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THE DEPRESSION OF THE 1990S IN FINLAND: AN ANALYTIC VIEW*

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This paper deals with some aspects of the Finnish economic crisis in the 1990s by starting with a quick description of the main macroeconomic features of the crisis together with some empirical evidence on price and wage as well as interest rate determination. With these as a background a theoretical analysis of fiscal and monetary policies is presented by putting a special attention on the macroeconomic implications of high foreign debt and the banking system for the effects of monetary and fiscal policies. The paper ends up by interpreting the role of economic policy during the depression and considering problems of the external balance of the Finnish economy in the near future. (JEL E44, E63)

1. Introduction

During the 1990's the Finnish economy has experienced the deepest crisis in its peacetime history. The crisis has led to a lively debate in the Finnish economics profession. However, systematic empirical and theoretical analyses have been mostly missing so far. In this paper we take a step in rectifying this omission by carrying out a qualitative and quantitative analysis of some central issues which have been raised in the discussion. Our focus is especially directed at macroeconomic policies during the crisis.

We begin with a quick description of the main macroeconomic features of the Finnish economy and its crisis in this section. The sec-

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tion also contains some empirical evidence. Section 2 is devoted to a theoretical analysis of fiscal and monetary policies in the short run. Here we focus special attention on the macroeconomic implications of high foreign debt and the banking system for the effects of monetary and fiscal policy. In section 3 an interpretation of the role of economic policy during the depression of 1990s in Finland is presented. We also consider problems of the Finnish economy in the near future against the backdrop of internal and external imbalances.

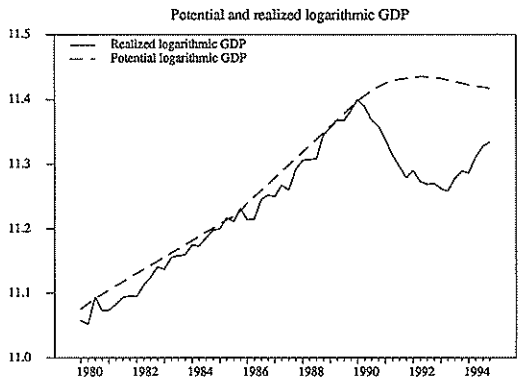

Figure 1.1: Potential and Actual GDP

1.1 A Look at the Landscape

After a strong boom accompanied by inflationary pressures during the second half of 1980's the turnaround in economic activity came in 1990. Domestic private investment, private consumption and net exports of goods and services fell sharply. Economic activity – measured by the growth rate of real GDP – declined extremely rapidly from 5.4 % in 1989 to –6.5 % in 1991. Thereafter, the decline continued, though at a slower pace through 1992 and most of 1993. The decline stopped and a modest turnaround took place in the fall of 1993. However, unemployment continued to rise well into 1994 reaching the level close to one fifth of the labor force. During 1995 it started to decrease very slowly.

Both international and domestic factors contributed to the onset of the crisis. These factors can be classified as follows:

- The slowdown in the international economy was felt very strongly in the Finnish exports to the market economies. This effect was amplified by losses in the competitiveness of the Finnish industry during the preceding boom years and by the fall in the terms of trade. Finally and importantly, the Finnish trade to the centrally planned economies (in particular to the former Soviet Union) collapsed in 1991 after a period of a more gradual decline.
- The boom of the domestic economy in the end of 1980's was associated with rapidly rising foreign debt and this led to restrictive policies. In particular, monetary policy turned very restrictive in early 1989, when the Finnish Markka was revalued. With the turnaround in activity the hard currency policy ran into increasing problems of credibility. The eventual depreciation of the Markka in 1991 and 1992 contributed to the weakening of domestic demand via high level of private sector foreign indebtedness.
- Domestic (short-term and long-term) nominal and real interest rates rose fast in conjunction with international interest rates. The rise in domestic rates was amplified by the defence of the Markka against speculative attacks. The extremely high level of interest rates, combined with rapidly increasing indebtedness of the private sector, had a strong depressing impact on economic activity.

The cumulative fall in GDP from the peak to the through has been quite exceptional by recent international experience, amounting to approximately 14 percent according National accounting data. Figure 1.1 shows the development of the potential and actual GDP based on our own estimates (see appendix A for details). Two features in the figure are noteworthy. First, the total loss in output since 1990 is considerable as reflected in the wide gap between actual and potential output. Second, the sharp fall in actual output has, via falling investment activity, also meant that the growth of potential output has completely halted and even some decline in its level has taken place. Although this decline appears minor, our calculations (not reported here) show that productive capacity in

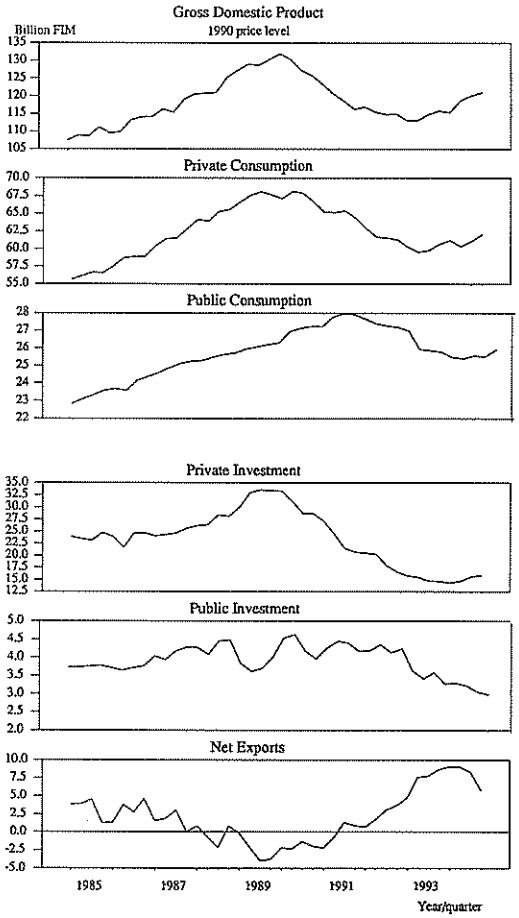

Figure 1.2: Components of Aggregate Demand

the manufacturing sector has fallen significantly. It is evident that the depression is not merely a business-cycle issue. The growth potential of the economy has also been harmed.

According to Figure 1.2 it is evident that all components of aggregate demand contributed to the decline in economic activity. A particularly important feature is the major decline in investment activity. It is notable that net exports started to recover already in 1992. However, given its relatively small weight in total demand this did not lead to a recovery in the aggregate until the domestic demand components followed suit.

The decline in economic activity was accompanied by a very rapid rise in unemployment, which reached extremely high levels (nearly 20

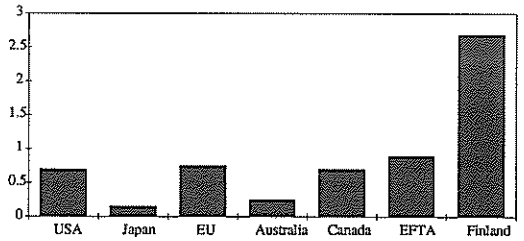

Figure 1.3: Sacrifice ratios

percent). Quite expectedly, price inflation slowed down significantly close to a standstill. The behaviour of wages showed significant nominal stickiness at the first stage of the crisis in 1990 and 1991. During 1992–93 nominal wages did not change much on average, and consequently real earnings declined. In 1994 both nominal and real wages recovered slightly.

Although a decline in inflation was an expressed goal of policy, the resulting fall and the simultaneous rise in unemployment were in part a consequence of the shocks experienced by the economy. Overall, the cost to the society has been high and the outcome is far from satisfactory. Figure 1.3 provides an international comparison of the conventional sacrifice ratios over the period 1990–93 for a sample of countries.[1]

The boom in the 1980s resulted in big deficits in the current account, which in turn led to high foreign indebtedness. The attacks on the Markka forced first a devaluation in November 1991 and subsequently the floating of the currency in September 1992. Thereafter the actual current account deficit gradually disappeared as a result of the currency depreciation and the slowdown in domestic activity and inflation which considerably improved price competitiveness of Finnish industry.

A major crisis in the Finnish banking industry emerged as part of the depression. Its roots are, to a large extent, to be found in the deregulation of the banking system in the second half of 1980's, which resulted in a major expansion in bank credit and huge rises in asset (stocks,

[1] *Sacrifice ratios are measured as the ratio between the changes in unemployment over the changes in inflation (GDP deflators) over the period. Source: Bank for International Settlement, 1994, p.23 and our calculations.*

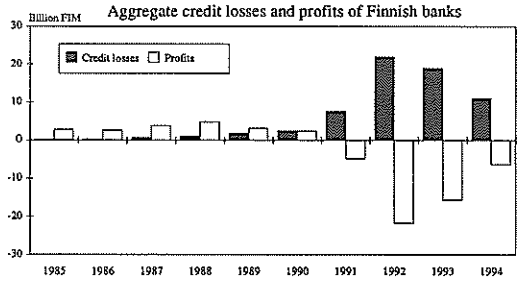

Figure 1.4: Indicators of the Banking Crisis

housing and real estate) prices. The banking crisis in Finland became visible in 1991, and it deepened in 1992. Modest improvement took place in 1993, and this tendency has continued in 1994. Figure 1.4 shows the profits and credit losses of Finnish banks in the period 1985–94 as indicators of the state of the banking industry. Policy actions in the banking crisis began in September 1991 and public support to the banking industry continued through 1994.[2]

The banking crisis was the result of several factors: The boom of the real economy, the speculative rise in asset prices and the rapid expansion of credit led to problems in the banking sector when the economy entered a downswing and asset prices started to fall. Very high real interest rates, due to the defence of the Markka by the Bank of Finland, and the dramatic decline in asset prices contributed to increased bankruptcies of businesses which in turn led to credit losses of the banks.

The size of the public sector in Finland, as measured by total public expenditure relative to GDP, has traditionally been below the OECD average. Since 1990 the share of the public sector has dramatically increased. From Figure 1.2 it is seen that both public consumption and investment have declined in real terms. However, total expenditure has (even without banking support) increased mainly as a result of increased transfers, especially on unemployment compensations. These developments, together with a fall in tax revenues, have resulted in serious indebtedness problems. Throughout the crisis the rise in central government debt has been the major concern in fiscal policies carried out.[3] The new government, formed in the Spring 1995, introduced a fiscal consolidation programme, see Åkerholm (1995).

1.2 Some Empirical Evidence

We consider next two much-debated aspects of the behaviour of the economy which were important for policy during the depression. These are: (i) changes in the import prices are quickly reflected in domestic prices, which in turn has a strong immediate influence on nominal wages, (ii) the slope of the term structure of interest rates – the yield spread between the long- and short-term interest rates – anticipates inflation. (For the official views see e.g. Hämäläinen (1993a,b).) We examine and refute these views by using econometric evidence on wages, prices and the term structure of interest rates.

Nominal Price and Wage Stickiness

In experimenting with commonly-used equations for nominal wage determination of the private sector[4] we found that the following equation performs well

$$\Delta w = 0.803\ \Sigma\Delta p_c - 0.183\ (w - p_c - q)_{-1} - 0.002\ u_{-1}.$$

Thus the change in consumer prices p_c, the level of productivity-adjusted real wage $w-p_c-q$, and the level of unemployment u influence the change in nominal wages Δw.[5] All the variables were statistically significant at 5 percent level.

[2] *See Honkapohja, Koskela and Paunio (1993) for a more detailed discussion and references (see also Nyberg and Vihriälä (1993)). It is notable that many of the same features in the development of financial markets leading to a banking crisis were present in Norway (see Steigum 1992).*

[3] *For an extensive discussion see Corsetti and Roubini (1996). We will not consider issues of public debt any further.*

[4] *See Blanchard and Muet (1993) for a similar exercise with French data.*

[5] *The data was taken from the data base of the Bank of Finland quarterly model. It is the only available quarterly data since 1970.*

This equation has elements of both the expectations-augmented Phillips curve and real wage stickiness via the effect of the real-wage term. The significance of lagged unemployment has been increasing in the 1990s. There is no evidence of long-run non-neutrality, since the hypothesis that the sum of the coefficients of price changes is equal to one cannot be rejected (see appendix B for the details).

Next we estimated equations for manufacturing prices p. The following equation performs well

$$\Delta p = 0.197\ \Delta mc + 0.215\ \Delta p^* - 0.182\ \Sigma\ p_{-i} + 0.180\ mc_{-1} + 0.004\ p^*_{-i}$$

(see appendix C). Here mc denotes the estimated marginal costs, which includes both domestic cost factors and prices of import inputs and p^* denotes the domestic price of foreign manufacturing goods (competitors' prices).

Three features of the equation stand out. First, producer prices adjust slowly. Second, roughly 20 percent of changes in marginal costs and competitors' prices are immediately passed through to manufacturing prices. Third, in the long-run changes in marginal costs (and thus import prices) are passed through fully, while competitors' prices have no effect.[6] This exercise shows that profit margins cushion the impacts of input price changes in the short-run.

Inflation, Interest Rate Movements and the Term Structure of Interest Rates

To test the view that changes in the long-term interest rate can predict changes in the rate of inflation we estimated the following equation[7]

$$\pi^m_t - \pi^n_t = \alpha + \beta(r^m_t - r^n_t) + \varepsilon_t$$

with monthly data 1988:1 – 1994:5. In the equation the change in future m-period inflation rate from the n-period inflation rate is regressed on the »slope» of the term structure. If b is significantly different from zero, then the yield spread between long-term and short-term interest rates predicts changes in inflation. As reported in appendix D, there is hardly any evidence for this conventional policy view.

In addition, we evaluated the ability of the expectation hypothesis for the term structure of interest rates to explain changes in the long-term interest rates.[8] The empirical results for long-term interest rates do not lend support to the expectations hypothesis according to which a high yield-spread should forecast rising long-term interest rates.

2. *A Theoretical Analysis of Fiscal and Monetary Policies in the Short Run*

2.1 The Basic Setup

In line with the empirical evidence on price and wage stickiness discussed above we develop a Keynesian-type short-run macroeconomic model with exogeneous wages and prices. Since high foreign debt and the banking crisis appeared to be inherent features of the crisis, the following special features were added to the model. (i) The banking system and the availability of credit are included in the model. (ii) Foreign borrowing by the public is allowed and taken to be an imperfect substitute for domestic credit.[9]

The purpose of this analysis is to examine the short-run stabilization effects of fiscal and monetary policy in a framework mimicking some important aspects of the crisis. We wish to emphasize that the static nature of the model is a limitation. In particular, it cannot be used to study intertemporal issues properly, for example credibility of policies, public debt, and the determination of asset values.

Starting with the simplified balance sheet for the Central Bank we have CU + R = F + CD,

[6] *We do not regard this result as very plausible. It is probably due to the high multicollinearity in the available data between mc and p^* (the correlation coefficient is .99), whereby one cannot reliably estimate their separate effects.*

[7] *The procedure is that of Mishkin (1990).*

[8] *See e.g. Campbell and Shiller (1991).*

[9] *Thus the analysis is an extension of the model by Bernanke & Blinder (1988) to an open economy.*

where CU = currency held by the private sector, R = reserves of banks held at the central bank, F = foreign reserves of the central bank and CD = liabilities of the private banks to the Central Bank. Total reserves of banks consist of required reserves and possible excess reserves. The former are a fraction τ of the deposits, so that $R = ER + \tau D$, where ER = excess reserves. High-powered money is defined as $H = CU + R$.

We make the customary assumptions that the cash holdings of private sector are a fraction of its deposits $CU = c_0 D$, and that banks' reserves are a fraction c_1 of deposits. These assumptions lead to the familiar money multiplier $\mu = (1+c_0)/(c_0+c_1)$, so that $M = CU + D = \mu(r_L, r^*, \tau)H$. Here we have assumed that (through c_1) the money multiplier depends on the interest rate for domestic bank loans r_L, the interest rate for foreign funding r^* and the ratio for required reserves τ.

The balance sheet of the private sector is written in the form $M^d + B_p = L + L^*$, where M^d is the demand for money, B_p are bond holdings of the private sector, L is domestic borrowing from banks, and L^* is foreign borrowing by the private sector. L^* is here written in domestic currency, so that $L^* = eL^+$, where L^+ denotes foreign borrowing in international currency and e is the exchange rate.

The demand functions for money and the two types of borrowing are assumed to be

$$M^d = M^d(r^*, r_L, Y), \quad (-\ -\ +)$$

$$L = L^d(r^*, r_L, Y), \quad (+\ -\ +)$$

$$L^* = L^*(r^*, r_L, Y), \quad (-\ +\ +)$$

where Y denotes the level of aggregate economic activity (real GDP). The signs below the variables denote the postulated signs of the the partial derivatives. Note that for simplicity we have written the international return simply as r^*, since with a flexible exchange rate its expected change will be zero in equilibrium.[10] Moreover, the return r_B on domestic bonds is eliminated by the assumption of interest parity $r_B = r^*$. It can also be noted that L^* does not depend directly on the level of the exchange rate, as it is denominated in domestic currency.[11]

For the banking sector we have the balance sheet $B_b + L + ER + \tau D = D + CD$, where B_b denotes the bond holdings of banks. For simplicity it is assumed that the liabilities of banks to the Central Bank are exogenous (and an instrument of monetary policy) and that banks have no foreign assets or liabilities. For later analysis we need to postulate a supply function for (domestic) bank loans

$$L^s = L^s(r^*, r_L, Y, CD, \tau, \delta) \quad (-\ +\ +\ +\ -\ -)$$

as an important behavioural relation. The dependence of the supply of loans on r^* and Y comes via the deposits by the public. CD and τ describe instruments of monetary policy, and δ is a parameter denoting the (risk and other) attitudes in granting loans which clearly influence banks' lending behaviour.

It should be noted that we focus on monetary policy tools that operate through the lending behavior of the banking system. Therefore, we will suppress the money market equilibrium condition in the subsequent analysis. The model also abstracts from the effects of changes in asset values in connection with the changes in the rate of interest in the loans and bonds markets.

Finally, we complete the model by specifying an aggregate demand function for real economy in the form

$$Y = AD(r^*, r_L, \pi^e, NX, G), \quad (-\ -\ +\ +\ +)$$

where π^e = expected inflation, NX = net exports, and G = parameter of fiscal policy. For net exports we postulate the relationship

$$NX = NX(e, Y). \quad (+\ -)$$

[10] *For fixed exchange rates devaluation expectations can formally be incorporated into the exogenous variable r^*.*

[11] *This means that the elasticity of foreign borrowing in foreign currency with respect to e is assumed to be equal to –1.*

2.2 Fixed Exchange Rates

Though our main interest is in the regime of flexible exchange rates, we first sketch some implications of the model for the world of fixed exchange rates. The analysis is best carried out by using the equilibrium conditions for the goods market

$$Y - AD(r^*, r_L, \pi^e, NX, G) = 0$$

and the domestic loans market

$$L^d(r^*, r_L, Y) = L^s(r^*, r_L, Y, CD, \tau, \delta).$$

We have here a system of two equations for the two endogenous variables Y and r_L.[12]

The quickest way to see the main comparative static implications is to use a diagram in the (Y, r_L)-space. Given the assumptions above, the goods market equilibrium locus is a downward-sloping curve in this coordinate system. This is denoted as the IS-curve. The slope of the domestic loans market equilibrium locus is in general ambiguous, since both the demand and supply are an increasing function of the level of aggregate activity Y. Assuming that the excess demand for loans is increasing in Y, the locus is increasing in the (Y, r_L)-space. We denote this locus as the CC-curve. Figure 2.1 illustrates these relations and the comparative-static effects of fiscal and monetary policy. (The discussion is conducted in terms of restrictive shifts in parameters. Corresponding arguments would apply to shifts in the other direction.)

The tightening of monetary policy (increase in τ or decrease in CD) shifts the CC-curve upwards leading to a contractionary real effect even with a fixed exchange rate.

An important implication of the model is in the effects of changes in banks' lending behaviour. In the current Finnish depression the banking crisis has clearly made the banks' more cautious in their lending behaviour. As a result of the crisis banks have become more risk averse, and non-price loans terms – such as downpayment ratios and collateral requirements – have been tightened at the same time when assets values dropped dramatically.[13] Analytically, these factors are described by an increase in parameter δ leading to a contraction in domestic credit supply. Its effects are qualitatively similar to those of a tightening of monetary policy, i.e. the level of aggregate activity is reduced and the bank lending rate is increased.

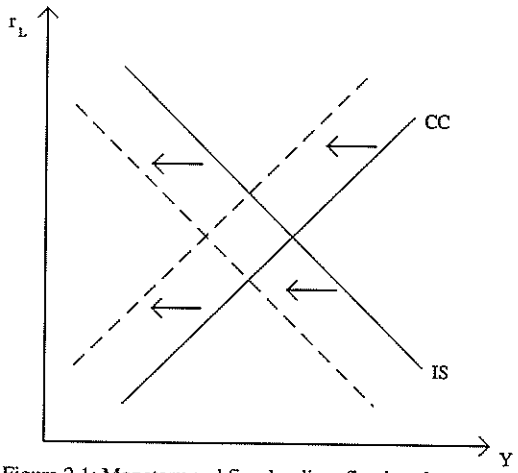

Figure 2.1: Monetary and fiscal policy: fixed exchange rate

The other comparative-static implications of the model are quite familiar. For fiscal policy we get the unsurprising effects that a policy of tightening ($dG < 0$) leads to an decrease in both aggregate activity and interest rate on domestic bank loans (in Figure 2.1 $dG < 0$ shifts the IS-curve leftward). It can also be seen that in the model the effects of a devaluation ($de > 0$) are expansionary. In contrast increased expectations of devaluation (analytically equivalent to $dr^* > 0$ shifting both curves leftward in Figure 2.1) are contractionary.[14] Finally, the effects of an increase in the foreign interest rate r^* are contractionary in output, while its effect on interest on domestic loans r_L is ambiguous in theory.

[12] *Note that given a solution for Y and r_L the resulting value of money demand would determine the balance of payments surplus or deficit.*

[13] *Both casual observations and information from opinion surveys of firms provide support for this interpretation. No direct data on down-payments or collateral requirements is, however, available.*

[14] *Note that this abstracts from the wealth effects associated with exchange rate changes.*

2.3 Flexible Exchange Rates

The exchange rate e becomes an endogenous variable under a floating currency, and we have three equilibrium conditions in our model. Two of them are already familiar, namely the goods market and the domestic loans market relations. The only important change in the analytics is that the dependence of net export NX on the exchange rate needs to be taken into consideration as discussed at the end of section 2.1.

The third equilibrium condition is that of the money market or balance of payments, which requires that the stock of foreign reserves $F = F_{-1} + NX + CI$, where $CI = L^* - L^*_{-1} = L^* - eL^+_{-1}$, is unchanged in equilibrium. (Equivalently, for a given level of CD the stock of high-powered money remains unchanged.) Thus we get the relation

$$\underset{+\ -}{NX(e,\ Y)} + \underset{-\ -\ +\ +}{CI(e,\ r^*,\ r_L,\ Y)} = 0$$

as the third equilibrium condition.

The best way to solve the three relations is to use the domestic loans condition to determine r_L as a function of the other variables in that equation:

$$\underset{(?)}{r_L} = \underset{+\ +\ -\ +\ +}{r_L(Y,\ r^*,\ CD,\ \tau,\ \delta)}.$$

The signs give the relevant partial derivatives. It should be noted that the sign of the partial with respect to Y is in general uncertain. We continue to assume that it is positive, reflecting the notion that changes in Y have a stronger effect on loans demand than supply, ceteris paribus.

When this relation is substituted into the other two equilibrium relations, one obtains the system

$$\underset{+\ -\ +\ -\ +\ +\ -\ -}{Y - AD(.) = IS(Y,\ e,\ r^*,\ CD,\ \tau,\ \delta,\ G,\ \pi^e)} = 0$$

$$\underset{?\ ?\ -\ -\ +\ +}{NX + CI = BB(Y,\ e,\ r^*,\ CD,\ \tau,\ \delta)} = 0.$$

We observe that in the balance of payments equilibrium condition the dependence of the change in foreign reserves NX + CI on Y, e and r^* is in general uncertain. Thus some discussion is in order. The standard case $\partial BB/\partial Y < 0$ and $\partial BB/\partial e > 0$ corresponds to the hypothesis that activity and exchange rate effects on net exports dominate over their effects on capital imports.

It is important to note that the size and sign of $\partial BB/\partial e$ depends the size of foreign debt of the private sector, and with a large foreign debt the sign of $\partial BB/\partial e$ could well be negative. It is also possible that $\partial BB/\partial Y > 0$, meaning that effects of Y via capital imports dominate over the effect on the trade flow. We point out below the implications of these possibilities. The assumption $\partial BB/\partial r^* < 0$, the implications of which are briefly noted below, is based on the notion that the direct effect of r^* on foreign loans dominate to opposite effect coming via $r_L(.)$ function.

Given that these different possibilities exist, it is necessary to introduce the standard stability analysis to select the important cases and to highlight potential difficulties implied by a high level of foreign debt. Since the two endogenous variables are Y and e we postulate the dynamic equations (operating in notional time)

$$Y - AD = 0 \text{ if and only if } dY/dt \begin{cases} > 0 \\ = 0 \\ < 0 \end{cases} \text{ as } \begin{cases} < 0 \\ = 0 \\ > 0 \end{cases},$$

$$NX + CI = 0 \text{ if and only if } de/dt \begin{cases} > 0 \\ = 0 \\ < 0 \end{cases} \text{ as } \begin{cases} < 0 \\ = 0 \\ > 0 \end{cases},$$

and we will require local stability of this dynamics.

Figure 2.2 illustrates the relations and the effects of restrictive policies in the standard case in which both IS and BB relations are upward-sloping. A further condition is obtained from the stability analysis, whereby the IS-curve can be taken to be steeper than the BB-curve.

A tightening of monetary policy ($d\tau > 0$, $dCD < 0$) shifts the IS-curve leftwards through its effects on domestic lending and the BB-curve rightwards through its substitution effects between domestic and foreign borrowing. Both of these channels are contractionary and result in an appreciation of the currency. A tightening of fiscal policy results in a leftward shift of the

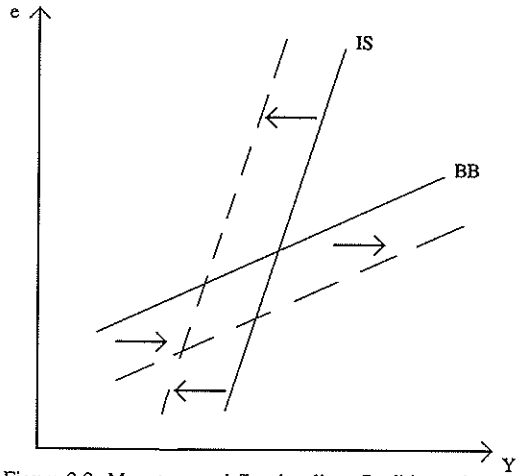

Figure 2.2: Monetary and fiscal policy: flexible exchange rate

IS curve alone. Thus the qualitative effects of fiscal policy are the same as those of monetary policy, but monetary policy is more powerful as it is contractionary via both channels. These results partly contrast with the Mundell-Fleming model in which fiscal policy is ineffective with respect to economic activity in the regime of flexible exchange rates.

The effects of changes in banks' lending behaviour are analogous to those of monetary policy. If banks become more cautious in their lending policy, this results in a contraction of economic activity and an appreciation of the currency. It can also be noted that the effects of a change in the foreign interest rate r^* are theoretically ambiguous ($d\,r^* > 0$ shifts both curves leftwards).

We can also analyze the consequences of high foreign debt of the economy. As noted above, if the level of foreign debt is high enough the ceteris paribus effect of the exchange rate on the balance of payments can be negative (i.e. $\partial BB/\partial e < 0$) leading to perverse outcomes in the model. The equilibria are unstable in most cases, but with $\partial BB/\partial Y > 0$ stability is possible but then predictions about the effects of policies are perverse. These outcomes arise when the effects of economic activity and the exchange rate through capital flows dominate those over trade flows. The main lesson from the case of high foreign debt is the possibility of instability or perverse policy implications.

The two general conclusions emerge from the theoretical analysis. (i) Both fiscal and monetary policies can in principle be used as stabilization tools under both exchange rate regimes. In particular, with imperfect substitutability between domestic and foreign borrowing monetary policy can influence economic activity and not only the rate of inflation. (ii) Changes in banks' lending behavior can independently assert an important macroeconomic impact on the economy. In particular, more cautious lending behaviour by banks acts in a contractionary way. This aspect of the Finnish crisis has been largely neglected in the policy discussions in Finland.

3. *The Depression and Ways Ahead*

3.1 Economic Policy During the Depression

In section 1.1. we listed a number of factors, which contributed to the onset of a crisis in the Finnish economy from 1991 onwards. As regards the economic policy we look first at fiscal policy. We are interested in changes of fiscal policy that measure intentional actions by policy makers. We define the fiscal impulse as the discretionary change in the budgetary position of the government excluding financial transactions.

There is no universally accepted method of defining what part of the primary balance reflects an exogenous action on the part of the government and what is merely a reflection of the business cycle. Since we are primarily interested in the discretionary changes in fiscal policy, for any year the benchmark can be assumed to be the previous year. Blanchard has suggested an attractive way of addressing this issue.[15] The interpretation of the change in fiscal stance is then the following: fiscal policy is

[15] *The idea is to estimate what government outlays and revenues would be in a given year if the unemployment rate had remained the same as in the previous year. The Blanchard fiscal impulse measure is then constructed as the difference between the unemployment-adjusted measure of the primary deficit and the previous year's primary deficit. For a general discussion of measures of fiscal stance see Alesina and Perotti (1995).*

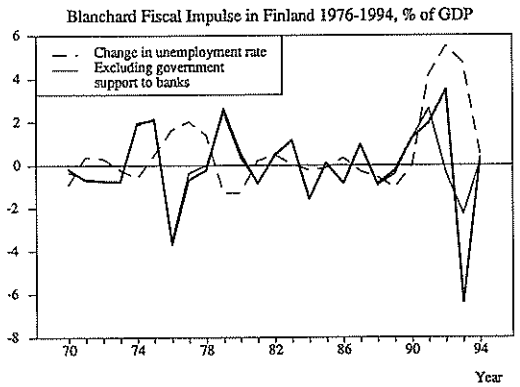

Figure 3.1: Indicators of Fiscal Stance

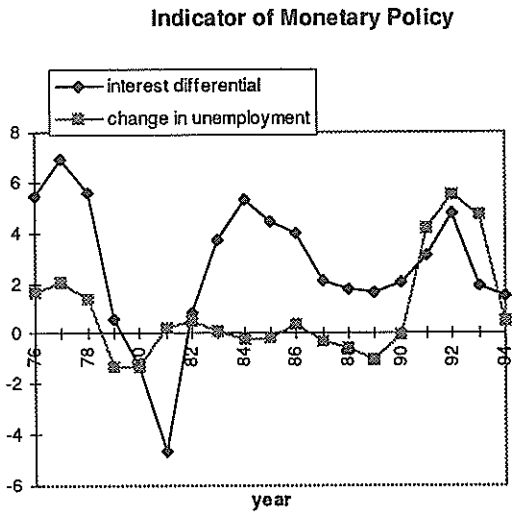

Figure 3.2: An Indicator of Monetary Policy

'loose' ('tight') if the difference is positive (negative).

Since it is hard to decide a priori how to deal with bank support, we have calculated the Blanchard fiscal impulse measures both with and without bank support. Figure 3.1 describes the Blanchard fiscal impulse measures as a share of GDP together with a change in unemployment rate.

The figure suggests that fiscal policy was loose in the first phase of the depresison but turned very tight in 1993. (The measure including bank support is particularly volatile.) While bank support and automatic stabilizers have acted as expansionary, cuts in government expenditures and increases in tax rates particularly during 1993 have had a contractionary effect on the economy.

We use the differential between short-term Finnish and German real interest rates as a rough measure of the stance of monetary policy. This indicator, together with the change in unemployment rate, is shown in Figure 3.2.

It is seen that monetary policy turned very restrictive before the downswing and this tightness prevailed through 1992 with significant easing during 1993. The long-lasting banking crisis – which has been reflected in cautious lending behaviour – has reinforced tight monetary policy and has counteracted the temporary easing of monetary policy which took place in 1993 and early 1994. Figure 3.3 shows that the stock of outstanding bank loans (solid curve) started to decrease in 1992 and this has continued to the present in spite of the recent rapid rise in industrial production (thin curve). This may be an indication of both cautious lending behavior and changed financing practices of investments. Thus it appears that the banking crisis has also had long-term implications on the financial system.

In the light of our theoretical model in section 2 the influence of economic policies can roughly be interpreted as follows. During the regime of fixed exchange rates (till September 1992) fiscal policy shifted the position of the IS-curve outwards to some extent, but restrictive monetary policy and cautious banking be-

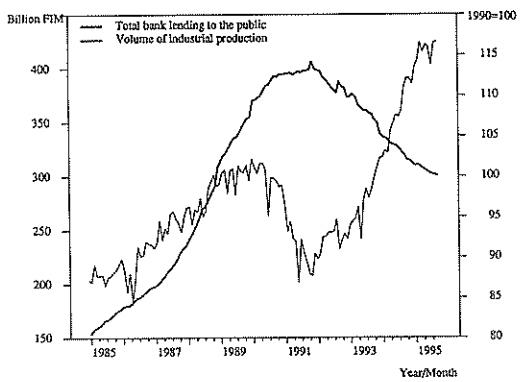

Figure 3.3: Bank Lending and Industrial Production

haviour shifted the CC-curve leftwards. In addition, devaluation expectations resulted in leftward shifts of both curves. The overall result was contractionary in our judgement (see Figure 2.1.).

During the regime of flexible exchange rate (from September 1992 onwards) the overall picture is analytically less clear-cut due to strongly offsetting influences. Focusing attention on the period from fourth quarter of 1992 to 1st quarter of 1994, monetary policy was eased in 1993, but bank behaviour worked in the opposite direction (so that the net effect on IS- and BB-curves remains unclear). However, growing emphasis on fiscal consolidation shifted the IS-curve leftwards leading probably to a contractionary effect in output and a tendency towards appreciation of the Markka.[16] In view of the opposing policy stances and the banking crisis during this period theoretically unambiguous conclusions on the net effects of policies cannot be drawn. An empirical analysis would be required, but is outside the scope of this paper.

The Finnish depression in the 1990's has left a serious domestic imbalance in the economy as shown by the output gap (Figure 1.1) and the exceptionally high level of unemployment. In addition, the economy is faced twin debt problems: the foreign debt of the economy and the central government debt. We discuss next the problem of external balance. (A detailed analysis of public debt is omitted, see Corsetti and Roubini (1996).)

3.2 Foreign Debt and the Real Exchange Rate

With the very high net foreign debt-GDP ratio of the Finnish economy (about 60 percent in 1994) and the ensuing policy discussion it can be presumed that foreign indebtedness of the country is a policy concern in the near future. The present current account surplus has been partly achieved at the cost of a seriously depressed level of domestic economic activity. An important question is the possibility of maintaining the current account balance at significantly higher levels of domestic economic activity and its implication for the real exchange rate.

In order to evaluate this issue we utilize the following equation for the change in the current account

$$d(CA/P^x) = [\varepsilon_{sx}X + SM(\varepsilon_{sm}-1) + r^*FS/P^m](dS/S) + \varepsilon_{y^*x}X(dY^*/Y^*)-\varepsilon_{ym}SM(dY/Y).$$

Here CA is the current account, X and M denote export and import volumes, P^x and P^m are export and import prices, e is the nominal exchange rate, $S=eP^m/P^x$ is the real exchange rate, F denotes net foreign assets, and Y and Y^* domestic and foreign output levels. Finally, ε_{sx}, ε_{sm}, ε_{y^*x} and ε_{ym} denote the elasticities of exports and imports with respect to the real exchange rate and (foreign and domestic) activity levels.[17] Rapid growth of GDP naturally helps in the reduction of unemployment. It can also alleviate the indebtedness problems by raising the denominator of the debt ratio. However, it also worsens the current account, ceteris paribus.

Table 1 provides hypothetical calculations of the required real exchange rate under the following aims of policy: (i) the growth rate of GDP is five percent, and (ii) the absolute level of the foreign debt is kept constant (the second column of table 1). Note that with the latter requirement the debt-GDP ratio is gradually reduced by the growth in GDP. As an alternative we present in the third column an estimate of the required real exchange under the more stringent target that the foreign debt-GDP ratio is reduced in five years to 40 percent. It should be emphasized that the computation is aimed at evaluating the situation for the year 1994.[18]

Table 1 suggests that the real exchange rate was roughly at the level required to mantain current account balance during the current upswing. If in contrast the more stringent external target were considered relevant, some depreciation of the real exchange rate S would have been necessary. It should be pointed out

[16] *In reality, the Markka started to appreciate in Spring of 1993.*

[17] *This equation follows from the usual definition of the current account by differentiation.*

[18] *Appendix E provides the details behind the table as well as some alternative scenarios.*

Table 1: Required Real Exchange Rates

GDP growth rate in Finland	change in real exchange rate ($S = eP^m/P^x$), (percentage change per annum)	
GDP growth rate abroad	current account balance target	debt reduction target
5		
2	2	17
5		
3	1	15
5		
4	–1	14

Notes: (i) The 5 percent rate of Finnish growth is a commonly mentioned target in public discussions. (ii) The utilized values for exports and imports are: $\varepsilon_{sm} = 0.6$, $\varepsilon_{ym} = 0.8$, $\varepsilon_{sx} = 0.8$, $\varepsilon_{y^*x} = 1.0$.

that the needed adjustment could happen in several ways, for example through changes in export or import prices. The goal of current account balance would imply a debt ratio in the 50 percent range after five years.

Table 1 is based on the assumption that the growth rate for Finnish imports exceeds that of its exports (except in the last row where they are almost the same). If in contrast it is assumed as a very optimistic scenario that Finnish exports continue to grow faster than imports, then a corresponding calculation would provide room for an appreciation of the real exchange rate.

These calculations suggest as a general conclusion that there was little scope for strengthening of the real exchange rate if the policy aim of a gradual reduction of indebtedness is accepted.

3.3 Further Remarks

Shifting attention to future developments for the Finnish economy our estimation of the output gap (see Figure 1.1) brings to the forefront the possibility of a capital shortage. This is particularly so in manufacturing and if substitution of labour for capital remains limited. Though according to our judgement actual output and employment are currently below the potential level, the reduction in productive capacity will make the achievement of a considerably higher level of employment difficult in the medium run. An increase in the productive capacity necessitates a major increase in the level of investment activity as part of the recovery.

Econometric evidence on investment and household saving suggests that lowering the level of interest rates raises the level of aggregate demand both by increased investment, by decreased saving and via effects on asset prices.[19] As part of the upswing the profitability of firms improved, but in the early stages this led mostly to increased corporate saving (according to national account statistics). However, investment activity has been slowly picking up in the later stage of the upswing.

Fiscal policy has been and continues to be faced with a trade-off between achieving a sustainable level of government indebtedness and the provision of support for economic growth and employment. Considering the public debt problems it is clear that success of fiscal policy will primarily hinge on consolidation of government finances, reallocation of government expenditure toward human and real capital formation, and on reforms of tax structure to reduce non-wage labor costs.

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[19] *For evidence on investment and household saving see Dufwenberg, Koskenkylä and Södersten (1994) and Koskela and Viren (1994), respectively.*

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Appendix A: Potential Output and Okun's Gap

The cyclical sensitivity of the unemployment rate, i.e. the so called Okun's law, was estimated using the following specification[20]

$$(1)\quad \log(N/N^p)_t = \alpha + \sum_{i=0}^{n} \beta_i \log(Y/Y^p)_{t-i} + e_t,$$

where N_t on is the employment rate (i.e. 1 – unemployment rate), N_t^p is the 'potential' employment rate, Y_t is the real GDP and Y_t^p is the potential output in period t. Following the literature in the field we used the assumption that the potential GDP and the natural ('potential') rate of unemployment are attained at the peak of every major business cycle. Till the end of the last decade the estimates between these peaks were computed by interpolation. In the estimation for the first quarter of 1990, when the exceptionally sharp decrease in output and increase in unemployment took place, three assumptions were used:

(i) Y_t^p ja N_t^p remain on the level they were in 1990:1.

(ii) Y_t^p remains on the level of 1990:1 and the natural rate of unemployment ($1-N_t^p$) grows 10 % each quarter.

(iii) Y_t^p changes relatively as much as the net capital stock and ($1-N_t^p$) grows 10 % each quarter.

Equation (1) was estimated under each of the three assumptions for the period 1971:3–1994:4 and separately for the period up to the latest peak (1990:1). For the shorter time period only two lags were required but in all other cases the coefficients of as many as five lags turned out to be significant. In OLS estimations the error term was autocorrelated, and so the reported estimates

	(i) 1970:4– 1990:1	(i) 1971:3– 1994:4	(ii) 1971:3– 1994:4	(iii) 1971:3– 1994:4
Constant	–0.001	–10.850	4.368	5.492
	(–0.38)	(–2.82)	(1.13)	(1.45)
$\log(Y/Y^p)_t$	0.109	0.116	0.152	0.125
	(4.65)	(3.93)	(5.15)	(4.48)
$\log(Y/Y^p)_{t-1}$	0.131	0.150	0.184	0.155
	(5.44)	(5.06)	(6.20)	(5.54)
$\log(Y/Y^p)_{t-2}$	0.090	0.164	0.178	0.154
	(3.83)	(5.65)	(6.13)	(5.65)
$\log(Y/Y^p)_{t-4}$		0.132	0.106	0.097
		(4.63)	(3.72)	(3.64)
$\log(Y/Y^p)_{t-4}$		0.121	0.090	0.088
		(4.25)	(3.17)	(3.29)
$\log(Y/Y^p)_{t-5}$		0.082	0.048	0.050
		(2.94)	(1.71)	(1.88)
Sum of elasticities	0.329	0.766	0.758	0.670
ρ	0.847	1.000	1.000	1.000
	(13.56)	(67.05)	(22.63)	(23.24)
R^2	0.927	0.995	0.978	0.979

[20] *For details see eg. Kaufman (1988).*

have been obtained using an AR(1) correction with the autocorrelation coefficient ρ.

According to the estimation results the addition of the observations from the 1990's increases considerably the coefficient estimate of the total elasticity of the employment/potential employment rate ratio with respect to the ouput/potential output ratio. This suggests that the cyclical sensitivity of unemployment has increased over the last two years and that the estimates of (1) up to 1990:1 cannot be used to compute the potential output in the 1990's. Though all the estimates are rough, we prefer to use the alternative (iii) and thus assume that after 1990:1 the potential output has changed relatively as much as the net capital stock.

	IV	
constant	−1.036	(−6.51)
Δp_c	0.760	(3.01)
$(\Delta p_c)_{-1}$	0.381	(2.32)
$(\Delta p_c)_{-2}$	−0.338	(−2.16)
$(w-p_c-q)_{-1}$	−0.183	(−6.61)
u_{-1}	−0.002	(−5.14)
DNEG	0.073	(10.88)
D7412	0.040	(2.91)
D732	0.047	(12.85)
D75234	0.070	(6.81)
R^2	0.871	
AR(1)	1.32	
BPG	18.32	
J–B	0.35	

AR(1) is the LM-test for first-order autocorrelation (5 % critical value 1.65), BPG is the Breusch–Pagan–Godfrey test for heteroscedasticity (5 % critical value 16.9) and J–B is the Jarque–Bera test for normality (5 % critical value 5.99).

Appendix B: Wages, Prices and Unemployment

The following specification was used to model the relationship between private sector wages, prices and unemployment.

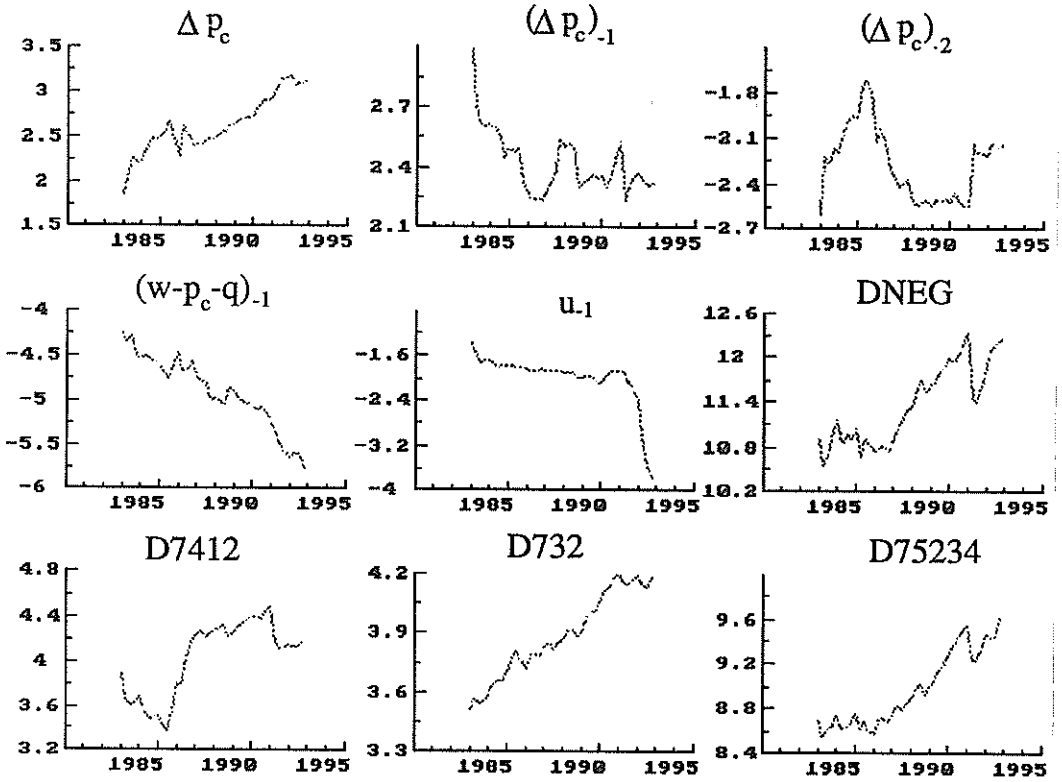
$$(1)\quad \Delta w = \alpha_0 + \alpha_1 \Delta p_c + \alpha_2 (\Delta p_c)_{-1} + \alpha_3 (\Delta p_c)_{-2} + \alpha_4 u_{-1} + \alpha_5 (w-p_c-q)_{-1} + \varepsilon,$$

where Δw is the change in the private sector wage; p_c is the consumer price index, q is private sector labour productivity and u is the rate of unemployment. All variables except the rate of unemployment are in logarithms. Because of the institutional setting of the Finnish labour market, it was necessary to include a variable (DNEG) to take account of the distribution of negotiated wage rises over the quarters of the year. In addition, three dummies (D7412, D75234, D732) were introduced to pick up outliers. The current price inflation was instrumented by the current and lagged rate of change of the price of imports. The numbers in parentheses are t-statistics. We also tested the restriction that the sum of the coefficients of the variables for current and lagged price inflation equals unity. This could not be rejected at the 5 % significance level ($\chi^2_1 = 0.65$). The model was also estimated with the restriction imposed, but the results hardly changed at all, and so they are not reported. The following table reports the IV estimation results for the period 1970:4–1992:4; standard errors have been computed using White's heteroskedasticity-consistent covariance matrix[21]

Three features of the results stand out. First, the nominal wage is negatively affected by unemployment. Second, the nominal wages quickly adjust to price inflation; the short-run response is 0.76 and the sum of the coefficients on price inflation does not significantly differ from unity. Finally, the productivity-adjusted lagged real wage affects Δw negatively.

The coefficient estimates were relatively stable. The recursive development of their t-values are presented in the following set of figures. One can see that particularly the significance of unemployment rate has increased in the 1990's. Note that the t-values for 1992:4 differ slightly from the ones in the previous table because they have been computed without any correction for heteroskedasticity.

[21] *See White(1980).*



Appendix C: Producer Prices, Marginal Costs and Domestic Prices of Foreign Manufacturing Goods

We used the following specification to explain changes in the price of manufacturing output (Δp)

$$(1)\quad \Delta p = \alpha_0 + \alpha_1 \Delta mc + \alpha_2 \Delta p^* + \alpha_3 p_{-1} + \alpha_4 mc_{-1} + \alpha_5 p^*_{-1} + \varepsilon,$$

where mc describes marginal cost[22], and p* domestic price of foreign manufacturing goods. All the variables are in logarithms. In OLS estimations the error term turned out to be auto-

[22] *The marginal cost series is based on estimation and has been obtained from the database of the Bank of Finland quarterly model. It includes both domestic cost factors and import prices.*

	OLS	
Δmc	0.197	(3.22)
Δp*	0.215	(5.08)
p_{-1}	0.196	(2.39)
p_{-2}	–0.378	(–5.35)
mc_{-1}	0.180	(3.26)
p^*_{-1}	0.004	(0.24)
D71234	–0.012	(–2.31)
D73123	0.028	(5.46)
D751	0.049	(5.21)
constant	–0.004	(–0.34)
R^2	0.840	
BPG	19.12	
AR(1)	0.88	
AR(2)	1.56	
AR(3)	0.08	
AR(4)	1.54	

BPG is the Breusch–Pagan–Godfrey test for heteroskedasticity (5 % critical value 16.9) and AR(i) is an LM-test for ith order autocorrelation (5 % critical value 1.65).

correlated, but autocorrelation vanished when p_{-2} was introduced as an additional explanatory variable. Dummies were used to pick up some outlier observations. The following table report estimation results of equation over the period 1970:2–1992:4. Numbers in parentheses are t-values.

Three features of the equation stand out. First, producer prices adjust slowly. Second, roughly 20 % from changes in marginal costs and domestic price of foreign manufacturing goods are immediately passed through to manufacturing prices. Third, in the long run changes in marginal costs are passed through fully to producer prices while the effect of p* is not different from zero.[23]

Both the coefficient estimates and their t-values were also calculated. They turned out to be relatively stable.

m, n (months)	α	β	R^2	T
3, 1	0.0001	0.6779	0.010	74
	(0.024)	(1.167)		
6, 1	–0.0012	0.4786	0.013	71
	(–0.261)	(1.248)		
12, 1	–0.0043	0.4757	0.020	65
	(–0.843)	(1.539)		
6, 3	–0.0009	0.2046	0.003	71
	(–0.375)	(0.405)		
12, 3	–0.0034	0.4316	0.021	65
	(–1.063)	(1.265)		
12, 6	–0.0023	0.6651	0.023	65
	(–1.095)	(0.988)		
36, 3	–0.0130	0.7247	0.118	41
	(–3.095)	(2.165)		
60, 3	–0.0296	1.3567	0.065	17
	(–2.349)	(1.006)		

Appendix D: Inflation, Interest Rate Movements and the Term Structure of Interest Rates

It has been argued that the term structure of interest rates might contain information about the future path of inflation. To examine this empirically we adopted the following specification

$$(1) \quad \pi_t^m - \pi_t^n = \alpha_{m,n} + \beta_{m,n}(r_t^m - r_t^n) + \varepsilon_t^{m,n}$$

which will be referred as the 'inflation-change equation'. It is a regression of the change in the future m-period inflation rate from the n-period inflation rate on the 'slope' of the term structure. Tests of the statistical significance of the $\beta_{m,n}$ coefficient reveal how much information there is in the slope of the term structure about future changes in inflation. If the $\beta_{m,n}$ coefficient differs significantly from zero, then the term structure predicts future changes in inflation.[24]

The following table reports estimation results for various maturity combinations of interest rates by using monthly data from Finland after the deregulation of financial markets over the period 1988:1–1994:5. The short term interest rates to be used are one month, three month and six month HELIBOR interest rates and the long-term interest rates are three year and five year interest rates. Inflation has been measured by the change in the consumer price index. Models have been estimated by OLS. The use of overlapping observations gives rise to an autocorrelation in error term, which is why estimates of standard errors have been obtained by using the Newey-West method.[25] The column T refers to the number of observations, and the numbers in parentheses are t-statistics. According to the estimation results there is practically no evidence in Finland for the view that the term structure of interest rates predicts changes in future inflation.

Does the slope of the term structure of interest rates – the yield spread between long-term and short-term interest rates – predict future changes in interest rates? Estimation results about this issue are reported below for the maturity combinations three month HELIBOR (r^3) – three year interest rate (r^{36}) and of three

[23] *This is probably due to the fact that mc and p* are highly multicollinear in the data (correlation coefficient is .99) so that one cannot reliably estimate their separate effects.*

[24] *For more details, see e.g. Mishkin (1990).*

[25] *See Newey and West (1987).*

month HELIBOR – five year interest rate (r^{60}). The following regression models – which can be derived from the expectations theory of the term structure of interest rates[26] – are estimated

$$(2)\quad \sum_{i=1}^{11}(1-(i/12))(r^{3}_{t+3i}-r^{3}_{t+3i-3}) = \alpha + \beta(r_t^{36} - r_t^{3}) + \varepsilon_t$$

$$(3)\quad r^{36}_{t+3} - r_t^{36} = \alpha + \beta((3/33)(r_t^{36} - r_t^{3})) + \varepsilon_t$$

and

$$(4)\quad r^{60}_{t+3} - r_t^{60} = \alpha + \beta((3/57)(r_t^{60} - r_t^{3}) + \varepsilon_t$$

According to the equation (2) the term structure of interest rate predicts future changes in the short-term interest rates, while according to the equations (3) and (4) the long-term interest rate should change as a response to a change in the slope of the term structure. If the pure expectations hypothesis holds, then $\beta = 1$.

Error terms in all specifications were autocorrelated and in the case of equation (2) heteroscedastic as well. Therefore, the Newey-West correction was used. The estimation results are reported in the following table, where numbers in parentheses refer to t-values of the paramater estimates. According to the estimation results, a high yield spread forecasts rising short-term interest rates, but falling long-term interest rates. The latter observation is inconsistent with the expectations theory of the term structure of interest rates. Thus the yield spread fails to correctly predict subsequent movements in the yield on the longer-term bond, yet it does forecast short rate movements in rougly the way implied by the expectations theory (see Campbell and Shiller (1991) for very similar results with postwar U.S. data).

Equation	(2)	(3)	(4)
α	0.312	–0.11	–0.080
	(0.74)	(–0.57)	(–0.43)
β	1.444	–0.971	–1.811
	(4.58)	(–0.63)	(–0.75)
R^2	0.528	0.008	0.015
AR(1)	6.40	7.50	7.54
BPG	7.93	0.13	0.68
J–B	5.69	6.31	3.80
t-test for $\beta = 1$	1.41	–1.27	–1.17
T	44	74	74

AR(1) is the LM-test for first-order autocorrelation (5 % critical value 1.65), BPG is the Breusch–Pagan–Godfrey test for heteroscedasticity (5 % critical value 3.84) and J–B is the Jarque–Bera test for normality (5 % critical value 5.99).

[26] *For a detailed derivation, see Campbell and Shiller (1991).*

Appendix E: Required Level of the Real Exchange Rate

The usual definition of current account (CA) identity is

$$(1)\quad CA = P^xX(S,Y^*) - EP^mM(S,Y) + r^*EF,$$

where X and M denote export and import volumes, P^x and P^m are export and import volumes, E is the nominal exhange rate, $S = EP^m / P^x$ is the real exchange rate, F denotes net foreign assets, r* foreign interest rate and Y and Y* domestic and foreign output levels.

Dividing the identity through by domestic export prices P^x and differentiating gives

$$(2)\quad d(CA / P^x) = [\varepsilon_s^x X + SM(\varepsilon_s^m - 1) + r^*FS / P^m][dS / S] + \varepsilon_{y^*x}X[dY^* / Y^*] - \varepsilon_{ym}SM[dY / Y],$$

where ε_s^m, ε_s^x, ε_{y^*x} and ε_{ym} denote the elasticities of exports and imports with respect to the real exchange rate and the (foreign and domestic) activity levels.

Using the equation (2) the required change in exhange rate was estimated under the following aims of policy:

(i) the output gap is gradually closed in five years to an output level which corresponds to an unemployment rate of 10 per cent (the corresponding domestic growth rate is 5 percent)

(ii) the ratio of foreign debt to GDP is reduced from the currently prevailing 60 percent to 20, 30 or 40 per cent in five or in ten years

or

(iii) the absolute level of foreign debt is kept constant so that the foreign debt-GDP ratio is gradually reduced by the growth of GDP

The calculations were based on the following figures for the year 1994:

- total exports ca. 181 billion FIM
- total imports ca. 150 billion FIM
- GDP ca. 508 billion FIM
- rate of unemployment 18.4 %
- average growth of GDP in OECD countries in 1994 ca. 2.5 % (weighted by Finnish export shares)

The 'natural' rate of unemployment was assumed to be 10 %, and the corresponding GDP gap 15 % (using Okun's coefficient 1.5). The rate of interest for foreign debt was assumed to be 7.5 % (the ratio of foreign interest and dividend payments to average net foreign debt in 1994). The following elasticity estimates were used in the calculations: (i) $\varepsilon_s^m = 0.6$, $\varepsilon_{ym} = 0.8$, $\varepsilon_s^x = 0.8$ and $\varepsilon_{y^*x} = 1.0$, and (ii) $\varepsilon_s^m = 0.78$, $\varepsilon_{ym} = 1.0$, $\varepsilon_s^x = 3.3$ and $\varepsilon_{y^*x} = 1.0$ (from the Bank of Finland quarterly model). In the latter set of estimates the export elasticity with respect to the real exchange rate far exceeds the usual numbers (see e.g. Krugman & Obstfeld (1994), p. 478).

The following table shows estimates for the required change in the real exchange rate given the policy aim of cutting the ratio of foreign debt to GDP from the prevailing 60 percent to 20 % (or alternatively to 30 or 40 %) in five or ten years. When absolute level of the foreign debt was kept constant, the debt-GDP ratio is gradually reduced by the growth in GDP; the results are shown in the two rightmost columns of the table.

GDP growth rate in Finland / GDP growth rate abroad	Target debt/GDP ratio	Required change in the real exchange rate					
		when the target is to be attained in				when the absolute level of foreign debt is kept constant	
		five years		ten years			
		(i)	(ii)	(i)	(ii)	(i)	(ii)
5 %							
2 %	20 %	38 %	7 %	19 %	4 %	2 %	1 %
	30 %	27 %	5 %	13 %	3 %		
	40 %	17 %	3 %	8 %	2 %		
5 %							
3 %	20 %	36 %	7 %	17 %	3 %	1 %	0 %
	30 %	26 %	5 %	12 %	2 %		
	40 %	15 %	3 %	6 %	1 %		
5 %							
4 %	20 %	34 %	7 %	16 %	3 %	–1 %	0 %
	30 %	24 %	5 %	11 %	2 %		
	40 %	14 %	3 %	4 %	1 %		