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The ups and downs of the dollar - consequences of the changes in the monetary regime?

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Working Paper No. 284

The Ups and Downs of the Dollar -  
Consequences of the Changes in  
the Monetary Regime?

by

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## The Ups and Downs of the Dollar - Consequences of the Changes in the Monetary Regime?\*

### I. Introduction

In the past 15 years, there have been spectacular changes of the Dollar-DMark exchange rate: Between early 1971 and mid-1973, the Dollar dropped from DM 3.60 to DM 2.35; between mid-1976 and the end of 1979, it declined from DM 2.55 to DM 1.75; this was followed by the strong rise to DM 3.30 in early 1985 and finally, by the sharp fall to DM 1.80. Similar movements could be observed for the Dollar vis-à-vis other currencies. Large changes like these have severe consequences for the respective economies, especially for those sectors which heavily depend on foreign trade, but also for international investors. It is therefore hardly surprising that economic policy tries to dampen these fluctuations and, in doing so, sometimes follows a course that was not intended originally.

The consequences for economic policy naturally also depend on the judgment on the causes for exchange rate movements; in this respect, the opinions differ substantially among economists and other observers. In the following sections, we will discuss - in a non-technical manner - the widely held views on the relationship between the exchange rate and the current account and the government budget, respectively. We will then analyze a less common hypothesis which claims that exchange rate changes in trend are caused by permanent changes of monetary policy.

### II. Trends and Short-run Fluctuations of the Exchange Rate - What Can Be Explained?

The Dollar-DMark rate shows marked changes in trend since 1971 (Graph 1); however, obvious cyclical fluctuations seem to be

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\* Based on the paper "Anstieg und Fall des Dollarkurses - Folgen der amerikanischen Geldpolitik?". Kiel Discussion Papers, 131, April 1987.

absent. It would therefore, on the basis of past observations, be impossible to predict the movement of the exchange rate in the next period; in other words, the best forecast would be that the exchange rate will be the same as in the current period (1).

Monthly changes of the Dollar-DMark rate neither exhibit obvious cycles nor do they seem to be negatively autocorrelated (2). This does not mean that short-run movements cannot be explained. The hypothesis of efficient markets implies that exchange rates only change if shocks occur, for example, if there are unexpected changes of monetary policy. According to this hypothesis, at any point in time every information is already discounted for in current prices. If we wanted to explain changes in these prices - ex post -, we would need a model to estimate expected values for the relevant variables. We would assume rational expectations, which are compatible with the efficient market hypothesis (i.e. we would exclude systematic forecast errors). The residuals of the respective equation can be used as a measure of the shock, the unpredictable new information. The role of "news" has been extensively analyzed in the literature, and it has been shown that only shocks can explain short-run changes of exchange rates (3).

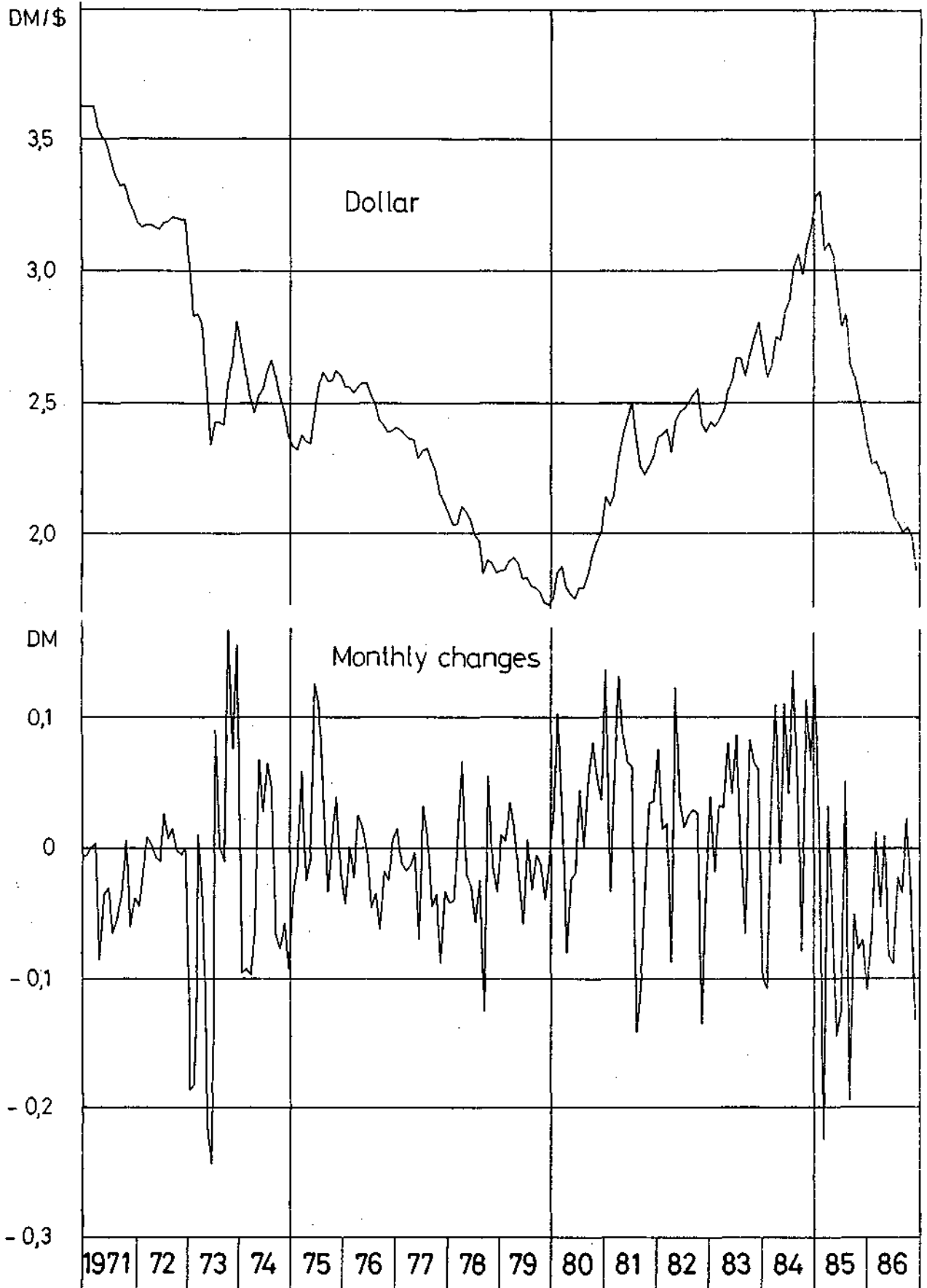
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(1) This is the hypothesis of the "random walk" which applies to prices of other financial assets as well. Actually, to test a random walk model, one should use all possible observations, i.e. "from one minute to the next", because daily or monthly averages commonly published are not observations in the literal sense.

(2) There seems to be a positive first-order autocorrelation for the subperiod 1974 to 1976. This "failure" of the random walk hypothesis can be explained by, for example, interventions by central banks (other reasons are given in Mussa [1979]). The first differences of a random walk time series are a purely stochastic process, whereas for the original random walk series, the mean and variance are time dependent (e.g. they can show a "drift").

(3) See, for example, Frenkel [1981] or, in general, the literature on efficient markets.

Graph 1: The Dollar-DMark Exchange Rate



(a) Monthly averages of the spot exchange rate and absolute changes over the previous month.

The graph also shows that the variance of monthly changes has been extremely high between the beginning of 1973 and mid-1975 and also for the time since 1980. This means that there has been a large number of shocks during these periods. In fact, monetary policy in the US as well as in West Germany was quite hectic. Additionally, after the collapse of the Bretton-Woods system in 1973, there was probably some need for long overdue adjustment of exchange rates; and finally, the US and the German central bank reacted with a different lag and rigor to the surge in inflation and the oil-price hike in 1973/74. In the eighties, monetary policy has been extremely unstable in the US. Additionally, there have been substantial changes in fiscal policy: Taxes were cut, the budget deficit soared, and there was a continued discussion about future budget policies which created uncertainty. During the same period, we could observe real shocks as well (for example, when raw material prices plunged). All these factors may explain why the variance of exchange rate changes in these periods was high relative to the period 1976 to 1979 when there were hardly any major real shocks and when monetary policy in both countries was expansionary but not really unstable.

In the following analysis, however, we do not want to focus on short-term fluctuations (1) but rather on the trends of the Dollar-DMark rate. Since 1971, there have been five phases with a different trend: The fall until 1973, the stability (in trend) until 1976, the devaluation up to 1980, the surge up to the beginning of 1985, and the drastic fall since then (2). First, we want to discuss whether these trends can be reconciled with the more popular views on exchange rates.

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- (1) That is, we do not discuss a model which explicitly deals with short-run expectations.
  - (2) All the changes in trend mentioned have, in general, been so substantial as to also reflect real changes of the exchange rate. In the following analysis, we therefore do not always discriminate explicitly between nominal and real exchange rates.



III. Can the Trend of the Exchange Rate Be Explained by Balances on the Current Account or by Budget Deficits?

Common hypotheses are that sustained changes of the exchange rate are the result of changes either in the balance on the current account or in budget deficits. The argument is, first, that a current account surplus (deficit) implies an excess supply of foreign (home) currency which leads to a revaluation (devaluation) of the home currency. The second case suggests that a deficit (surplus) in the government budget leads to an increase (decrease) in the demand for savings; consequently, interest rates should rise (fall) and thus the home currency should revalue (devalue) vis-à-vis other currencies.

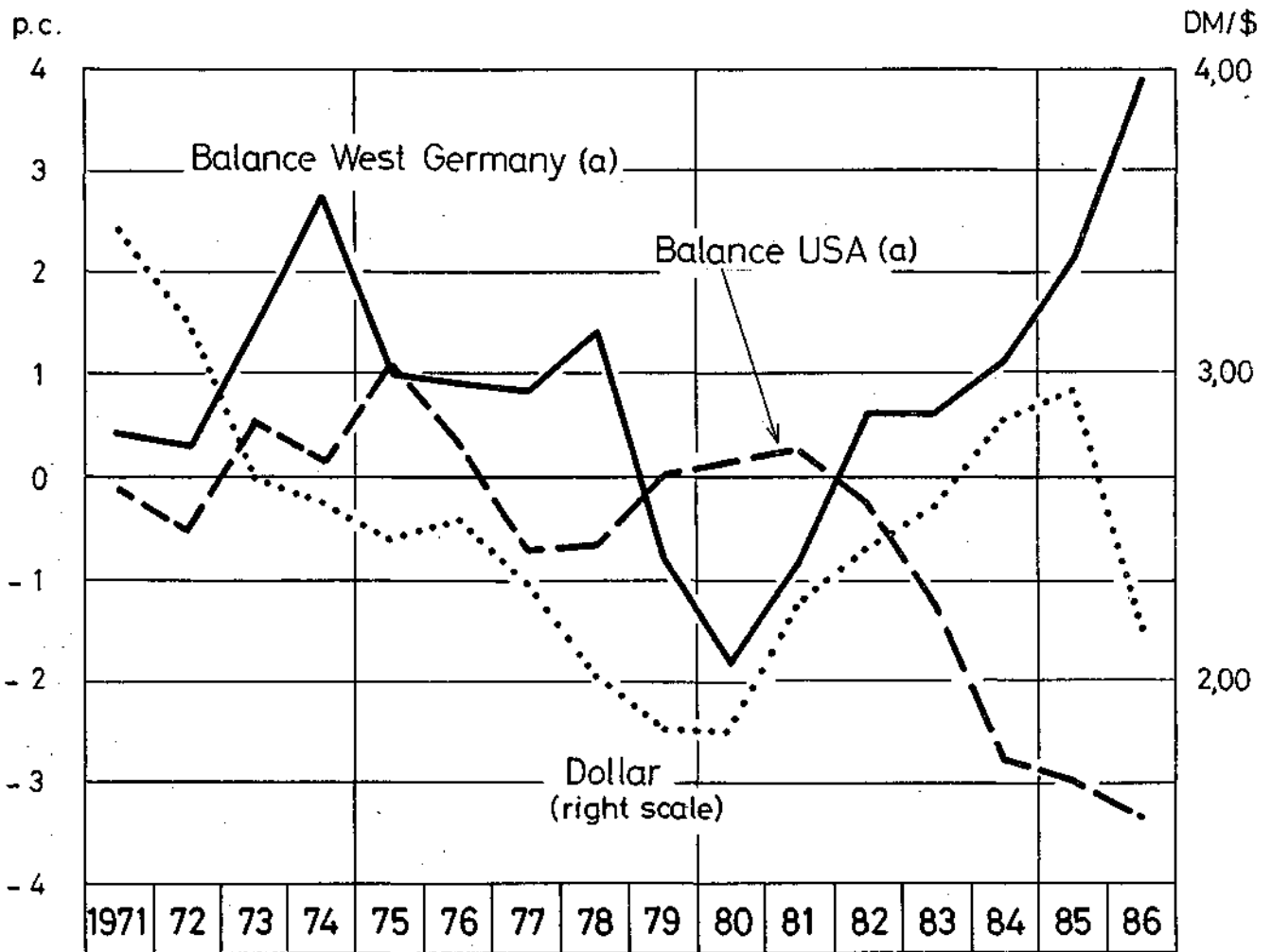
As far as the relationship between the current account and the exchange rate (current account hypothesis) is concerned, the development during the first part of the eighties is completely at variance with this hypothesis: The rise in the US-deficit was not combined with a devaluation but rather a revaluation of the Dollar (Graph 2). Also, the surge in the German current account surplus until 1985 did not cause the DMark to revalue, as the hypothesis suggests, but the DMark fell vis-à-vis the Dollar. Also in the seventies, we could not generally observe the postulated parallel movement; the actual development was almost completely opposite to what could have been expected from the hypothesis (1).

There is obviously no influence from the current account on the exchange rate; in fact, the causality seems to run the other way. This seems to be plausible, since the exchange rate affects the

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(1) The effective rather than the bilateral exchange rate is probably more relevant for the total balance on current account. But even if this indicator is used instead, the hypothesis cannot be supported (see Graph A1 in the Appendix).

Graph 2: Current Account Balances and the Exchange Rate



(a) Balance of the current account as percent of GNP.

international competitiveness of a country and thus - among other factors - trade flows. What then determines the exchange rate? The capital balance is the counterpart of the balance on current account, and it can be argued that changes in capital flows are responsible for exchange rate movements. If there is capital mobility, internationally oriented investors will invest their money in that country which promises the highest rentability in the future.

There is much reason to believe that in the beginning of the eighties, the US were viewed as relatively attractive: First, the growth prospects in Western Europe - and also in Japan - were poor compared to the seventies; and second, many developing countries, normally natural candidates for foreign investment, faced tremendous debt problems or were at the brink of a crisis. In this surrounding, the prospects for the US were relatively good: The changes in tax policies raised the rentability of investment and thus promised more growth in the medium run; at the same time, monetary policy was directed at the target of price level stability. Therefore, the US seemed very attractive at this particular time (1); in fact, there was a - relative to other industrial countries - strong recovery in 1983/84, and the inflation rate fell substantially. It seems obvious that investment decisions were affected by these developments, they led to a turnaround of international capital flows (2). The US exported less and imported more capital, and simultaneously the value of the Dollar rose sharply. The deficit in the current account was just the other side of the coin. Investors were obviously willing to invest their money in the US in spite of the rising Dollar; in this sense, the financing of the deficit was obviously no problem (3).

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(1) See Giersch [1985] on these points.

(2) This turnaround must not necessarily be taken literally. What seems important are the shifts of supply and demand curves causing a change in the price (in this case: a revaluation of the Dollar).

(3) Of course, it is never a problem, a deficit is always voluntarily financed. What seems important is the price at which this financing takes place.

While it is true that the deficit in the current account was combined with a revaluation of the Dollar, the current account hypothesis need not be wrong or should not necessarily be reversed. It just seems it is not complete. For several cases in the recent past, this hypothesis seems to do well enough. In the seventies, we could observe major devaluations of the Italian Lira, the British Pound and the French Franc which were indeed combined with high and even rising deficits in the current account. The same applies to the French Franc at the beginning of the eighties, when the French government pursued an expansionary policy. But also with respect to these cases, it can be said that the movements of exchange rates were induced by changes in the capital flows: Apparently, these policy moves were interpreted as being simply demand oriented - monetary policy also was expansionary - and were thus viewed as short-sighted and unsound (1). International investors withdrew their money from these countries, the deficit in the capital balance increased which implied a higher current account deficit.

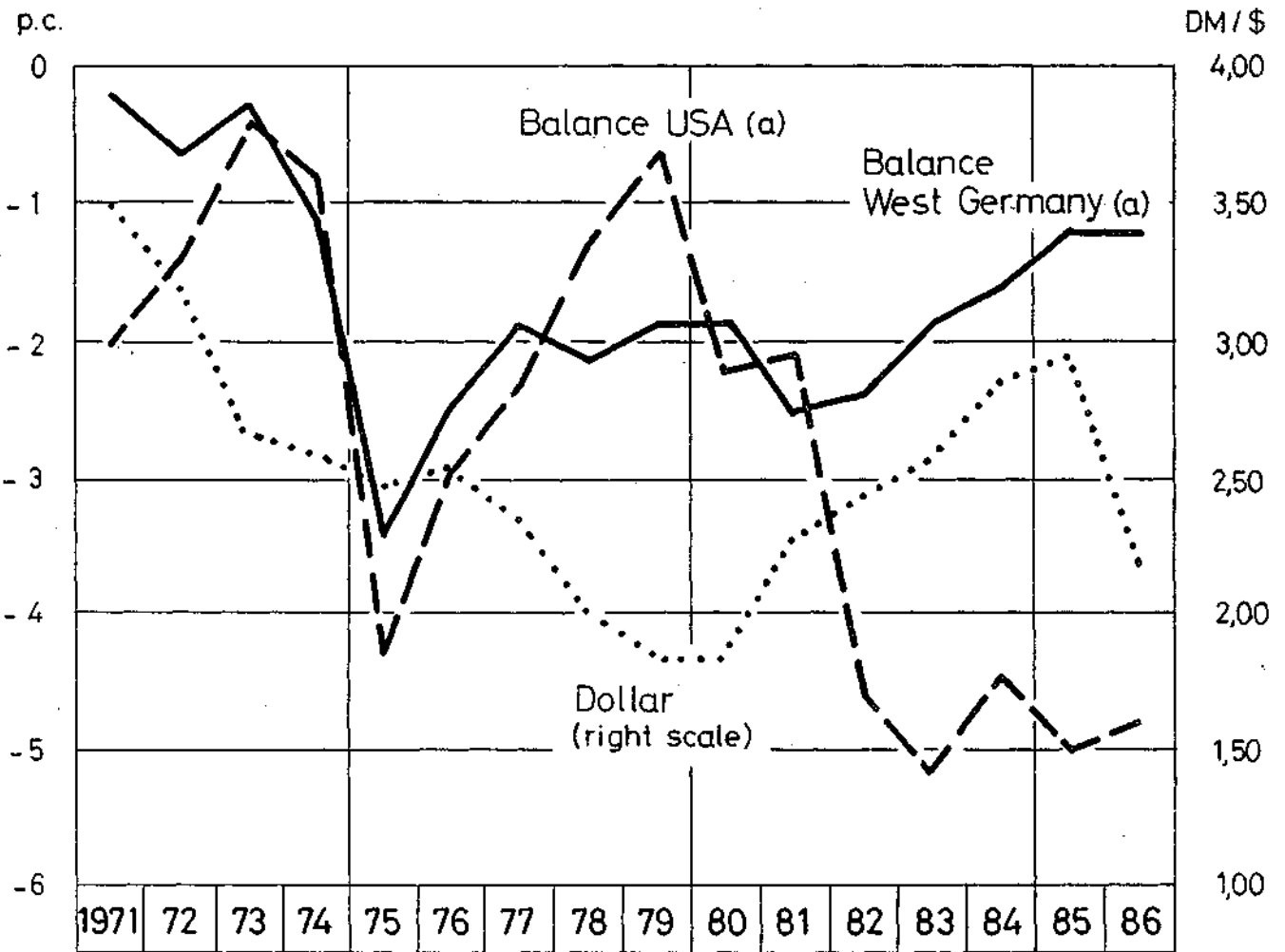
The other hypothesis (2) suggests a positive correlation between budget deficits and the exchange rate (budget hypothesis). This relationship was obviously valid at the beginning of the eighties: After 1979 - and especially after 1981 - the US government deficit increased substantially and the Dollar revalued after 1980 (Graph 3). The fact that at the same time the German deficit declined is also compatible with the hypothesis. However, the drastic fall of the Dollar since early 1985 cannot be explained, since the deficit remained high and declined only marginally in 1986. For the hypothesis to be valid, one would have to argue that investors now expect a sharp fall of the deficit because of, for example, the Gramm-Rudman-Hollings Act. However, this expect-

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(1) See Gebert, Scheide [1980].

(2) This hypothesis is put forward by, for example, Feldstein [1984]. It also seems to be the most controversial one, because the differences in the judgments can hardly be greater. The hypothesis is questioned, among others, by Brunner [1986] and Evans [1986]. Of course, we do not intend to solve the apparent contradiction between schools; obviously, it cannot even be settled empirically (but that is the state of the art in economics anyway!).

Graph 3: Budget Balances and the Exchange Rate



(a) Balance of the (federal government) budget as percent of GNP.

tation does obviously not dominate in the US right now; most forecasters assume that the deficit will remain high or will fall only slightly. But apart from this, the hypothesis can also not be fully supported by observations in the seventies: Though the deficit changed only slightly between 1971 and 1973, the Dollar fell sharply; the following increase in the deficit did not lead to a revaluation of the Dollar, and finally, from 1976 until 1979, the deficit both in the US and West Germany declined, but the Dollar depreciated substantially (1).

With regard to budget deficits, too, it seems to be important how international investors judge the underlying policies. Just as with the deficit in the current account, it is not the fact that the budget deficit per se increases. If that was important, Italy, the UK and France should have had strong currencies in the seventies (2) since the budget hypothesis implies that the increase in the demand for credit by the government should raise interest rates and, consequently, the exchange rate. However, the policy of "deficit spending" in these countries was obviously not viewed as a way to promote growth in the medium run. Their policies did not attract but rather deterred international capital, and their currencies devalued. Investors were willing to finance the increasing government debt only at a lower exchange rate. In this respect, as has been mentioned above, the American policy of the early eighties was interpreted much more positively. Although it implied an increase in the budget deficit, it did not seem to be unsound, possibly also because some measures promised to foster medium-term growth. However, it has to be explained why such a judgment, if it had indeed prevailed, changed abruptly in the course of 1985 and 1986 (more on this hypothesis in Chapter V).

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(1) The relationship is not any closer if effective exchange rates are used (see Graph A2 in the Appendix).

(2) The same applies to the French experiment of the early eighties.

The discussion suggests that changes in the flows alone - whether in the current account or in budget savings - cannot satisfactorily explain fluctuations or trends of exchange rates. What seems important is the type of policy underlying these changes and how this affects the judgment and the expectations of international investors. In the next two chapters, we will spell out criteria which seem to be important for the decisions of investors.

#### IV. The Exchange Rate as the Relative Price Between Two Monies

In the past ten years, many economists have favored the monetary approach (1) which stresses the importance of changes in monetary policy for exchange rate changes. The statement that the exchange rate is the relative price between two monies is, however, as trivial as it is misleading. To be sure, the exchange rate can only be defined this way; but it would be wrong to conclude that all one has to do is look at the published money supply data of any two countries to get a complete explanation for the exchange rate. It would indeed be too simple if one could explain share or bond prices by just analyzing the respective supply figures. To explain prices at financial markets, it is not sufficient to know the volume or change of supply (money supply, volume of shares, stock of government bonds outstanding); instead, expectations with respect to future yields of the various wealth components play a key role. Thus apart from the supply side, the demand aspect needs consideration; and the demand for money, for example, is influenced by expectations which in turn reflect interpretations of the changes in supply. The problem is, of course, that expectations cannot be observed or be trivially derived from money supply data.

Current changes in monetary expansion can possibly explain exchange rate movements in the very short run. According to the theory of "overshooting", a currency depreciates when monetary

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(1) For this approach, see, for example, Frenkel [1976].

policy at home becomes more expansionary; this is roughly equivalent to the liquidity effect of monetary policy applied to the open economy (1). The fact that the relative movement of the money supplies in any two countries cannot account for all major changes in exchange rates has led to some reservation against the monetary approach. However, it has to be taken into account that, for example, the velocity of money in the US and in West Germany has always behaved quite differently. As an example for the seventies: Although the trend growth of M1 in the US was lower than in West Germany, the US inflation rate was substantially higher.

Some criticism seems to be justified anyway, since the monetary approach - in its usual form - cannot explain why real exchange rates move so much over the medium run (2). The theory implies that nominal exchange rates more or less behave in such a way as to compensate movements of the respective price levels (3). How-

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- (1) The "overshooting"-thesis rests on the assumption of different adjustment speeds for different markets; financial markets respond relatively fast, so the adjustment after a change in monetary policy starts here. An expansionary policy leads to a higher demand for bonds; consequently, interest rates fall and the interest differential vis-à-vis foreign countries declines. This implies that the forward market expects a revaluation of the home currency for the respective period (say, a year). However, since the currency should devalue compared to the value before the change in monetary policy, the devaluation must be immediate and larger than necessary in the medium run. This exchange rate change is a real change because goods markets - by assumption - do react only later. When the process has worked itself through the system, the exchange rate has returned to the path given the purchasing power parity, i.e. in the longer run, real exchange rates do not change. On this theory, see Dornbusch [1976].
  - (2) See, for example, Fürstenberg [1985] on this point. The theorem of purchasing power parity is nothing but the corollary to the quantity theory, also in the sense that changes in monetary policy have no effect on real variables - including the real exchange rate - in the long run.
  - (3) Real exchange changes can, of course, also be explained by the monetary approach, for example, in the case of differentials in real income changes in two countries. However, the size of the respective elasticities in the money demand function does not seem to be sufficient to explain real movements of the magnitude we could observe in recent years.



ever, in the seventies, the Dollar devalued vis-à-vis the DMark by 40 p.c. in real terms, and it revalued by no less than 100 p.c. at the beginning of the eighties. Movements of a similar magnitude could be observed for the effective rate of the Dollar.

#### V. The Regime of Monetary Policy and the Role of Expectations

In the past, large and persistent changes in real exchange rates could be observed for countries with high inflation rates or even hyperinflations; capital flight has been a major characteristic in recent years for countries with debt problems. Do international investors react in a similar manner if inflation is only moderate?

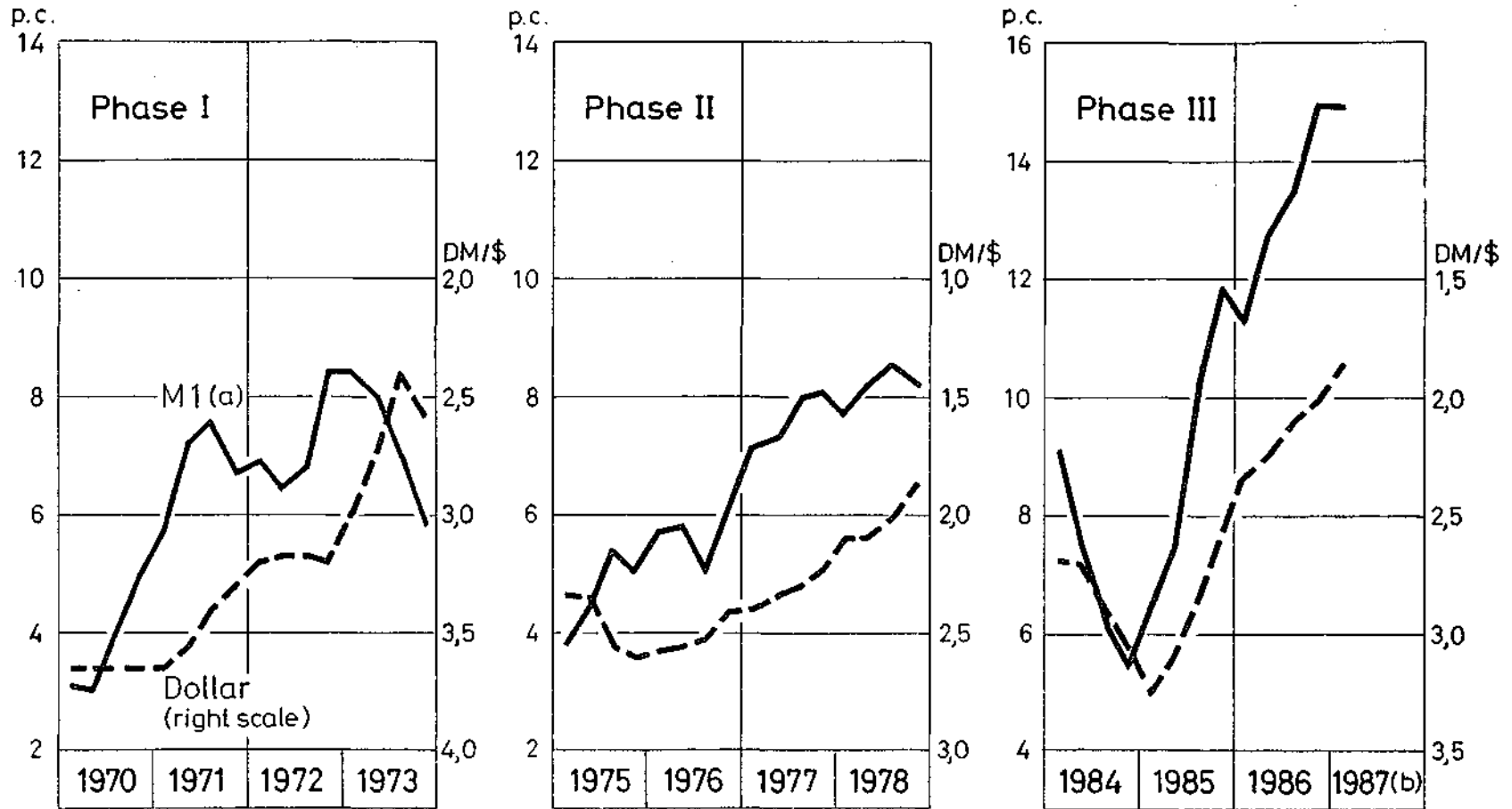
The decision to invest capital in a country very much depends on the relative "stability" in the particular country. This stability may mean different things to the investor: Are there high profit opportunities for real investment projects? Is taxation of capital low? Is the probability of expropriation low? Are markets free of government regulations and interventions? Or quite generally, does economic policy follow a course which promises a stable economic development in the longer run? - It is certainly important to the investor that the supply side is relatively dynamic or that policy measures are market-oriented; but it is probably also highly important whether the price level is expected to be fairly stable in the medium run. Or in other words: A policy which allows for inflation or even deliberately accepts inflation to achieve certain goals will be considered as less attractive by investors. High inflation is often viewed as an indication of an unsound policy pursued to overcome problems on the real side of the economy (high unemployment, structural problems etc.) "by a trick"; it is possibly incompatible with a market-oriented policy. As an example, several of those LDCs now considered problem countries with respect to their foreign debt have taken recourse to inflationary policies to finance exorbitant budget deficits or to reduce adjustment problems on labor-

or goods markets. Given these considerations, international investors will watch carefully whether a country will allow for more inflation. However, this cannot always be derived from current monetary policy; one or two quarters of higher monetary expansion compared to the previous course do not necessarily induce changes in the judgment for the medium run. Expectations are influenced by what can be called the monetary regime, i.e. the type of policy pursued and the priorities of monetary policy (the targets for monetary policy may very well change over time).

The meaning of the monetary regime and its importance can be demonstrated for past movements of the exchange rate. At the beginning and in the second half of the seventies, US monetary policy became very expansionary (Graph 4). Obviously, the regime in these two periods was similar. Under President Nixon (Phase I), monetary policy tried to stimulate the economy. The real effects of this policy were supposed to be increased by price- and wage controls (which later had to be abolished). This strategy raised inflationary expectations, the Dollar declined markedly, and we could observe a substantial acceleration of inflation in 1973/74 (1). A similarly expansionary policy was pursued under President Carter since 1976 (Phase II). At that time, monetary expansion accelerated, also in response to the locomotive-strategy propagated at that time. The consequences were the same as in Phase I: The Dollar depreciated (2), and inflation started to accelerate markedly in 1978 (3). These two episodes represent the Keynesian experiment of the seventies, and the same type of policy was pursued in other countries as well, among them - as already mentioned - were Italy, France and the UK (4).

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- (1) The increase of oil prices added to the increase of inflation.
  - (2) At that time, the US-Administration, especially Michael Blumenthal, pursued the policy of "talking the Dollar down". It could be "successful" because monetary policy was expansionary enough.
  - (3) Again, inflation was pushed up further by the increase in oil prices.
  - (4) The same applies to the French experiment in the early eighties.

Graph 4: US-Monetary Policy and the Dollar: The Three Phases of Devaluation



(a) Percentage change over previous year. - (b) First quarter estimated.

This hypothesis which stresses the change of the regime is also compatible with the Dollar's surge in the early eighties. The change in the US-Administration in 1981 implied a fundamental shift of priorities. Apart from other measures (in the area of stimulating profitability), the determination of fighting inflation which had reached double-digit rates was a major characteristic of the new policy. In this respect, the central bank was highly successful because inflation dropped to 3.5 p.c. in 1985. Consequently, the US became attractive again for international investors. Currency substitution was at work, the US appeared to be a safe haven again.

Since the beginning of 1985, however, economic policy has changed again. Not only has monetary expansion accelerated substantially; also the targets and the reasoning by both the government and the central bank seemed to be different from the period before (1). While the target of price level stability had dominated during previous years and while the high Dollar had not been considered as any problem - actually, it had been viewed as supporting the US policy -, the prime concern now was stimulating the real economy. Fiscal policy could not contribute much in this respect, since the budget deficit was already high. So monetary policy was singled out as the main instrument to tackle the real problems which began to come to the surface again after the recovery had lost steam (the farm crisis, the problems of smokestack industries, the difficulties of the banking industry etc.). Also, the policy was seen as a way to stimulate exports by reducing the value of the Dollar. This was done verbally - the Blumenthal-Dollar of the late seventies thus finds its parallel in the Baker-Dollar - and by international cooperation (the Plaza meeting of September 1985); this strategy was "successful" because the Fed was ready (although maybe not always willing?) to accommodate this by an expansionary policy. In addition to the change in monetary policy, there was also a shift in fiscal policy. The priority was no longer to stimulate investment; and it seems

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(1) For a discussion, see Scheide [1986b].

that the judgment on the US budget deficit also changed since there were only few observers who believed - contrary to earlier expectations - that the budget deficit could be substantially reduced by expenditure cuts.

So one is tempted to say that the new policy since 1985 represents a shift in the regime, even if the period of accelerated monetary expansion has so far "only" lasted for two years (while in Phase I and Phase II, the acceleration lasted longer). One important indication that a shift really occurred is the fact that the Dollar depreciated right after the change of monetary policy in 1985. It therefore seems that the rhetoric and the policy on the one hand and the reactions of international investors on the other are the same as in the two phases in the seventies when the Dollar also declined (it should be stressed here that this hypothesis does not claim quantitative precision - it rather is a pattern that can be detected; in other words, the hypothesis does not depend on the fact that the Dollar declined to DM 1.80 instead of "only" DM 2.30).

The hypothesis emphasizes the relevance of the interpretation of a policy as opposed to the actual policy (although, of course, they cannot differ over a longer period). In this respect, we can argue that the development over the past two years has been different from the period between mid-1982 and early 1983, when monetary expansion also accelerated substantially (1). At that time, several economists predicted more inflation because of the policy change (2). However, it appears that market participants at that time did not expect a permanent shift away from the restrictive stance of monetary policy; in spite of higher monetary expansion, the Dollar did not decline. The expectation that the expansionary policy was only a short episode proved to be correct (3) because the central bank became restrictive again in the

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(1) It is certainly true that this period remains to be a puzzle for monetarists because of - among other things - the unusual behavior of velocity.

(2) For example, Friedman [1983].

(3) Of course, this does not mean that expectations are always correct.

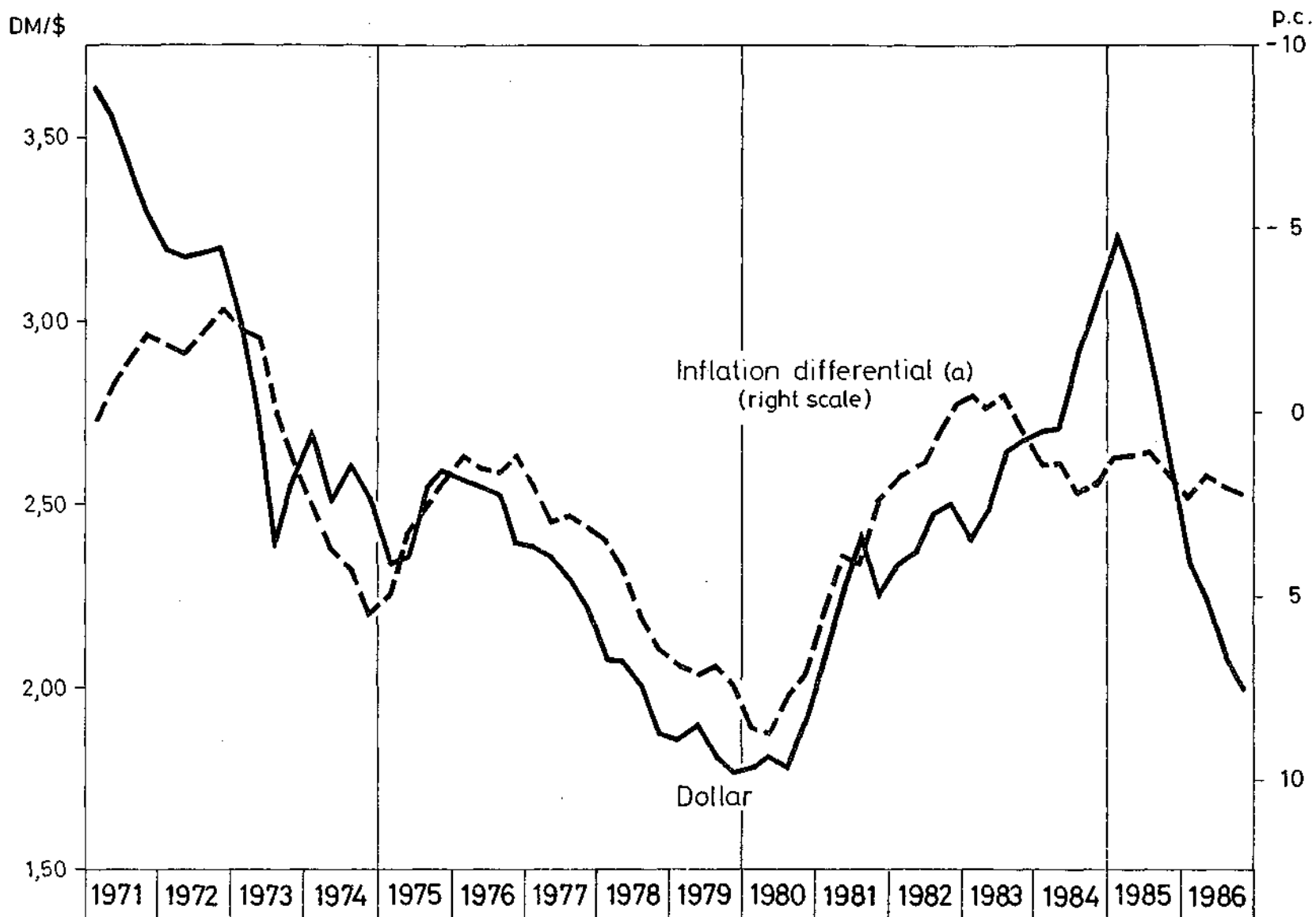
spring of 1983. In other words: During that period, the regime of monetary policy had not yet changed, price level stability was obviously still the prime concern for monetary policy (1). However, it seems that today the situation is different.

So far we have mentioned similarities to Phases I and II in the seventies; however, the development of Phase III is not yet fully in accordance because the US inflation rate has not picked up. Therefore, we may still hesitate to say that investors did indeed react to a change towards an inflationary regime. But it is not unusual that there is a lag between monetary policy and inflation. In the sixties and seventies, this lag averaged roughly two years. There were first signs of a higher rate of inflation (measured in terms of the CPI) in late 1985. However, this tendency was interrupted in 1986 when oil prices plunged; this led even to a further decrease of the inflation rate which averaged 2 p.c. in 1986. When this effect subsided, prices started to rise faster; between mid-1986 and the beginning of 1987, the CPI increased by about 4.5 p.c. (annual rate). It is likely that the US will from now on experience higher inflation rates again (2).

If the regime and the derived expectations are important for the exchange rate, we should observe a close relationship between the exchange rate and inflation rates. In the case of the Dollar-DMark rate, this hypothesis can be demonstrated relatively well;

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- (1) The 1982/83-episode, though it cannot be fully explained, may serve as a good example for the relevance of the inflationary effects of monetary policy as opposed to transitory increases of monetary expansion. This distinction seems important; otherwise we could really say that we have found a - close to - mechanistic relationship between monetary expansion and the exchange rate. According to our hypothesis, the Dollar did not decline because inflation did not accelerate. Another way of interpreting this period is that the monetary expansion just happened to accommodate the increase of desired real balances induced by the sharp fall of the inflation rate.
  - (2) In the past, doubts have been raised whether M1 was still a reliable indicator for monetary policy. The Fed even decided not to announce targets for M1 anymore. It may be true that the relationship between M1 and economic activity has become somewhat looser recently; nevertheless, M1 still seems to be reliable as an indicator for the direction of policy. Apart from this, other aggregates, too, indicate that monetary policy has been expansionary over the past two years.

Graph 5: The Parallel Movement of the Exchange Rate and the Inflation Differential



(a) Difference between the US and West German inflation rate (percentage change of the CPI over previous year).

since the early seventies, there has been a parallel movement between the exchange rate and the difference between the US and the West German inflation rate (Graph 5). There are, indeed, major aberrations (1), but the trend of both variables seems to be much the same. Thus we can reconcile the major movements of the Dollar with our hypothesis: The fall until the end of 1973, the stability until 1976, the fall between 1977 and 1980, the rise until the beginning of 1985, and finally - should the inflation rate in the US rise faster than in West Germany (2) - the fall since then. It should be clear that the relationship is more like a pattern (a relationship between trends) rather than a close quantitative relationship (although a regression may reveal "satisfactory" results!).

#### VI. On the Compatibility with the Monetary Approach

Our approach which stresses the differences of inflation performance is quite compatible with an extended version of the monetary approach. The monetary regime influences the expectations of investors. If more inflation is expected for the US because of money supply data and the priorities of the authorities (justifications by the central bank, rhetoric of the government etc.), the demand for US-Dollars declines. International

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- (1) This was especially so in 1984/85, when the Dollar surged again for a short period.
  - (2) The effect of what happens in the US seems to dominate with respect to the trend of the exchange rate. How can it be that we can practically leave out West Germany's monetary policy? How come that we get these effects on the exchange rate although the German Bundesbank has always more or less followed the course of the Fed? Two tentative answers can be offered: First, Germany's policy is probably viewed as being more stability-oriented than the US policy; in fact, over the past 15 years, inflation rates have been lower on average and have never reached double-digit figures like in the US. Therefore, deviations from a stability-oriented course are more important for the exchange rate if they occur in the US. Second, the relative size of the two countries matters; the reaction towards a shift in the larger country may have a larger effect on the exchange rate than a shift in the smaller country.



investors will restructure their portfolios and the share of US currency will be reduced (1). This currency substitution implies that money demand falls not in proportion with the increase of inflation but by more than that, whereas that currency which inflates less will in turn receive a "stability premium" (2).

Investors will tend to avoid the inflating currency also because the risk connected with the expected yield increases. One reason is that - as past experience shows - the variance of inflation rates increases with the average inflation rate. This means that the risk with respect to, for example, the price of a Dollar denominated bond (the interest rate risk) increases if the US inflation rate rises. According to our hypothesis, the expectations of investors which are influenced by the regime of monetary policy are the crucial element in determining the demand for a particular currency. The inflation rate which will result from this whole process can be viewed as the outcome of the interplay between the demand for and the supply of money. In this non-trivial sense, the exchange rate can be interpreted as the relative price between two monies.

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- (1) Compare the analysis in Fürstenberg [1985].- It is important to analyze how quickly expectations can change and what determines the process of forming expectations. One way of discriminating between permanent and only transitory changes is modelled by Brunner, Cukierman, Meltzer [1983].
  - (2) Another argument can be derived from a simple example: Let us assume that there are only bonds in the US and West Germany with a time to maturity of 10 years. An increase of the US interest rate by one percentage point - because of a rise in expected inflation by 1 p.c. - will reduce the price of the bond by 7 percentage points. If we assume efficient markets (all expected returns are equal), the exchange rate immediately has to decline by 6 p.c.; this is the consequence of the relationship with the forward rate. Now the assumption that only bonds are traded is, of course, unrealistic. The average time to maturity is somewhat shorter, and also goods markets may compensate some of the changes in the exchange rate. However, this simple example demonstrates that even a small change of inflationary expectations can have a large effect on the exchange rate.

## VII. The Consequences...

The dramatic exchange rate movements do not seem to contradict the assumption of rational behavior on the part of economic agents (1). The hypothesis that has been put forward here and which stresses the importance of the regime and inflationary expectations can be falsified. It would, for example, be an apparent contradiction if the Dollar rose sharply from now on while, at the same time, the US inflation rate accelerated substantially compared to West Germany's inflation rate. The same would apply if monetary policy continued to be expansionary but, at the same time, inflation and the Dollar remained low. However, it would not be a contradiction if US monetary policy became restrictive and, consequently, the Dollar appreciated; in that case, a noticeable acceleration of inflation could possibly be avoided.

### ...For a Forecast of the Exchange Rate...

We have not developed a scientific basis for exchange rate forecasts (2). In the short run, a forecast does not make sense anyway if one believes in the random-walk nature of this relative price (after all, shocks are defined to be unpredictable!). The best forecast then is that the exchange rate will remain on its present level (3); everything else would simply be speculation. But our hypothesis seems to do well enough in explaining the trend. Can this not be exploited for medium-run forecasts? This can also be doubted because it is difficult, if not impossible, to predict trends (or: the regime) of monetary policy; it may

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(1) This rationality has recently been questioned by more and more economists. Economic agents are often called ignorant with respect to the so-called fundamentals. See, for example, Marris [1985].

(2) It is strange to see that some economists think they have to give up their job since they believe that they should be able to make exchange rate forecasts but can't. However, not having superior knowledge for each and every market is not a failure of economics.

(3) A minor deviation is necessary if there is an interest rate differential between the home and foreign currency.

change any time. If, for example, the inflationary dangers were seriously considered now in the US and if, because of that, the Fed stepped on the brakes, a change in the trend of the Dollar exchange rate would also be likely. In this case, the speculation is about policy moves of the Fed. However, as experience shows, predictions of this sort are very difficult; this is the dilemma in a world in which the fine-tuning philosophy seems to dominate and in which monetary policy is not geared to - or, at least, does not stick to - medium-term targets. Thus we can possibly only make conditional forecasts of the type: If US monetary policy remains expansionary even when inflation accelerates, the Dollar is likely to remain weak.

...For the Discussion on the International Monetary System

There is a danger that inflation will also increase in West Germany because the Bundesbank has more or less followed the expansionary course of US monetary policy. Obviously, the German central bank still pursues - explicitly or implicitly - an exchange rate target (how else could the violation of the monetary target in 1986 be explained?). This behavior is the same as in the two phases of the seventies when the Bundesbank tried to dampen the revaluation of the DMark. Monetary expansion accelerated and inflation went up - although by much less than in the US. This risk also prevails today since monetary policy has been expansionary for 15 months now.

In the international debate, the idea of target zones for exchange rates seems to become more and more attractive. The proposal says that the governments should give "clear signals" to market participants, who presumably neglect the so-called fundamentals. As references for exchange rates, either current account balances or the price levels of two respective countries are suggested. But these reference paths do not make much sense because

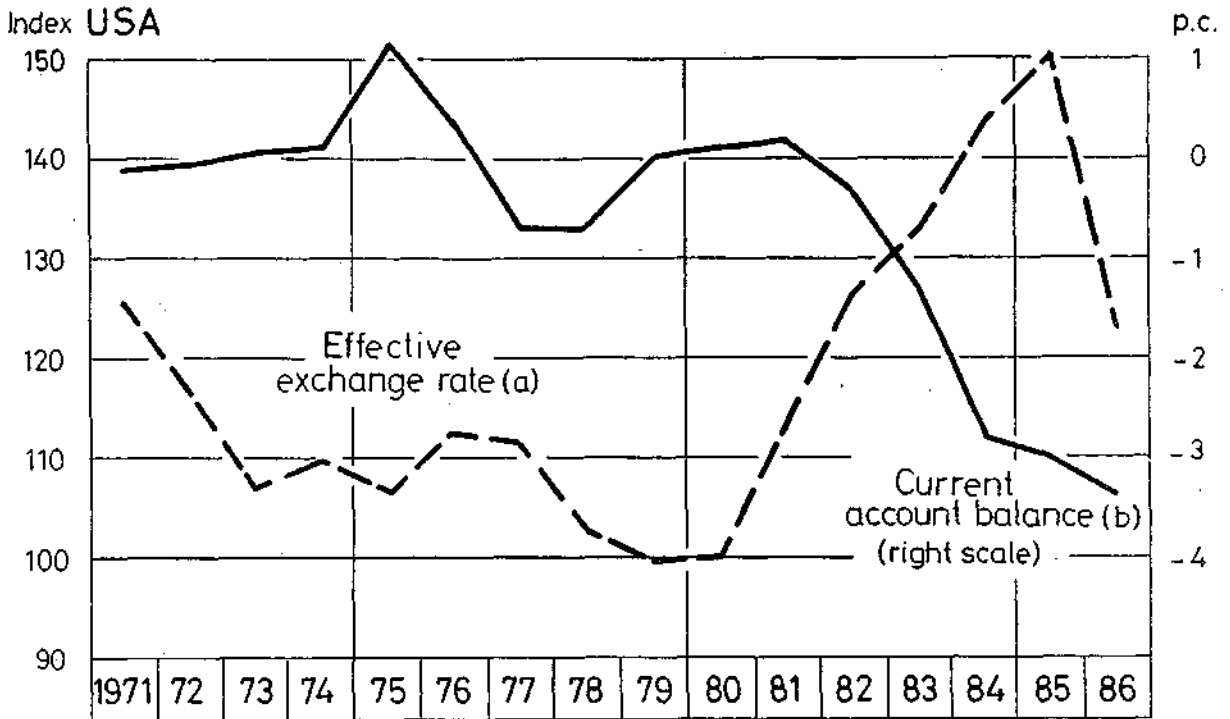
neither current account balances (1) nor purchasing power parities are reliable fundamentals for the exchange rate (2).

In the past, we have experienced sustained changes of real exchange rates. However, this fact does not at all reflect an irrationality of markets; the opposite seems to be true since it was argued that investors behave exactly the way we expect rational agents to behave: They try to maximize their profits by using the available information as good as they can. Of course, they will make mistakes (3). But they will probably try to avoid those currencies which will depreciate relative to others. The return to fixed exchange rates or - what is more or less the same - the establishment of target zones cannot be successful. The Bretton Woods system failed mainly because the industrial countries could not agree on the same set of targets for economic policy. If there is no such an agreement - and there is no reason to expect this because it is quite natural to have different preferences in different countries -, exchange rates must be flexible to adjust.

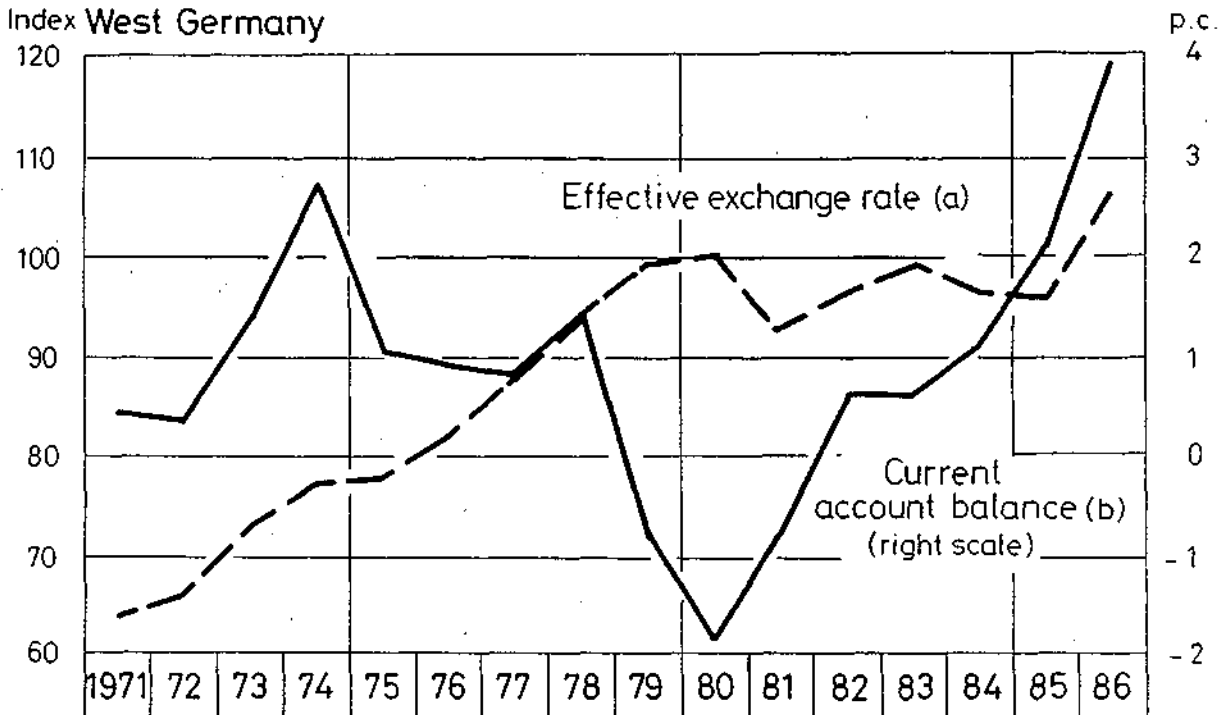
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- (1) The popular notion of overvalued or undervalued currencies usually implies a certain value for the desirable or "equilibrium" balance on current account (usually, it is zero). This can be criticized for at least two reasons: First, there is no reason why only a balanced current account can be a sustainable equilibrium, since it is always voluntarily financed. Second, terms like overvaluation imply irrational behavior: It is claimed, for example, that in the early eighties, investors made a mistake in buying US assets when the Dollar went up because they should have known that the Dollar was "too high"; in other words, they could have easily avoided a tremendous capital loss if they had only followed the calculations for the equilibrium value of the Dollar based on a balanced current account.
  - (2) See also Scheide [1986a].
  - (3) For example, in an ex-post sense (but only in that sense) it was wrong to invest money in the US at an exchange rate of DM 3.40 because later the Dollar dropped.

Appendix

**Graph A1: Current Account Balances and the Effective Exchange Rate**

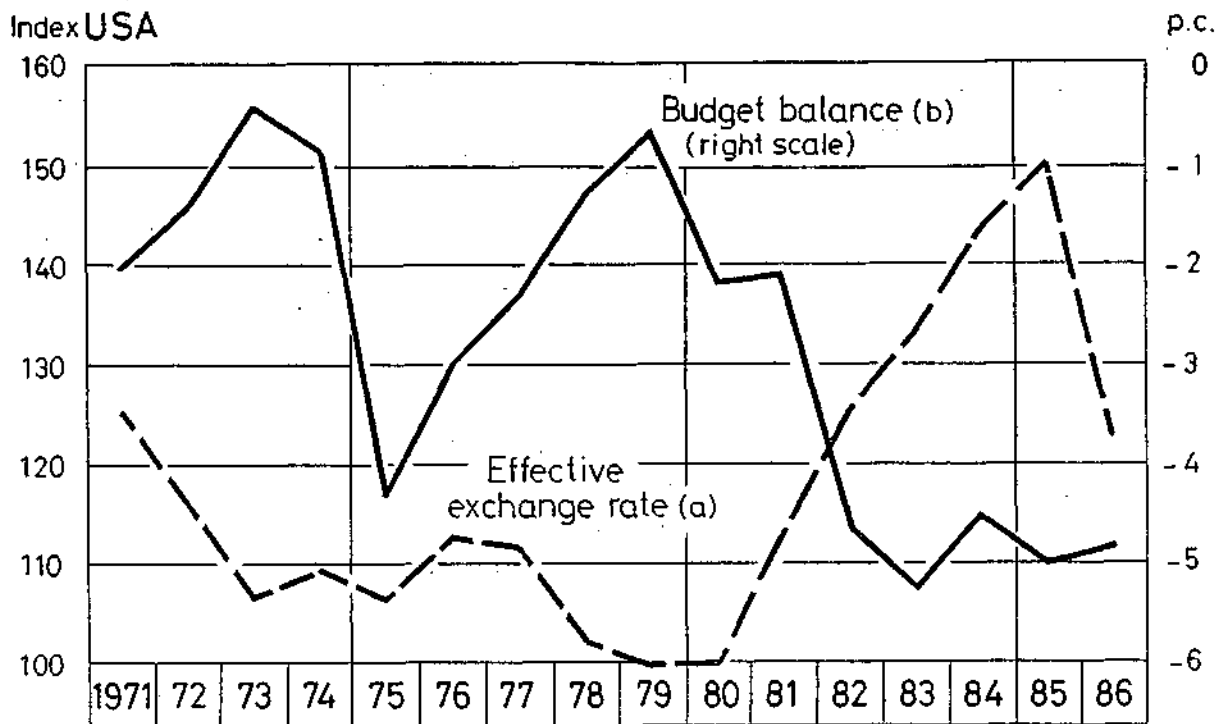


(a) MERM-rate. - (b) As percent of GNP.

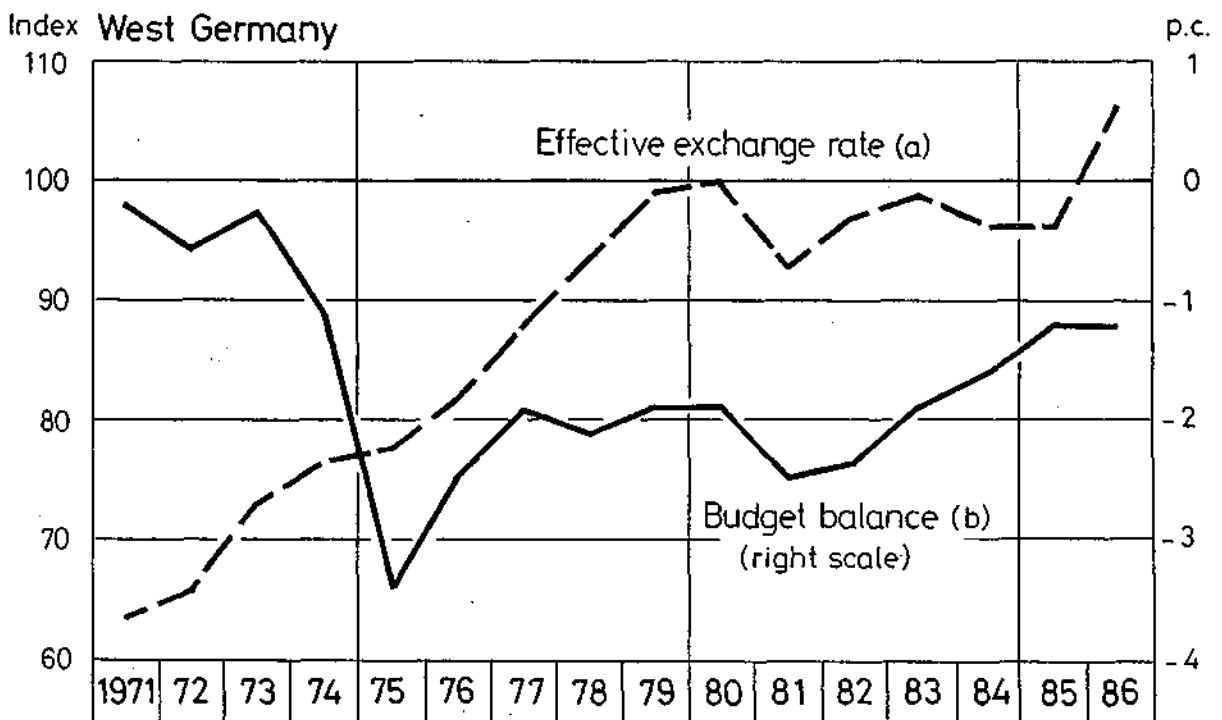


(a) MERM-rate. - (b) As percent of GNP.

**Graph A2: Budget Balances and the Effective Exchange Rate**

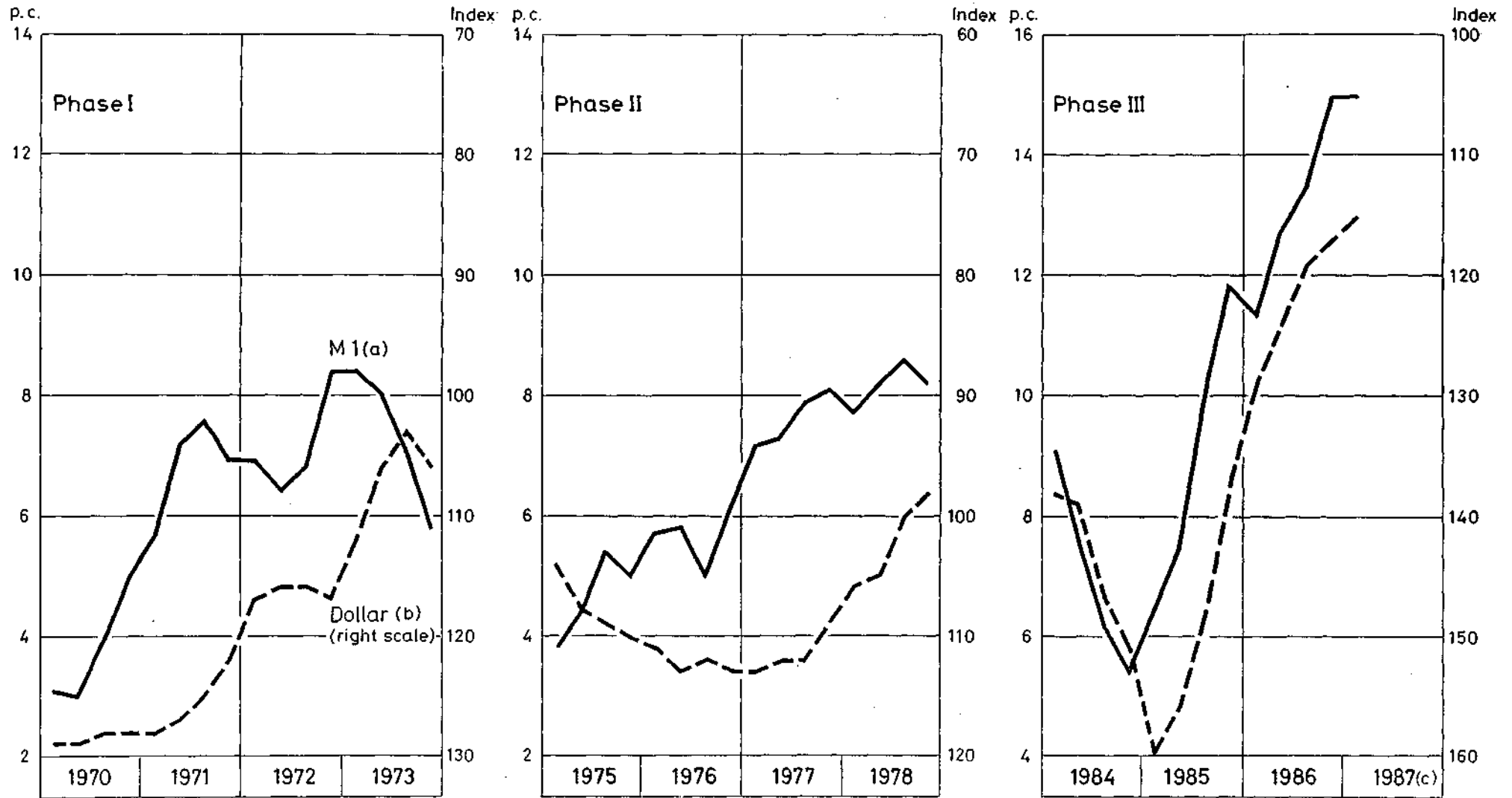


(a) MERM-rate. - (b) As percent of GNP.



(a) MERM-rate. - (b) As percent of GNP.

Graph A3: US-Monetary Policy and the Effective Exchange Rate: The Three Phases of Devaluation



(a) Percentage change over previous year. - (b) MERM-rate. - (c) First quarter estimated.

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