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18.10.1989

36/89

AN ASSESSMENT OF CURRENT ACCOUNT IMBALANCE*

* An earlier version of this Discussion Paper was published by the Kiel Institute of World Economics in May 1989 (Kiel Advanced Studies Working Paper No. 167)

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Helsinki 1989
ISBN 951-686-226-8
ISSN 0785-3572

CONTENTS

ABSTRACT

The seriousness of an external imbalance should be assessed with respect its macroeconomic connections and intertemporal nature. A current account deficit reflects differences in time of saving and investment decisions of the economic agents - the households, the companies and the public sector - as well as the international dimensions of these decisions, made possible by liberalized capital markets. In principle, respect for intertemporal budget constraints, which bind economic units, will keep foreign indebtedness on an equilibrium path and ensure the solvency of the economy in the long term. Distortions relating to the functioning of markets may, however, lead to sub-optimal consumption and investment decisions and disequilibrium. The rate of growth of foreign indebtedness should be kept within the limits set by the solvency constraint of the economy, which depends on the real rate of interest on the foreign debt and on the growth rate of the economy.

TIIVISTELMÄ

Vaihtotaseen alijäämän vakavuutta arvioitaessa tulisi ottaa huomioon vaihtotaseen makrotaloudelliset kytkennät ja intertemporaalinen luonne. Vaihtotaseen alijäämä heijastaa talousyksiköiden - kotitalouksien, yritysten ja julkisen sektorin - säästämis- ja investointipäätösten ajallista erisuuruutta ja maiden välisiä eroja, jotka vapaat pääoma-markkinat tekevät mahdollisiksi. Periaatteessa talousyksiköitä sitovien budjettirajoitusten kunnioittaminen pitää ulkomaisen velkaantumisen tasapainoisella uralla ja takaa talouden maksukykyisyyden pitkällä tähtäimellä. Markkinoiden toimintaan liittyvät vääristymät voivat kuitenkin johtaa ei-optimaalisiin kulutus- ja investointipäätöksiin ja epätasapainoon. Ulkomaisen velkaantumisen kasvuvauhdin tulisi pysyä talouden maksukykyisyysrajoitteen asettamissa puitteissa, mikä riippuu velan reaalikorosta ja talouden kasvuvauhdista.

1. INTRODUCTION

The current account depicts a country's current external transactions with the rest of the world. These transactions include merchandise trade, trade in services, factor income and unrequited transfers. The counterpart of a current transaction is normally a capital transaction. The capital account (incl. foreign exchange reserves) shows changes in foreign assets and liabilities. The current account and the capital account together form the balance of payments of a country. By definition, the balance of payments as a whole is always in equilibrium, although the sub-items may show deficits or surpluses.

The balance on the current account - either surplus or deficit - accordingly shows changes in the foreign debtor/creditor position of the economy. A surplus in the current account diminishes foreign debt (increases foreign assets) and a deficit increases debt (decreases assets). Therefore, the balance of the current account is the major indicator of the external position of a country.

The balance of payments has its linkages to the goods market through foreign trade, and to the money market through capital movements. Through these linkages the balance of payments has also linkages to fiscal and monetary policies. Economic policies affect the balance of payments, and balance of payments developments have a bearing on economic policies to be followed (these linkages are discussed more profoundly in the Appendix).

In economic policy discussion, a current account deficit of a country is often a major concern of policy, as are high inflation or unemployment. However, one cannot straightaway judge whether an external imbalance is a good or a bad thing for an economy. For example, a current account deficit may be a sign of an healthy economy with many profitable investment opportunities, or it can be a sympton of inappropriate or unsustainable macroeconomic policies. Often, the equilibrium of the current account is set as the target of policy, although a moderate deficit, which maintains the foreign debt in relation to GDP constant, might be more sensible from the point of view of the development of the

economy. Sometimes the current account deficit also reveals the need for initiating necessary adjustment. Therefore, an appropriate analysis of the nature of a current account imbalance is necessary to draw conclusions from its seriousness.

The traditional analysis of the current account is more or less partial. For example, the so-called elasticity approach focuses on analyzing the trade balance, and the absorption approach on analyzing the equality of domestic supply and demand. Partial analysis is by definition limited and can also be misleading. It disregards both macroeconomic linkages and the intertemporal nature of the current account imbalance.

In this paper, the current account imbalance is analyzed at the theoretical level, considering its macroeconomic character. Especially, the intertemporal aspects of the current account are emphasized. In recent years, these aspects have been introduced in theoretical literature e.g. by Sachs (1982) and (1983), Obstfeld (1983), Svensson and Razin (1983), and Cuddington and Vinals (1984). In short, the intertemporal approach to the current account stresses intertemporal utility maximization of economic agents under their budget constraints, and accordingly the self-correcting property of the current account.

The structure of this paper is the following: In Chapter 2, the position of the current account as a policy target is considered. Chapter 3 contains theoretical analysis of the current account. From the basic identities of the national accounts, different approaches to the current account analysis are derived. The saving-investment approach offers a starting point for sectoral intertemporal analysis of the current account. In Chapter 4, some criteria for external (dis)equilibrium and external indebtedness are evaluated. Concluding remarks are presented in Chapter 5.

2. THE MEANING OF AN EXTERNAL IMBALANCE

2.1 How to interpret external imbalance

The current account is a reflection of the macroeconomic state of the entire economy. By definition, the current account balance of a country is equal to the difference between domestic income and domestic absorption, or the excess of domestic saving over domestic investment. Saving and investment decisions reflect intertemporal choices about consumption and production. Low saving rate, for instance, is in part a reflection of individuals' rate of time preference - a preference for current consumption. If there is not sufficient national saving to finance the desired national investment, should this cause concern, if other countries seem willing to cover the gap?

In an open economy, the level of national investment need not be matched by an equal amount of national saving. It is possible for foreign capital inflows to finance domestic investment, even for long periods of time, so long as the returns on the domestic investment generate the requisite income to pay the foreign capital exporter, i.e. the marginal productivity of domestic capital exceeds the marginal cost of foreign borrowing. Differences between countries in national saving and investment rates reflect different aptitudes, opportunities and preferences for consumption and production over time. If there were no major distortions (such as capital controls or tax distortions) and markets functioned well, inequality of national saving and investment would hardly be a problem. But in reality there are important distortions influencing the decisions to save or consume, as well as to invest in real assets at home or abroad. Such distortions may well mean that national saving and investment rates are sub-optimal and gaps between them may be reflecting disequilibria.

The rate of saving by consumers and companies reflects private-sector decisions. However, private-sector decisions are made against a background of government policy, past and present, which may give rise to distortions and suboptimality of one sort or another. The private sector may be deciding how much to save in the light of individual

time preferences, taking into account the government's own saving position. But distortions introduced by policies may mean that those decisions are not the optimal ones from the national viewpoint. On these arguments, the role of government should not be to worry about the level of saving and investment, per se, but to worry about whether its own activities - its own claims on resources and the structure of taxes and expenditure - are unduly distorting the private sector's saving and investment decisions.

Whether the current account should then be an independent target or a restriction of macroeconomic policy, or only a sub-item in the balance of payments accounting framework, is not self-evident.

2.2 The current account as a policy target

In practice, the current account often seems to be a target of economic policy. In case of a deficit, it is often deemed as a sign of an undesirable disequilibrium, and measures to correct the imbalance are called for. However, it has been claimed (e.g. by Genberg and Swoboda, 1987, p. 3) that in a world of small countries, with full and symmetrical information, competitive markets and no externalities, there is no reason why the current account should be a target of policy. Current account surpluses and deficits would simply reflect differences in productivity and/or time preference among countries and be a reflection of the efficient reallocation of capital from regions with an excess of saving over investment to regions with an excess of investment over saving. Respect for intertemporal budgetary constraints would ensure solvency and an appropriate time path of the current account in the various stages of balance of payments development. Accordingly, self-correcting automatics, relating to the rational behavior of economic agents, will keep the foreign indebtedness on an equilibrium path. (Intertemporal aspects of the current account are discussed in more detail in Chapter 3.3).

For instance, the so-called development stages theory of the balance of payments, or the debt-cycle strategy (see e.g. Siebert, 1987 and

1989), is based on these principles. A country may borrow from abroad to increase its capital stock and to speed up its industrialization. It is worthwhile to finance the capital stock by debt if the marginal productivity of capital exceeds the interest rate, i.e. the cost of borrowing. Moreover, if the time preference rate of the country is greater than the interest rate on debt, it is worthwhile to borrow for consumption and repay the debt later. Thus, borrowing for capital accumulation and for consumption may overlap. Foreign borrowing will allow a higher consumption profile in the initial periods and hence a higher present value of consumption.

In the early phase of a debt-cycle, a country imports capital and runs a current account deficit (a trade deficit plus a deficit in interest payments). Later on, the country repays its debt and the current account turns into a surplus. The country exports capital and accumulates foreign assets, generating a positive factor income account. The country becomes a net creditor - it has gone through the full debt cycle.

From the theoretical point of view, there are, according to Genberg and Swoboda (1987), a few legitimate or general analytical reasons for making the current account a target of economic policy. The authorities can interfere either with the goods or the money market. Some market failures may call for intervention in international lending and borrowing, and, accordingly, in the financing of the current account deficit. In some instances, the government may have a different time preference than the public and may therefore wish to interfere with capital movements.

In practice, there are at least three main reasons why current accounts have become a target of policy. First, as net exports are a component of aggregate demand, governments see manipulation of the trade balance by economic policies as a major tool of controlling effective demand for their country's output. Second, governments may become concerned with the country's net indebtedness position. This concern may be legitimate when the current account does not reflect "basic" differences between productivity and time preference at home and abroad. But it should be noted that for both of these reasons, the current account

becomes a target because of inappropriate economic policies, or their unwanted side effects. The third reason for concern with current account imbalances is the protectionist sentiment to which they give rise. Here again, the problem is related to a failure of policy elsewhere.

These examples illustrate that in practice only in some cases can the current account become a target of policy. Why and/or when should we then be worried about the current account? This question is addressed in Chapter 4.

3. THEORETICAL ANALYSIS OF THE CURRENT ACCOUNT

3.1 Basic identities

To analyze external imbalance, different definitions for the current account surplus/deficit can be presented, starting from the national accounting definitions. Let Y be gross national product, Q be gross domestic product, and F be net factor payments from abroad. By definition, then

$$(1) \qquad Y = Q + F.$$

Gross national product, Y, plus net unrequited transfers from abroad, R, may be used for consumption, C, gross private saving, S^P, and taxes, T

$$(2) \qquad Y + R = C + S^P + T.$$

Then private sector saving $S^P = Y + R - C - T$. Government saving is given by $S^G = T - G$, where G is government consumption of goods and services. Output market equilibrium is

$$(3) \qquad Q = C + I + G + X - M.$$

Equations 1 through 3 provide three equivalent definitions for the current account:

$$\begin{aligned} (4) \qquad CA &= X - M + F + R && \sim (X - M) \\ &= Y - (C + I + G) + R && \sim (Y - A) \\ &= (S^P + S^G) - I = S^P - I + T - G && \sim (S - I) \end{aligned}$$

The first equality is the standard definition. It defines the current account as the net exports of goods and services plus unrequited transfers and net factor payments from abroad. The second tells that the current account surplus equals income minus absorption, $A = C + I + G$. Normally, F and R are assumed to be zero and are dropped out of the equations. The third equality presents CA as the sum of the excess of private and public sector saving over investment. Fourth, the current

account can be expressed as the difference between the change in the money stock and credit expansion ($CA = \Delta M - \Delta L$). So, the current account has altogether four different counterparts. It should be emphasized that these definitions present only accounting identities, and not causal relations between the counterparts of the equations.

3.2 Alternative approaches to the current account

The determination of the current account can be considered according to alternative approaches based on the elements of the four identities in the previous chapter. (For a review of alternative approaches see e.g. Johnson, 1977). Focusing on a particular element of the identity may highlight key features of the current account that alternative approaches would obscure. Different approaches to the current account also represent the development of the theory of devaluation.

3.2.1 Elasticity approach

During the immediate postwar period, the theory and the discussion of the effects of a devaluation were dominated by the so-called elasticity approach. The traditional or elasticity approach explains the current account balance (X - M) directly, or through its components X and M. In practice, many estimates of current account developments have been based on trade equations explaining exports and imports. In this analysis, income developments at home and abroad, relative prices and trade elasticities play central roles. This approach stresses the importance of the price elasticities of the demand for exports and imports, and it is exemplified by the Marshall-Lerner condition for a successful devaluation. However, this analysis has some weaknesses because of the partial equilibrium nature of the assumptions underlying the Marshall-Lerner formula, and because it focuses only on import and export demand relations.

3.2.2 Absorption approach

The absorption approach to the current account analysis concentrates on studying the adequacy of domestic output for domestic absorption (= consumption + investment). If domestic output is higher (smaller) than absorption, the current account shows a surplus (deficit). This approach emphasizes that a favourable configuration of price elasticities may not be sufficient to produce positive current account effects of a devaluation, if the devaluation does not succeed in reducing absorption relative to output. This approach also stresses the importance of analyzing the income multiplier effects of the devaluation on the current account. It is recognized that by expanding domestic output a devaluation will lead to increased imports. Accordingly, several attempts at synthesizing the elasticity and the absorption approach has been made (e.g. Alexander, 1959).

3.2.3 Monetary approach

The third stage in the postwar development of the theory of the balance of payments and devaluation was the monetary approach, which can be regarded as a special case of the absorption approach. This approach emphasizes that balance of payments developments are largely determined by monetary factors, a matter ignored by the elasticity and the absorption approaches. By raising the aggregate price level, a devaluation leads to a reduction of real cash balances and therefore to an excess demand for money. This induces domestic economic agents to restore the initial level of real cash balances. The mechanism which brings this about is through the accumulation of current account surpluses, which raise the domestic money stock. The process ends when the initial stock of real cash balances is restored. The current account surplus then also disappears. The monetary approach thus stresses the temporary and self-correcting nature of a current account imbalance. Attention is paid to long-term equilibrium, where the endogenous money stock is constant and the balance of payments in equilibrium. However, the monetary approach leaves open the structure of the balance of payments, and how monetary disequilibrium is spread through the current and the capital account.

The three approaches considered above are as such useful in analyzing the current account and devaluation, and they are complementary. The monetary approach stresses the long-term effects of devaluation, whereas the elasticity and absorption approaches are important in analysing the short-term effects of devaluation. Approaches that focus on a one-period determination of the current account have, however, apparent shortcomings. The nature of the shocks - temporary or permanent - and the role of expectations cannot be taken into account as affecting the decisions of the economic agents and, accordingly, future developments of the current account. In forecasting and analyzing current account developments it is important that the intertemporal nature of the saving and investment decisions of the households, the corporate sector and the government be taken into account.

3.3 Saving-investment approach

The saving-investment (S-I) approach can be derived from the same identity as the absorption approach. According to the saving-investment approach, a current account surplus is the sum of excess private sector saving (S - I) and the government budget surplus (T - G). Therefore, it makes analytical and empirical sense to start from the determinants of saving and investment in understanding current account developments. As in the previous approaches, the composition of exports and imports is ignored.

Recently, a number of theories of the balance of payments have examined the various elements of aggregate domestic saving and investment. Many have focused on a single element of excess domestic saving as being the key determinant of the current account. In the United kingdom, the "New Cambridge" school argued in the early 1970s that, because the private sector's net saving propensity (S - I) was more or less stable, the current account was determined by changes in the public sector deficit. On the other hand, Sachs (1981) argued that variation in aggregate investment (I) has been the main determinant of current account developments in many countries. It has also been argued that the United States' current account deficit and the Japanese current

account surplus largely reflect divergent fiscal policies in the two countries (that is, variation in T - G dominates). Further, by assuming that gross private saving (S) is constant, it has been claimed that changes in the current account reflect changes in both (T - G) and I.

These theories seek to pay attention to the more fundamental causes of balance of payments patterns. Nevertheless, focusing on only one element of the overall S-I balance as the prime determinant of the current account is probably misleading. A second consideration is that S-I balances are themselves endogenous. Any assessment of underlying or structural saving or investment behaviour therefore requires some attempt to adjust actual saving-investment ratios for changes in their important determinants.

In view of these considerations, Turner (1986) decomposed aggregate excess domestic saving into its various components - corporate, household and government - and studied how they depend on their major determinants, i.e. income, interest rates and exchange rates. The general conclusion was that medium-term movements in S-I balances provide a good explanation of underlying balance of payments developments in the seven major OECD countries.

Saving and investment data are generally available by the three broad sectors of the economy: household, corporate and general government/ public sector. Accordingly, the equation for the current account and excess saving can be decomposed as:

$$(5) \qquad CA = S^H - I^H + S^C - I^C + T - G$$

where H refers to the household sector, C refers to the corporate sector and T - G is the public sector budget surplus.

This division of the overall S - I balance into three sectors makes it possible to consider the current account balance within an intertemporal optimization framework of the household, the corporate and the public sector. Actually, in a more fundamental sense, saving-investment balances reflect intertemporal choices and constraints of economic agents.

3.3.1 Private S-I balances and the current account

Recently, theories of the current account have incorporated a life-cycle saving theory based on intertemporal optimization. The life-cycle approach permits an interesting analysis of current account determination (see e.g. Sachs, 1981). The decisions underlying saving and investment are assumed to be made by rational, forward-looking, optimizing economic agents. Households save so as to maximize utility over time, and firms invest so as to maximize the present value of future profits. Both sectors are subject to their intertemporal budget constraints.

The major theories of consumption behaviour - the life-cycle and permanent-income hypothesis - recognize that in making consumption decisions, consumers take account of their lifetime resources rather than simply their current income. (On recent development of consumption theories, see e.g. Abel, 1988.) Consumers have access to perfect capital markets and they can borrow or lend at an exogenous rate of interest. A consumer has an intertemporal utility function that depends on consumption in every period of life. The consumer maximizes utility subject to a single lifetime budget constraint. The existence of the budget constraint implies that if present consumption exceeds present income, the opposite has to be true in the future.

Likewise, corporations maximize their shareholders' utility by maximizing the present value of the firm (the discounted value of net cash flow) under the resource constraint (see e.g. Sargent 1979, p. 74 - 75). Households are the ultimate owners of corporations, so that they may view retained business earnings as a close substitute for their own saving. The owners then transform this income stream into a utility-maximizing consumption stream.

These theories suggest the importance of long-run saving and investment decisions for the current account. There is no reason for assuming that saving should equal investment in a single country in a given period of time. Optimizing consumption over time will in general imply an imbalance between saving and investment, and thus an imbalance in the current account.

3.3.2 Public S-I balances and the current account

The public sector aims at maximizing social welfare of the citizens by its own saving and expenditure decisions, according to its own time-preference, and subject to its own budget constraint. Public sector expenditure is financed by taxes paid by the household and the corporate sectors. The government can also borrow from and lend to domestic markets and abroad. The government's intertemporal budget constraint implies that the present value of future tax revenues must equal the sum of the outstanding government debt plus the present value of future government expenditure on goods and services.

The effects of government deficits on private sector saving are manifold and interact importantly with policy measures which may be fiscally neutral on the budget but affect the intertemporal choice of individuals. One view, known as the "debt neutrality hypothesis" or "Ricardian equivalence", argues that the private sector can anticipate the future tax burden associated with government debt service and adjust its saving accordingly.

Public S-I balances reflect economic policy decisions, which may not always be optimal. Inappropriate or unbalanced macroeconomic policies can create current account imbalances that have no justification in optimal saving and investment behaviour. Such current account imbalances can be corrected only by adjusting the country's government deficit.

3.3.3 Summary on the S-I balances and the current account

Current account surpluses/deficits represent national saving/borrowing vis-à-vis the rest of the world. They are the outcome of intertemporal choices of households, firms, and governments. Each of the three sectors operates in an intertemporal optimization framework subject to its own budget constraint. The sectors can borrow from and lend to each other and abroad. When the sectors respect their intertemporal budget constraints, the current account balance will be maintained in the long run.

However, various distortions, for example on the tax side, may distort the private sector's saving and investment decisions and lead to a sub-optimal allocation of resources. Such distortions may well mean that national saving and investment rates are sub-optimal and gaps between them may be reflecting disequilibria also on the current account. In case of tax distortions, the question turns on what the optimal role of taxation is.

In the short run, also abrupt changes in saving-investment behaviour, or in the time preferences of the different sectors, or an increase in the willingness of getting into debt, may cause an unexpected weakening of the current account. Recently, financial market liberalization - both domestic and international - has changed the behaviour of households and the intertemporal time path of consumption. Households have been able to take greater advantage of tax incentives (deductibility) related to purchases of dwellings or consumer goods by borrowing at an earlier stage of their lifetimes and making larger purchases than would otherwise be the case. The increase in household borrowing and decline in the household saving ratio have in turn been reflected in a deteriorating external balance in many countries.

In the end, the debt accumulation capacity of the different sectors will determine the size of external imbalance of a country and will become the final constraint for foreing indebtedness of the country.

It would be naive to take S-I balances as such as exogenous determinants of the current account. Once account is taken of their more basic macroeconomic determinants, the saving-investment approach can provide a useful framework for the analysis of current account trends. At the same time, the long-run nature of saving-investment choices can be highlighted.

4. CRITERIA FOR EXTERNAL IMBALANCE

In the previous chapter it was argued that the current account equilibrium of a country will be maintained (sustainable) in the long run through sectoral intertemporal budget constraints, if no major distortions affecting saving-investment behaviour exist. Rapid and uncontrolled increases in foreign indebtedness may, however, have negative consequences for the economy: it tends to increase uncertainty among economic agents, especially in the corporate sector, domestic interest rates tend to rise as more capital is needed to finance the current account deficit, and creditworthiness of the country may weaken, raising the cost of foreign borrowing (risk premium). Therefore, some criteria for the external imbalance and for the growth of foreign indebtedness of a country is required. As such criteria, sustainability, optimality and solvency are considered.

4.1 Sustainability and optimality

Salop and Spitäller (1980) present two criteria - sustainability and optimality - as suitable 'equilibrium' concepts for the current account and as standards for determining the necessary adjustment. As a country's overall level of savings relative to investment determines its current account, the assessment of the current account turns on the sustainability or optimality of the magnitudes of these underlying variables. Underlying a sustainable current account is an assessment of the sustainability of the consumption pattern. A country cannot continue borrowing indefinitely to consume, nor can it continuously spend out of wealth. Hence, a current account deficit resulting from too much consumption is not sustainable in the long run, although it may be such over short periods.

For a consumption level to be sustainable over the long run, the economy must be saving enough to maintain its wealth and income at its present level. That is, the economy must be in some kind of steady state. This means that neither net savings nor the expected return on investment, net of debt service and principal repayment, is negative.

A saving rate below this limit implies that the economy will ultimately have to alter its consumption pattern.

This has clear implications for assessing the sustainability of a particular current account deficit. If the economy has positive net savings, then the actual deficit will tend to be sustainable. Conversely, if net savings are negative, the deficit will be unsustainable over any prolonged period. Ultimately, sustainability is a condition imposed by external forces: the drying up of sources for financing a current account deficit presents a clear signal that the current account has become unsustainable and that a change in policies is required.

Similarly, an 'optimal' current account can be deduced, at least conceptually, from the levels of optimal savings and efficient investment. An optimal current account is evaluated purely by internal considerations: each country decides on an optimal current account deficit/surplus to maximize social welfare, in view of the performance of the other economic variables. The government can reallocate welfare between generations, raising the possibility of an optimal current account policy that maximizes an inter-generation social welfare function. (For more on these criteria, see Salop and Spitäller, 1980).

4.2 The nation's solvency constraint

Perhaps the most important criterion for an external imbalance is the solvency constraint. It simply implies that any increase in current indebtedness must be 'paid' in the future, which also affects spending in the future. The intertemporal budget constraint involved in the concept of solvency is a suitable way to analyze this problem. (The presentation follows Buiter, 1988.)

Let us write the current account identity as follows:

$$(6) \qquad CA = TB + \frac{EA^*}{P} - i^* \frac{E}{P}(D^* - R^*) = \frac{E}{P}\Delta(R^* - D^*)$$

where TB is the trade balance, A* net foreign transfers, D* the stock of foreign debt and R* the stock of foreign exchange reserves, all denominated in terms of foreign currency. E is the nominal spot exchange rate, P the domestic GDP deflator and i* the foreign nominal interest rate. The current account surplus CA is the sum of trade balance surplus, unrequited transfers and the net factor income from abroad. The current account is also equal to the nation's accumulation of net foreign assets, $\frac{E}{P}\Delta(R^* - D^*)$.

CA and TB are measured in terms of real GDP units. Let Q denote the real GDP and $F^* = R^* - D^*$ the nation's stock of net foreign assets. We can then rewrite $f^* = EF^*/PQ$, the stock of net foreign assets as a fraction of GDP, $tb = TB/Q$, the trade balance surplus as a fraction of GDP, and $a^* = EA^*/PQ$, foreign aid and other current transfers from abroad as a proportion of GDP. Let n be the rate of growth of real GDP, p the domestic rate of GDP inflation, p* the world rate of GDP inflation, e the rate of depreciation of the nominal exchange rate, q the rate of depreciation of the real exchange rate and r* the foreign real interest rate. It follows that $q = e + p^* - p$ and $r^* = i^* - p^*$. Using these notations, equation (6) can be rewritten as

$$\Delta f^* = tb + a^* + (r^* + q - n)f^* \tag{7}$$

This "asset-revaluations-and-real-growth-corrected" current account identity implies the intertemporal national budget constraint, present value national budget constraint or national solvency constraint given in

$$-f^*(s) = PV\ (s;\ tb + a^*;\ r^* + q - n). \tag{8}$$

The equation means that the present discounted value, at time s, of the future stream of trade balance surpluses plus net foreign current transfers (as fractions of GDP) is just equal to the nation's current net external debt (as a proportion of GDP). The discount rate is the real-exchange-rate-depreciation-corrected foreign real interest rate ($r^* + q$) minus the growth rate of real GDP, n. The sum of the trade account surplus and the net transfers is called the nation's primary surplus. A depreciating real exchange rate ($q > 0$) raises the domestic real resource cost of any given foreign real interest rate.

Equation (8) follows from the asset-revaluation- and real-growth-corrected current account identity (7) only if the present discounted value of the nation's net external debt in the very distant future is zero. This means that, ultimately, the external debt/GDP ratio (f^*) has to grow at a rate less than $r^* + q - n$. Ultimately, therefore, the country will have to run primary surpluses in order to service its debt. Solvency does not require that the debt be repaid, only that it is not possible indefinitely to finance the interest bill through further borrowing: at some stage primary surpluses must be achieved and any further borrowing will not be sufficient to pay the entire existing interest bill.

Accordingly, a debtor country facing a real interest rate on its debt in excess of the real growth rate need, in principle, not achieve any current account surpluses in order to maintain solvency; it only must be capable of generating, at some point, primary surpluses. A rising debt/GDP ratio is not by itself evidence of imminent or ultimate insolvency; only a debt ratio scheduled to rise indefinitely at a rate in excess of $r^* + q - n$ would mean eventual insolvency.

Equation (8) does not involve any particular path of trade balance surpluses in terms of GDP. Actually, there are numerous possible paths of tb compatible with solvency. But there is only one path of trade balance surpluses in terms of GDP which ensures a "permanent" or "perpetuity equivalent" (Sachs, 1984) value of tb compatible with solvency:

(9) $$\overline{tb} = \overline{f^*}(r^* + q - n), \quad \text{for every period.}$$

Combining (7) and (9) gives $\Delta f^* = 0$. Thus, the permanent value tb provides a solution to the nation's solvency constraint such that the external debt remains constant in terms of GDP. Given the stock of external debt, and the expected values of r^* and n, we obtain a trade balance surplus in terms of GDP consistent with solvency. Compared with the actual values of tb, $\overline{tb}$ provides a useful point of reference which can be used to evaluate the external-sector performance of a given country. With $tb > \overline{tb}$, the trade account surplus is in excess of the amount which ensures solvency.

5. CONCLUDING REMARKS

A current account imbalance is frequently approached from a partial framework with focuses on the foreign trade as one major cause of the disequilibrium. This type of analysis, however, often neclects the macroeconomic connections of the external imbalance. Therefore, factors underlying the disequilibrium are likely to remain undiscovered. Also, the intertemporal nature of the trade/current account will be neclected.

The saving-investment approach to the current account makes it possible to consider the current account as an intertemporal optimization process of the main sectors of the economy - the household, the corporate and the public sector. Each of the sectors behaves under its own intertemporal budget constraint. Respect of these constraints ensures that equilibrium in the current account will be maintained in the long run.

Various distortions, relating for instance to taxation and capital controls, may, however, distort the private sector's saving and investment decisions. Such distortions may lead to a suboptimal allocation of resources and, accordingly, gaps between saving and investment may reflect disequilibria.

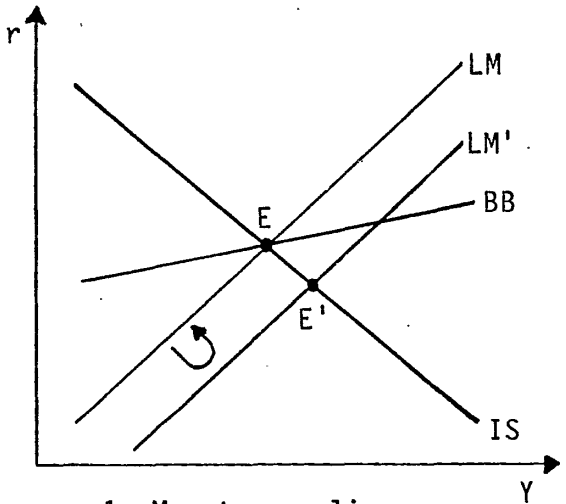
Rapid and uncontrolled growth of foreign indebtedness may have various adverse effects and cause concern both domestically and abroad. Therefore, the increase in foreign indebtedness should be kept below the rate permitted by the nation's solvency constraint, i.e. the foreign debt/GDP ratio should not grow at a rate in excess of the growth-corrected real interest rate. Otherwise, confidence in sound economic performance of the country will be undermined.

APPENDIX

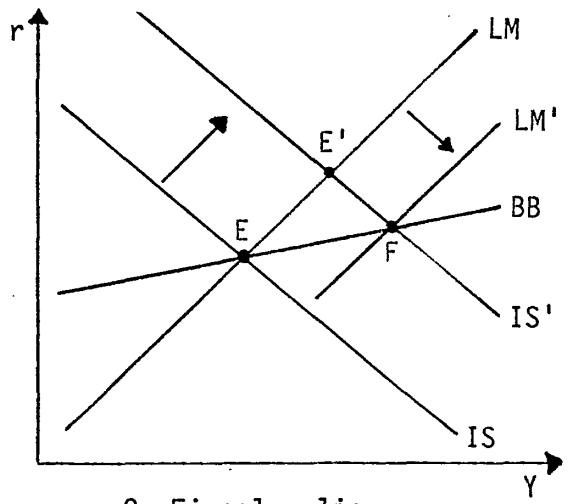
THE BALANCE OF PAYMENTS IN A MACROECONOMIC EQUILIBRIUM FRAMEWORK

To illustrate the position of the balance of payments among other macroeconomic targets, a brief description of the balance of payments in a macroeconomic equilibrium framework is presented. This allows us to analyze the interactions between the balance of payments and the goods and the money markets, on the one hand, and the balance of payments and monetary and fiscal policies, on the other.

The balance of payments can be presented in the traditional Mundell-Fleming model of an open ecoomy with capital movements and a fixed exchange rate (see Chart 1 and 2 below, or e.g. De Grauwe, 1983, Mundell, 1962). Balance of payments has its linkages to the goods market (IS-curve) through foreign trade and to the money market (LM-curve) through capital movements. IS-curve shows the relation between the interest rate and income (given the exchange rate) along which goods and services markets are in equilibrium (internal balance). LM-curve describes a similar equilibrium for the money market. The IS-and LM-curves have the normal slopes. The BB-curve represents the combinations of domestic interest rate and real income for which the



1. Monetary policy



2. Fiscal policy

balance of payments is in equilibrium (external balance). The equilibrium condition for the balance of payments is BB = CA + KA = 0, where CA is the current account and KA is the capital account - implying that the balance on current account exactly cancels the balance on capital account. For instance, the overall BB can be in equilibrium when there is a current account surplus and equivalent capital account deficit, or vice versa. When the current account and capital account do not cancel, there is an overall balance of payments surplus or deficit.

In this framework, the trade account is a function of domestic real income and the capital account is a function of the domestic interest rate (assuming the foreign interest rate to be constant). The reasoning for the positively sloped BB curve is that an increase in the level of real income leads to a deterioration of the current account. In order to maintain balance of payments equilibrium, a compensating capital inflow is necessary. This is achieved by an increase in the domestic interest rate. The higher the degree of capital mobility the smaller this increase in the interest rate will have to be to produce a compensating capital inflow. Above the BB curve the balance of payments is in surplus, and below the BB curve in deficit. In case of perfect capital mobility, the BB curve would be horizontal and lie at the level of the foreign interest rate. For example, changes in the exchange rate or the terms of trade induce changes in the position of the balance of payments curve. The point E, where the IS, LM and BB curves intersect, is the macroeconomic equilibrium point.

The effects of monetary and fiscal policy as well as the adjustment of the economy to a balance of payments surplus or deficit can now be analyzed in this framework. A monetary expansion (Chart 1) shifts the LM curve (temporarily) towards LM', and the equilibrium moves from E to E'. With fixed exchange rates, at E', however, the current account deficit combines with a capital outflow to produce a balance of payments deficit. This reduces the money stock and shifts the LM' curve back to its initial position. Equilibrium E is restored at a lower level of reserves. Accordingly, monetary policy is ineffective in permanently raising aggregate demand. Point E is the only possible equilibrium consistent with both external and internal balance, so the money supply

will adapt to it if it is allowed to do so (if sterilization is not undertaken). Sterilization policies allow the authorities to keep the economy at E', as long as the stock of foreign exchange reserves suffices to finance this policy. Thus, the money supply, the position of the LM curve and the balance of payments interact.

Expansive fiscal policy will shift the IS curve to the right (Chart 2). Also, because the balance on the current account is part of the demand for commodities, or expenditure on GDP, anything that improves the current account balance for a given level of real output will have the same effect. With fixed exchange rates, this increase in income and in the demand for money tend to raise the interest rate, and capital is attracted from abroad. The new "quasi-equilibrium" point in the money and goods market is obtained at E'. There the current account is now in deficit, which, however, is overcompensated by a capital inflow. The balance of payments surplus increases the money supply, which shifts the LM curve to the right. A new equilibrium point is reached at F where the balance of payments is again in equilibrium. Accordingly, fiscal expansion allows the authorities to raise the level of aggregate demand, because the overabsorption of goods and services can be financed by capital inflows. Thus, fiscal policy has a strong effect on output and emplyment under fixed exchange rates.

The framework considered above does not allow an explicit distinction between the current account and the capital account of the balance of payments. However, it shows the interactions between the balance of payments and the goods and the money markets, as well as the intractions between the balance of payments and monetary and fiscal policies. Balance of payments developments are the result of economic policies followed, and economic policies are effected by the developments of the balance of payments.

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