THE CONCEPT OF MONETARY
UNION AND
THE EUROPEAN MONETARY
SYSTEM

Nejat MAKARNACI

MBA

Bilkent University—Ankara

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THE   CONCEPT   OF   MONETARY   UNION

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NEJAT MAKARNACI

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I certify that I have read this thesis and in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Business Administration.

Assist.Prof. Gökhan Çapoğlu

I certify that I have read this thesis and in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Business Administration.

Assist. Prof. Kürşat AYDOĞAN

I certify that I have read this thesis and in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Business Administration.

Assist. Prof. Fatma TAŞKIN

Approved for the Graduate School of Business Administration

Prof.Dr. Sübidey TOGAN

ABSTRACT

THE CONCEPT OF MONETARY UNION

AND

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by

NEJAT MAKARNACI

MBA Thesis

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Supervisor: Dr. Gökhan Çapoğlu

This research analyzes the concept of the monetary union and the European Monetary System (*EMS*). It consists of three parts.

The first part starts by covering the concept of monetary union and the theoretical conditions that may contribute to the success of a monetary union, and ends by defining the *EMS* studying the motives for its development.

The second part studies the functioning of the *EMS* from a technical point of view. It does this by dealing with   the exchange rate and   intervention   mechanism, the European Currency Unit (*ECU*), and the existing credit mechanisms.

The third part of this research tries to evaluate the perfomance of the *EMS*. Firstly, it studies the stability of exchange rates as a first step in achieving a monetary union. Next, it reviews the convergency of economic variables that have either direct or indirect effect on the exchange rate variability. Finally, this research lookes at the higher growth and employment objectives of a monetary union through increased intra-union trade.

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ÖZET

PARA BIRLIĞI KAVRAMI

VE

AVRUPA PARA BIRLIGI

Hazırlayan

NEJAT MAKARNACI
Işletme Yüksek Lisans Tezi
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ÖZET

Bu tez ana olarak para birliği kavramını ve Avrupa para sistemini inceleyecektir.. Tez üç kısımdan oluşmaktadır.

Ilk kısım Para birliği kavramı ve para birliğinin başarılı olmasına katkıda bulunabilecek koşulların incelenmesi ile başlayacak, ve Avrupa Para Sisteminin tanımlanması ve onun gelişmesi için gerekli motivlerin incelenmesi ile son bulacaktır.

Ikinci kısımda Avrupa Para Sisteminin çalışması daha çok teknik bir bakış açısı ile incelenecektir. Bu inceleme döviz kuru ve müdahale mekanizması, merkezi kurlar ve müdahale mekanizmasındaki kurallar, Avrupa Para Birimi ve şu anda var olan kredi mekanizması üzerinde çalışılarak tamamlanacaktır.

Bu araştırmanın üçüncü kısmında, Avrupa Para Sisteminin performansı değerlendirilmeye çalışılacaktır. Öncelikle para birliğinin kurulmasında ilk adım olan döviz kurlarının kararlılığı ana temas konusu olarak araştırılacaktır. Ekonomilerin yakınsaması, döviz kuru birliğinin önemi düşünülerek, döviz kuru değişimi üzerinde direk ve endirek etkisi olan ekonomik değişkenlerin araştırılması ile ele alınacaktır. Işlenecek son konu para birliğinin hem birlik içinde ticaret hemde yerli ve dış talebi artırarak sağlaması beklenen yüksek kalkınma hızı ve iş olanakları olacaktır.

INTRODUCTION

Monetary unions are expected to lead a better economic performance in the union by alleviating the speculative movements, increasing the intra-community trade, allocating the capital production factors optimally, making possible the use of mutual assistance between the participants. It is also argued that the world trade and thus, economic activity would improve by forming monetary unions among the countries that have properties to participate in the union.

Since participation in a monetary union may constitute a cornerstone in a country's economy, it is important that prons and cons of being a member in a monetary union may well be judged, and whether or not the country has some of the factors among the ones that are expected to contribute success to the country in case of participation. The degree of convercency of the economies and to which degree this convergency can be achieved is one of the important issues since it may be this convergency that may prevent the exchange rate volatility in case of liberalization of capital mobility in the way of going to a full economic integration. The another issue which will be adressed in this research is whether or not establishing a common central bank . It will be studied in connection with the aim of using a single currency within the borders of monetary union, and the common monetary policy that may prevent exchange rate variability even when, capital movements are liberalized.

PART 1. THE THEORETICAL REASONS FOR FORMING A MONETARY
UNION AND THE EMS AND THE MOTIVES FOR
DEVELOPING THE EMS

1.1 Monetary union and Theoretical Conditions for
its Success

Monetary union is defined as the union in which
participating countries accept to use a common currency in
the union or creating a basket type currency. This also
requires a common central bank that has the authority to
issue the currency. However attaining a monetary union
may be realized in two steps. The first step is to keep the
exchange rate fluctuations within a close margin and to
succeed with the intraconvertibility of the currencies in the
union. The final step is achieved when the participating
countries use a single currency as a means of payments. The
idea of forming of a monetary union was first developed by
Mundell[1] (1961) in his article on optimum currency areas.
According to his article a shift in demand from goods of
region A to the goods of region B would cause unemployment
and income fall in region A. Region A will suffer an
economic recession.This shift would result in trade surplus
and inflationary pressures in region B. A depreciation of the
currency of A in terms of currency B, could switch
back demand toward A, offsetting internal disturbances. A
high degree of factor mobility in terms of migration
will increase the supply of factors of production and
output in B. This will alleviete the inflationary pressures

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[1] See, Mundell (1961).

in B, while reducing unemployment in A. Factor mobility, then, acts as a substitute for exchange rate changes in achieving internal and external equilibrium and improving welfare in both regions. Hence, factor mobility is an important condition for a successfull monetary union.(12)

A second condition for a monetary union is the openness of the economy which was argued by *McKinnon* [2]. *McKinnon* discusses that small and open economies will not be able to use flexible exchange rates because domestic prices would react quickly to exchange rate changes in such economies. It would eliminate the impact of exchange rate changes that would switch the consumption to domestic goods, hence improving the trade balance of the economy. Hence, a country with small and open economy may be advised to participate in the monetary union and peg its currency.

The fact that a country has diversified products also affects the country to participate in a monetary union positively. Because supposing a country with specialized products in its exports, a sudden decline in the demand for that product would have severe effects on the economy of this country resulting balance of payment balance worsening and unemployment. This decline would have had less severe effects on the economy of the country with more diversified products to export. So the former country with concentrated products are more bound to make the products prices attractive again by depreciating its currency (*Kenen*)[3]. The

[2] See McKinnon (1963)

[3] See Kenen (1969)

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liberalization of capital movements is also important in the monetary union considering the case that a slight increase of the real interest rates would attract foreign capital inflow hence improve the balance of payment deficit. This mechanism was proposed by *Ingram* [4] (7). However, the criticism of this mechanism is that the country is not actually eliminating its balance of payments problem but borrowing at the expense of future payments.

The convergence of the inflation rates is an important condition for the survival of a monetary union. The importance of the convergence of the inflation rates stems from the need to stabilize the exchange rates. Its effect may be explained as follows . The increasing prices would cause a deterioration in the trade balance of the high inflation country. The country needs to devalue its currency to regain the competiveness.

1.2 The *European Monetary System and* Motives for its Development

Economic integration requires the integration of both good markets and the money markets to achieve the free movements of factors of production. Only then, there will be an optimal allocation of the resources.

European Monetary System in which eight country participate and the United Kingdom and Greece is represented in one of its aspects, the *ECU*, is a system that aims at realizing a monetary union within the framework of the *European Economic Community*. The *EMS* aims at forming

[4] See Ingram (1962 and 1973)

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monetary union by first, ensuring fluctuations among the member currencies to narrow margins, and at the same time, ensuring the regional interconvertibilty among the currencies, and finally, making use of a common currency unit among the member countries.

In addition to the reason to achieve an economic integration in the *EEC*, the studies towards a monetary corporation were initiated by both internal and external considerations. The *EMS* was inspired by the dissatisfactions with the floating exchange rate system, and internal factors.

Firstly, internal motives to form a monetary union are:

i- The possibility of mutual assistance in case of serious balance of payment difficulties.

ii- To encourage the intra-trade among the member countries by lowering the speculative movements on the currencies.

iii- To decrease the exchange rate risk attached holding European currencies vis a vis dollar, thus increasing their attractiveness as reserve assets for the European Central Bank.(9)

iv- To Ensure small fluctuations of the currencies that would lead to a path towards converging and stabilizing the main macroeconomic variables, such as growth rates of the economies, inflation rate, unemployment rate, real interest rate within the certain levels.

v- To realize the joint fluctuation of Community currencies vis a vis the dollar that would end up with the common monetary policy toward foreign countries.

However, efforts to form a monetary union was mostly affected by external factors.

One of these factors is the dissatisfaction with the floating exchange rate system. In the clean floating exchange rate system, exchange rate changes adjust to eliminate balance of payments deficit or surpluses of the related country. However, in the fixed exchange rate system a country suffering from balance of payment deficit has to apply restrictive monetary and/or fiscal policies, controlling imports and capital outflows. The adjustment mechanism of the floating exchange rate systems offers independence in macroeconomic goals such as aggregate spending.

The emprical evidence shows that the balance of payments imbalances are not eliminated under the flexible exchange rate system and remained large since 1973 (9). Moreover depreciation will have a positive effect on the trade balance if the price advantage due to the depreciation is not offset by the inflation rate. The phenomenon 'overshooting' is also likely to occur in the following way. A country whose currency has appreciated, say due to the trade surplus, will attract capital flow into the country because of the better earning possibility and expectation of further appreciation, this would force the currency to appreciate more. The reverse would also work. Such capital mobility with the tendency to adjust more rapidly than goods markets also reduces the degree of insulation which exchange rate flexibilty was supposed to provide (9).

The J-curve effect that stems from the slow response of the quantity of exports to appreciation or depreciation makes it difficult for the adjustment mechanism work effectively.

2. THE FUNCTIONING OF THE EMS

The one of the objectives of the EMS is the exchange rate stability. The exchange rate and the intervention mechanism determines when the related countries would take necessary measurements. Another aspect is the *European Currency Unit* that is a step to complete the full monetary union. The final topics will be the *European Monetary Fund* and the existing credit mechanisms.

2.1 The Exchange Rate and the Intervention Mechanism

The exchange rate and the intervention mechanism contains two elements:

i- The first one is based on maintaining bilateral central rates between the engaging countries. The bilateral central rates are expressed as a certain quantity of currency of one country with respect to that of the other country. Around this central rates, bilateral fluctuations are kept within limits (+/- 2.25% , except for Italy, +/- 6%) by intervening in the foreign exchange market.

ii- The second one is based on the divergence indicator. This element entails to intervene when the currency deviates certain amount in terms of the *ECU*. It will be explaned in the section 2.1.2.

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2.1.1 Central Rates and the Rules for Intervention

Before going into the analysis of the intervention mechanism it may be useful to define the *ECU*-related central rates. The *ECU*-related central rates are expressed as a certain quantity currency per *ECU*(8). But more properly one over the *ECU*-related central rates are used to find the bilateral central rates. One example is the following:

X: The *ECU*-related central rate for Holland Florin(HFL)

X = 2.59595 (3) ==>

(1/X) = 0.39589

Y: The ECU-related central rate for Deutch Mark(DM)

Y= 2.24184 (3) ==>

(1/Y) = 0.44063

If the value of DM based bilateral central rate, i.e what the value of one HFL in terms of DM, is wanted to be found in terms of HFL, then

$$\frac{(1/X)}{(1/Y)} = \frac{0.395890}{0.446063} = 0.887522 \quad (DM/HFL)$$

There are two types of intervention mechanism:

i- Compulsory Intervention : Intervention is compulsory whenever currency reaches its intervention limit relative to another currency. The authorized institutions of the two currencies are then required to intervene on their relevant markets in order to keep these currencies within their fluctuation limits . To express this differently, the bank of the strong currency purchases the weak currency, while the bank of the weak currency sells the strong currency.

ii- Intra Marginal Intervention : There exists two types of

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intramarginal intervention. The first type is used to cut the
tendency that a currency will reach its limit. This
intervention is usually made in U.S dollars. In most cases,
this may impose problems. The second type of the intervention
is a novelty one. It is made by the intramarginal
intervention that is performed by the rules governing the
operation of the divergence indicator. It is worth to study
in more detail.

2.1.2 The Divergence Indicator

The divergence indicator makes it possible to
determine the position and the movement of a currency in
the *EMS* with respect to community average represented by the
ECU.

To calculate divergence indicator and observe the
position of one currency relative to the other, maximum
divergence spread (*MDS*) for each currency calculated. This
spread gives the maximum percentage appreciation or
depreciation that the market rate of the *ECU* in terms of
a given currency may show against its central rate (9).
This can be obtained when any currency in the *EMS*, including
Sterling and Drahmi deviates 2.25% in the same direction from
all the other currencies in the *EMS*. Table.1 in appendix
highlights the concept of maximum divergence spread for DM.

A Carefull observation of the Table.1 reveals that
the 2.25 % depreciation of all currencies of the *EMS*
against D. Mark brings 1.478% of depreciation of the *ECU*
against D. Mark. The *MDS* is computed for each currency in a
similar way, then the divergence threshold for each currency

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is determined as the 75 % of the MDS threshold. For instance it is ± 1.085 % for DM in 01/02/1988.

Shortly, the divergence indicator(DI) measures the degree of movement of a specific currency against its maximum divergence spread. Two distincts step may be useful to introduce the concept of DI.

i- Firstly, the calculation of the positive or negative divergence shown by the market rate of the ECU of one currency against its ECU-related central rate.

ii- Comparison of the result obtained with the MDS. This analysis provides to which degree of the MDS in %, a currency has reached. The higher the percantage, the more urgent the intervention will be necessary. When DI reaches 75%, it means the currency reached its threshold level.

2.2 The ECU and its Functions

The ECU is defined as a basket type currency which is made up of a certain combinations of the currencies of ten EEC countries.

The composition of the ECU is defined as the fixed amounts of the currencies in ECU during a specific time period (See the 2nd column of table.1 in appendix for the composition in 01-02-1988). This period covers a time duration of 5 years. However, when the weight of one currency changes by 25% or more the composition of ECU is to be reexamined. The weight of a currency in the basket is found by diving the amount of the currency by the ECU-related central rate of that currency. For example the weight of DM in 01/02/1988

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$$\frac{0.71900}{2.06618} = 0.34798 \quad \text{or in \% =} \quad 34.798 \quad \text{(See figure.1 in appendix)}$$

Suppose the value of DM becomes 2.7549 after a certain period then the weight of DM is found to be 0.2609. If the change in weight is computed

$$\frac{0.34798 - 0.2609}{0.34798} *100 = 25.02 \text{ \%}$$

then the composition is to be changed.

The *ECU*-related rate of any currency is determined in two steps:

i- A currency is taken as a numeraire, and the exchange rates of the other currencies in terms of this currency is set R_{j1}, then

$$ECU_1 = \sum_{j=1}^{10} A_j * R_{j1}$$

A_js are the amounts in the first column of table 1. ECU_1 is the value of one currency in terms of curreny 1.

ii- Then, the value of one *ECU* in any currency is found by multiplying ECU_1 by the value of that currency in terms of currency 1^{5} .

The *ECU* is used for four purposes in the *EMS*:

i- as a denominator for the determination of central rates in the exchange rate mechanism. (See 2.1.1)

ii- as the reference unit for the construction and the operation of the divergence indicator. (See 2.1.2)

[5] See Van, Ypersele (1985)

iii- as the denominator for operations performed both in the intervention and the credit mechanism[6] .

iv- as a means of settlement between the monetary authorities of the *EEC*.

To serve as a means of settlement, an initial supply of *ECU* is provided by the FECOM[7] against the deposit of 20% of gold and 20% of dollar reserves held by central banks (9).

This operation has been taken place through three-months revolving swaps (9). At the beginning of each three months countries participating the *EMS* puts their 20% of gold reserves and 20% of their dollar reserves.

2.3 The Existing Credit Mechanisms

There are three types of credit mechanisms in the *EMS*. These credit mechanisms are mainly used for assisting a country facing balance of payment deficit. They are :

i- Very short term financing: It consists of the reciprocal cash facility among the *ERM*[8] participating central banks. Access to this facility is automatic and unlimited for purposes of intervention at the outside of the margins.(4)

ii- Short term monetary support: It provides short term finance for temporary Balance of Payment deficits or sudden declines in foreign exchange rate reserves.(4)

iii- Medium term financial assistance: It provides financial assistance for balance of payment support with resources subject to conditionality .

[6] See Van, Ypersele (1985).

[7] FECOM is the french equivalent of European Monetary Cooperation Fund. It is mostly used instead of EMCF.

[8] ERM is used for Exchange Rate Mechanism.

PART 3 - PERFORMANCE OF THE EMS

3.1 The Greater Exchange Rate Stability

3.1.1 Conceptual Considerations

The exchange rate variability imposes costs on economic agents (5). It has been suggested that short term swings of exchange rates around equilibrium level are of minor importance, because the risk involved can be hedged, whereas medium and long term movements away from equilibrium level may impose costly shifts in capital and labor factors.Another argument is that unexpected exchange rate changes impose the most severe costs [9].(5)

The *EMS* implies the exchange rate stability among the countries through two channells:

i- In the short term by intervention mechanism described in part two. The important problem in the short term that exchange rate mechanism has to deal with is the overshooting phenomenon. Overshooting phenomenon may force exchange rates to be realigned. Overshooting phenomenon occurs when an economy suffers from a disturbance such as sudden increase in the money supply and the value of the currency depreciates more than it has to do.

ii- In the long term, the countries will have to take internal measures to attain the exchange rate stability. If a country is having a balance of payment deficit, then it can eliminate this deficit by using domestic restrictive policies. It is no longer free to depreciate its currency to

[9] See IMF Occasional Paper No. 48.

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increase the exports. One of such policies is restricting the money supply, hence increasing the interest rates, lowering the income level,causing unemployment. The other domestic policy option may be shrinking budget expenditures considering the effect of it on the current balance. It is clear that these measures have very negative effects on the economy . However, cooperating the monetary union assumes that in such cases countries are better to colloborate in such a way that the country having balance of payment surplus, with trade surplus, would raise the inflation rate thus, competitiveness of the country with balance of payment deficit would rise, hence this country would not resort internal measures in such a severe degree.

There is also an argument that a system of fixed , but adjustable, exchange rates would not hold together for a long time and it would degenerate into a system of frequent small exchange rate adjustments very smilar to crawling peg system[10]. This view has not yet been proved.

Exchange rate realignments may become inevitable although they are postponed by the credit mechanism of the *EMS*, and by the intermediate and short term monetary measures of the countries of the weak currencies provided that these countries do not take appropriate and sufficient policy measures (4).

Liberalization of the capital movements also poses a problem about exchange rate stability. It is argued that liberalization of capital movements would result in the optimum allocation of the sources, hence contribute to

[10] See IMF Occasional Paper No. 48

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an increase in employment growth. However, there are still capital controls within the EMS. The reason for this may stem from the fear that countries might face a large outflow of capital. In addition to this, countries would have to face a special problem in the in the case of large capital movements: the burden of adjustment to capital movements would lie only on interest rates whereas in a floating exchange rate system, exchange rate movements help to slow down the effects. In other words currency depreciation would help to eliminate the balance of payment deficit through the improvement in the trade account (provided that Marshall Learner condition is satisfied). It is also offset via improving capital account by pushing up the interest rates. Artis[11] briefly discusses this subject, providing a support for the argument that capital controls may prove useful in the short run to reconcile the conflicts that nominal exchange rate stability may pose for real exchange rate developments (1). A country facing a large capital outflow may experience a sharp increase in its domestic interest rates under a fixed exchange rate system. The only possibility for a country trying to avoid large fluctuations in its interest rates in the absence of capital controls would be to devalue or revalue its currency. This is against the purpose of the fixed exchange rate system. Consequently, the fear is whether the countries would frequently realign the value of their currencies so as to avoid large interest rate differentials after removing the capital controls. Because

[11] See Artis (1987)

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of the early age of the *EMS*, it is not possible to conclude that the achievement in the exchange rate stability is affected by the capital controls. This fact is illustrated in Rogoff's paper[12]. In his paper, Rogoff reaches only a conditional conclusion by noting that if capital controls have been substantialy responsible for the success of the *EMS* in stabilizing the exchange rates, then the *EMS* experience has only limited relevance as a model for countries with open capital markets.(11)

There are two views on the liberalization of the capital movements within the *EEC*. One view is that, given existing divergences in economic performance, in particular with regard to inflation and interest rates , any significant progress toward free mobility of capital would facilitate large scale destabilizing capital movements frusturating efforts to maintain exchange rate stability[13](15). Another view is that the liberalization of capital movements would intensify pressure on the EMS countries to adopt compatible economic policies leading to convergent economic develop- ments[14]. Dr. Wilhelm Nolling dicusses that if a common monetary policy and highly cordinated fiscal policies are used, and real interest differentials are eliminated these destabilizing effects are diminished. Pursuing a common monetary policy brings the issue of establishing a common central bank since it will facilitate using a common monetary

[12] See Rogoff (1985).

[13] See Wilhelm Nolling (1988).

[14] See IMF Occasional Paper No. 61.

policy. However, there are differing opinions on creating a common monetary policy in the *EC* and establishing a European central bank. One view is in favour of implementing these as fast as possible so as to promote economic convergence of the participating countries. Opposing to this is the view that European national economies are still to diverse that a common currency and central bank may become too risky.(15)

3.1.2 Actual Evidences

There is a study conducted by Manuel Guitan, Massimo Russo, and Giuseppe[15] to measure whether or not the exchange rate variability has fallen. The strongest conclusion to be obtained from the study is that variability of bilateral exchange rates among *ERM* currencies has fallen since 1979, regardless of the measure chosen and irrespective of whether nominal or real exchange rates were used (See app.table 2) This means not only has the *EMS* succeeded in generating greater stability of nominal exchange rates , but also price developments have converged . This can be inferred considering the relationship between the nominal and the real exchange rates via price levels of the countries. The results of this study indicates that :

i-) The average variability of bilateral nominal exchange rates has fallen from 28.4% in pre-EMS period to 15.4% in post EMS period whereas it changed from 34.5% to 36.8% in the non EMS control group countries in the same period.

ii-) The average variability of the bilateral real exchange

[15] See IMF Occasional Paper No. 61

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rates in the same periods as above has fallen from 25.8 % to 16.1% whereas the one of non-EMS rised from 31.7% to 36.1%.

3.2 Economic Convergence

3.2.1 Conceptual Considerations

Economic convergence for the EC countries may be defined as the narrowing differences in the development of economic variables (5). Economic convergence can also be attributed as a factor that can prevent the fear that liberalization of the capital movements would cause exchange rate volatility, hence more frequent realignments. However differences in economic development may be essential on the way to the final goal, fully economically integrated *Europe*. Real growth differentials may cause current account differentials that could require changes in the real exchange rates. It appears that requirements to achieve the objective of stable exchange rates may not always be consistent with reaching the final goal of full *European Economic Integration* in the short run. In practice, priority has been given to the achievement of the exchange rate stability objective. Thus, economic convergence would firstly imply narrowing differen- ces among the variables that have a direct impact on the exchange rate stability. Convergence of certain economic variables, such as inflation rates and growth of money supply may sometimes appear more important than that of others such as fiscal balances for achieving stability in exchange rates (5). Moreover, the effects of exchange rate

divergences in some variables, for example, inflation rates, current account and fiscal balances, can, at least in the short run, be neutralized by divergences in others, for example, interest rates, capital account balances. So a situation in which divergences in those variables can offset each other so that exchange rate stability would not be affected may be possible. From this view point, convergence of not only monetary variables but also, up to certain degree, of fiscal and current account balances appears to provide the best basis for stable exchange rates, and resulting steps toward economic integration.

3.2.2 Price Developments

A Reduction and convergence in inflation rates is a factor that contributes success to the *EMS*. The convergency of the inflation rates is related with real exchange rates in a fixed, but adjustable, exchange rate system. If there are substantial inflation differences among the countries of the monetary union and if the nominal exchange rates are kept stable then the terms of trade of the inflationary country would be affected. That is, prices of the inflationary country would become expensive. This would result in the worsening of the trade balance of the inflationary country. Then, the inflationary country would have to resort restrictive domestic measures to eliminate the deficit in addition to the credit mechanism of the community. The restrictive measures would cause the un-employment rates to increase. If there exists a substantial inflation differences among the countries the convergency of the inflation may be assured by cooperating in such a

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way that a country with less balance of payment deficit would let inflation rise certain amount.

Indeed, it was determined that there were correlations between the real exchange rates, nominal exchange rates, and changes in the price level (See table 3 in Appendix). Effect of inflation on real and nominal exchange rates implies that inflation differentials also affect the purchasing power parity condition. It is clear that deviations from purchasing power parity condition would lead to speculative profit opportunities and losses. However one argument asserted is that capital movements enable exchange rate fixity with certain inflation differentials. The other argument claimed that will offset the negative effects of inflation is the high rate of productivity in export industries and import competing sectors as the productivity would help to reduce the cost, hence prices.(2)

In converging the inflation rates the EMS countries are fairly successfull (See figure 4 and 5 in Appendix). It is also the case for the control group countries, USA, UK and Japan.

3.2.3 Real Interest Rates Developments

Convergence of the real interes rates is another factor implied by the system. If there are substantial differences among the real interest rates then, there will be capital inflows whose amount is determined with its mobility into the countries that have positive differences. If capital flows create balance of payments deficits in some countries while balance of payment surpluses in others then, this

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unbalanced situation would require some kind of interven-
tions mentioned in the previous parts. If this can not be
avoided that it will last then, exchange rate realignments
might become inevitable.

There is one point related with the degree of variation
among the real interest rates.The lower the variation, the
higher the degree of capital mobility.

Variation of real interest rates of the EMS countries
stayed within the fluctuation limits of 1.15 and 1.65 while
it was between 1.79 and 0.67 for the control countries with
high degree of capital mobility. Looking at from this point,
it may be seen that monetary union has not brought the
higher degree of capital mobilty than the control group's
until now..(See Table.6)

3.2.4 Monetary developments

Money supply is a factor which influences the price
developments together with the money demand. The importance
of money supply stems from its indirect effect on exchange
rate changes via price differentials. In ERM countries,
both narrow and wide monetary expansion slowed in the 1980s.
(See table 4 and 5, and figure 2 and 3 in appendix)

3.2.5 Fiscal Account

As noted earlier, Fiscal account has effects on the current
account balance. It can be an offsetting mean to the
divergences in the monetary account in order to achieve
exchange rate stability. Fiscal deficit in the ERM
countries as a whole widened between the periods before and
after the EMS, although this was also the case for the non-ERM
countries. As a result, no trend of convergence from the

fiscal view point has been observed in the ERM
countries[16]. (See Figure.6)

3.3 Higher Growth and Employment

The greater exchange rate stability would contribute
economic activity through inducing both the domestic and
foreign demand. Under an unstable exchange rate regime, the
appreciation of the currency would make the exports of goods
of that country more expensive and lower exports and.This
would cause the economy to contract . As a matter of fact,it
was the case in Germany in years 1977 and 1978 (9).

At the same time, too much depreciation of a currency
would imply that the foreign goods are becoming expensive,
hence the residents of the country have to decrease their
consumption on foreign goods. Then, they will switch to
consume domestic products. In this case, goverments are
likely to fear to grow at a faster rate because of the
likelihood of further depreciation.

Exchange rate stability would also help industrialists
and businessmen to invest in different places where they see
it has better opportunities. European executives have often
complanied how difficult it is to give their enterprises a
fully European dimension in view of exchange rate risks
and uncertainty about inflation rates(9). The more invest-
ments that are undertaken the more growth will be possible
yielding higher employment.However, the average growth rates
of the EMS-8 stayed somewhat stable between 1.6% and 2.3%
except for 0.8% in 1983 (4) (See Table 6 in app.). The

[16] For more information, see IMF Occasioal paper no. 48

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unemployment levels of the countries differed lot and it has not been seen any significant improvement in lowering of unemployment level in the EMS countries.(See table.7 in appendix)

CONCLUSIONS

The positive attributes in joining a monetary union are the high factor mobility, convergency of inflation rates and real interest rates, and the liberalization of capital movements. The monetary union is expected to increase the economic growth, and employment by ensuring business confidence and increasing both domestic and foreign demand.

Since the inception of the *EMS*, the inflation rates of the participating countries and the variability among both real and nominal exchange rates have declined. The variation in the real interest rates fluctuated in close margins. However, fiscal deficit as a whole widened.GNP measures for the average of the *EMS* countries have not shown significant increase, nor does it shown a decrease. Unemployment rates have displayed different views in different countries of the *EMS*. But, Except two countries, it did not increased it stayed somewhat stable.

Although it is argued that liberalization of capital movements would result in the optimum allocation of the sources, thus contribute to the activity of the economies of the community, there is the fear that this liberalization would cause exchange rate realignments to be more frequently through destabilizing capital movements. This situation may be prevented if the convergency of the economies can be realized. It may also be prevented by using a common monetary policy and highly coordinated fiscal policies. Hence, the problem of establishing a common central bank is to be solved as it will facilitate using a common monetary policy.

APPENDIX

Table. 1

Parity and intervention point of the *ECU* in terms of the Deutch Mark in 01/02/ 1988

Composition of *ECU*		Equivalent, in *DM*, of the components of *ECU* where	
		Each *EEC* currency is at par with the *DM* [1]	Each *EEC* currency shows a depreciation of 2.25 % versus *DM*[2]
		DM	DM
DM		0.719	
BFR+LFR	3.850	0.18432	0.180173
HFL	0.256	0.22797	0.22284
DKR	0.219	0.05722	0.05593
LIT	140.000	0.190216	0.185936
FF	1.310	0.388695	0.37995
UKL	0.0878	0.2611	0.25522
IRL	0.00871	0.023	0.0225
DRA	1.150	0.014434	0.014115
1 ECU is worth		2.06618 DM	2.03568
		MDS in % [3]	%1.478

Source: Eurostat ECU-EMS Information Monthly, March 1988

[1] After it is looked down the exchange rates of the **EMS** currencies in terms of the **ECU**, these computations can be done to find the value of each currency as in the example:

1 ECU = 2.06618 DM and 1 ECU = 43.1553 BFR+LFR (3)

$$\Longrightarrow \frac{2.06618}{43.1553} * 3.85 = 0.18432 \Longrightarrow 1BFR+LFR = 0.18432 \ DM$$

[2] Example 0.180173 = 0.18432 - 0.0225*0.18432

[3] Maximum Divergence Spread in % = $\dfrac{2.06618 - 2.03568}{2.06618} * 100$

Table.2 Variability of Exchange Rates
(Periodic Average)

	Against ERM currencies				Against non-ERM currencies			
	Nominal		Real[2]		Nominal		Real[3]	
	1974-78	1978-86	1974-78	1979-86	1974-78	1979-86	1974-78	1979-86
Belgium	20.3	13.3	21.9	13.9	36.7	47.7	35.8	46.9
Denmark	25.0	14.4	25.8	14.1	32.3	44.4	37.3	44.0
France	31.6	16.9	30.4	17.9	37.8	51.1	35.3	47.7
Germany	29.2	16.1	28.0	15.7	35.7	43.1	32.8	44.3
Ireland	36.0	15.8	27.7	19.4	37.0	46.6	33.4	43.6
Italy	36.0	18.3	26.0	18.3	38.0	48.2	32.3	43.2
Nedherland	21.1	12.8	21.0	13.1	36.8	46.7	34.3	48.3
Av. ERM	28.4	15.4	25.8	16.1	36.3	46.8	34.5	45.4
Austria	20.3	11.8	19.3	11.0	39.5	47.9	35.5	48.8
Canada	44.1	52.3	43.4	51.5	23.4	18.9	21.8	21.1
Japan	44.5	47.1	40.9	44.4	46.7	56.0	44.0	58.6
Norway	25.3	29.3	24.6	27.2	35.6	40.2	31.7	39.0
Sweden	30.2	31.3	28.1	32.8	39.9	43.1	34.2	41.8
Switzerl.	44.0	25.7	35.7	23.4	48.0	49.0	43.4	49.0
United K.	32.7	41.0	28.3	44.6	49.6	51.3	40.0	53.1
United St.	34.7	56.1	33.1	54.0	34.2	39.1	31.6	41.5
Av. non ERM[4]	34.5	36.8	31.7	36.1	39.6	43.2	35.3	44.1
Av. Europ. non-ERM[5]	30.5	27.8	27.2	27.8	42.5	46.3	37.0	46.3

Source: International Monetary Fund, Occasional Paper No. 61, *Policy Coordination in the European Monetary System.*

[1] Weighted average (multilateral exchange rate model (MERM) veights), of variability of exchange rates against ERM or non-ERM currencies, with variability measured by coefficient of variation (multiplied by 1,000) of average monthly bilateral exchange rates.

[2] Nominal exchange rates adjusted for relative consumer price movrements ; vholesale prices for for Ireland.

[3] Nominal exchange adjusted for relative consumer price movements ; vholesale prices for Ireland.

[4] Unveighted average.

[5] Unveighted average.

Table 3

————————

Correlations between Changes in the Price Level (ΔP), Nominal Exchange Rates (ΔS), and Real Exchange Rates (ΔR) for France, Germany, and United Kingdom

	France			Germany			United Kingdom		
	ΔP	ΔS	ΔR	ΔP	ΔS	ΔR	ΔP	ΔS	ΔR
1920s									
ΔP	1			1			1		
ΔS	0.54	1		0.99	1		0.18	1	
ΔR	0.15	0.80	1	0.10	0.13	1	0.65	0.25	1
1970s									
ΔP	1			1			1		
ΔS	0.31	1		0.27	1		0.04	1	
ΔR	0.27	0.82	1	0.29	0.91	1	0.33	0.76	1

Source: Real Exchange Rate Variability from 1920 to 1926 and from 1973 to 1980. Princeton Studies in International Finance No.86 September, Princeton University

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Table.4

Rate of Growth of Narrow Money, 1974-85
(Annual change in percent)

	1974	1975	1976	1977	1978	Average 74-78	1979	1980	1981	1982	1983	1984	Av 79-84
Belgium	6.2	15.7	7.0	8.3	5.9	8.6	2.5	0.2	2.2	3.9	8.6	0.3	2.9
Denmark	4.7	30.2	6.3	8.0	16.1	12.7	9.9	10.9	11.8	13.1	8.5	34.7	14.5
France	15.2	12.6	7.5	11.1	11.1	11.5	11.8	6.4	15.9	10.9	12.5	8.9	11.0
Germ.	10.7	14.3	3.3	12.0	14.5	10.9	2.9	3.9	-1.5	7.2	8.4	5.9	4.4
Irelnd	9.0	19.9	16.9	22.5	27.6	19.0	8.1	14.0	3.4	5.4	11.4	9.6	8.6
Italy	9.4	13.5	18.9	21.4	26.6	17.8	23.7	12.9	9.8	16.8	13.2	12.4	14.7
Neth.	12.2	19.7	8.2	13.2	4.2	11.4	2.8	6.0	-2.4	9.8	10.1	7.5	5.5
Av ERM	9.6	18.0	9.7	13.8	15.1	13.1	8.8	7.8	5.6	9.6	10.4	11.3	8.8

Source: International Monetary Fund, Occasional Paper No.48, *The European Monetary System: Recent Developments.*

Table.5

Rate of Growth of Broad Money, 1974-85
(Annual change in percent)

	1974	1975	1976	1977	1978	Average 74-78	1979	1980	1981	1982	1983	1984	Av. 79-84
Belg.	8.7	15.3	12.6	8.4	7.5	10.5	6.2	3.3	6.3	7.2	8.3	4.5	6.0
Denm.	8.4	26.9	11.7	9.3	6.4	12.3	10.2	11.7	10.8	11.1	19.7	25.1	14.6
Fran.	17.8	15.7	12.3	14.6	12.2	14.5	13.9	8.3	11.1	11.3	11.4	7.9	10.6
Germ.	7.2	11.5	7.6	10.3	10.3	9.4	5.2	4.6	3.7	6.9	5.7	5.6	5.3
Irlnd.	19.3	21.7	13.0	20.6	23.5	19.6	13.6	20.6	10.8	6.8	6.7	9.0	11.1
Italy	15.7	24.5	21.0	22.2	23.0	21.2	19.4	12.2	10.2	17.6	13.7	10.8	13.9
Neth.	16.1	12.9	17.1	12.9	11.4	14.1	11.6	5.6	7.8	5.3	5.0	7.6	7.1
ERM	13.3	18.4	13.6	14.0	13.5	14.5	11.4	9.5	8.7	9.5	10.1	10.1	9.8

Source: International Moneatry Fund, Occasioanal Paper No.48, *The European Monetary System.*

Table. 6 Real Interest Rate Developments

	1979	1980	1981	1982	1983	1984	1985	1986	1987
Belg+Lux.	n.a[1]	n.a	n.a	n.a	4.5[2]	5.9	6.1	2.4	6.1
Denmark	n.a	n.a	n.a	n.a	5.9	6.8	5.8	5.4	7.7
France	n.a	n.a	n.a	n.a	3.7	4.9	4.7	3.6	6.5
Germany	n.a	n.a	n.a	n.a	4.5	5.7	4.6	2.7	4.5
Ireland	n.a	n.a	n.a	n.a	2.3	7.8	7.2	5.6	6.9
Italy	n.a	n.a	n.a	n.a	2.7	3.7	3.9	2.3	6.5
Netherland	n.a	n.a	n.a	n.a	6.6	6.0	5.2	6.7	8.1
Av-EMS	n.a	n.a	n.a	n.a	4.34	5.84	5.45	3.89	6.55
St. Dev.	n.a	n.a	n.a	n.a	1.46	1.21	1.12	1.64	1.10
Un.King.(1)	n.a	n.a	n.a	n.a	5.5	6.3	4.5	5.9	5.1
Greece	n.a	n.a	n.a	n.a	-0.8	-1.3	-1.5	-2.7	0.3
Spain	n.a	n.a	n.a	n.a	4.7	5.0	4.3	0.2	8.0
Portugal	n.a	n.a	n.a	n.a	n.a	-2.9	3.1	0.0	4.1
USA(2)[3]	n.a	n.a	n.a	n.a	7.1	8.4	7.6	5.4	6.0
Japan(3)	n.a	n.a	n.a	n.a	6.5	5.4	4.5	3.2	4.7
Turkey	-27.1	-33.7	-0.07	3.6	9.1	6.9	5.0	10.9	-3.0
(4)Av. of 1, 2 & 3	n.a	n.a	n.a	n.a	6.37	6.7	5.53	4.83	5.27
St.Dev.for 4	n.a	n.a	n.a	n.a	0.81	1.54	1.79	1.44	0.67

Source: Turkish Industrialist' and Businessmen's Association, Publication no: TÜSIAD-T/ 88.5.115, *Avrupa Para Sistemi.*

[1] Not available

[2] Reel Interst Rate is found by using the formula $(((1+Nom. Int. Rate)/(1+ Inf. Rate)) - 1)$

[3] Control group is chosen to be formed by United Kingdom, USA, and Japan as they are technologically developed countries.

Table.7   Average GNP Changes of EMS Countries and Standard
           Deviation from the Average

Years	Average. GNP	Deviation from Average
1972_82	2.663	0.780
1983	0.800	1.580
1984	3.025	1.320
1985	2.238	0.860
1986	2.300	0.820
1987	1.613	0.960
1988[1]	1.688	0.550

Source: Turkish Industrialist' and Businessmen's Association,
        Publication no: TÜSIAD-T/ 88.5.115, *Avrupa Para Sistemi.*

Table.8   Unemployment Rates of the EMS Countries

	1982	1983	1984	1985	1986	1987	1988[2]
Belgium	13.0	14.3	14.4	13.6	12.5	12.4	12.1
Luxembourg	1.3	1.6	1.8	1.7	1.5	1.5	1.4
Denmark	9.3	10.1	9.9	8.7	7.6	7.7	8.6
France	8.7	8.9	10.0	10.5	10.7	11.3	11.7
Germany	6.9	8.4	8.4	8.4	8.1	8.1	8.3
Ireland	12.3	14.9	16.6	18.0	18.3	18.5	18.2
Italy	9.7	10.9	11.9	12.9	13.8	14.2	14.3
Netherland	11.8	14.3	14.5	13.3	12.4	11.4	10.9

Source : Turkish Industrialists' and Businessmen's Association,
         Publication no: TÜSIAD-T/88.5.115, *Avrupa Para Sistemi.*
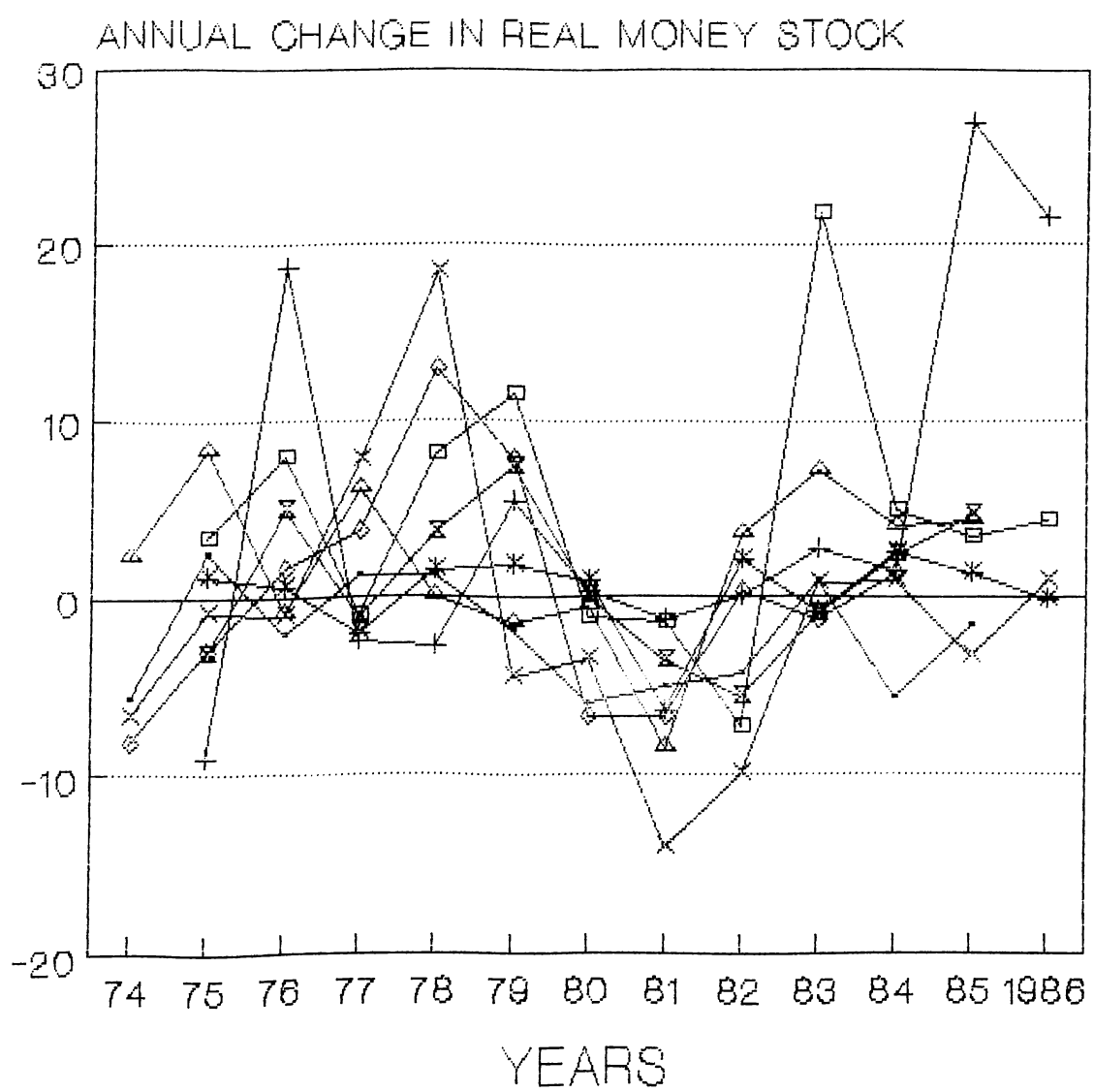
[1] Estimated

[2] Estimated

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FIGURE 1
THE COMPOSITION OF ECU (1)
AS OF 02-01-1988

Fr. franc 19

Dan. krone 2.7

Belg. franc 8.2

Gr. Drach 1.3

P. sterling 14

Neth. guilder 10.1

It.lira 9.2

Ir. pound 1.2

D. mark 34.8
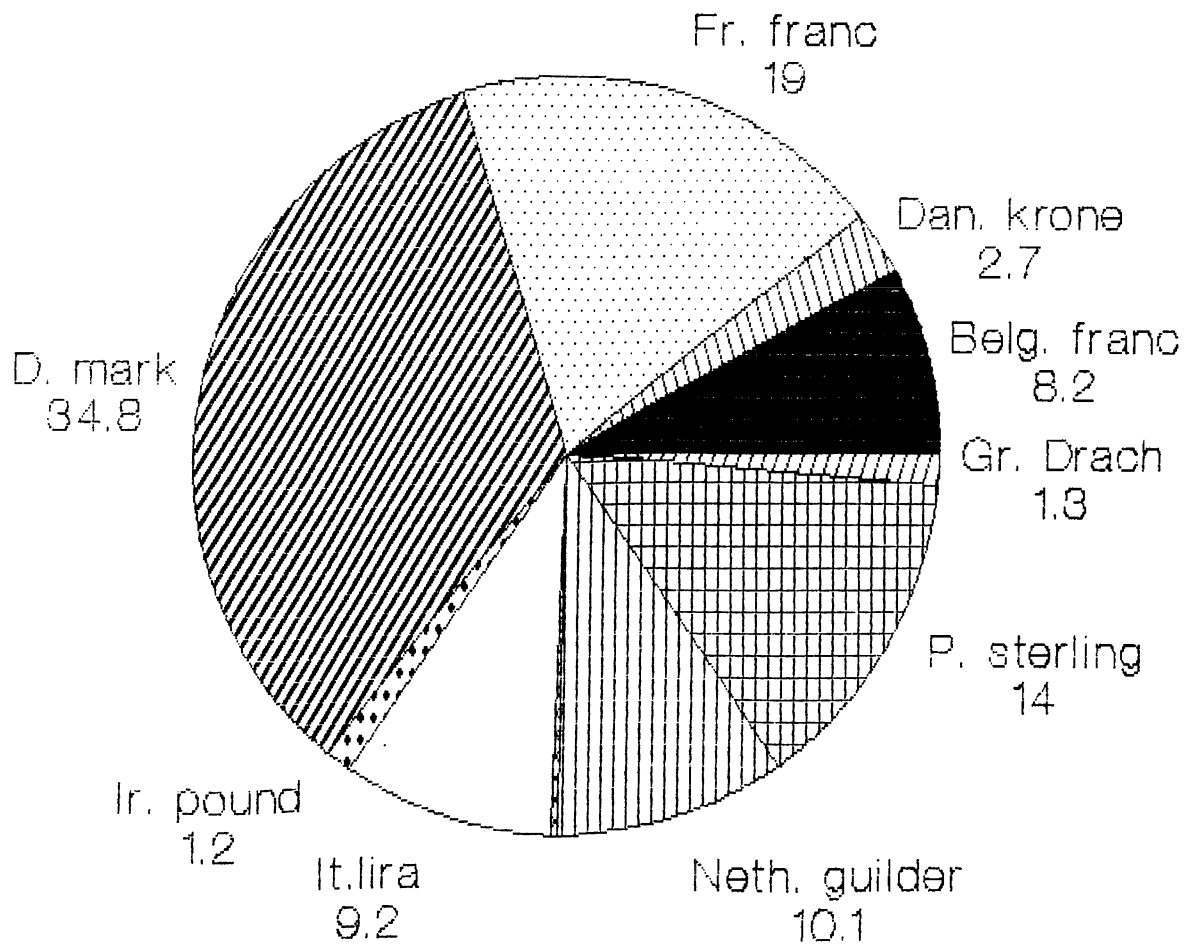
FIGURE 2
REAL ANNUAL NAR. MONEY STOCK,1974-85 (1)
(Annual Change In Percent)

ANNUAL CHANGE IN REAL MONEY STOCK

YEARS

—— Belgium   —+— Denmark   —*— France   —□— Germany

—×— Ireland   —◇— Italy   —△— Netherla   —⊠— AV. EMS

Sources : International Monetary Fund,
Occasional Paper No:48, The EMS.
(1) Deflated by the Consumer Price Index

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FIGURE 2-B
## EMS AV. ANN. NARROW REAL MONEY CHANGE
&DEV.FROM AV.NARR.REAL MONEY STOCK IN %
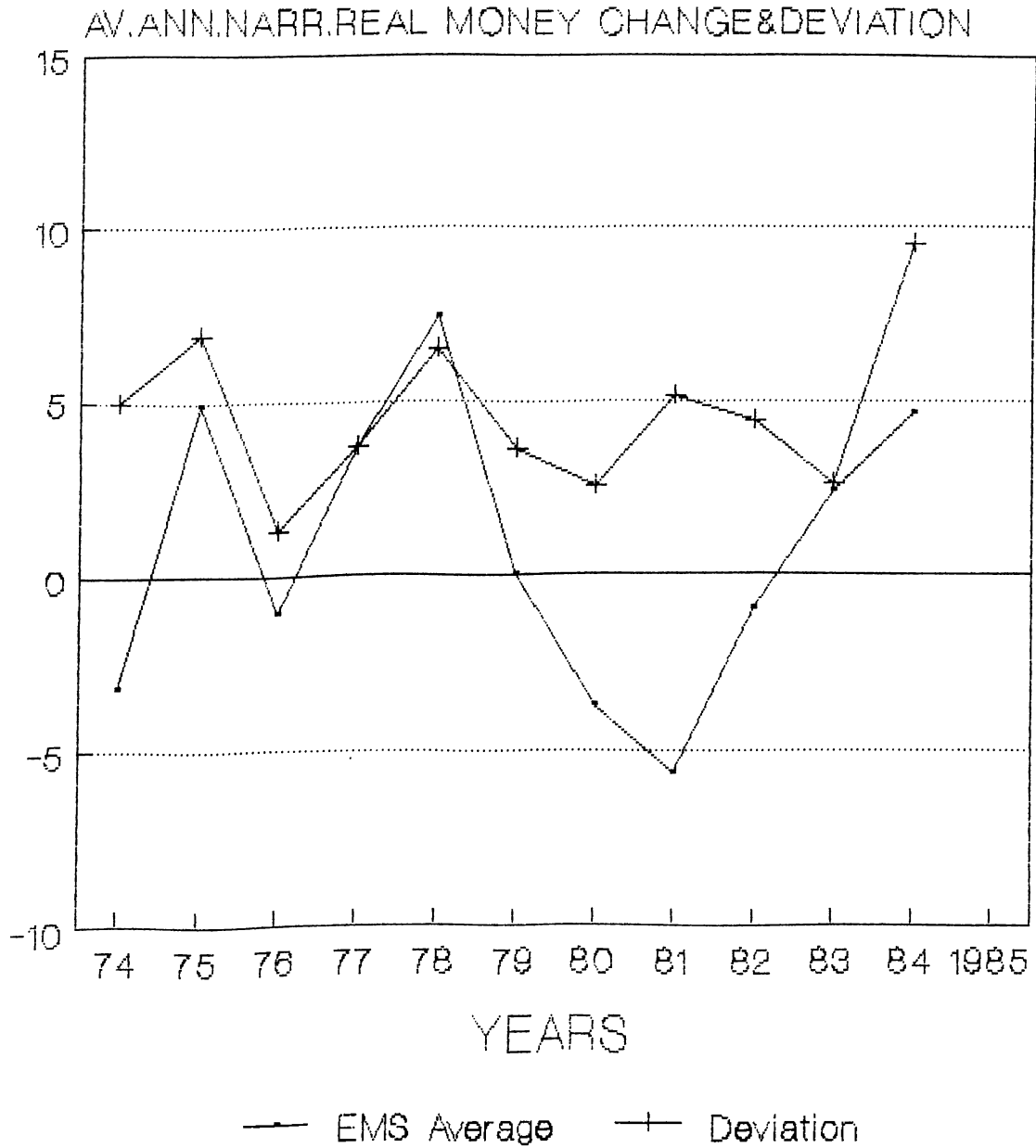
AV.ANN.NARR.REAL MONEY CHANGE&DEVIATION

YEARS

—— EMS Average   —+— Deviation

FIGURE.3
REAL BROAD MONEY STOCK, 1974-85 (1)
(Annual Change in Percent)
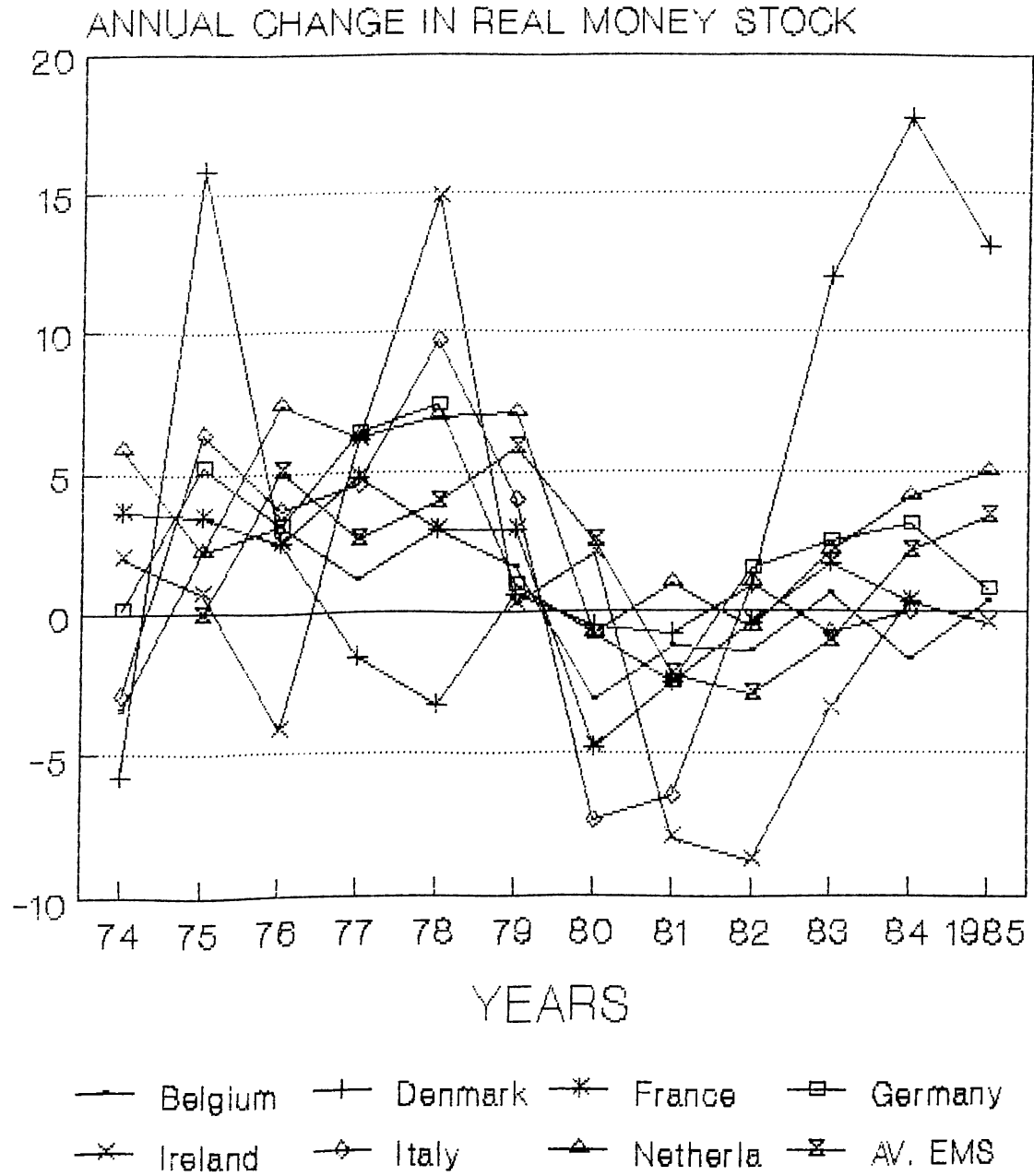
ANNUAL CHANGE IN REAL MONEY STOCK

YEARS

—— Belgium —+— Denmark —*— France —□— Germany
—×— Ireland —◇— Italy —△— Netherla —⊠— AV. EMS

Sources : International Monetary Fund,
Occasional Paper No: 48, The EMS.
(1) Deflated by the Consumer Price Index

FIGURE 3-B
AV.REAL BROAD MONEY STOCK & DEVIATION
1974-85(2)(Annual change In percentage)

AVERAGE REAL MONEY STOCK & DEVIATION
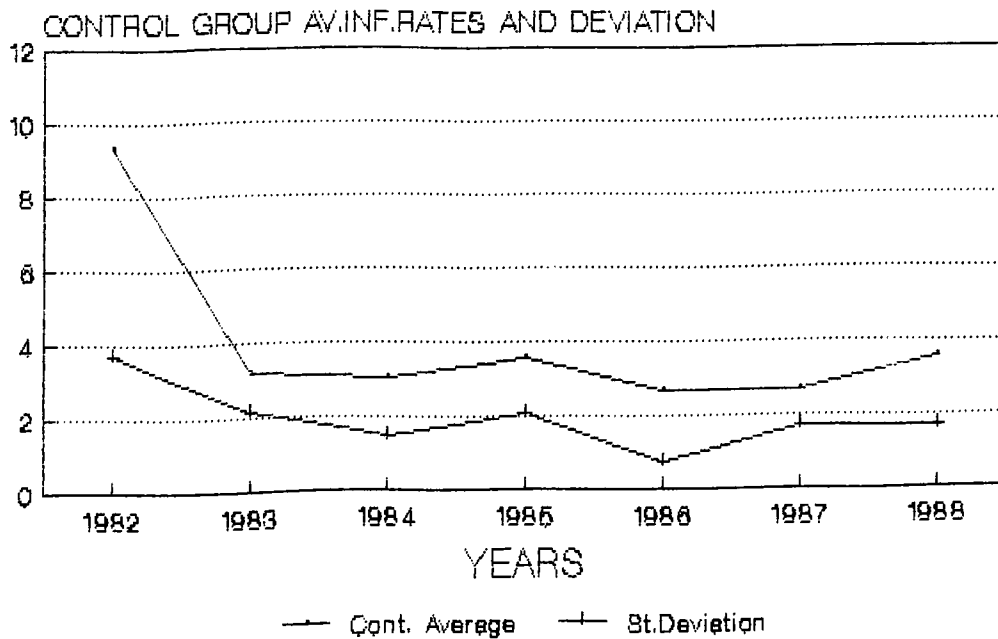
YEARS
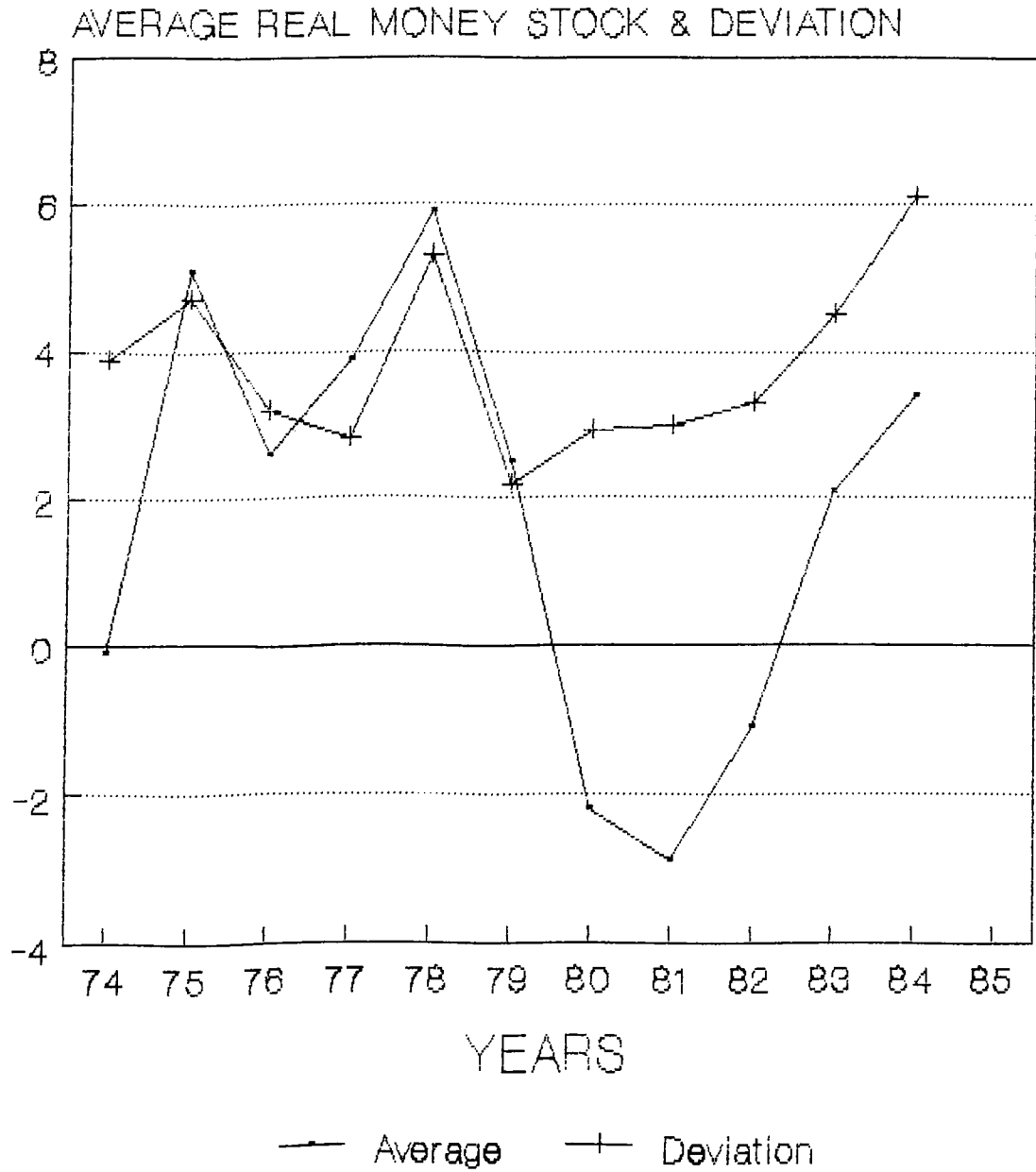
— Average   —+— Deviation

Source : International Monetary Fund,
Occasional Paper No: 48, The EMS.
(2) Deflated by the consumer price index

FIGURE 4
EMS AVERAGE INFLATION RATES AND
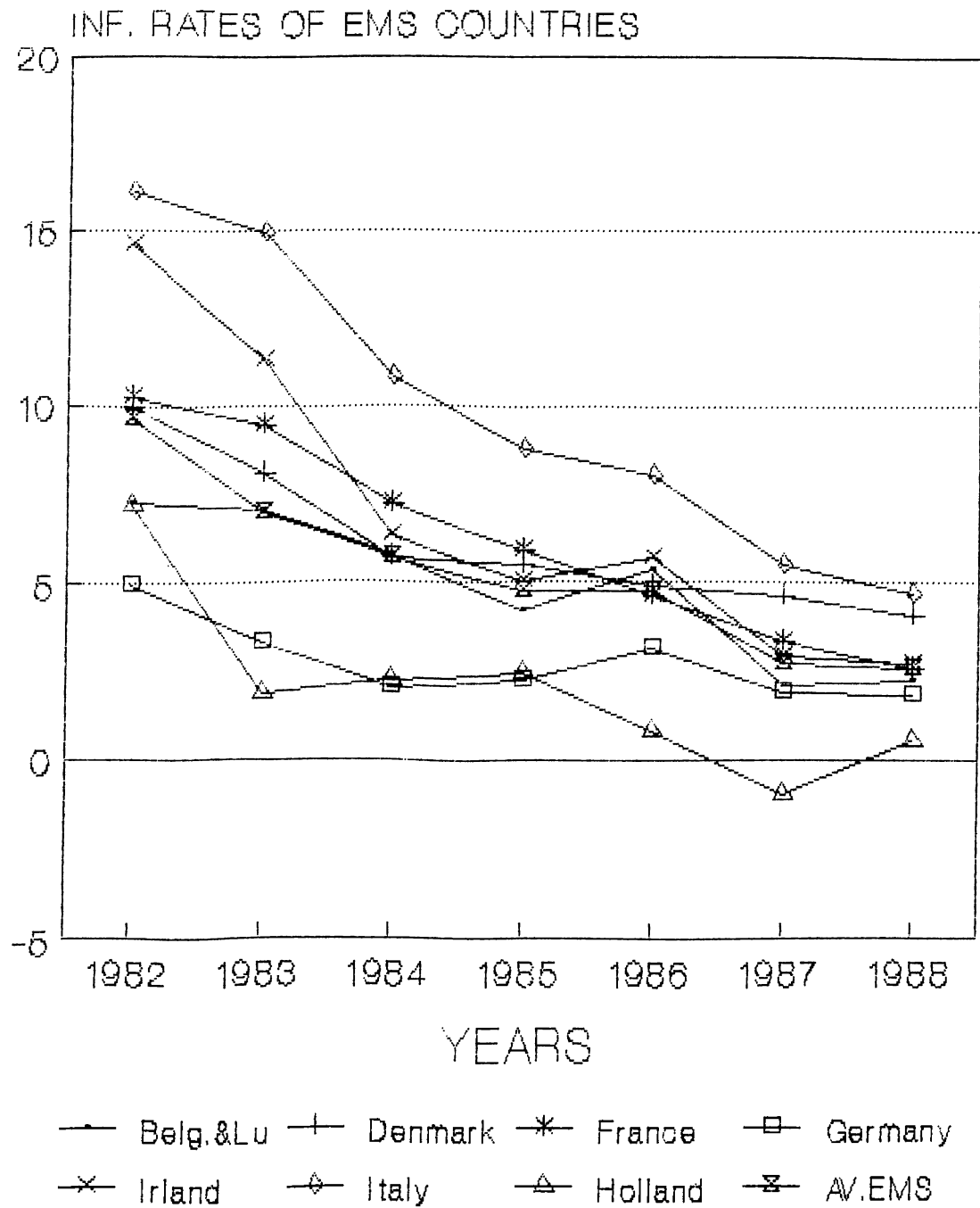## STANDARD DEVIATION FROM AVERAGE
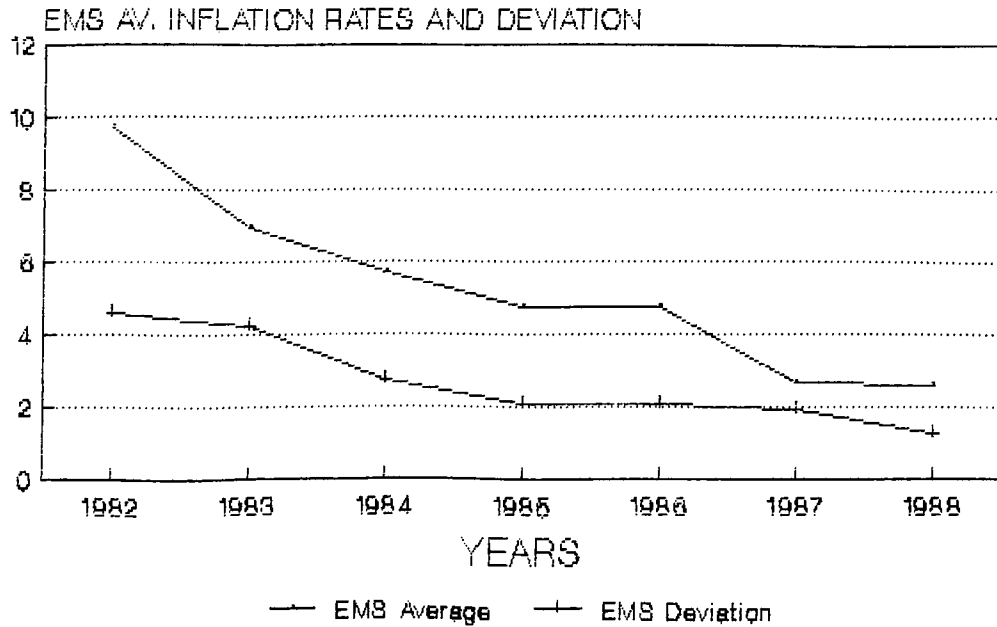
EMS AV. INFLATION RATES AND DEVIATION

YEARS

—— EMS Average   —⊢— EMS Deviation

FIGURE 4B
CONTROL GROUP(1) AVERAGE INFLATION RATES
STANDARD DEVIATION FROM AVERAGE

CONTROL GROUP AV.INF.RATES AND DEVIATION

YEARS

—— Cont. Average   —⊢— St.Deviation

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FIGURE 5
INF. RATES OF EMS COUNTRIES

INF. RATES OF EMS COUNTRIES

YEARS

—— Belg.&Lu —+— Denmark —*— France —□— Germany
—×— Irland —◇— Italy —△— Holland —⊠— AV.EMS

Source : Commission (1987a)

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FIGURE 6
BUDGET DEFICIT/GNP(%)
((-) deficit, (+) surplus)

BUDGET DEFICIT/GNP(%)

Legend:
— Belgium —+— Luxembo —*— Denmark —□— France
—×— Germany —◇— Ireland —△— Italy —⊠— Holland
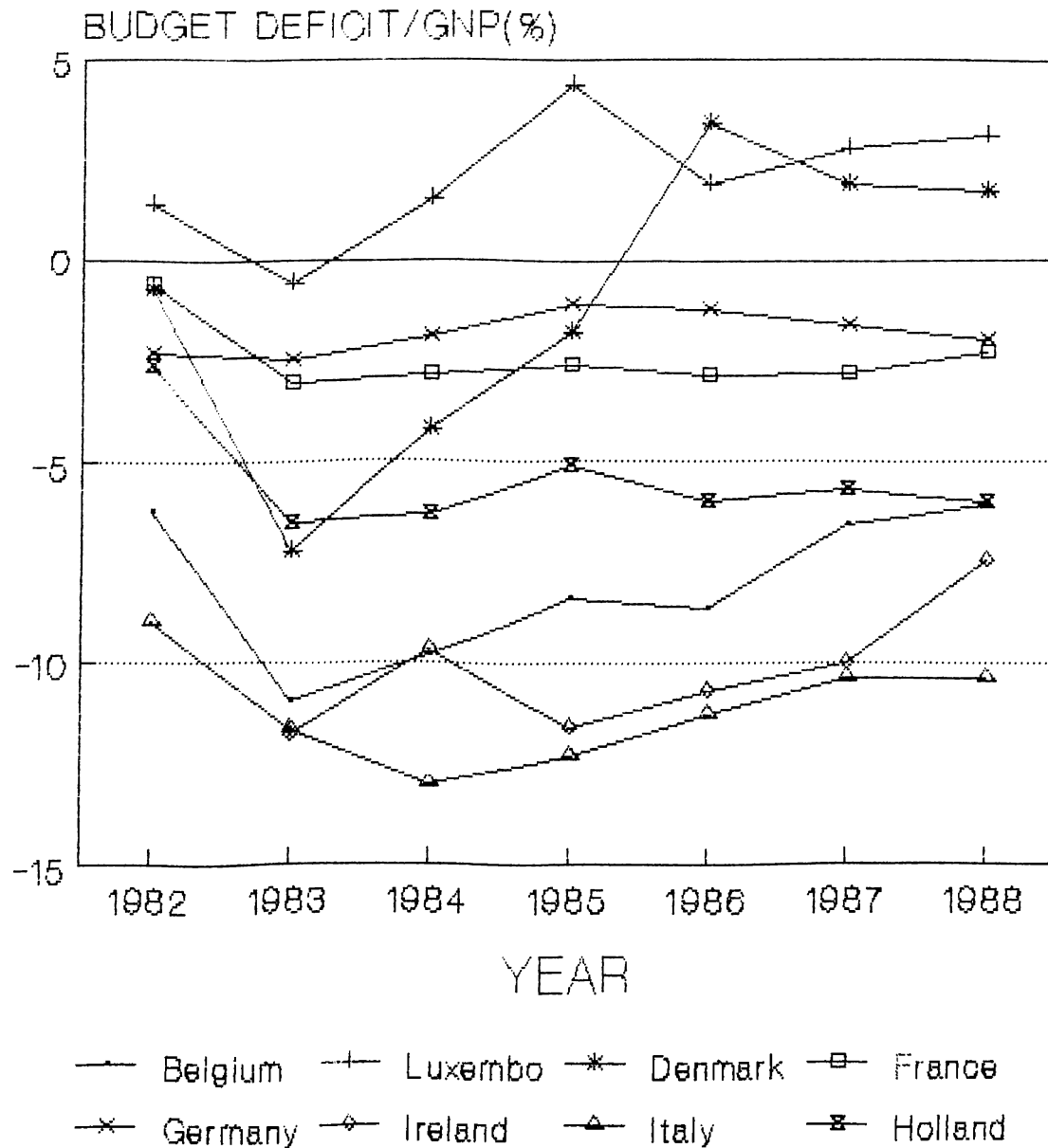
Source: Turkish Industrialist &
Businessmen's Publication no:TUSIAD-T/
88.5.115

FIGURE 7
CURRENT ACCOUNT DEFICIT/GNP(%)
((-) deficit, (+) surplus)

CURRENT ACCOUNT DEFICIT/GNP(%)

Legend:
—— Belgium —+— Luxembo —*— Denmark —⊟— France
—×— Germany —◇— Ireland —△— Italy —⊠— Holland

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