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CONFIDENTIAL

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28 April 1983

M Scholar Esq
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Dear Michael,

REPORT OF THE INTERNATIONAL WORKING GROUP ON EXCHANGE MARKET INTERVENTION

It now seems fairly certain that Summit country Finance Ministers will agree to release this report - the report of the "Jurgensen Group" - immediately after their meeting tomorrow, that is at around 4.00 p.m. Washington time.

The Chancellor is hoping that Finance Ministers will be able to release at the same time a statement setting out points of agreement arising from discussions of the report by them and their Deputies: in particular, the relatively limited role for exchange market intervention in present circumstances; and the greater importance, for exchange rate stability, of countries pursuing convergent mixes of policies and performance to support sustainable non-inflationary growth.

Some aspects of presentation will depend on precisely what any accompanying statement says, for example on detailed matters such as cooperation between central banks in day to day exchange market operations. But you may like to have available the enclosed advance briefing which has been prepared in the Treasury, together with a copy of the report in the form in which it will be released.

Yours sincerely,

Margaret O'Mara

MISS M O'MARA
Private Secretary

Press Office
& return to MES

Prime Minister 2

To note.

MES 29/4

REPORT OF THE WORKING GROUP ON EXCHANGE MARKET INTERVENTION (JURGENSEN GROUP)

Points to Make

1. The Report's principal finding is that intervention can help moderate exchange rate movements, notably in the short term, but generally has no lasting effect unless combined with appropriate changes in domestic monetary and fiscal policies. It can be a useful complement to other policies. Conversely, if the underlying policies are wrongly aligned, intervention would be ineffective. Intervention alone thus provides no short cut to exchange rate stability.

2. Intervention by itself can however have a useful role in reducing short term volatility and reassuring the markets.

3. The report suggests that internationally coordinated intervention can give a useful signal to the market and be calming - so long as underlying economic policies are consistent and suitable. We would accept that conclusion, subject to the very important proviso [and hope that as underlying economic policies converge the arrangements that exist for day to day cooperation between central banks on exchange market operations can be developed further].*

4. The Study helps to highlight the international consequences of major countries' economic policies. These consequences need to be borne in mind when Governments consider their policies. It is an important element in promoting greater policy convergence.

5. Exchange rate movements can at times cast light on domestic monetary developments. For this reason we take them into account when judging monetary conditions. Greater policy convergence means that all countries should take account of exchange market developments when considering their economic policies.

6. [These are also the important points made in the statement by G7 Finance Ministers of 29 April.]* The next steps will be taken at the Williamsburg Summit. We hope that useful progress will be made there on the crucial questions of better convergence of economic policies and performance, and improved surveillance procedures.

* Depending on form of Finance Ministers' statement.

Q and As

Q1 What does the Report say?

A1 The study examined past experience, and contains no recommendations. The general message, perhaps, is that extremes of attitude to intervention are best avoided; and that different circumstances can respond best to different approaches. The study found that intervention can have a short-term effect in moderating exchange rate movements; "sterilised" intervention did not generally have a lasting impact, but where intervention reinforced domestic monetary and fiscal measures there could be a more lasting effect; and coordinated intervention between countries could at times be effective by giving a signal of official determination to the markets.

Q2 What does the Report not say?

A2 The Report covers only the narrow topic of intervention. It aims at giving a better understanding of the methods, motives and effects of past intervention. Therefore it did not make any policy recommendations. It does not herald an early return to fixed exchange rates. Although it noted the importance of broader economic policies in determining the exchange rate it did not consider the wider issues of greater policy convergence or IMF surveillance. These questions will be considered further at Williamsburg and in the IMF.

Q3 What is "sterilised" intervention?

A3 Intervention results in an increase or decrease in domestic money market liquidity according to whether the central bank is selling or buying its own currency. Unless offset, this impact on the money market could lead to changes in interest rates. Where the central bank takes offsetting action in the money market the intervention is said to be "sterilised". Strictly speaking this means that the central bank has fully offset the impact of intervention on the monetary base (Mo). (Intervention by the Bank of England is usually "sterilised" in this rather technical sense). Nevertheless intervention could have an impact on the wider monetary aggregates as it could lead

to changes in residents' holdings of domestic currency and foreign exchange. So it would be wrong to attach too much significance to the distinction between "sterilised" and "unsterilised" intervention. The key point is not so much whether or not intervention is "sterilised" in the rather technical sense of its impact on the monetary base; but whether or not it is accompanied by changes in interest rates or other aspects of domestic monetary policy.

Q4 But "unsterilised" intervention is more effective?

A4 Clearly intervention has a greater impact where it is combined with interest rate changes and domestic monetary measures. But where domestic monetary conditions are sound it would be damaging to permit the monetary impact of intervention to distort them. The essential point the Report is making is that in the absence of interest rate changes and other domestic monetary measures intervention can be useful in removing short-term disturbances in the foreign exchange market, but no more.

Q5 What policy changes will be made as a result of the report?

A5 The report does not pretend to provide a code of practice or firm recommendations for the future. But we think it contains a body of knowledge and pooled experience that all countries will find useful in future in framing their own policies. [Questions about possible changes in other countries' - eg US - intervention policy are for them.]

Q6 Verdict on UK policy?

A6 The Report's findings confirm the approach taken by HMG. We have always felt that intervention could be useful at times to help steady and calm disturbed market conditions. But we have always considered that the consistent pursuit of sound, counter-inflationary monetary and fiscal policies is the only long-term solution to the problem of exchange rate instability, and that trying to solve the problem through intervention alone would be misguided and ineffective.

Q7 Background studies to be published? [Defensive use only]

A7 Background papers may be published by the individual countries which prepared them. But it will take several months to put the studies in a suitable form for publication and to arrange clearance from the other countries in the Group.

Q8 Profitability study to be published? [Defensive use only]

A8 This was the principal UK contribution to the background studies, and it is intended to publish the study in due course [possibly as a Bank of England Quarterly Bulletin article]. The principal conclusions of the study are recorded in the Report (section III D). They found that in practice there was no necessary connection between profitability and exchange rate stability; profitability bears little relation to exchange rate objecties and so would not be a suitable measure for public accountability; profitability would not offer much ex ante guidance for intervention operations; there are practical problems of valuation and chosing an appropriate time-period for calculating profitability.

Q9 Report finds that UK intervention has been ineffective? [For defensive use only]

[Paragraph 41(i) reports econometric analyses of intervention and reaches contradictory conclusions regarding the UK. After noting findings that intervention was likely to have had a direct impact on the exchange rate it refers to "additional though less conclusive, results" which suggested that the impact of intervention had not been significant in the case of the pound.]

A9 No firm conclusions about the effectiveness of UK intervention can be deduced from the econometric studies in the Report. There are considerable technical problems in making an econometric analysis of intervention. The analyses can not show conclusively that UK intervention was effective, but did find that the market operates in such a way that intervention in sterling could in principle be effective. Based on their knowledge of day-to-day market behaviour the Treasury and Bank remain confident that past intervention has on the whole been effective in calming the markets and moderating exchange rate movements.

REPORT OF THE WORKING GROUP ON EXCHANGE MARKET INTERVENTION

Chairman: Philippe Jurgensen

January 1983

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INTRODUCTION

1. Nearly a decade has passed since the transition to widespread floating of exchange rates. Experience has shown that this did not remove external constraints on domestic policy as some of its proponents had thought it would. Attention has continued to be focused on exchange rates, and concerns about the rigidity experienced under the fixed rate system have given way to concerns about volatility under a floating régime. Major countries have intervened frequently and heavily in the exchange markets, and at certain times have accorded exchange rate considerations a high priority in the conduct of domestic economic policies.

2. Views have nonetheless differed as to the appropriate rôle of exchange rates and as to the part to be played by exchange market intervention in a world of floating rates. This latter issue prompted the Summit countries at their meeting in Versailles on 4th-6th June 1982 to initiate a thorough analysis of the participating countries' experience with exchange market intervention.

3. There is broad agreement that exchange rates play an important rôle in the international adjustment process. However, exchange rate changes can only have lasting effects if the causes underlying divergent trends are corrected. In a floating régime, market forces, reacting to divergent national policies, could have been expected to induce exchange rate movements which would prevent the persistence of large price and cost disparities. However, in the judgement of some countries, exchange rates have deviated at times strongly in the short and medium-term from the rates that appeared to be warranted by fundamental determinants such as price or current-account developments. In addition, it is widely felt that excessive short and medium-term exchange rate variability has adverse consequences for domestic economic developments and the working of the international adjustment process.

4. Two broad lessons have been drawn from experience as regards the management of floating exchange rates. First, exchange rates should be allowed to reflect changes in underlying fundamental determinants and, second, disorderly exchange market conditions should be countered. However, these two concepts have proved difficult to translate into operationally meaningful guidelines and countries have experimented with different approaches to exchange rate management.

5. Apart from intervention to counter disorderly market conditions, and given the freedom of choice laid down in Article IV of the IMF Articles of Agreement, the Summit countries have opted essentially for two types of exchange rate arrangement. The countries participating in the EMS exchange rate mechanism observe fixed margins in their bilateral exchange rate relationships. Motivated primarily by the long-term objective of establishing European Monetary Union, the maintenance of fixed exchange rates among these countries is also an attempt to reduce exchange rate instability between countries with close trading relationships. The non-EMS countries have refrained, since the beginning of generalised floating, from maintaining margins in respect of exchange transactions, leaving the exchange rate to be determined essentially by the balance of market forces. However, these countries have - albeit without adopting formal exchange rate arrangements - attempted to influence exchange rate movements or have taken such movements into account in policy decisions, although the degree to which exchange rates have been given priority has varied greatly, not only from country to country, but also within individual countries over time.

6. The specific response to growing exchange market tension has differed with the circumstances. In many cases efforts to influence the exchange rate were confined initially to intervention. If exchange rate pressures mounted, intervention would usually be stepped up and, if necessary, supported by an adjustment of economic policies. In addition to these traditional policy responses, countries have resorted to capital controls and foreign borrowing by the public sector.

7. In reality there is not always a clear distinction between short-term policy action aimed at influencing the exchange rate and a shift in the overall policy stance which, through its impact on fundamental determinants, also alters the exchange rate's long-term equilibrium path. Moreover, intervention operations may have a monetary impact, which makes it difficult to assess separately the effects of intervention per se on exchange rates as well as on other aspects of economic policy and performance.

8. This report is intended to bring about greater understanding of the motives, methods and effects of exchange market intervention. It draws on individual countries' experience with exchange market intervention as well as on empirical studies prepared for the Working Group.

I. DEFINITION OF INTERVENTION

9. Intervention can be defined in narrow or in broad terms. The Group decided that in the light of the available data the approach most relevant to its mandate was to use the concept of intervention that has been developed in practice in the concertation arrangements set up by central banks, and to complement it by some additional elements.

A. Conventional definition

10. The narrowest operational definition embraces any sale or purchase of foreign exchange against domestic currency which monetary authorities undertake in the exchange market. Such transactions are commonly intended to influence the exchange rate of the domestic currency, although at times the motivation for the transaction may be to build up or replenish foreign exchange reserves.

11. This definition is utilised for the purpose of the daily concertation procedure established between central banks. It includes all central-bank purchases and sales of foreign exchange against domestic currency, whatever form of financing is effectively used (reserves, swaps, EMS financing, official borrowing, etc.). Forward transactions are reported separately when arranged in order to capture their market effect when it occurs. Under the concertation procedure, central banks also report on a case-by-case basis other types of transactions which are thought to have effects equivalent to narrowly defined intervention.

B. Items that may be included in broader definitions

a) Customer transactions and IMF drawings:

12. These two types of transaction which take place outside the market are often called "passive" intervention.

13. Customer transactions are foreign exchange purchases and sales concluded by the central bank directly with specific entities, generally

belonging to the public sector, which would otherwise have undertaken the transaction in the exchange market. Such transactions are sometimes undertaken outside the market in order to avoid influencing the exchange rate. Customers of central banks can include a wide array of entities. One important example of customer transactions is those with the central bank's own government, where the latter has receipts, or makes payments, in foreign currency. Another example is transactions involving a central bank and foreign governments which have to make payments, or have received income, in the former's currency.

14. When an IMF drawing involves one of the "freely usable" currencies (the five currencies composing the SDR), the central bank of issue is not obliged to offer a conversion facility for its own currency. If that central bank nevertheless chooses to do so, to the extent that the conversion is "off-market" it may be considered to be "passive" intervention.

b) Interest payments on international reserves:

15. Foreign exchange reserves earn interest payments in foreign currency which normally are not converted into domestic currency but are simply added to the reserves. Although this is not intended to influence the exchange market, it is regarded by some as another form of "passive" intervention.

16. If the items mentioned under (a) and (b) are added to the narrowest definition, intervention is equivalent to the change in the monetary authorities' net foreign currency assets (excluding valuation adjustment and SDR allocations).

c) Directed borrowing:

17. An even broader definition of intervention would include all the exchange market transactions carried out by other entities (banks, public or private corporations) which may be considered to be directed by the government or the central bank. This is the case when borrowing that would

not otherwise have been undertaken in foreign currency takes place and the proceeds are converted in the market. However, this criterion may raise very difficult questions of intent when one tries to determine which foreign currency borrowings should count as intervention.

C. Sterilised and unsterilised intervention

18. In order to isolate the direct effects of intervention operations on the exchange market from those of monetary policy operations, the Working Group considered the distinction between sterilised and unsterilised intervention. Sterilised intervention (on the basis of a broader definition) means a change in the monetary authorities' net foreign currency assets which is offset by a corresponding change in their net domestic currency assets, so that their monetary liabilities (or, specifically, the monetary base) remain unchanged. If, on the other hand, the change in the authorities' net foreign currency assets is accompanied by a corresponding change in their monetary liabilities (so that, for instance, a reduction in foreign currency reserves would result in a reduction in the monetary base), the intervention is said to be unsterilised.

19. The Group found this distinction useful in focusing its discussion on the extent to which the effects of intervention operations on exchange rates depend on the monetary impact of such operations. The distinction was difficult to apply consistently in practice, however, because techniques of monetary control and policy vary between countries and because sterilised intervention may affect monetary aggregates other than the base. Countries that operate monetary targets do not usually have targets specifically for the monetary base; therefore authorities in those countries may need to take monetary policy actions if they wish to ensure that targeted aggregates are unaffected by their sterilised intervention operations.

20. Intervention is only one of several factors that influence the monetary authorities' monetary liabilities (the monetary base). As long as monetary targets are being met (whether or not these relate to the monetary

base), the monetary effects of intervention can be considered in some sense as having been neutralised. When monetary objectives are not met, it is a matter of judgement, in each case, whether it is intervention or other factors (or both) that must be considered to have contributed to the outcome.

II. OBJECTIVES OF INTERVENTION

21. During the floating exchange rate period, all the Summit countries have (to varying degrees) used exchange market intervention as a tool of exchange rate policy. This section presents a summary of the objectives of intervention and their evolution within the context of each country's exchange rate policies over the period 1973-81.

A. Summary of objectives

22. The types of intervention objectives pursued by the Summit countries at various times during the floating exchange rate period are listed in Table 1. All seven countries have had one objective in common: that of countering disorderly exchange market conditions as part of their commitment to promoting a stable system of exchange rates, in accordance with their obligations under Article IV of the Articles of Agreement of the International Monetary Fund as amended in 1978. But there is no unique definition of what conditions in the market are indicative of disorder. Furthermore, the intensity of the intervention operations carried out for this purpose has also differed. Some participants have intervened routinely with a view to avoiding the emergence of disorderly conditions altogether; others have preferred to wait until there is a clear indication that disorder warranting intervention has already arisen. These differences have, in large part, stemmed from differing views as to how well exchange markets function when left to themselves, and the extent to which governments can improve the operations of markets and also from differences between exchange and financial markets in various countries.

23. While it has never been possible to devise a common, comprehensive operational definition of "disorderly markets", authorities in each country have intervened at times when they perceived unusual and undesirable patterns of behaviour in exchange markets. Such patterns of behaviour have included a substantial widening of bid-asked spreads, large intra-day exchange rate movements, perceptions that trading has become "thin" or highly uncertain, and, at times, judgements that market psychology was beginning to generate self-sustaining exchange rate

Table 1

Summary of objectives of intervention pursued at various times by Summit countries over the floating exchange rate period

Description of objective:[1]
LIMITED OBJECTIVES RELATED TO SHORT-TERM MARKET CONDITIONS:
1. "Countering disorder"
a. Defined in terms of narrow technical considerations (e.g. size of bid-asked spreads, size of intra-day rate movements, "thin" and nervous trading ....)
b. "Countering disorder" precipitated by essentially non-economic shocks.
c. "Countering disorder" of a short-term type - market psychology and "bandwagons".[2] Resisting exchange rate movements that might gain a momentum of their own.
2. Sending a signal of determination to the market, or testing the market.
3. Attempts to hold a rate level for very short periods (e.g. protect a psychological benchmark).
ATTEMPTS TO INFLUENCE EXCHANGE RATE LEVELS OVER INTERMEDIATE PERIODS:
4. Resisting large short-term movements or "erratic fluctuations" or smoothing day-to-day movements above a certain absolute size.
5. Buying time for reassessment of economic policy.
6. "Leaning against the wind" (this strategy has been pursued by some countries over short periods and by others over longer periods).

ATTEMPTS TO INFLUENCE EXCHANGE RATE LEVELS OVER LONG PERIODS:

7. Resisting rate movements "which bear no relation to the fundamentals".

a. Resisting apparent overshooting.

b. Bridging operation to enable markets to realise that the fundamentals have already changed.

8. Attempts to give some leeway to monetary policy by lessening the impact on domestic monetary conditions of monetary conditions abroad.

9. Resisting depreciation out of concern over its inflation consequences or resisting appreciation in order to maintain competitiveness.

10. Attempts to defend rate-level floors or ceilings over extended periods.

11. EMS marginal and intra-marginal intervention, to keep rates within parity bands.

OTHER OBJECTIVES:

12. Attempts to acquire foreign currencies without re-igniting downward pressures on own currency.

13. Dampening seasonality or offsetting very large transactions.

14. Preserving the value of international holdings of assets denominated in the domestic currency in order to avoid the potential destabilising impacts of widespread shifts in asset holdings by market participants.

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1 All objectives are not mutually exclusive. Some shade into one another and several may have been pursued at any one time. 2 Bandwagons could be defined loosely as sustained uni-directional movements which seem to feed on themselves, and are (or become) detached from actual economic conditions.

movements. All countries have intervened occasionally in order to offset the immediate destabilising impact of sudden events of an essentially non-economic nature.

24. The authorities in all seven countries have frequently followed a strategy of "leaning against the wind" in their intervention operations. In practice, different tactics have been used to that end, such as resisting short-term exchange rate movements which exceeded a certain threshold size, or a strategy of discouraging the emergence of cumulative self-generating exchange rate movements and bandwagon effects. The frequency of this approach ranges from mere occasional use by the authorities as part of an overall strategy for countering specific market situations to regular use. The concept of "disorder" in some instances has been broadened to embrace the notions of "volatility" and "instability". While these are operationally difficult to measure (see further discussion in Section III.D, paragraph 73) authorities have often acted on the presumption that exchange rate movements (whose cause is typically not immediately known) should be partially resisted until it could be determined better whether they represented a longer-run shift or a temporary and possibly self-reversing change.

25. Authorities in all seven countries have also intervened at times in order to resist exchange rate movements which they believed were unjustified in the light of the fundamentals. Intervention of this type has been undertaken both to resist or reverse such movements and in bridging operations to "buy time" either for market participants to recognise that their assessments were "faulty" or for the authorities themselves to reassess their policies and implement any change that was considered to be necessary. Intervention has also been used under such circumstances in order to send a signal of the authorities' determination to the market, or to test the strength of a market attitude or trend. In the case of all these types of intervention, there was a clear relationship to the overall course of economic policy.

26. The authorities of the EMS countries have had more ambitious formal exchange rate objectives since they have committed themselves at one

time or another to maintaining exchange rate parities within a specified range under European Community arrangements (first the "snake" and subsequently the EMS).

27. Most countries have been influenced at times by a desire to avoid exchange rate levels which might unduly affect their international price competitiveness. More recently, they have given increased weight to avoiding the inflationary effects of depreciation. Other objectives have been apparent after sustained episodes in which authorities intervened to defend their currencies against downward pressure. In some cases, authorities intervened for brief periods in order to support the reversal. More frequently, following the turn-round of the exchange rate, authorities sought to acquire foreign currencies (to replenish reserves or to cover outstanding foreign currency obligations) without generating renewed downward pressure on their domestic currencies.

28. The remainder of this section gives a brief summary of the evolution of objectives in each Summit country. This summary also covers the broader evolution of exchange rate policies which may also include measures other than intervention.

B. Evolution of objectives

29. Intervention operations for the Canadian authorities have been conducted for the purpose of smoothing daily variations in the Canadian dollar/US dollar exchange rate. In practice, this has led them to follow a broadly symmetrical approach of "leaning against the wind", intervening almost daily to oppose intra-day rate movements in either direction, usually on a small scale but with growing intensity as the size of daily rate movements increases. On occasion they have modified their tactics to take into account considerations extending beyond the current trading day, such as the size and speed of cumulative exchange rate movements.

30. The main long-run objective of French exchange rate policy has consistently been that of avoiding any significant divergence between the exchange rate and the "fundamentals", particularly in relation to the other

European economies. The French authorities have at the same time sought to stabilise the external value of the French franc, especially vis-à-vis other European currencies, in order to foster the process of economic integration within the European Community. They have, in any event, expressed a preference for a stable franc on the grounds that this encourages the production of high value added manufactures and avoids external stimulus to domestic price inflation. In their day-to-day intervention policy, the French authorities endeavour to dampen exchange rate volatility and to forestall erratic exchange rate fluctuations due to sudden changes in market psychology triggered by unexpected economic or political events. In some circumstances, capital controls have been used to help counter external disturbances. The relative size of intervention operations during periods of intense rate pressure appears to have remained fairly stable since 1973.

31. Germany has participated continuously in European Community exchange rate arrangements since 1972. This has frequently involved substantial interventions in member currencies, and has influenced Germany's intervention policy in the dollar market. Beyond the context of the EEC, the German authorities have sought from the onset of floating to counter disorderly market conditions, dampen "erratic" short-term exchange rate fluctuations and smooth out excessive swings in the DM/US dollar rate over longer periods. Overshooting of the DM/US dollar rate first gave reason for concern in mid-1973; it became a major problem in 1978 when efforts were made to bring exchange rate developments more in line with the trend of the "fundamentals". In 1980-81, in the presence of large German current-account deficits, relatively low domestic interest rates, uncertainties about the course of German economic policy and non-economic factors at home and abroad, the Deutsche Mark came in for substantial support by way of intervention. The downward trend of the Deutsche Mark was resisted in order to limit the inflationary consequences of higher oil prices and depreciation, and at times to avoid unsustainable competitive advantages. In the deteriorating economic climate, it was also felt that domestic financial markets should be insulated as much as possible from the high interest rates abroad. Applying part of Germany's ample stock of monetary reserves to finance payments deficits seemed appropriate at least for a time.

32. The main objective of Italian exchange rate policy has been the maintenance of the country's competitive position while at the same time resisting the rapid depreciation of the lira because of its effects on domestic inflation resulting, inter alia, from a high degree of indexation. In addition, the rôle of intervention has been to ensure orderly conditions in the market essentially by smoothing seasonal peaks in foreign exchange transactions, braking erratic and speculative exchange rate movements and offsetting certain large individual transactions. At times intervention has been motivated or constrained by the desire to replenish and maintain an appropriate level of international reserves. Italy's participation in the EMS after March 1979 caused no change in underlying objectives, but has led to an additional consideration in daily intervention operations of limiting the size of rate movements, in order to keep the lira within a "defensible inner core" of its six per cent. EMS parity band.

33. Japanese exchange rate policy has generally been aimed at limiting the size of short-term fluctuations by pursuing a strategy of "leaning against the wind". It has also sought to counter medium-term and longer-term exchange rate movements when depreciation or appreciation of the yen has gone well beyond levels justified by the "fundamentals". Because of the high proportion of Japan's external trade and financial transactions that are denominated in US dollars, Japanese exchange rate policy has been almost entirely focused on the yen/dollar rate. Japanese operations have not been as frequent as those of the European or Canadian authorities, but they have sometimes been quite large. In late 1977-78 the Japanese authorities were concerned by what they considered to be the yen's excessive appreciation against the dollar and policy became increasingly oriented towards arresting patterns of continuing daily movement in one direction, combating psychological factors, and slowing the rise of the yen/dollar rate. During the subsequent depreciation of the yen in the wake of the second oil shock, the Japanese authorities, while adopting the same policy stance as before, placed the emphasis on limiting the impact of yen depreciation on Japanese inflation and the yen cost of oil imports.

34. Between 1973 and early 1976 United Kingdom exchange rate policy had regard to the value of sterling, particularly in terms of the US

dollar. In 1976 the pound fell sharply following a period of worsening competitiveness associated with high UK inflation, but recovered following agreement on an IMF stand-by arrangement. The pound's appreciation in 1977 was temporarily "capped" by the UK authorities primarily to retain competitiveness, but this policy was abandoned because of its implications for monetary aggregates. Monetary objectives were re-emphasised after May 1979, when intervention was confined to smoothing excessively large or rapid fluctuations in the exchange rate, but without resisting the underlying market trend. The exchange rate is used as one indicator of domestic monetary conditions. The scale of intervention has been much reduced in recent years.

35. On balance, over the entire floating rate period the United States has made the least frequent recourse to intervention, usually only as a result of the emergence of disorderly exchange market conditions. Intervention decisions have been influenced by perceived abnormal trading conditions in exchange markets and by the size and speed of rate movements during the trading day. In 1978-79 there was a widespread loss of confidence in the US dollar (with potentially severe consequences for the international monetary system, given the central rôle of the US currency), and the US authorities were considerably more active in their intervention operations. At the height of this episode, they took a number of considerations more explicitly into account, including: a perception that dollar depreciation had gone well beyond the levels justified by the "fundamentals"; a desire to avoid possible stimulus to domestic inflation; and a perception that psychological factors were at work in the market which might gain a momentum of their own if not resisted. Similar considerations had also come into play, albeit to a lesser extent, in a brief episode of more active US intervention operations in early 1975. Since early 1981 the US authorities have limited their intervention to a very few instances where there was a clear perception that market disorder had emerged which warranted intervention. The US authorities have taken the view that the central rôle played by the dollar in the international monetary system requires that high priority be given to achieving domestic price stability.

36. The member countries of the European Economic Community set up the European Monetary System (EMS) with the objective of establishing a zone of monetary stability in terms of both exchange rates and prices. The EMS rests on an exchange rate and intervention arrangement underpinned by an extensive system of credit mechanisms and provides for a process of monetary and economic policy co-ordination. The explicit exchange rate objective of the EMS countries is to maintain their exchange rates within a 2.25 per cent. fluctuation band around fixed but adjustable parities (in the case of the lira a 6 per cent. band). This implies a need for the monetary authorities to pursue consistent monetary policies and a commitment to intervene as necessary in order to defend the agreed margins. Realignments of parities, which take place subject to mutual agreement by a common procedure and are accompanied by appropriate economic policy measures, are part of the system. In addition, most countries have found it useful to monitor the position of their currency within the parity band in order to avoid pressures that might become self-sustaining if the limits were to be approached. Thus, they have undertaken substantial "intra-marginal" intervention in order to keep exchange rates away from their EMS parity limits.

III. EFFECTS OF INTERVENTION

37. This section presents the Working Group's findings concerning the effects of exchange market intervention on exchange rates between 1973 and 1981 and should be viewed against the background of four more general considerations:

- Countries vary substantially in the size and openness of their financial markets as well as in their economic and trade structures; these differences colour the approach of the various authorities to the exchange market.

- Exchange markets' participants have come to expect different patterns of behaviour from individual central banks.

- As has been pointed out in the previous section, the motivations underlying intervention and its objectives differed greatly from country to country and within individual countries over time.

- Intervention decisions were examined with the benefit of hindsight; at the time when the intervention was being made the causes of the market pressure were often not clear to the authorities and subsequent developments could not be foreseen.

38. Given these considerations, there is no simple, unambiguous way of assessing the effects of intervention and, more importantly, of drawing generally valid conclusions. Nonetheless, the Working Group felt that intervention had been an effective tool in the pursuit of certain exchange rate objectives - notably those oriented towards influencing the behaviour of the exchange rate in the short run. Effectiveness was found to have been greater when intervention was unsterilised than when its monetary effects were offset (see definition of sterilised intervention in paragraph 18 of Section I). There was also broad agreement that sterilised intervention did not generally have a lasting effect, but that intervention in conjunction with domestic policy changes did have a more durable impact. At the same time, it was recognised that attempts to pursue exchange rate objectives which were inconsistent with the fundamentals through intervention alone tended to be counterproductive.

39. These findings are elaborated in the first part of this section. Subsequent parts examine exchange market efficiency and its implications for intervention, the relationships between exchange rates and fundamentals and the usefulness of the profitability criterion in assessing the effectiveness of intervention.

A. The effectiveness of intervention

a) Intervention for short-term or intermediate objectives

40. Recourse has been frequently made to intervention in response to such exchange market disorders as unsettled trading conditions or unexpected events of an essentially non-economic nature. In these circumstances, intervention has often been effective in attaining short-term objectives, such as narrowing bid-offer spreads in the market or reducing the size of day-to-day or intra-day exchange rate movements.

41. These judgements have been reached by the Group in the light of two sets of evidence, each of which has its own limitations, owing to the lack of tested hypotheses in the case studies and the inevitable simplifying assumptions on which econometric tests are based.

- Most of the case studies described situations where intervention has been effective in influencing the exchange rate in the short term.

- Econometric studies also indicated that exchange market intervention influenced the exchange rate in the short run. These studies included:

i) Time Series Studies

These suggested that the US dollar might not have been a perfect substitute in international investors' portfolios for the Canadian dollar, French franc, Deutsche Mark, Italian lira, Japanese yen or the pound sterling, thus implying that sterilised intervention is likely to have had a direct impact on exchange rates.[1] Additional, though less conclusive, results suggested that the impact of intervention might have been significant in

1 Sterilised intervention affects exchange rate behaviour by altering relative stocks of domestic and foreign currency assets held in investors' portfolios. If assets denominated in different currencies are perfect substitutes, then investors will be indifferent to the relative stocks of each that they hold, and intervention will have no direct impact on exchange rates through this channel.

most sub-periods in the case of the US dollar rates for the Canadian dollar and the French franc, in some sub-periods for the Deutsche Mark and the Japanese yen, and never for the pound sterling and the Italian lira.

ii) A study using small econometric models[1] to analyse monthly and quarterly data. This yielded somewhat different results. It indicated that the US dollar might have been a very good substitute for the Canadian dollar and the Deutsche Mark, suggesting that intervention in these markets could have had little or no effects. On the other hand, it indicated that the Japanese yen and the US dollar might have been less substitutable, suggesting that intervention in this market could have had an appreciable effect.

iii) A study of exchange market efficiency using monthly data. Imperfect substitutability was one of the two main explanations of the results obtained in this study (see III.B).

42. Intervention has sometimes been undertaken for other short-term or intermediate objectives. These have included: intervention to reassure market participants; to reduce the extent and slow the pace of exchange rate movements; to protect a psychological benchmark; to send a signal of determination to the market; or to test the strength of market trends. The Working Group considered such operations often to have performed a useful function, although there were occasions when they might have been counterproductive.

b) Systematic intervention to influence exchange rates

43. Intervention followed a more systematic pattern when it was designed to affect the exchange rate for longer periods. This was usually the case when exchange rates were judged to have deviated persistently from what the authorities considered to be warranted by fundamental factors (see Section III.C below). In such circumstances, the authorities frequently took action to moderate such movements.

44. The Group's case studies indicated, however, that attempting to modify market judgements in such situations could often be a difficult

1 These models were used to test the hypothesis of perfect substitutability between assets denominated in US dollars and those denominated in the three other currencies. The estimates obtained were so imprecise that it was not possible to reject the hypothesis that the US dollar might have been a perfect substitute for the Canadian dollar (quarterly) and less decisively for the Deutsche Mark (monthly). For the yen (monthly) the hypothesis of perfect substitutability was rejected.

task. Even assuming the possibility of a clear definition of fundamentals and the existence of a relationship between exchange rate levels and fundamentals, such a relationship cannot be relied on to operate other than over a long time scale. What is perceived as an undesirable deviation in the rate may on another view represent a necessary part of a structural adjustment process. Given some justification for both views, in practice, the authorities have ended up using intervention pragmatically, for instance, to buy time for implementing new policies.

45. Since exchange markets evolve there is no precise way of determining when a period of unsettled conditions has developed into a situation of deeper or longer-term imbalance, although this may be clearer with hindsight. It can be asserted that, even over a period long enough to permit the perception of a trend, factors other than fundamentals will also influence market behaviour. Such developments might well include external factors not under an individual authority's control and result in substantial market pressure that could be difficult to resist. The weight of these constraints may vary somewhat between countries, depending on the openness of their economies, the depth of their financial markets and other institutional factors.

46. There was broad agreement among the members of the Working Group that sterilised intervention alone did not appear to have constituted an effective instrument in the face of persistent market pressures. Indeed, simulation results based on the study using small econometric models confirmed that the impact of sterilised intervention was much smaller than the impact of intervention which was permitted to have a direct impact on the authorities' monetary liabilities (unsterilised intervention). More generally, in order to exert a significant effect on exchange rates in the face of persistent market pressures, the authorities found supportive domestic policy adjustments, especially in the field of monetary policy, to be indispensable. While some members of the Working Group emphasised the rôle of monetary policy in such situations, most members felt that the impact of the simultaneous application of the two instruments exceeded their individual effects. In other words, these members argued that

exchange market intervention and monetary policy changes reinforced each other and thus enhanced the size and duration of their respective effects. At times, when supplementary policy measures were taken, intervention was reduced or even unnecessary.

47. When exchange rate pressures arose in a situation where domestic policies were judged to be in line with domestic objectives, and fundamentals did not seem to warrant a major exchange rate movement, intervention was likely to be given - at least in the first instance - a prominent rôle in the context of exchange rate policies. The authorities in each of the Summit countries at times undertook large-scale intervention when they judged that market participants had not taken full account of fundamental factors, had only reacted slowly to changes in fundamentals, or had lost confidence in the policies of some of the major countries. The Working Group found that in several cases intervention had succeeded in "buying time" for market participants to recognise such factors, and that showing determination to correct the situation through large-scale intervention was an important element in restoring confidence.

48. Where the authorities were aware of inconsistencies between their domestic economic and exchange rate goals, there had been instances where recourse had been made to intervention in order to "buy time" for policy reorientation. In practice, this had meant the use of intervention to temper daily exchange rate movements and to prevent undue disturbances in the markets. Such operations had been effective if followed up by appropriate policy changes; but buying time had occasionally been useless or even counterproductive in the absence of appropriate policy changes. In addition, where a conflict between domestic economic and exchange rate objectives had continued for some time, intervention operations had been incapable of resolving the conflict and thus one or both of the objectives had to be modified. In recent years, the trend in several countries has been towards a "mixed strategy" of conditional monetary targeting, which has implied taking account of exchange rate developments in interpreting the growth of monetary aggregates.

49. The "conflict" situations described above include instances in which exchange rate movements had been resisted in order to mitigate their direct impact on the domestic economy. In some cases, countries had tried to prevent their currencies from appreciating in order to maintain international price competitiveness; however, experience had shown that, if upward pressure on the domestic currency persisted, the amount of intervention required was quite large, and intervention had had to be complemented by changes in other policies and, in some instances, by capital controls. Either direct capital controls or administrative guidance had been practised at times in all of the Summit countries. Taking into account both the structure and relative size of their capital markets, action in the field of capital controls had been included by some countries in packages of measures to deal with major episodes of exchange rate pressure. However, it was widely judged that controls, if maintained, may have had negative longer-run effects.

50. Another example of conflict occurred at times when countries had sought to resist depreciation in order to avoid its implications for inflation. The degree to which depreciation might have contributed to inflation depended on the state and the openness of the economy, as well as on the extent of indexation and on other features of domestic institutions and policies. Thus, one of the basic problems in such cases had been the need to introduce corrective measures in the face of sizable exchange rate movements.

51. The principal characteristic of the various forms of intervention and exchange rate policies described so far was that the authorities had not attempted to defend a particular exchange rate level but rather had let the exchange rate take part of the strain. Indeed, leaving aside short-term attempts to defend a psychological benchmark, there had been only one instance in which authorities had adopted a specific target for an extended period. This had been in the United Kingdom during 1977. While the rate had been capped successfully for some six months, this had involved recourse to repeated interest rate cuts and heavy one-way intervention. It had proved inconsistent with the containment of the monetary aggregates and, in the end, the exchange rate target had had to be abandoned.

52. The European Monetary System (EMS) also provides, in a largely different context, examples of setting and defending agreed exchange rates. In some episodes, sizable intervention by authorities whose currencies had reached the margins has taken place. It was noted that the existence of the very short-term financing facility, which provides unlimited amounts of currencies for intervention at the margins for limited periods of time, had facilitated large-scale intervention by members. There has also been even larger "intra-marginal" intervention designed partly to keep EMS exchange rates from reaching the margins and partly to repurchase creditors' currencies.

53. Three facts about the performance of the EMS stood out as relevant to the Group's discussions. Firstly, intervention activity of EMS members has been quite large, not only in members' currencies, but even more so in US dollars, an important part of which was undertaken for intra-EMS purposes. Secondly, intervention has helped to maintain fixed parities over extended periods, but has not prevented adjustments - nor is the system intended to do so. Thirdly, the system has avoided both short-term variability and large swings in exchange rates among its members. Although this has implied both large intervention and changes in interest rates, the growth of the monetary aggregates remained under control.

c) Intervention for other objectives

54. A number of intervention objectives have been pursued in response to specific circumstances in individual countries. Intervention has been used by the Italian authorities to offset seasonal patterns in current international transactions. Various authorities have at times engaged in substantial off-market transactions in order to avoid the exchange market impact of very large purchases or sales of their domestic currencies. In all these cases, the authorities involved considered that intervention had been effective in avoiding corresponding exchange rate movements.

55. In many cases, after periods of sustained intervention to resist depreciation, authorities had sought through intervention purchases of

foreign currency to recoup reserves or to cover outstanding foreign currency obligations. Their objective had been to do so without triggering renewed downward pressure on their exchange rates. All the authorities considered that they had succeeded in this. Typically, such purchases had been conducted in one or both of the following ways: first, directly in the market as unobtrusively as possible; and, second, through off-market transactions, especially with other monetary authorities.

d) Intervention methods and strategies

56. Methods and strategies of intervention were closely linked to the various objectives mentioned in Section II. However, the Working Group's discussions of this subject also showed that alternative methods and strategies of intervention might have been an important factor bearing on the effectiveness of intervention.

57. The Working Group noted that with the partial exception of intervention within the framework of the EMS, intervention by the Summit countries has been conducted overwhelmingly in US dollars. (Intervention by the US authorities has been mainly in Deutsche Mark.) This reflects primarily the importance of the US dollar as a unit of account, as a vehicle currency in international trade and financial transactions and as a reserve asset.

58. All countries had, at one time or another, resorted to an intervention strategy of resisting intra-day or day-to-day exchange rate movements. In some countries this strategy was followed fairly systematically and continuously, while in other countries this approach was used primarily in periods of sustained exchange rate pressure. For example, in June 1981, when the pound sterling had suffered from recurrent bouts of sharp selling pressures, the UK authorities intervened to prevent unduly sharp day-to-day movements in the rate. These operations, which were aimed at reassuring markets of the continuing official concern to preserve orderly trading conditions without interfering with the rate's basic trend, were considered as having been successful on the whole. The market had remained calm and business had been conducted in an orderly

fashion despite the marked depreciation of the pound sterling during this period. Italy, on the basis of experience in the latter parts of 1975 found that intervention, despite progressive deterioration of underlying economic and financial conditions, had proved to be remarkably effective in smoothing out daily oscillations in the demand for foreign exchange. Japan observed that in a number of instances between late 1977 and late 1978 when the yen had appreciated strongly, intervention had prevented bandwagon effects and thus had helped to reduce short-run exchange rate volatility. The United States stated that intervention did not seem to have had a demonstrable long-term impact on the extent of the dollar's cumulative movements, but that on several occasions intervention appeared to have reduced day-to-day exchange rate volatility. This had been the case, for instance, at the end of October 1978 when US intervention operations had been intensified and in the period October 1980 to February 1981 when, in comparison with the following six months in which the United States had virtually abstained from intervening, the daily dollar/Deutsche Mark rate had appeared to exhibit less variability. The view that intervention could be conducive to greater short-run exchange rate stability was also confirmed by Canada's experience with intervening almost daily in the market. In sum, virtually all countries found that the strategy of resisting intra-day or day-to-day exchange rate movements had helped to reduce variability. Some members of the Working Group, however, observed that this strategy might have had adverse implications had it delayed necessary exchange rate adjustments or contributed to sustained periods of one-way exchange rate movements which might have created "one-way bets". Several cases of these types were discussed by the Group, including some of the examples cited above. In addition, in all these cases it is difficult to summarise in a succinct way the other economic developments that were taking place.

59. Intervention strategies aimed at smoothing longer-term exchange rate variability - i.e. lessening overshooting of exchange rates with respect to a set of fundamental factors - usually contained elements of "leaning against the wind", with intervention in some cases being stepped up when exchange rate movements gathered pace. Germany found that its attempts to smooth excessive swings in the exchange rate against the dollar

had been successful at certain times. While it was thought that the swings would probably have been larger in 1974 in the absence of intervention, in 1980 and 1981 such intervention operations had been helpful only on some occasions when the exchange rate had taken a critical turn. For instance, in August 1981 substantial dollar sales by the Bundesbank were said to have contributed significantly to the reversal in the trend of the Deutsche Mark's rate against the dollar. Italy observed that, particularly in a situation of strong seasonal movements in current external transactions, a policy of leaning against the wind could help to reduce instability by guiding the exchange rate smoothly through seasonal cycles. The Japanese authorities felt that from late 1977 to October 1978, when they had more or less continuously supported the dollar, their intervention operations had had a measurable effect in countering excessive market sentiments and that when the yen had been weak between 1979 and early 1980 and after January 1981, intervention had moderated the yen's depreciation. Canada judged that intervention in combination with other policy measures had considerably slowed down the decline in the Canadian dollar in July and early August 1981 and had dampened its subsequent upswing. However, in general such intervention tended to be supported by complementary policies, especially monetary policy, and it was therefore considered difficult to assess the impact of the intervention operations per se. Moreover, several members noted that the longer such smoothing operations lasted, the more they tended to have diminishing returns.

60. One particular aspect of intervention strategy discussed in this context was that of joint intervention by two or more countries. The Working Group found that if the authorities have inconsistent views on the exchange rate and if this is perceived by the markets, exchange rate instability may be exacerbated. The Group felt that closely co-ordinated action had at times been more effective than intervention by only one central bank because it gave a signal to the market that the authorities were working to the same purpose; some members felt that it may also have had a multiplier effect. For example, Japan noticed that particularly on two occasions - in November 1978 and in March 1980 - when the US authorities had demonstrated by announcements and active intervention that their exchange rate views were consistent with those of Japan - the

effectiveness of exchange market intervention had been greatly enhanced because of the strong beneficial influence of joint intervention on market psychology. Germany had had a similar experience in March 1978 when the US declaration to use its monetary reserves in defence of the dollar had marked a temporary turning-point in the Deutsche Mark/dollar rate. Moreover, the German authorities felt that their intervention in the dollar market had been adversely affected by the withdrawal of the US monetary authorities from exchange market intervention in spring 1981. France observed that the period from October 1980 to February 1981, when the French franc had been strong against the Deutsche Mark, had highlighted the importance of co-operation between monetary authorities in the framework of the EMS in ensuring the success of intervention operations. The United States took the view in late January 1975 that co-ordinated and more forceful central-bank intervention would be desirable in order to avoid conflicting exchange rate objectives and intervention policies. Following concerted intervention operations at the beginning of February, the dollar had risen immediately and the pattern of virtually continuous daily drops in the dollar had come to an end. Although the dollar had shown renewed signs of weakness thereafter, co-ordinated intervention was thought to have helped to make the decline take place in a more orderly manner. Similarly, in August 1978, too, the continued intervention operations had apparently helped to keep the fall of the dollar exchange rate orderly, in that spreads between bid and offer prices had remained relatively normal and large gaps in rates from one minute to the next had not occurred frequently. However, while the efforts by the US authorities to provide more effective and forceful intervention support had succeeded on a number of occasions in influencing the dollar exchange rate, the US authorities noted that the positive short-term impact had faded quickly when intervention operations had not been followed up quickly by consistent and effective measures designed to deal with what turned out to be the underlying causes of the dollar's movement. While agreeing on the basis of past experience that co-ordinated intervention might have had a significant impact on market psychology, the Working Group also pointed out that intervention, whether co-ordinated or not, had been no substitute for necessary changes in economic policies.

B. Exchange market efficiency

61. The value of intervention in stabilising exchange rates depends to a critical extent on the working of the exchange market and its rôle in the process of exchange rate determination. For this reason, the Working Group examined in detail the extent to which exchange markets are "efficient" in the sense that they take account of all information which is relevant for the determination of exchange rates. If exchange markets rapidly and fully assimilated such information and translated it into appropriate spot and forward rate levels, there would be one less reason for monetary authorities to intervene directly in the markets. Efficient exchange markets would not, for example, allow repetitive bandwagon-type exchange rate movements to emerge.

62. Empirical tests of exchange-market efficiency are based on the propositions that: (a) transaction costs are minimal; (b) all relevant information is utilised by exchange market participants; and (c) assets denominated in different currencies are perfectly substitutable in private portfolios. If all three propositions are satisfied, then the forward exchange rate should constitute the best available predictor of the future spot rate. On these assumptions, the use of any other variables such as inflation and interest rate differentials should not produce better forecasting results than the forward rate nor should the consistent application of simple exchange trading rules using these variables yield positive returns. Both suppositions were tested empirically.[1]

63. The tests provided clear evidence that consideration of readily accessible information on inflation and interest rate differentials yielded a better prediction of the future spot rate than that implied by the forward rate. Moreover, the repeated application of certain foreign exchange trading rules indicated a high probability of making some profit. However, some members thought that the results for some currencies may have been affected by the existence of capital controls, although the results were similar for the six bilateral US dollar rates tested. Other time series studies performed by the Group confirmed the existence of better predictors of the future spot rate than the forward rate.

1 The tests employed monthly data on spot exchange rates and on forward rates for one to twelve months ahead.

64. This evidence can have three different explanations, which are not necessarily mutually exclusive. As transaction costs are usually neither very large nor particularly variable, it is generally thought that they do not explain the observed results. Consequently, the test suggests that markets are inefficient and/or that investors require time-varying risk premia because assets in different currencies are not perfect substitutes for one another. Views differed among the members of the Working Group as to how to interpret this outcome. Those members who were inclined to attribute the existence of systematic and exploitable prediction errors primarily to variable exchange risk premia considered it highly implausible that exchange market participants should systematically ignore low-cost information that is relevant to the determination of the exchange rate. Other members tended to interpret the result of the empirical tests as evidence of exchange market inefficiency. Their view was based on the general failure of empirical studies conducted to date to produce evidence that would explain potential risk premia entirely in terms of their theoretical determinants. Moreover, relevant information might be ignored by market participants as a result of the high cost of properly processing it. Thus, expectations might be rational in the everyday sense of the word although not conforming to the technical concept of efficiency.

65. Doubts about the efficiency of exchange markets have also been expressed in most case studies of exchange rate developments - at least to the extent that bandwagon effects can be regarded as a sign of exchange market inefficiency. All countries had identified bandwagon movements at particular times, and some countries intervened to forestall the emergence of bandwagon effects. For example, Canada had seen the risk in July and August 1981 that the decline in the Canadian dollar might feed on itself, and the UK authorities had been concerned to prevent any fall in the pound sterling from becoming self-sustaining in June to October 1981. Japan stated that there had been several periods in which bandwagon effects had been very much in evidence. In particular, between January and October 1978 the yen was said to have risen continuously on several occasions without any significant new information having been supplied to the market, and the upward movement in the exchange rate on one day appeared to have been the determinant of the yen's appreciation on the following day. Italy

interpreted erratic exchange rate movements at the end of February 1976 as raising a suspicion that bandwagon effects were at work.

66. The Working Group noted that the test results indicated that intervention may have had a significant impact on exchange rates - irrespective of whether markets are inefficient or whether variable exchange risk premia exist. If markets are inefficient in the sense that they fail to assign appropriate weight to information on macro-economic variables in determining exchange rates, action to influence the exchange rate including intervention could be an effective component of macro-economic policies. In this case intervention would have an impact through its influence on expectations - for example, its demonstration effect - about future underlying economic conditions or policies. Alternatively, if exchange markets are efficient and unexploited profits are indicative of time-varying risk premia, intervention could still be an effective policy tool. This would be so because official operations in the exchange market, by changing the currency composition of private portfolios, would alter risk exposures in the various currencies and thus have a lasting effect on exchange rates.

C. Exchange rate movements in relation to fundamental economic factors

67. The authorities in all the Summit countries have intervened at times as part of their response to situations in which exchange rates were judged to have diverged markedly from what appeared to be warranted on the basis of fundamental economic factors. This is often loosely described as "overshooting".[1]

68. Judgements on fundamentals have been based on a number of elements relating to the balance of payments and its underlying economic determinants, including expectations of future developments in these.[2] These judgements have differed over time and between countries. However, the work of the Group suggests that, in practice, attention has focused most often on two factors: inflation differentials and current-account positions.

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1 In the technical literature, overshooting is frequently explained by the fact that the adjustments in the goods and services sector of the economy that are necessary in order to keep the exchange rate in line with the fundamentals take much longer than the initial adjustments in financial markets. 2 Surveys of the existing literature on the behaviour of exchange rates and studies carried out for the Group suggest that empirical models do not provide fully satisfactory explanations of observed exchange rate movements.

69. It is generally considered that exchange rate movements tend to reflect relative inflation rates in the long run, although the latter have not proved to be a reliable indicator of such movements in the short run. This might be explained by many factors including anticipation of future relative inflation rates. While a comparison of inflation rates - even in the longer run - requires considerable judgement regarding the choice of appropriate price indices and the base period, members agreed that it was a useful concept for assessing the exchange rate.

70. Shifts in the balance of payments, especially the balance on current account, may influence the exchange rate through various channels. At the same time, however, the balance of payments is affected by the level of the exchange rate and attempts to specify and identify this two-way relationship empirically have encountered many difficulties, particularly in distinguishing between cyclical and more permanent factors. Nonetheless, the Group concluded that current-account developments, in combination with other variables, go some way towards indicating the need for medium-term adjustment in the exchange rate.

71. An assessment of the appropriateness of the exchange rate level thus has to rely essentially on eclectic, qualitative judgements. This approach was adopted by the authorities in all the Summit countries in identifying periods in which they considered the exchange rate to have diverged from the range warranted by fundamentals, especially when several fundamental factors had pointed in the same direction. This was, for example, the case in the first quarter of 1980 and between October 1977 and October 1978, when the Japanese authorities felt that the yen was clearly overshooting. Similarly, the German authorities thought that both the upward pressure on the Deutsche Mark between 1976 and 1979 and the downward pressure in 1980-81 were exaggerated in the light of fundamental factors, and the UK authorities thought that the sharp depreciation of the pound sterling in the spring of 1976 was excessive.

D. Profitability of intervention

72. The Working Group examined whether the profitability of intervention could provide a useful and operational criterion for

assessing the effectiveness of intervention in stabilising exchange rates. Intervention that involves buying cheap and selling dear yields profits. While the proposition that such intervention can help to stabilise exchange rates over time is appealing, the Working Group found that the application of the profitability criterion raised a number of very difficult issues. Such difficulties arise in connection with the concept of exchange rate stability, the relationship between exchange rate stability and profitability, and the measurement of profitability.

73. Instability of exchange rates is conventionally measured by the variance of exchange rate movements. However, while this statistical measure is useful for comparing degrees of exchange rate fluctuation in different episodes, it is of little relevance when assessing which of alternative exchange rate paths are conducive to the achievement of ultimate macro-economic objectives.

74. But even if intervention operations are carried out solely with a view to reducing the variance of exchange rate movements, greater stability and profitability of intervention do not necessarily go hand in hand. Any relationship between stability and profitability will depend on how exchange markets work, what generates instability and how intervention affects exchange rates. The Group noted that there could be cases in which there was no connection between profitability and stability.

75. There was a broad consensus in the Working Group that profitability of intervention was not generally a sufficient measure of the success of intervention. Profitability bore little relation to intervention objectives, and the serious difficulties encountered in defining exchange rate stability and profitability severely limited the information content of profitability calculations. Indeed, it was stressed that frequently intervention objectives might be attained without a profit being yielded. In this sense profitability calculations are not by themselves an appropriate measure to satisfy public accountability associated with the use of resources for intervention. Moreover, even if it

were possible to measure profits unambiguously ex post, the profitability criterion would still not provide much ex ante guidance for intervention operations.

76. The Group nevertheless considered it useful to examine the orders of magnitude of profits or losses associated with intervention. Measurement of the profitability of intervention must begin with the choice of the period or periods for which the profits are to be calculated. For most periods cumulative net intervention is not zero, so an assumption must be made about how the end-of-period stock of foreign exchange is to be valued. Calculations submitted to the Working Group revealed that the intervention losses reported by some academics were primarily a consequence of their having valued cumulative stocks of net dollar assets acquired through intervention when the dollar was still very weak. On the basis of the same formula, the intervention losses are turned into profits if the calculations are extended to the end of 1981, when the dollar was much stronger. Some additional calculations were submitted for sub-periods in which cumulative net intervention was zero, so that the problem of valuing net assets or liabilities acquired during the period was eliminated. These calculations yielded positive profits in a majority of cases.

Annex

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