A Model for Capital Movements in Finland's Balance of Payments*)

By E. Aurikko, Helsinki

Summary: In this paper a disaggregated quarterly model for capital movements in Finland's balance of payments is presented. This model is one block of the Bank of Finland quarterly econometric model of the Finnish economy.

The structural equations are seen, in the case of Finland, mainly from the demand side. These equations are derived using the expected utility framework. However, supply conditions, in the form of domestic credit rationing and especially in the form of extensive controls on international capital movements, also play a considerable role.

The model has been estimated by ordinary least squares, using quarterly seasonally adjusted data for the period 1961–1971 and has been submitted to an ex-ante forecast test for the years 1971–1974. Portfolio theory seems, on balance, to explain Finland's foreign long-term and short-term capital movements quite satisfactorily. However, the interest rate effects are often quite weak. This might be attributed to the empirical difficulties of treating risk factors and the tightness of credit.

1. Introduction

A number of econometric studies have recently been made dealing with the foreign trade flows in the Finnish balance of payments. However, the results of quantitative research into capital movements have so far been very tentative. It is indeed very common to give current account items a dominant role in the blocks of macro-econometric models concerned with real phenomena. There are, in fact, three general reasons why this is so. First, capital movements are of a monetary nature and the theoretical base for research on monetary topics is much weaker than that for research into real phenomena. Second, the application of a theoretical framework to empirical data is often hindered by the lack of sufficiently reliable data. Third, the study of capital movements requires that careful attention be paid to the domestic and international institutional setting, and that the different regulations governing foreign capital movements be incorporated in the model. Econometric methods cannot easily be used to take these factors into account.

For these reasons it is often stated that traditional forecasts of international capital movements are superior to econometric ones. To show that the pessimism might not be justified, we are taking the first steps towards specifying and estimating a model for Finland's capital account items.

*) Financial support from the Yrjö Jahnsson Foundation is gratefully acknowledged.
1) Esko Aurikko, Bank of Finland, P.O.B. 160, 00101 Helsinki 10, Finland.
The plan of this study is as follows. In this introduction some institutional characteristics of Finland's financial markets are discussed. In section 2 the basic framework of the theory of portfolio selection, with necessary extensions, is reviewed. This theory is used to analyse the demand for assets. The supply is constrained by the Bank of Finland's restrictions on capital movements. In addition, adjustment behaviour and expectations formation are discussed and specified. Section 3 begins with a short discussion of the capital account in Finland's balance of payments. The theoretical tools are then applied to Finnish data, item by item, bringing the institutional factors and the restrictions on capital flows into the models.

The most salient institutional features of Finland's financial markets should be briefly touched upon. Finnish financial markets are dominated by deposit banks. Other financial institutions and the security market play only a minor role. This means that firms have had resort mainly to bank lending to finance investment not covered by internally generated funds. The need for investment to change the structure of the Finnish economy has been so great that domestic savings alone, which are quite high internationally, have not been sufficient. Moreover institutional and other factors have kept domestic interest rates nearly constant, and below the market equilibrium rate, in almost all years since 1958, with the possible exception of depression periods. Consequently, current account deficits have been partly covered by foreign borrowing, and partly by running down foreign exchange reserves.

In satisfying the excess demand for loans from firms and households, the deposit banks have almost continuously resorted to borrowing from the central bank in addition to borrowing from abroad. This is a characteristic feature of Finland's financial markets. Central bank lending can be viewed as a buffer stock of funds for the banks (see Kukkonen [1973]). This is suggested by the rather big cyclical swings in central bank credit. During upswings in domestic investment activity, the banks tend to increase their central bank credit and during downswings reduce it. One tool of central bank monetary policy is the setting of ceilings on central bank credit granted to individual banks. If the banks exceed the ceiling, penalty discount rates are charged. The domestic monetary market can be considered to be the tighter the more banks are using central bank credit in relation to their quotas.

The demand for foreign credit (supply of foreign financial liabilities) can now be treated for some part as a spillover demand resulting from the insufficiency of the domestic supply of credit. This demand is assumed to be very elastic at the exogenously fixed rates, but to respond to changes in the tightness in the domestic monetary market. In order to safeguard foreign exchange reserves, the central bank has granted permits to draw foreign loans quite freely. However, when the terms of foreign credit are poor, i.e. when financial markets abroad are tight, the central bank has rejected some foreign loans in order to preserve the credit worthiness of the country. Instead it has met the excess demand for foreign exchange from its reserves.

---

2) For a more complete account of Finland's financial markets see Puntila [1972].