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The Adequacy and Allocation of World Savings

Javier Santillán*
Internal Paper



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S U M M A R Y

This paper reviews recent trends in savings in the industrial countries and discusses the factors that have influenced saving developments. It examines whether savings are adequate applying a number of theoretical approaches. The note emphasises the importance of distinguishing between origin and allocation of savings and highlights the relationship between current account balances and capital flows.

The paper argues that during the past decade, increasingly closely integrated financial markets imply that the adequacy and allocation of saving across countries have taken on a crucial significance for the international monetary system. By the same token, the pattern of saving and investment that will develop across the European Community will substantially determine whether the full benefits of Economic and Monetary Union will be reaped.

The paper concludes that multilateral surveillance should increasingly focus on the adequacy of savings across countries. This conclusion is particularly relevant for the final stage of EMU, when the introduction of a common currency eliminates the current account as an intermediate policy target.

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THE ADEQUACY AND ALLOCATION OF WORLD SAVINGS

1. OVERVIEW OF THE PAPER

The issue of the adequacy of world savings has been a focus of attention in the economic policy debate in recent years. For the decade of the 1990s the saving performance of the industrial countries, and the widely diverging patterns observed among them, give rise to new concerns due to the prospective increase in the demand for financial resources over the medium-term. The objective of this paper is to provide a comprehensive synthesis of recent research in this area and to draw some conclusions for economic policy.

In section 2 a short description of recent saving patterns is presented together with a summary of the most prominent explanations for those patterns and the implications for policies aimed at fostering higher savings.

Section 3 analyzes the key issue of the adequacy of savings. The question is addressed in light of the evidence that can be obtained from growth models. The conclusions obtained generally confirm that the present level of savings in industrial countries is suboptimal, notably in the United States. In this latter case, simulations based on growth models highlight the serious negative consequences of low saving for the US economy, even if it does not pose problems of sustainability.

Section 4 discusses the degree of international capital mobility reached in recent years, as a key element to be considered with regard to the adequacy and international allocation of savings.

Section 5 explores the extent to which the causality between current account imbalances and capital flows may have changed in recent years. Financial developments which have affected the composition of capital flows, are briefly analyzed, and the consequences and implications for macroeconomic policy coordination are considered. Section 6 briefly examines saving developments in the European Community and their implications for Economic and Monetary Union. The main conclusions are summarized in section 7.

2. SAVING TRENDS AND POSSIBLE INFLUENCES

Following a fairly stable situation during the 1960s and 1970s the share of national income saved in the industrial countries fell significantly in the 1980s. As a percent of GDP, the average saving performance during the most recent decade in net terms (i.e., allowing for depreciation of the capital stock), was 3.5 percentage points below that of the period 1960-80, (see Table 1 and Chart 1).

TABLE 1
AVERAGE NATIONAL SAVING IN MAJOR INDUSTRIAL COUNTRIES

Countries and periods	Gross National Saving(1)	Net National Saving(2)	Of which:			
			Public	Total	Private Households	Business
<u>United States</u>						
1960-69	19.7	10.8	0.8	10.0	6.2	3.8
1970-79	19.4	9.1	-1.2	10.3	7.6	2.6
1980-89	16.3	4.0	-3.8	7.8	6.0	1.9
<u>Japan</u>						
1960-69	34.5	25.2	6.6	18.6	11.9	6.6
1970-79	35.3	25.6	5.0	20.6	16.5	4.1
1980-89	31.6	20.9	5.1	15.7	13.1	2.6
<u>Germany</u>						
1960-69	27.3	19.9	6.3	13.5	7.6	6.0
1970-79	24.3	15.2	3.7	11.5	9.7	1.7
1980-89	22.5	11.6	1.5	10.1	8.9	1.2
<u>Seven Major Indus. countries(3)</u>						
1960-69	22.0	13.5	2.3	11.2	7.2	4.0
1970-79	23.2	13.5	0.8	12.7	10.0	2.7
1980-89	21.5	10.0	-0.9	10.9	8.8	2.1

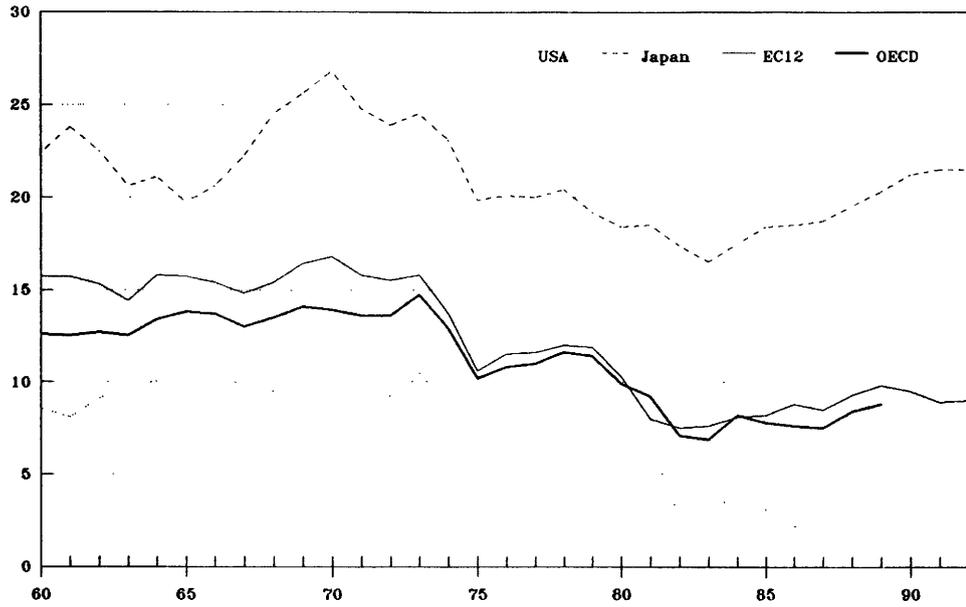
Source: BIS annual report 1991 and OECD data

(1) As a percentage of GDP

(2) As a percentage of national income

(3) Weighted average applying exchange rates of 1963, 1975 and 1988, respectively, for each of the three periods. As a consequence of the appreciation of the yen in the 1980s, the magnitude of the decrease in aggregate savings in that decade is somewhat understated.

GRAPH 1 - NET NATIONAL SAVINGS IN
INDUSTRIALIZED COUNTRIES.
(% of GDP)



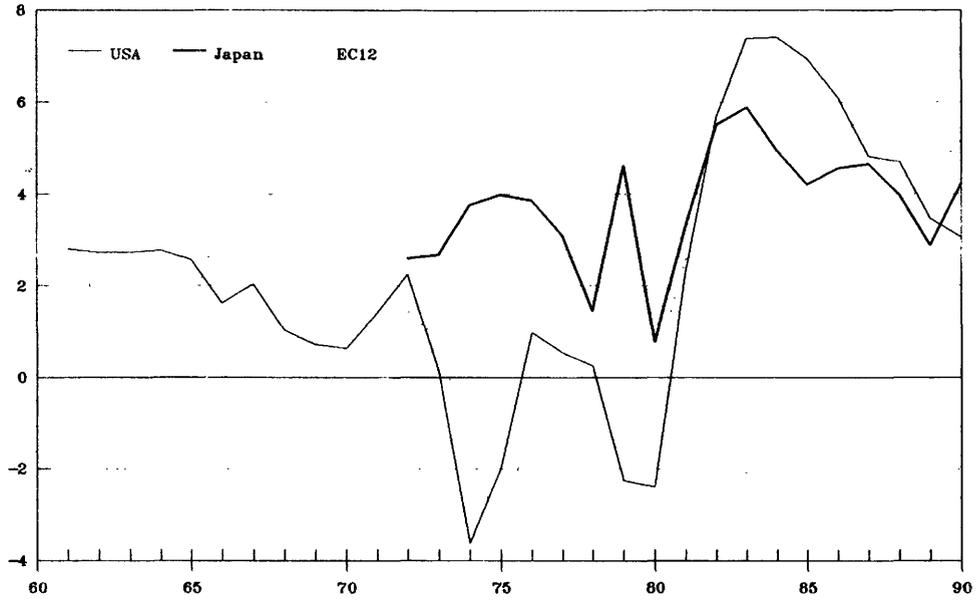
Source: Commission Services

An important feature of developments during the 1980s is the fact that both public and private saving fell markedly. This contrasts with the experience of the 1970s when a sharp fall in public sector savings was more than offset by an increase in private savings¹⁾. At the same time, differences in saving performances among the major industrial countries widened significantly as the progressive liberalisation of capital movements promoted a sharp expansion of both portfolio and direct investment which helped to accommodate the decline in savings in some countries, notably the United States. The combined effect of the decline in savings and the liberalisation of financial markets was a marked increase in inflation-adjusted interest rate in all countries (Chart 2).

The concerns caused by these developments have been amplified by the process of reforms in Eastern Europe and German unification which have increased pressures on the existing pool of saving. Taking into account also the investment needs associated with the reconstruction after the Gulf war, and the demand for resources in the developing world make it clear that the saving issue will continue to receive considerable attention during the 1990s.

1) An important subject in the discussion of saving levels and trends is the accounting criteria used to measure it. Divergence of national account rules among industrial countries must be considered when analysing and comparing trends. This issue is briefly addressed in the annex, together with the current account discrepancy problem.

GRAPH 2 - REAL LONG-TERM INTEREST RATES
IN EC, USA AND JAPAN
(Yearly averages)



Source: Commission Services

In attempting to understand the reasons for the decline in savings in the 1980s it is necessary to start with a clear view of what determines savings. The most widely accepted approach to the explanation of savings behaviour is based on the life-cycle hypothesis (Ando and Modigliani, 1963)²⁾, according to which saving decisions are a residual of consumption decisions, and the element which determines them is the aim of smoothing consumption over time. Accordingly, inflation, personal income, stock of wealth and demographic factors (such as life expectancy, age of retirement, age structure and family size) are major determinants of private saving.

Many studies testing the validity of life-cycle models in explaining saving patterns have been carried out in recent years³⁾. While the results obtained do not provide an unambiguous answer about the suitability of the models, it is widely accepted that variables usually included in life-cycle models do explain major trends and long-term fluctuations in savings. With regard to short-term fluctuations in savings, the explanatory power of these models seems more limited. However, if account is taken of liquidity constraints and of the

2) The discussion in this context can include public savings performance. From the point of view of consumption smoothing, it is argued that government's behaviour should aim at keeping stable taxes when faced with the need to vary expenditure (see Barro, (1989). The following discussion refers to private savings.

3) Comprehensive reviews are found in Aghevli et al. (1989); Smith (1989); and Dean et al. (OECD, 1990).

possibility of erroneous expectations on income evolution, the life-cycle framework remains a useful one⁴).

The influence of inflation on measured saving is twofold: by affecting personal income, and through the capital losses which inflation inflicts on holders of certain assets (like bonds or bank deposits). Even if such losses are compensated through increases in market interest rates inflation-adjusted household saving ratios may differ significantly from non-adjusted ratios, particularly during periods of accelerating or decelerating inflation. The evolution of inflation is therefore likely to have a substantial impact on measured saving ratios (see annexed box for some references on the issue of measuring saving).

Demographic factors are considered as the main single factor behind broad trends in private savings over time and, to a great extent, contemporary differences among industrial countries⁵). Consequently, projections of future private saving trends largely rely on expected demographic developments. The "dependency ratio" (see Table 3) plays an essential role in this aspect, and its projected evolution explains long-run prospects for private saving behaviour. Indeed, projected

4) A synthetic review of alternative approaches can be found in Green (1990). The common case of the so-called "unconventional savings theories" is the rejection of the neoclassical paradigm on which the life-cycle model is based. "Unconventional" theories usually stress the significance of institutional factors in determining private saving trends. In particular corporate attitude towards savings, social norms, and demonstration effects among others are factors affecting private savings that are excluded from "conventional" models.

5) See, for instance, Dean et al. (1990), Kauffmann (1990) or Crabam (1987). Sinn (1990, p.12) highlights the links between demography and net external assets in the 1970s and 1980s for Japan, Germany and other OECD countries. For a review of the macroeconomic effects of ageing population, see IMF (1990).

Increases in dependency ratios in the major industrial countries over the next 2 or 3 decades have given rise to fears of a continued deterioration in national saving performances.

The implementation of private pension schemes, is recognised as one of the main policy instruments able to promote household saving. This is owing to the effects of pension funds on the average retirement age (which is anticipated), to the low liquidity of pension benefits and to a misperception by fund's contributors that contributions to pension schemes constitute a tax rather than savings. Estimates on the effects of private pension funds have usually found significant positive effects on aggregate household savings of the increase of such funds.

Wealth and income distribution are identified as two key factors determining private saving behaviour in recent years. The sharp increase in household financial wealth during the 1980s in the industrial countries explains to a large extent the fall in saving propensity⁶⁾. Furthermore, changes in income distribution, combined with demographic factors, have contributed to that fall. In particular, the increased proportion of social security transfers income in total households' income tends to raise the marginal propensity to consume. Some estimates suggest that, in the United States, the consumption propensity out of labour income is 0.65 while the consumption propensity out of transfer income is 0.9 (Wilcox, 1991).

6) Wilcox (1991) reports that, for the United States, the rise in household wealth between the mid-1970s and 1987 would explain, all else equal, a decline of 3.5 percentage points in the private saving ratio. Likewise, the private saving propensity seems to have responded to the subsequent stock market adjustments.

A number of studies suggest that the response of savings to changes in interest rates is unclear even with regard to the direction of its effect. In this respect, theory cannot determine the sign of the elasticity of saving to interest rates, given the presence of offsetting income and substitution effects. Whilst intuitively the preeminence of the substitution over the income effect could be expected (i.e. a positive interest rate-saving elasticity) empirical work has found widely diverging results, ranging from significant positive elasticities to very small ones or even none (see Smith, 1989).

The influence of taxation appears significant, and has been often identified as a factor discouraging savings in industrial countries, as a result of double taxation of business profits, the progressivity of tax systems and the deductability of interest, including notably mortgage interest payments (which has been found an important element depressing private saving in a number of countries, including the United States, the United Kingdom, Sweden and Denmark). In contrast, programs aiming at promoting saving through tax incentives have had little effect, and are typically distorting and costly in terms of revenue losses.

Financial liberalisation has unambiguously contributed to the poor performance of private savings in two different ways: firstly, the removal of restrictions on consumer credit in recent years has significantly increased consumer's access to credit. Secondly, financial liberalization and innovation have facilitated the process of corporate restructuring, thereby increasing leverage and capital gains by existing stockholding and dampening savings. The two described

effects have not been offset by the (probably) positive effect on savings of higher interest brought about by more competition among financial intermediaries in a deregulated financial environment.

Cultural factors (like the role of bequest, and family or working patterns), quality of public institutions, and improved insurance schemes (public as well as private) have been mentioned among other possible factors that may affect saving decisions. However, the influence of each of these elements is difficult to quantify.

Table 2

**PROJECTED INCREASES IN DEPENDENCY RATIOS(*) OF
SEVEN INDUSTRIAL COUNTRIES**

	<u>1990</u>	<u>2020</u>
Japan	48	59
Germany	44	54
Canada	47	55
United Kingdom	52	57
France	52	57
Italy	46	51
United States	52	55

Source: OECD projections

* Proportion of people aged between 0 and 14 plus those over 65 respect to the group between 15 and 64 years old.

Research on the degree of substitutability between households and business savings clearly shows that although such substitutability exists, it is imperfect in the sense that increased saving by companies is only partly offset by a reduction in households savings. (See Musgrave and Musgrave (1984); Poterba (1987))⁷⁾. To the extent that corporate saving propensities are usually quite high, changes in taxation from corporations to individuals are one of the clearest policy tools able to promote private savings⁸⁾.

Summing up, during the 1980s net public dissaving has added to low private saving in industrial countries mainly as a consequence of financial liberalisation associated with demographic and social security developments. Available evidence points that the room for policy measures aimed at boosting private savings must be found in the areas of taxation shifts from business to individuals, the fostering of private pension funds, funded social security plans and removal of fiscal disincentives to savings. Tax incentive programs have shown to have little impact. (See Commission of the European Communities, 1990 for more references).

7) In principle such a substitution should be perfect, since households own the business sector, whatever the form that ownership adopts. Thus, changes of wealth derived from profits or stock values should not have a different effect on private saving than that derived from other sources of income or wealth. However, the reported evidence seems to reflect a number of institutional factors, which especially affect business savings decisions.

8) Elmeskov, Shafer and Tease (1991) point out that changing trends in business and household savings tend to offset one another over a period which widely varies among industrial countries. They suggest the possibility that it reflects "variable but offsetting measurement errors in corporate and household saving".

3. ADEQUACY OF SAVINGS: SOME THEORETICAL PERSPECTIVES AND EVIDENCE

A number of factors make it difficult to assess the adequacy of a given level of savings: firstly, the theoretical framework provided by existing growth models remains far from satisfactory. Secondly, subjective elements such as the intergenerational welfare distribution as well as the income distribution within the same generation need to be taken into account to judge the adequacy of a particular savings level. The existence of market failures and institutional distortions further complicates the issue. Finally, in an international context, an overall assessment requires that the degree of international capital mobility and institutional arrangements affecting the mobility of goods and labour be taken into account.

In the light of these caveats, any approach to judge the adequacy of savings must be cautious, and will, to a large extent, have to rely on indicators such as broad trends in saving over time, the demand for savings, the evolution of real interest rates⁹⁾, or the consequences of diverging saving behaviour among countries.

Models of economic growth provide a framework within which the long-run effects of saving may be analysed. The adequacy of a given level of saving can then be assessed in terms of the intertemporal welfare

9) High real interest rates in the past two decades may reflect several influences, such as an improvement in the real returns of investment, uncertainty about future inflation, monetary policies aimed at controlling inflation, developments in tax systems (which combined with high inflation may involve serious distortions) or financial market deregulation (see Atkinson and Chouraqui, 1985). Barro and Sala (1990) found significant influence of stock returns and oil prices on expected real interest rates. But the influence of these factors does not preclude a major role for saving in determining the evolution of real interest rates.

distribution underlying each possible saving pattern and the trade-off involved between current and future consumption.

A fundamental test, which draws on classic growth models (based on Solow, 1956), is the well-known "golden rule", which is based on long-run consumption maximization. According to this criterion, savings must reach the level required to provide an "optimal" capital-labour ratio, in the sense that the amount of consumption which would have to be sacrificed to increase the capital stock further (via increased savings) would be greater than the increase in future consumption induced by the increase in investment. A higher level of savings (and therefore investment) would involve a reduction in current consumption greater than the increase in future consumption so attained. Thus, this rule avoids an explicit judgement on intergenerational preferences by assuming an equal weight of consumption across all generations. This criterion can be extended by including in the analysis a positive discount rate which allows for the effect of the present lower utility of delayed consumption, thus attributing a lower weight to the same amount of future consumption.

While classical growth models provide an interesting starting point, they fail to explain the key question of diverging growth rates among industrial countries. This is mainly owing to the fact that these models consider technical progress to be exogenous, despite the fact that technology generally accounts for most of the unexplained differences in growth. A related problem is that classical models imply an absence of any relationship between savings and growth in the long run, which strongly contradicts evidence for industrial countries.

More recent works in this field have included technology and the growth rate as endogenous variables. Hence, according to these models, it is possible to increase the rate of growth by increasing saving and investment rates. The main difference between these and classical models lies in the role that "endogenous" models attribute to externalities associated with savings invested in areas such as human capital (Lucas, 1988), research and development, specialization of production (Romer, 1986 and 1987) and infrastructure (Barro, 1989), and with the expansion of financial intermediation as a self-feeding process which by itself boosts investment (Greenwood and Jovanovic, 1988).

The presence of a common element in these models -- the existence of externalities which are not reflected in the returns obtained by private investors -- involves a different (usually higher) level of socially optimal aggregate saving than that which would be generated by market forces. Therefore, those models provide theoretical support for policy measures aimed at promoting savings in so far as such measures help to attain socially optimal levels and thereby to circumvent market failures. Unfortunately, empirical evidence remains rather scarce and does not allow a precise quantification of the influence that can be attributed to each of the factors affecting future productivity. It is clear however, that, to assess the adequacy of a certain level of savings, significant attention must be paid to a number of factors which had been excluded from earlier analysis, especially human capital accumulation, research and development and infrastructure.

In addition to the above mentioned market failures, there is another broader line of arguments pointed out by Tobin (1971), which links

externalities associated with capital accumulation to the achievement of low inflation, since investment involves growth, and growth in turn helps to bring about non-inflationary increases in real wages (and income redistribution). Again, these externalities to individual agents may provide good arguments to promote investment and saving beyond the levels the market itself would determine. Finally, two more important factors may cause saving rates to deviate from their optimal path: market rigidities and government policy towards saving. In particular, taxation of saving can have a negative effect (as was mentioned in section 1 above), whilst the government's influence on saving is reflected in national aggregate savings not only through the net amount itself but also through its effects on private saving ratios, since public and private savings are not perfect substitutes¹¹).

Recent empirical work has tried to evaluate the adequacy of saving ratios for individual countries in the context of the models just set out: A test of "dynamic inefficiency" is derived from the "golden-rule" concept explained above. A country will be dynamically inefficient if it can currently consume more (i.e. save less) without negatively affecting future consumption. That would mean that its current saving rate is too high. A comparison between investment and profits in a given period is a useful tool to measure dynamic inefficiency, suggested by Abel (1989). The comparison draws on the idea that the level of sacrifice (here measured by investment which in

11) According to recent estimations for industrial countries, between 25 and 40 percentage points of increases in government saving could be offset by decreases in private saving over the medium term. Hence, "Ricardian equivalence", which involves full public/private saving substitution, does not hold.

a closed economy equals saving), is rewarded by profits from the investment which must exceed that sacrifice in each period¹²⁾. The results obtained in that study, based on the test of dynamic inefficiency, show no evidence of excess saving in any of the major industrial countries (including Japan, the country with the highest saving ratio in the past decade).

Other recent works focusing on the United States have found evidence of an insufficient saving rate. As explained above, such a conclusion requires an assumption to be made about the rate of discount attributed to future consumption. One study based on the golden-rule criterion found that the saving rate compatible with the golden rule, applying a positive rate of discount, would range between 15.5% and 30% of GDP for the period 1986-90, while the actual rate in the period has been 12.25% (Evans, 1990). A more recent study exploring the consequences of the decline in savings in the US from a historical 7.5% of GDP - in net terms - to only 3% in the 1980s evaluates alternative saving scenarios in the context of growth models: the study finds that the decline of savings in the 1980s has reduced the US capital stock by about 15% and its potential output by about 5%. If the same trends were to persist until the end of the century, the accumulated loss in capital and output would be 28% and 10%, respectively. When the same estimates are carried out in the context of a model linking capital innovation with the pace of technological innovation, losses in potential output reach 7% in 1990 and about 15% by the end of the century (Harris and Steindel, 1991).

¹²⁾ Otherwise, it would be possible by increasing current consumption (and decrease investment and saving) to attain a situation in which either sacrifice would be lower with the same future benefits (profits) or the same sacrifice but with higher profits.

Whilst the research described above provides useful references to evaluate the adequacy of the saving performance of individual countries, in the context of capital mobility the approach must be modified and new elements have to be considered. In principle, a low rate of saving in a single country may be offset by an inflow of foreign saving, provided risk-adjusted rates of return on capital are attractive enough to foreign investors. Two new questions then arise. The first, from the standpoint of the borrowing country, refers to the effects of increased external indebtedness, its sustainability and its desirability. The second question refers to the effects transmitted through the international monetary system since each country's saving/investment balance affects the overall pool of saving available and the degree of pressure on world interest rates and exchange rates.

From a theoretical perspective, a persistently low level of saving in a given country, as has been the case in the United States, may simply reflect a certain intertemporal consumption distribution, which in turn reflects individual preferences. In the context of crossborder freedom of capital movements, the excess of domestic demand for investment over national saving is reflected in a persistent inflow of capital which involves a deterioration in the country's net external asset position¹³). As far as that position is sustainable - given the willingness of foreign investors to invest in that country - it should

13) Sinn (1990) argues that whilst theory suggests that welfare improves when a country moves from autarky to net creditor or debtor position, it does not provide a justification to use net external assets positions as targets of economic policy. He points to the case of Romania's current account surpluses, which allowed it to pay back all its foreign debt. As a consequence, "Romania's hard currency debt is no more, but there is not much left of the economy either".

not by itself¹⁴⁾ be a matter of concern. Nevertheless, from the perspective of a given country, the presence of market failures like those above described may provide good reasons to suppose that higher levels of domestic saving may be socially more desirable. From a global standpoint, as far as a persistent reliance on foreign saving may crowd out investment in other countries and put pressure on prevailing world interest rates, such concern may be justified, particularly when the saving shortfall occurs in highly developed countries.

This conclusion is supported by scenarios generated with the MULTIMOD model of the IMF (see IMF, 1991b), which show the potential positive effects of increased public saving in industrial countries. Such positive effects are reflected both in generalized medium term interest rate reductions, and increases in output (see table 3).

Even if the assumptions on which these projections are based might not be met (in terms of fiscal consolidation), their results highlight the widespread transmission of the saving behaviour of each country across the world, and the potential global benefits which could be obtained from a return to higher rates of saving of the industrial countries. Section 6 below discusses further the cross-border effects of national savings and its recent patterns.

14) The results of the studies by Feldstein and Horioka (1980) and Feldstein and Bachetta (1989) suggest that an increase in national saving does raise the nation's capital stock, even in a context of relative openness of capital flows.

TABLE 3

MEDIUM-TERM EFFECTS OF INCREASED SAVING IN INDUSTRIAL COUNTRIES(1)

(Percentage points variations respect to IMF World Economic Outlook baseline projections, period 1991-96)

	National Saving modification (% GNP/GDP)				Effects on:				Real Business		Interest Rates		Potential
	Total	Private	Government	Foreign saving	Investment	Fixed investment	Short-term	Long-term	Capital stock	Output	Long-term	Capital stock	Output
United States	1.3	-0.7	1.2	-0.5	0.8	0.7	-1.2	-1.2	1.9	0.6			0.6
Italy	1.2	-0.8	2.0	-0.3	0.9	0.8	-0.9	-1.0	1.7	0.6			0.6
Canada	0.8	-0.4	1.2	-	0.8	0.7	-1.4	-1.3	1.7	0.6			0.6
Germany (West)	0.3	-0.1	0.4	0.5	0.8	0.7	-1.0	-1.0	1.5	0.6			0.6
<u>All industrial countries</u>	0.9	-0.2	1.1	-	0.8	0.6	-1.1	-1.1	1.5	0.5			0.5

(1) Projections based on the IMF's MULTIMOD model, assuming that measures of fiscal consolidation projected by governments are met over the period, in particular for the countries specified in the table.

Source: International Monetary Fund (1991)

4. ORIGIN VERSUS ALLOCATION OF SAVINGS

In a context of increasing financial integration, any assessment of the adequacy of a certain level of savings inevitably involves a judgement about the appropriateness of the international allocation of world savings. Some important trade offs are involved in this regard. On the one hand, integration of financial markets permits an enhancement in the allocation of resources across countries, allowing market forces to determine in which country other countries savings are to be invested. On the other hand, with an integration of financial markets policy makers face fewer constraints in the short run in policy decisions that affect each country's contribution to world savings; they may therefore be tempted to tap into the pool of world savings to finance projects with a very low social rate of return.

The removal of capital controls experienced in recent years among most industrial countries has been a major factor boosting international financial integration. However, several other circumstances besides capital controls determine the degree of financial integration. Among them, exchange rate developments are the single most important factor. In addition, institutional arrangements (such as the liberalization of legislation concerning the cross-border establishment of financial institutions, and the harmonization of prudential and regulatory arrangements) and the presence of market failures (basically owing to information shortages), play a role.

A possible approach to the measure of integration of capital markets is the size of gross and net capital flows. Both in net terms (as shown in recent years by major current account imbalances), and especially in

gross terms, the increase in capital flows experienced in recent years has been considerable. Between 1979 and the period 1986–1988, annual capital outflows from the Group of Seven countries expanded by some 250% nominally (in SDR terms), which implies a real increase of around 200% (Latter and Allen, 1990). In gross terms, indicators such as cross-border banking expansion (see chart 3), international transactions in securities, or the development of Euromarkets, all show huge rates of expansion.

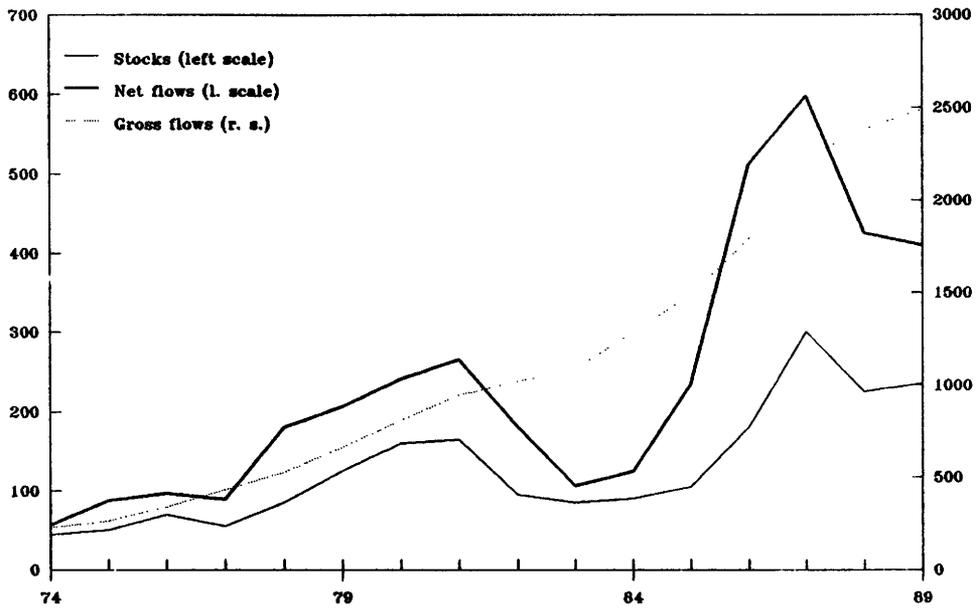
In addition to the scale of capital flows, two more approaches have been used to assess the degree of financial integration in recent years¹⁵): one based on risk-adjusted interest rate differentials, and another based on the degree of correlation found between saving and investment ratios of different countries¹⁶).

Evidence of a tendency for interest rate differentials to narrow seems to confirm that the degree of financial integration has increased considerably since the mid-1970s. Using this approach, Frankel (1989) concluded that by the end of the 1980s financial markets were virtually completely integrated among the large industrial countries. More recent studies generally support that view, even if it appears more evident for short-term than for long-term capital flows.

15) It must be noted that the size of capital flows may not be a good indicator of financial integration. Highly integrated financial markets may be reflected in close movements of asset prices but small capital flows. Conversely, relatively large capital flows do not necessarily imply a high degree of financial integration, but may reflect the evolution of fundamental factors (differences in productivity), which would warrant high capital flows.

16) See Goldstein et.al. (1991) for a review of evidence on integration of major financial markets.

GRAPH 3 - EXPANSION OF INTERNATIONAL FINANCIAL ACTIVITY
(International bank lending, US \$ bill.)



Source: B.I.S.

Alternative approaches to judge the degree of financial integration include the evolution of interest rate differentials for the same currency between domestic and offshore markets, and developments in parity of interest rate differentials, either covered or uncovered¹⁷⁾.

With regard to the first approach, a decreasing trend in differentials between domestic and offshore markets has been evident in recent years, with marked reductions in countries gradually removing capital controls. The approach using covered interest rate parity confirms the impression of a high degree of integration among industrial countries, especially for short-term instruments (see Frankel, 1991).

Finally, analysis of saving-investment correlations in individual countries, has generally shown a higher degree of correlation than expected, which might suggest a smaller degree of capital market integration than indicated by other types of research¹⁸⁾. Early findings by Feldstein and Horioka (1980) pointed to a fairly high degree of correlation between saving and investment in the industrial countries in the 1970s. Further work by Feldstein and Bachetta (1989) confirmed those results, but nevertheless revealed an increase in international capital mobility along the 1980s. This research was based on an examination of the savings retention coefficient, which was 0.79 in the period 1980-86, down from 0.91 in the 1960s and 0.86 in the 1970s.

17) Covered interest rate differentials are provided by the difference between interest rates on instruments issued by comparable borrowers denominated in different currencies, after adjusting those differences for the cost of cover in forward exchange markets.

18) This seems to hold for both industrial and developing countries. See Dooley, Frankel and Mathieson (1987).

Other studies have attempted to explain the high saving/investment correlations by examining private sector behaviour (i.e. trends in productivity, or demographic factors which simultaneously affect saving and investment). Perhaps the most plausible explanation is that the high correlation seems to reflect the impact of government policies aimed at reducing current account imbalances¹⁹).

As mentioned earlier, capital mobility is a result of several factors besides capital controls. Financial deregulation has been a rather recent phenomenon in major industrial countries, and high exchange rate volatility continues to appear as a major factor hampering capital mobility, especially for long-term flows²⁰).

Summing up, there are a number of indications that capital mobility has considerably increased in industrial countries during the 1980s, in spite of the persistence of some constraining factors, and the trend is likely to continue in the years ahead. A major factor that continues to dampen the degree of mobility will be the exchange rate volatility. Since relatively large shares of countries' savings continue to be retained domestically, there would seem to be ample scope for each country to influence the level of savings available for domestic investment through its domestic economic policies.

19) See Artis and Bayoumi (1989). They found strong negative contemporaneous correlations between the saving-investment balances of the government and private sectors in the 1970s and somewhat lower correlations in the 1980s, which are nevertheless compatible with relatively low capital mobility.

20) This seems to be confirmed by the lower saving/investment correlation - and hence a higher degree of financial integration - that is apparent among the countries participating in the exchange rate mechanism of the European Monetary System, as explained in section 6 below.

5. CURRENT ACCOUNT IMBALANCES AND CAPITAL FLOWS

The progressive removal of capital controls and international financial deregulation experienced in the 1980s should in principle be welcomed, since increased capital mobility is a key factor to achieve a better international allocation of resources. Under conditions of a high degree of capital mobility, one can expect the market to determine the sustainability of current account imbalances either by providing financing to a deficit country, or by reducing the flow of capital, thereby creating the incentives for domestic policies to adjust the imbalance.

As far as current account imbalances merely reflect demographic factors, or more generally, intertemporal consumption optimization decisions within each country, the consequence of free capital mobility is that private agents in the rest of the world -- be it direct investors or financial intermediaries -- perform their role of assessing alternative investment opportunities at the global scale, with the consequent gains in efficiency.

These arguments are widely recognised as advantages from increased capital mobility, but some caveats nevertheless must be made with regard to the potential dangers involved. As far as institutional barriers and market failures persist -- as is still the case to a large extent even among most integrated industrial countries -- advantages from capital mobility may not be fully realized, and some negative consequences might even appear. From a domestic perspective, a current account deficit may not be a problem by itself if it can be financed through private capital inflows. Nevertheless, as far as that deficit

reflects either market failures, regulating distortions or an excessive government deficit (when compared with a socially optimal level), external financing may serve to delay fundamental adjustments, thereby increasing the eventual costs of subsequent adjustment policies²¹). If this was the case, the negative effects could be transmitted to other countries, particularly in a context of a high degree of economic interdependence and financial integration²²).

Relationship between the current account and capital flows

While significant current account imbalances have arisen in other periods of the past, there are a number of key features which distinguish them and the involved capital flows pattern from those experienced in the second half of the 80s.

During the gold standard (XIX century until 1914) significant current account imbalances followed the pattern of capital outflows from rich and slow-growing countries (basically England) to relatively poor and fast growing countries (notably the United States). In a context of secular low inflation, issuance of fixed interest long-term bonds was

21) A good example of markets' wrong perception of the sustainability of a lending pattern and its potential negative consequences is provided by the debt crisis. The adjustment costs, especially for heavily borrowing countries, are likely to last for a number of years ahead.

22) These arguments have implications for the appropriate order in which capital and factors' transactions should be liberalized. Frenkel (1982) emphasised the dangers involved in liberalizing capital transactions without a previous liberalization of commercial transactions. Such a sequence of liberalization involves a higher risk of distortions in resource allocation, and a higher cost of such potential distortions owing to the inadequate adjustment of fundamentals, and to the fact that capital flows (potentially much larger than commercial transactions) are likely to overreact to "wrong" price signals.

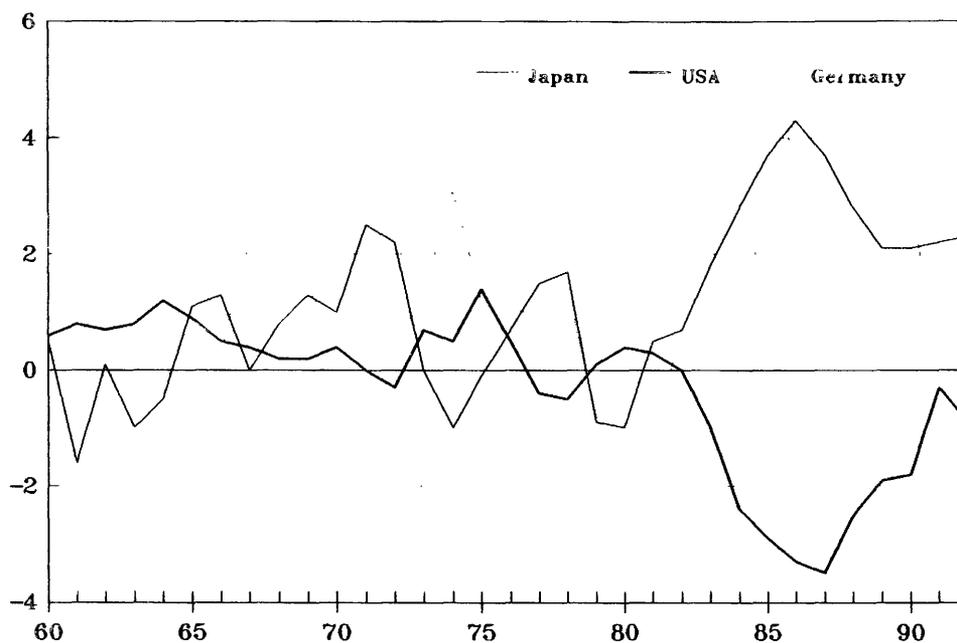
the usual channel for those flows. Thus, the pattern of capital flows was a natural one, as far as saving surpluses were channelled into investment in countries with a higher rate of return on capital, which provided a sound and stable source to service the country's debt

The 1970s marked a more recent period of large current account imbalances as a consequence of the oil crisis. During that period, imbalances emerged rather homogeneously in virtually all oil importing countries. The pattern followed by capital flows was shaped by the intensity of the real shocks which gave rise to the imbalances, with huge outflows of capital from oil exporting to the major financial centers. Through "recycling" these capital flows were subsequently channelled through the international banking system and the emerging euromarket to deficit countries in both the industrial and developing world. However, it is now widely recognised that the scale of these capital flows did not always take account of economic fundamentals, as they often financed consumption or investment projects that proved not to be viable. These capital flows therefore were a major cause behind the subsequent debt crisis.

During the 1980s, and especially from 1982, financial liberalisation and removal of capital controls in conjunction with the emergence of big budget deficits in some industrial countries (notably the United States), again gave rise to very large current account imbalances among the major industrial countries (see Chart 5).

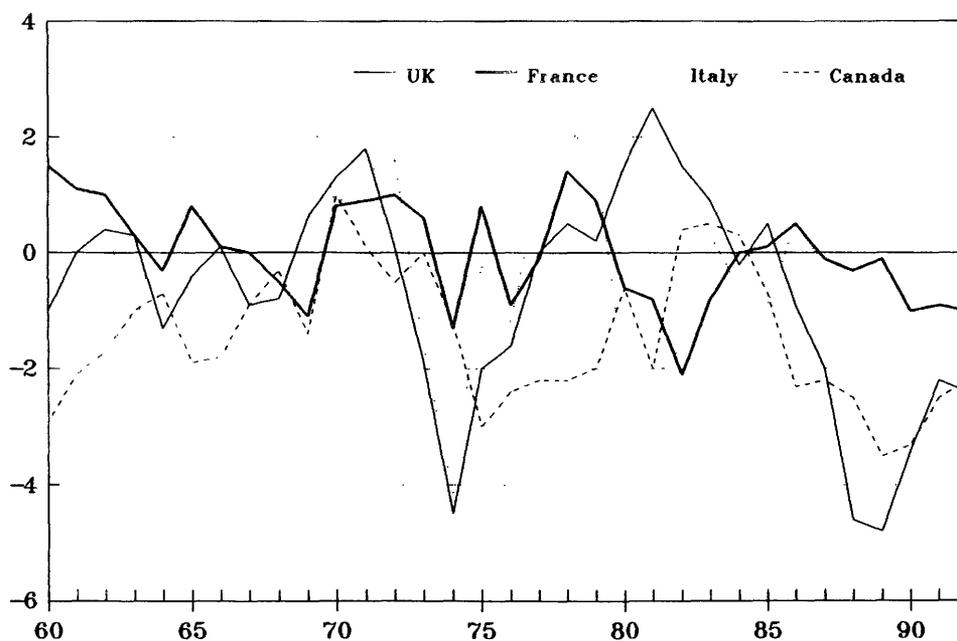
In addition to the emergence of unprecedented (since the gold standard) current account imbalances among the major industrial countries, the

GRAPH 4a - CURRENT ACCOUNT IMBALANCES OF MAJOR INDUSTRIAL COUNTRIES (% of GDP)



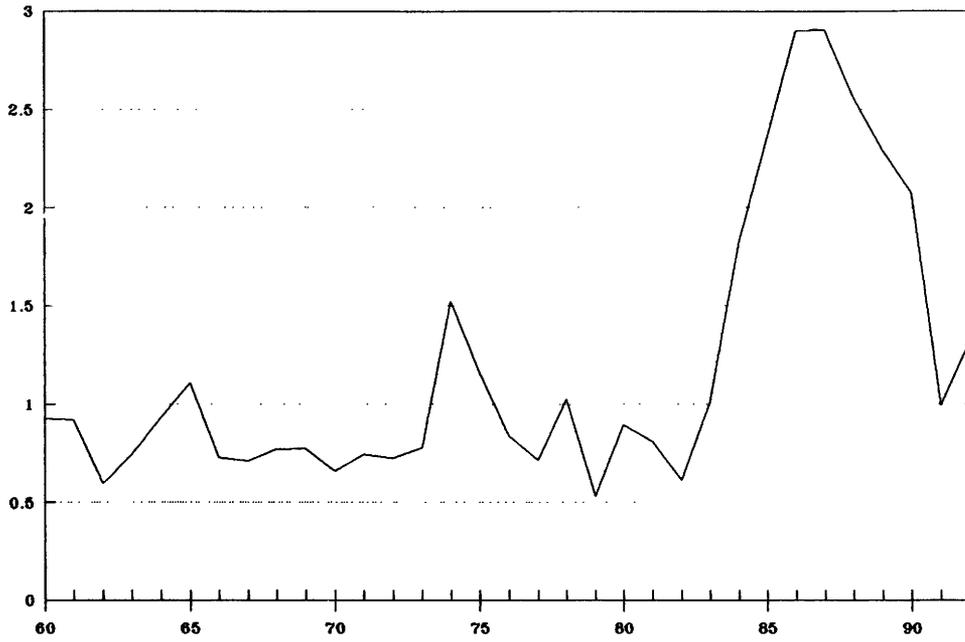
Source: Commission Services

GRAPH 4b - CURRENT ACCOUNT IMBALANCES OF MAJOR INDUSTRIAL COUNTRIES (% of GDP)



Source: Commission Services

GRAPH 5 - CURRENT ACCOUNT IMBALANCES OF MAJOR INDUSTRIAL COUNTRIES (*)



Source: Commission Services

(*) Weighted average of the sum of deficits and surpluses of G-7 countries, as a % of GDP).

dramatic increase in the scale of international capital movements has been accompanied by an increasing loss of links between those movements and trends observed in trade or other economic fundamentals. These developments have been linked to the increasing sophistication of financial markets and the sharp decline in information and transaction costs that has occurred, creating a truly global financial market.

The dynamic so generated has made it more difficult to identify the rather unclear causality between current account imbalances and capital flows. However, there has clearly been a movement in the direction of a greater simultaneity in the determination of both. In contrast to the gold standard period, however, capital flows are not seen merely as the counterpart to profitable investment opportunities abroad²³). In fact, there seems to have been a shift in the pattern of capital inflows towards countries with low savings but also with relatively low rates of growth and returns on capital, thereby modifying the "natural" pattern. Moreover, there is evidence that capital flows may have contributed to the widening of current account imbalances, and not merely to their financing.

Nevertheless, the difficulty in identifying the factors that determine both net and gross capital flows has been widely recognized, since the reaction of markets to shocks can be reflected in capital flows, in

23) A related discussion is the adoption of one of the two possible approaches to the determination of current account balances: the "elasticities" approach (based on relative prices) and the "absorption" approach (based on saving-investment imbalances). Since both processes take place simultaneously, the two approaches are compatible, and essentially describe the same process.

asset price adjustments, or in a combination of the two²⁴). However, it is now clear that, besides the above mentioned loss of links between capital flows and developments of the real economy, a number of financial factors can be identified behind the sharp increase experienced by capital flows. Among them, the degree of financial sophistication reached both in domestic and international markets, the removal of barriers to financial integration, and the increased level of competition among financial intermediaries should be mentioned.

In addition to the factors already mentioned, the increasing needs of private agents to hedge against financial risks (be it exchange rate risk or interest rate risk), and the increased possibilities open to arbitrage and speculative operations have undoubtedly contributed to the rise in gross capital flows. Besides this, other explanations can be found behind the large increase observed in international portfolio and direct investment. On the one hand, hedging against risks involved in investment concentration has led in recent years to a process of portfolio diversification which is not yet completed²⁵). On the other hand, commercial strategies and the need to circumvent barriers (either trade, fiscal or financial) have also contributed to boost direct investment in recent years.

24) Nevertheless, some fundamental and regulatory factors can easily be identified as playing an important role in explaining large capital flows during the past two decades, such as big capital outflows from Germany in 1987-89, owed to the planned introduction of a withholding tax on interest income, or the large capital inflow in the US during 1981-85, related to sharp differences in fiscal/monetary policy mix respect to Japan and Germany, among other examples. (See IMF, 1991).

25) Turner (1991) argues that in the 1990s this process should slow its pace, given the virtual completion of the process of financial liberalisation and the associated diversification of assets.

In summary, there are a number of arguments which suggest that the liberalization of capital movements and the sharp increase in international capital flows may not have produced all the potential benefits suggested by economic theory. The most negative aspects of recent changes in the patterns of international allocation of savings has been the extent to which it has allowed to postpone fundamental policy adjustment through increased access to international capital markets.

6. SAVING IN THE EUROPEAN COMMUNITY IN THE CONTEXT OF ECONOMIC AND MONETARY UNION

Efforts to stimulate savings and enhance its allocation across countries are at the heart of the process towards Economic and Monetary Union. The convergence required in the field of fiscal consolidation, as a pre-condition for the final stage of EMU, constitutes a clear incentive to promote public sector saving. In addition, the completion of the Single Market involves a progressive liberalization of capital movements and provides a framework for a market-based allocation of saving throughout the Community.

There is abundant evidence of the impact of the European Monetary System on capital market integration. Feldstein and Bachetta (1989) found comparatively low saving/investment correlations for EMS countries suggesting a high degree of integration. Results obtained by

Bandhari and Mayer (1990) have confirmed that there is a higher degree of capital mobility among EMS countries than among other Industrial countries²⁶).

Data on the composition of capital flows in the Community suggest that there has recently been a significant increase in foreign direct investment, which in 1989 exceeded \$7 billion, exceeding for the first time in recent years the amount of direct investment in the United States (see Turner, 1991). This development has been linked to a considerable increase in intra-EC mergers and acquisitions (see Commission of the European Communities, 1989). These trends indicate the intensity of the process of financial adjustment that has been generated by the Single Market and EMU processes. The conditions have thereby improved for significant gains in the efficiency with which savings are allocated across the Community.

At the same time, the discussion in this paper has highlighted some of the potential dangers that may result from the liberalization of capital flows within the Community. In this context, it is obvious that the success of the EMU process to a large extent will depend on the degree of "discipline" accepted by each member country in terms of saving. Developments in budget deficits will be of paramount importance, which explains the emphasis on this issue in the context of the convergence process. The danger, of course, is that monetary

26) A recent comparison of capital mobility in different EC countries has found significant differences in capital mobility for the period 1960-88. Germany, UK and the Netherlands are the countries with the highest degree of capital mobility (Argimón and Roldán, 1991). Since capital controls have been the main factor explaining those differences, they should be reduced in the coming years.

Integration in the absence of firm rules for fiscal policy will strengthen the ability for individual countries to finance their budget deficits, and thereby encourage fiscal laxness.

More generally, given the Community's potential role as a capital exporter (to Eastern Europe, the Soviet Union and the development world) an appropriate functioning of the process should be reflected in the achievement of a net saving surplus for the Community, in a context in which each EC country provides an "adequate" contribution to the Community's pool of savings. In this respect, it might be appropriate to think in terms of some kind of "saving targeting", as the EMU process gradually reduces the current account constraint.

7. CONCLUSIONS

Concerns about low saving levels in industrial countries during the past decade seem to be justified, particularly in the presence of a foreseeable increase in investment demand during the 1990s. Although there are few signs that the low level of saving has had major repercussions on economic performance so far, the inadequacy of savings risks becoming a decisive constraint on growth in the future, particularly for the newly liberalizing countries in Central and Eastern Europe and the developing world.

In the current context of relatively high (and increasing) financial integration, the negative effects of low saving in individual countries are transmitted to the rest of the world. This constitutes a systemic deficiency to the extent that the pattern of capital flows prevailing

in recent years has tended to offset the impact of low saving propensities rather than promote policy changes. Capital market integration may therefore delay required adjustments. An increased international consensus to promote private and public saving may thus be necessary to achieve potential advantages of capital market integration.

Additional negative effects stemming from capital market liberalization include a shift from investment to consumption financing and the associated negative consequences in terms of crowding out of profitable investment opportunities through higher interest rates. In this respect, the existence of market failures (externalities) affecting investment suggests that the market by itself does not guarantee adequate levels of saving and that public intervention in this field consequently may be warranted.

Among the negative systemic consequences of low saving and high interest rates, the effects on developing countries are particularly serious. With inadequate levels of domestic saving in the developing countries themselves and growing difficulties in attracting funds from abroad, the growth performance of many developing countries during the past decade has been extremely weak. Barring a substantial increase in world saving, there is little prospect of any recovery of growth in many of these countries over the medium term.

The low level of saving also constitutes a constraint on the Western world's ability to assist Eastern Europe and the Soviet Union in their reform efforts. While a high level of domestic saving in these countries and greater efficiency in the allocation of their saving are

key conditions for the restructuring efforts to succeed, a certain transfer of resources from the rest of world will also be necessary to complement domestic savings. With the low saving levels in the West, however, there is a risk that the transfer of resources to Eastern Europe and the Soviet Union will increase pressures on interest rates worldwide and crowd out investment in other countries, notably the developing countries. Such a situation would also increase pressures to expand officially guaranteed (and thereby subsidised) credits, which would further increase interest rates in private markets.

Summing up, as high financial integration has reduced the significance of the current account as an economic target or constraint, international policy coordination will have to provide for an appropriate degree of discipline by ensuring that incentives to saving are adequate. In addition to measures aimed at promoting private savings (see page 14), some kind of public sector saving targeting will be necessary to ensure an adequate level of saving worldwide.

Within the Community, some of the advantages of Economic and Monetary Union in terms of increased capital mobility have already been achieved, mainly owing to the reduction of exchange rate uncertainty, which has been identified as a major factor constraining capital mobility outside the European Monetary System. Nevertheless, to fully reap the potential benefits from Economic and Monetary Union "rules" will have to be implemented to ensure both an adequate level of savings overall in the Community and an appropriate degree of convergence of saving propensities across Community member countries.

ANNEX

STATISTICAL ISSUES ON SAVING AND CURRENT ACCOUNT

When analysing conventional figures of saving, two kinds of caveats must be made: firstly, national accounting criteria are not homogeneous among countries. Secondly, even when analysing data of a given country the assumptions underlying conventional data must be taken into account before drawing any conclusions. Diverging accounting criteria can explain a part of the large differences in absolute levels of saving observed among industrial countries, even if the broad trends in saving described in section 2 above do not seem to significantly change when most usual adjustments are carried out. This annex briefly enumerates the main adjustments which have been suggested for conventional measures of saving. Finally, the issue of the well known statistical current account discrepancy is addressed, which during the last decade has raised doubts on the adequacy of the available data.

Measuring saving

According to the United Nations' System of National Accounts (SNA), saving is calculated for each of the institutional sectors (i.e., households, enterprises and government) as a residual, by subtracting current outlays from income. The United States and some European countries have not adopted the United Nations system. While in all systems current income and expenditure are measured in a homogeneous way, a major difference in the United States' system is the fact that all government disbursement is treated as government consumption, while the SNA system considers government expenditure in construction and non-military equipment as capital expenditure, and therefore the resulting measured saving is considerably lower than what would be according to SNA standards (see Aghevli et.al (1990) and Elmeskov, Shafer and Tease (1991) for a review of these issues and a summary of the effects of possible adjustments).

In addition to the former, the relative size of the underground economy, and a number of conceptual problems can significantly modify the conclusions obtained when analysing conventional data. Among those problems, the treatment of consumer durables, of capital gains and

losses¹⁾, depreciation and the distinction between real and nominal interest payments have deserved major attention. As pointed by Smith (1989) : "When intercountry comparisons are made, it is important to identify the purpose of the comparison and determine whether the measure being used is suited to that purpose".

Elmeskov, Shafer and Tease (1991) classify possible adjustments to conventional measures of saving as follows: changes in asset values (including the effects of inflation and capital gains); changes in the classification of economic activities (which affects the definitions of income and consumption); and the inclusion of activities not covered by national accounts but which affect future income and welfare. Adjustments provided in this work show to what extent the variations with respect to conventional data can be significant. For instance, inflation adjusted private saving ratios show differences of 4.8 and 4.9 percentage points of variation between the 1970s and the 1980s for the cases of the United Kingdom and Japan. Likewise, if expenditure in education or in research and development are considered as "saving" the results obtained vary significantly in most developed countries. The conclusions of their work point that while most adjustments to gross saving (such as the mentioned inclusion of Research and Development or education disbursement) would boost national saving ratios, other adjustments like the deduction of depreciation and of the depletion of resources would result in much lower net saving ratios than those measured by SNA criteria. Nevertheless, they conclude that in spite of the uncertainties and errors involved on measurement issues, "the general picture of the 1980s as a period of weak saving in the OECD area, at least until the last years of the decade, seems relatively robust".

The current account discrepancy

The fact that the world's current account data show a large aggregate net debt since the early 1980s has been a matter of concern and the subject of several ad-hoc studies aimed at determining the origins of such discrepancies and the extent to which greater accounting

1) See Harris and Steindel (1991) for a discussion on the definition of productive investment and the adequacy of stock market as a measure of saving.

homogeneity among different countries could help to overcome that problem. The major source of statistical errors which has been identified behind the global current account discrepancy is the emergence of large amounts of cross-border assets recognised by debtor countries but not by creditors. Other identified sources of discrepancies include the shipping and unrequited transfer sectors of the current account balance, as well as problems of geographic allocation.

While the persistence of a significant global discrepancy remains a source of concern and caveats when analysing trends in global flows, the fact that developed countries became net capital importers before that discrepancy appeared suggests that even if the magnitude of real net flows is unknown, its actual direction is that shown by available statistics. Furthermore, it has been found that most of the identified adjustments which would correct the global discrepancy would not be concentrated enough in any single country or area as to put under question the basic conclusions obtained from uncorrected data²⁾.

Table : The world's current account discrepancy
(As a percentage of total exports of goods and services)

<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1990</u>
-2.4	-2.4	-3.0	-2.0	-1.2	-1.6	-2.3

Source : World Economic Outlook, IMF May 1991.

2) See IMF (1987) and IMF (1989) for a detailed analysis of the statistical problems.

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