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The Effects of EMU on the Finnish Economy: Some Early Conjectures*

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Abstract: This paper analyses the convergence of the Finnish economy to the monetary policy regime of the EMU. We review the expectations on the effects of EMU membership which prevailed before the union was established, and compare those with actual outcomes for Finland in the first years of the EMU. It seems that the *de facto* membership in the new policy regime, began approximately at the beginning of 1997. The significant improvement of some traditional structural imbalances of the Finnish economy is reported. It is argued that the improvement of monetary policy credibility can explain much of the improved performance of the economy.

I INTRODUCTION

The purpose of this paper is to study the possible effects of EMU membership on the Finnish economy and economic policy. In particular, we want to consider to what extent prior expectations regarding these effects were corroborated by later developments. The paper considers the question, when EMU membership began to influence the performance of the Finnish economy. Moreover, I review the hopes and expectations which were held about the membership. Finally, the actual developments since monetary integration are summarised and interpreted.

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At the time of writing this paper, the third stage of EMU, with common monetary policy, is three years old, and so is Finland's membership in it. As such, this is too short a time to allow any firm conclusions on the effects of the monetary union on the Finnish economy. However, I will argue that by late-2001, we already have almost five years of experience of the effects of a common monetary policy on the Finnish economy. This makes it possible to compare, tentatively at least, predictions made before the membership to the later developments and to present some empirically based conjectures about their relevance and accuracy.

Our preliminary review of the developments suggests that the microeconomic and structural effects of the EMU membership have been particularly strong. EMU appears to have increased the efficiency and openness of the enterprise sector of the economy, and to have improved the general stability of the whole economy in the process. This may be at least partly due to an improvement in the credibility of monetary policy, compared to Finnish historical experience.

II WHAT WAS EXPECTED OF THE FINNISH EMU MEMBERSHIP?

It is generally agreed that the Finnish decision to join the monetary union was not motivated by economic considerations alone. Political motives had an important role as well. An important one was to maximise the country's political presence and influence in Europe, if possible. The country wanted to be part of the "inner circle" of European Union, if that kind of club were to emerge inside the EU. Economic considerations were also quite important, however. They reflected frustration with the country's economic instability in the previous decades, as well as the experience of the severe economic crisis, which Finland experienced in the early 1990s.

The contemporary discussion indicates that EMU membership was seen to involve both economic benefits and some risks. An official Ministry of Finance report of September 1996, written just before Finland joined EU's exchange rate mechanism (ERM), is representative of the thinking in policy circles at the time (Ministry of Finance, 1996). A more thorough discussion is found in the report of the expert group commissioned by the Prime Minister and chaired by Dr Jukka Pekkarinen (Finland and EMU, 1997). This report was submitted in April 1997. Both of these reports are broadly similar in their analysis of the most important effects of the prospective membership, and they summarise well the "mainstream view" which prevailed in Finland at the time. Important outside influences to the Finnish policy debate were also the report of the Swedish official EMU committee (SOU, 1996), as well as the "One

Market, One Money" report published by the European Commission in 1990. However, for our purposes the outside reports are mainly important only because they facilitate the interpretation of the Finnish discussion.

The expected effects, according to these above mentioned Finnish policy reports, can be summarised as follows.

2.1. Macroeconomic Benefits Resulting from Improved Credibility of Monetary Policy

Finnish monetary policy had traditionally suffered from lack of credibility. This had caused recurrent balance of payments problems and created large risk premiums in market interest rates. Not only nominal, but also real interest rates had been higher on average than in Germany, for example. It was anticipated that in EMU, the credibility of monetary policy would probably be better than what Finland had been able to achieve in the past. Therefore, it was expected that the rates of interest, especially long-term rates, would be lower in Finland if the country would join the monetary union. Lower and more stable long-term interest rates would in turn increase investment and have a positive effect on economic growth.

Monetary union was also predicted to be conducive to wage moderation, because better credibility implies lower inflation expectations and therefore smaller "inflation premiums" in wage contracts. This would reduce cost-push inflation in the economy and improve competitiveness and employment. This was also a very attractive prospect because part of the traditional Finnish instability problem had been the gradual deterioration of the country's competitiveness as a result of high wage increases. Incomes policy, which had been used to combat this problem for decades, had not been completely successful and the exchange rate had had to be devalued from time to time to restore competitiveness.

2.2. Macroeconomic Effects of Giving Up Independent Monetary Policy

The shift from national to common monetary policy invokes the well-known problem of asymmetric shocks: if the member countries do not constitute an optimum currency area, common monetary policy cannot be expected to react to the shocks they face as effectively as national monetary policies could. To the extent that national monetary policies or exchange rate movements do in fact facilitate adjustment to asymmetric (i.e. country-specific) shocks, a country may have to face more severe economic fluctuations if it forsakes its national currency.

This problem was discussed extensively in Finland when the country was preparing for membership in the monetary union. Both of the above mentioned reports noted that, judging on the basis of historical experience, Finland and the rest of the EU did not fulfil the criteria for an optimum currency area particularly well (see also Tarkka and Akerholm, 1993). Therefore, the difficulty of adjusting to asymmetric shocks without national money was considered as the main risk in the EMU membership. However, it was also noted that having a separate exchange rate was not only an adjustment mechanism but also a source of speculative disturbances, and this source of shocks at least would be eliminated in EMU.

Both of the Finnish policy reports attached some weight to the argument that a more counter-cyclical fiscal policy could at least partly compensate for the loss of independent monetary policy. They also argued that the effects of fiscal policy on economic activity would be stronger in the monetary union than on the outside. This would be the case because there would be no crowding out effects through interest rate or balance-of-payments reactions to the fiscal balance. It was noted, however, that smoothing economic fluctuations by fiscal policy required very strong public finances on average, in the spirit of the later Stability and Growth Pact.

Finally, regarding the asymmetric nature of cyclical fluctuations, it was pointed out that the correlation of the business cycles was not invariant to the monetary arrangements between countries. So, if Finland would join the monetary union, its economic fluctuations might become more correlated with the other member countries.

2.3. Structural Effects and Efficiency Benefits from a Single Currency

Joining the common currency was generally predicted to reduce transaction costs and increase competition. It would, therefore, make Finland better integrated to the European single market. It was predicted to give firms, households, and governments access to deeper and more efficient financial markets. These changes were believed to accelerate structural change in the production sector and in financial services. Scope for international diversification of portfolios would increase. Ultimately, these changes were thought to mean cost savings and higher productivity growth. The openness of the economy would naturally increase.

Other microeconomic and "structural" effects were also predicted to result from joining the monetary union. In the Finnish discussion, adopting the common currency was often described as "giving up the option to devalue". This was seen as a serious challenge, since in the past, large devaluations had repeatedly been necessary. The country had resorted to large devaluations of its currency in 1957, 1967, 1977-78, 1982, and 1991, not to mention the floating of the currency in 1992.

It was argued that coping with future economic recessions without "the option to devalue" would require more effective cost control in the economy than before, more flexible labour markets, and stronger capital positions than before for firms and financial institutions.

On the other hand, the loss of the "devaluation option" was seen to be potentially beneficial. There existed a long-standing criticism among Finnish economists of the "devaluation-inflation cycle" which had been embedded into expectations and in the behaviour of firms and labour unions alike. Far from being neutral in terms of the real economy, it was argued, the accommodative exchange rate policy encouraged inefficient industrial investment because devaluations in recessions shifted the downside of the firms' profit uncertainty to their creditors and workers. All in all, it was believed to have introduced powerful moral hazard effects into the investment decisions of export industries, in particular. The critics blamed this aspect of the traditional Finnish economic policy for many of the structural problems the country had suffered from, such as high investment rates relative to growth, and the chronic weakness of the current account. It was believed that giving up the option to devalue would make the economy much more efficient, especially in its use of capital investment (see e.g. Pekkarinen and Vartiainen, 1993).

This argument, which had been present in the policy debate in various forms since the 1970s, suffered a temporary setback at least in the beginning of the 1990s. At that time, the efforts of the Bank of Finland to maintain a fixed parity between the markka and the ECU failed as a result of a severe economic crisis and ended in a devaluation in November 1991, and floating of the currency in September 1992. The attempts to focus monetary policy directly on the exchange rate were abandoned and an inflation targeting regime was adopted instead (in February 1993).

III POLICY CONVERGENCE BEFORE 1999

Before starting to search for evidence of the effects of the EMU membership from time series data, one must ask when these effects might have begun to materialise. "After the country joined the EMU" is not a good answer, because expectations of joining in the common currency influenced monetary policy and private behaviour already some time before membership was realised.

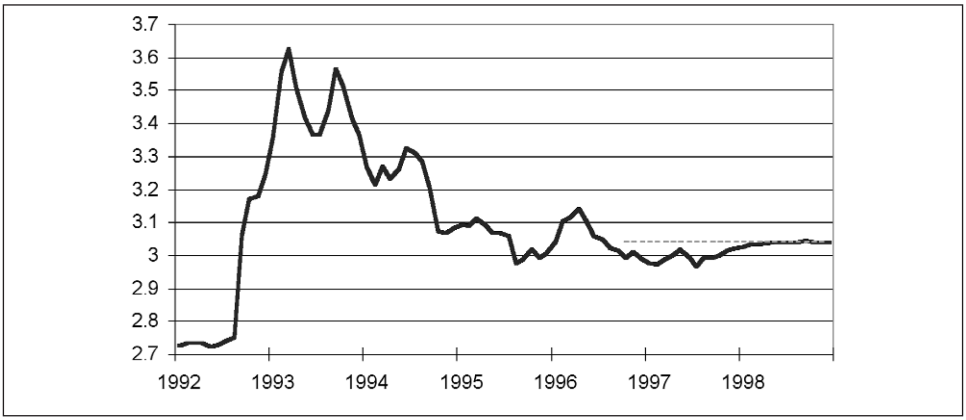
Officially, Finland became a member of the third stage of EMU on January 1, 1999 when the union became a reality in the sense of permanently locked exchange rates and single monetary policy. The effects of monetary integration did not begin as late as that, however. In reality, Finnish monetary policy converged almost completely with Germany and the other "core" countries of the emerging monetary union already in the preceding years. This convergence was actually strong enough so that there were no significant changes in interest rates, exchange rates, or other indicators of monetary conditions when the monetary union was finally completed. At least in terms of monetary policy, then, the beginning of the third stage of the EMU on January 1, 1999 was merely a seal on a process that had in fact taken place already some time before that.

Finland joined the EU from the beginning of 1995. At that time, the Finnish markka was floating after a severe economic crisis, which had hit the country in 1991. Monetary policy aimed at the domestic inflation target (which was defined as an upper limit of 2 per cent on a measure of underlying inflation), so that in principle the monetary regime of the country was quite independent of its EU partners. The new government, which was formed after the general elections held in March 1995, proclaimed in its programme that its goal was to prepare Finland to join the EMU in the first group of countries doing so. This goal implied that stability of the exchange rate *vis-à-vis* the future EMU partner countries was desirable in itself. In theory, there might have been a trade-off between exchange rate stability and achieving the inflation target, but this turned out not to be the case in practice. The exchange rate *vis-à-vis* the deutschmark, which had been quite volatile in the previous years, was stabilised to a great extent after the beginning of 1995, while the inflation target was also achieved (i.e. the underlying inflation rate was kept well below the announced target.).

The strengthening of the markka in the two years preceding 1995 is very remarkable (Figure 1). However, that has to be seen against the background of the drastic depreciation which occurred in 1991 and 1992, and the very low credibility of monetary and fiscal policies which prevailed at that time. As the credibility of macroeconomic policies started to improve in 1993 and the following years, that was reflected in the exchange rate. The most important ingredients in the improvement of credibility were the Central Bank's inflation target, instituted in the Spring of 1993, and the medium-term budget consolidation programmes which also were committed at that time. A third important element was the increasing likelihood of the Finnish EU and EMU membership over the same period. By 1995, the markka exchange rate *vis-à-vis* the deutschmark had converged to a level which – some transitory fluctuations notwithstanding – later proved sustainable and consistent with non-inflationary growth.

The decisive year for monetary convergence of Finland with its future EMU partners was 1996. During that year, monetary policy interest rates were brought very close to those of Germany and the other "core" countries, and no marked divergence of rates occurred thereafter. In October 1996 Finland joined the exchange rate mechanism (ERM). After that, exchange rate fluctuations *vis-à-vis* the deutschmark diminished further to the extent that they became quite unimportant from the macroeconomic point of view, although the ERM agreement would have allowed rather wide fluctuations, in principle (up to ±15 per cent). By the end of 1997, exchange rate movements *vis-à-vis* the deutschmark had virtually ended.

Figure 1: *FIM/DEM Exchange Rate*



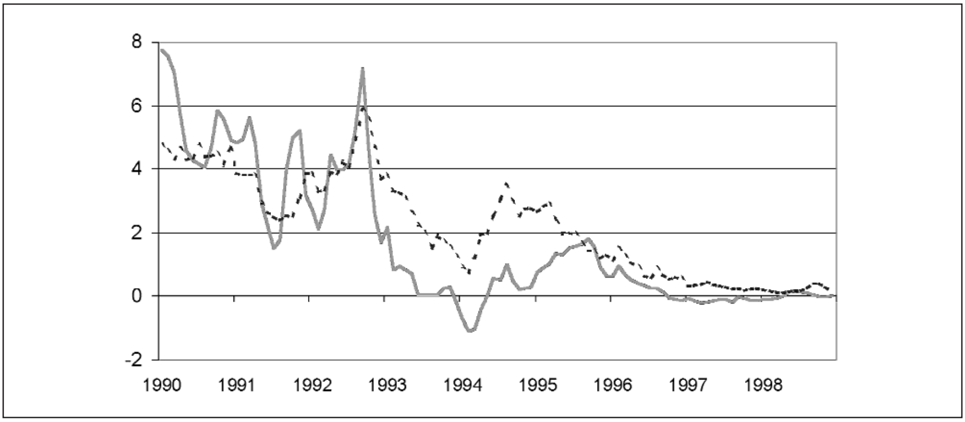
Note: monthly ERM central rate

Source: Bank of Finland

As a result of these developments, Finnish monetary policy could be considered as practically "harmonised", both in terms of interest rate convergence and exchange rate stability, by late 1996. However, a *de facto* membership in a monetary union does not consist only of the harmonisation of actual policies, but also the adjustment of market expectations to the fact that policy will remain harmonised also in the future. One can evaluate the degree of this confidence by looking at two indicators, the long-term interest rates, and the foreign exchange interventions required to keep the exchange rate stable.

The yield differential of Finnish 10-year bonds *vis-à-vis* their German counterparts declined strongly in 1996, and by the beginning of 1997 it was below 40 basis points, i.e. no larger than the yield differentials later recorded for some countries inside the EMU (Figure 2). Developments in the foreign exchange markets also suggest that the beginning of 1997 was a watershed for the market expectations. In the third week of January 1997, the last attack on the Finnish exchange rate took place. This was an "inward" attack: foreign investors bought very large amounts of the Finnish markka, speculating on a possible appreciation of the currency. After quite large interventions by the Bank of Finland, the market calmed down, however. In fact, after January 1997 there were no signs of any lack of confidence on the future entry of Finland to the EMU, at the prevailing parity *vis-à-vis* the deutschmark.

Figure 2: *Finnish Interest Rate Differential over Germany*



Note: Absolute difference in interest rates in percentage points.
3 months rate — — — 10 year rate
Source: Reuters.

We can, therefore, conclude that most of the impact of EMU on private behaviour was probably felt already in the beginning of 1997, and that point of time is likely to be a good benchmark against which to gauge the development of various economic indicators.

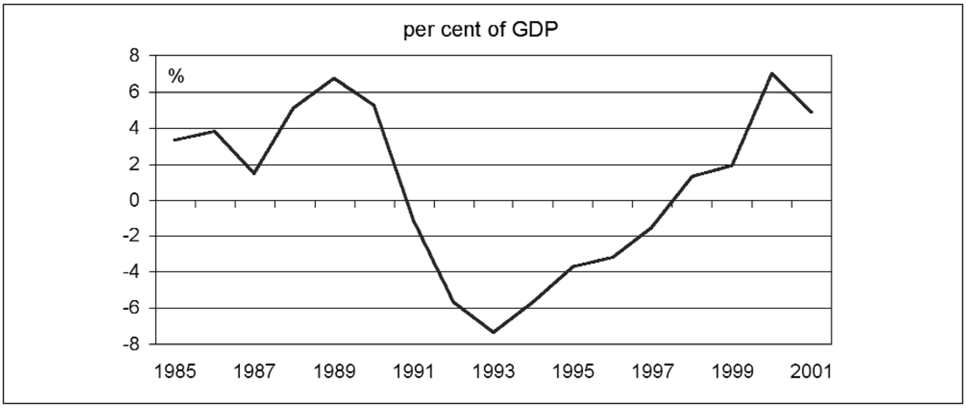
IV WHAT REALLY HAPPENED?

We can now try and look at the data in order to see how well expectations of the effects of EMU membership are beginning to materialise. I will present some selective evidence of this in the same order in which I discussed the expectations.

Turning first to credibility of monetary policy, it seems that the promise of lower interest rates has indeed become a reality. The significant improvement in the general government financial position (see Figure 3) could offer an alternative explanation, but real interest differentials were high also in the

1980s when the government debt was quite small. This supports the conclusion that credibility of monetary policy has indeed improved from the Finnish perspective.

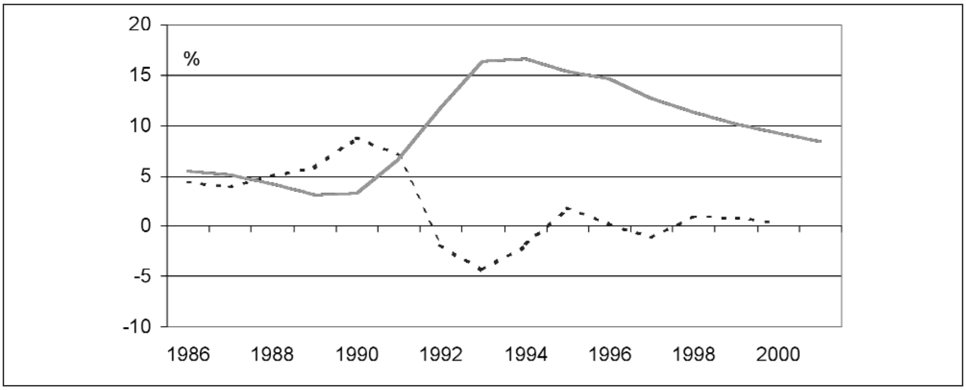
Figure 3: *General Government Deficit/Surplus*



Note: Maastricht definition.
Source: Statistics Finland.

Wage moderation too has been remarkably good, in terms of the profitability and external competitiveness of the economy. Real wages have increased by less than productivity. On the other hand, unemployment has remained high, so by that standard, the performance of the labour markets has not been so favourable (see Figure 4).

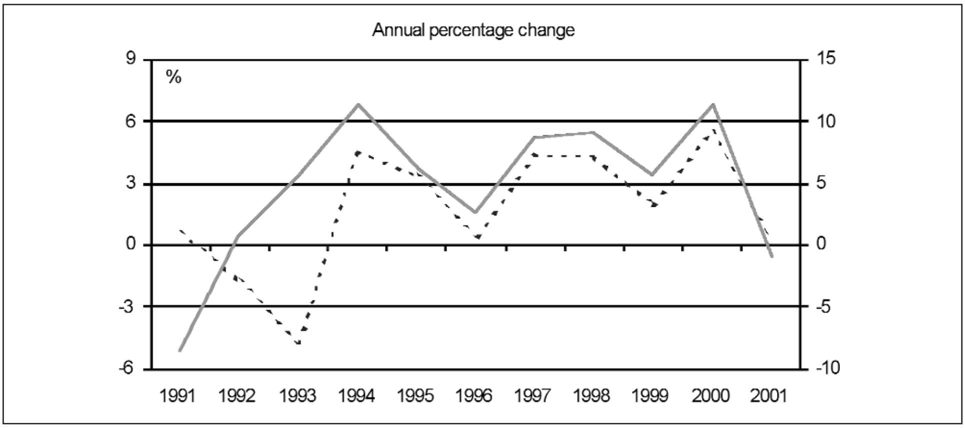
Figure 4: *Labour Market Performance*



Note: —— Unit labour costs annual, per cent.
- - - Unemployment rate, per cent, year average.
Source: Statistics Finland.

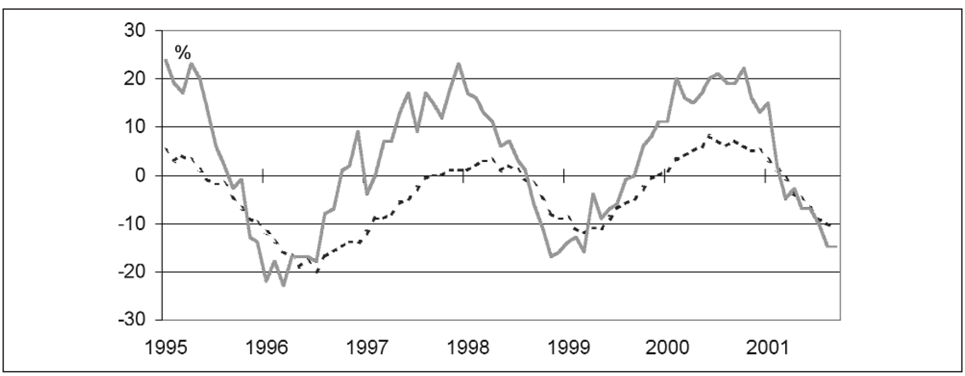
Considering the question of asymmetric shocks next, it is the general impression that Finland has experienced a very powerful asymmetric shock in the period since late 1996. This has taken the form of an IT boom, which has been much stronger in Finland than in the Euro area on average. As a result, Finnish GDP growth has exceeded the growth performance of all its EMU partners with the exception of Ireland. On the other hand, the rhythm of the fluctuations in industry has become remarkably similar to the Euro area average. This is evident both in the index of industrial production (Figure 5) and especially in the industrial confidence indicator compiled by the European Commission (Figure 6).

Figure 5: *Industrial Production*



Note: Euro area, left scale — Finland, right scale
Source: Statistics Finland.

Figure 6: *Industrial Confidence Indicator*



Note: Euro area — Finland
Source: European Commission.

Of course, the seriousness of the problem of asymmetric shocks is ultimately tested in a recession. After growing very fast for several years, the Finnish economy moved to a recession in 2001. It is naturally too early to say with certainty, however, how the economy will weather the recession as a member of the monetary union.

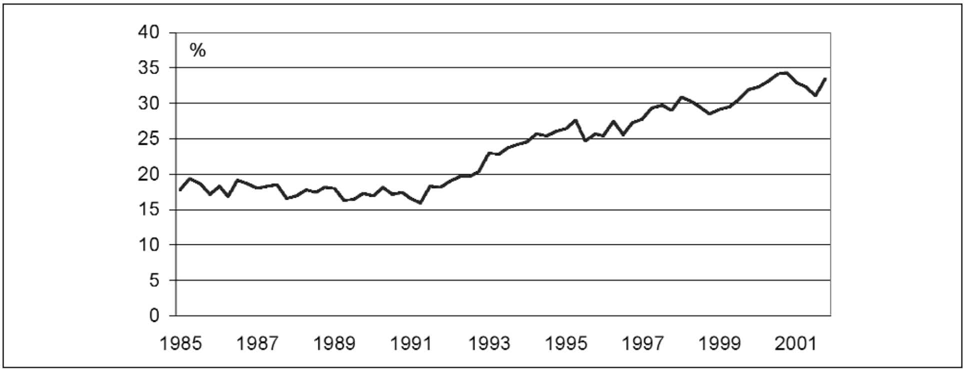
Fiscal policy doctrine does not seem to have changed into more "Keynesian" in the sense of being geared towards smoothing aggregate economic fluctuations although this was sometimes anticipated or even advocated in the pre EMU debate. It is true that the government financial surplus has been exceptionally high after the EMU membership but this is probably more due to the recognised need to prepare for the future increase in pension outlays, which are only partly funded, than to any discretionary attempts to fine-tune the economy by demand management. According to forecasts, the Finnish population will be ageing faster in the next couple of decades than that of most other European countries. Even the direct impact of the Stability and Growth Pact on fiscal policy was probably limited, because the government surpluses were so large that there seemed to be little probability of the Pact really binding Finnish fiscal policy in the foreseeable future. Also, the medium-term fiscal programmes had been fairly ambitious in terms of debt reduction already since 1993, even though the Stability and Growth Pact was not in existence at that time (it was agreed in the Amsterdam council in 1997).

Having considered these "macroeconomic" effects of the monetary union, we can now turn to consider what were classified above as "structural" and microeconomic effects.

One expected development which seems not to have happened is the general acceleration in the growth of labour productivity. Labour productivity has been growing, but at rates close to historical average. However, a dramatic acceleration in it has occurred in recent years in some parts of manufacturing industry, particularly electronics (see Forsman, 2000 and Jalava, 2001 for details).

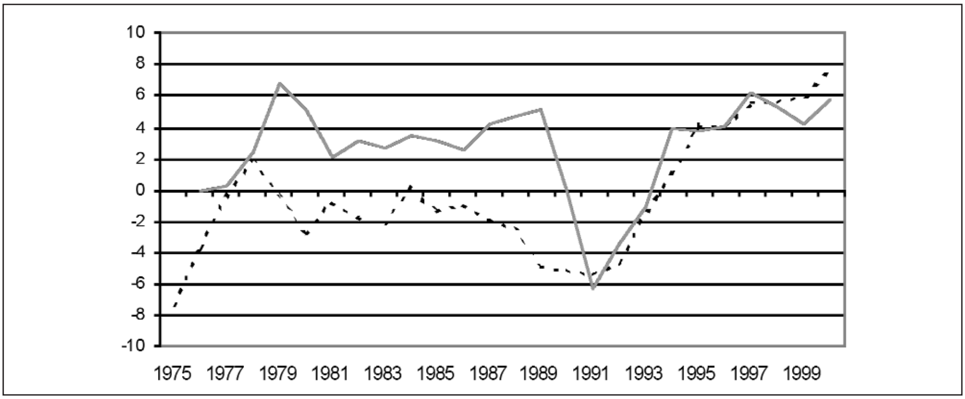
One significant development has been the increase in the openness of the economy (Figure 7). This has taken place at several levels. The share of exports in GDP has increased, but the change has been especially dramatic in the financial markets. Capital account developments since the beginning of 1997 indicate very rapid internationalisation on the Finnish capital markets. The most significant phenomena in the structure of external capital flows over the period 1997-2001 have been the very rapid growth of outward portfolio investments and direct investment especially after the EMU membership was completed in 1999. This has been possible since the country has been running very large current account surpluses since 1995. The improvement of the current account is all the more significant, since Finland had never had large current account surpluses since the markka became a convertible currency in 1958. Moreover, the surpluses have been recorded at a time when economic growth is fast; previously, periods of fast economic growth had typically been associated with large external deficits.

Figure 7: *Openness of the Economy: Exports/GDP, Per Cent*



Note: Quarterly data.
Source: Statistics Finland.

Figure 8: *Growth and the Current Account*



Note: Annual data.
– – – Current account balance/GDP, % ——— GDP, % change
Source: Statistics Finland and Bank of Finland.

The increase in foreign direct investment has coincided with a sharp improvement in the profitability of export industries and a decline in their domestic fixed investment (in relation to their value added). The period has also seen the emergence of Finnish multinational companies in an unprecedented scale, led by Nokia, the mobile phone manufacturer (for more details on the recently very important role of the ICT sector in the Finnish economy, see e.g. Forsman (2000)). Much of the Finnish FDI abroad has been in the form of takeovers (especially in forest industries) whereas in the telecommunication equipment there has also been a lot of greenfield investment. At the same time as Finnish investment abroad has grown remarkably, foreign participation in the Finnish stock market has reached unprecedented proportions. Foreign residents owned over 70 per cent of the total market capitalisation of the Helsinki Exchanges in the beginning of 2001.

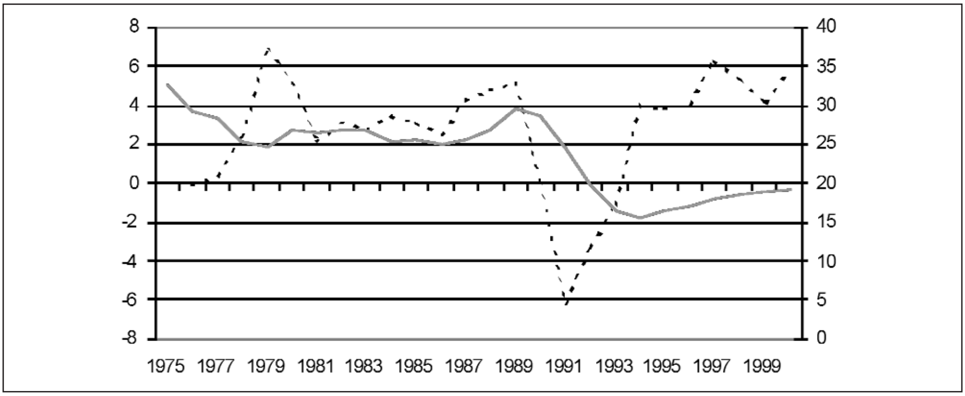
However, this internationalisation of the capital market cannot be directly accounted for by Finland's EMU membership. A large part of the foreign ownership of Finnish shares is by investors who are not Euro area residents; also the foreign direct investment is to a large extent to non-EMU countries. The component most significantly influenced by the EMU membership is the foreign portfolio investment by Finnish pension funds. The funds have been running exceptionally large surpluses in the last years (in the order of 3 per cent of GDP). The increase in the foreign security portfolios of the pension funds has been much larger than their surpluses, however, indicating the efforts of the funds to diversify their portfolios under EMU. Before the EMU membership, prudential restrictions which limit the ability of pension funds to invest in foreign currency denominated assets severely limited their diversification possibilities.

The historically unique improvement of the current account position of the Finnish economy (see Figure 8) has been associated with another parallel development: a dramatic decrease in the ratio of investment to GDP (Figure 9). Considering the very high growth rates, which have been achieved concurrently with the decrease in the investment ratio, it appears that the productivity of fixed capital has improved significantly. An interesting aspect of this is that the investment rate has remained low even though real interest rates have declined markedly after Finland's convergence to the stability oriented monetary policy regime.

At the same time as investment rate has declined and the outward direct investment has increased in the Finnish enterprise sector, a third important change has also taken place. The indebtedness of enterprises has been reduced. This is evident from the fact that the debt-equity ratio of 500 largest Finnish firms has declined from about 300 per cent to little over 100 per cent by the latter half of the 1990s (Figure 10).

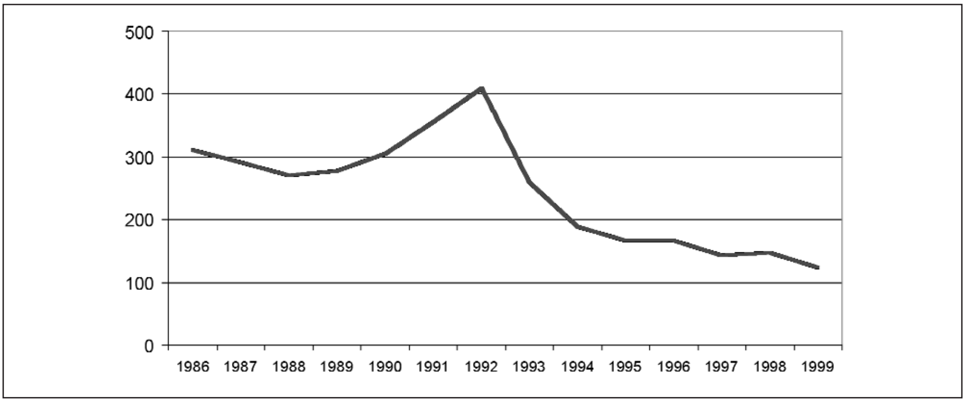
One possible explanation of these structural changes – improved efficiency of investment, improvement in the external balance of the economy, and improvement in the capital adequacy of the enterprises is that the previous monetary policy regime indeed caused some significant moral hazard problems to industry. EMU may have alleviated these, and this hypothesis is supported by the evidence on long-term real rates which suggests that the credibility of monetary policy has indeed improved.

Figure 9: *Growth and the Investment Rate*



Note: Annual data.
GDP, % change — Fixed investment/GDP, % (right scale)
Source: Statistics Finland.

Figure 10: *Debt–Equity Ratio of Large Finnish Firms, Per Cent*



Note: Computed from the published balance sheets of 500 largest non-financial companies. Database maintained by ETLA, Helsinki.

V CONCLUDING COMMENTS

Before trying to reach any even tentative conclusions about the effects of EMU on the Finnish economy, some caveats are in place. There are many reasons why its is very difficult to disentangle the effects of giving up national monetary policy and joining the EMU from the economic developments in Finland since 1997 or 1999. This is because a number of other factors besides the monetary union have influenced the economy over the period in question.

One reason is that when Finland joined the EMU, the country had just recovered from a very severe economic and financial crisis, which had changed the structure of the economy in several ways. Therefore, the effects of the EMU membership are mixed and intertwined with the effects of the crisis, such as the large depreciation of the currency, a sudden increase of government debt, emergence of severe unemployment, and large reorganisations in Finnish banking and industry in the form of domestic and international mergers and acquisitions as well as privatisations.

Another factor, which makes it difficult to isolate the effects of EMU, is the huge and contemporaneous impact of the "new economy" in Finland. Since 1997, the Finnish economic performance has been dominated by the exceptional growth of the high-tech electronics industry in the country. Much of the phenomenon has been due to the success of a single firm, Nokia, which by the end of the 1990s emerged as the world's largest producer of mobile phones (see Forsman, 2000). Because the ICT boom of the late 1990s was so strong in Finland, and because it coincided with the convergence of monetary policy to EMU, the effects of the new monetary regime are hard to distinguish from technology-related changes in the economy.

Yet another non-monetary reason why the economy has changed in the 1990s is Finland's EU membership as such. Finland joined the EU from the beginning of 1995, and this may have altered the behaviour of the economy in ways, which coincide with, but are not directly caused by the EMU membership. For example, joining the Common Agricultural Policy was a change that may have altered the inflation dynamics of the Finnish economy to a significant extent. Under national agricultural policy, which was characterised by even higher protection than that of the EU, consumer prices of foodstuffs were more sensitive to domestic costs than is the case in the common market. Joining the common agricultural policy did therefore probably weaken the mechanisms, which had previously fed the "price-cost spiral" in Finland. Perhaps even more importantly, the Single Market programme in itself may have had a positive effect on the ability of Finnish firms to gain market shares in the larger EU countries.

After all these caveats and reservations, one can make some preliminary conjectures at least. It seems that joining the EMU has indeed improved the credibility of monetary policy. In so far as the traditional Finnish problem of inflationary pressure and eroding competitiveness has been due to insufficient credibility of monetary policy, the outlook for price stability and competitiveness should be better than the inflation history of the country has been. So far, the record is encouraging. The Finnish inflation rate, which was brought under control during the inflation targeting regime before the EMU membership, has not deviated too much from the EMU average after 1999, even though there was some divergence in 2000. In this connection its should be noted that simple cross-country comparisons of headline inflation rates (or even the "harmonised" concepts) cannot be relied on to indicate whether an EMU member has an idiosyncratic inflation problem or not. Because of the Balassa-Samuelson effect, the convergence of inflation rates must be considered against the background of productivity differentials. The exceptionally high productivity increases achieved in the Finnish manufacturing sector in the 1990s suggest that inflation differentials may be very poor indicators of changes in the competitive position of the Finnish economy, especially when the years of the ICT boom are considered.

Although much of the debate before joining revolved around the problem of asymmetric shocks, our preliminary review of the developments suggests that the microeconomic and structural effects of the EMU membership may have been more important. Thus, the problems of asymmetric fluctuations have not been at the forefront in Finnish economic policy, whereas the structural change has been dramatic. EMU appears to have increased the efficiency and openness of the enterprise sector of the economy, and to have improved the general stability of the whole economy in the process. As a result of that, and also because of the structural surplus which has prevailed in general government finances, the EMU has not posed any particular challenges for Finnish fiscal policy either: there has been no serious temptation to activate Keynesian-type discretionary policies, nor has the Stability and Growth Pact had any constraining effect on the stance of fiscal policy. This is not to say that the Pact has had no effect. It has re-enforced the political commitment to sound finances in the country – and should also safeguard the country against monetary instability which might otherwise emanate from the other member countries if they were not following sustainable fiscal policies.

All in all, the Finnish EMU membership seems in its first years to have fulfilled most of its promises and avoided most of the risks. The structural effects appear to have been favourable, as predicted, and there is no evidence that the stability properties of the economy should have become worse, rather the opposite. Clearly, however, more time has to pass and the performance of the economy over a full economic cycle has to be observed before any definite conclusions on these issues can be attempted.

REFERENCES

DIRECTORATE-GENERAL FOR ECONOMIC AND FINANCIAL AFFAIRS, 1990. "One Market, One Money", *European Economy*, No. 44, October.

FINLAND and EMU, 1997. Publications of the Prime Minister's office 1997/26, Helsinki.

FORSMAN, PENTTI, 2000. "The Electronic Equipment Industry and Finland's Transformation into a High-Tech Economy," *Bank of Finland Bulletin*, Vol. 74, No. 3.

JALAVA, JUKKA, 2001. New Economy in Finland. *Bank of Finland Bulletin*, Vol. 75, No. 2.

MINISTRY OF FINANCE, 1996. Euroopan rahaliitto ja Suomi. Valtiovarainministeriö, Helsinki.

PEKKARINEN, JUKKA and VARTIAINEN, JUHANA, 1993. Suomen talouspolitiikan pitkä linja. WSOY, Juva.

SOU, 1996. Sverige och EMU. Betänkande av EMU-utredningen. Statens offentliga utredningar, 158. Finansdepartementet, Stockholm.

TARKKA, JUHA and AKERHOLM, JOHNNY, 1993. "Fiscal federalism and European monetary integration", in S. Honkapohja and M. Ingberg (eds.), *Macroeconomic Modelling and Policy Implications, Contributions to Economic Analysis*, Vol. 216, Amsterdam: North-Holland.