Managing the Current Account Balance

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Abstract

This paper follows on from my paper on the *Formulas for the Current Account Balance* to show how the application of the Demand and Supply Hypothesis of the Current Account can be applied to balance the current account in the long term.

It draws upon my earlier paper entitles *An Introduction to the Optimum Exchange Rate System* that was presented at the Economic Society Conference in Adelaide in 1995.

It applies dynamic equations drawn from Microsoft Excel models to explain how the management of demand and supply in the economy through the use of the monetary system can be used to establish balance of payments stability.

Introduction

In my paper entitled *Formulas for the Current Account Balance* I explained how factors such as the growth of bank credit, private capital flows and official capital flows could determine the current account balance. This paper follows on from that showing how the Demand and Supply Hypothesis of the Current Account can be applied to balance the current account in the long term.

It draws upon my earlier paper entitles *An Introduction to the Optimum Exchange Rate System* that was presented at the Economic Society Conference in Adelaide in 1995.

That system applies a foreign exchange requirement to banks so as to tie bank lending to national savings. This brings about balance of payments stability.

Also, it uses the exchange rate to manage the level of economic activity. In the original paper, the level of economic activity was targeted to achieve full employment with low inflation.

Under that system, interest rates are also deregulated. They are set in the market so as to manage the demand for credit and supply of domestic and foreign savings.

The Optimum Exchange Rate System

The optimum exchange rate system modifies banking guidelines so that the banking system, acting in its own interest, will ensure balance of payments

stability.[1] That system manages the growth of bank credit so that the money from bank credit does not cause balance of payments difficulties.

The system has two parts: one that manages the growth of bank credit so as to ensure balance of payments stability; and the second part manages the exchange rate to achieve full employment with minimal inflation.

To explain the first part, we will use equation (15) from the *Formulas for the Current Account Balance* paper. It was used to in the model with fixed exchange rates in which money was created from both bank credit and foreign reserves. In this model, the money available to be spent is given by:

$$L_t = N_{t-1} + C_{rt} - aL_{ct-1} + X_{t-1} \qquad (1)$$

Where:

L_t is the quantity of money in the economy at time "t" available to be spent;

N_{t-1} is income from the sale of products to the domestic economy in time "t-1".

C_{rt} is the amount of new bank lending in time "t";

L_{ct} is the level of domestic loans outstanding with the banks at time "t-1";

a is the proportion of outstanding debt repaid in a period: it is the inverse of the average term of outstanding loans; and

X_{t-1} are exports in time "t-1".

In that model, the growth of bank credit was assumed to be fixed.

Under the optimum exchange rate system the growth of bank lending is tied to the growth in foreign reserves. For example, banks may be allowed to lend a maximum of, say, $10 for every US$1 held in foreign reserves.

To model the optimum exchange rate system we are going to assume that the growth in bank credit is given by equation (2).

$$C_{rt} = (bR_{t-1} - L_{ct-1})/b^2 + aL_{ct-1} \qquad (2)$$

Where:

b is the maximum bank credit to foreign reserve ratio; and

R_{t-1} is the level of foreign reserves at time "t-1".

[1] Harkness, L., *An introduction to the Optimum Exchange Rate System*, Available at: http://www.buoyanteconomies.com/PAPER3.pdf

This model is presented diagrammatically in Figure 1. Exports are assumed to be $5 B and the marginal propensity to import "m" is 25% of the money spent. The rate of loan repayments "a" is 25% of domestic loans outstanding with the banks. In this example, the maximum bank credit to foreign reserves ratio is 10.

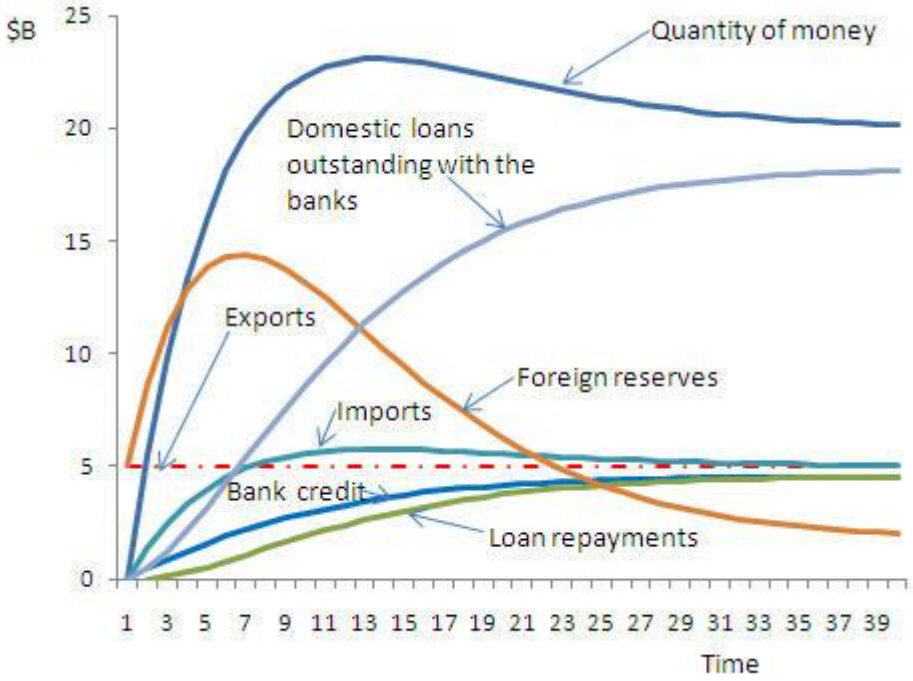

Figure 18: Economy with managed growth of bank credit

In this model, there are not foreign capital movements. Hence foreign reserves also represent the accumulated current account balance. Initially, both exports and bank credit grow to stimulate the economy. Then foreign reserves decline when imports exceed exports. Bank credit continues to grow and demand in the economy stabilises at $20 B. At equilibrium, foreign reserves are $1.82 B and domestic loans outstanding with the banks rise to $18.2B; ten times the level of foreign reserves. While foreign reserves are one tenth of bank debt, they represent 36 per cent of the level of imports in a period.

The second part of the optimum exchange rate system manages the exchange rate to achieve economic objectives such as full employment. In this example we will assume that the economic objective is full employment and incentives are built into the monetary system to achieve that objective.

As in the model for Figure 1, we will assume that the money available to be spent is given by equation (1) [$L_t = N_{t-1} + C_{rt} - aL_{ct-1} + X_{t-1}$]. Substituting equation (2) [$C_{rt} = (bR_{t-1} - L_{ct-1})/b^2 + aL_{ct-1}$] into equation (1) reduces it to:

$$L_t = N_{t-1} + (bR_{t-1} - L_{ct-1})/b^2 + X_{t-1} \qquad (3)$$

This is the demand equation and means that the money available to be spent is derived from domestic sales, the growth of bank credit and from export income.

The supply equation is given by equation (4). Essentially, this says that the products supplied come from domestic sources or imports. That is:

$$L_t = N_t + M_t \qquad (4)$$

Where:

N_t are sales/purchases of domestic products in time "t"; and

M_t are the sales/purchases of imports in time "t".

Substitution the supply equation (4) into demand equation (3) means that we can say that:

$$N_t + M_t = N_{t-1} + (bR_{t-1} - L_{ct-1})/b^2 + X_{t-1} \qquad (5)$$

In equilibrium, we can say that sales and purchase of domestic products are stable. That is:

$$N_t = N_{t-1} \qquad (6)$$

Also, there would be no growth in bank credit. That is:

$$(bR_{t-1} - L_{ct-1})/b^2 = 0 \qquad (7)$$

Therefore, substituting equations (6) and (7) in equation (5) means we can conclude that in equilibrium:

$$M_t = X_{t-1} \qquad (8)$$

As in the initial *Formulas for the Current Account Balance* models, we will assume that there are no capital inflows and that exports are given by:

$$X_t = X/e_t \qquad (9)$$

Where:

e_t is the exchange rate at time "t"; and

X is the value of exports in terms of foreign currency, which is assumed to be constant.

Also, we will assume that the exchange rate affects the demand for imports which is given by:

$$M_t = e_t m L_t \qquad (10)$$

Where:

"m" is the proportion of total available money spent on imports, or the marginal propensity to import.

Substituting equations (9) and (10) into equation (8) means that at equilibrium, we can say that:

$$e_t m L_t = X/e_t \qquad (11)$$

Therefore, the equilibrium exchange rate is given by:

$$e_t^2 = X/mL_t$$

$$e_t = \sqrt{X/mL_t} \qquad (12)$$

If the quantity of money required to achieve full employment is represented by L_{ft}, then we can say that the exchange rate to achieve full employment would be given by:

$$e_{ft} = \sqrt{X/mL_{ft}} \qquad (13)$$

In Figure 2, we assume that the full employment quantity of money is $30 B. We will assume that the marginal propensity to import (when the exchange rate is equal to 1), "m" remains at 0.25. Export income in terms of foreign currency "X" remains at $5 B. Therefore, the equilibrium exchange rate is equal to $\sqrt{(5/0.25x30)} = 0.82$. To avoid excessive inflation, the exchange rate is assumed to move slowly (over ten periods) from 1 to the equilibrium rate, provided that the quantity of money is less than the equilibrium quantity of money.

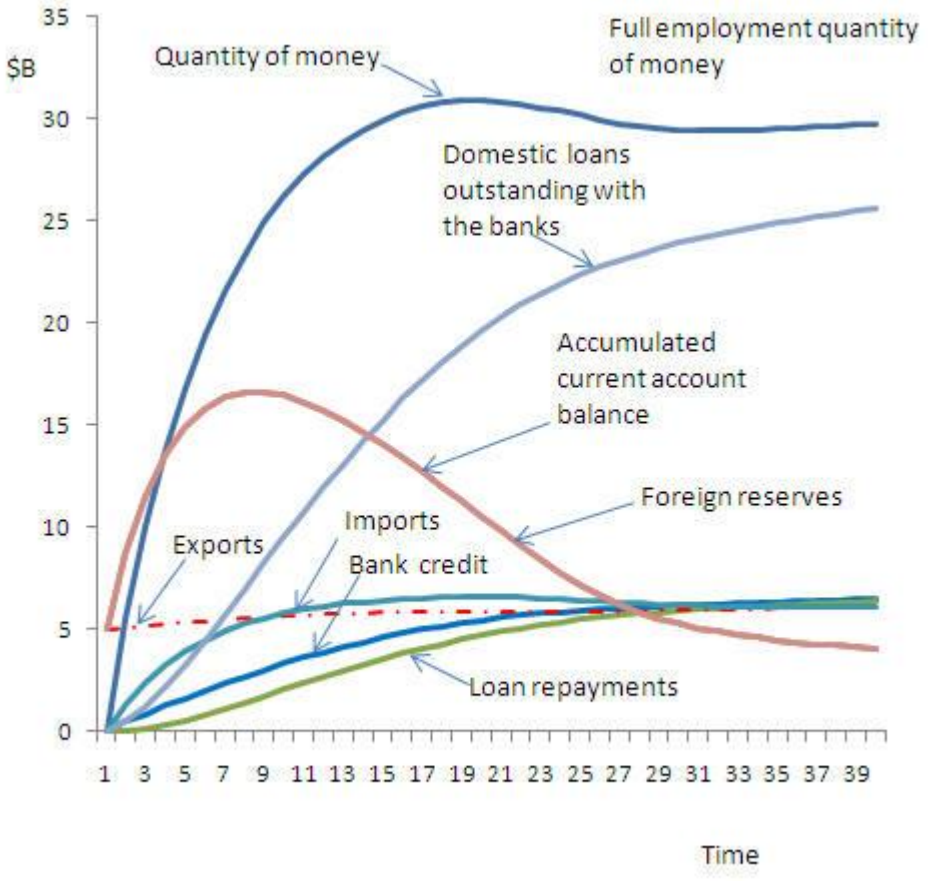

Figure 2: Economy with the optimum exchange rate system

In Figure 2, the quantity of money grows quickly and stabilizes at the $30 B full employment level. At equilibrium, the economy has achieved full employment and there is a net current account surplus. Bank credit has grown and contributed to economic growth. However it has not grown so much as to completely deplete foreign reserves. This is a sustainable outcome.

If economies are to grow in a sustainable manner with domestic and international stability, full employment and low inflation, they will need to adopt a monetary system that manages the growth of bank credit and manages the exchange rate, such as the optimum exchange rate system.

In a real economy with the optimum exchange rate system, additional money from export growth may be supplemented with foreign capital. The inflow of foreign capital may lead to current account deficits. However, when full employment is attained, there would no longer be the same demand for investment and interest rates will fall. With lower interest rates, foreign capital inflows would decline enabling the attainment of a current account balance.

This paper has shown that it is possible to apply policies derived from the demand and supply hypothesis (used to explain the current account balance) to achieve balance of payments stability in the long term. Not only that, the exchange rate is left free to achieve other objectives such as full employment.