

EUROPEAN UNIVERSITY INSTITUTE, FLORENCE

DEPARTMENT OF ECONOMICS

EUI WORKING PAPER No. 87/288

**THE STOCK APPROACH TO THE EXCHANGE RATE:
AN EXPOSITION AND A CRITICAL APPRAISAL**

by

Roberto TAMBORINI

This paper is part of a research which is being carried on at the European University Institute of Florence under the supervision of Professor M. De Cecco. A first draft has been commented on by Professor E. Phelps (Columbia University, N.Y., and Visiting Professor at the E.U.I.). An unpublished paper kindly made available by Professor S. Biasco (University of Rome) has helped me to refine some points. I am fully responsible for this paper.

BADIA FIESOLANA, SAN DOMENICO (FI)

All rights reserved.
No part of this paper may be
reproduced in any form without
permission of the author.

(C) Roberto Tamborini.
Printed in Italy in April 1987
European University Institute
Badia Fiesolana
- 50016 San Domenico (Fi) -
Italy

THE STOCK APPROACH TO THE EXCHANGE RATE:
AN EXPOSITION AND A CRITICAL APPRAISAL

INTRODUCTION

In the last decade, the confidence in a floating exchange-rate regime and in particular the complete laissez faire of the United States since 1980 have been backed by a vast and authoritative literature which has enjoyed absolute predominance in the profession. Such a literature can be grouped under the label of the "stock approach to the exchange rate" . It was born "to illustrate one -but only one- important channel through which changes in asset-market conditions feed back on themselves through the exchange rate" (Branson (1977),p.70). Then, it has become a well-established, self-contained apparatus dictating exchange-rate theory and policy.

The stock approach to the exchange rate has come into use to tackle two major challenges facing the world economy after the Bretton Woods system broke down: exchange-rate "volatility" and international payments adjustment. The distinguishing point of the new approach, as opposed to the traditional "flow" theory, has been to look at the exchange rate as an "asset

price" which is determined along with other asset prices in the equilibrium process of asset markets. The asset the price of which is the exchange rate may be domestic money (monetary approach) or a portfolio security denominated in foreign currency (portfolio approach). This shift of focus from international trade to asset markets is usually explained as a consequence of a world of high or "perfect" capital mobility. The outstanding conclusion is that exchange rates are volatile but not unpredictable, nor are they disruptive of "fundamental" networks of payments: capital movements make them fluctuate more or less roughly around purchasing power parity or at least a standard consistent with current-account balance.

The present paper offers elements for a critical evaluation of the stock approach's predictions and prescriptions. The reader may find it useful to keep in the back of his mind a few stylized facts which have engendered present dissatisfaction with exchange-rate theory and practice. True enough, exchange rates have ever shown short-run volatility; but the most serious fact is that in the three major episodes of the dollar against the mark and other key currencies -the steady fall in 1978-79, the sharp rise in 1980-85 and the depreciation in 1986-87 (1st quarter) coupled with increasingly large current-account deficits- exchange-rate dynamics and trade imbalances did not show any reliable tendency to take care of themselves through the capital account or through any other channel. Quite the contrary, to break those trends coordinated interventions of central banks were eventually necessary. Failures of such order of magnitude need not be supported by econometric evidence, nor are they solvable by

econometric alchemy. The empirical and econometric literature on the exchange rate falls outside the scope of our investigation, which is essentially theoretical in aim.

In chapter I theory's foundations are exposed. A substantial effort has been made in order to bring into light the essence of the stock approach, since it has been obscured by a host of "practically-oriented" models. For the same reason, formalization and "technicalities" are kept down to a minimum. The main message is that, although the new approach was certainly prompted by the observation of the enormous increase in international capital mobility, it has mainly remained an internal development of the "New Macroeconomics" in the Pigou-Patinkin vein. After having acknowledged the importance of stock equilibrium in macroeconomics, chapter II points out some pitfalls in the stock approach which have become major flaws in exchange-rate theory; in particular they affect the modelling of the exchange market, of wealth effects and of the macroeconomic process. Conclusively, it is argued that such flaws in fact account for major failures of today's exchange-rate theory; it seems desirable to open up the stock approach to contributions to financial economics coming from outside the framework of the New Macroeconomics and, at the same time, to rebalance the asset-market perspective with a careful reconsideration of the interrelations among exchange rate, production and international trade.

There are several possible ways of searching for leading principles in the vast and varied group of stock theories of the exchange rate (1). Here, such a task will be pursued by framing exchange-rate theory within its natural setting of the so-called "New Macroeconomics". As a matter of fact, it is the latter the source of leading principles for the former; in particular, attention should be paid to the evolution of today's open economy macroeconomics from earlier neo-Keynesian macroeconomics (that is to say the traditional IS-LM apparatus)(2).

Next, a "standard" portfolio approach to exchange-rate determination will follow; "standard" in the sense that it will be based on those principles and assumptions that seem to be crucial to this approach, while the very many variations on the theme will be disregarded (3).

1. Methods of Equilibrium

1.1. New Macroeconomics has grown out of the critical revision of formal conditions of equilibrium adopted, explicitly or implicitly, in Keynes's theory and later on in neo-Keynesian macroeconomics. The core of such a criticism is the statement that a true equilibrium position of the system cannot be attained to so long as there are changes in stocks; such changes and their consequences on the macroeconomic process should be modelled explicitly (4).

Such macroeconomic flows as saving, investment, government deficit, commercial and financial international transactions, including those of official reserves, all have effects on their own underlying stocks, and in principle it cannot be assumed that those stocks will increase or decrease

indefinitely without feeding back onto flows. In the IS-LM system , for instance, the only stock equilibria explicated are those relative to money and official reserves. Mundellian internal-external equilibria are based on the implicit assumption that at a given level of the interest rate the stock of domestic bonds held by residents and/or foreigners can be increasing or decreasing permanently. On the contrary, it is argued, equilibrium must hold for flows and stocks simultaneously.

1.2. Traditionally, in economic theory the norm of "full equilibrium" is given by the conditions of the so called "steady state". In its static version it requires each and all stocks and flows to be at their desired level and to be unchanging. This implies that saving and net investment must be null and the whole disposable national income be spent on consumption goods and on the maintenance of the existing stock of capital goods. Moreover, the government budget must be balanced, so that the public debt (if any) does not change, the current account must be zero and there cannot be transactions on capital account, so that the stocks of foreign assets and liabilities do not change. Financial assets consist of perpetuities yielding an income flow which is entirely consumed (5).

In New Macroeconomics the focus on stocks has two outstanding methodological consequences derived from steady state conditions: flows matter to the extent that they alter stocks, altered stocks are re-adjusted to their steady-state level.

2. Steady state, portfolio equilibrium and the exchange rate

2.1. Let us consider a small open economy, the most usual topic in modern open macroeconomics. "Smallness" is generally translated into the following assumptions:

(i) Economic conditions abroad are parametrically given and domestic phenomena do not affect them. In particular, price and quantity of exports are given by world market conditions.

(ii) No domestic assets are held abroad.

(iii) Residents hold foreign assets (it may prove useful to think of interest-bearing deposits abroad).

"The exchange rate" is the nominal price of 1 unit of the composite currency of the country's trading partners (without loss of generality one may think of a "world-trade currency" called "dollar").

2.2. In the neoclassical steady state (6) full flexibility of wages and prices keeps production factors fully employed. To this end a major role is played by "real balance effects", that is to say gains or losses on capital account affecting the purchasing power of wealth (money) holders, which are entirely transmitted to the demand for output thanks to the "gross substitution principle" between money and real assets (otherwise known as Walras Law). In the small open economy with fixed exchange rate the interest rate is continuously equal to the world interest rate; for domestic securities are perfect substitutes with foreign securities and there exists continuous stock equilibrium (7). The foreign sector is one of the channels through which domestic wealth holders restore the desired real value of their money balances in the event of a nominal shock. Consider an excess

creation of money: purchases of foreign goods and a rise in the domestic price level (due to excess demand also for domestic output) both help to restore stock equilibrium. International payments imbalances reflect stock adjustments taking care of themselves (8).

In the steady state the exchange rate must be at its value of "purchasing power parity" or, that is the same, the Law of One Price must hold. Were it not so, there would be opportunities for some residents to buy foreign goods or for some foreigners to buy domestic goods (9).

The Law of One Price implies that "the" real exchange rate is equal to one. As is well known, one problem here is that there may be as many real exchange rates as price indexes. In the stock approach, the real exchange rate (t) is a determinant of the real value of wealth holders' money balances (M) in proportion to the weight of tradable foreign goods in the price index (P) relevant to their purchasing power:

$$(1) \quad M/P = M_0$$

$$(2) \quad P = P^d a + eP^* b \quad a + b = 1$$

$$= P^d (a + tb), \text{ if } t = 1$$

$$= P^d$$

where (P^d) is the domestic price index, (P^*) is the price index of foreign goods and (M_0) is the desired real money stock. When the real exchange rate is equal to 1 wealth holders' price index is equal to the domestic price level, i.e. purchasing power parity holds (10). Accordingly, deviations of the exchange rate from purchasing power parity affect wealth-holders'

demand for foreign real assets and, as a substitution effect, for domestic real assets too.

In the steady state, by pure manipulation of the definition of real money stock (1), the exchange rate thus takes the form of the "price of two monies" $(M/M_0)/(M^*/M_0^*)$, that is to say the price of world money at which the domestic stock of money is willingly held (11).

2.3. If the exchange rate is freely floating, stock adjustments after nominal shocks are reflected in exchange-rate changes instead of international payments imbalances; the adjustment in the exchange rate and in the domestic price level will go on until purchasing power parity and the desired real money stock are re-established .

In most authors' thought, when the exchange rate is fully flexible excess demand-supply of foreign asset becomes the source of adjustment of the money stock . To this effect, the model of the exchange market has to be augmented with the forward rate and the expected spot rate for the same term. In fact, under the assumption of perfect market, the equilibrium forward premium (discount) equalizes the interest differential, and at the same time it is equal to the expected depreciation (appreciation) rate; thus, although the nominal interest differential is always null, whenever the expected rate of change spot is not null opportunities to exploit uncovered interest parity develop (12).

Obviously, the crucial problem remains of explaining the expected rate of change spot, a matter we shall not go deeper into. Suffice it to say that if such a rate is the rate of change tending to purchasing power parity according to the outcome of the "structural model" (plainly, the inflation

differential or the money growth differential), we enter the domain of rational expectations. Thus, if the money growth differential is positive, the exchange rate is expected to depreciate, uncovered interest parity becomes negative, excess demand for foreign asset develops. Capital outflows need not take place materially: the exchange rate is instantaneously adjusted to its purchasing power parity value or relative purchasing power parity continuously holds (13).

By definition, rational expectations do not alter the final result of the "structural model", that is the best predictor of the actual system's behaviour; they simply "anticipate" it. This last circumstance is not crucial to the purpose of the present work, whereas to expound properties of "structural models" is much more important .

Indeed, fundamental propositions in modern exchange-rate theory rest upon the behaviour of "pure savers" ("widows and orphans" in jargon), that is to say agents who aim at maximizing the income flow out of their financial wealth without bearing risks on capital account; gains or losses on capital account are windfalls affecting the value of their wealth, but these are not the object of their wealth management. In other words, pure savers do not plan to sell securities before their maturity, unless unexpected events occur or unless a new issue (actually) pays a higher interest rate. It is pure savers' behaviour that pertains to the "structure" of markets on which speculators form their expectations and in which they carry on their plans (14).

Static expectations, such that the expected exchange rate is always equal to the actual one, will be the normal assumption in the following (unless otherwise stated and discussed) (15).

As we have seen, the standard monetary model is essentially a speculative model (McKinnon (1979), ch.VIII), but as far as the "structural model" is concerned, the monetary-approach writers seem to fail to show the link between the domestic money market and the exchange rate (see also the criticism by Kouri (1983), pp.116-117)). With static expectations regarding the exchange rate, there is no room for adjustments through the capital account like in the case of fixed exchange rate (see n.a, p.5). A part of the stock adjustment has to take the form of purchases or sales of goods on the foreign market, thus moving the exchange rate. It is not clear, then, what is the meaning of the common belief in the monetary approach according to which conditions of international equilibrium "have nothing to do with the elasticities of (national) excess demands for and supply of traded goods as functions of their real prices" (Johnson (1977), p.259).). Quite the contrary, it seems necessary that for purchasing power parity to be re-established well-behaved elasticity conditions must hold (see the fundamental analyses by Robinson (1937) and Machlup (1939)).

Stock and flow equilibrium must be reached simultaneously. But since the exchange rate and the domestic price level are moved on different markets, though by interrelated forces, in general they cannot be expected to change proportionately at once; a certain degree of "overshooting" -i.e. temporary violation of purchasing power parity- may be embedded even in a steady world of perfect markets (16).

2.4. A cornerstone of neo-Keynesian macroeconomics retained in the stock approach is liquidity preference as a "behaviour towards risk". Wealth holders attach different degrees of liquidity risk to different assets in the fear of unexpected liquidity needs. Even in the steady state, when economic events can be perfectly foreseen, life events cannot. In this view, capital-income maximization requires portfolio diversification and, in equilibrium, different rates of return (not necessarily nominal interest rates) among assets, reflecting different liquidity risks (17). As far as foreign assets are concerned, the major component of risk is exchange risk(18).

At this point it should be stressed that portfolio theory is not merely an extension of the neoclassical monetary theory to a multi-asset world (the neoclassical theory does not hinge on a simplistic model of assets). Money and real assets are at the opposite ends of the liquidity spectrum, and, because of liquidity-preference considerations, portfolio balance is realized through substitution among assets situated between the two ends. In other words there is no longer direct substitution between money and real assets and the output market is affected only indirectly, through asset prices.

Continuous and instantaneous stock equilibrium, price vectors at which agents willingly hold existing stocks, are consistent with the situation of steady state. But outside the steady state, macroeconomic flows entailing financial flows do take place; these asset flows must be accommodated in wealth-holders' portfolios. The equilibrium price vector now consists of output prices, asset prices and the exchange rate (19).

Consider n assets ($A_i, i = 1 \dots n$). The rate of change of their stocks must amount to the formation of financial wealth (saving flow) or of "net financial wealth" (W) (saving minus net investment) in the same time unit(20). As usual, we shall follow the latter specification by considering shares on net investment as the n -th asset. The wealth constraint allows for the determination of equilibrium conditions for the $(n - 1)$ "outside" assets ($W_j, j = 1 \dots n - 1$), given respective initial stocks (W_{j0}) and within-period supply flows (H_j). Each asset stock is intended to be equal to its nominal value times the asset's price index (q_j). Money's price index is always 1. The conventional assumption that money does not bear interest leaves $(n - 2)$ outside assets' return rates (r_j) to be determined endogenously. Rates of return are determined by the respective security's price index (q_j) given its nominal interest rate (\bar{r}_j) ($r_j = \bar{r}_j/q_j$).

Then, n equations can determine $((n - 2)r_j, Y, e)$, where (Y) is money income and (e) is the exchange rate:

$$(3) \quad W_j (\cdot) = H_j + W_{j0}$$

$$(4) \quad \sum_j W_j = D + X + W_0$$

where (D) is the government budget and (X) is the current account.

Three are the most important arguments usually included in functions (3): the own return rate (r_j), money income (Y) and a wealth term (w). An increasing own return rate shifts demand to that specific asset from other assets, that is to say it gives rise to a substitution effect (21).

An increasing money income raises demand for all assets, that is to say it brings about an accumulation effect which is specular to marginal saving. Undesired changes in real wealth behave like changes in money income, but in the opposite direction. If real income is at the level of full employment, so that the endogenous variable is (P^d) the domestic price level, and there is no money illusion, income effects disappear and only wealth effects remain. Overall wealth effects captured by (w) should not be confused with specific wealth effects given by changes in (q_j) 's in equations (3).)

To focus on the small open economy with flexible exchange rate, let us consider only 3 outside assets ($j = 1$ money, 2 government bonds, 3 a foreign asset) (22).

In stock equilibrium, the level of money income is given, saving, net investment, government deficit and current account are all null. As clear from equation (4) nominal wealth must be unchanging. Establishing portfolio equilibrium involves the exchange rate through the following interrelated channels:

- (i) the exchange rate is a positive function of excess demand of foreign currency;
- (ii) the exchange rate enters the determination of the foreign asset's return rate for domestic buyers, as it converts the foreign asset's market price into domestic currency ($q_3 = eq^*$);
- (iii) the exchange rate determines the current value of the stock of foreign asset expressed in domestic currency ($W_{30} = eq^*W^*$).

In portfolio analysis of the small open economy the above three channels of determination of the exchange rate lead to a peculiarly well-behaved asset substitution such that a unique equilibrium relationship exists between the domestic rate (r_2) and the exchange rate (e), the third asset market being brought into equilibrium by quantity adjustments (Branson (1977), I.)

Reconsider now an excess creation of money. Excess money will spill into other asset markets lowering the domestic rate and raising the exchange rate. Since outside supply of bonds and foreign asset is fixed, and since inside wealth-holders' expectations are uniform (23), there will be no quantity but only price adjustment of existing stocks towards portfolio equilibrium. The rise of the exchange rate helps portfolio equilibrium by lowering the return rate on the existing foreign asset and by increasing the domestic value of its actual stock. The effect on the exchange rate is larger the better substitutes are domestic and foreign assets. The effects of the exchange rate must be stronger the smaller are changes in the foreign asset's price.

According to the well known portfolio approach's aphorism, "the exchange rate is an asset price". It should be clear that this is somewhat different from the generalization of the monetary approach's aphorism that "the exchange rate is the price of monies". First of all because of monetary-theory considerations. Moreover, in both approaches the exchange rate moves in order to keep stock equilibrium, but in the monetary one, as long as expectations are static, the exchange market can be affected only by commodity transactions, whereas in the portfolio one the exchange market is

affected directly by financial transactions. A most striking feature of the latter is in showing the possibility, a crucial one indeed, that the exchange rate changes with no actual transactions on the market, as in the above example of the steady state. In that case, portfolio adjustment made the exchange rate rise though no record appeared in the balance of payments and, what is more important, though no change occurred in international trade or its determinants. This is in fact the outstanding achievement of the stock approach in the explanation of the so-called "exchange-rate volatility" in a system of high capital mobility (24).

3. The current account-capital account relationship through wealth effects

3.1. We ended our treatment of the steady state and portfolio equilibrium by stressing that pursuing portfolio equilibrium can move the exchange rate independently of international trade determinants. Hence, the portfolio-equilibrium exchange rate may be inconsistent with international-trade equilibrium, for instance because it is no longer the purchasing-power-parity exchange rate. It is natural to maintain that departures of the exchange rate from purchasing power parity affect international trade through a real balance effect, as described above (2.2), which now regards not only money but the whole financial wealth. Therefore, a depreciation will cause a positive trade balance and *v.v.* an appreciation. This is one way of looking at portfolio equilibrium as a so called "short-run equilibrium" (25).

At the same time, real depreciation will normally be accompanied by domestic inflation and real appreciation by domestic deflation. In both

cases, the real exchange rate may be partially self-corrected. The crucial question is whether trade imbalances have corrective effects on the exchange rate and on themselves.

3.2. The traditional answer to the above question is yes, provided that there exist well-behaved demand and supply functions on the exchange market reflecting well-behaved demand and supply functions of international trade.

When the exchange rate is freely floating a current account imbalance is first of all equal to a change in net financial wealth (as clear from equation (4), cet.par.) in the form of claims on foreigners. In the stock approach, this is meant to be an accumulation wealth effect which requires a further stock adjustment in the opposite direction in order to re-establish portfolio equilibrium. It is precisely such a further stock adjustment to move the exchange rate after a current account imbalance (26).

Thus, if we start from a portfolio equilibrium entailing an appreciated currency, there will be a current account deficit and therefore a loss of foreign asset followed by an excess demand of foreign asset (possibly an excess supply of domestic bonds and money) and a currency depreciation (a domestic return-rate increase). The process will go on until depreciation will have restored purchasing power parity and current account equilibrium. Changes in the domestic price level may play a helpful, but not necessary, role (Branson (1977), III) (27).

3.3. To sum up we have a framework in which:

(i) the exchange rate affects the current account, but endogenous or exogenous imbalances of the current account do not affect the exchange rate directly but only through the wealth effect on portfolio;

(ii) the traditional negative relationship between current account and exchange rate (the deficit country depreciates at a rate given by the ratio between the current deficit and the stock of foreign asset) is obtained because ex ante excess demand of domestic currency on capital account takes the same sign as the current account;

(iii) the movement towards the steady state is period by period along a succession of portfolio equilibria, but the adjustment path depends on the current account's elasticity to the real exchange rate.

No doubts, portfolio theorists look at such a framework as a theory of exchange-rate dynamics capable of generating propositions of general validity

In the short-run, the exchange rate is determined by asset-market equilibrium conditions. In the longer-run, as asset stocks, especially foreign assets, change, the exchange rate moves towards the value which balances the current account (Branson (1977), pp.83-84),

and, empirically,

if the major industrial countries are arrayed from the ones with the largest surplus to the largest deficit, that array provides a good prediction of the rank order of appreciation and depreciation (Branson (1980), p.191).

II. PITFALLS IN THE STOCK APPROACH AND FLAWS IN EXCHANGE-RATE THEORY

Exchange-rate theory in modern macroeconomics lends itself to a complex, many-sided appraisal. The first, and most significant, step would

take us to the theoretical roots of New Macroeconomics, since, as shown in the previous chapter, exchange-rate theory is founded on them. One might then argue that exchange-rate theory takes for granted a number of (Walrasian) properties of a market system which are still debated or even seriously questioned (28).

A second, more specific, evaluation would focus on the assumption of efficient market underlying exchange-rate theory. In this connection, one might question the existence of efficient markets even in today's ubiquitous, electronic, highly integrated financial world. There is still evidence of unstable demand functions, slackness in stock and price adjustments, conflicting expectations. Portfolio choices embody much more than neat probability calculus can explain (29).

In the following we shall depart from those routes and we shall limit ourselves to what is usually called an "internal critique", that is to say a critique which does not put under question assumptions and views of the world, but modelling and reasoning, with particular regard to "standard" portfolio theory of the exchange rate as set forth in ch.I .

The main critical focus will be on pitfalls in the stock approach. Attention to stocks has been a major step forward in macroeconomics. The question is to what extent such an approach and its usual applications are consistent with actual economic processes; in simple words, how and how much stocks matter. Firstly, it will be shown that standard portfolio theory, in order to attain to well defined results about exchange-rate determination, hinges on a questionable modelling of the exchange market of the small open economy (not to say about large, interdependent economies). Secondly, what

is more important, the idea of explaining the current account-capital account-exchange rate relationship "without reverting to the traditional flow theory of foreign exchange" (Frankel (1983), p.95) is based on a logical misinterpretation of the balance-of-payments identity as a wealth effect. Finally, some further remarks will follow concerning results that can be obtained when standard modelling is abandoned and portfolio adjustments are more carefully embodied in the macroeconomic process.

1. Pitfalls in modelling the exchange market

1.1. There are several aspects of exchange-rate determination in standard portfolio theory deserving closer inspection. A microeconomic example will serve the purpose. Note that the example is not arbitrary, but it focuses assumptions and properties that are crucial in portfolio theory.

A natural extension of the small open economy conditions is to consider competitive small international traders. Exports and imports are both invoiced in dollars, the world-trade currency. At least all unexpected payments are converted on the spot market. International payments are recorded in the balance of payments at their contractual value; traders bear gains or losses in domestic value due to the actual exchange rate at which they convert their dollar balances. Traders are the (risk-speculation-averse) agents who hold the economy's foreign asset in the form of dollar deposits abroad, where their natural business environment is located. The stock of foreign asset must be in balance with stocks of domestic-currency (say, "lira") assets.

Let us focus on an international trader who holds 1000 dollars abroad equivalent to 1.6 million liras at the current exchange rate, and who is faced with an unexpected imbalance of payments abroad for 100 dollars. What is implied by standard theorizing is that the trader will first withdraw 100 dollars from his deposit. Now the deposit amounts to 1.44 million liras and is out of portfolio balance. Then the trader will try to restore portfolio balance by demanding dollars and supplying liras. Since no one accepts liras against dollars outside commodity trade, the exchange rate will be bid up to that value which makes 900 dollars be 1.6 million liras worth, that is to say 1777.8. The depreciation rate of the lira has been (approximately) equal to the rate of decrease of the foreign asset stock. The balance-of-payments accounting in liras is as follows:

Tab.1.

Current Account

Imports	-160000
---------	---------

Capital Account

Decrease in foreign assets	+160000
----------------------------	---------

If depreciation exerts its expected effects, there will be a step-by-step reduction of the current account deficit up to zero, accompanied by decreasing reductions of the foreign asset stock at a constant domestic value.

1.2. "Smallness" is a crucial, though not indispensable, assumption in portfolio theory of the exchange rate. In fact, such an assumption rules out, or is supposed to rule out, some otherwise important phenomena which could weaken or even reverse the effects of portfolio adjustments on the exchange rate (within the portfolio framework itself). Such phenomena are mainly the following:

- (i) relatively higher substitutability among domestic assets vis a vis the foreign asset;
- (ii) exceedingly large stock of the foreign asset in relation to a given current account imbalance;
- (iii) endogenous changes in the price of the foreign asset;
- (iv) endogenous rise of an elastic supply of foreign currency on capital account.

The absence of the first three phenomena is usually taken for granted, while the absence of the fourth is deduced from the corollary of non-marketability of domestic assets (30). Before briefly discussing the relevance of such a situation, it is important to notice some pitfalls.

1.3. Domestic non-monetary assets are not traded on the exchange market directly. Sales and purchases of securities first require a currency transaction; it is this currency transaction that passes through the exchange market. For no supply of foreign currency to develop the true assumption should be that what is not marketable is domestic money, which seems to be inconsistent with the existence of international trade.

Let us take again the example of our small trader. It is sufficient to suppose that what the trader wishes is not a given domestic value of his

dollar deposit, but a given dollar amount of it in relation to his business needs. In this case, the trader would demand for exactly 100 dollars and, without supply of dollars, the exchange market would never clear (31).

1.4. It may be shown that supply of foreign currency can arise even though domestic securities are not held abroad. As a consequence, however, two new problems undermine the neatness of standard results: the characteristics of the supply of foreign currency, and the degree of change of the exchange rate. Indeed, depending on the former problem, the equilibrium exchange rate may now lie anywhere between the initial value and the maximum value, that would be reached with no transactions .

Consider again the small trader facing the problem of rebalancing his portfolio. At the initial exchange rate he demands 100 dollars against 160000 liras. He is making use of lira balances and/or proceeds from sales of lira bonds to residents (the fall in their price may help to restore portfolio balance). Then, for instance, the two following possibilities may arise:

- (i) at an increasing dollar price, supply of dollars may come from resident exporters;
- (ii) at an increasing dollar price (spot), arbitrage opportunities develop at the given interest-parity forward rate, so that dollars are sold spot and bought forward (32).

The point is that in the two possibilities the elasticity of supply of dollars is likely to be different, so that the equilibrium exchange rate is likely to be different. For instance, exporters may be expected to have an equilibrium function of the foreign asset similar to importers'; the demand

for dollars of the importer could be met more or less halfway, say 41 dollars at 1700 (the importer thus increases his deposit up to 941 dollars being 1.6 million liras worth). The balance-of-payments recording is now the following:

Tab.2.

Current Account

Imports	-160000
---------	---------

Capital Account

Decrease in foreign assets	+160000
Increase in foreign assets	-69700
Decrease in foreign assets	+69700

On the other hand, profitable arbitrage may be made even with a slight increase in the dollar price. Suppose then the trader can realize his operation by buying 70 dollars at the spot rate 1650 (in fact, he now owns 970 dollars equivalent to 1.6 million liras). The operation is recorded as following if the arbitrageur is non-resident:

Tab.3.

Current Account

Imports	-160000
---------	---------

Capital Account

Decrease in foreign assets	+160000
----------------------------	---------

Increase in foreign assets	-115500
----------------------------	---------

Increase in foreign liabilities	+115500
---------------------------------	---------

Of course, overall sums in tables 2 and 3 are identical to that in table 1; however, the three tables reflect three quite different operations and, what is more important, different equilibrium exchange rates.

1.5. When allowance is made for domestic securities marketability, a third possible source of foreign currency adds up to those singled out above. A falling dollar price of the lira induces foreign holders of lira bonds to relatively increase their holdings, thereby demanding liras against dollars (the concomitant rise in the lira price of lira bonds can lighten the burden of the exchange-rate's adjustment). The recording would be similar to that in tab.3, but what would the actual figures (and the exchange rate) be? Notice that the usual rationale of the stock approach - that in today's exchange markets arbitrageurs and traders normally cannot match the mass of financial transactions - does not apply in this case, since we are considering just the financial side. On the other hand, if one wishes

to model explicitly supply of foreign currency, or the function of indebtedness abroad, one should admit that there are no good reasons to expect such a function to possess well-defined general properties. At any rate, for international portfolio adjustments to be effective on the exchange rate there should be different portfolio preferences through countries. A crucial assumption in this respect is "home currency preference", according to which each country's wealth owners prefer to hold a larger share of their total and marginal saving in domestic-currency denominated assets (33).

It is reasonable to argue that the more sources of foreign currency are considered the less predictable is the exchange-rate change on an a priori ground. In this view, working on such an aggregate as "Net Foreign Assets" (as in most stock models) is highly misleading, both from a flow and a stock viewpoint. In our previous examples the same change in "Net Foreign Assets" is associated with three different exchange rates. "Net Foreign Assets" is an ex post item, while what drives the exchange rate is ex ante excess demand and supply. In sum, even allowing for a well-behaved demand for foreign asset, when supply of foreign currency may develop, a condition which should be regarded as normal no matters whether domestic assets are held abroad or not, portfolio adjustments affect the exchange rate in an unpredictable degree.

2. Pitfalls in wealth effects

2.1. Let us now come to the core of exchange-rate dynamics in standard portfolio theory: current account imbalances as wealth effects.

Ex post, with a freely floating exchange rate, it is always true that a current account imbalance is equal to a change in "Net Foreign Assets" by the same amount. There are two major problems with portfolio-theory's interpretation of this balance-of-payments identity (refer to I.3 and to the example in II.1.1)

- (i) that the change in "Net Foreign Assets" is always ex ante as well;
- (ii) that the change in "Net Foreign Assets" is always a wealth effect.

Interpretation (i) is necessary for the current account not to have direct effects on the exchange rate; interpretation (ii) is necessary for exchange-rate dynamics towards the steady state.

2.2. In the normal course of business (and the normal modelling of it), commercial payments abroad are not financed with ex ante withdrawal of foreign assets on the part of importers unless someone wishes to do that. In general, importers can be expected to go through the exchange market directly in order to raise the foreign currency they need for their settlements. In other words, in general ex ante demand on current account should be regarded as independent of ex ante demand on capital account.

It is precisely the exchange-rate change that, likewise whatever else price, must make demand on the one side meet supply on the other side, thereby clearing the market and realizing the observed ex post identity. Thus, in order to meet the importer's demand for foreign currency someone else should release foreign assets and accept domestic liabilities; and this is accomplished by an appropriate change of the exchange rate.

Therefore, in general it is not true that the current account has no effects on the exchange rate but through the capital account, while it is

true that the current account has effects on the capital account through the exchange rate (and v.v.) (34).

Given the short-run equilibrium value, the exchange rate must change per unit of time in such a way as to equilibrate flow demands for and supplies of foreign exchange derived from capital flows on the one hand and current account transactions on the other (Kouri (1983), p.117).

In this view of the exchange market, the question of the existence of an elastic supply of foreign currency becomes essential, and considerations previously made on the matter (see above II.1.3 and following) apply to a greater extent. Now an excess payment abroad should normally be regarded as a fixed amount of foreign currency that must be supplied. The exchange rate is bid up directly; in this way, domestic holders of foreign asset, exporters, arbitrageurs, and, if the case, foreign holders of domestic bonds -to mention potential suppliers of foreign currency presented in II.1- are induced to meet the importer's excess demand. Again, there are no a priori reasons to expect one particular kind of supply to prevail on the others and to expect the equilibrium exchange rate to be fixed at one particular value between the initial one and the maximum one (that with only domestic holders of foreign asset as suppliers). Puzzles inherent in tables 1-3 of our example of the small trader are still present.

2.3. The interpretation of current account imbalances as wealth effects on "Net Foreign Assets" which straightforwardly entail a subsequent stock re-adjustment is highly questionable, whether the current account is financed ex ante by international traders or ex post through the exchange market.

Pigou's wealth effects are undesired windfalls, gains or losses on capital account brought about by changes in commodity or asset prices (apart from "helicopter" phenomena affecting asset stocks). This nature of wealth effects safely implies that stocks will be promptly corrected to their initial level. Outside these phenomena, portfolio theory itself shows that accumulation of wealth is always in specific forms, and it explains how those specific forms of wealth come to be willingly held in the public's portfolios. At the equilibrium price vector flows are exhausted, stocks are willingly held and unchanging; this is precisely the task of prices. Specifically, if an importer settles a payment by means of his dollar deposit instead of other sources, one should conclude that he wishes to reduce his deposit, and this is a stock equilibrium. On the other hand, if the importer does not wish to dishoard his dollar deposit he will go through the exchange market and the exchange rate will be fixed at that value at which someone else will be willing to reduce his own dollar deposit; this is, once again, a stock equilibrium. Actually, windfall wealth effects are already embodied in such a process in response to changes in the exchange rate, in asset prices and in commodity prices as shown throughout ch.I.

In modern macroeconomic theory there is no clear foundation of the widely held assumption that if at a point in time the equilibrium stock of an asset or of wealth has grown, it will necessarily be reduced over subsequent periods (and v.v.). Unless specific accumulation functions are modelled, the direction of "long-run" adjustment of stocks, if any, is unclear and, therefore, it seems arbitrary to assume that (t) stocks will systematically be brought back to their (t - 1) level. Each stock equilibrium

is consistent with steady state conditions: it is nonetheless a "restricted equilibrium" (this term is due to Hicks (1979), ch.VI) because the circumstance whether equilibrium stocks are higher or lower than initial ones has no instantaneous consequences, but is "transmitted to the future" (Tobin). Therefore, either accumulation is mistaken for windfalls or it is implicitly presumed that, beginning in steady state, wealth holders eventually wish for each and all asset stocks just the real value of the initial steady state (that is often called the "long-run" equilibrium stock) independently of changes in economic variables, specifically in asset prices and the exchange rate. This in turn seems a fairly strong presumption, even for a steady state economy (35).

What the stock approach can safely maintain is that once asset flows have been willingly allocated in wealth-holders' portfolios and stock equilibrium is reached, it can be disturbed only by external shocks stemming from prices. Accordingly, what can be maintained is that a persistent current account imbalance requires a period-by-period portfolio adjustment, but bearing in mind that, cet.par., it is the current account that must move the exchange rate properly. If the current account in turn properly reacts to exchange-rate changes a steady state position will be reached where the current account is null.

In order for the foreign exchange market to stay in equilibrium, domestic currency must depreciate whenever the current account is in deficit and appreciate whenever the current account is in surplus (Kouri (1983), p.118).

3. Stock equilibrium and the macroeconomic process

3.1. The requirement for the steady-state solution set out above -that the current account must properly drive the exchange rate and hence the capital account- is the crux of the matter of international payments adjustment under a floating regime, but working out exchange-rate theory under conditions of neoclassical steady state has loosened connections with actual macroeconomic processes.

3.2. In actual macroeconomies asset flows never occur one by one; governments' budgets are normally unbalanced and pour money and bonds into portfolios; firms normally do make net investments by borrowing from banks and savers. What is more, multi-asset flows may be endogenously generating one another (for instance, because of changes in asset prices if nothing else).

In addition to the current account, the financial counterpart of the government budget and of net investment must be accommodated in portfolios, too. It is reasonable to think that also foreign portfolios can take part to the adjustment (36).

As explained in II.2.1, the exchange rate should be moved so that ex ante demand and supply on the exchange market are brought into balance, the sign of the movement being dependent on which of the two is in excess. As a consequence, when the current account, the government budget and net investment all call for financing, a share of which goes through the exchange market, the movement of the exchange rate can be either way. A plausible assumption may be that a current-account deficit country is also a budget-deficit country, and then a country where return rates are rising.

We may still regard excess demand on current account as a rigid need for dollars, but now it may be outweighed by an excess supply of dollars against liras on capital account underlying purchases of lira bonds. These purchases may come from residents as well as foreigners. The market will clear thanks to an appreciation of the lira, and it will be so as long as ex ante demand for liras will exceed ex ante demand for dollars -i.e. so long as the "real" side of the exchange market cannot overcome the "financial" one (37).

The main lesson from the above is that when the exchange market is modelled correctly, and when multi-asset flows are admitted, the stock approach has to give up not only well-defined results about the exchange-rate's rate of change but also about its direction. This has been recognized in the literature only recently (Branson-Buiter (1983)), but it is not realized that this has also strong implications on the time horizon of the adjustment. Here, the capital account matters in determining exchange-rate dynamics because the so-called "short-run" portfolio equilibria, where the exchange rate and the domestic value of the current account are adjusted to the capital account instead of the other way round, may actually persist. Someone has pointed out that the accumulation wealth effect of the current account should be regarded as an intertemporal effect, and that what matters is "cumulated surpluses and deficits" (Frankel (1983), p.99). But this restatement does not seem sufficient to overcome the questions raised above. Paradoxically, it weakens portfolio theory by reducing it to the trivial prediction that stock changes in the same direction cannot be acceptable indefinitely. The obvious question is how far the stock change will go. If

the answer is relatively easy when a stock is being decumulated, it is far more difficult when a stock is being accumulated. Once again, questions addressed in II.1 become crucial; in particular, whether a deficit is financed by decumulation of assets or accumulation of liabilities abroad is a circumstance liable to lead to fairly different outcomes not only in exchange-rate determination but also in the time-horizon of the adjustment process.

3.3. Changes in asset prices and the exchange rate along with current account imbalances should normally be expected to affect monetary expenditure. It is reasonable to expect the exchange rate to affect not only the real value of wealth but also, in a similar way, the real value of wages thereby enhancing its influence on the output market. This is often simply disregarded or assumed to be reflected in a one-to-one change in the domestic price level thanks to the hypothesis of full employment steady state. However, it seems much more sensible to admit endogenous adjustments of national income also on the real side (38).

For the same reasons discussed in II.2, real-income effects should be regarded as better-established than accumulation wealth effects.

Real-income adjustments react back onto:

- (i) portfolio choices;
- (ii) the current account;

indeed, real-income adjustments are a major source of the endogeneity of multi-asset flows pointed out in the last paragraph.

A current account deficit can initially be due to a relatively higher growth of real income and later provoke a contraction of it. Such a trend

of real income is not indifferent on both internal and foreign demand for domestic assets. During the upswing there will be a higher demand, including foreign demand, for all assets vis a vis the excess supply of domestic assets underlying the real growth. The reverse will happen in the downswing. Thus, a deficit country with rising return rates and a positive relative growth rate of real income can, thanks to this last circumstance, experience period by period an enhanced excess demand for currency on capital account which will be met partly by increasing domestic asset supply and partly by currency appreciation. An opposite sequence can take place if the current account deficit begins to erode the real growth rate.

As usual, the steady state solution requires the exchange rate to be both in stock- and flow-equilibrium, but now it includes also a new equilibrium real income. Such a position is reached through the interaction between real income and the exchange rate affecting the current account and the capital account (39).

When the equilibrium real income changes, also the value of the steady-state exchange rate changes. Cet.par., a higher equilibrium real income (and possibly a higher domestic price level) will require a higher exchange rate than the initial one for the current account to be null, but the rate of depreciation will bear no strict relationship with the rate of domestic inflation.

As far as the asset market is concerned, a higher equilibrium pair exchange rate-real income is consistent with a larger share of domestic assets in wealth-holders' portfolios. An important implication is that deficit spending backed by excess supply of public liabilities is not fully

"crowded out" by currency appreciation and current account deficit (De Macedo-Tobin (1980)).

Moreover, it should be noted that changes in equilibrium real income provide a further argument against the mechanical consequences of accumulation wealth effects criticized in II.2.2. Since real income is a determinant of the desired stock of wealth, a higher equilibrium real income will make a higher stock of wealth acceptable.

Of course, all remarks made so far about exchange-rate determination and dynamics still apply as soon as not only the stock of foreign asset is considered as a source of demand and supply of foreign currency.

3.4. In ch.I.2.3, reasons were advanced to leave aside issues related with expectations and speculation and to focus on the properties of the underlying "structural model". However, speculation cannot be tamed so easily. We live neither in a world of all speculators (monetary approach) nor in a world with no speculators (portfolio approach): expectations and speculation turn out to be much more complicated and worrying issues. Few brief considerations are in order, though it is not possible to treat the argument in full detail here (40).

Collecting first-order information and drawing leading expectations are typical activities of professional speculators. It is because of differences in the quality of information and in expectations that there can be winners and losers in speculation, and that speculative sales and purchases can actually take place (41). Viewed from this side, speculation may not be so powerful as "full anticipation" in rational expectation theory implies.

Now, what is the anchor of first-order speculators' expectations? Once account is taken of the existence of such shadow areas in the outcomes of the "structural model" as those pointed out so far, it should also be recognized that adding rational-expectations-oriented behaviours is like raising the building one more floor without bothering about foundations. Indeed, such behaviours would consist of anticipations of outcomes that do not enjoy any remarkably high probability to occur or at least not in the expected degree or time horizon (see e.g. Tobin (1981), pp.122-123). But at least in one respect, real speculators' rationality is superior, for the sake of their own interests, to theoretical speculators' : in that they take into account speculation (42). And, viewed from this other side, under some circumstances, professional speculation actually has the power to alter "structural" trends.

Rather than drawing the conclusion that agents are irrational, it may be noted that they react rationally to outcomes which are step-by-step different to those predicted by the "structural model" thereby contributing in their turn to drive the system out of the predicted equilibrium path(43).

No matters how expectations are made up, whenever they are not static - formally, a non-zero expected rate of change of the exchange rate - speculation may threaten the stability of the adjustment process devised by the portfolio approach. In fact, the actual and the expected rate of change of the exchange rate have an opposite effect on the (expected) return rate on the foreign asset: the former, on which is based the standard portfolio analysis, has a stabilizing negative effect, the latter has a destabilizing positive effect (44).

Reconsider now the case of a country facing a current deficit. Rational-expectations-oriented speculators will anticipate a depreciation of the domestic currency, thereby expecting a higher return rate on the foreign asset and producing a capital outflow. In so far as such an "expectation effect" exceeds the negative effect of the actual depreciation, the foreign asset's return rate will go on rising and the capital account will be moved in the wrong direction (45). If the expected depreciation rate were independent of the actual one and kept fixed, it might be argued that the rate of capital outflow would be decreasing up to an upper bound. However, even in such a favourable occurrence, unless the actual depreciation has an instantaneous effect on the current account, the situation will be disruptive anyway. On the other hand, if the current-deficit country is also a budget-deficit country with rising return on assets attracting saving from abroad, like that described above in 3.2-3.3, then rational-expectations-oriented speculators who bet on depreciation will lose. As soon as expectations are revised towards appreciation, the reverse of the previous example applies. Now the destabilizing role of speculation would not give rise to a wrong sign of the capital account, but to the undue amplification of the right sign entailing continuously worsening conditions for the current account.

The foregoing remarks are not meant to suggest that speculation is systematically destabilizing, but they lead to deny that it can be systematically stabilizing or that speculators' rationality is aimed at fulfilling equilibrium solutions of theoretical models independently of actual ongoing economic events.

III. AN OVERALL VIEW

What is, then, the contribution of the stock approach to the exchange rate? In equilibrium, the exchange rate is the relative price of whatever magnitudes denominated in different currencies. The stock approach stresses that macroeconomic equilibrium (steady state) cannot be only a flow but also a stock equilibrium, and that pursuing asset stock equilibrium involves the exchange rate. The steady-state value of the exchange rate must fulfill purchasing power parity and the desired real value of asset stocks.

A most significant result in this respect is in showing how the exchange rate can be moved by stock adjustments even with no transactions and independently of international trade determinants.

In the portfolio approach in particular, stock equilibrium is reached independently of flow equilibrium. This last circumstance implies further adjustments. When the exchange rate is freely floating, current account imbalances are always equal to changes in the private stock of foreign assets with the same sign. Then, it is argued that current account imbalances have no direct effects on the exchange rate but through their accumulation wealth effect on the stock of foreign assets. Therefore, a deficit (surplus) country will depreciate (appreciate) at a rate equal to the proportion of the current deficit (surplus) relative to the existing stock of foreign assets. If the current account reacts properly to depreciation (appreciation) a steady-state solution will be reached where the current account is again null, all desired stocks of assets are unchanging and the exchange rate is back at its purchasing-power-parity

level. Exchange-rate volatility is viewed as a characteristic of the "short run", while in the "long run" the conclusion is that a flexible exchange rate renders monetary policy completely independent while driving both the current account and the capital account to equilibrium.

Naked-eye observation of most striking episodes in recent history of the exchange-rate system raises doubts about the capability of the stock approach of fully accounting for exchange-rate dynamics. A major issue facing exchange-rate theory and policy after 1973 has been the problem of "excessive" volatility. In this respect, the stock approach, in my view especially the portfolio one (see here above), has had the merit to focus on the interrelations between capital mobility and exchange rates and to give a formal explanation of how the exchange rate can be moved continuously and independently of international trade conditions. However, the outstanding fact falling outside theory's general predictions is the almost total lack of self-corrective forces in a floating exchange-rate regime.

The present study was mainly concerned with an "internal" critique of what has been singled out as the "standard" stock theory of the exchange rate. Flaws in modelling the exchange market of the open economy, in introducing wealth effects and in framing the stock approach into the macroeconomic process have been pointed out and discussed. Such theoretical flaws help to explain why the dominant exchange-rate theory is not a satisfactory portrayal of a world of highly integrated economies. Four reasons can be summarized.

First, the neatness of exchange-rate determination in the stock approach crucially hinges on sole price adjustments on the exchange market.

We have seen that when an elastic supply of foreign currency can take place, a case which should be regarded as normal independently of the status of domestic assets, portfolio adjustments affect the exchange rate in an unpredictable degree. In no case such an aggregate as "Net Foreign Assets" bears a monotonic relationship with exchange-rate changes. As a consequence, not only is the standard framework ill-suited to the study of large and interdependent economies; as a matter of fact, one of the typical consequences of world financial integration has been that an increasing number of small or medium industrialized and newly industrializing economies have enhanced their capacity of indebtedness on those markets (for instance, Italy's experience in 1984-85 provides evidence of this).

In the second place, it is not only matter of working out a "two-country model". When "the" asset stock that changes vis a vis a country's current account imbalance is spread abroad in many public and private hands, also the current account-capital account relationship and exchange-rate dynamics through time are far less clear-cut than portfolio theory can admit. This conclusion is enhanced when one also recognizes that financing current account imbalances is normally not a windfall wealth effect followed by a prompt counter-adjustment as in most current analyses. In a freely floating regime one should presume that stocks adjustments reflecting current account imbalances are willingly pursued and end up with a new stock equilibrium. As a consequence, in order to achieve a steady-state solution, it is the current account that should be expected to move the exchange rate properly, in addition to reacting properly to it. But as long as the "real" side of the exchange market cannot overcome the "financial" one, the "short

run" -i.e. the phase in which it is the capital account that drives the current account through the exchange rate- is bound to last. Dollar appreciation would transform trade deficits in dollar asset stock equilibria. The true problem here is that what is "right" for the market may be "wrong" in the world's welfare perspective, but the standard approach has little to say. Obviously, creditworthiness, willingness to finance a country's deficit, within the international community depends on the stock of cumulated debt. But historical evidence suggests that this is only one amongst many other determinants, some of which are of a psychological, institutional and political nature, so that predicting the turning point of growing asset stocks is a matter which could hardly be settled theoretically, especially in a highly deterministic and uncertainty-free set up like portfolio theory.

Thirdly, when the current account-capital account-exchange rate relationship is framed into a more general macroeconomic process of multi-asset flows and real income adjustments the result is even more a nebulous scenario, where also the sign of the exchange-rate changes following a portfolio or a current account imbalance cannot be safely determined a priori. An expanding economy with rising returns on assets may well couple persistent current deficits with appreciation if a substantial foreign demand for domestic assets develops. Actually, this result fits the recalled story of the dollar or of the lira; however, the above mentioned large areas of unexplained facts still remain.

Finally, in the very essence the monetary approach proposes a world of fully-anticipating, self-confirming, equilibrating speculators; whereas the

world of the portfolio approach is one of risk-averse, income-maximizing equilibrating pure savers. We are left with two pleasant alternatives, while the truth seems to lie in an uncomfortable middle. The fact that speculators do exist, but normally not all exchange-market participants are speculators, impairs both approaches. Speculation cannot be blamed for being systematically destabilizing, but it cannot be claimed of being systematically stabilizing. Its effects depend on very specific circumstances, the relative weight of the future ones being rapidly decreasing. It is precisely the recent story of the dollar that suggests how waves of bullish speculation can come to run over non-speculative portfolio considerations, "news" and actual figures pushing in the opposite direction.

When looking at the whole matter from the point of view of international monetary organization, it seems it should be concluded that the stock approach to the exchange rate can answer quite marginally to core policy questions. The fundamental question of what is the best exchange-rate regime in order to obtain internal and external balance could hardly be inquired into by an approach which takes for granted the very core of the problem: the existence of an equilibrium exchange rate and well-behaved reactions of international trade to its changes. In other words, the most important problems with the exchange rate are not due to variations around equilibrium, but to erratic movements and unreliable real effects on international trade. As is well known, these are old problems in exchange-rate theory, to the study of which today's approach does not appear as the most suitable one.

In order to tackle nowadays macroeconomic and policy issues it seems desirable to enrich the stock approach with institutional, historical and empirical aspects of assets markets which are neglected in the Walrasian framework of the New Macroeconomics. At the same time it seems opportune to put the stock view of the exchange rate back to its original perspective of drawing attention to one of the channels of exchange-rate determination, within a more general process of macroeconomic adjustment. Parallel to that, more attention should be redirected towards the unsettled topic of exchange-rate effects on production, demand and international trade.

NOTES

(1) See e.g. the well known paper by LINDBECK A.(1976), and more recently those by DORNBUSCH R.(1980b), KRUEGER A.O.(1980), FRANKEL J.A.(1983).

(2) For this kind of distinction among macroeconomic theories see e.g. DAVIDSON P.(1982).

(3) See e.g. FRANKEL J.A.(1983).

(4) For a general discussion see TOBIN J.(1980), (1982). TURNOVSKY S.J.(1977) provides a thorough analytical treatment.

(5) Sometimes in the literature (see e.g. TURNOVSKY S.J.(1977), ch.XI), "full equilibrium" conditions are made depend on the degree of international substitutability among assets and on the degree of sterilization of the balance of payments by the central bank. It should be clear that steady state requirements are independent of such circumstances.

If stocks matter also capital income matters. If the income flow out of the given stock of foreign assets is perpetual, then steady state requires a trade deficit of the creditor country to offset the capital income inflow. The capital-income component of the current account is scarcely considered in the literature on flexible exchange rates, but it can be disregarded only if it is assumed to be entirely spent on imports (KOURI P.J.(1983), p.125, BRANSON W.(1977), p.81). We shall not consider the issue any longer.

(6) See the fundamental treatment by PIGOU A.C.(1943), and in Walrasian terms by PATINKIN D.(1956).

(7) The above two typical conditions of the steady state with fixed asset supply are usually labelled "perfect capital mobility". This terminology is somewhat misleading; indeed, perfect substitutability and continuous stock equilibrium imply that there are no transactions in that specific market, whereas perfect capital mobility implies only that interest rates must be equalized once equilibrium is established, while in the transition from one stock equilibrium to another interest-rates differentials can develop and transactions can actually take place. For a thorough treatment of this point see FOLEY D.(1975) and MCKINNON R.I.(1979), ch.VIII.

(8) This is the essence of that trend of the classical theory of the balance of payments, often dated back to Ricardo (1809), according to which the "adjustment mechanism" of international payments is based mainly on direct adjustment of real flows to excess money flows, eventually with the help of changes in general price levels, but with no need for changes in relative prices of international trade .

The contemporary revival of this theory, following Mudell's research on monetary policy with perfect capital mobility (as in the well known article of 1963), has led to today's "monetary approach to the balance of payments"

(see FRENKEL J.A.-JOHNSON H.G.(eds.)(1976), especially the "Introductory Essay", and JOHNSON H.G.(1977)). The usual contention in the modern theory that no matters "whether adjustment is effected primarily through the current account or primarily through the capital account of the balance of payments" (Johnson (1977), p.260) patently does not apply to the neoclassical steady state, where the adjustment is necessarily through the trade account, but it has no clear foundations in the monetary approach anyway. For the relationship between neoclassical monetary theory and monetary approach to the balance of payments see DAVIDSON P.(1982), ch.5.

(9) This is the rationale of purchasing power parity usually attributed to Cassel's original theory (1922).

(10) See ALEXANDER S.A.(1954), MICHAELI M.(1960), TSIANG S.C.(1961), KEMP M.C.(1962), and in general the debate on "elasticities approach"- "absorption approach" reconciliation.

It should be noted, however, that the domestic and foreign price levels entering wealth holders' price index need not be equal to export and import price indexes entering the nominal trade balance.

(11) The foregoing are well known central statements in the "monetary approach to the exchange rate" (see again JOHNSON H.G.(1977), and more specifically FRENKEL J.A.(1976) and FRENKEL J.A.-JOHNSON H.G.(eds.)(1978).

(12) This is the rationale of capital movements in leading monetary models of the exchange rate: KOURI P.J.(1976), DORNBUSCH R.(1976a), MCKINNON R.I.(1979), ch.VIII.

Uncovered interest parity is usually defined as $(r - r^* = \dot{e}')$ where (r) is the domestic interest rate, (r^*) is the foreign one, and (\dot{e}') is the expected depreciation (+) or appreciation (-) rate. $(r - r^* - \dot{e}' < 0)$ is the condition for capital outflows and v.v.)

(13) MUSSA M.(1976), BARRO J.R.(1978).

(14) Such a methodology in monetary and financial analysis was explicitly adopted by Hicks (1935) and handed down especially by Tobin.

(15) The forward rate can still be accommodated in the model by assuming that arbitrageurs keep it in line with interest differentials.

(16) Similar conclusion, through a different reasoning, is in STOCKMAN A.C.(1980). The general presumption is that "exchange-rate dynamics, or 'overshooting', can occur in any model in which some markets do not adjust instantaneously. When they do not, exchange-rate overshooting may accompany a perfect foreseen adjustment process when goods prices adjust only slowly" (Krueger (1983), p.77). But relatively "slow-adjusting" markets seem a sufficient, not necessary, condition to overshooting.

(17) See HICKS J.R.(1935), TOBIN J.(1958).

(18) A benchmark model of international portfolio diversification was set up by DE MACEDO J.B.-KOURI P.J.(1978). For a general discussion of determinants of international portfolio diversification see FRANKEL J.A.(1983), 3.3.2. We shall not go deeper into this matter, as it regards aspects that are not essential to results in portfolio theory.

(19) For the general framework of the portfolio approach to macroeconomic analysis main reference is to TOBIN J.(1969), (1980), (1982).

(20) In portfolio theory net investment is always equal to a pure exchange of new assets against liabilities (shares) within the private sector. The presumption is that such an operation has no wealth effects on the private sector as a whole.

(21) Of course, a better specification of functions (3) would require the whole vector of return rates. When only the own return rate is considered wealth holders are assumed to swap towards increasing-return assets independently of other assets' return rates ("no-covariance hypothesis") (TOBIN J.(1982), p.173).

(22) The following mainly draws on the seminal work by BRANSON W.(1975b), (1977). More general macroeconomic models are provided by DE MACEDO J.B.-TOBIN J.(1980) and ALLEN P.R.-KENEN P.B.(1980).

(23) Expectations should also be static, as defined previously, in order to have a safe adjustment of portfolios towards equilibrium, otherwise they may play a destabilizing role (see below II.3.3).

(24) As is well known, the foregoing is not an entirely new explanation, as it dates back to, at least, Nurkse's (1944) analysis of the Inter-War period; however the modern portfolio displays a more formalized framework of the interrelations between capital movements and exchange rates and is based on "normal" income maximization and not only "abnormal" speculation.

(25) Another way is to recognize that the (probably) related change in the domestic return rate will alter the saving-expenditure pattern. See below ch.II.3.

(26) See BRANSON W.(1977), II, DORNBUSCH R.(1980a), ch.XIII, DORNBUSCH R.(1980b), pp.163-172.

In the monetary approach wealth effects affect directly the demand for money (as in DORNBUSCH R.(1976b)) and the demand for real assets (as in DORNBUSCH R.-FISCHER S.(1980)). According to Dornbusch himself ((1980b), p.164) portfolio wealth effects are the most convincing ones.

(27) Indeed from (iii) at p.13, if changes in (q^*) are negligible, the equilibrium stock of the foreign asset for a desired (W_3) is a negative function of the exchange rate with unit elasticity. To make the existing stock consistent with the new portfolio-equilibrium value of (W_3) the exchange rate will move upwards along such a function. As already suggested,

"dollar" saving deposits, the dollar price of which is always 1, capture the essence of the reasoning.

(28) This critical approach is developed by e.g. DAVIDSON P.(1982).

(29) Stimulating reflections on this respect are offered by TOBIN J.(1981). It may be the case of recalling one major criticism to portfolio theory. As far as the behaviour of pure savers is concerned, portfolio theory reduces uncertainty in the face of future liquidity needs to a probability calculus of risk, whereas these two attitudes towards the future are intrinsically different and lead to different economic choices (see e.g. CHICK V.(1983), ch.X, "Appendix").

(30) See e.g. BRANSON W.(1975b), ALLEN P.R.-KENEN P.B.(1980), Part I-III, DE MACEDO J.B.-TOBIN J.(1980), 2-3, KOURI P.J.(1983), 4.2.1.

(31) The above example is an application of more general considerations made by HICKS J.R.(1935).

(32) A typical agent, usually absent from standard models, willing to make covered interest arbitrage is the eurobank. The trader's eurobank, for example, is probably willing to rebalance its own portfolio by reducing dollar credits and recovering dollar deposits. It may thus profitably accept the trader's supply of liras against a dollar deposit at whatever spot rate even slightly higher than the current one. Liras are then lent and sold forward.

(33) See DE MACEDO J.B.-KOURI P.J.(1978) and comments by TOBIN J.(1981). Of course, many different hypotheses are plausible about the function of indebtedness abroad. For instance, unit-elasticity symmetrical to that of domestic asset holders as in Kouri (1983), 4.1.1. De Macedo-Tobin (1980) deny the relevance of exchange-rate wealth effects abroad and assume that foreign asset-demand depends on the expected rate of change of the exchange rate (but remind n.23 and see below II.3.3). Allen-Kenen (1980), Parts IV-V take foreign asset-demand as given.

Contrary to pure theory, official intervention is never completely absent even under a floating regime (DORNBUSCH R.(1980b), p.172 ff.). Indeed rules of optimal intervention can be devised (TURNOVSKY S.J.(1983)), but they rarely enter the problem of exchange-rate determination. Official interventions are a source of quantity adjustment on the exchange market, while changes in authority's reaction function affect agents' behaviour and expectations.

(34) Portfolio models of the exchange rate consistent with this view of the exchange market are those by DE MACEDO J.B.-TOBIN J.(1980) and KOURI P.J.(1983).

(35) "New Cambridge" macroeconomic theory can claim to make exception to the foregoing remarks; for it explicitly fixes the amount of the desired stock of financial wealth as a "small and stable" proportion of current income: whether a specific stock equilibrium is a steady-state position or not

depends on the level of current income (see GODLEY W.-CRIPPS F.(1983) and with particular regard to the open economy VINES D.(1976).

(36) Portfolio theorists constantly focus on excess supply of outside liabilities in relation to economic policy. The use of net financial wealth in portfolio equations makes the financing of private expenditure implicit. Even admitting that it is neutral to the extent that it remains within the private sector, it cannot be disregarded to the extent that it involves foreign lenders (see TOBIN J.(1981), pp.121-122).

(37) In this view it should be recalled that, as portfolio theory itself explains, financing even a constant budget deficit period by period requires increasing return rates on bonds.

(38) DORNBUSCH R.(1980a), Parts II-III, illustrates such channels of exchange-rate real effects. Tobinian portfolio models usually include real income as an endogenous variable. Branson (1977) takes the odd position of considering only the proportion of income adjustment due to the domestic price level; the position is partially corrected in the 1983 paper with Buiter.

(39) As is well known, when real income can change, the current account's elasticity conditions are to be modified with respect to the neoclassical ones (LAURSEN S.-METZLER L.A.(1950), ALEXANDER S.A.(1954).

(40) What follows is largely inspired to the unmatched essay on speculation by KALDOR N.(1939), only few insights of which are here recalled.

(41) "But in a world of perfect foresight nobody could make a speculative gain; speculators would be non-existent" (Kaldor (1939), p.18).

(42) "It will be quite sufficient [to the speculator] to forecast correctly (or almost correctly) the degree of foresight of other speculators, rather than the future course of the underlying non-speculative factors in the market" (Kaldor (1939), pp.18-19). As is well known, the same argument was advanced by Keynes in the General Theory (1936), ch.XII on "Long Term Expectations".

(43) A traditional locus on destabilizing speculation in exchange markets is NURKSE R.(1944). For more recent treatments see DAVIDSON P.(1982), pp.111-117.) and the models of "stochastic rational bubbles" of BLANCHARD O.(1979) and DORNBUSCH R.(1982).

(44) See n.12 for the definition of uncovered interest parity, and p.12 for the definition of the foreign asset's return rate. It follows that the expectation-augmented expression for the foreign asset's return rate is $(r_3 = r^*/(q^* + \dot{e}) + \dot{e}')$.

(45) Some authors have pointed out that non-speculative portfolio adjustments should normally be expected to be overcome by speculation: see e.g. VON WHITMAN M.(1973), LOGUE D.E.-WILLET T.D.(1974).

REFERENCES

ALEXANDER S.S.

1952

"Effects of a Devaluation on a Trade Balance", IMF Staff Papers, n.2.

ALLEN P.R.-KENEN P.

1980

Asset Markets and Exchange Rates: Modelling an Open Economy, Cambridge, ed.1983.

BARRO J.R.

1978

"A Stochastic Equilibrium Model of an Open Economy Under Flexible Exchange Rates", Quarterly Journal of Economics, vol.XCII.

BLANCHARD O.

1979

"Speculative Bubbles, Crashes and Rational Expectations", Economic Letters, n.4.

BRANSON W.

1975a

"Stocks and Flows in International Monetary Analysis", in ANDO A.(ed.), International Aspects of Stabilization Policies, Boston.

BRANSON W.

1975b

"Portfolio Equilibrium and Monetary Policy with Foreign and non-Traded Assets", in CLAASSEN E.-SALIN P.(eds.), Recent Issues in International Monetary Economics, Amsterdam.

BRANSON W.

1977

"Asset Markets and Relative Prices in Exchange Rate Determination", Sozialwissenschaftliche Annalen, n.1.

BRANSON W.

1980

"Comment" to DORNBUSCH R., "Exchange Rate Economics: Where Do We Stand?", Brooking Papers on Economic Activity, n.1.

BRANSON W.-BUIITER H.

1983

"Monetary and Fiscal Policy with Flexible Exchange Rates", in BHANDARI J.S.-PUTNAM B.H.(eds.), Economic Interdependence and Flexible Exchange Rates, Cambridge Mass.

BRANSON W. et al.

1977

"Exchange Rates in the Short Run: The Dollar-Deutschemark Rate", European Economic Review, vol.X, n.3.

- CASSEL G.
1922
Money and Foreign Exchange after 1914, London.
- CHICK V.
1983
Macroeconomics after Keynes, Oxford.
- CRIPPS F.-GODLEY W.
1983
Macroeconomics, Oxford.
- DAVIDSON P.
1982
International Money and the Real World, London.
- DE MACEDO J.B.-ROURI P.J.
1978
"Exchange Rates and the International Adjustment Process", Brookings Papers on Economic Activity, n.l.
- DE MACEDO J.B.-TOBIN J.
1980
"The Short-Run Macroeconomics of Floating Exchange Rates: An Exposition", in CHIPMAN J.S.-KINDLEBERGER C.P.(eds.), Flexible Exchange Rates and the Balance of Payments, Amsterdam.
- DORNBUSCH R.
1976a
"Expectations and Exchange-Rate Dynamics", Journal of Political Economy, vol. LXXXIV, n.6.
- DORNBUSCH R.
1976b
"Capital Mobility, Flexible Exchange Rates and Macroeconomic Equilibrium", in CLAASSEN E.-SALIN P.(eds.), Recent Issues in International Monetary Economics, Amsterdam.
- DORNBUSCH R.
1980a
Open Economy Macroeconomics, New York
- DORNBUSCH R.
1980b
"Exchange Rate Economics: Where Do We Stand?", Brookings Papers on Economic Activity, n.l.
- DORNBUSCH R.
1982
"Equilibrium and Disequilibrium Exchange Rates", Zeitschrift fur Wirtschaft und Sozialwissenschaften, n.6.

DORNBUSCH R.-FISCHER R.

1980

"Exchange Rates and the Current Account", American Economic Review, vol.LXX, Dec.

FOLEY D.

1975

"On Two Specifications of Asset Equilibrium in Macroeconomic Models", Journal of Political Economy, n.2.

FRANKEL J.A.

1983

"Monetary and Portfolio-Balance Models of Exchange Rate Determination", in BHANDARI J.S.-PUTNAM B.H.(eds.), Economic Interdependence and Flexible Exchange Rates, Cambridge Mass.

FRENKEL J.A.

1976

"A Monetary Approach to the Exchange Rate. Doctrinal Aspects and Empirical Evidence", Scandinavian Journal of Economics, vol.LXXVIII, n.2.

FRENKEL J.A.-JOHNSON H.G.(eds.)

1976

The Monetary Approach to the Balance of Payments, London.

FRENKEL J.A.-JOHNSON H.G.(eds.)

1978

The Economics of Exchange-Rates: Selected Studies, Reading Mass.

HICKS J.R.

1935

"A Suggestion for Simplifying Monetary Theory", Economica.

HICKS J.R.

1979

Causality in Economics, Oxford.

JOHNSON H.G.

1977

"The Monetary Approach to the Balance of Payments: A Non-Technical Guide", Journal of International Economics, n.7.

KALDOR N.

1939

"Speculation and Economic Stability", Economica; in Essays on Economic Stability and Growth, London, 2nd ed. 1980.

KEMP M.C.

1962

"The Rate of Exchange, the Terms of Trade and the Balance of Payments in Fully Employed Economies", Journal of International Economics, n.3.

KEYNES J.M.

1936

The General Theory of Employment, Interest and Money, London.

KOURI P.J.

1976

"The Exchange Rate and the Balance of Payments in the Short Run and in the Long Run", Scandinavian Journal of Economics, vol.LXXVIII, n.2.

KOURI P.J.

1983

"The Balance of Payments and the Foreign Exchange Market: A Dynamic Partial Equilibrium Model", in BHANDARI J.S.-PUTNAM B.H.(eds.), Economic Interdependence and Flexible Exchange Rates, Cambridge Mass., 1983.

KRUEGER A.O.

1983

Exchange-rate Determination, Cambridge.

LAURSEN S.-METZLER L.A.

1950

"Flexible Exchange Rates and the Theory of Employment", Review of Economic Studies, vol.XXXII.

LINDBECK A.

1976

"Approaches to Exchange-Rate Analysis. An Introduction", Scandinavian Journal of Economics, vol.LXXVIII, n.2.

LOGUE D.E.-WILLET T.D.

1974

"The Effects of Exchange-Rate Adjustments on International Investment", in CLARK P.B. et al. (eds.), The Effects of Exchange-Rate Adjustments, Washington DC.

MACHLUP F.

1939

"The Theory of Foreign Exchanges", Economica; ed. in International Monetary Economics, London, 1965.

MCKINNON R.I.

1979

Money in the International Exchange. The Convertible Currency System, Oxford.

MICHAELI M.

1960

"Relative-Prices and Income-Absorption Approaches to Devaluation: A Partial Reconciliation", American Economic Review, vol.L.

MUNDELL R.A.

1963

"Capital Mobility and Stabilization Policy Under Fixed and Flexible Exchange Rates", Canadian Journal of Economics, vol.XXXIX, Nov.

MUSSA M.

1976

"The Exchange Rate, the Balance of Payments and Fiscal and Monetary Policy Under a Regime of Controlled Floating", Scandinavian Journal of Economics, vol.LXXVIII, n.2.

NURKSE R.

1944

International Currency Experience: Lessons of the Inter-War Period, New York.

PATINKIN D.

1956

Money, Interest and Prices, Evanston Ill.

PIGOU A.C.

1943

"The Classical Stationary State", Economic Journal, vol.LIII, Dec.

RICARDO D.

1809

The High Price of Bullion, in Works and Correspondence of David Ricardo, ed. by P. Sraffa, London 1951-73, vol.III.

ROBINSON J.

1937

"The Foreign Exchanges", in Essays in the Theory of Employment, Oxford, 1947, part III, ch.I.

STOCKMAN A.C.

1980

"A Theory of Exchange Rate Determination", Journal of Political Economy, vol.LXXXVIII, n.4.

TOBIN J.

1958

"Liquidity Preference as a Behaviour Towards Risk", Review of Economics and Statistics, vol.XXV, Feb.

TOBIN J.

1969

"A General Equilibrium Approach to Monetary Theory", Journal of Money Credit and Banking, vol.I, n.1.

TOBIN J.

1980

Asset Accumulation and Economic Activity, Oxford.

TOBIN J.

1981

"The State of Exchange-Rate Theory: Some Skeptical Observations", in COOPER R.N.(ed.), The International Monetary System Under Flexible Exchange Rates: Global, Regional and National. Essays in Honour of Robert Triffin, Cambridge

TOBIN J.

1982

"Money and Finance in the Macroeconomic Process", Journal of Money, Credit and Banking, n.2.

TSIANG S.C.

1961

"The Role of Money in Trade-Balance Stability: Synthesis of the Elasticity and Absorption Approaches", American Economic Review, vol.LI, Dec.

TURNOVSKY S.J.

1977

Macroeconomic Analysis and Stabilization Policy, Cambridge, 2nd ed., 1981.

TURNOVSKY S.J.

1983

"Exchange Market Intervention Policies in A Small Open Economy", in BHANDARI J.S.-PUTNAM B.H.(eds.), Interdependent Economies and Flexible Exchange Rates, Cambridge Mass.

VINES D.

1976

"Economic Policy for an Open Economy: Resolution of the New School's Elegant Paradoxes", Australian Economic Papers, n.27, Dec.

VON WHITMAN M.

1973

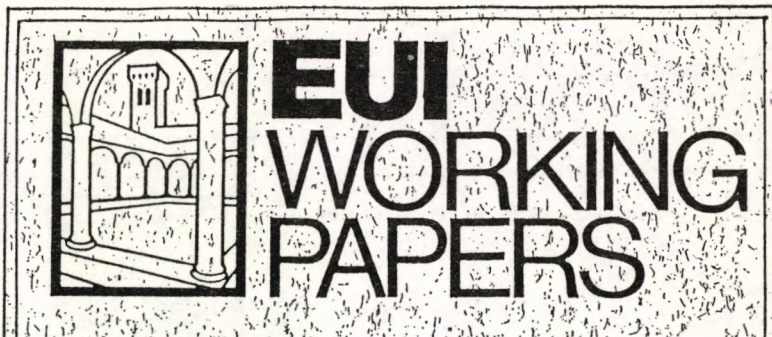
"The Payments Adjustment Process and the Exchange-Rate Regime: What Have We Learned?" American Economic Review, Dec.

WORKING PAPERS ECONOMICS DEPARTMENT

- 85/155: François DUCHENE Beyond the First C.A.P.
- 85/156: Domenico Mario NUTI Political and Economic Fluctuations in
the Socialist System
- 85/157: Christophe DEISSENBURG On the Determination of Macroeconomic
Policies with Robust Outcome
- 85/161: Domenico Mario NUTI A Critique of Orwell's Oligarchic
Collectivism as an Economic System
- 85/162: Will BARTLETT Optimal Employment and Investment
Policies in Self-Financed Producer
Cooperatives
- 85/169: Jean JASKOLD GABSZEWICZ Asymmetric International Trade
Paolo GARELLA
- 85/170: Jean JASKOLD GABSZEWICZ Subjective Price Search and Price
Paolo GARELLA Competition
- 85/173: Berc RUSTEM On Rationalizing Expectations
Kumaraswamy VELUPILLAI
- 85/178: Dwight M. JAFFEE Term Structure Intermediation by
Depository Institutions
- 85/179: Gerd WEINRICH Price and Wage Dynamics in a Simple
Macroeconomic Model with Stochastic
Rationing
- 85/180: Domenico Mario NUTI Economic Planning in Market Economies:
Scope, Instruments, Institutions
- 85/181: Will BARTLETT Enterprise Investment and Public
Consumption in a Self-Managed Economy
- 85/186: Will BARTLETT Instability and Indexation in a Labour-
Gerd WEINRICH Managed Economy - A General Equilibrium
Quantity Rationing Approach
- 85/187: Jesper JESPERSEN Some Reflexions on the Longer Term Con-
sequences of a Mounting Public Debt
- 85/188: Jean JASKOLD GABSZEWICZ Scattered Sellers and Ill-Informed Buyers:
Paolo GARELLA A Model of Price Dispersion
- 85/194: Domenico Mario NUTI The Share Economy: Plausibility and
Viability of Weitzman's Model
- 85/195: Pierre DEHEZ Wage Indexation and Macroeconomic
Jean-Paul FITOUSSI Fluctuations

- 85/196: Werner HILDENBRAND
A Problem in Demand Aggregation: Per Capita Demand as a Function of Per Capita Expenditure
- 85/198: Will BARTLETT
Milica UVALIC
Bibliography on Labour-Managed Firms and Employee Participation
- 85/200: Domenico Mario NUTI
Hidden and Repressed Inflation in Soviet-Type Economies: Definitions, Measurements and Stabilisation
- 85/201: Ernesto SCREPANTI
A Model of the Political-Economic Cycle in Centrally Planned Economies
- 86/206: Volker DEVILLE
Bibliography on The European Monetary System and the European Currency Unit.
- 86/212: Emil CLAASSEN
Melvyn KRAUSS
Budget Deficits and the Exchange Rate
- 86/214: Alberto CHILOSI
The Right to Employment Principle and Self-Managed Market Socialism: A Historical Account and an Analytical Appraisal of some Old Ideas
- 86/218: Emil CLAASSEN
The Optimum Monetary Constitution: Monetary Integration and Monetary Stability
- 86/222: Edmund S. PHELPS
Economic Equilibrium and Other Economic Concepts: A "New Palgrave" Quartet
- 86/223: Giuliano FERRARI BRAVO
Economic Diplomacy. The Keynes-Cuno Affair
- 86/224: Jean-Michel GRANDMONT
Stabilizing Competitive Business Cycles
- 86/225: Donald A.R. GEORGE
Wage-earners' Investment Funds: theory, simulation and policy
- 86/227: Domenico Mario NUTI
Michal Kalecki's Contributions to the Theory and Practice of Socialist Planning
- 86/228: Domenico Mario NUTI
Codetermination, Profit-Sharing and Full Employment
- 86/229: Marcello DE CECCO
Currency, Coinage and the Gold Standard
- 86/230: Rosemarie FEITHEN
Determinants of Labour Migration in an Enlarged European Community
- 86/232: Saul ESTRIN
Derek C. JONES
Are There Life Cycles in Labor-Managed Firms? Evidence for France

- 86/236: Will BARTLETT
Milica UVALIC Labour Managed Firms, Employee Participa-
tion and Profit Sharing - Theoretical
Perspectives and European Experience.
- 86/240: Domenico Mario NUTI Information, Expectations and Economic
Planning
- 86/241: Donald D. HESTER Time, Jurisdiction and Sovereign Risk
- 86/242: Marcello DE CECCO Financial Innovations and Monetary Theory
- 86/243: Pierre DEHEZ
Jacques DREZE Competitive Equilibria with Increasing
Returns
- 86/244: Jacques PECK
Karl SHELL Market Uncertainty: Correlated Equilibrium
and Sunspot Equilibrium in Market Games
- 86/245: Domenico Mario NUTI Profit-Sharing and Employment: Claims and
Overclaims
- 86/246: Karol Attila SOOS Informal Pressures, Mobilization, and
Campaigns in the Management of Centrally
Planned Economies
- 86/247: Tamas BAUER Reforming or Perfecting the Economic
Mechanism in Eastern Europe
- 86/257: Luigi MONTRUCCHIO Lipschitz Continuous Policy Functions for
Strongly Concave Optimization Problems
- 87/264: Pietro REICHLIN Endogenous Fluctuations in a Two-Sector
Overlapping Generations Economy
- 87/265: Bernard CORNET The Second Welfare Theorem in Nonconvex
Economies
- 87/267: Edmund PHELPS Recent Studies of Speculative Markets
in the Controversy over Rational Expecta-
tions
- 87/268: Pierre DEHEZ
Jacques DREZE Distributive Production Sets and Equilibria
with Increasing Returns
- 87/269: Marcello CLARICH The German Banking System: Legal Foundations
and Recent Trends
- 87/270: Egbert DIERKER
Wilhelm NEUFEIND Quantity Guided Price Setting
- 87/276: Paul MARER Can Joint Ventures in Hungary Serve as
a "Bridge" to the CMEA Market?



EUI Working Papers are published and distributed by the European University Institute, Florence.

A complete list and copies of Working Papers can be obtained free of charge -- depending on the availability of stocks -- from:

The Publications Officer
European University Institute
Badia Fiesolana
I-50016 San Domenico di Fiesole (FI)
Italy

Please use order form overleaf

PUBLICATIONS OF THE EUROPEAN UNIVERSITY INSTITUTE

To The Publications Officer
European University Institute
Badia Fiesolana
I-50016 San Domenico di Fiesole (FI)
Italy

From Name.....
Address.....
.....
.....
.....

Please send me: a complete list of EUI Working Papers
 the following EUI Working Paper(s):

No.:.....

Author, title:.....
.....
.....
.....
.....

Date:.....

Signature:

- 86/243: Pierre DEHEZ and Jacques DREZE Competitive Equilibria With Increasing Returns
- 86/244: James PECK and Karl SHELL Market Uncertainty: Correlated Equilibrium and Sunspot Equilibrium in Market Games
- 86/245: Domenico Mario NUTI Profit-Sharing and Employment: Claims and Overclaims
- 86/246: Karoly Attila SOOS Informal Pressures, Mobilization and Campaigns in the Management of Centrally Planned Economies
- 86/247: Tamas BAUER Reforming or Perfecting the Economic Mechanism in Eastern Europe
- 86/248: Francesc MORATA Autonomie Regionale et Integration Europeenne:
la participation des Régions espagnoles aux décisions communautaires
- 86/249: Giorgio VECCHIO Movimenti Pacifisti ed Antiamericanismo in Italia (1948-1953)
- 86/250: Antonio VARSORI Italian Diplomacy and Contrasting Perceptions of American Policy After World War II (1947-1950)
- 86/251: Vibeke SORENSEN Danish Economic Policy and the European Cooperation on Trade and Currencies, 1948-1950
- 86/252: Jan van der HARST The Netherlands an the European Defence Community
- 86/253: Frances LYNCH The Economic Effects of the Korean War in France, 1950-1952
- 86/254: Richard T. GRIFFITHS Alan S. MILWARD The European Agricultural Community, 1948-1954
- 86/255: Helge PHARO The Third Force, Atlanticism and Norwegian Attitudes Towards European Integration
- 86/256: Scott NEWTON Operation "Robot" and the Political Economy of Sterling Convertibility, 1951-1952

- | | |
|--|--|
| 86/257: Luigi MONTRUCCHIO | Lipschitz Continuous Policy Functions for Strongly Concave Optimization Problems |
| 86/258: Gunther TEUBNER | Unternehmenskorporatismus
New Industrial Policy und das "Wesen" der juristischen Person |
| 86/259: Stefan GRUCHMANN | Externalitätenmanagement durch Verbaende |
| 86/260: Aurelio ALAIMO | City Government in the Nineteenth Century United States
Studies and Research of the American Historiography |
| 87/261: Odile QUINTIN | New Strategies in the EEC for Equal Opportunities- in Employment for Men and Women. |
| 87/262: Patrick KENIS | Public Ownership: Economizing Democracy or Democratizing Economy? |
| 87/263: Bob JESSOP | The Economy, the State and the Law: Theories of Relative Autonomy and Autopoietic Closure |
| 87/264: Pietro REICHLIN | Endogenous Fluctuations in a Two-Sector Overlapping Generations Economy |
| 87/265: Bernard CORNET | The Second Welfare Theorem in Nonconvex Economies |
| 87/266: Nadia URBINATI | Libertà e buon governo in John Stuart Mill e Pasquale Villari |
| 87/267: Edmund PHELPS | Recent Studies of Speculative Markets in the Controversy over Rational Expectations |
| 87/268: Pierre DEHEZ and Jacques DREZE | Distributive Productions Sets and Equilibria with Increasing Returns |
| 87/269: Marcello CLARICH | The German Banking System; Legal Foundations and Recent Trends |
| 87/270: Egbert DIERKER and Wilhelm NEUEFEIND | Quantity Guided Price Setting |

- 87/271: Winfried BOECKEN Der verfassungsrechtliche Schutz von Altersrentenansprüchen und -anwartschaften in Italien und in der Bundesrepublik Deutschland sowie deren Schutz im Rahmen der Europäischen Menschenrechtskonvention
- 87/272: Serge NOIRET Aux origines de la reprise des relations entre Rome et Moscou. Idéalisme maximaliste et réalisme bolchevique: la mission Bombacci - Cabrini à Copenhague en avril 1920.
- 87/273: Gisela BOCK Geschichte, Frauengeschichte, Geschlechtergeschichte
- 87/274: Jean BLONDEL Ministerial Careers and the Nature of Parliamentary Government: The Cases of Austria and Belgium
- 87/275: Birgitta NEDELMANN Individuals and Parties - Changes in Processes of Political Mobilization
- 87/276: Paul MARER Can Joint Ventures in Hungary Serve as a "Bridge" to the CMEA Market?
- 87/277: Felix FITZROY Efficiency Wage Contracts, Unemployment and Worksharing
- 87/278: Bernd MARIN Contracting Without Contracts Economic Policy Concertation by Autopoietic Regimes beyond Law
- 87/279: Darrell DUFFIE and Wayne SHAFER Equilibrium and the Role of the Firm in Incomplete Markets
- 87/280: Martin SHUBIK A Game Theoretic Approach to the Theory of Money and Financial Institutions
- 87/281: Goesta ESPING ANDERSEN State and Market in the Formation of Social Security Regimes A Political Economy Approach
- 87/282: Neil KAY Markets and False Hierarchies: Some Problems in Transaction Cost Economics

- | | |
|--|---|
| 87/283: Leslie OXLEY and Donald GEORGE | Perfect Foresight, Non-Linearity and Hyperinflation |
| 87/284: Saul ESTRIN and Derek JONES | The Determinants of Workers' Participation and Productivity in Producer Cooperatives |
| 87/285: Domenico Mario NUTI | Financial Innovation under Market Socialism |
| 87/286: Felix FITZROY | Unemployment and the Share Economy: A Sceptical Note |
| 87/287: Paul HARE | Supply Multipliers in a Centrally Planned Economy with a Private Sector |
| 87/288: Roberto TAMBORINI | The Stock Approach to the Exchange Rate: an Exposition and a Critical Appraisal |
| 87/289: Corrado BENASSI | Asymmetric Information and Financial Markets: from Financial Intermediation to Credit Rationing |
| 87/290: Johan BARNARD | The European Parliament and Article 173 of the EEC Treaty |

