BANK OF FINLAND BULLETIN

2000 • Vol. 74 No. 1

- Monetary policy and economic outlook
- Current situation in the Finnish housing market
- The value of publishing official central bank forecasts
- The new competitiveness indicators compiled by the Bank of Finland

BANK OF FINLAND BULLETIN

Contents

Vol. 74 No. 1/2000

Bank of Finland Bulletin is a quarterly publication.

Publisher
Suomen Pankki • Bank of Finland

Edited
by the Bank of Finland´s
Publication and Language Services

Mailing address:
P.O.Box 160,
FIN-00101 HELSINKI

Phone:
National (09) 1831
International + 358 9 1831

E-mail:
Internet: publications@bof.fi

Telex: 121224 SPFBFI
Fax: + 358 9 174872
Cable: SUOMENPANKKI

Printed by Sävypaino,
Espoo 2000

ISSN 0784-6509 (print)
ISSN 1456-5870 (online)

The Bank of Finland Bulletin is posted on our website (http://www.bof.fi/)

Monetary policy and economic outlook

The growth prospects for the global economy are good. Activity in the euro area has picked up and growth differentials between countries have narrowed. However, this has been accompanied by a stronger-than-expected increase in the rate of euro area inflation. The rise in inflation will probably be only transitory, provided there is no further increase in energy prices and the effects of the price rise on other prices in the economy are small. The ultimate outcome of this spring's pay settlements is crucial in this regard. A sharp downturn in the US economy remains a major downside risk to the favourable world economic outlook.

The growth of the Finnish economy slowed in the course of 1999 but has started to pick up again. Growth has become more broadly based along with the recovery in exports. Inflation has risen, as in the euro area in general. The pay settlements agreed this spring provide for fairly large wage increases in relation to estimated developments in productivity. Moderate increases would be better from the point of view of employment and output growth.

The large surplus in central government finances is important both as regards reducing central government debt and securing balanced growth. The surplus is nevertheless based on a high tax burden, which limits employment and output growth. If growth is to be ensured in the future, there must be a marked reduction in the tax wedge.

The world economy is growing strongly

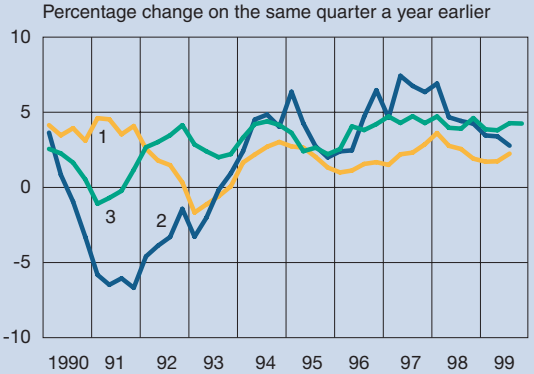
Global economic developments have been favourable in recent months, and the outlook has improved further. In particular, the US economy continued to grow at a stronger pace than expected in the last quarter of 1999 (Chart 1). Growth was driven mainly by robust consumer demand. Consumer confidence was boosted by, among other things, a strong rise in equity prices and a sharp increase in the number of jobs in manufacturing. Growth is expected to remain robust in the early part of this year. Besides private consumption, growth will be underpinned by a positive contribution from stockbuilding. As a result of stronger-than-expected demand, firms' stocks have fallen below desired levels, and firms are expected to start rebuilding them in the months ahead.

Growth has also been strong recently in many countries in Asia and Latin America. There is still some uncertainty about the state of the Japanese economy, however. Preliminary estimates of GDP growth for the final months of 1999 are noticeably lower than expected in the autumn, but indicators

Chart 1.

Real GDP growth

Percentage change on the same quarter a year earlier



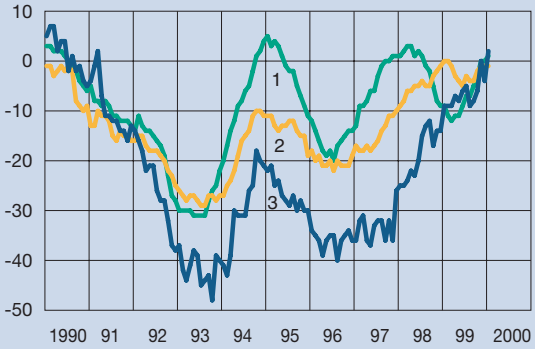
1. Euro area
2. Finland
3. United States

Sources: Eurostat and Statistics Finland.

Chart 2.

Confidence indicators for the euro area

Percentage balance



1. Industrial confidence indicator
2. Consumer confidence indicator
3. Construction confidence indicator

Source: Bloomberg.

point to a continuation of the recovery, and stock markets are upbeat about future developments.

Overall, the world economy is expected to continue to grow strongly in 2000. According to the IMF's October World Economic Outlook, world activity is projected to grow by 3½% in 2000, compared with 3% in 1999. Forecasts have been generally revised up during the winter. It is quite possible that world economic growth in 1999 and 2000 will turn out to be slightly faster than forecast by the IMF in October. This reflects particularly the continuation of the stronger-than-expected growth of the US economy.

There has been hardly any change in recent months in the balance of risks surrounding the world economic outlook. The major risk remains the possibility of a sharp fall in asset prices, especially equity values, and an associated marked slowdown in the growth of domestic demand in the United States. This risk may have increased, as especially prices of high-technology stocks have continued to rise. The large US current account deficit illustrates the risks attached to economic developments in the United States. But against this, the general recovery in world economic activity has reduced the impact that a substantial slowdown in the US economy would have on economic growth in the rest of the world.

World oil prices have remained at a high level since the latter part of 1999 and at the same time prices of many other commodities have risen. Underlying the rise in oil and other commodity prices are OPEC's production cutbacks and the improved growth prospects for the global economy. The rise in prices has already had an impact on the general level of consumer prices in industrial countries, and the risks of a further increase in inflation have increased. The general strengthening of growth has also heightened inflation risks. Reflecting this, monetary policy has been tightened in the euro area and in, for example, the United States, the United Kingdom and Sweden.

Growth has picked up in the euro area

Activity in the euro area picked up notably towards the end of 1999. After rather weak growth in the first half of the year, exports were boosted by the general recovery in world economic growth and the depreciation of the euro. Strong investment activity and continuing fairly rapid growth of private consumption also contributed to euro area growth.

Growth differentials between euro area countries were large in the early part of 1999, but narrowed towards the end of the year as activity picked up in the countries that had previously been growing slowly. The recovery in exports made a significant contribution to growth in Italy, for example. Growth in Germany in 1999 seems to have been considerably slower than the euro area average. This was due in large part to the weak growth of the German economy in the first half of the year. Latest available data and indicators nevertheless suggest that activity in Germany picked up substantially in the latter part of the year.

Growth in the euro area is expected to be fairly robust in 2000. Survey data showing that industrial confidence has improved and that consumer confidence remains strong, easy monetary conditions and the recovery in export demand all point to a pick-up in the pace of growth (Chart 2). If the euro's effective exchange rate stays at its current level, which is almost 15% weaker than the average for the 1990s, export volumes can be expected to expand rapidly in the near term. As the pace of activity gains momentum, the demand for labour is likely to increase and thus boost employment growth.

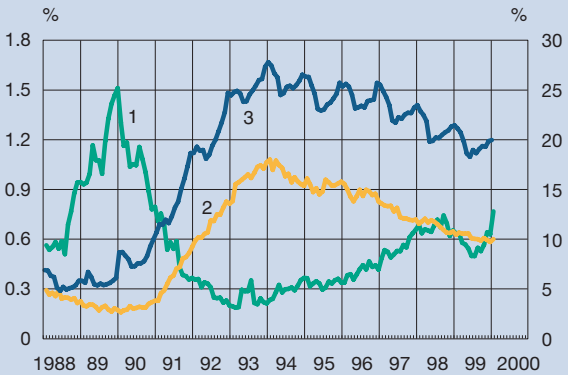
Practically no change in the structural deficit in euro area public finances

According to preliminary figures for 1999, the general government deficit in the euro area as a whole fell by about half a percentage point from the previous year to 1½% of GDP. This is slightly more than foreseen in the stability programmes published by euro area countries in late 1998 and early 1999. The decline was due to a reduction in interest payments and the pick-up in the rate of growth. The decline in interest payments was a result of a fall in the average interest rate on government debt and a slight reduction in outstanding debt. Tax receipts were boosted by an increase in household income and private consumption and firms' good financial performance. Faster economic growth led to a fall in unemployment and in related government outlays. Overall, however, the ratio of general government expenditure to GDP remained at the same level as in previous year and the primary budget surplus increased only slightly.

Using the additional room for manoeuvre that emerged in public finances in 1998 and 1999, governments in euro area countries were able to reduce structural deficits by a small margin. The stability programme updates published in late 1999 and early 2000 suggest that planned future government action in this regard remains rather cautious. As the rate of growth increases, efforts to reduce structural deficits should be stepped up and front-loaded. This is consistent with, for example, the requirement of the Stability and Growth Pact that general government budgetary positions should be strong enough to cope not only with normal variations in the economic cycle but also with pressures caused by structural factors – such as high debt levels and population ageing – without breaching the reference value of 3% of GDP.

Chart 3.

Unemployment and vacancies in Finland



1. Number of vacancies as a percentage of the labour force, seasonally adjusted (left-hand scale)
2. Unemployment rate, Statistics Finland measure, seasonally adjusted (right-hand scale)
3. Unemployment rate, Ministry of Labour measure* (right-hand scale)

*Unemployed jobseekers, persons participating in labour market policy programmes and persons receiving unemployment pensions as a percentage of the labour force.

Sources: Statistics Finland and Ministry of Labour.

The Finnish economy is growing at a faster pace than the euro area on average

Finnish GDP growth slowed in 1999 compared with the previous year, and probably amounted to about 3½% for the year as a whole, ie close to the figure forecast by the Bank of Finland in autumn 1999. Export performance was weak in the early part of the year and growth was driven mainly by private consumption and investment. Industrial production picked up in the latter part of the year as demand strengthened in several export markets. Market prospects improved, especially in the forest, chemicals and basic metals industries. As a result, exports expanded at a particularly fast pace towards the end of the year.

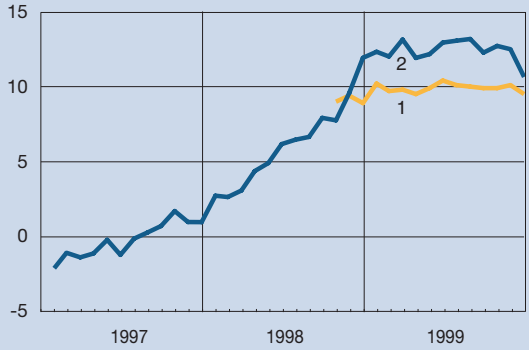
Industrial confidence concerning the future has remained strong in recent months. It is based largely on the pick-up in export demand and the continued strength of domestic demand. The good prospects for the business sector are also evident in firm's investment and employment intentions for the near term. Consumer confidence regarding the economic situation also remains strong.

Unemployment declined relatively slowly in the second half of 1999. By contrast, the number of employed persons and vacancies increased. This indicates both an increase in labour supply and a mismatch between labour supply and demand (Chart 3). According to the Ministry of Labour, the number of unemployed jobseekers and persons participating in

Chart 4.

Growth of bank lending by euro area and Finnish banks

12-month percentage change



1. Lending by euro area banks to euro area residents
2. Lending by Finnish banks to Finnish residents

Sources: European Central Bank and Bank of Finland.

labour market policy programmes totalled about 450,000 at the end of 1999. When people receiving unemployment pensions are added to this total, there were altogether about half a million people of working age who were not in work but potentially capable of working. This unused labour reserve represents about 20% of the total labour force.

According to the labour force survey conducted by Statistics Finland, the seasonally adjusted unemployment rate stood at 10.0% in January and the employment rate at 66.6%. Clearly, the recent improvement in economic performance and expectations will lead to higher employment and a fall in unemployment.

The growth prospects for the Finnish economy are still broadly the same as envisaged in the Bank's autumn forecast. Growth is expected to remain robust and somewhat faster than the euro area average. The pick-up in exports and investment activity is again making a significant contribution to growth, paving the way for increasingly more broad-based output growth in industry and the services sector. Consumers' optimism about the future, the expected improvement in employment and relatively low interest rates all suggest that consumer demand will remain fairly strong in the near term. Within industry the main driving force of growth seems to be shifting away from telecommunications and electronics to the more traditional sectors. Capacity shortages and availability of skilled labour, in particular, could become a constraint to growth at some point, however.

Credit continues to grow at a strong pace in the euro area and Finland

Credit has continued to grow at a rapid pace in the euro area (Chart 4). In particular, bank loans granted to the private sector have grown strongly, at an annual rate of about 10%. Contributing to credit expansion have been the favourable economic prospects, the low level of interest rates and merger and acquisition activity. There are still large differences in credit growth rates within the euro area. Whereas in Ireland and Portugal bank loans to the private sector have grown at a very fast pace, in France and Germany the rate of credit expansion has continued at a slower pace than the euro area average.

In the euro area interest rates on loans to households for house purchase and longer-term loans to non-financial corporations have risen by nearly one percentage point since May 1999. In December 1999 the average rate on loans to households for house purchase stood at 5.8% while that on longer-term loans to non-financial corporations was slightly lower. So far, the rise in interest rates has not dampened the growth in credit demand.

The money stock in the euro area has continued to grow at a faster pace than the reference value. The annual rate of growth of the key broad monetary aggregate M3 increased to over 6% towards the end of 1999. The most liquid components of M3 grew particularly strongly. The rapid growth of monetary aggregates and credit are an indication that monetary conditions in the euro area are still easy.

The rate of growth of the Finnish contribution to euro area M3 increased during the autumn months and exceeded the euro area average. In the final months of 1999 the rate of growth of the Finnish contribution slowed again and corresponded to the euro area average. Underlying this development has been the central government's varying level of activity in the money market, which has been reflected in fluctuations in the public's holdings of money market instruments.

Credit growth in Finland continued at a faster pace than the euro area average in the latter part of 1999. Although the rate of growth of loans to non-financial corporations slowed in comparison with the beginning of the year, the growth of loans to households continued unabated. The stock of housing loans grew at an annual rate of over 15%. As in the euro area in general, the rise in Finnish interest rates does not seem to have curbed credit demand as yet. The average rate on new housing loans granted in December was 4.9%. Finnish households would do well to remember that interest rates could rise further and be notably higher than at present over the next few years. Banks, for their part, should brace themselves for the possibility of loan losses as the credit stock increases.

The rate of inflation has picked up in the euro area and Finland

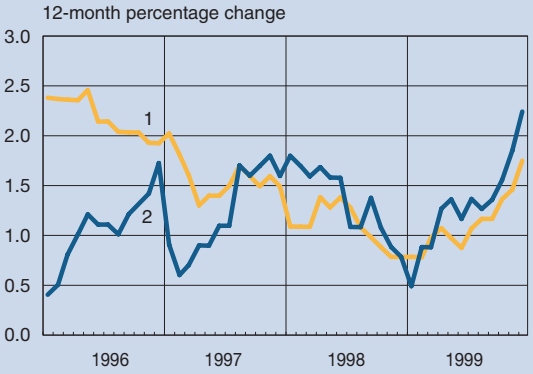
The rate of increase in consumer prices in the euro area picked up in December 1999 to an annual rate of 1.7%, as measured by the Harmonized Index of Consumer Prices (HICP; Chart 5). In January 1999 the annual rate of inflation was still 0.8%. The rise in inflation towards the end of the year was mainly due to higher energy prices (Chart 6) and the depreciation of the euro. Deregulation and tighter competition in goods markets helped to slow the rise in prices. This was reflected particularly in the slowing in the rise in prices of non-energy industrial goods and services. The rate of increase in services prices picked up again at the end of the year, however.

The annual rate of euro area inflation could accelerate to over 2% in the first months of this year as a result of the rise in oil prices and the weakening of the euro. It is crucial in these conditions that the pick-up in the inflation rate does not feed into inflation expectations and wage demands in the euro area. If price rises in the supply chain in response to higher energy prices and the weakening of the euro turn out to be muted, inflation could slow again towards the end of this year. The evolution of prices in this direction will be supported by ongoing deregulation, especially in electricity and telecommunications markets, and more intense competition in retail trade, for example.

Mirroring developments in the euro area as a whole, the rate of increase in Finnish consumer prices

Chart 5.

Harmonized Index of Consumer Prices

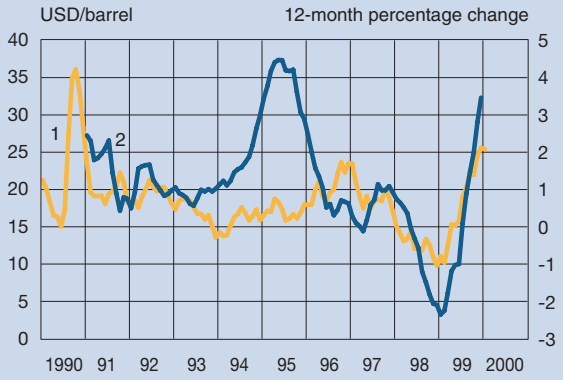


1. Euro area
2. Finland

Source: Eurostat.

Chart 6.

Crude oil price and industrial producer prices in the euro area

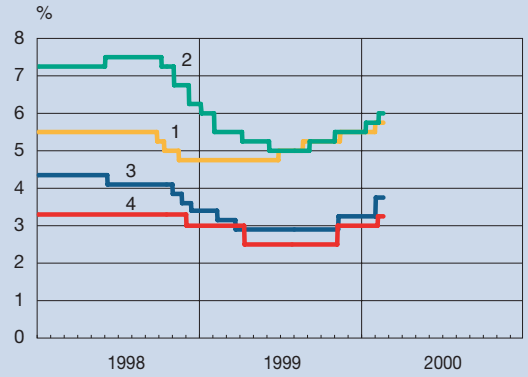


1. Crude oil (left-hand scale)
2. Industrial producer prices in the euro area (right-hand scale)

Sources: Reuters ja Eurostat.

Chart 7.

Official interest rates

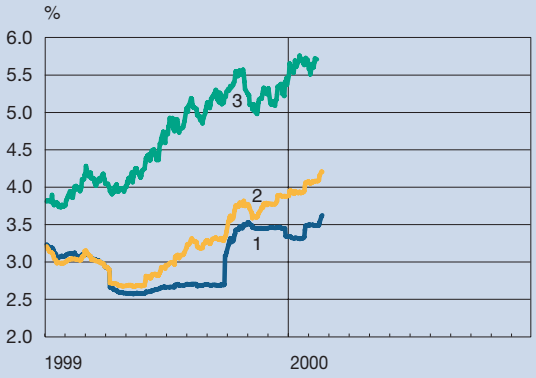


1. USA: fed funds target rate
2. United Kingdom: base rate
3. Sweden: repo rate
4. Eurosystem: main refinancing rate
   (German repo rate before 1999)

Source: Reuters.

Chart 8.

Interest rates in the euro area



1. 3-month Euribor
2. 12-month Euribor
3. 10-year government bond yield

Sources: Reuters and Bank of Finland.

has picked up as a result of higher import prices. The inflation rate rose by 2.2% in December 1999 as measured by the HICP and by 2.0% as measured by the national consumer price index. In January consumer price inflation rose further to 2.2% on the national measure. The inflation rate is likely to increase still further in the early months of this year as a consequence of the rise in import prices. Therefore inflation could turn out to be higher in 2000 than forecast by the Bank in autumn 1999, but by only a small margin if the rise in energy price does not spill over into the prices of other products and earnings growth remains moderate.

However, the wage increases agreed in pay settlements so far are fairly large in comparison with projected developments in productivity. Moreover, a number of settlements are still pending, and there is a risk that these could result in even higher wage increases. Wage drift will have to be very small if a strengthening in cost pressures and consequent pick-up in the inflation rate are to be avoided. This is also essential for an improvement in employment. In many sectors, the more competitive conditions that now prevail mean that the employment effects of wage increases are larger than they were in the past.

Market expectations of a tightening in monetary policy

On 3 February the Governing Council of the European Central Bank decided to raise the interest rates of the Eurosystem by 25 basis points (Chart 7). The interest rate on the main refinancing operations now stands at 3.25%. The decision to raise the steering rates was based on the view that the risks to price stability had increased. Monetary and credit growth indicated that monetary conditions in the euro area were easy. Price increases had been larger than expected; especially raw material prices and producer prices had risen rapidly. In addition, movements in the euro's exchange rate had become a cause for concern with regard to future price stability. Import prices were expected to rise further, and this was judged to be an upside risk that could lead to higher consumer prices in the medium term. These risks had to be taken seriously in a situation where there had been a further improvement in the growth prospects for both the world economy and the euro area. Against this

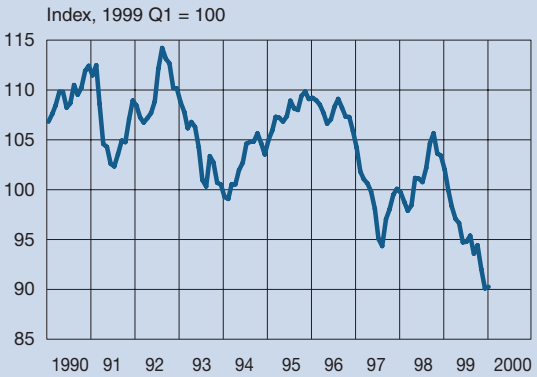
background, it was felt to be of the utmost importance that wage negotiators could be sure that price stability would be maintained in the medium term.

The interest rate hike in early February did not come as a great surprise to the markets as the improved growth prospects for the euro area and the rise in inflation had increased expectations of a tightening in monetary policy (Chart 8). Uncertainty about future inflation had increased for a number of reasons besides the rise in oil prices, including for example the high wage demands of the German engineering and metal workers' union and trade unions in other countries. These uncertainties were reflected in a rise in longer-term money market rates and long-term rates. Another factor contributing to the rise in market rates was the euro's weakness against the dollar. Market expectations of a further rate hike intensified again in late February, and money market interest rates moved higher in response to this.

Despite the strengthening outlook for economic activity in the euro area, the euro has remained weak (Chart 9). This is partly because growth prospects have improved in other regions of the world, notably the United States. In the course of 1999 the euro weakened by 14% against the dollar and by 22% against the yen. Measured in effective terms, the euro depreciated by about 14% in 1999.

Chart 9.

Euro's effective exchange rate



Before 1999 a trade-weighted index of the currencies of the euro area countries. An upward movement in the index represents an appreciation of the euro.

Source: European Central Bank.

Hardly any change in Finland's tax burden and tax wedge

Continued robust economic growth and the fairly tight stance in government spending helped to strengthen the financial position of the public sector in 1999. The deficit in central government finances declined substantially, local government finances were in slight deficit overall and the surplus in social security funds grew further. The surplus of the public sector as a whole rose to 2.3% of GDP and the debt-to-GDP ratio of the public sector declined to 47.1%.

The balance achieved in public finances in Finland is built on a very high tax burden, which, for structural reasons, is unsustainable in the longer run. The tax wedge, which comprises employers´ social security payments and income and consumption taxes paid by wage earners, grew substantially during the recession of the early 1990s. It narrowed in the second half of the 1990s but by only a small margin. Since taxation affects employment and growth both through labour supply and demand and wage formation, a significant reduction in the tax wedge – particularly in wage earners' income taxes – is needed to secure future economic growth.

In spite of the tax reduction targets laid down in the programme of the present Government and the tax cuts already decided, the average income tax burden of wage earners will decrease by only a little this year. The overall tax ratio will remain at roughly the same level as in 1999 and the tax wedge will barely shrink at all. If it were known that there was a long-term programme for reducing the taxation of employment, this would clarify the situation as regards future tax policy and make for more effective functioning of the labour market and the economy as a whole. Explicit information on the size of tax cuts and the timetable for their implementation would simplify budget planning over the next few years, pave the way for easier wage negotiations and reduce the uncertainty faced by economic agents.

Cyclical conditions should be taken into account when planning tax reductions. In boom times, in particular, tax cuts should be financed by corresponding cuts on the spending side, which as far as possi-

ble should be aimed at eliminating unemployment traps. In conditions of continuing robust growth, it would then be easier than in the past to draw on unused labour reserves and prevent the economy from running up against growth constraints. Implementing tax cuts in a boom without corresponding cuts in expenditure entails a risk to balanced economic growth. During a recession, tax reductions can be effected by running down the surplus in central government finances, to the extent that this is allowed by the growing cyclical leeway in central government finances and the need to meet pressures on expenditure caused by population ageing.

The procedure of setting medium-term ceilings for government spending needs to be made more flexible by allowing for the possibility to lower ceilings during times of faster-than-projected growth. For example, the current favourable economic conditions allow considerably more room for manoeuvre in central government finances than foreseen in the Government's programme. The spending ceilings are rather lax in relation to prevailing economic conditions and are no longer consistent with the Government's originally stringent fiscal policy stance. If the fiscal stance were adjusted to correspond to the current economic outlook, the spending ceilings would have to be lowered by more than the reduction in interest payments and employment-related outlays. This would enable a faster-than-projected reduction in the central government's debt-to-GDP ratio while at the same time allowing for a reduction in taxation.

23 February 2000

Key words: inflation, monetary policy, economic situation

Current situation in the Finnish housing market

by **Mikko Spolander**, Economist
Economics Department
Bank of Finland

Like all market commodities, housing prices are determined by the interplay of supply and demand. Assuming no change in other factors, an increase in the demand for housing will raise prices and an increase in supply will reduce them. If dwellings are owned primarily because of the housing services they provide, the price of a dwelling will be determined by the present value of the stream of future housing services. If these services remain more or less unchanged over time, a fall in interest rates will increase the present value of housing services, which means that prospective buyers will be prepared to pay more and the demand for housing will increase. Housing prices are affected by many other factors as well, including households' income expectations. If income expectations rise, households will become more willing to borrow and commit themselves to large investments, thereby increasing the demand for housing.

In the long run, new housing production adjusts to changes in demand. When supply is flexible, builders are not able to earn excessive profits and dwelling prices comprise only construction costs and the price of the land. Since, however, new construction accounts for but a small proportion of the total stock of dwellings, the short-run impact of new construction on the supply of housing is marginal.

Recent strong economic performance has boosted the demand for housing

Housing prices fell sharply during the economic slump of the early 1990s (Chart 1). The decline ended in 1993, after which prices drifted for a couple of years before rising strongly again in 1996. The rise in prices was especially steep in 1997. In the final quarter of 1999 the nominal price of flats[1] in the Greater Helsinki area[2], measured in terms of the nominal price per square meter, was 78.5% higher than in the first quarter of 1996 and 15.8% higher than in the final quarter of 1998. For the country as a whole, the corresponding figures were 57.1% and 10.6%.

The demand for housing has been spurred by a number of factors in recent years. Household real disposable income has grown rapidly and, according to a Bank of Finland forecast, the trend is likely to continue over the next few years. Moreover, the consumer confidence indicator compiled by Statistics Finland shows that households firmly expect the Finnish economy to go on performing well. Sustained growth of real disposable income provides a basis for growing housing demand and higher prices, both as a direct response to income growth and indirectly through increased scope for borrowing.

Bank lending to households has been growing vigorously of late, reflecting robust household confidence, low interest rates and shrinking interest rate margins due to tightening interbank competition. The abolition of stamp duty in summer 1998 has simplified the transfer of housing loans between banks, leading to greater competition for borrowers and improved borrowing opportunities. Taking into account the tax deductibility of interest costs, the real interest rate on housing loans fell from over 5% in 1995 to about 1.5% in 1999. Lower interest rates have not only boosted demand for loans but have also raised the present value of housing services provided by dwellings.

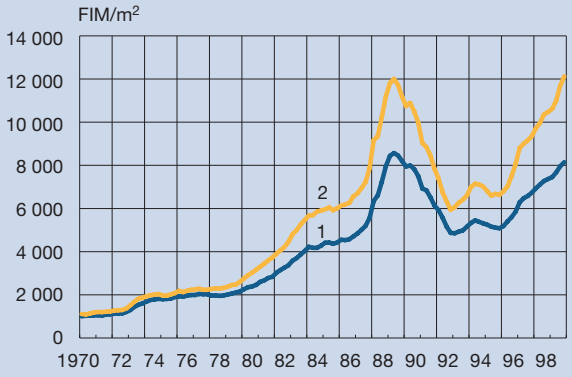
The growth in the stock of household housing loans, which started in 1996, has accelerated each year since then. In 1999 the stock increased by 15.8%, as banks granted FIM 50.2 billion in new housing loans. Admittedly, as many as half of the new loans

[1] For all purchases transacted by estate agents.

[2] Comprises Helsinki, Espoo, Kauniainen and Vantaa.

Chart 1.

Nominal price of old flats, per m²



1. Finland
2. Greater Helsinki area

Source: Statistics Finland.

represented refinancing of old loans. With the rapid growth in the stock of housing loans, there has been a sharp upturn in the ratio of housing loans to household disposable income.

Given lower interest rates and the availability of loans with much longer terms than before, households' ability to service loans has improved considerably. When interest or principal payments shrink, the ratio of debt service payments to household disposable income falls. If households have budgeted a given share of their disposable income to debt servicing, a reduction in interest or principal payments will enable them to take on more debt. Thus the aggregate stock of housing loans and its ratio to household disposable income increase as new longer-term and larger-than-average housing loans replace maturing shorter-term loans.

During the past few years migration in Finland has picked up again following a quieter period in the early 1990s. According to a Statistics Finland forecast based on demographic factors and average net population movements in recent years, the flow of people into population centres is continuing. Future population shifts will, for the most part, continue to focus on localities that offer the best employment prospects. According to a population forecast extending up to 2030[3], the growth centres are university towns and, in particular, the metropolitan areas of Helsinki, Tampere and Oulu, where population is projected to grow by 12 to 16% over the next 30 years.

The concentration of population in growth centres raises land prices both within and outside planning areas. Rises in prices of land designated for construction are often reflected in housing prices and thus also in prices of old dwellings in growth centres. Developments within a regional district are, however, influenced more by the needs and choices of local residents than by those of newcomers from other areas, as most housing transactions in both growth centres and other areas are mainly due to local migration. For example, in Helsinki the sharpest increase in housing prices has occurred in the southern districts of the city rather than outside the inner city area and in the suburbs, which one might expect to be the most likely destinations for migration from other parts of the country.

Housing supply responds slowly to changes in demand

As short-run movements in housing prices depend on changes in the determinants of the demand for housing, it is not surprising that housing prices have been rising recently. It appears that a shortage of housing lots is a major constraint on the growth of supply. The supply of housing lots increases only when a municipality divides areas suitable for housing construction into lots. Bottlenecks in connection with land-use planning have slowed the rate of new construction, particularly in the Greater Helsinki area.

Another key factor affecting the supply of housing is the profitability of the construction business. Housing contractors' tender prices have risen sharply in recent years in the wake of the surge in the prices of old dwellings, whereas construction costs have risen at a much slower pace. When construction firms' income rises faster than costs, their margins widen in the short run, which in turn acts a spur to new construction. Rising profitability should eventually

[3] Source: Population forecast by municipality, 1998 – 2030, Statistics Finland, 1998.

attract newcomers into the industry and thus slow the rise in tender prices and boost construction costs. In the long run, trends in housing prices, tender prices and construction costs are similar and builders do not earn excessive profits, provided the market mechanism functions effectively and there is free entry into the industry. Nonetheless, it appears that prices and costs will continue to rise over the next few years.

Rising prices will halt the growth in demand sooner or later

In trying to estimate possible limits to the rise in housing prices, it seems natural to compare developments in nominal housing prices (measured in terms of price per square meter) and household disposable income over both the short and long run. Bearing in mind certain caveats, a comparison of short-run trends in real housing prices (likewise measured in terms of price per square meter) with their long-run average can also be useful for projecting future prices.

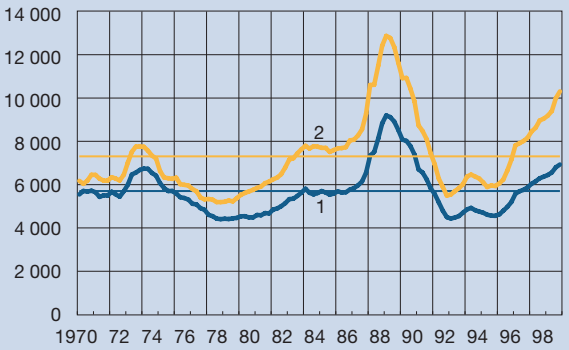
If a dwelling is treated as a capital asset that yields housing services, developments in housing prices should not deviate from average trends in consumer prices, ie real housing prices should not rise. But as living standards rise, households' real disposable income increases. Thus the ratio of the price per square meter to disposable income should decline in the long run. If household demand for housing services grows at the same rate as disposable income, the ratio of expenditure on housing to disposable income remains constant. Thus, as the standard of living rises, households are able to purchase bigger and better dwellings in better locations even though they spend the same percentage of their income as before. The fall in the ratio of the nominal price to income means that households are able to use their disposable incomes to purchase standard-quality dwellings of increasingly larger size.

In Finland household nominal disposable income has grown faster than consumer prices over the long run. By contrast, it has been widely observed that the nominal price of housing moves in line with consumer prices, although short-run movements can differ substantially.[4] As a result of the sharp upturn in prices that started in 1996, the real price exceeded its long-run average already in 1997, and has subsequently moved even higher (Chart 2). In the last quarter of 1999 the real price of a flat in the Greater Helsinki area was 41.1% higher than its long-run average; for the country as a whole, the difference was 21.4%. If we assume that the long-run average real price of a dwelling represents the equilibrium price level – to which the actual price should return – the present level is not sustainable in the long run. Thus the rise in the nominal price can be expected to come to a halt before long.

Chart 2.

Real price of old flats (per m²) and the average for 1970–1998

(Base year 1990)



1. Finland
2. Greater Helsinki area

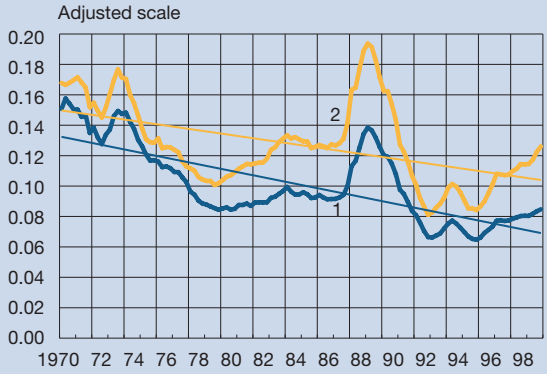
Source: Statistics Finland.

Although the ratio of the nominal price to income has fluctuated widely, the long-run trend has clearly been downward (Chart 3). During the price bubble a decade ago, the ratio rose dramatically, but then dropped below trend during the recession of the early 1990s. The subsequent rise in housing prices has caused a closing of the gap, and since the beginning of 1997 the ratio has stayed above trend, both for the whole country and the Greater Helsinki area.

[4] In technical terms, housing prices and consumer prices are cointegrated, which means that they have a common (stochastic) trend. See Barot, B and Takala, K, *House Prices and Inflation: A Cointegration Analysis for Finland and Sweden*, Bank of Finland Discussion Papers 12/98.

Chart 3.

Ratio of nominal price of old flats (per m²) to household disposable income and trend



1. Finland
2. Greater Helsinki area

Source: Statistics Finland.

Action needed to boost housing supply and curb demand

Looking at the current situation and outlook for the housing market in terms of supply and demand factors, it is hard to see any reason why housing demand should cool off and prices turn down in the coming years. In the longer term, it seems natural to assume that supply and demand will move into balance, that the real housing price will regain its long-run equilibrium level and that the ratio of the price of housing to disposable income will return to its long-run trend. As only modest increases in the overall price level are expected over the next few years, a fall in real housing prices will require a fall in nominal prices at some point.

In the short term, there is a need for an increase in the supply of housing and possibly a reduction in demand or at least a cut in the support of demand. A step in the right direction in this regard was taken in November 1999 when Parliament approved changes in real estate and income taxation. These changes will make more land that is designated for housing actually available for the construction of new dwellings and will provide an incentive for landowners to sell land to municipalities. It is also important to ensure the availability of construction workers in areas where demand is strong. A carefully planned and gradually implemented removal of interest-cost deductions in respect of housing loans could help to dampen the demand for housing and check the rise in prices.

26 January 2000

■ Key words: housing markets, housing loans, Finland

The value of publishing official central bank forecasts*

by **Juha Tarkka**, Head of Department
and **David Mayes**, Adviser to the Board
Research Department

Several central banks have begun to publish macroeconomic forecasts and recently there has been an active international debate on the benefits of this type of transparency. In the Eurosystem, some national central banks (including the Bank of Finland) do already publish their forecasts, and the ECB has also signalled its intention to start doing so.

Our aim is to explain why central banks may choose to publish their forecasts and what can be gained in monetary policy by doing so. We argue that disclosing the central bank's assessment of the prevailing inflationary pressures in the form of a forecast improves macroeconomic performance even if this assessment were no more accurate – or indeed if it were worse – than other published forecasts. This is basically because disclosing the central bank's forecasts makes monetary policy more predictable even when people disagree with the bank's assessment.

We go on to discuss the useful content of published forecasts. In particular, we show why 'unconditional' forecasts, which reveal the intended results of monetary policy, may be preferred to 'conditional' alternatives, such as assuming unchanged instruments, however specified, or assuming the kind of policy that the private sector is estimated to expect. We conclude by covering some of the more practical issues related to publishing official macroeconomic forecasts, such as how to present the impact of uncertainty on the forecasts, and whether to publish 'staff' forecasts or those which are endorsed by the actual monetary policy decision makers.

* This article draws heavily on a recent Bank of Finland Discussion Paper (22/99) by the same authors and with the same title that sets out a formal model to demonstrate the propositions made in the present paper. It is available on the internet http://www.bof.fi/env/fin/ju/dp1999/9922jt.pdf or on request.

The benefits of sharing a view of the future

Several potential reasons can be given why a central bank should make public statements on its view of the future:

- It helps reduce uncertainty for other decision-makers, which would lead to more efficient pricing and investment decisions and hence better output and employment performance, in terms of stability and possibly growth as well.
- It helps make the bank's pursuit of price stability more credible and hence reduces the need for and the cost of disinflationary monetary policy.
- It helps improve the coordination of the fiscal and independent monetary authorities in formulating macroeconomic policy as a whole.
- It helps provide the sort of accountability in monetary policy that both society and the bank itself would need, namely, that the bank is judged on its professional performance and not just on outcomes that may be the result of unavoidable shocks.
- It helps the bank follow a consistent strategy where it can learn from experience and adjust its policy instruments without damaging its credibility.

These points are partly interrelated. Nevertheless, even any one of them alone, proven valid, could justify publishing forecasts.

All of these possible motives for publishing forecasts have one thing in common: They relate to certain difficulties that people (in firms, households and governments) may have in knowing the central banks' intentions in its policy-making.[1] The uncertainty created by these difficulties has at least three components:

[1] The current trend towards clearer central bank mandates in monetary policy (to pursue price stability) is another instance of societies trying to reduce these uncertainties.

- Uncertainty about the bank's actual target for policy.
- Uncertainty about the bank's view of the future, based on its assessment of current inflationary pressure and its interpretation of any signals on future developments.
- Uncertainty about how the bank is intending to react in the event of new 'shocks' (news which would modify the bank's outlook for the economy).

The form and content of central bank's forecast should therefore be such as to reduce these different sources of uncertainty about its likely future behaviour and its economic consequences.

A simple framework for analysis

Our arguments are based on the assumption that people's decisions about what to do and central bank decisions about monetary policy are largely based on their respective expectations regarding the future.

The private sector has to make plans and contracts that expose it to future, uncertain events, including future monetary policy. Through these plans and contracts, private expectations influence future economic activity and prices. A central bank, such as the ESCB, that is charged with maintaining price stability will want to act if it expects future prices to be inconsistent with that objective in the absence of action. The degree of price stability actually achieved is determined by the interaction of various factors of inflationary pressure, such as private inflation expectations, with the monetary policy of the central bank.

The expectations formed by the central bank and the private sector are likely to be more or less different. Indeed, this is the reason why the central bank forecast can be interesting to anybody else. If the expectations of the central bank and the private sector were completely identical, and known to be necessarily so, the publishing of official forecasts by the central bank could not have any value to anybody or any effect on private behaviour.[2] At the same time, these differences in expectations between the central bank and the private sector are very important in terms of economic instability.

If the central bank considers that prevailing inflationary expectations are not compatible with what it wants to achieve in terms of price stability, monetary policy will have to be adjusted so as to bring the central bank's own inflation forecast back in line with the actual target. In the process, there will be effects on real economic activity, as some of the private sector's expectations are not fulfilled. However, these costs in terms of economic fluctuations will be the smaller, the more predictable is monetary policy.

Within this framework, private sector price expectations can prove wrong for four main reasons:

- incorrect prediction of the actual policy objective of the bank;
- incorrect perceptions of how the central bank sees the existing inflationary pressure, in particular the prevailing private inflation expectations;
- imprecision of the central bank's control of inflation, due to 'transmission uncertainty', meaning instability of the relationship between monetary policy instruments and their effects;
- failure to predict future shocks to the economy and ignorance about how the economy works as a dynamic system.

The central bank cannot do a great deal about the last of these because it is probably not much better than other forecasters in predicting future events. Of course, improved education and information based on economic research at the central bank can probably assist people's general decision-making. In any case, better ability to see the future is not a necessary reason why central banks should disclose their forecasts. However, the other three points on the above list offer much more scope for the central bank to reduce the errors made by the private sector.

It now seems evident, on the basis of experience, that a large part of uncertainty about the aims of monetary policy, the first point on our list, can be removed by conducting monetary policy within a credible framework that defines price stability as the target for policy. This is successfully done by several central banks, including the ECB. However, and for very good reasons, most mandated or committed price stability targets have some built-in flexibility, in the

[2] Forecasts should be distinguished from another kind of policy statements, which are better characterized as commitments or promises. Commitments may have an effect on private expectations by 'tying the hands' of the central bank, as analysed by the so-called 'cheap talk' literature (Stein, 1986, for example). The publishing of forecasts, by contrast, works by releasing some information, which would otherwise be available only to the bank.

sense that they cover a range of possible values and a time period over which they are intended to be achieved. For example, very different policies would be required to achieve expected inflation of 1.8% in two years' time rather than 0.2%. Yet both could quite possibly be considered consistent with price stability.

This 'softness' of the mandated and committed targets implies that they leave room for some variation over time even in the expected (or intended) inflation outcome of policy. This is useful because attempts to fix the inflation rate completely regardless of transitory shocks from various sources could lead to very unstable monetary policy. The difficulty this creates for the private sector is in predicting how the central bank intends to use the flexibility it has within its prescribed target. If the central bank can reduce this uncertainty, for example by publishing its inflation forecast, private sector decisions will be improved and the economy stabilized as a result.

The second point on our list is probably even more important than the first. Monetary policy is heavily dependent on assessment of inflationary pressure (which is then gauged against the policy targets) and mistakes made by central banks in interpreting current economic data are a major source of inflation variability[3]. A lot of judgement is typically needed in assessing many of the key determinants of inflationary pressure (such as prevailing private inflation expectations or the 'output gap' between current GDP and the production potential of the economy). It may be very difficult for the private sector to know how the central bank sees the situation, unless a forecast of some type is published. So, one of the functions served by publishing forecasts is to convey to the private sector the judgmental part of the basis for monetary policy decisions.

In the absence of published forecasts, the private sector can obtain some information about the central bank's policy aims and about its assessment of inflationary pressure from its policy actions – eg the current interest rate decisions. If the link from monetary policy to inflation were known with certainty, the central bank's assessment of current information or its policy aims (but not both) could possibly be inferred from its policy decisions. Then less information would need to be disclosed in the form of forecasts or other statements. Unfortunately, the effects of monetary policy are not known with certainty and if people are not sure how big an impact a given interest rate policy is intended to have, the signals given by policy action can be misinterpreted. Therefore, under 'transmission uncertainty', central banks would want to communicate to the private sector both their economic assessment and the expected results of their policy if they want to minimize uncertainty around them.

A well-designed information policy of the central bank can thus reduce the inflation uncertainty faced by the rest of the society. The bank should make sure not only that its current policy aims are well understood, but also that the policy moves it expects to make and the analysis behind them are effectively disclosed as well. The importance of this is underlined by the fact that the mainstream of modern macroeconomic theory sees the prediction errors of inflation by the private sector as the principal monetary source of economic fluctuations. This being the case, avoiding public misperceptions of the aims or motives for monetary policy actions seems an essential part of successful central banking.

Conditional or unconditional forecasts

All forecasts are conditional in some senses of the word as they depend upon the information available at the time they are made and any assumptions the forecaster chooses to make about the future. However, let us define an 'unconditional forecast' as being the forecaster's best estimate of what is actually likely to happen in the future. This would also include a forecast of monetary policy action. 'Conditional forecasts' in this context then entail the imposition of some additional constraints (conditions) on the sort of future being discussed. For example, official forecasters have tended to base their forecasts on some concept of 'unchanged policy'. In the case of central banks, unchanged policy normally means unchanged interest rates and exchange rates.

It is clear that 'conditional forecasts' do not convey information on the expected results of monetary policy, and if a central bank chooses to publish such forecasts, it leaves an important part of its policy outlook in the dark – unless the aims of policy are adequately disclosed by other means.

[3] See eg Orphanides (1998).

Despite their widespread use, forecasts made on the assumption of unchanged interest rates contain several conceptual problems. They are inconsistent by construction if they are based on projecting to the future economic behaviour as observed in the past, under active monetary policy. Forecasting models may not even have a well-defined long-run solution if interest rates are assumed fixed and the starting point is out of equilibrium. Finally, forecasters usually need to incorporate information from various kinds of leading indicators and confidence surveys etc into their work, but these indicators and surveys are generally not based on an assumption of unchanged interest rates.

The forecast conditional on unchanged interest rates will thus be inconsistent with itself unless the setting of policy shown happens to be consistent with achievement of the aims of policy throughout the forecast horizon. In fact, because of lags and exercise of caution in monetary policy, central banks may often have an upward or downward 'bias' regarding the likely future direction of interest rates and then the fixed interest rates assumption is not compatible with their own expectations or intentions.

Basing the forecast on (estimates of) private sector expectations of monetary policy instruments rates is another way of introducing 'conditionality' to the forecasts, although less common than the fixed instruments assumption. This can be done, for example, by assuming an interest rate path derived from the prevailing term structure of interest rates. This method does not seem to suffer from such inconsistency problems as the 'fixed interest rate' type of forecast, but it obviously does not either convey any information of the aims of monetary policy or of the central bank's judgement on how effective its instruments are in steering inflation.

Central banks are traditionally rather apprehensive about laying out future tracks for policy variables as they fear this may be thought by the private sector to be some sort of 'commitment'. Breaking that perceived commitment might then reduce credibility. This view attributes very little sophistication to the private sector. In fact, the private sector will form some expectations of future policy anyway, no matter what the central bank publishes. These expectations will tend be more accurate if the central bank's views on how it sees the future are explicit. To avoid the risk that forecasts will be misinterpreted as commitments, the bank should be very clear about the analysis and the assumptions on which they are based. If that is successfully done, the private sector will be well placed to understand that as new information comes in so all forecasters, themselves and the central bank, will revise their projections. The problem here is that unconditional forecasts inevitably include a rather simplistic representation of how the bank intends to act to maintain price stability.

Whose forecast?

Central banks differ in the degree to which decision makers are integrated in the forecasting process. Typically banks have a special team among their staff who prepare the forecasts and indeed they may have competing models that are each used to provide predictions of the economy along with external forecasts that may be laid on the table. However, what matters from the point of view of conveying a coherent strategy is the view of the future on which policy is actually based. Looked at from this point of view, publishing any other forecasts might create confusion between the decisions and the evidence. Not only will the readers have difficulty sorting out the logic of policy but the explanation will be very difficult to write coherently.

Staff forecasts therefore need to be revised if the decision-makers disagree with them and competing projections need to be aggregated in a way that reflects the weights they have in the actual policy decisions. Another, conceptually different problem is the possibility of diverging views within the decision-making body itself. Since the future is uncertain, a whole range of opinions is possible, even within a board which agrees about policy goals, and different views can always be sustained from the interpretation of the evidence available. In the case of disagreement, the principle of transparency would then tend to steer us away from the idea of just producing a single point estimate of each variable. It would move us towards forecasts that show some distribution of outcomes, as we discuss below in connection with the issue of dealing with uncertainty. The US Federal Reserve illustrates how this can be done in its twice-yearly Humphrey-Hawkins report. The report shows the range and 'central tendency' of the forecasts by the members of the FOMC, the decision-

making body, on the most important macroeconomic aggregates.

Cheap talk or reputation and credibility

We cannot take it for granted that anything the central bank states about its view of the future is believed, including the actual inflation target. Forecasts may not be believed if the central bank can mislead the public and is perceived to have incentives to do so. The classic way of presenting the problem is that people will expect the bank to say it is following price stability, whatever it is actually doing, because that is its obligation. Another ingredient in the classic picture of the credibility problem is the idea of a perceived expansionary bias in the central bank's policy preferences. An implication of this would be that people would expect the bank to publish downward biased estimates of inflation pressure and its inflation target in order to manipulate the private sector's expectations and behaviour. People would then regard the central bank's forecasts as 'cheap talk' and not take them seriously.

However, credibility problems in publishing forecasts may not be insoluble. The recent almost worldwide success in combating inflation shows that central banks can actually achieve considerable credibility for their policy. This can happen in a number of ways. One of them is building a reputation over time through a good track record. Another is setting up institutional structures (such as independence with accountability) that give policy makers incentives to adhere to the objective of price stability, which the private sector finds believable. Finally, because credibility problems are essentially information problems, central banks can themselves find ways to alleviate them, typically through transparency. An important aspect of a credible strategy is that people can see that it is being applied in the policy formulation process. Showing the inflation forecast, the model of behaviour that underlies it and the reaction of policy to (or within) the forecast are key ingredients of that transparency.

Once a central bank has achieved a general credibility for its monetary policy strategy, in one way or another, the danger that its statements are not believed should be greatly reduced and the ability of the central bank to communicate with the private sectors in an efficient way should be similarly improved. That should make the published forecasts effective as well.

In principle, the direct costs of forecasting for the central bank could serve as a kind of backing that itself reduces the danger that the forecasts would be considered 'cheap talk'. People will be more ready to believe that the forecasts are taken seriously by the central bank itself if they see that they are done despite substantial costs. However, a much more important factor in the credibility of the forecasts is probably constituted by the track record and consequent reputation of the forecasting activity itself. When experience shows that the central bank's forecasts are useful in predicting future monetary policy, they will have an impact on private expectations. It seems also clear that it is much easier to build a meaningful track record for 'unconditional' forecasts than for 'conditional' forecasts, which are not even intended to be good predictions of actual outcomes.

The fear of being wrong

A common fear is that, since the future is uncertain, the central bank will lose credibility by publishing forecasts, as any such forecasts will either differ from actual outcomes, or will only be coincidentally 'right for the wrong reasons'. If this were true then there would be a trade-off between the costs of the loss of credibility and the costs of the lack of transparency from not publishing. We suggest that this trade-off is not a serious threat. In the first place, the danger of the private sector viewing central bank projections as being of poor quality can be reduced if the assumptions the bank makes about 'exogenous' factors in the future and the 'model(s)' of the economy it uses are made explicit. Secondly, the relevance and accuracy of projections can be increased if they are 'unconditional' in the sense of including the reaction of monetary policy.

However, the fear of being wrong, to quite a large extent, stems from public preoccupation with the central value quoted in forecasts. In reality, much of the value of central bank forecasts comes from the assessment of risks and the analysis of how monetary policy should react if the risks are realized. A good monetary policy strategy is not only prepared to face risks but the way it will handle the unexpected should also be understood by the private sector (and the gov-

ernment). Even if the most likely outcomes do not occur, the central bank can convince the rest of the society that it will still be able to maintain price stability. That convincing is facilitated by appropriate publication of the distribution of forecast risks and how uncertainty is to be handled.

Dealing with uncertainty

Once there is uncertainty policy will always appear to exhibit a degree of discretion even if the policymaker is seeking 'to exploit past patterns and regularities in a systematic way' (Greenspan, 1997). Fixed rules studied by theorists do not seem to be realistic because of the diffuse, uncertain and preliminary nature of information on which policy decisions must be based. This is a problem for central banks, as they generally would like to assure the rest of the economy that they are following a consistent and credible strategy.

There are several ways in which uncertainty can be allowed for in forecasts. One option is to summarize information on past errors as an indication of the variance that can be attached to forecasts of the future. However, this procedure makes several strong assumptions. It assumes we know nothing about the future on each occasion that could alter the likely spread of outcomes. It assumes that we have learnt nothing from previous experience and that current errors will be similar to the performance in the past. It assumes that all the variations in the team of people forecasting and the models and methods they have used to achieve these forecasts are irrelevant in assessing the likely future risk.

Another obvious way to assess forecast uncertainty would be to consider the calculated 'forecast' errors from the central bank's model. With the usual non-linear models this will require stochastic simulations. Even this requires the assumption that the distribution of future shocks will be similar to those in the fairly recent past. Indeed the problem is even more complex as soon as we consider the role of policy, where the central bank itself has the power to affect future values of inflation, by use of its monetary policy instruments, if they show signs of deviating unacceptably far from the target. Then the 'feedback rule' of the central bank has an effect on the degree of uncertainty regarding inflation and other outcomes. Importantly, the central bank's information policy (its commitments and its transparency) will also affect private sector expectations and hence the probability distribution of actual outcomes, too. The current state of the art in quantitative simulation models is not really capable of dealing with these effects. Finally, using a single macroeconomic model is normally not sufficient for forecasting purposes in practice. It will be augmented by judgement and other models; then the formal calculation of forecast error distributions becomes even more difficult.

These difficulties notwithstanding, some central banks do present error variances for their forecasts. The Bank of England and the Swedish Riksbank go even further by publishing estimates of skewness of the error distribution around what they see as their baseline forecast.[4] This is a way to communicate what is known as 'the balance of risks'. The estimates of forecasts are partly model-based, but in practice contain a lot of judgement, too.

Such probability densities have two functions. First of all they can give a much richer insight into how the central bank views the future. They help explain how strongly the views of the future are held. Round turning points one would expect the variance to increase, for instance. Similarly when consequences from some impulse are expected but appear to have been delayed this will add to the skew of the projected outcomes. Secondly, they help enable the central bank to change its mind in the face of new evidence without any great loss of face or credibility. This not only enables the central bank to avoid giving any spurious impression of accuracy in its original forecasts but it enables it to explain more readily why the balance of opinion over the appropriate policy action can shift quite markedly even when there has been little new information.[5]

The use of distributed forecasts thus helps to remove any trade-off there might be between reducing the costs to society from a lack of transparency in publishing the details of a forecast and the costs that would be imposed by reducing the credibility of the

[4] The two banks do not use identical methods.

[5] Where the actual votes for policy changes are known, as in the case of the UK, this helps add to the understanding of the degree of uncertainty in the bank and to make better judgements of what decisions are likely to be made in the future.

central bank by publishing 'inaccurate' forecasts.[6] The difficulties in estimating the error distribution of forecasts are considerable. However, it may be that attaching particular probabilities to different possible outcomes is not that essential to conveying what the central bank's intentions are. An alternative, which has been used by the Bank of Finland, is to present scenarios, each conditional on particular events the probabilities of which need not be specified. Also that could help avoid unnecessary loss of credibility in the event inflation deviated from what was expected, while still containing a lot of information on how the central bank sees the future.

Considering the Eurosystem

Publishing forecasts is a form of transparency whose advantages are being more widely recognized and used by central banks. In Europe, the ECB has now begun to make statements about the likely range of outcomes it foresees for GDP growth in the current and next years (Duisenberg 1999b) although complete quantitative forecasts have not yet been published. Significantly, the ECB has also commented on the prevailing private inflation expectations in its statements. It has made remarks about the likely direction of policy (Noyer, 1999, and Duisenberg, 1999a) although the degree of formalism used in the 'bias' statements of the US Federal Reserve has not been adopted.[7]

For national central banks who are members of the Eurosystem, such as the Bank of Finland, publishing forecasts is a way to integrate themselves into the domestic economic policy discussion, and to make sure that people understand how the condition of the national economy and the impact of European-wide monetary policy on it are seen within the Eurosystem. Publishing forecasts is also a way to demonstrate the professional quality of the national participation to the preparation of joint monetary policy.

Some of the challenges faced by the Eurosystem are directly relevant to our discussion. The first is that there could be suspicion that it will be open to influence. From time to time, central banks face demands to compromise their stability-oriented policies. This usually happens during recessions or when real interest rates are exceptionally high. There is thus a danger of prima facie scepticism, which could increase when the euro economy appeared to be performing weakly, that the ECB will succumb to these pressures, even if only subconsciously. Under such conditions, a high degree transparency of the policy process is vital to ensure that monetary policy can react to new information without evoking suspicion that its strategy has in fact been abandoned.

Secondly, the Eurosystem faces very real difficulties in conducting monetary policy in the face of a major structural change. Introduction of a single currency to a group of countries that have considerable national discretion of fiscal and structural policies has no direct precedent. In these circumstances there is considerable uncertainty about how the euro economy will work, particularly about how the transmission mechanism between monetary policy actions and price stability will operate. Not only will there be change in private sector behaviour and fiscal policies but the weight of the euro area in the world economy is greater than its predecessor currencies. International economic relations will therefore be different. Finally, structural change extends to the statistical information base of monetary policy as well. The information content of the new statistics may therefore be rather more difficult to interpret than the monetary authorities of the national central banks have been accustomed to in the past.

However, similar difficulties created by structural change have been faced also outside the euro area recently. Many countries have found increasing the transparency of monetary policy a very useful way to cope with their problems. Sweden and the UK were faced by a major change in behaviour when they were forced out of the ERM in 1992. New Zealand undertook what is probably the largest structural transformation of any OECD economy in recent years. Even the Czech Republic, which, as a transition economy, is facing difficulties and uncertainties an order of magnitude greater than anything in the EU is adopting a remarkable level of transparency. In all of the above cases, radical efforts to increase transparency were prompted by the need to enhance the credibility of monetary policy in conditions of structural

---

[6] The presentation of forecasts on the basis of likely and explicit conditions explained above further helps reduce the chance of loss of reputation.

[7] The Federal Reserve itself has moved away from these statements.

change, and the measures are seen to be successful. This implies that, in due course, the Eurosystem might find similar benefits.

14 February 2000

Key words: forecasting, transparency, monetary policy, central banks.

References

Duisenberg, W (1999a), Statement at the press conference after the Governing Council Meeting, 15 July, 1999.

Duisenberg, W (1999b), Statement at the press conference after the Governing Council Meeting, 9 September, 1999.

Greenspan, A (1997), Remarks at the 15th Anniversary Conference of the Center for Economic Policy Research at Stanford University, 5 September, 1997.

Noyer, C (1999), Introductory statement at the hearing of the European Parliament Committee on Economic and Monetary Affairs, 27 September, 1999, Brussels.

Orphanides, A (1998), 'Monetary Policy Rules Based on Real-Time Data'. Federal Reserve Board, *Finance and Economics Discussion Paper 3/98*, January.

Stein, J C (1986), 'Cheap Talk and the Fed: A Theory of Imprecise Policy Announcements', *American Economic Review*, Vol. 79, 32–42.

The new competitiveness indicators compiled by the Bank of Finland

by **Lauri Kajanoja**, Economist
Economics Department
Bank of Finland

Measures of the external value of a currency are known as effective exchange rates or currency indices. They portray movements in the value of a currency against a basket of other currencies. Currency indices are often constructed in such a way that they reflect developments in the price competitiveness of production in a country vis-à-vis its major trading partners. These indices are calculated as a weighted average of the bilateral exchanges rates of the home currency against the currencies of the most important trading partners, using trade flows as a basis for computing the weights.

Indices measuring developments in the external value of a currency are useful aids in assessing the economic performance of a given country or currency area. Central banks monitor developments in currency indices as part of their analysis and forecasting of overall price developments. For example, a weakening in the external value of a currency normally leads to higher prices of imported goods in home currency terms and thereby higher inflation.

In some countries, the currency's external value has been formally set as an intermediate target for monetary policy. In some cases the target has been defined in terms of a currency index. From 1977 to 1991 it was the task of the Bank of Finland to ensure that the trade-weighted currency index which it compiled remained within the fluctuation range set by the Government.[1] Since June 1991 the Bank's currency index no longer has any formal role. The Bank has nevertheless continued to compile the index, and it has remained a useful measure of movements in the markka's external value.

Introduction of the euro brought changes to indices

For the countries participating in monetary union, the introduction of the euro means that they now measure developments in the external value of the euro instead of their individual national currencies. The European Central Bank (ECB) publishes *effective exchange rate indices* that summarize developments in the average external value of the euro.[2] The ECB monitors these indices, in particular in its assessment of the future outlook for price developments. Effective exchange rates for the euro do not have any formal monetary policy role, however.

Owing to the transition to the euro, the Bank of Finland has updated the range of currency indices that it compiles. The new indices are constructed in the same way as the effective exchange rates for the euro published by the ECB. These national exchange rate indices for euro area countries are called *competitiveness indicators*. Many other national central banks in the euro area publish or plan to publish similar indicators.

As the same method is used to construct the national competitiveness indicators of euro area countries and the effective exchange rates for the euro, this simplifies comparisons between them. Therefore, comparison of developments in competitiveness across euro area countries is made easier. Differential developments are due to both differences in inflation and differences in the structure of countries' foreign trade.

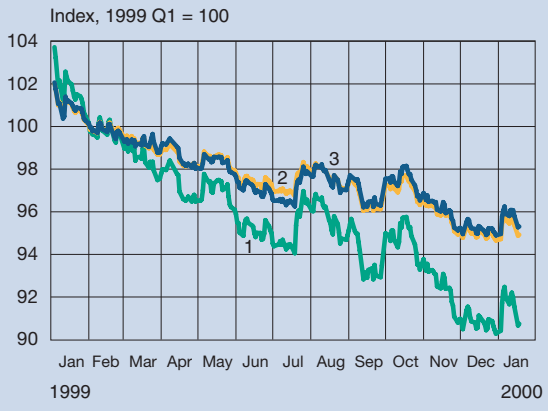
For each euro area country, the country composition and currency weights of its competitiveness indicators are determined by the geographical compo-

[1] For details of the Bank of Finland's trade-weighted currency index, see the articles in the *Bank of Finland Bulletin* (2/1984) and *Markka & talous* (3/1997; in Finnish).

[2] For a description of the effective exchange rate indices published by the ECB, see the October 1999 issue of the ECB *Monthly Bulletin*.

Chart 1.

Finland's new competitiveness indicators



1. Narrow competitiveness indicator
2. Narrow plus euro area competitiveness indicator
3. Broad competitiveness indicator

Source: Bank of Finland.

sition of its foreign trade. Consequently, the competitiveness indicators for Finland provide a measure of developments in the external value of the euro from the standpoint of Finnish foreign trade, and the Bank of Finland uses them for assessing the price competitiveness of Finnish production. By contrast, the effective exchange rates compiled by the ECB show movements in the external value of the euro from the point of view of the foreign trade of the euro area as a whole, and the Bank of Finland uses them as general measures of the euro's external value.

The Bank has constructed three indicators of competitiveness, which differ from each other in terms of their country composition. Each of them is calculated on a nominal and real basis. Nominal competitiveness indicators provide an average measure of developments in nominal exchange rates for the euro against currencies that are important for Finnish foreign trade. Real competitiveness indicators, by contrast, provide a picture of developments in consumer prices in Finland relative to those in other countries, expressed in a common currency.

The Bank calculates the nominal competitiveness indicators on a daily basis and the real indicators on a monthly basis. The indicators are published in the Bank's monthly statistical review *Financial Markets* and on its Internet website.

Country coverage of the competitiveness indicators

Finland's new competitiveness indicators cover 32 countries altogether. Table 1 shows the countries included in each indicator and their currency weights.

The *narrow competitiveness indicator* contains the same 13 countries as the ECB's effective exchange rate for the euro. The ECB selected these countries on the basis of importance as a trading partner for the euro area and data availability. Of these 13 countries, the most important trading partners for Finland are the United Kingdom, the United States and Sweden. Taken together, the countries covered by the narrow indicator accounted for 70% of Finland's manufacturing trade with countries outside the euro area over the period from 1995 to 1997.

The *narrow plus euro area competitiveness indicator* comprises the 13 narrow index trading partners and the (ten) euro area countries, giving a total of 23 countries. The third index is the *broad competitiveness indicator*, which includes a further nine countries that are important trading partners for Finland, such as Russia, China and Estonia, making 32 countries in all. These 32 countries together accounted for 93% of Finland's manufacturing trade over the period 1995 to 1997, and so the coverage of the index is very wide.

Movements in Finland's new nominal competitiveness indicators in 1999 are shown in Chart 1. The narrow indicator displays the most volatility, reflecting the fact that it does not include the euro area countries. In the new indicators, the index value falls when there is an improvement in the price competitiveness of Finnish production. It differs in this regard from the former Bank of Finland trade-weighted currency index, in which, conversely, a downward movement in the index represented a strengthening, on average, in the external value of the Finnish currency, ie a deterioration in price competitiveness.

The narrow competitiveness indicator is directly comparable with the euro's effective exchange rate: they have the same country coverage, only the currency weights differ (Chart 2). The narrow plus euro area competitiveness indicator and the broad competitiveness indicator complement the picture provided by the narrow indicator. These two indicators are comparable with, for example, the former Bank of Finland trade-weighted currency index in that they all include euro area countries. Not surprisingly, the narrow plus euro area indicator has moved fairly closely in line with the former currency index (Chart 3).

Methods used for calculating the competitiveness indicators

The nominal competitiveness indicator is calculated as a geometric weighted average of the bilateral euro exchange rates against the currencies included in the indicator. The real competitiveness indicator is calculated as the weighted average of real bilateral exchange rates, which are obtained by multiplying each nominal exchange rate by the ratio of the Finnish consumer price index to the consumer price index of the country concerned.

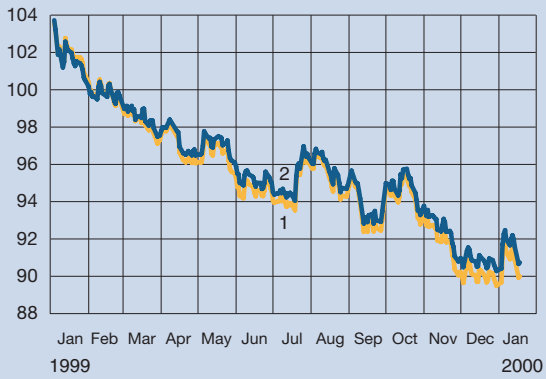
Historical data for the competitiveness indicators prior to 1999 have been calculated using movements in the markka's exchange rate instead of the euro, as the purpose of the indicators is to measure developments in the price competitiveness of Finnish production. By contrast, the ECB has calculated backdata for the euro's effective exchange rate in such a way that each bilateral exchange rate for the euro has been replaced by a weighted average of the exchange rates of the currencies of euro area countries against the non-euro area currency concerned.

As concerns the exchange rates against euro area countries, the nominal competitiveness indicators are calculated using the fixed conversion rates, except for the period prior to 1999. By contrast, the real exchange rates for euro area countries used in compiling the real competitiveness indicators are not fixed, and therefore the real indicators reveal inflation differences within the euro area.

Owing to inflation differences, the nominal competitiveness indicators provide only indicative measures of price competitiveness. Therefore real competitiveness indicators are more useful when analys-

Chart 2.

New currency indices for Finland and the euro area

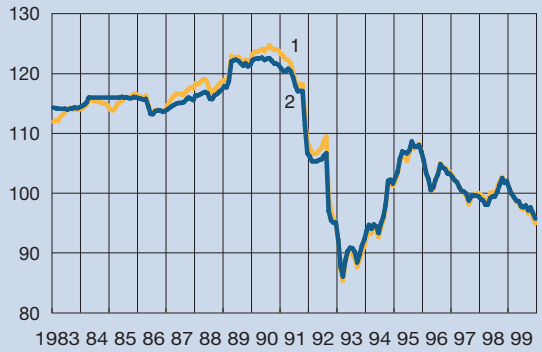


1. Euro's effective exchange rate
2. Finland's narrow competitiveness indicator

Sources: Bank of Finland and European Central Bank.

Chart 3.

Currency indices: comparison of historical data

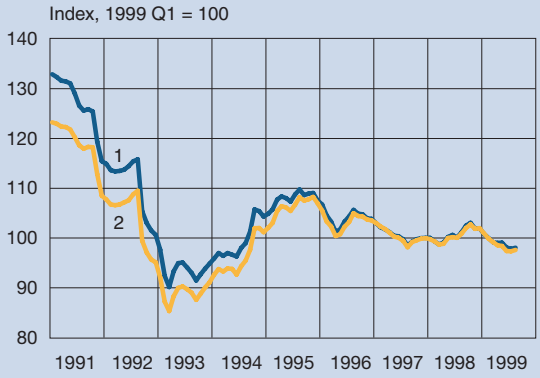


1. Narrow plus euro area competitiveness indicator
2. Former Bank of Finland currency index (rescaled reciprocal value)

Source: Bank of Finland.

Chart 4.

Narrow plus euro area competitiveness indicator



1. Real
2. Nominal

Source: Bank of Finland.

ing changes in price competitiveness over a long time horizon (Chart 4). This applies particularly to the broad competitiveness indicator, as it includes countries where in the future inflation could be substantially higher than in Finland.

Construction of currency weights

The weights for the currencies included in the competitiveness indicators are derived from data on international trade in manufactured goods over the period 1995–1997. The weights will be updated at roughly five-year intervals, the new series being linked to the old one by chaining.

The weights are computed as weighted averages of export and import weights. In the former Bank of Finland trade-weighted currency index, the weight of each currency was determined directly on the basis of the country's export and import shares in Finland's trade. The same method is used for calculating the import weights in the new competitiveness indicators. The import weight for a given currency is the share of the country concerned in total Finnish imports from all the countries included in the indicator. By contrast, the export weights are derived using the 'double-weighting' method, which takes into account both Finnish exports to the countries included in the index and competition between exporters in Finland and these countries in third markets.

In the double-weighting scheme, the countries of the world are divided into two groups: core countries and the rest of the world. The currencies of the core countries are included in the competitiveness indicator (see Table). The currencies of the rest-of-the-world countries are not included in the indicator but Finnish and core country exports to these countries affect the export weights of the core countries' currencies. For each core country, the export weight is determined by the size of the share of total Finnish exports that

Table. Currency weights in Finland's new competitiveness indicators, %

	Narrow competitiveness indicator	Narrow plus euro area competitiveness indicator	Broad competitiveness indicator	*Euro´s effective exchange rate (calculated by the ECB)*
United Kingdom	20.4	9.5	8.7	*23.9*
United States	20.2	10.8	9.5	*24.7*
Sweden	16.5	10.4	9.6	*6.1*
Japan	13.4	7.4	6.2	*14.8*
Denmark	6.3	3.7	3.5	*3.5*
Switzerland	5.9	2.2	1.9	*8.7*
South Korea	4.2	2.0	1.5	*4.8*
Norway	3.9	2.5	2.4	*1.7*
Hong Kong	3.0	1.6	1.1	*3.8*
Singapore	2.6	1.3	0.9	*3.4*
Canada	1.6	0.9	0.8	*1.9*
Australia	1.2	0.9	0.7	*1.1*
Greece	0.8	0.4	0.3	*1.5*
Russia	–	–	4.0	–
China	–	–	2.1	–
Estonia	–	–	1.6	–
Taiwan	–	–	1.1	–
Poland	–	–	1.0	–
Thailand	–	–	0.7	–
Malaysia	–	–	0.7	–
Indonesia	–	–	0.6	–
Czech Republic	–	–	0.6	–
Germany	–	19.2	16.7	–
France	–	6.8	6.0	–
Italy	–	5.9	4.9	–
Netherlands	–	5.4	4.9	–
Belgium	–	3.4	3.0	–
Spain	–	2.2	2.0	–
Austria	–	1.7	1.4	–
Ireland	–	0.9	0.9	–
Portugal	–	0.7	0.6	–
Luxembourg	–	0.2	0.1	–
Total	*100*	*100*	*100*	*100*

Sources: Bank of Finland and ECB.

Formulas used for calculating the competitiveness indicators

The nominal competitiveness indicator (*nci*) is a geometric weighted average of bilateral euro exchange rates, ie

$$nci = \prod_{i=1}^{N} e_i^{w_i}$$

where e_i is the euro's exchange rate against the currency of country *i* (expressed as a ratio of the exchange rate in the observation period to that in the base period), w_i is the currency weight for country *i* and *N* is the number of countries included in the indicator. The real competitiveness indicator is calculated in the same way as the nominal indicator, except that each exchange rate e_i is multiplied by the ratio of the Finnish consumer price index to the consumer price index of the country concerned. The base period of the indices is the first quarter of 1999, when the average value of each index was 100, ie 1999 Q1 = 100.

The currency weight w_i for country *i* is derived as the weighted average of the currency's import weight w_i^m and export weight w_i^x:

$$w_i = \frac{m}{m+x} \times w_i^m + \frac{x}{m+x} \times w_i^x$$

where *m* represents the combined total of Finnish imports from all the countries included in the index and *x* represents total Finnish exports to all countries in the world. The trade flow figures refer to international trade in manufactured goods from 1995 to 1997.

Country *i*'s import weight w_i^m represents that country's share in the combined exports to Finland by the countries included in the index, ie the core countries. Country *i*'s export weight w_i^x is calculated as follows:

$$w_i^x = \sum_{j=1}^{H} x_j y_j^i$$

where x_j is country *j*'s share of total Finnish exports. If i≠j, then y_j^i is the share of country *i*'s exports in total supply in country *j*, where total supply is the combined production of all core countries that is sold in country *j*'s home market. If i=j, then y_j^i represents the share of domestic output in total supply in country *j*. *H* is the sum of core countries and rest-of-the-world countries.

competes with domestic producers in the core country's home market or with this country's exporters in markets in third countries. Third countries comprise the other core countries and the rest-of-the-world countries.

The final weights are derived as weighted averages of the export and import weights. For example, in the narrow competitiveness indicator for Finland the weight of exports for each currency is 75.4% and the weight of imports is 24.6%. This method of forming the weights is the same as that used by the ECB in calculating the effective exchange rates for the euro.

25 January 2000

Key words: competitiveness indicators, effective exchange rate, currency index, exchange rates

Presidential elections – Tarja Halonen becomes Finland's new president

The president of the Republic of Finland is elected by direct popular vote, if necessary, in two rounds. Finland held its presidential elections on 16 January and 6 February 2000. The second round was necessary because none of the seven candidates received an absolute majority in the first round.

In the first round, the turnout was 76.9 per cent. The results were as follows.

Candidates in the first round	Percentage of votes
Tarja Halonen (Social Democratic Party)	40.0
Esko Aho (Centre Party)	34.4
Riitta Uosukainen (National Coalition Party)	12.8
Elisabeth Rehn (Swedish People´s Party)	7.9
Heidi Hautala (Green League)	3.3
Ilkka Hakalehto (Independent Finland 2000 and True Finns)	1.0
Risto Kuisma (Reform Group)	0.6

Having taken the top two places, Ms Tarja Halonen and Mr Esko Aho went forward to the second round.

Tarja Halonen received 51.6 per cent of the votes in the second round and was therefore elected President of the Republic for the term 1 March 2000 to 1 March 2006. The turnout in the second round was 80.2 per cent.

Tarja Halonen (56) is a lawyer by profession. She has been a Member of Parliament since 1979 and has served as Minister at the Ministry of Social Affairs and Health (1987–1990), Minister for Nordic Cooperation (1989–1991), Minister of Justice (1990 –1991) and Minister of Foreign Affairs (since 1995).

The Eurosystem's monetary policy instruments 14 February 2000

Key interest rates

The main refinancing operations are the principal monetary policy instrument used by the Eurosystem[1]. Changes in the interest rate applied in the main refinancing operations signal the stance of the Eurosystem's monetary policy and have a major impact on the shortest money market rates. Pursuant to the decision taken by the Governing Council of the ECB on 3 February 2000, the interest rate applied to the main refinancing operations is 3.25 per cent, effective 9 February 2000.

The Eurosystem uses the rates on its standing facilities to bound overnight market interest rates. The interest rates on the marginal lending facility and the deposit facility are set separately by the Eurosystem. Effective 4 February 2000, the interest rate on the Eurosystem's marginal lending facility is 4.25 per cent and the overnight interest rate on the deposit facility 2.25 per cent.

Open market operations

Open market operations play an important role in the monetary policy of the Eurosystem. They are used for the purposes of steering interest rates, managing the liquidity situation in the market and signalling the stance of monetary policy. Open market operations are normally executed by the national central banks on the initiative of the ECB. Open market operations can be divided into four categories:

1) The *main refinancing operations* are weekly liquidity-providing operations executed by the national central banks through standard tenders and with a maturity of two weeks. They play a pivotal role in pursuing the purposes of the Eurosystem's open market operations and provide the bulk of refinancing to the financial sector.

2) The *longer-term refinancing operations* are liquidity-providing standard tender operations with a monthly frequency and a maturity of three months. These operations aim to provide counterparties with additional longer-term refinancing. In these operations, the Eurosystem does not intend to send signals to the market and therefore the operations are normally executed on the basis of variable-rate tenders.

3) *Fine-tuning operations* are executed on an ad hoc basis in order to smooth interest rate movements caused by unexpected changes in market liquidity. Fine-tuning operations are executed by the national central banks primarily as reverse transactions, but they can also take the form of outright transactions, foreign exchange swaps and the collection of fixed-term deposits. Fine-tuning operations are executed through quick tenders or bilateral procedures. Under exceptional circumstances and by decision of the Governing Council of the ECB, the ECB may execute fine-tuning operations in a decentralized manner.

4) *Structural operations* are executed with the aim of adjusting the structural position of the Eurosystem vis-à-vis the financial sector. Structural operations can be executed through reverse transactions, outright transactions or the issuance of ECB debt certificates.

Standing facilities

The standing facilities are intended to limit excessive momevents in overnight interest rates by providing or absorbing overnight liquidity and to signal the general stance of monetary policy. Two standing facilities are available: the marginal lending facility and the deposit facility. Counterparties can use the marginal lending facility to obtain overnight liquidity from the national central banks against eligible assets. The interest rate on the marginal lending facility provides a ceiling for the overnight market interest rate. Counterparties can use the deposit facility to make overnight deposits with the national cen-

[1] The European System of Central Banks (ESCB) comprises the European Central Bank (ECB) and the national central banks of the EU member states. The Eurosystem is composed of the ECB and the national central banks of the member states participating in Stage Three of Economic and Monetary Union. The Eurosystem's supreme decision-making body is the Governing Council of the ECB, which comprises the six members of the Executive Board of the ECB and the governors of the eleven national central banks forming the Eurosystem.

tral banks. The interest rate on the deposit facility provides a floor for the overnight market interest rate. Under normal circumstances, there are no quantitative limits on access to the standing facilities.

Minimum reserve system

The Eurosystem's minimum reserve system applies to credit institutions in the euro area and primarily pursues the aims of stabilizing money market interest rates and creating (or enlarging) a structural liquidity shortage. The reserve base of each credit institution is defined in relation to liability items on its balance sheet. The reserve base includes deposits, debt securities issued and money market paper. However, liabilities vis-à-vis other institutions subject to the minimum reserve system are not included in the reserve base. Liabilities included in the reserve base are subject to either a 2 per cent reserve ratio or to a zero reserve ratio. Liabilities included in the reserve base and to which a zero reserve ratio is applied comprise deposits with an agreed maturity of over two years, repos and debt securities issued with an agreed maturity of over two years.

In order to pursue the aim of stabilizing interest rates, the Eurosystem's minimum reserve system enables institutions to make use of averaging provisions. Compliance with the reserve requirement is determined on the basis of the institution's average daily reserve holdings over a one-month maintenance period. Institutions' holdings of required reserves are remunerated at the interest rate of the main refinancing operations. The Eurosystem's minimum reserve requirement is applicable to the following credit institutions that engage in banking business in Finland:

Aktia Savings Bank plc
Bank of Åland plc
Citibank International plc, Finland Branch
Crédit Agricole Indosuez, Helsinki Branch
Den Danske Bank, Helsinki Branch
Gyllenberg Private Bank Ltd
Leonia Bank plc
Mandatum Bank Plc
Merita Bank Plc
Okopankki Oyj
OP-Kotipankki Oyj
OKOBANK Osuuspankkien Keskuspankki Oyj
Skopbank
Svenska Enskilda Banken AB (publ), Helsinki Branch
Svenska Handelsbanken AB (publ),
Branch Operation in Finland
Trevise Bank Plc
Unibank A/S, Helsinki Branch
Other cooperative and savings banks

Counterparties to monetary policy operations

Credit institutions subject to the Eurosystem's minimum reserve system may, in general, access the Eurosystem's standing facilities and participate in the Eurosystem's main refinancing operations and longer-term refinancing operations. The Eurosystem has, however, limited the number of counterparties for fine-tuning operations and structural operations to counterparties that are active players in the money market. For outright transactions, no restrictions are placed on the range of counterparties. For foreign exchange swaps, the counterparties must be counterparties for foreign exchange intervention operations who are active players in the foreign exchange market.

Assets eligible for monetary policy operations

Under the ESCB/ECB Statute, all the Eurosystem's credit operations must be based on adequate collateral. The Eurosystem accepts a wide range of securities, issued by both public sector and private sector entities, as underlying assets for its operations. For purposes internal to the Eurosystem, eligible assets are divided into two categories. 'Tier one' consists of marketable debt instruments fulfilling uniform euro area-wide eligibility criteria specified by the ECB. 'Tier two' consists of assets, both marketable and non-marketable, that are of particular importance for national financial markets and banking systems and for which eligibility criteria are established by the national central banks and approved by the ECB. Both tier one and tier two assets may be used as collateral for Eurosystem monetary policy operations. A list of eligible assets is available on the ECB's website (https://mfi-assets.ecb.int). More detailed information on the Eurosystem's monetary policy instruments is posted on the Bank of Finland's website (http://www.bof.fi/rhindex.htm).

Recent Bank of Finland research publications

A complete list of Bank of Finland publications is available from the Bank of Finland, Address register, P.O.Box 160, 00101 Helsinki, Finland.

Publications series

Series E

ISSN 1238-1691 (print)
ISSN 1456-5951 (online)

E:16
Juha Kasanen **Ilmoitusvelvollisten osakeomistus ja -kaupat Helsingin Pörssissä** (Corporate insiders' shareholdings and trading on the HEX Helsinki Exchanges). 1999. 146 p. ISBN 951-686-630-1, print; ISBN 951-686-631-X, online.

E:17
Mikko Spolander **Measuring Exchange Market Pressure and Central Bank Intervention**. 1999. 118 p. ISBN 951-686-645-X, print; ISBN 951-686-646-8, online.

Discussion Papers

ISSN 0785-3572

17/99
Ilmo Pyyhtiä **The Nonlinearity of the Phillips Curve and European Monetary Policy**. 33 p. ISBN 951-686-637-9.

18/99
Jorma Hilpinen – Heikki Hella **Changes in Finland's International Investment Position, 1985–1998. A Brief Statistical Analysis**. 20 p. ISBN 951-686-638-7.

19/99
Ari Hyytinen **Stock Return Volatility on Scandinavian Stock Markets and the Banking Industry. Evidence from the Years of Financial Liberalization and Banking Crisis**. 26 p. ISBN 951-686-640-9.

20/99
Markku Lanne **Testing the Expectations Hypothesis of the Term Structure of Interest Rates in the Presence of a Potential Regime Shift**. 19 p. ISBN 951-686-641-7.

21/99
Markku Malkamäki – Jukka Topi **Strategic Challenges for Exchanges and Securities Settlement**. 34 p. ISBN 951-686-642-5.

22/99
Juha Tarkka – David Mayes **The Value of Publishing Official Central Bank Forecasts**. 40 p. ISBN 951-686-643-3.

23/99
Matti Suominen **Industry Equilibrium with Outside Financing and Moral Hazard: Effects for Market Integration**. 17 p. ISBN 951-686-644-1.

BOFIT Discussion Papers

ISSN 1456-4564 (print)
ISSN 1456-5889 (online)

6/1999
Iikka Korhonen **Currency Boards in the Baltic Countries: What Have We Learned?** 39 p. ISBN 951-686-910-6, print; ISBN 951-686-911-4, online.

7/1999
Vadims Sarajevs **Macroeconomic Model of a Transition Economy: A Stochastic Calculus Approach.** 45 p. ISBN 951-686-912-2, print; ISBN 951-686-913-0, online.

8/1999
Ville Kaitila **Trade and Revealed Comparative Advantage: Hungary, the Czech Republic and the European Union.** 57 p. ISBN 951-686-914-9, print; ISBN 951-686-915-7, online.

1/2000
Victor Polterovich **Employment-wage decisions in the insider-owned firm.** 43 p. ISBN 951-686-916-5, print; ISBN 951-686-917-3, online.

2/2000
Rupinder Singh **Bank Regulation, Compliance and Enforcement.** 23 p. ISBN 951-686-918-1, print; ISBN 951-686-919-X, online.

3/2000
Terri L. Ziacik **An assessment of the Estonian investment climate: Results of a survey of foreign investors and policy implications**. 52 p. ISBN 951-686-920-3, print; ISBN 951-686-921-1, online.

Abstracts

Series E

Corporate insiders' shareholdings and trading on the HEX Helsinki Exchanges

Juha Kasanen
E:16

At the end of 1997 there were in all some 1,500 employees of listed companies who were subject to disclosure requirements. The holdings of these 'corporate insiders' accounted for about 2 per cent of the total capitalization of HEX Helsinki Exchanges at the end of 1997. Insiders account for the ownership of small companies to a much greater extent than large companies, whether measured by markka value of shareholdings or companies' capitalized value. So-called controlled companies (under insiders' control) are in a key position as owners of these companies. Their holdings are larger than those of private individuals and they trade shares more actively.

In this study, we employ the event study technique, which is widely used in applied econometric research, to analyse insider trading on the HEX. The aim is to determine whether insiders are better able to time their share trades than investors on average.

The data cover share trades carried out by corporate insiders and controlled companies during the period 1 August 1996 – 31 December 1997. The total value of corporate insider trading was about FIM 1.6 billion and the number of trades about 2,000.

The results indicate that insiders' returns on share trades are randomly distributed and that there is no discernible causal relationship between share returns and insider trades. The timing of insiders' trades does not differ significantly (in a statistical sense) from that of trading in general. These findings are similar to the findings of recent studies using data from foreign stock exchanges.

In order to ensure the robustness of the results, several different methods were used to analyse excess returns. In contrast to most foreign studies, company-specific analysis was included in this study. The results using the different methods were generally similar.

It seems clear that corporate insiders' share trading is not a particularly important factor as regards the reliability and credibility of share trading on the HEX. However, the results do not exclude the possibility of individual cases of misuse of inside information.

■ Key words: corporate insider, insider trading, inside information, disclosure, insider holdings

Measuring Exchange Market Pressure and Central Bank Intervention

Mikko Spolander
E:17

This study contributes to the measurement of exchange market pressure and central bank intervention policy in a system of floating currency and partly sterilized foreign exchange interventions. A model-consistent approach is used. The measures of exchange market pressure and degree of intervention in the foreign exchange market are derived in the context of an empirically oriented small open economy monetary model with rational expectations. Monetary and foreign exchange policies are explicitly defined and foreign exchange interventions are allowed to be partly sterilized. Finally, the model is applied to Finnish data in order to analyse the pres-

sure on the markka, which was floating during the period 1992–1996, and the Bank of Finland's reaction to that pressure. In contrast to most other empirical studies using various proxy variables, actual intervention data is used.

According to the estimation results, the inclusion of the monetary policy reaction function and especially the sterilization of foreign exchange intervention makes the values of the measures of exchange market pressure and intervention policy more realistic and hence easier to interpret. This means that the fact that foreign exchange interventions are at least partly sterilized in the main industrial countries should be taken into account when exchange market pressure and central bank intervention policy are measured. This has not been done in other studies using a model-consistent approach. When the Bank of Finland's reaction to exchange market pressure is analysed, the results seem to suggest that the Bank let the markka float quite freely, reduced its intervention activity gradually as exchange market pressure diminished, and considered markka appreciation more desirable than depreciation during the markka float.

■ Key words: exchange market pressure, foreign exchange intervention, intervention policy, Finland

Discussion Papers

The Nonlinearity of the Phillips Curve and European Monetary Policy
Ilmo Pyyhtiä
17/99

This paper deals with the question of whether the euro area Phillips curve is nonlinear. There has recently been a great deal of discussion and studies concerning the same question in the US context. The data set includes most of the euro area countries, namely Austria, Germany, Finland, France, Italy, the Netherlands and Spain. Estimation is made both with pooled data and with country-specific models. The results give a clear indication of nonlinearity of the Phillips curve in many euro area countries. The curve is asymmetric in the sense that, with a positive output gap (actual output is greater than potential output), its impact on inflation is positive, but, with a negative output gap, the deflationary impact is very small and not significant as a rule. The Phillips curve has been especially asymmetric in Germany, Finland, Italy, the Netherlands and Spain.

An important result of the study is the strong negative influence of inflation uncertainty on GDP in the euro area countries during the estimation period, 1976–1997. This effect was very strong in pooled data but also at country level. This result is new in the sense that a Lucas-type supply function and especially nonlinear versions of it have not been estimated very often. Another interesting result is that Phillips curves can be estimated with good success using OECD Secretariat forecast data for inflation expectations.

A very important result for monetary policy are the large differences between countries as regards the slope and shape of the Phillips curve. The policy implication of nonlinearity is clear. The costs of unduly expansive monetary policy could be high in the euro area in the medium term. Nonlinearity also means that inflation pressure in the euro area is dependent not only on the average demand situation but also on how economic activity is distributed across the region.

■ Key words: Phillips curve, nonlinearity, monetary policy, uncertainty, euro area country differences

Changes in Finland's International Investment Position, 1985–1998
A Brief Statistical Analysis
Jorma Hilpinen – Heikki Hella
18/99

This paper attempts to describe and compare developments in the components of Finland's net international investment position (NIIP). The data consist of sectoral flows and valuation items over the period 1985–1998, which is, for analytical purposes, broken down into two subperiods: before and after the Finnish markka was floated. The study focuses on the main sectors, ie banks, corporations and the central government. Valuation items (changes in exchange rates and equity prices) are also important in the decomposition of the NIIP, particularly as regards recent history of equity prices. The mean and vari-

ability of each item is estimated, and for some items also bivariate robust variance tests are carried out.

The major feature in Finland's balance of payments has been nonresidents' increased interest in Finnish equities as an investment outlet. This phenomenon, along with the boom in share prices, has in recent years raised the value of the equity holdings of nonresidents to the point where they are the most significant item in Finland's international investment position. Another important feature in the BOP is the rapid growth of the central government's foreign debt due to the deep recession of 1991–1994. In the case of Finland, it is important to note the different stories told by developments in NIIP vs net external debt components: NIIP figures indicate that ownership of corporations based in Finland has indeed become global and that the value of shares has been increasing, whereas net external debt figures indicate that the economy has succeeded in restoring external indebtedness to pre-recession levels.

The results also confirm that the Finnish banks still contribute prominently to variations in Finnish BOP flows. As regards the late 1980s and early 1990s, this can be inferred from the highly bank-oriented structure of Finnish financial markets, but the same holds true during the 1990s as well in the period of recovery from economic crisis.

■ Key words: balance of payments, international investment position, net external debt

Stock Return Volatility on Scandinavian Stock Markets and the Banking Industry. Evidence from the Years of Financial Liberalization and Banking Crisis
Ari Hyytinen
19/99

This paper investigates the evolution of the (conditional) volatility of returns on three Scandinavian markets (Finland, Norway and Sweden) over the turbulent period of the past decade, namely the overlapping periods of financial liberalization, drastically changing macroeconomic conditions and banking crisis. We find that even over this relatively turbulent period volatility is in most cases successfully captured by past volatility and shocks to past volatility, ie by a (symmetric) GARCH process. In each country banking crisis has induced regime shifts in (unconditional) volatility. We also find evidence for cross-country volatility spillovers during the banking crisis episodes. The estimated volatility patterns suggest that even though the volatility of returns was of very high magnitude during the years of banking crisis, developments within the banking industry were not reflected in market uncertainty until all the damage had been done and the severe problems afflicting banks began to be realized in full.

■ Key words: GARCH, conditional volatility, banking crisis, volatility spillovers

Testing the Expectations Hypothesis of the Term Structure of Interest Rates in the Presence of a Potential Regime Shift
Markku Lanne
20/99

The expectations hypothesis of the term structure of interest rates is tested using monthly Eurodollar deposit rates for maturities of 1, 3 and 6 months covering the prediod 1983:1–1996:6. Whereas classical regression-based tests indicate rejection, tests based on a new model allowing for potential – but unrealized – regime shifts provide support for the expectations hypothesis. The peso problem is modelled by means of a threshold autoregression. The estimation results suggest that a potential regime shift had an effect on expectations concerning the longer-term interest rate only for a short while in the early phase of the sample period, when interest rates were at their highest.

■ Key words: peso problem, TAR models, term structure of interest rates

Strategic Challenges for Exchanges and Securities Settlement
Markku Malkamäki – Jukka Topi
21/99

A common feature of major trends in securities and derivative markets is that they facilitate cross-border competition between financial institutions and markets. These trends include financial deregulation, technologi-

cal developments that increase network externalities and the introduction of the single currency in Europe. This paper discusses future prospects for stock and derivative exchanges and securities settlement systems globally in the light of this analytical framework.

The increased contestability of the financial markets opens the way for a completely new situation where economies of scale and network effects enable new systems to challenge existing exchanges and settlement systems. This has already led towards more integrated trading and settlement infrastructure via mergers, alliances, links, agreements and other forms of cooperation between existing infrastructure companies. At the same time new electronic communication networks and electronic exchanges operated by members of exchanges or off-exchange companies and Internet brokers have emerged.

We expect that economies of scale and scope and network effects will foster global competition. The business conducted by brokers and exchanges will tend to converge, thus posing a major challenge for the management of these businesses. Trading and settlement services for the most liquid global trading products will, we believe, be provided by limited liability companies that employ efficient governance practices. We anticipate that US stock and derivative exchanges will have to adopt fully electronic trading systems. This might lead to intense competition between exchanges in the US and globally. We also anticipate that European alliances will be based on a more efficient operational model than the models proposed so far. An increase in Internet-routed equity and derivative trades will lead to partial fragmentation of liquidity. As technology advances, we expect pooling of liquidity in one of the networks.

■ Key words: exchanges, settlement systems, technology, network externalities, economies of scale

The Value of Publishing Official Central Bank Forecasts
Juha Tarkka – David Mayes
22/99

The aim of the present analysis is to shed light on the question whether central banks should publish their macroeconomic forecasts, and what could possibly be gained in monetary policy if they did so. We show that disclosing the central bank's assessment of the prevailing inflationary pressures in the form of a forecast improves macroeconomic performance even if this assessment is imprecise. This is because it makes policy more predictable. We are also interested in finding out the useful content of the forecasts, if published, and answering the question whether it makes a difference if these official forecasts are "unconditional" in the sense of incorporating the Central Bank's forecasts of its own policy as well, or "conditional" on some other policy assumption. Possible conditional alternatives may include assuming unchanged instruments, however specified, or assuming the kind of policy that the private sector is estimated to expect. The analysis comes out in favour of publishing unconditional forecasts, which reveal the intended results of monetary policy. A discussion of some practical issues related to publishing official macroeconomic forecasts is also provided.

■ Key words: forecasting, transparency, monetary policy, central banks

Industry Equilibrium with Outside Financing and Moral Hazard: Effects of Market Integration
Matti Suominen
23/99

In this paper we study industry equilibrium and the effects of integration under the assumptions that 1) firms must use outside financing and 2) they face a moral hazard problem due to the possibility of taking excessive risks. These are typical features of banking and insurance, for instance. We examine an industry equilibrium where firms choose not to take excessive risks and compare this with the equilibrium in industries that do not have a moral hazard problem. We show that, as markets integrate, competition intensifies and prices fall in both types of industry. In markets with moral hazard there are relatively more exits, a smaller fall in prices and, contrary to the other case, the market value of the industry increases.

■ Key words: industry equilibrium, outside financing, risk-taking behaviour, market integration.

BOFIT Discussion Papers

Currency boards in the Baltic countries: What have we learned?
Iikka Korhonen
6/99

Straightforward exchange rate arrangements known as currency boards have gained popularity during the past decade. Among transition economies, Estonia first introduced a currency board in 1992, followed by Lithuania in 1994 and Bulgaria in 1997. Currency boards have been useful in achieving macroeconomic stabilization, and they may have helped the Baltics become the first countries of the former Soviet Union (FSU) to achieve economic growth after the slump in production of the early 1990s. Moreover, Baltic inflation performance has been substantially better than in other FSU countries. Both in Estonia and Lithuania, the present exchange rate system has been accompanied by strong real appreciation of the currency, although it is widely accepted that the currencies were very much undervalued at the beginning of their pegs. However, if rapid real appreciation is accompanied by increases in the labour productivity, the present pegs can be maintained. Banking crises in Estonia and Lithuania have not been particularly severe, so apparently rigid currency pegs have not been accompanied by excessive financial sector instability. The tight fiscal policies pursued in both countries, especially Estonia, have been instrumental to the success of these currency board arrangements.

■ Key words: exchange rate, currency board, Baltic countries

Macroeconomic Model of a Transition Economy: A Stochastic Calculus Approach
Vadims Sarajevs
7/99

An integrated stochastic macroeconomic model of a transition economy at the early stage of reforms with optimizing representative risk averse agents is constructed. The equilibrium growth rate of the economy, real asset returns, domestic money demand, and expected inflation rate are determined as functions of the exogenous risks in the economy. The main issues addressed are: domestic money demand, currency substitution ratio, expected rate of inflation, real asset returns, the equilibrium growth rate of the economy as well as government ability to control these variables. Analysis of the model finds that the equilibrium growth rate of the economy is not independent of the monetary and fiscal policies but can be affected by the government through its ability to fix the real cost of capital for the firm, expenditure and monetary policy parameters.

■ Key words: transition economy, stochastic model, fiscal policy

Trade and Revealed Comparative Advantage: Hungary, the Czech Republic, and the European Union
Ville Kaitila
8/99

This study analyses the trade of Hungary and the Czech Republic with the European Union in 1997. After a general introduction, the focus turns to the extent of intra-industry trade (IIT) and its horizontal and vertical components. The extent of IIT is also analysed in the light of the flows of foreign direct investment (FDI) from the European Union to Hungary and the Czech Republic. This is followed by an analysis of revealed comparative advantage (RCA) in trade between the EU and the two Central European countries. The CN4-digit trade data is divided into two groups according to whether a country enjoys a revealed comparative advantage in a given market area or not. Statistical tests are performed to determine the extent to which the RCA structures of each pair of countries are dependent. The analysis also takes into account the volumes of trade flows.

■ Key words: revealed comparative advantage, intra-industry trade, Hungary, Czech Republic, EU

Employment-wage decisions in the insider-owned firm
Victor Polterovich
1/2000

The paper is intended to explain low sensitivity of employment decisions observed in transition economies where insider ownership prevails and capital markets are not highly developed. We introduce a stability concept for employment levels of a labour-managed firm and prove that there exists a segment of stable employment levels. If a level belongs to the interior of the segment then the firm keeps the same labour input under any not too large changes. By contrast the wage rate is responsive. Only the firms on the boundaries of the segment may reconsider employment decisions. Deterioration of market conditions entails decreasing labour inputs for the firms with much excess labour and, the same time, increases employment for the firms with low levels of labour inputs. This creates inter-firm flows of labour and restrains the rise of total unemployment. Stability segments exist also for firms where employment-wage decisions are made by bargaining between workers and managers, and may exist for manager-dominated firms as well. Several concepts of labour hoarding are discussed.

■ Key words: labour-owned enterprises, transition, Russia

Bank Regulation, Compliance and Enforcement
Rupinder Singh
2/2000

A model is presented where the question of bank regulation is developed under a principal-agent scenario in a regime where the regulator has limited resources and banks may have an incentive to act ultra virus the regulatory standards. If banks are subject to random audit, then compliance is achieved through a system of fines determined according to the extent of non-compliance. The model shows that the choice of internal monitoring of risk is driven by each bank's choice of the wage contract for its compliance officer who works for the ban for a wage. The officer's incentive for effective monitoring is heightened by the threat of an internal fine from the bank for any contravention of regulations. Moreover, either a fine on the bank or a fine on the compliance officer alone is sufficient to ensure that efficiency is achieved. The model is useful for the bank regulator in a market economy and in transition economies, where the effective constraint on regulatory capacity is addressed using market-based incentives to ensure prudent regulation and effective supervision, and thereby limit the danger of bank failure and contagion.

■ Key words: banking, regulation, supervision, enforcement, transition economies

An assessment of the Estonian investment climate: Results of a survey of foreign investors and policy implications
Terri L. Ziacik
3/2000

Credible economic reform has played a key role in Estonia's success in attracting significant amounts of foreign direct investment. This paper analyses two years of data from a survey of foreign investors in Estonia to determine the major motivations to invest and the greatest problems faced by investors. Results indicate that the labour force and market-related factors are the primary motivations for investors coming to Estonia, while bureaucracy, corruption, and labour quality are the greatest problems. Ordered probit analysis of the factor rankings supports previous findings that investor characteristics such as export orientation, mode of entry, or industry can explain factor evaluation for some, but not all, factors. This method can be used by policy makers to identify whether certain types of investors are likely to be affected differently by the host country investment climate.

■ Key words: foreign direct investment, transition, Estonia, ordered probit

Finland in brief

Land, climate and population

Finland covers an area of more than 338,000 square kilometres. The total area is slowly increasing because of the steady uplift of the land since the last glacial era. The country shares frontiers with Sweden in the west, Norway in the north and Russia in the east and has a coastline bordered by the Baltic Sea in the south and west. Agricultural land accounts for 6% of the total area, forest and other wooded land for 68% and inland waters for 10%. Located between latitudes 60° and 70° north, Finland has warm summers and cold winters. Helsinki on the south coast has an average maximum temperature of 21° C (70° F) in July and –3° C (25° F) in February.

Finland has a population of 5,159,646 (31 December 1998) and an average population density of 17 per square kilometre. The largest towns are Helsinki (Helsingfors), the capital, with 546,317 inhabitants, Espoo (Esbo) 204,962, Tampere (Tammerfors) 191,254, Vantaa (Vanda) 173,860 and Turku (Åbo) 170,931.

There are two official languages: 93% of the population speaks Finnish as its mother tongue and 5.7% Swedish. There is a small Lapp population in the north. Finnish is a member of the small Finno-Ugrian group of languages, which also includes Estonian and Hungarian.

Form of government

Finland is a parliamentary democracy with a republican constitution. From the twelfth century to 1809 Finland was part of the Kingdom of Sweden. In 1809 Finland was annexed to Russia as an autonomous Grand Duchy with the Tsar as Grand Duke. On 6 December 1917 Finland declared her independence. The republican constitution adopted in 1919 remains essentially unchanged today.

The legislative power of the country is exercised by Parliament and the President of the Republic. The supreme executive power is vested in the President, who is elected for a period of six years. The President for the current term, 1 March 2000 to 1 March 2006, is Ms Tarja Halonen.

Parliament, comprising 200 members, is elected by universal suffrage for a period of four years. Following the parliamentary elections of 1999, the seats of the various parties in Parliament are distributed as follows:

Social Democratic Party 51; Centre Party 48; National Coalition Party 46; Left Alliance 20; Swedish People's Party 12; Green League 11; Christian League 10; True Finns 1; and Reform Group 1.

Of the 18 ministerial posts in the present Government appointed in April 1999, 6 are held by the Social Democratic Party, 6 by the National Coalition Party, 2 by the Left Wing Alliance, 2 by the Swedish People's Party, 1 by the Green League and 1 by an expert with no party affiliation. The Prime Minister is Mr Paavo Lipponen of the Social Democratic Party.

Finland is divided into 452 self-governing municipalities. Members of the municipal council are elected by universal suffrage for a period of four years.

International relations

Finland became a member of the BIS in 1930, the IMF in 1948, the IBRD in 1948, GATT in 1950, the UN in 1955, the Nordic Council in 1955, the IFC in 1956, IDA in 1960, EFTA in 1961, the ADB in 1966, the OECD in 1969, the IDB in 1977, the AfDB in 1982, the MIGA in 1988, the Council of Europe in 1989, the EBRD in 1991 and the EU in 1995.

Citizens of the five Nordic countries, Denmark, Finland, Iceland, Norway and Sweden, have enjoyed a common labour market, a passport union and reciprocal social security benefits since the mid-1950s.

Having abolished most quantitative restrictions on foreign trade in 1957, Finland first took part in European free trade arrangements under the auspices of EFTA in 1961. Finland's free trade agreement with the EEC entered into force in 1974 and agreements for the removal of trade barriers were concluded with several eastern European countries as well. The agreement on the European Economic Area (EEA) between the member countries of EFTA and the European Union came into effect at the beginning of 1994. Finland became a member of the European Union on 1 January 1995. Finland and ten other EU countries entered Stage Three of EMU in 1999.

The economy

Output and employment. Of the gross domestic product of FIM 592 (EUR 100) billion in basic values in 1998, 1.3% was generated in agriculture, hunting and fishing, 2.5% in forestry, 28.2% in industry, 5.0% in construction, 12.2% in trade, restaurants and hotels, 9.2% in transport and communications, 4.1% in finance and insurance, 16.7% in other private services and 20.8% by producers of government services. Of total employment of 2.2 million persons in 1998, 6.6% were engaged in primary production, 28.0% in industry and construction and 65.4% in services.

In 1998 expenditure on the gross domestic product in purchasers' values amounted to FIM 687 (EUR 116) billion and was distributed as follows: net exports 8.9% (exports 39.0%, imports –30.1%), gross fixed capital formation 18.6%, private consumption 50.3% and government consumption 21.7%. Finland's tax ratio (gross taxes including compulsory employment pension con-

tributions relative to GDP) was 46.2%, which is somewhat below the average for the Nordic countries.

Average annual (compounded) growth of real GDP was 4.7% in the period 1950–59, 5.0% in 1960–69, 3.7% in 1970–79, 3.6% in 1980–89 and 1.4% in 1990–98. Finland's GDP per capita in 1998 was USD 24,938.

Foreign trade. EU countries absorb the bulk of Finnish merchandise exports. In 1995–1999 their average share was 55.9%. Over the same period, Finnish exports to other European countries (including Russia) accounted for 18.2% and to the rest of the world for 25.9%. During the same period the regional distribution of Finnish merchandise imports was quite similar to that of exports: EU countries accounted for 56.0%, other European countries for 16.8% and the rest of the world for 27.2%.

In 1999 the share of forest industry products in total merchandise exports was 29.4%, the share of metal and electrical products 53.2% and the share of other goods 17.4%. Raw materials and intermediate goods and energy together accounted for 49.8% of merchandise imports, capital goods for 25.8% and durable and non-durable consumer goods for 24.3%.

Forest resources. Finland has abundant forest resources but only limited amounts of other raw materials. The growing stock comprises 1,927 million cubic metres, of which 46% is pine, 36% spruce, 15% birch and 3% other broad-leaved species.

According to the National Forest Inventory for 1992–1998, the annual volume increment was about 76 million cubic metres. Over the same period the average annual drain was about 59 million cubic metres.

Finance and banking

Currency. Finland had its own monetary system from 1865 to 1998. The currency unit was the markka (plural markkaa), which was divided into 100 penniä (singular penni). During the last decades of this period the objective of foreign exchange policy was to maintain a fixed exchange rate in relation to a given currency basket. On 8 September 1992 the markka was allowed to float. On 14 October 1996 the markka joined the Exchange Rate Mechanism of the European Monetary System. Since the beginning of 1999 Finland has participated in the single currency area, in accordance with the Treaty establishing the European Community. The conversion rate for the markka, as confirmed by the Council of the European Union on 31 December 1998, is 5.94573. With effect from the beginning of 1999 the currency unit used in Finland is the euro, which is divided into 100 cent. The markka will, however, remain as the national denomination of the euro until the year 2002, and during this time notes and coins denominated in markkaa will continue to be used.

The Central Bank. The two new laws adopted in 1997 and 1998 make Finnish legislation compatible with the requirements of the Treaty establishing the European Community and the Statute of the European System of Central Banks and the European Central Bank. The latter law, the new Act on the Bank of Finland, integrates the Bank of Finland into the ESCB. In performing the tasks of the ESCB, the Bank of Finland acts in accord with guidelines and instructions issued by the ECB. Under the Treaty, the primary objective of the Bank of Finland is to maintain price stability. The new Act did not change the division of responsibilities between the Parliamentary Supervisory Council and the Board. The tasks of the Council are connected with supervision of the Bank's administration and operations, administrative decisions and certain other responsibilities. The Board of the Bank of Finland comprises the Chairman (Governor) and a maximum of five (currently three) other members, all of whom are appointed by the President of the Republic upon a proposal from the Council. The Chairman of the Board is appointed for a seven-year term and the other members of the Board each for a five-year term. The Bank of Finland has a head office in Helsinki and four branch offices in other towns.

Other banks (31 Dec 1998). Finland has three major groups of deposit banks with a total of about 1,600 branches. There are two big commercial banks with national branch networks and seven smaller ones. The commercial banks have a total of 17 foreign branches, subsidiaries and associate banks and 17 representative offices abroad. There are 40 savings banks and 289 cooperative banks, both with extensive branch networks. In addition, 8 foreign banks have branches and 5 foreign banks have representative offices in Finland.

Financial markets. The total stock of domestic credit amounted to FIM 824.3 (EUR 138.7) billion at end-September 1999 and was broken down by lender group as follows: deposit banks 51%; insurance companies 7%; pension insurance institutions 23%; other credit institutions 11%; central and local authorities and social security funds 8%.

In the money market, the total value of instruments outstanding was about FIM 127.2 (EUR 21.4) billion at end-Dec 1999; bank certificates of deposit accounted for 83% of the total and Treasury bills, commercial paper and local authority paper for the rest.

At end-December 1999 there were 104 companies on the Main List, 39 on the Investors' List and 8 on the NM List of the HEX, Helsinki Exchanges. At end-December 1999 total market capitalization was FIM 2,057.2 (EUR 346.0) billion for the Main List, FIM 13.1 (EUR 2.2) billion for the Investors' List and FIM 6.5 (EUR 1.1) billion for the NM List. Domestic bonds and debentures in circulation at end-December 1999 amounted to FIM 320.5 (EUR 53.9) billion; government bonds accounted for 82% of the total. Share turnover on the HEX, Helsinki Exchanges amounted to FIM 623.1 (EUR 104.8) billion in 1999.

VISITING SCHOLARS PROGRAMME

BANK OF FINLAND

***The Bank of Finland**, the national central bank, has 750 employees, some 30 of whom are involved in research. The Bank is located in Helsinki.*

The Bank of Finland welcomes applications from foreign and Finnish scholars for a post under the Bank's Visiting Scholars Programme at the Research Department. Scholarships for six months are available for faculty or post-doctoral level research projects in two main research areas:

(1) The modelling of monetary policy
(2) The future of the financial services sector.

In the area of monetary policy modelling, we are especially interested in incorporating the analysis of credibility and policy uncertainty in applied models that could be used to analyze monetary policy in practice. The second area aims at illuminating the ongoing structural transformation of the global financial services industry, as driven by electronification and increased competition in particular. This area includes stability and other public policy aspects of the transformation.

A visiting scholar will be expected to conduct research based on a mutually agreed research plan. Articles stemming from the research are expected to be included in the Bank's Discussion Papers and may be published elsewhere as well. A visiting scholar should normally also give a lecture at the Bank to an audience of economists on his or her research topic as well as interact with other researchers engaged in projects in the same area.

Remuneration for visiting scholars will be commensurate with their research experience.

Persons interested in applying are invited to send

– a brief research proposal concerning either of the two areas

– a CV specifying the applicant's academic and research background, with the names of two or three referees

to: Research Department
Bank of Finland
P.O.Box 160
Helsinki, Finland
Fax: +358 9 183 2560
Email: Kaisa-Liisa.Nordman@bof.fi

Inquiries: Juha Tarkka, Head of Research Department,
phone +358 9 183 2581, email Juha.Tarkka@bof.fi
or
Jouko Vilmunen, Research Supervisor, Research Department
phone +358 9 183 2594, email Jouko.Vilmunen@bof.fi

SUOMEN PANKKI • FINLANDS BANK

Balance sheet of the Bank of Finland, million EUR

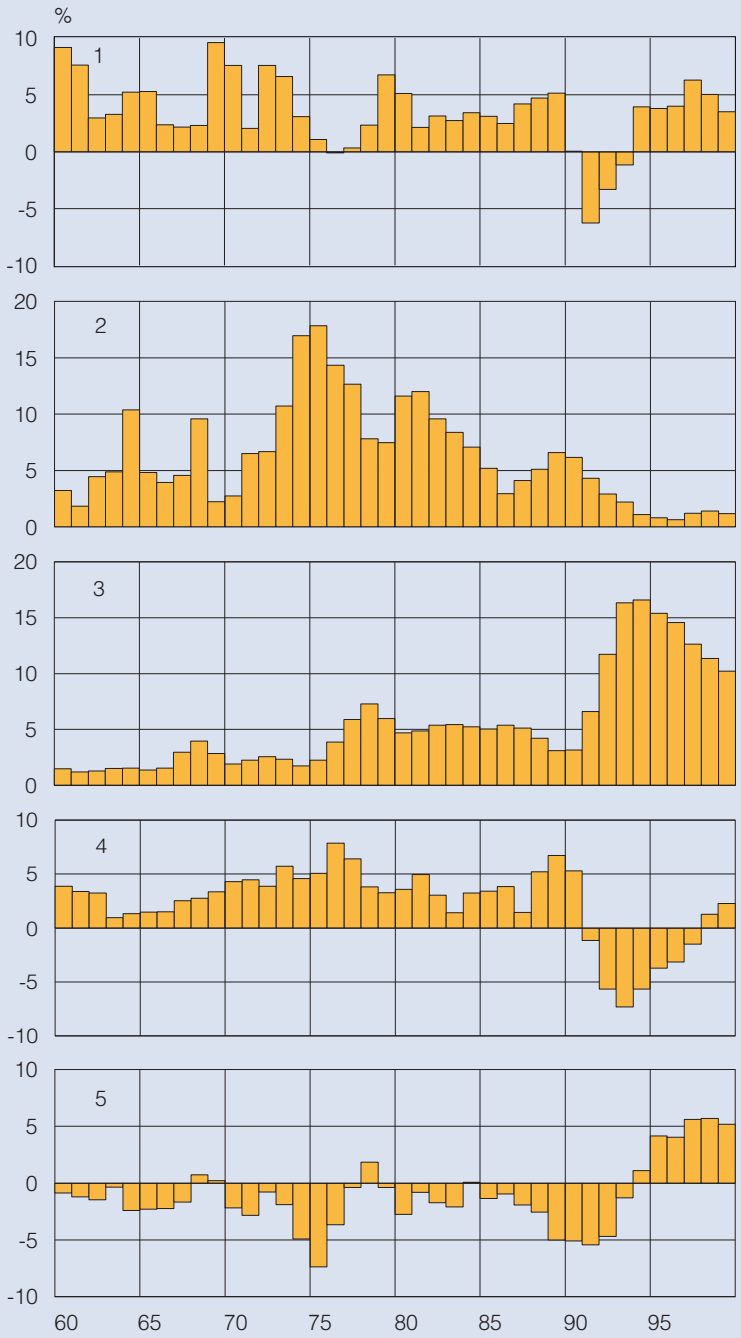
		1999	2000	
		31.12.*	28.1.	25.2.
Assets				
1	**Gold and gold receivables**	457	457	457
2	**Claims on non-euro area residents denominated in foreign currency**	8 073	8 124	8 227
2.1	Receivables from the IMF	930	928	900
2.2	Balances with banks and security investments, external loans and other external assets	7 143	7 196	7 328
3	**Claims on euro area residents denominated in foreign currency**	672	701	743
4	**Claims on non-euro area residents denominated in euro**	2 389	3 717	4 064
4.1	Balances with banks, security investments and loans	2 389	3 717	4 064
4.2	Claims arising from the credit facility under the ERM II	–	–	–
5	**Lending to financial sector counterparties in the euro area denominated in euro**	1 516	221	348
5.1	Main refinancing operations	1 283	72	200
5.2	Longer-term refinancing operations	230	146	146
5.3	Fine-tuning reverse operations	–	–	–
5.4	Structural reverse operations	–	–	–
5.5	Marginal lending facility	–	–	–
5.6	Credits related to margin calls	–	–	–
5.7	Other claims	2	2	2
6	**Securities of euro area residents denominated in euro**	–	–	–
7	**General government debt denominated in euro**	–	–	–
8	**Intra-Eurosystem claims**	768	768	977
8.1	Share in ECB capital	70	70	70
8.2	Claims equivalent to the transfer of foreign currency reserves	699	699	699
8.3	Claims related to the issuance of ECB debt certificates	–	–	–
8.4	Other claims within the Eurosystem (net)	0	–	209
9	**Other assets**	639	599	609
Total assets		14 514	14 587	15 425

Totals/sub-totals may not add up because of rounding.

		1999	2000	
		31.12.*	28.1.	25.2.
Liabilities				
1	**Banknotes in circulation**	3 008	2 659	2 604
2	**Liabilities to euro area financial sector counterparties denominated in euro**	4 884	2 131	1 167
2.1	Current accounts (covering the minimum reserve system)	4 884	2 131	1 167
2.2	Deposit facility	0	–	0
2.3	Fixed-term deposits	–	–	–
2.4	Fine-tuning reverse operations	–	–	–
2.5	Deposits related to margin calls	–	–	–
3	**Liabilities to other euro area residents denominated in euro**	1	1	1
3.1	General government	–	–	–
3.2	Other liabilities	1	1	1
4	**Liabilities to non-euro area residents denominated in euro**	195	1 586	6 288
5	**Liabilities to euro area residents denominated in foreign currency**	–	–	–
6	**Liabilities to non-euro area residents denominated in foreign currency**	239	289	412
6.1	Deposits, balances and other liabilities	239	289	412
6.2	Liabilities arising from the credit facility under the ERM II	–	–	–
7	**Counterpart of special drawing rights allocated by the IMF**	195	195	195
8	**Intra-Eurosystem liabilities**	1 267	3 007	–
8.1	Liabilities related to promissory notes backing the issuance of ECB debt certificates	–	–	–
8.2	Other liabilities within the Eurosystem (net)	1 267	3 007	–
9	**Other liabilities**	375	369	407
10	**Revaluation account**	1 234	1 234	1 234
11	**Capital and reserves**	3 116	3 116	3 116
Total liabilities		14 514	14 587	15 425

Charts

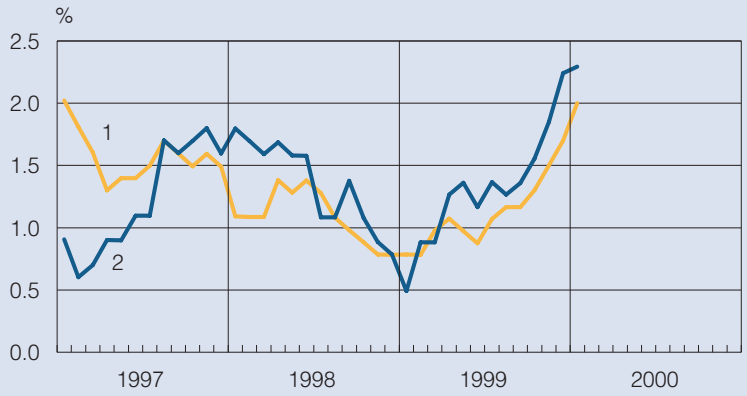
1. Finland: key economic indicators



1. GDP, volume change from previous year
2. Consumer prices, change from previous year
3. Unemployment rate
4. General government fiscal position, % of GDP
5. Current account, % of GDP

Sources:
Statistics Finland and
Bank of Finland.

2. Price stability in the euro area and Finland

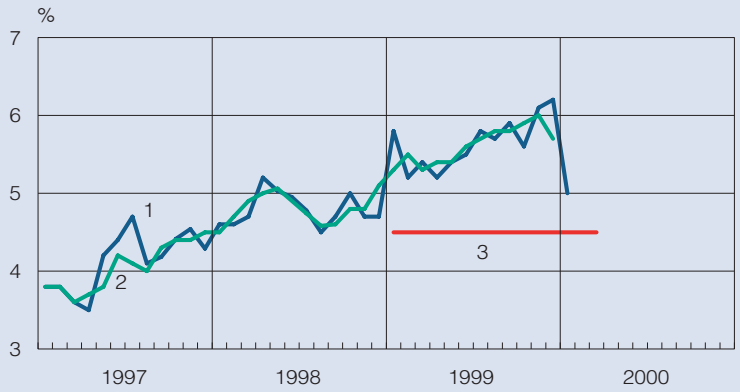


Harmonized Index of Consumer Prices, 12-month percentage change

1. Euro area countries
2. Finland

Sources:
Eurostat and Statistics Finland.

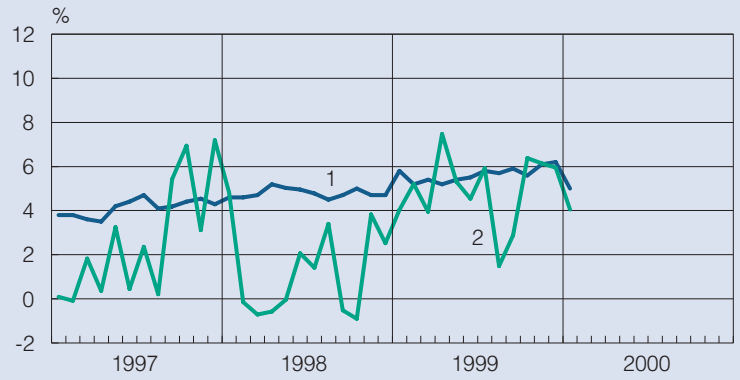
3. Monetary aggregates for the euro area



1. M3, 12-month percentage change
2. M3, 12-month percentage change, smoothed by means of a 3-month moving average
3. Eurosystem's reference value for the growth of M3

Source:
European Central Bank.

4. Growth of the money stock in the euro area and Finland

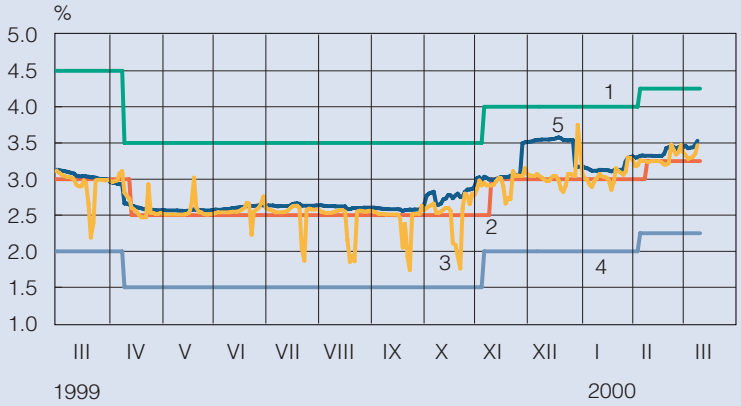


12-month percentage change

1. M3 for the euro area
2. Deposits and other liabilities of Finnish monetary financial institutions included in M3

Sources:
European Central Bank and Bank of Finland.

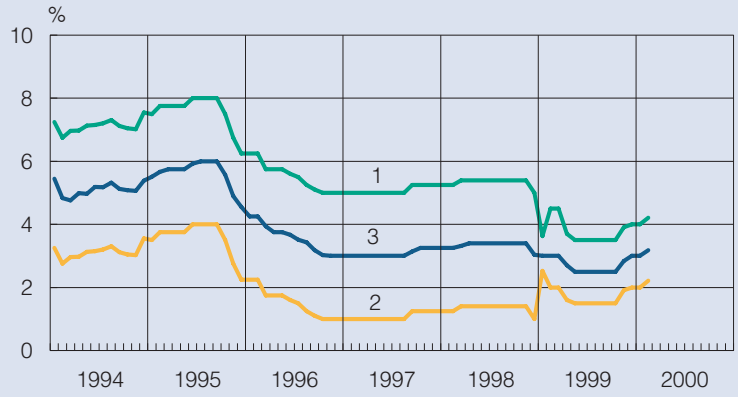
5. Eurosystem interest rates and money market rates



1. Marginal lending rate
2. Main refinancing rate
3. Eonia rate
4. Deposit rate
5. 1-month Euribor

Sources:
European Central Bank and Reuters.

6. Eurosystem (Bank of Finland) interest rates

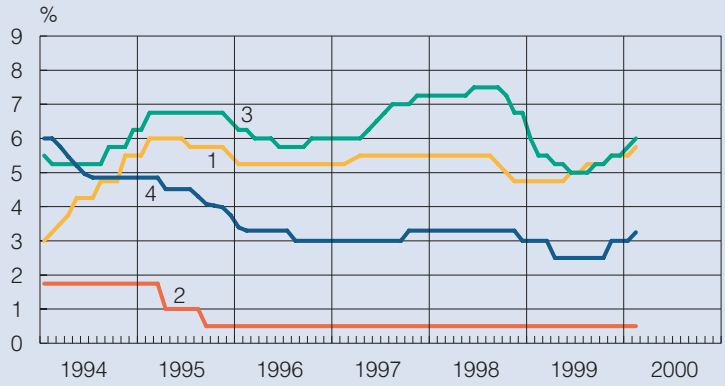


Bank of Finland interest rates until end-1998

1. Marginal lending rate (liquidity credit rate until end-1998)
2. Deposit rate (excess-reserve rate until end-1998)
3. Main refinancing rate (tender rate until end-1998)

Source:
European Central Bank.

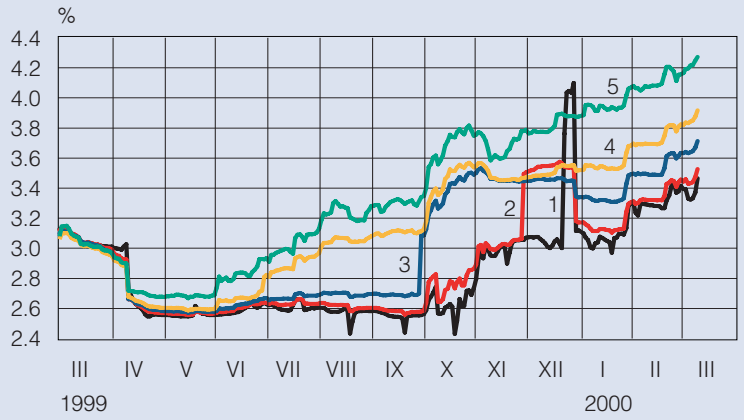
7. Official interest rates



1. USA: fed funds target rate
2. Japan: discount rate
3. United Kingdom: base rate
4. Eurosystem: main refinancing rate (German repo rate until end-1998)

Source: Bloomberg.

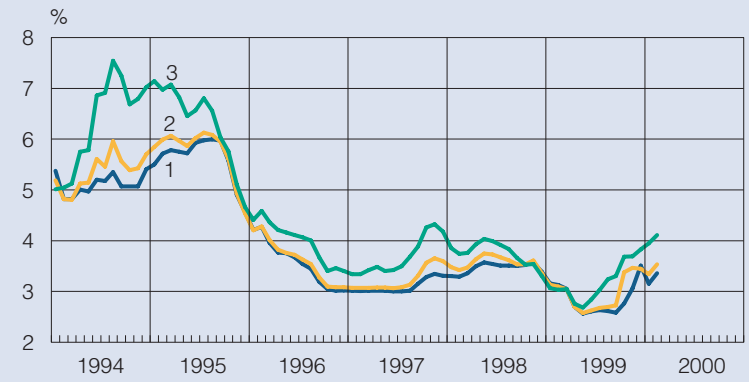
8. Euribor rates, daily values



1. 1-week
2. 1-month
3. 3-month
4. 6-month
5. 12-month

Source: Reuters.

9. Euribor rates, monthly values

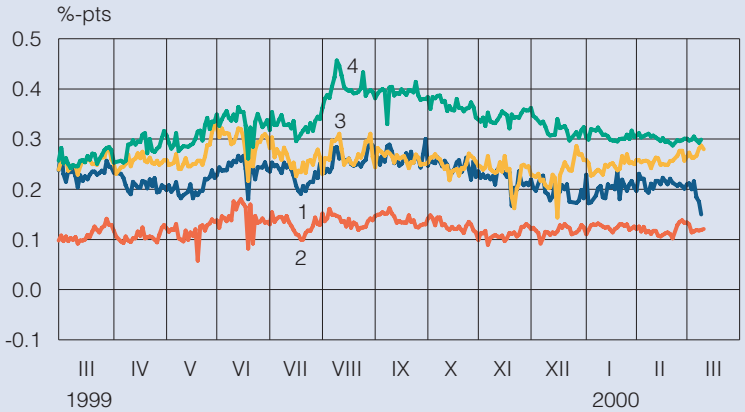


Helibor rates until end-1998

1. 1-month
2. 3-month
3. 12-month

Source: Reuters.

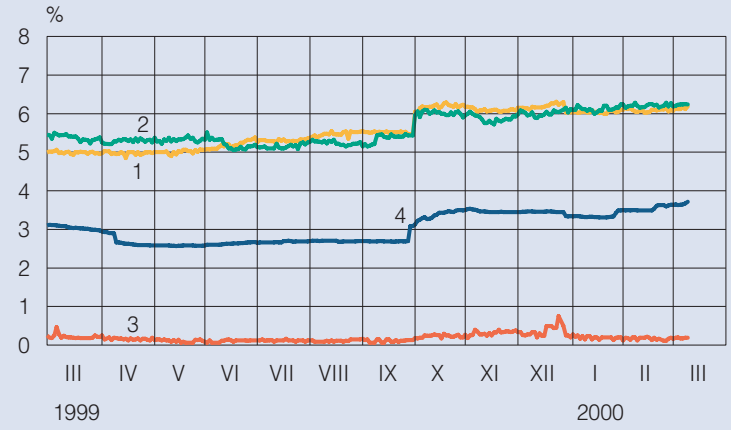
10. Differentials between ten-year yields for Germany and selected euro area countries



1. Finland
2. France
3. Italy
4. Largest differential

Source: Reuters.

11. International three-month interest rates, daily values

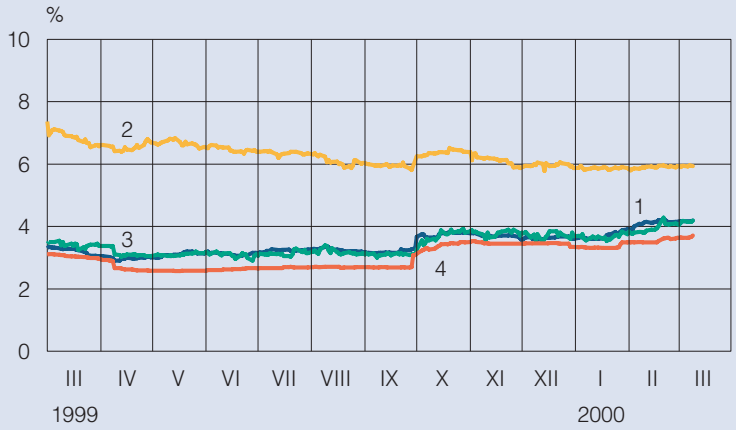


Interbank rates

1. United States
2. United Kingdom
3. Japan
4. Euro area

Source: Reuters.

12. Three-month interest rates in the Nordic countries, daily values

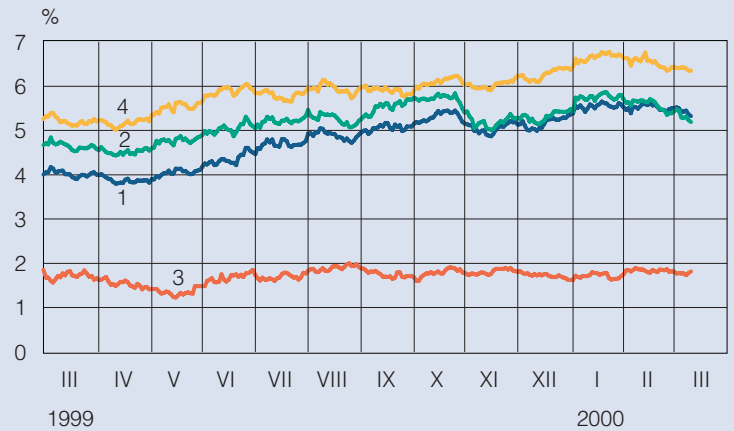


Interbank rates

1. Sweden (Stibor)
2. Norway
3. Denmark
4. Finland (Euribor)

Source: Reuters.

13. International long-term interest rates, daily values

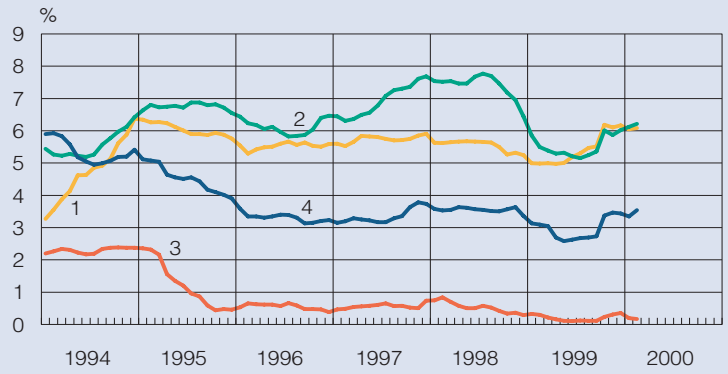


Yields on ten-year government bonds

1. Germany
2. United Kingdom
3. Japan
4. United States

Source: Reuters.

14. International three-month interest rates, monthly values

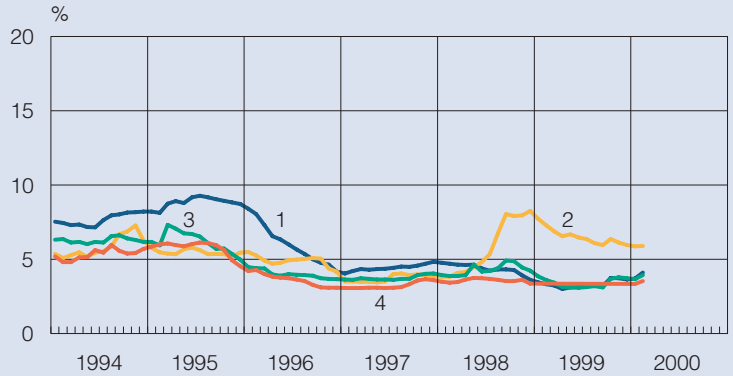


Interbank rates

1. United States
2. United Kingdom
3. Japan
4. Euro area
   (Germany until end-1998)

Source: Reuters.

15. Three-month interest rates in the Nordic countries, monthly values

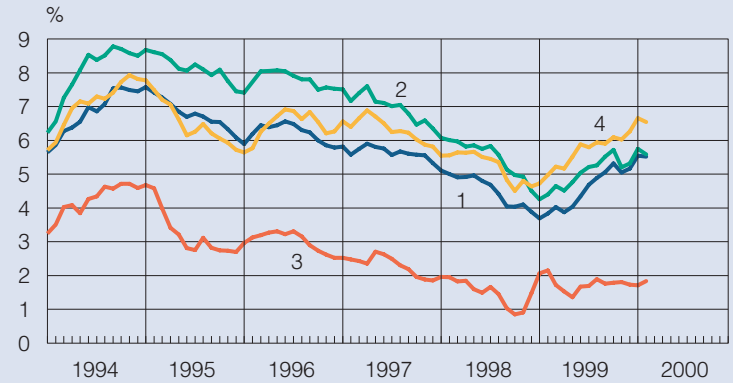


Interbank rates

1. Sweden (Stibor)
2. Norway
3. Denmark
4. Finland (Euribor; Helibor until end-1998)

Source: Reuters.

16. International long-term interest rates, monthly values

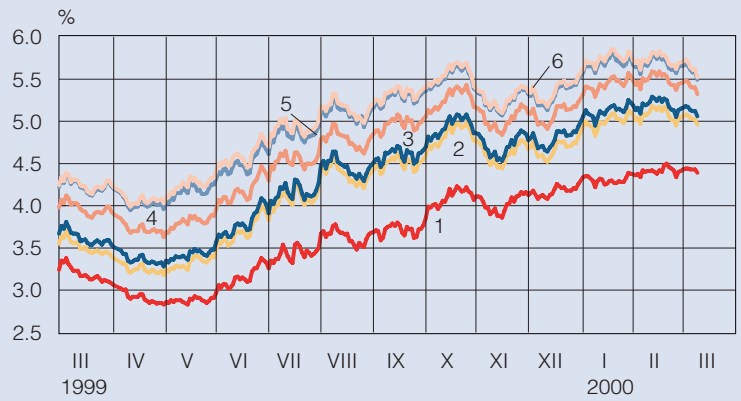


Yields on ten-year government bonds

1. Germany
2. United Kingdom
3. Japan
4. United States

Source: Reuters.

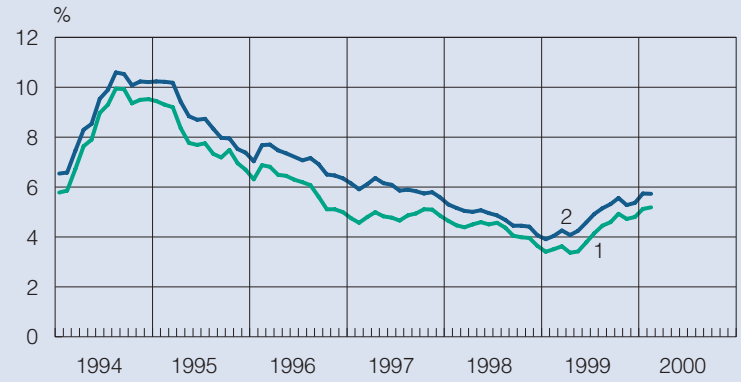
17. Yields on Finnish benchmark government bonds



1. Bond maturing on 15 September 2001, 10 %
2. Bond maturing on 12 November 2003, 3.75 %
3. Bond maturing on 15 March 2004, 9.5 %
4. Bond maturing on 18 April 2006, 7.25 %
5. Bond maturing on 25 April 2008, 6 %
6. Bond maturing on 25 April 2009, 5 %

Source: Reuters.

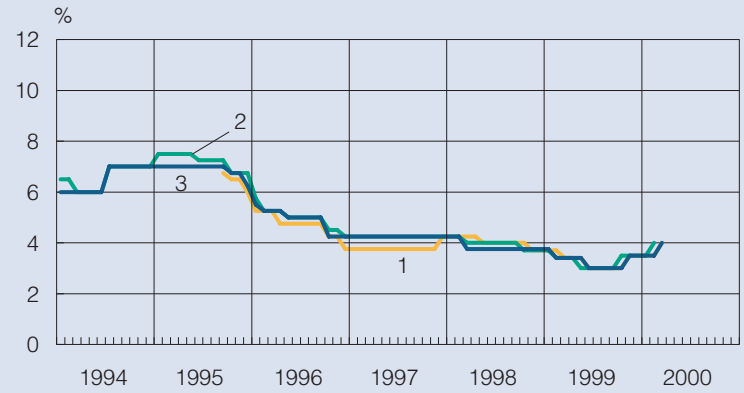
18. Yields on five and ten-year Finnish government bonds



1. 5 years
2. 10 years

Source: Reuters.

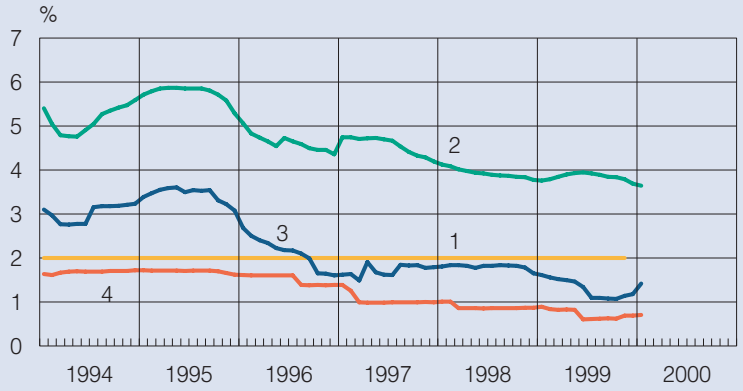
19. Bank reference rates in Finland



1. Merita prime
2. Leonia prime
3. OKOBANK group prime

Source: Banks.

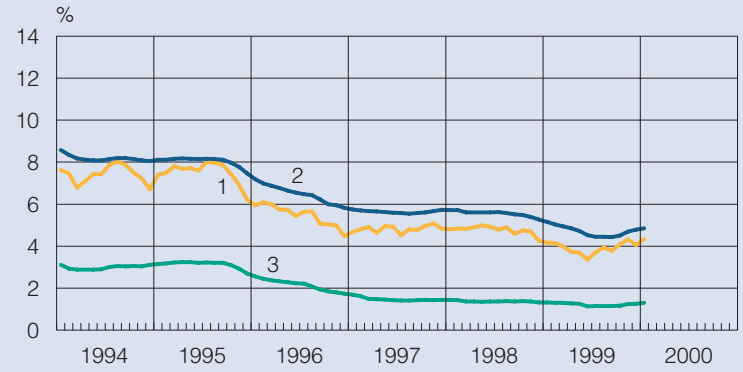
20. Bank deposit rates in Finland



1. Rate on tax-exempt transaction accounts (upper limit)
2. Average rate on fixed-term deposits subject to withholding tax
3. Average rate on cheque and transaction accounts subject to withholding tax
4. Average rate on tax-exempt cheque and transaction accounts

Source: Bank of Finland.

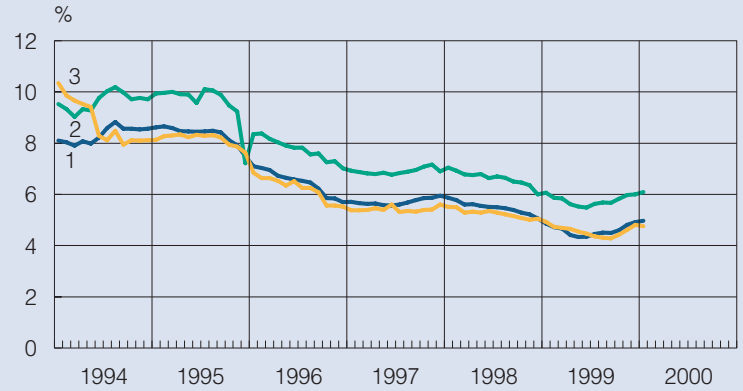
21. Bank lending and deposit rates in Finland



1. Rate on new lending
2. Average lending rate
3. Average deposit rate

Source: Bank of Finland.

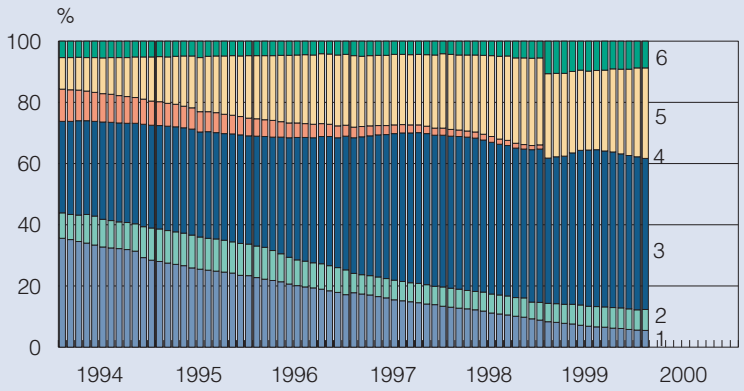
22. Interest rates charged by Finnish banks on new lending to households



1. New housing loans
2. New consumer credits
3. New study loans

Source: Bank of Finland.

23. Stock of bank lending in Finland

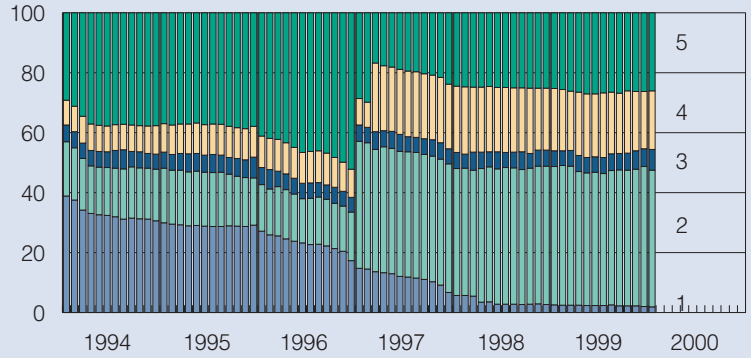


Interest rate linkages, percentages

1. Linked to base rate
2. Fixed-rate
3. Linked to Euribor (Helibor until end-1998)
4. Linked to 3 and 5-year reference rates
5. Linked to reference rates of individual banks (prime rates etc)
6. Other

Source: Bank of Finland.

24. Stock of bank deposits in Finland by interest rate linkage

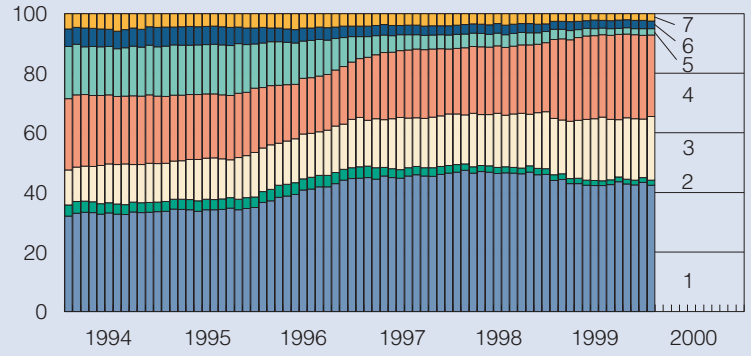


Interest rate linkages, percentages

1. Linked to base rate
2. Fixed-rate
3. Linked to Euribor (Helibor until end-1998)
4. Linked to reference rates of individual banks (prime rates etc)
5. Other

Source: Bank of Finland.

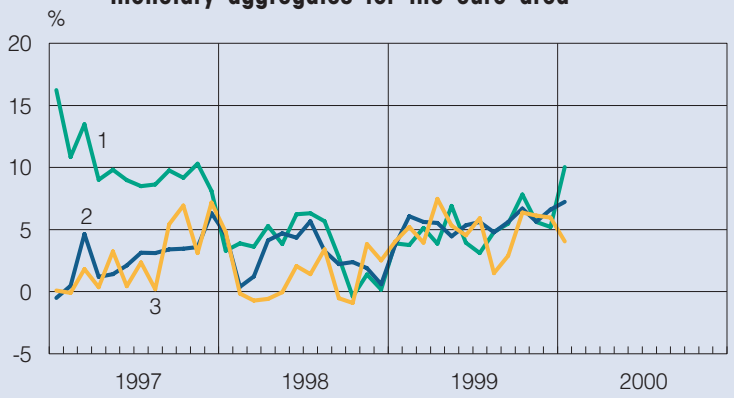
25. Stock of bank deposits in Finland by tax treatment



1. Tax-exempt cheque and transaction accounts
2. Cheque and transaction accounts subject to withholding tax
3. Other taxable cheque and transaction accounts
4. Tax-exempt fixed-term accounts and other accounts
5. Fixed-term accounts and other accounts subject to withholding tax
6. Other taxable accounts
7. Foreign currency accounts

Source: Bank of Finland.

26. Liabilities of Finnish monetary financial institutions included in monetary aggregates for the euro area

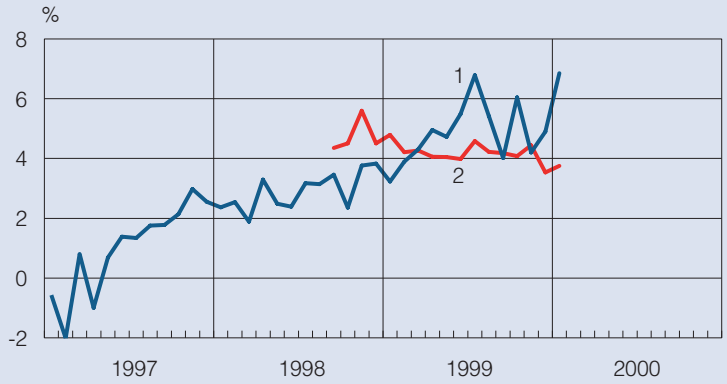


12-month percentage change

1. Items included in M1: transaction accounts (=overnight deposits)
2. Items included in M2: all deposits except fixed-term deposits of over 2 years
3. Items included in M3: M2 deposits plus certain securities and other items

Source: Bank of Finland.

27. Euro area and Finnish banks: growth of deposits

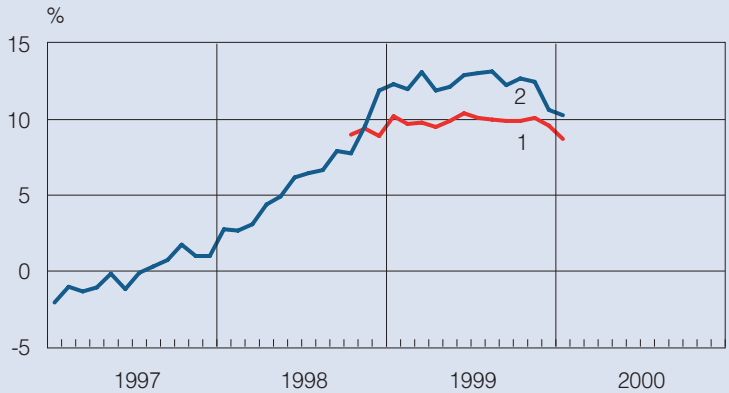


12-month percentage change

1. Deposits of euro area residents with euro area banks
2. Deposits of Finnish residents with Finnish banks

Sources:
European Central Bank and Bank of Finland.

28. Euro area and Finnish banks: growth of lending

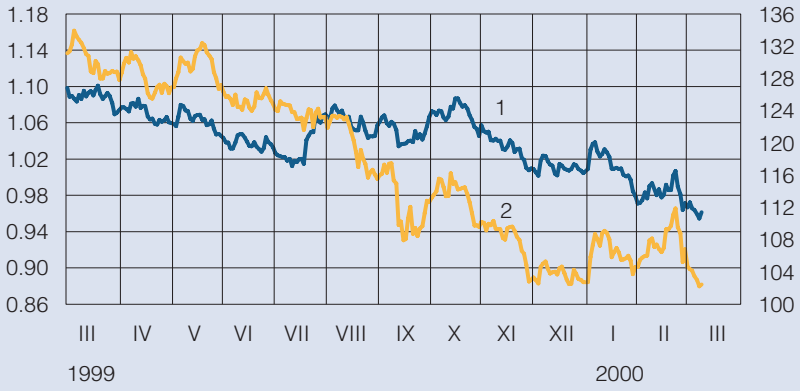


12-month percentage change

1. Lending by euro area banks to euro area residents
2. Lending by Finnish banks to Finnish residents

Sources:
European Central Bank and Bank of Finland.

29. Euro exchange rates against the US dollar and the yen, daily values

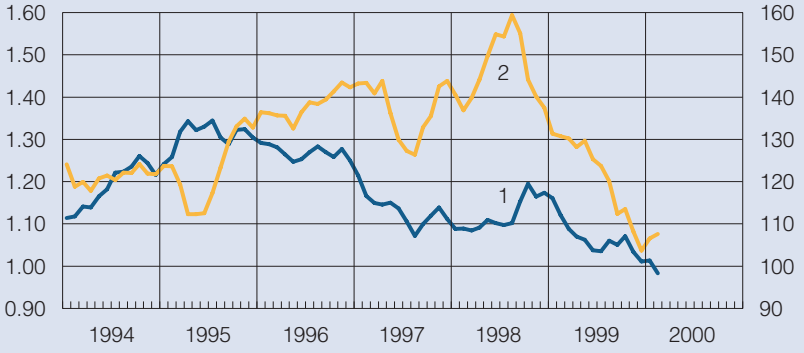


Rising curve indicates appreciation of euro

1. Value of one euro in US dollars (left-hand scale)
2. Value of one euro in Japanese yen (right-hand scale)

Sources: European Central Bank and Reuters.

30. Euro exchange rates against the US dollar and the yen, monthly values

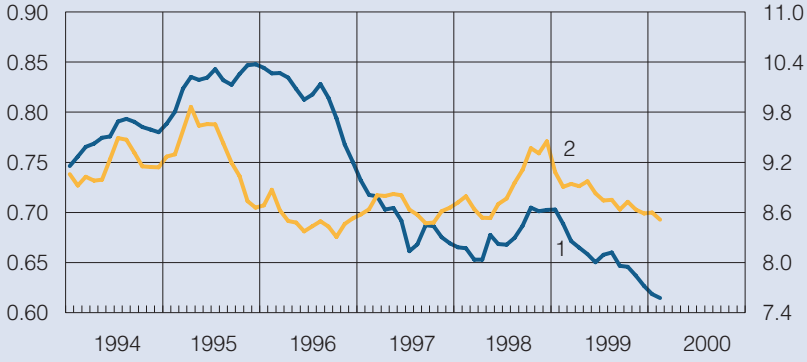


(ecu exchange rate until end-1998)
Rising curve indicates appreciation of euro

1. Value of one euro in US dollars (left-hand scale)
2. Value of one euro in Japanese yen (right-hand scale)

Sources: European Central Bank and Reuters.

31. Euro exchange rates against the pound sterling and Swedish krona

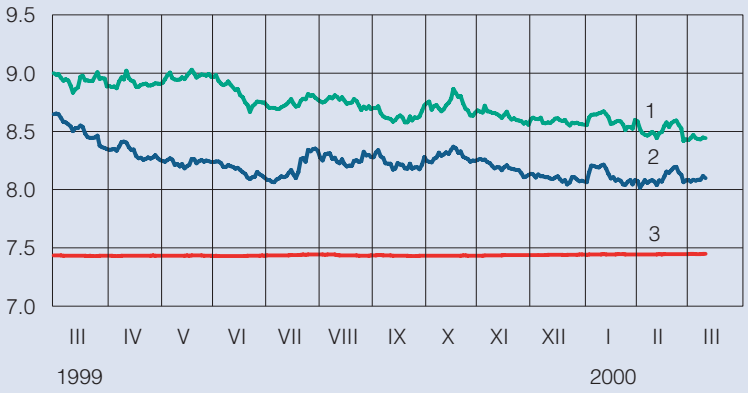


(ecu exchange rate until end-1998)
Rising curve indicates appreciation of euro

1. Value of one euro in pound sterling (left-hand scale)
2. Value of one euro in Swedish kronor (right-hand scale)

Sources: European Central Bank and Reuters.

32. Euro exchange rates against the Scandinavian currencies

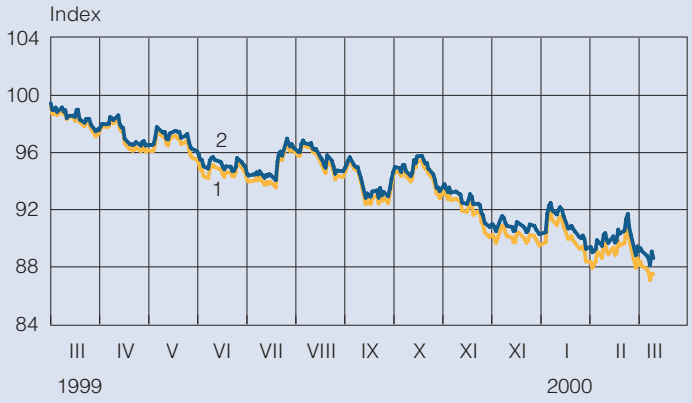


Rising curve indicates appreciation of euro

1. Value of one euro in Swedish kronor
2. Value of one euro in Norwegian kroner
3. Value of one euro in Danish kroner

Sources:
European Central Bank and Reuters.

33. Euro's external value and Finland's competitiveness indicator

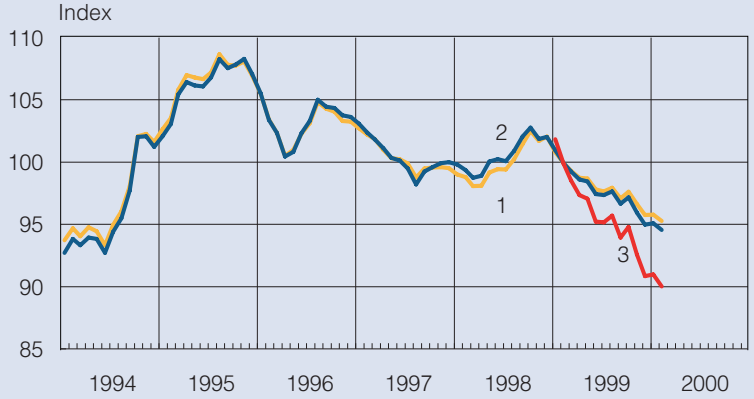


1999 Q1 = 100
An upward movement of the index represents an appreciation of the euro / a weakening in Finnish competitiveness

1. Euro's effective exchange rate
2. Finland's narrow competitiveness indicator

Sources:
European Central Bank and Bank of Finland.

34. Competitiveness indicators for Finland

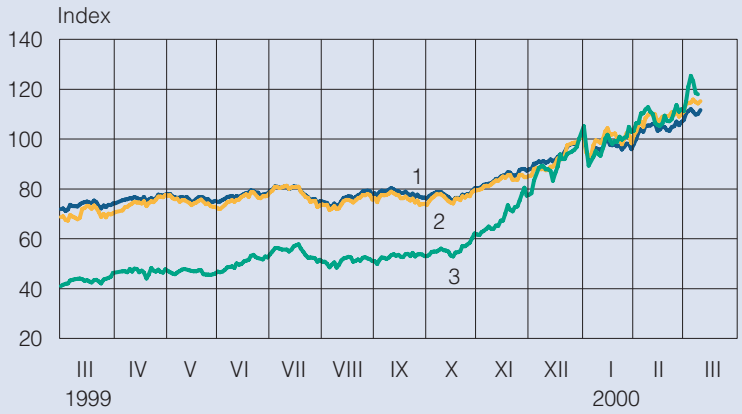


1999 Q1 = 100
An upward movement of the index represents a weakening in Finnish competitiveness

1. Bank of Finland's old currency index
2. Narrow plus euro area competitiveness indicator
3. Narrow competitiveness index

Source: Bank of Finland.

35. Selected stock price indices in the euro area, daily values

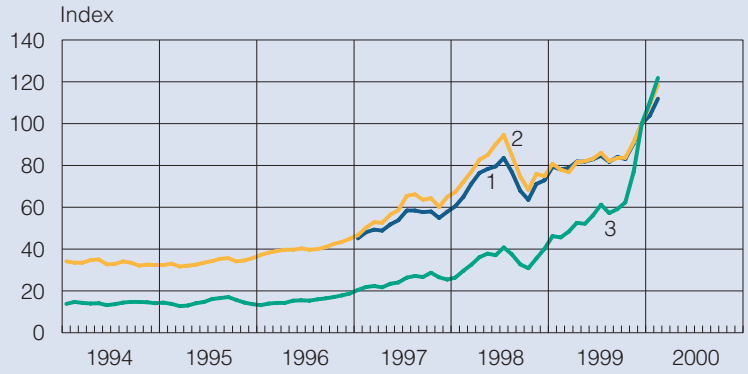


30 December 1999 = 100

1. Euro area:
   Dow Jones Euro Stoxx index
2. Germany: DAX index
3. Finland: HEX all-share index

Sources: Bloomberg and HEX Helsinki Exchanges.

36. Selected stock price indices in the euro area, monthly values

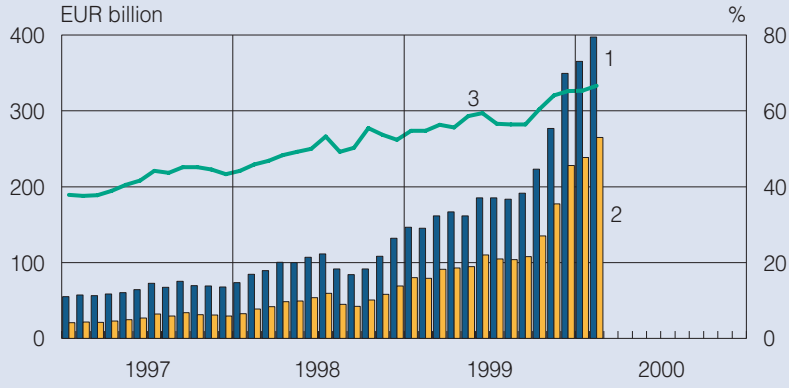


30 December 1999 = 100

1. Total euro area:
   Dow Jones Euro Stoxx index
2. Germany: DAX index
3. Finland: HEX all-share index

Sources: Bloomberg and HEX Helsinki Exchanges.

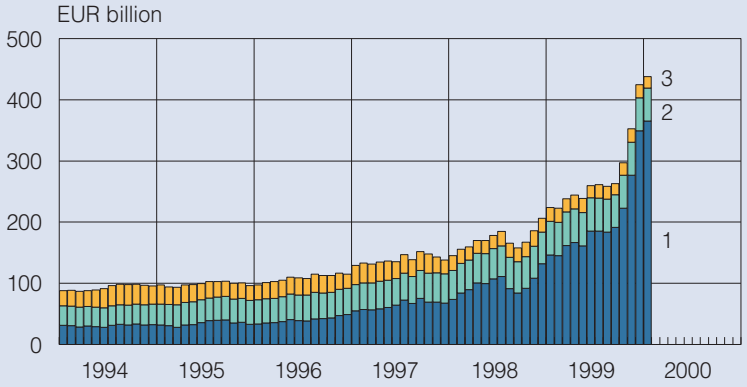
37. Listed shares in Finland: total market capitalization and non-residents' holdings



1. Market capitalization of all listed shares (left-hand scale)
2. Market capitalization of non-residents' holdings (left-hand scale)
3. Market capitalization of non-residents' holdings as a percentage of total market capitalization (right-hand scale)

Sources: HEX Helsinki Exchanges and Finnish Central Securities Depository.

38. Securities issued in Finland

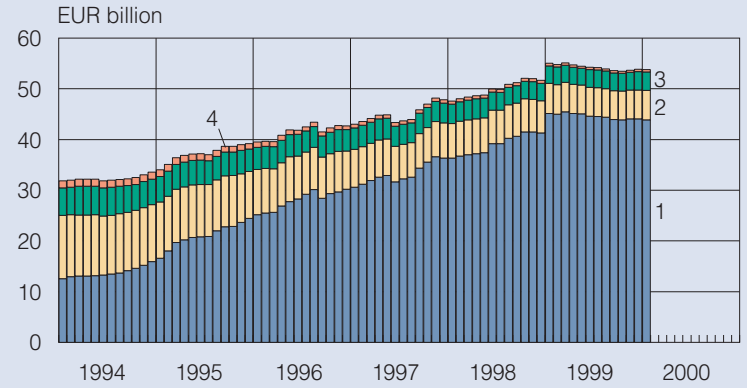


End-month stock

1. Market capitalization of shares
2. Stock of bonds, nominal value
3. Outstanding money market instruments

Sources:
HEX Helsinki Exchanges,
Bank of Finland,
Statistics Finland and
State Treasury.

39. Bonds issued in Finland

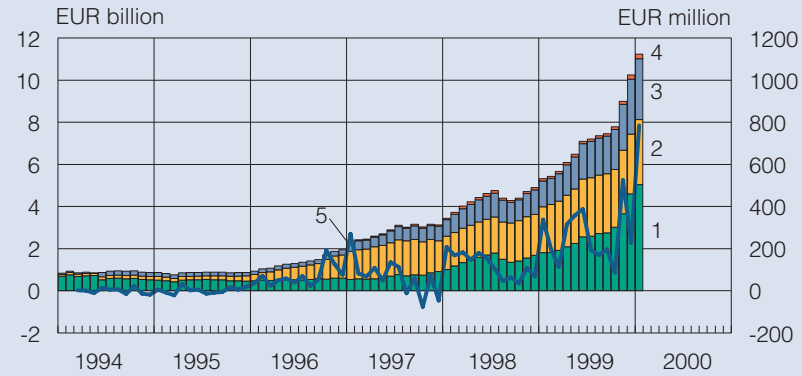


End-month stock

1. Central government
2. Financial institutions
3. Companies
4. Other

Source: Statistics Finland.

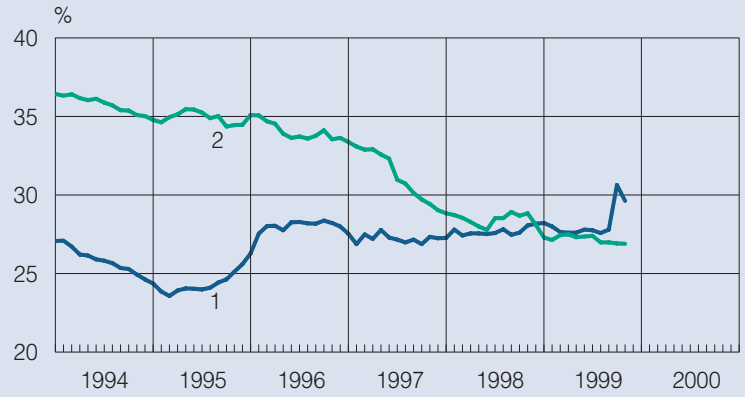
40. Mutual funds registered in Finland



1. Equity funds (left-hand scale)
2. Fixed income funds (left-hand scale)
3. Balanced funds (left-hand scale)
4. Risk funds (left-hand scale)
5. All funds: net subscriptions (right-hand scale)

Source: HEX Helsinki Exchanges.

41. Central government revenue and expenditure in Finland

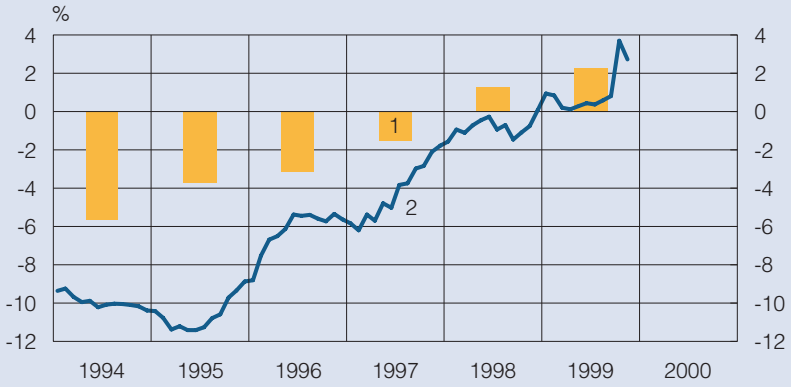


Excluding financial transactions
12-month moving totals, % of GDP

1. Revenue
2. Expenditure

Sources: State Treasury, Statistics Finland and Bank of Finland.

42. Public sector balances in Finland

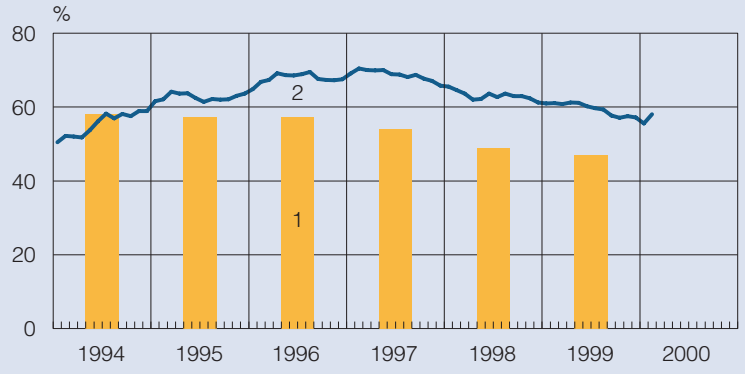


% of GDP

1. General government fiscal position
2. Central government revenue surplus, 12-month moving total

Sources: State Treasury, Statistics Finland and Bank of Finland.

43. Public debt in Finland

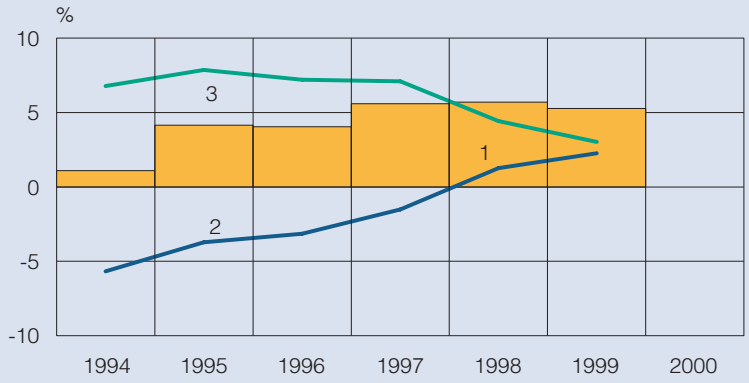


% of GDP

1. General government debt
2. Central government debt

Sources: Statistics Finland and State Treasury.

44. Net lending in Finland by sector

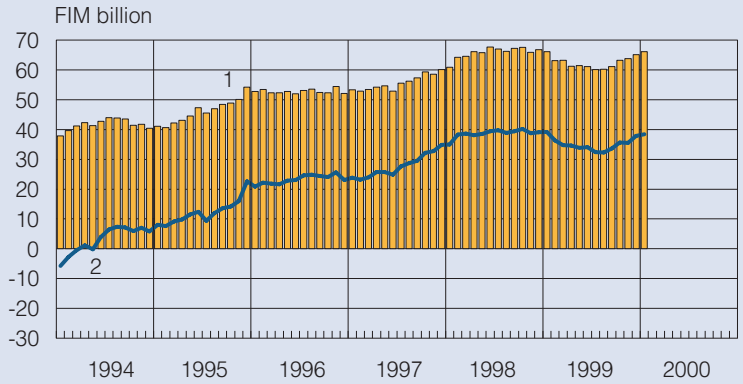


Main sectoral financial balances, % of GDP

1. Current account
2. General government sector
3. Private sector

Sources: Bank of Finland and Statistics Finland.

45. Finland: goods account and current account

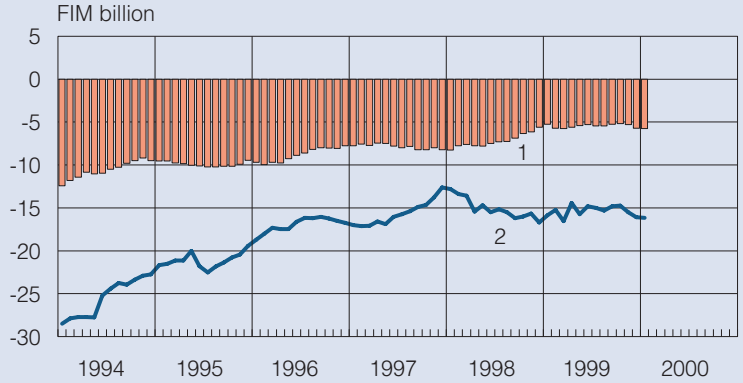


12-month moving totals

1. Goods account, fob
2. Current account

Source: Bank of Finland.

46. Finland: services account and income account

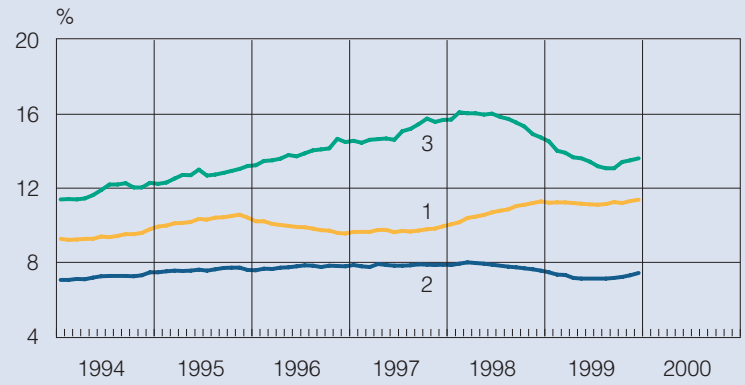


12-month moving totals

1. Services account (trade in goods, fob)
2. Income account

Source: Bank of Finland.

47. Regional distribution of Finnish exports

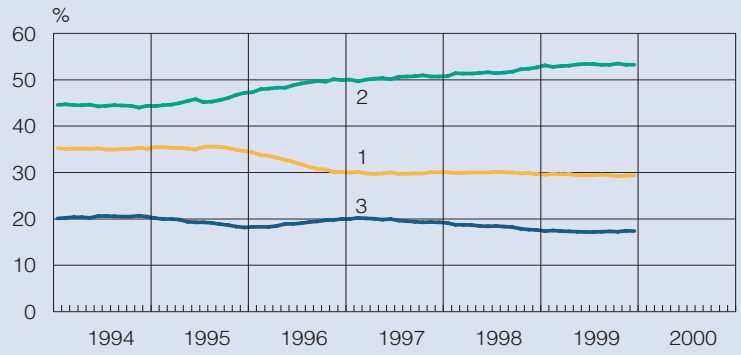


12-month moving totals,
% of GDP

1. Euro area
2. Other EU member states
3. Rest of world

Sources:
National Board of Customs
and Statistics Finland.

48. Finnish exports by industry

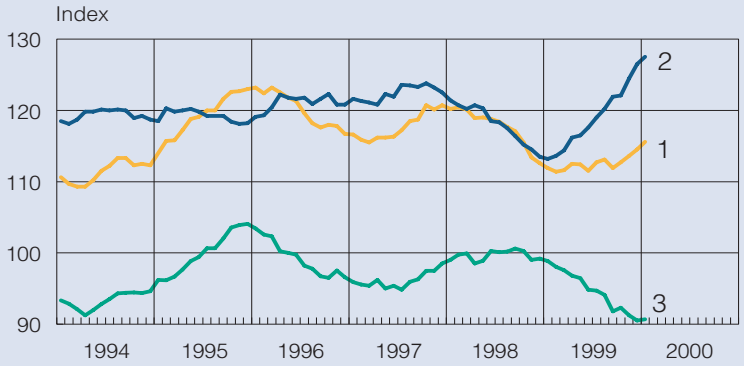


12-month moving totals,
percentage of total exports

1. Forest industries
2. Metal and engineering
   industries (incl. electronics)
3. Other industry

Source:
National Board of Customs.

49. Finland's foreign trade: export prices, import prices and terms of trade

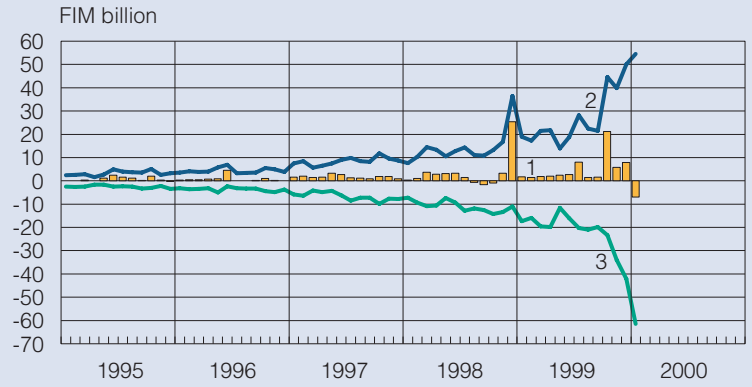


1990 = 100

1. Export prices
2. Import prices
3. Terms of trade

Source: Statistics Finland.

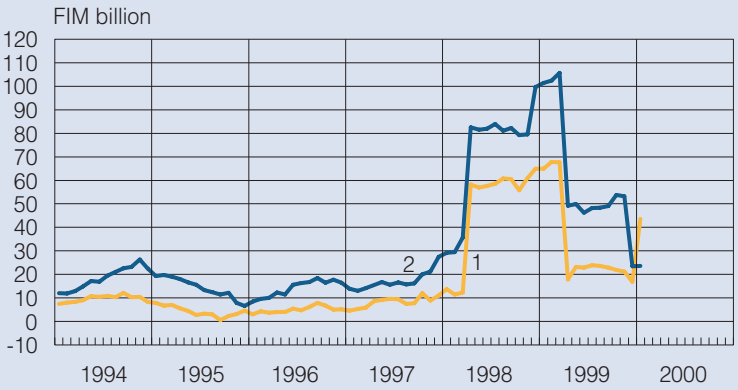
50. Non-residents' portfolio investment in Finnish shares



1. Net sales
2. Sales to non-residents
3. Repurchases from non-residents

Source: Bank of Finland.

51. Finland: direct investment

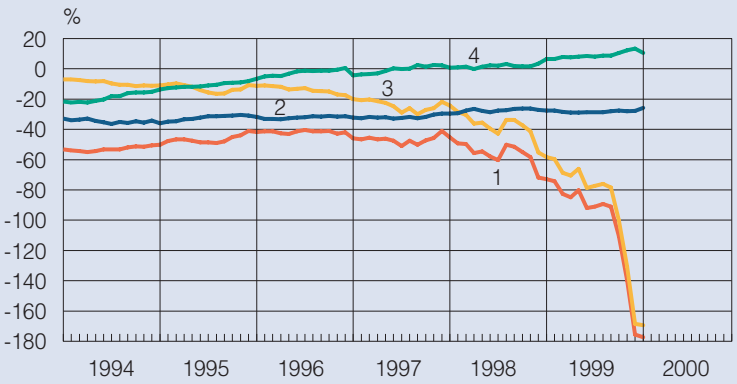


12-month moving totals

1. In Finland
2. Abroad

Source: Bank of Finland.

52. Finland's net international investment position

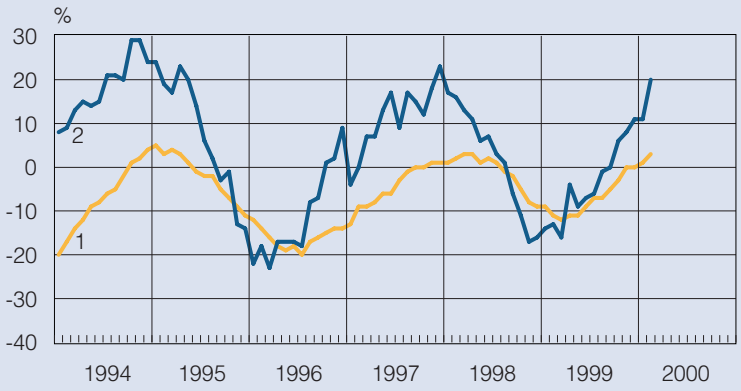


% of GDP

1. Net international investment position
2. Net international investment position of central government
3. Listed shares
4. Other items (excl. reserve assets)

Sources: Bank of Finland and Statistics Finland.

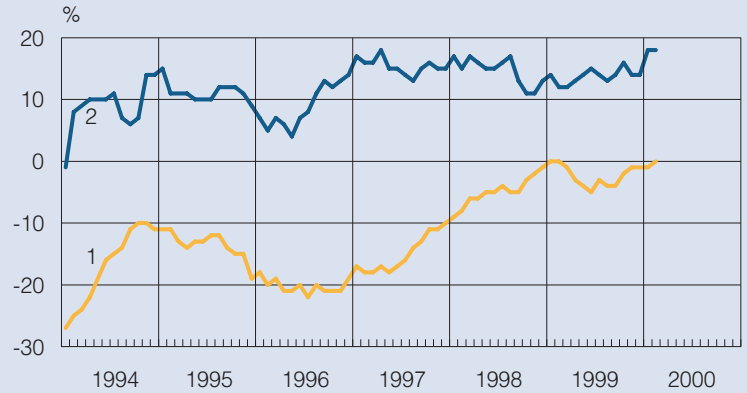
53. Industrial confidence indicator in the euro area and Finland



1. Euro area countries
2. Finland

Source: European commission.

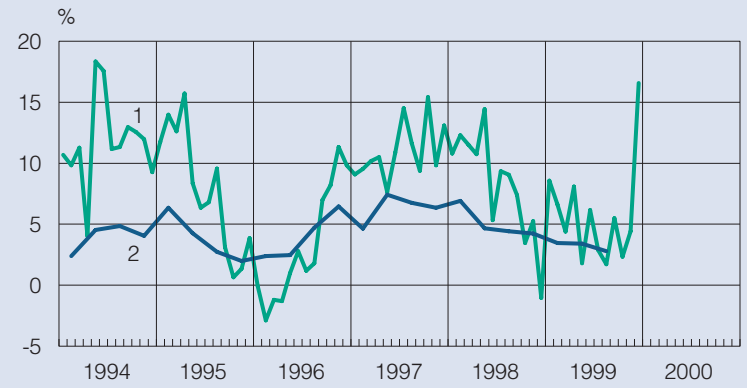
54. Consumer confidence indicator in the euro area and Finland



1. Euro area countries
2. Finland

Source: European commission.

55. Finland: GDP and industrial production

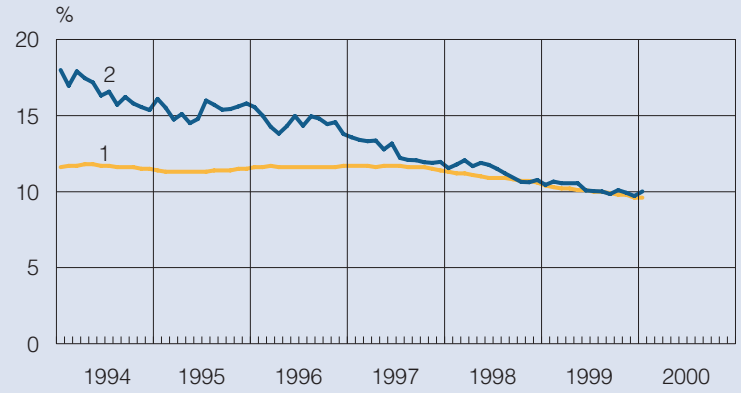


Percentage change from previous year

1. Industrial production
2. Gross domestic product

Source: Statistics Finland.

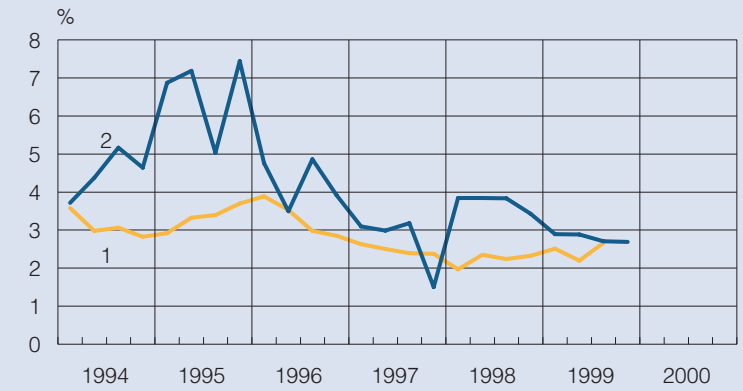
56. Unemployment rate in the euro area and Finland



1. Euro area countries
2. Finland

Sources: Eurostat, Statistics Finland and Bank of Finland.

57. Level of industrial earnings in the euro area and Finland

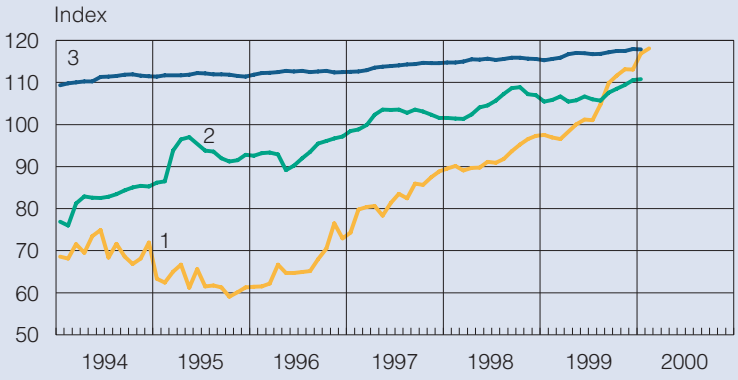


Percentage change from previous year

1. Euro area countries
2. Finland

Sources: Eurostat and Statistics Finland.

58. Selected asset prices in Finland



January 1990 = 100

1. Housing prices (old two-room flats; debt-free price per m^2)
2. Stumpage prices
3. Consumer prices

Sources:
Finnish Forest Research Institute, Huoneistokeskus, Statistics Finland and National Board of Customs.

The Organization of the Bank of Finland

1 February 2000

The Parliamentary Supervisory Council

Ilkka Kanerva, Chairman, Virpa Puisto, Vice Chairman,
Olavi Ala-Nissilä, Ben Zyskowicz, Antero Kekkonen, Anneli Jäätteenmäki,
Martti Tiuri, Kari Uotila, Mauri Pekkarinen

Anton Mäkelä, Secretary to the Parliamentary Supervisory Council

The Board

Matti Vanhala
Governor

Esko Ollila
Deputy Governor

Matti Louekoski
Member of the Board

Matti Korhonen
Member of the Board

Heikki T. Hämäläinen, Secretary to the Board

Pentti Koivikko, Director

Departments and other units

Pentti Pikkarainen
Economics
Kari Puumanen*
Antti Suvanto*

Markus Fogelholm
Market Operations

Antti Juusela
Communications

Taina Kivelä
Internal Audit

Heikki T. Hämäläinen
Management
Secretarial Staff

Kjell Peter Söderlund
International Secretariat

Armi Westin
Information Technology

Jyrki Ahvonen
Security

Heikki Koskenkylä
Financial Markets
Harry Leinonen*
Ralf Pauli*

Raimo Hyvärinen
Payments and
Settlement

Aura Laento
Personnel
Anton Mäkelä*

Arno Lindgren
Legal Affairs

Terhi Kivilahti
Development and
Budget

Urpo Levo
Payment Instruments

Esa Ojanen
Administration

Juha Tarkka
Research
David Mayes*

Martti Lehtonen
Statistics

Antero Arimo
Publication and
Language Services

Pekka Sutela
Institute for
Economies in Transition

* Adviser to the Board

Branch offices: Kuopio, Oulu, Tampere, Turku

The Financial Supervision Authority functions as an independent body in connection with the Bank of Finland; the Director General is K. Jännäri.