States and the United Kingdom proposed that an indicator be added to the list of variables used in the policy coordination exercise for the major industrial countries in order to signal the presence of an inflationary bias in the stance of economic policies. The additional indicator should refer to developments and trends in world commodity prices, including gold. It is important to recall in this context that the frame of reference remains the need to judge the sustainability and desirability of the evolution of few key economic variables. Therefore, the issue to be explored here has to be spelled out in the following general terms: to what extent can the reference to the evolution

of world commodity prices provide a meaningful indication on the sustainability or desirability of the evolution of domestic prices in major industrial economies? Answering this question necessarily implies not only an analysis of the statistical significance of a commodity indicator in our exercise, but also a comparative assessment of the ability of this indicator to meet our objectives, compared with other, more widely used indicators. Furthermore, this issue raises another question as a corollary--whether and to what extent a movement in the commodity price indicator should trigger a policy response on the part of policymakers.

Having stated what, in my opinion, should be the subject and scope of the Fund's work in this area, I will comment on the paper under consideration today. This paper deals in substance with a statistical issue that is marginal with respect to the main subject I mentioned before. In fact, the paper's analysis has a very narrow focus, namely, the predictive ability of a commodity price index with respect to inflation.

This analysis constitutes the bulk of this paper and also the stated intentions of its authors. However, the second chapter of the staff paper seems in contradiction with the stated intentions, as it expands the discussion from the commodity index aspects to the commodity indicator issues. The result is a cursory examination of the complex issue of the validity of commodity prices as leading indicators of inflation in industrial countries, with the additional reference to policy implications and responses in terms of the orientation of exchange rate and monetary policies, as in the first half of page 5. I do not believe that this part of the staff analysis is adequate for a discussion of the issues addressed, and I wish to draw attention to the risks of reaching on that basis hasty and unwarranted conclusions about the usefulness of commodity indicators.

Inflation in industrial countries is a complex phenomenon in which exogenous and endogenous factors with respect to the country considered interact and eventually have a different relative impact on domestic inflation, depending also on the time period under consideration and the policy reactions of the authorities. The validity of commodity prices as leading indicators of inflation has to be compared with and tested against other leading indicators derived from the domestic economy and policies. This part of the analysis has still to be developed by the staff.

My preliminary impression is that a commodity price indicator has some value and significance in this context, but only to a very limited extent. Other indicators of monetary, fiscal, and structural variables are more meaningful than commodity

prices as leading indicators of inflation. Furthermore, the statistical evidence provided by the staff is rather tentative, if not inconclusive, in providing the existence of statistical regularities in the relationship between changes in commodity prices and subsequent changes in domestic prices. Overall, it has to be acknowledged that commodity indices offer some advantages but also involve several disadvantages. Therefore, the best approach to the use of the commodity indicator is to see what additional contribution it can make to our exercise and whether this contribution cannot be captured by other indicators already included in our scheme.

Some have argued that one of the advantages of using the commodity price indicator of global inflation is that it does not involve the drawbacks of aggregating heterogeneous national indicators. This aspect is of very minor relevance, since the assessment of an inflationary bias in the world economy has to be based mainly on an analysis of the specific inflationary bias in each of the major economies that exert the largest influence on the rest of the world economy.

Other positive features of the commodity index are more important. Commodities remain a key factor in production and consumption in the industrial world and a very large component of world trade. Changes in commodity prices affect the global economy and are likely to be transmitted rapidly across countries. Moreover, most commodities are uniformly priced in world markets, although these prices often reflect the extent of national subsidies and taxes which affect both demand and supply on a worldwide scale.

Commodity price behavior is one of the factors which influence the future development of inflation. Some, but not all, commodities are traded under fairly competitive conditions, and the prices of these commodities rapidly adjust to changes in inflationary expectations. There is some limited statistical evidence that supports the contention that movements in commodity prices tend to precede changes in inflation in limited periods. However, Tables 1 and 6 present even stronger evidence of the reverse relationship, namely, that consumer prices have a larger influence on commodity prices.

Other features of commodity indices cast several doubts on the usefulness of these indices in signaling inflationary biases. First, changes in commodity prices can be market specific and may not reflect global economic conditions. This can be particularly relevant in the case of perishable goods, which are strongly affected by supply conditions, or of commodity markets characterized by oligopolistic price setting. Consequently, if the majority is in favor of commodity indices, it would be advisable

to resort to broad-based indices to smooth the effects of market-specific shocks. Second, the shifting patterns of commodity inputs in production and consumption, as well as the increasing role of services and high-technology manufacturing, with little commodity input, in the industrial economies may make the commodity index less and less meaningful over time. Finally, commodity price changes may originate from monetary shocks or real shocks and, depending on the nature of the shock, the impact on inflation can be different. As a result of all of the above arguments, the cognitive and normative values to be assigned to commodity indices crucially depend on a judgment which involves other, more important indicators.

I will now turn to some specific questions raised by the staff in the conclusions section of the paper.

As to the inclusion of oil, this should be done on the basis of a weight that fully reflects its importance in intermediate and final consumption. Changes in oil prices strongly affect the system of relative prices and the overall inflation rate via the reactions of markets and policymakers to these changes. The resulting impact on world GNP growth, in terms of both the income and substitution effects, may be considerable. Furthermore, given the very different impact of oil price changes across the economies of the major industrial countries, the sustainability and desirability of the policies of each country can be better assessed if they are viewed against the backdrop of energy price developments.

As for gold, the arguments for introducing it in the basket are not convincing. The argument that gold may provide a hedge against inflation does not seem a decisive one. The staff paper contains a very brief reference to this point, on page 17, and the language utilized seems to imply that no strong case can be made on the use of gold as an inflation hedge. Moreover, the statistical evidence presented in Table 1 seems to indicate that gold prices tend to lag, rather than lead, consumer prices.

Turning to the criteria to be utilized for constructing the commodity index, sound economic rationale, supported by evidence of good explanatory power, should be the criterion. In the staff's words, predictive capacity should not come at the expense of reasonableness. In this respect, an index based on consumption and trade patterns seems reasonable. In contrast, I am rather skeptical about the usefulness and appropriateness of constructing an index on the basis of econometrically estimated weights. First, on empirical grounds, the evidence presented in Tables 1 and 5 fails to indicate any systematic superiority of these indices with respect to consumption or trade-weighted indices. Second, evidence of the empirical correlation in the past between these indices and inflation is no guaranty of future correlation.

In conclusion, with regard to the selection of the indices to be emphasized in the indicator exercise, I think that, if there is a sufficient consensus that this commodity index is worth pursuing further, then more work needs to be done before a commodity index is raised to the status of an "indicator" in our policy coordination exercise. A comparative analysis of alternative leading indicators of inflation is particularly necessary before we can attach to commodity prices the value of a warning signal about future inflation or a trigger for policy response.

The Executive Directors agreed to continue their discussion on January 15, 1988.

DECISIONS TAKEN SINCE PREVIOUS BOARD MEETING

The following decisions were adopted by the Executive Board without meeting in the period between EBM/88/3 (1/6/88) and EBM/88/4 (1/11/88).

2. BURKINA FASO - 1987 ARTICLE IV CONSULTATION - POSTPONEMENT

Notwithstanding the period of three months specified in Procedure II of the document entitled "Surveillance over Exchange Rate Policies" attached to Decision No. 5392-(77/63), adopted April 29, 1977, as amended, the Executive Board agrees to extend the period for completing the 1987 Article IV consultation with Burkina Faso to not later than January 15, 1988. (EBD/88/6, 1/7/88)

Decision No. 8772-(88/4), adopted
January 11, 1988

3. ALGERIA - TECHNICAL ASSISTANCE

In response to a request from the Central Bank of Algeria for technical assistance in strengthening the role of the central bank, the Executive Board approves the proposal set forth in EBD/88/2 (1/5/88).

Adopted January 8, 1988

4. ACCESS TO FUND ARCHIVES

The Executive Board approves the proposal to allow access to the Fund's archives by Mr. A. G. Chandavarkar in connection with a research project which he has undertaken, as set forth in EBD/88/1 (1/4/88).

Adopted January 7, 1988

5. ASSISTANT TO EXECUTIVE DIRECTOR

The Executive Board approves the appointment of an Assistant to Executive Director as set forth in EBAP/88/1 (1/4/88).

Adopted January 6, 1988

6. ASSISTANT TO EXECUTIVE DIRECTOR

The Executive Board approves the appointment of an Assistant to Executive Director as set forth in EBAP/88/2 (1/6/88).

Adopted January 8, 1988

7. EXECUTIVE BOARD TRAVEL

Travel by Executive Directors as set forth in EBAP/88/3 (1/6/88) and EBAP/88/4 (1/7/88) and by an Advisor to Executive Director as set forth in EBAP/88/4 (1/7/88) is approved.

APPROVED: September 6, 1988

LEO VAN HOUTVEN
Secretary

