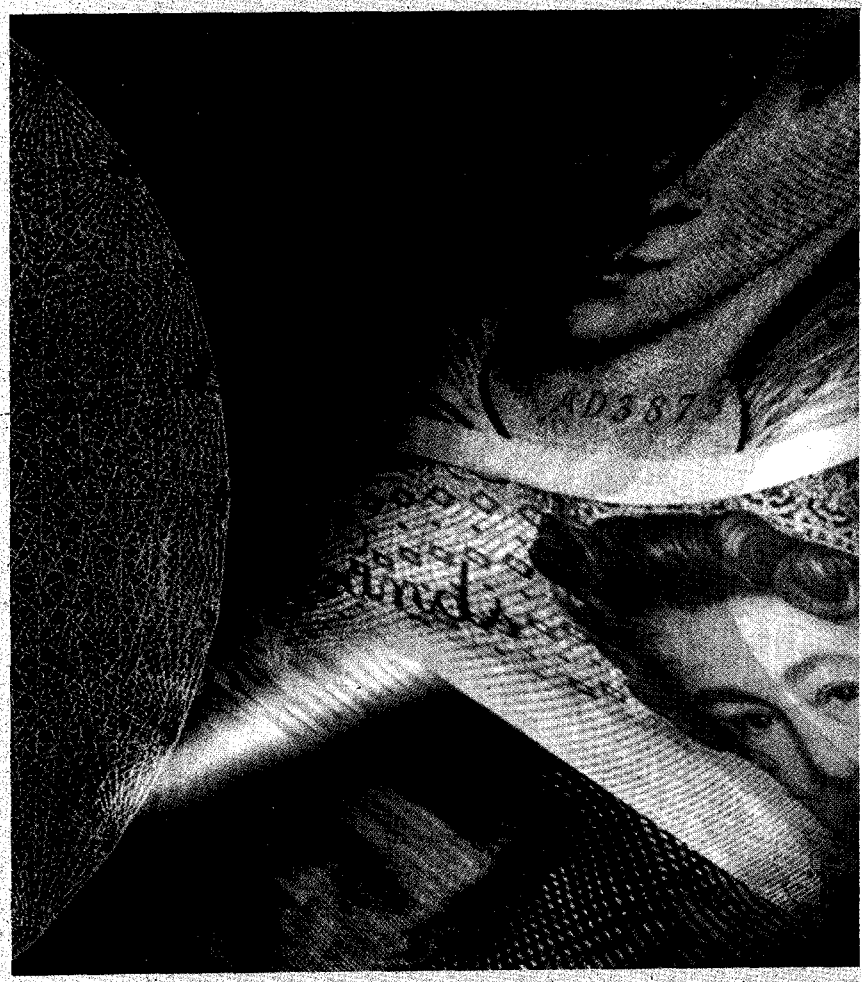
THE *Global Economy* AND FINLAND



GOVERNMENT INSTITUTE FOR ECONOMIC RESEARCH

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AND FINLAND

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THE *Global Economy* AND FINLAND

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For word

During the last ten years Finland's position in the international division of labour has undergone profound change for which the country was largely unprepared. One reason for this has been the dearth of research carried out in Finland on the changes in the international economy and the rules of the game. There has been a lack of studies, in particular, on the forces behind economic globalisation, constraints and changes with respect to the international division of labour, the economic environment and the conditions for success.

After the Government Institute for Economic Research published the book "Opening Finland - Challenges for the Future" in mid-1993, it became evident that there was a need for a follow-up study concentrating more upon global economic issues.

This book is an abridged version of the Finnish language publication "The Global Economy and Finland". The points of departure for the study can be summed up as follows: innovations and their commercial exploitation ultimately determine the success of enterprises and economies. A prerequisite is accumulation of sufficient human and physical capital as well as the knowledge base they create. Innovative activities always entail high fixed costs and great risks. In order to recoup these costs there is a need to tap as extensive international markets as possible, which also serves as a way of testing the strengths of the innovations.

In addition to outlining the factors determining success, the book analyses the ground-rules of the world economy within the GATT framework, the demands and possibilities imposed by environmental problems as well as the role of the currency regime. Owing to the liberalisation of capital movements and floating exchange rates, the world economy has become more vulnerable to disturbances, which highlights the need for wider international coordination. The focus of the study continues to be on the ever-changing economic geography affecting Finland's position in the international economy, which offers numerous opportunities but also requires preparations for potential disturbances. Of crucial importance for Finland is the nature of Europe's new international division of labour, especially the integration between western and eastern Europe. It is imperative to find new growth areas in time so that Finnish companies can benefit from growing markets. Finland has traditionally been a laggard. Internationalisation has occurred late, swiftly and entailed great risks. This has been the result of a lack of awareness of new promising markets.

The new growth theory approach adopted in this book emphasises also the role of the public sector in promoting success. The point of departure is that no nation is destined to fail or to succeed, but rather the success of a nation depends over the long run on its own actions. A good example of the conditions and opportunities for success is offered by the rapidly growing countries of Asia. At the end of the report, some political questions related to success are analysed from the standpoint of sustainable growth. The changes in the economic environment require a new type of behaviour. In practice, behaviour is closely related to the historical context, so that the contradiction between the demands and the opportunities can be great for a long time.

This book has to a great extent been the product of group work. When carrying out the project extensive amounts of data and useful input were received from domestic experts as well as from the OECD Secretariat. Professor Wolfgang Michalski, Special Advisor to the Secretary General of the OECD, and Graham Vickery, Head of Department, deserve special thanks. The English language version has been prepared by Ilja Summala from the Government Institute for Economic Research.

I hope that the results of the project would be useful when considering the policy consequences of globalisation for enterprises, organisations as well as the public sector. It is also hoped that the project is of help in appraising the role of the public sector in promoting growth in an internationalising economic environment.

On behalf of the Government Institute for Economic Research, I would like to extend my sincere thanks to all those assisting in the completion of this book.

Helsinki November 24th, 1995

Seppo Leppänen
Director General

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Summary

During the past ten years the international environment facing Finnish firms has changed radically. Capital markets have been deregulated, the Markka has been allowed to float, most of the Western European trade is conducted internally and eastern trade is no longer conducted on the basis of countertrade.

These changes mean that the success of Finnish companies as well as the entire society hinges increasingly upon how well we adjust to the conditions prevailing in the international economy and take advantage of its opportunities. The successful growth of technologically advanced countries is based increasingly upon their remaining on the leading edge of technological progress. Innovation, i.e. the creation of new products and renewal of production methods, is of crucial importance in the traditional export sectors as well as firms geared toward the domestic market.

Success on the terms of an open global economy is also a prerequisite for improvement in employment. A growth strategy based on the accumulation of human capital emphasizes the quality of labour for growth. This does not automatically guarantee full employment. The structural and qualitative mismatches in the demand for and supply of labour will remain large and perhaps grow. Labour cannot under any circumstances be such a uniform "good" that the labour markets would function like a commodities market. It is one of the main tasks of social policy to reduce these types of rigidities.

Innovation and Globalization of Companies Go Hand in Hand

The greater emphasis upon innovation in a company's operations is reflected in the overall society as a need to develop the national know-how base, i.e. "property", which is the basis for success. Important factors augmenting the national know-how base include development of educational programmes both in schools and at work, lowering of unemployment by enabling on-the-job training, expansion of research activities, improving the dissemination of information and promotion of international relationships.

Laying the groundwork for innovative activities is a long process requiring considerable amounts of resources, meaning that it also entails large risks. The government plays a key role in fostering favourable conditions for innovative activities. The soundness of an innovation is ultimately tested in the market-place. Heavy development costs can be covered only

on large global markets. Therefore it is imperative that both the internationalization of economies and companies takes place in line with the prevailing global ground rules.

Until the 1990s Finland was able to keep its fixed investment high as a percentage of gross domestic product. This has facilitated swift growth in output and productivity, even though efficiency has not been very high by global standards. The expenditures on education and research relative to GDP have risen swiftly and are on par with international levels. The telecommunications infrastructure has been expanded and it is in good condition. In the future the share of fixed investment could be lowered but investment in human capital should not be reduced.

As regards the development of education, instead of concentrating on the number of students, more attention should be given to the content, structure and cost of education. In principle, all members of a particular age group have an opportunity to participate in secondary or upper levels of vocational schools. The level of basic education rises at the university level. The choice of educational fields and their curriculum nevertheless ultimately hinge upon the welfare effects for the economy and individuals. The promotion of adult education is an urgent task owing to the age structure and widespread unemployment. Participation in training programmes should be made a more attractive alternative than unemployment. The expansion of on-the-job training must be seen in companies as a way of boosting the productivity of investment and fostering competitiveness. The role of learning at work and on-the-job training will be emphasized in the development of professional skills since educational institutions are obliged to offer a broad curriculum in light of the rapid changes taking place.

Companies' share of total research investments in Finland is high, which facilitates the commercial use of research results. Finland has succeeded the best in those fields where research efforts have been expanded in recent decades. The prime examples of this are telecommunications and environmental technology. In the future research activities will have to be concentrated to a certain degree for efficiency reasons. The effectiveness of research can be augmented by promoting co-operation in research carried out by companies and in the public sector. Cooperation between small and medium-sized companies and universities and research institutions in particular is a must.

Even though the expansion of the national know-how base is a prerequisite for success, companies cannot depend upon this alone. A presence in the market-place is an increasingly important requirement for success, since the life-cycles of products are growing shorter all the time. The development of a new product or production method requires investments that are so large that they can be regained quickly only via global sales. Reaping the gains of an early competitive advantage is best fostered by the diversification of production.

Globalisation of Companies Has Been Swift and Risky

Finnish companies have internationalized relatively late and swiftly while taking large risks. Part of the acquisitions of foreign companies or other investments have indeed failed. A company must have a firm know-how base of its own in order for an acquisition or the expansion of business activities abroad to succeed. In addition consideration must be made of the corporate culture, management practices or other special features prevailing in the foreign country concerned.

The globalization of corporate activities will continue to be a prevalent trend. In the future it will affect increasingly smaller enterprises that either cater to narrow segments of the global markets or ride the coattails of internationalizing larger companies by acting as subcontractors. At the same time, the risks of failure will grow since small enterprises have fewer possibilities to evaluate risks and hedge themselves. In small enterprises internationalization means often extraordinarily large financial investments.

In order for globalization to have positive effects domestically, it is important to keep a company's core know-how in Finland. In this respect Finland has to compete with other countries. For the time being the research and development of globalized firms as well as the strategic management have for the most part stayed in Finland. The main factor in this respect has been the existence of an internationally competitive pool of researchers and the infrastructure needed for carrying out research activities. The large Finnish companies operating abroad have incurred difficulties in obtaining top specialists.

As internationalization proceeds part of the core activities may be shifted abroad in those enterprises that operate globally and decentralize their research and development activities close to the clients. The retention of know-how in Finland is more likely in the case of enterprises primarily operating regionally, for example in the European market or national markets of certain countries. A necessary condition for this is the continued improvement of the domestic know-how base. At the same time Finland becomes more attractive as a site for foreign investment. Until now foreign investment in Finland has been low, but positive experiences have been gained in the metal industry.

Financial System Offers Inadequate Support to Innovation

The emphasis on innovation and internationalization place great requirements on the financial system. Germany and Italy provide examples of countries where a bank-dominated financial system has fostered favourable economic growth. Close relations between banks and companies have brought stability to financing, which is necessary for risky R&D investments and international financing. In Finland the dominant position of banks has at the same time safeguarded the financing of primarily large companies. The situation of small companies has been weak and especially new

innovative enterprises seeking to expand internationally have experienced difficulties in financing. As regards external financing, in addition to special credit institutions there have been only banks, but the availability of financing has been hindered by a lack of collateral. The banking crisis in recent years has further exacerbated the situation.

In principle, the deregulation of the financial markets widens the scope of financial alternatives as competition is liberalized and the securities markets develop. The possibilities of small and medium-sized companies to raise risk capital improve since the financial institutions cannot base their lending decisions solely upon real assets but also on the evaluation of operational risk. An important form of financing for growth firms in many countries is venture capital. In Finland venture capital activities are likewise expanding, until now these activities have primarily been based upon public financing. The availability of private capital for this segment is important, but public financing will continue to play a central role especially in safeguarding access to seed money.

The internationalization and deregulation of financial markets can increase the prevalence of economic disturbances. The system is increasingly sensitive to changes in expectations and credibility. Owing to the smallness of the Finnish financial markets, for example, a loss of confidence by foreign investors in Finnish stocks could spark a crisis in the overall economy. Securitization could reduce the length of financial relationships and hinder long-term investment activity. As competition grows keener the overall profitability of banks could weaken, thereby dampening their ability to bear risks.

Familiarity with Ground Rules of World Economy a Must for Businesses

As free trade expands and transport and telecommunications connections develop the networking of economies has made rapid progress. The liberalization of world trade within the GATT framework after the World War II has advanced so far that a return to widespread protectionism is no longer possible. The triumphal march of free trade has been bolstered by the intention of the former socialist countries and several developing countries to join the new permanent World Trade Organization. International trade will continue to expand both regionally and in terms of content. Perhaps the most rapid progress is being made in the new areas covered by the GATT Uruguay Round, i.e. trade in services, textiles, agriculture and intangibles. For companies this means better forecastability of the business environment and possibilities to scale activities according to global markets.

International business relations are affected increasingly by environmental issues. Global environmental problems can be solved only via cooperation. The consequent obligations have an impact on world trade and the production structure in different countries. Finland participates in the handling of international environmental problems as it does other

trade policy matters as an EU member. It would, for instance, be in our country's interest to limit the emissions of carbon dioxide with an environmental tax, since we have already started to levy this type of tax. At the same time it would be imperative to foster pan-European environmental cooperation, so that other European countries would make greater contributions to solving the environmental problems in Finland's neighbouring region.

Environmental technology markets will grow quickly in the future. They offer opportunities for growth also to Finnish firms. Finland's natural resource- and energy-intensive production structure is heavy from the standpoint of the environment, but at the same time it forces technological solutions by which energy use is made more efficient and spoiling of the environment prevented. These same applications have promising global markets, where gaining a competitive edge is crucial.

Currency Regime Stability Difficult to Attain

An important ground rule is the currency regime. The gold standard prior to World War I and the dollar-based Bretton Woods Agreement after World War II created stable and predictable monetary conditions for the world economy. Economic development has been very favourable during both periods.

After the collapse of the Bretton Woods system in the early 1970s the major currencies have floated while other currencies have either floated or been pegged to the major currencies. The exchange rate changes between the dollar, yen and German mark have been large, but they have not balanced the current accounts and the situation has been rather troublesome. It has not been possible to create stable regimes nor does the future look very bright in this respect.

The countries in the European Community sought in the 1980s to promote stability of bilaterally rates within the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS). This worked fairly well for several years. In the early 1990s economic trends nevertheless diverged in the EU countries, owing among other things to the reunification of Germany, and speculative currency movements spurred a rupturing of the ERM.

The collapse of the ERM shows how difficult it is to keep exchange ratesfixed, even if they are backed by multiple commitments. An erosion in the credibility toward a certain currency can spark capital movements on such a scale that it is often not sensible to defend a currency with the reserves of the central bank. On the other hand, changing rates on purpose before a speculative attack is difficult in a multicurrency regime. In principle, a floating rate adjusts the value of a currency in real time in accordance with the economic fundamentals and expectations about future movements. It is not, however, a viable solution for an internal

exchange rate regime of a close-knit organization like the EU. Those following a less disciplined economic policy can by floating have others pay for their mistakes.

The EU has only two alternatives in exchange rate policy. It can either strive as quickly as possible toward a common currency, the value of which is determined on the market, or it can return to a fixed rate regime in some form. The latter alternative would require closer cooperation between the EU members and wider fluctuation bands than those prevailing in the former ERM. In this respect the system would be vulnerable since in a group of 15 member countries there are always one whose situation diverges enough from the others to foster speculation.

Finland's Fate - from EU-membership to EMU?

A natural continuation of Finland's joining the EU would be participation in the Economic and Monetary Union (EMU). There nevertheless seems to be some uncertainty about this fate. Everyone does not believe that Finland can succeed without the possibility of exchange rate changes. Finland tried with poor results to sustain a stable currency in the 1980s. The requirements of a stable currency for use of income and price formation have not been internalized by Finnish economic agents. After this debacle companies have learned in recent years to live under the conditions of a floating exchange rate.

Finland's currency policy history is exceptionally stormy. For this reason adoption of the European Union's common currency or participation in the ERM will not be easy to implement. On the other hand, Finland cannot float by itself in the EU if other currencies are firmly pegged or replaced with a common currency. Regardless of which alternative is chosen, the role of credibility and expectations is of crucial importance. Credibility can be fostered only via sustained and consistent actions. If the credibility of economic policy is sound and inflation expectations low, Finland can in a few years shake off its old reputation, achieve the conditions for a stable currency and eliminate Finland's interest rate differential.

Participation in EMU will require the fulfilment of the convergence criteria. The measures carried out in the next few years to dampen inflation and promote a balance in public finances will restore the confidence in the Finnish economy to such a degree that the criteria on the level of interest rates and stability of the currency will be met.

Membership in the monetary union would immediately bring Finland a missing anchor in promoting stable monetary conditions. Possible shocks to the Finnish economy would have to be addressed by means other than changes in the exchange rate. Since most of Finland's net export revenues come from the forest industry, it is primarily this sector via which shocks affecting Finland can be felt. These will probably occur in the future as well,

so that the economy would have to adjust through wage and price changes. Finland can no longer be regarded as exceptionally exposed to external shocks. Other countries have distinctive features in their economies which make them prone to country-specific disturbances. The prevailing perception of Finland's great vulnerability to shocks is based primarily on the devaluation-oriented policy followed that has increased the fluctuations in investment exacerbated by quick shifts in the focal point of investment between domestic and export demand. On the other hand, the variability in the terms of trade or inflation have not been greater relative to Germany than in any other country. The commodity and country structure of Finnish exports has also changed increasingly in a "Western European" direction.

The adjustment pressures for EU members remaining outside of EMU are still greater as regards achieving the necessary currency policy credibility. In both cases the pressure is focused particularly on changes in the ground rules of the labour market. This is nevertheless a consequence not merely of Finland's joining the EU, but rather is related more widely to behavioural changes required by innovation and internationalization. In labour market policy increasing emphasis must be given at the level of the workplace to agreeing on wages, working time, education issues and organization of tasks. The agreements would nevertheless have to conform with the settlements of the central labour organizations or nationwide agreements. The labour markets can never function in the same way as labour markets since labour is unique and there are always rigidities in labour mobility.

European Integration Progressing Slowly?

Finland's membership in the EU means a change in the situation with respect to Central and Eastern European countries. Finland's tariff concessions in these countries provided by the KEVSOS free trade agreements have been lost and trade relations are guided by the European Treaty. This will eventually lead to free trade across almost all of Europe. The Central and Eastern European countries still have along way to go before contemplating EU membership. Membership would require changes in the EU decision-making system and a widening of the scope of the current aid policy. From the standpoint of economic conditions it is likely that the convergence of Western and Eastern Europe will occur gradually and not cause great market disturbances on either side. Political factors may nevertheless hasten the expansion of the EU to the east.

As a member of the EU, the significance of Finland's trade with neighbouring regions will be different than during the days of the former Soviet Union. Finland's trade with Estonia will over the long run become similar to that between Finland and Sweden. Trade will be conducted in the same types of goods in the form of inter-industry trade. Trade between Finland

and Russia, on the other hand will be based for a relatively long time on traditional comparative advantages but the share of transit trade will continue to be high for the time being. The trade with neighbouring regions is important for small and medium-sized enterprises since the threshold there has been lower than, for example, in Central Europe. If barriers to trade between the EU and Russia do not arise, Russia's share in Finland's trade will rise to its natural level. On the other hand, trade with Estonia is already unusually extensive and it will not grow proportionally over the longer run.

Overview of Europe

Even though trade barriers have been reduced swiftly, the large trading blocs and economic powers continue to shelter their economies with various kinds of non-tariff barriers. For small countries like Finland the removal of such barriers is important. Success in narrow production segments requires global marketing and the fastest growth in demand is often outside of Europe, even though most of Finland's export earnings come from Europe's internal markets.

Finnish companies did not "discover" the rapidly growing markets of Southeast and East Asia until the early 1990s when exports to the Soviet Union collapsed and Western European growth was dampened. Thereafter the significance of this area especially for the metal industry has grown appreciably. Asia appears set for a continuation of robust growth since the new economies will benenfit from the self-perpetuating growth in the region. A continuation of the economic reforms that China has carried out during the last 15 years without large disruptions would foster the rise of this area into a world economic superpower.

The locating of Finnish companies in these new markets requires greater investments than going to neighbouring regions. In Asia the relationships between persons are emphasized in business. Even though there have to be sufficient financial resources, doing business is primarily a question of the competence and adequacy of human resources.

In this decade also Latin America will finally get back on a sustainable growth path. The impetus in this case could be NAFTA, which will perhaps be extended to South America. Developments there have been hindered by social instability, but democracy appears to be taking root. This would create a prerequisite for stable development. It is nevertheless on an shaky base as long as foreign capital continues to hold its current position in the financing of investment. Boosting domestic saving would require a more even income distribution; in this respect widening the educational systems to cover the entire population would be of key importance. Current educational possibilities are distributed very unevenly.

Finnish Growth Is Self-generated

Even though the liberalization of production factors, the globalization of companies and Finland's joining the EU have narrowed the possibilities for economic policy, the government still has a key role to play in safeguarding the conditions for economic growth. First, the government has to influence international agreements and regulations so that they are as favourable a possible from Finland's standpoint. This is emphasized within the decision-making process of the EU, since Finland will operate in the future in many questions via the EU.

Another important task of the central government is the shaping of national institutions so that they strengthen Finland's attractiveness as a site for production and a place to live. For example, labour market practices and welfare policies will for the most part remain within the realm of national decision making even within the EU. As regards the development of the national ground rules and modes of doing business, an important factor is the costs related to governmental actions.

The obligatory participation and scope of the social insurance system disperse the risks at the individual level and foster risk taking and growth more efficiently than voluntary insurance system. Public systems guarantee the financing for educational investments and that participation in educational programmes will remain high.

Reducing the burdensome public indebtedness will, as in several other EU countries, require cuts in public spending. International tax competition will hinder taxation at levels higher than in competitor countries so that in Finland there are pressures to lower taxes. In the cutting of public expenditures it is important to take into consideration also the cost effects, externalities and impact upon the stability of society. For example, the alleviation of poverty associated with certain life situations, such as the age of children and mode of housing, cannot be allowed to lead to solutions that permanently erode the incentives of certain demographic groups. This is possible in means-tested forms of support.

Most of the negative incentive effects are associated with the high marginal tax rates for earned income and high indirect labour costs. As regards the development of the tax structure, the burden of taxation should be evened out by shifting increasingly to taxation of other production factors and use of income. Capital taxation cannot be appreciably higher than in other countries because of free capital mobility so the possibilities to change the tax structure are not very great. It is important to widen the tax base to include all income as much as possible. This would reduce the pressures on high tax rates.

When carrying out deficit reduction measures, cuts should be avoided in programmes that have clear positive externalities. These include education and research expenditures as well as outlays to develop the infrastructure of data transfer. At the same time, care must be taken when trimming social security and public services that the basic welfare of citizens remains good, so that social stability is not upset.

Introduction 1

Individuals, enterprises as well as economies operate in a world undergoing increasingly rapid change. Unexpected changes create uncertainty, thereby dampening the growth of welfare. Changes and the uncertainty associated with them increase the risks of taking action and curb investments aimed toward the future.

The international division of labour is marked by constant change. Disputes about trade regulations as well as trade surpluses and deficits contribute to tensions between economic blocs. The success of countries in Eastern Asia will continue to change the international division of labour. South America with its rich raw material base is achieving a faster growth curve. Perhaps the greatest impact upon the world economy comes from the Chinese economy and the numerous related risks. The problems of the Eastern European economies have vital consequences especially on the developments in Western Europe.

The most important changes in the international business environment have been the deregulation of the financial markets and the liberalisation of capital movements in the industrialised countries, which have caused uncertainty and speculative disturbances in the economy. This development has been marked also by high real interest rates. The long-term real interest rate in the OECD countries has been considerably higher than earlier since the beginning of the 1980s and it has clearly exceeded the rate of economic growth. This gap has been especially large in the European OECD countries. Finland's real interest rate in recent years has been exceptionally high compared to the economic growth.

All around the world there is considerable need for investment, but the prospects for returns vary greatly. Factors related to expectations about economic policy and disturbances spawned by short-term capital movements can keep interest rates high, hindering economic growth in a large part of the world. How the situation could be alleviated with measures designed to spur greater stability by, for example, strengthening the international co-ordination of economic policy or global tax solutions, is a completely open question.

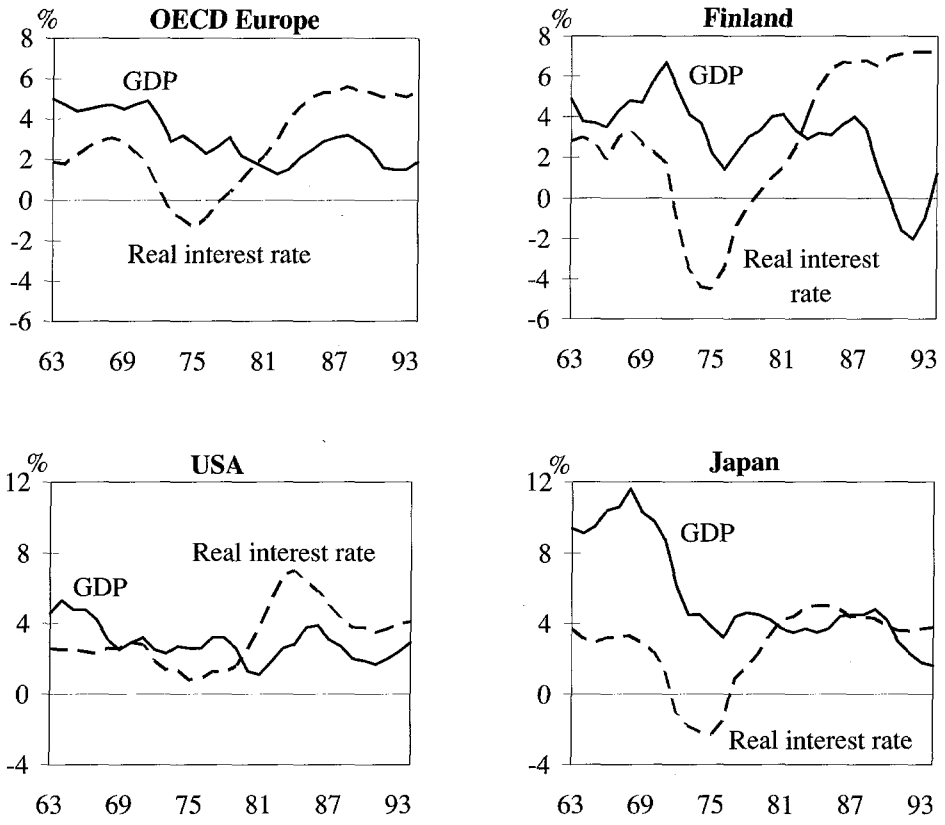


Figure 1.1 *Real GDP Growth and Long-term Interest Rates in OECD Countries, Finland, Japan and the United States in 1961-1995, moving five-year average*, per cent*

* Plotted in the middle of the period.

Source: OECD/EO.

Of the future changes in the business environment, by far the most important are the GATT Uruguay Round and Finland's joining the EU. The free mobility of goods, services, capital and labour as well as the European monetary union will harmonise the economic ground-rules between Finland and the other EU countries. Finland's views on global economic issues will be formulated within the framework of the European Union's stands, which Finland can influence with its own input.

Technological changes are crucial factors steering economic activity. Information technology, which has had a profound impact on the organisation of production processes, data management and wage formation during the last twenty years, has not yet exhausted all of its possible applications. Information technology and its applications will continue to develop and have a decisive bearing upon economic activity in the form of productivity shocks.

Raw material price disturbances, the most noticeable of which have been the wide fluctuations in oil prices, are very possible also in the future. For example, the decline in Russian petroleum output as production equipment falls into disrepair reduces the supply of crude oil, so that the possibility for price disturbances is more likely. This may be the case, especially if political unrest arises in the major producer countries. A shifting of investors' interest toward the metal and other commodity markets in volatile conditions could increase price fluctuations.

Environmental damage and the national and international actions designed to thwart it, climatic changes and the problems they create in food production as well as high fertility and unpredictable regional wars will perhaps be reflected in large-scale migration, which would have far-reaching consequences also on the activity of the affluent industrial countries.

The behaviour of consumers and enterprises will increase the potential for disturbances. For example, swings in the saving rate or volume of investment and how well they match over time and regionally are difficult to predict. Consumers and enterprises operating under uncertainty typically behave unpredictably. As a result the forecastability of economic activity remains weak. A difficult problem is also the weakening of social cohesion spawned by unemployment and the widening of income differentials and the repercussions of these trends on economic activity.

In an uncertain and ever-changing economic environment, the necessary flexibility in the actions of consumers, enterprises and the public sector takes on enhanced significance. The flexibility of the economy hinges decisively upon the structure of the economy and behaviour of economic agents, i.e. microeconomic factors. Only a flexible economy is able to achieve sufficient stability, which on the other hand is a prerequisite for growth. The stability and flexibility can be promoted via economic policy, primarily with incentives created by the public sector. In this study it is not possible to touch upon all of the above-mentioned problems. The focus has been limited to three main questions of importance from the standpoint of the internationalisation of the Finnish economy:

What are the forces spurring the internationalisation trends?

What are the main ground-rules regarding internationalisation and changes in the economic environment?

What actions can promote Finland's success in international competition?

The point of departure for the study is microeconomic factors (innovation and strategies of internationalising firms), after which we will address political questions by evaluating the ground-rules and the economic

environment. The approach is based on the view that the development of the Finnish economy and society depends to a great extent upon growth in productivity, which in turn hinges upon our own actions. This development over the long run is, in other words, endogenous. These issues are addressed from the perspective of firms as well since firms are in closest contact with the global economy.

Theoretical Framework of Study

Growth analysis carried out during recent decades in Finland and abroad (e.g. Hirvonen & Hjerppe, 1984; Maddison, 1989) show that growth in aggregate output is affected over the long run by technological progress and related national innovation policy more than the volume of real investment. For this reason the approach of the study has been selected so that in addition to internationalisation factors the study focuses on intangible investment, information flows and their required networks and consequent externalities. In addition technological progress is dependent upon the ability of firms to transform innovation into marketable commodities.

The approach taken in the study is the framework provided by the so-called new growth theory, i.e. endogenous growth theory. In accordance with the traditional growth model, saving and growth in the population determine the rate of economic growth. Technological development is given from outside, exogenous, so that the role of the public sector over the long run is limited to influencing population growth and saving. In newer applications of growth theory economic growth is determined primarily by technological development, which can be affected by various types of public action. The springboards to innovation are monopoly profits, which create incentives to carry out research and development as well as related investments. It is also important how the economy reacts to the signals given by the market.

The study focuses on the four following questions, which have aspects related to the endogenous growth approach. First, technological progress and innovation require a sound know-how base and its growth, which in turn requires the improvement of the quality of the labour force via education and training as well as other factors to upgrade the quality of the labour force and organisation of labour. Second, changes in the structure of the economy require material investments. Investments spurring growth and fostering development are carried out primarily in enterprises subject to international competition. Benefiting from them efficiently nevertheless requires investment in infrastructure by the public sector. The third aspect includes the economic environment, ground-rules, institutions and an overview of the main limits from the perspective of the enterprise sector. Fourth, we will evaluate which actions can promote success in the Finnish economy. Of key importance in this respect are the links between the above-mentioned factors and the measures of the public sector

(including economic policy), institutions as well as labour markets and the consequent impact upon growth.

The point of departure can be summarised by noting that innovation is the main source of growth, competition[1] is the test of an innovation's suc-

Endogenous Growth Theory

Economic growth theory has been the subject of concentrated development and lively debate during recent years. The new growth theory seeks to endogenise technological development, i.e. to explain technological development and its role in the economic growth process.

The approach of the new growth theory offers wider possibilities than traditional growth theory for appraising actions by the public sector that foster growth. In the old theory decreasing marginal returns on capital limit the significance of additional saving and investment for growth. Investment raises the amount of capital and output per employee. The growth in the capital per employee nevertheless lowers the return on capital. The result is thus not a permanent rise in the growth rate of capital and output per employee.

In the new growth theory the limit of the declining marginal return on capital is widened. One way is to widen the concept of a capital good in growth theory from physical capital. Examples of this are human capital and the level of know-how. As long as there are no limits inducing declining returns on the production of these capital goods, continuous growth is possible.

Another way of weakening the limitation imposed by declining marginal returns to capital is to assume that there are spillovers associated with human and physical capital, i.e. when individuals and firms erect new capital they at the same time increase the productivity of other individuals and firms. If the spillover is large enough, the marginal productivity of physical or human capital can remain permanently above the discounted present value of the investment, even if the rate of return is declining. If capital has these effects, the support of capital formation may be in the interest of the public sector. For example, the public sector can make infrastructure investments or support private investment with tax policy. Moreover, if training and upgrading of the knowledge of one worker increases the productivity of other workers, then supporting education, research and development may bolster economic growth.

The approach of endogenous growth theory is closely related to the incentives of monopoly profits generated by innovative activities. In other words innovation requires the possibility of monopoly profits. Successful innovative activity typically provides the entrepreneur with a monopoly position in the market for a certain period of time.

[1] In innovative activities new methods are often applied where the producer and the buyer work together to "customise" the product required by the buyer. Competition or monopoly situations are thus formed from chains that are in some respects similar.

cess and free international economic links insure competition. International trade expands the potential markets and thus improves the yields expected from successful innovation. The expansion of markets provides better possibilities to benefit from economies of scale and the covering of large fixed costs associated with innovation. International trade speeds the diffusion of new products as well as processes and research results between national economies. It also reduces the redundancy of research from the standpoint of the global economy.

The report investigates especially those mechanisms by which the domestic economy is linked abroad. Enterprises link the domestic economy directly with other countries via trade flows, foreign direct investment, joint ventures or or financial flows. Another major channel of diffusion is research and development. The commercial exploitation of innovations hinge upon the research and development resources prevailing in the country and what it can gain from abroad in exchange. Innovations are often spawned and their success tested in an international context. From the standpoint of success it is important that the economy has a know-how base open to international externalities that is formed on the basis of decades, perhaps even centuries of educational and cultural developments.

Knowledge, Economic Growth and Globalisation

The approach described above can be illustrated with the aid of figure 1.2. The investment activity of the economy is financed by saving, which is affected by income as well as social preferences. These determine to a large extent a country's balance of foreign investment: Will domestic saving be channelled abroad or will the country attract foreign investment?

Structural change always requires fixed and intangible investments. The main driving force behind growth is technological development and innovation, which is promoted by intangible investments. Technological development and real investment, primarily machinery and equipment, are closely related to one another. The knowledge accumulated in an economy over time constitutes the knowledge base of a society[2]. A continuously improving knowledge base in an economy is a prerequisite for innovation and a rise in welfare. Educational investment increases the amount of human capital. An increase in human capital, in turn, fosters research and development. Research and development as well as learning by doing increase the knowledge base and improve the conditions for innovation[3]. Good contacts and flexible dissemination of knowledge are necessary for upgrading research and investment. International trade

[2] Commercially beneficial knowledge consists of knowledge related to technological know-how, in particular, as well as marketing, distribution, warehousing, payment systems, quality control, business organisation, management, motivation of employees, as well as know-how related to production and adaptation of knowledge.

[3] In the new growth theory research activities are handled as production activities, i.e. primary inputs (labour and capital) are transformed into outputs - knowledge. Industrial research is often marked by uncertainty and commercial gains are reaped from products produced with the new technology only after a long learning-by-doing process.

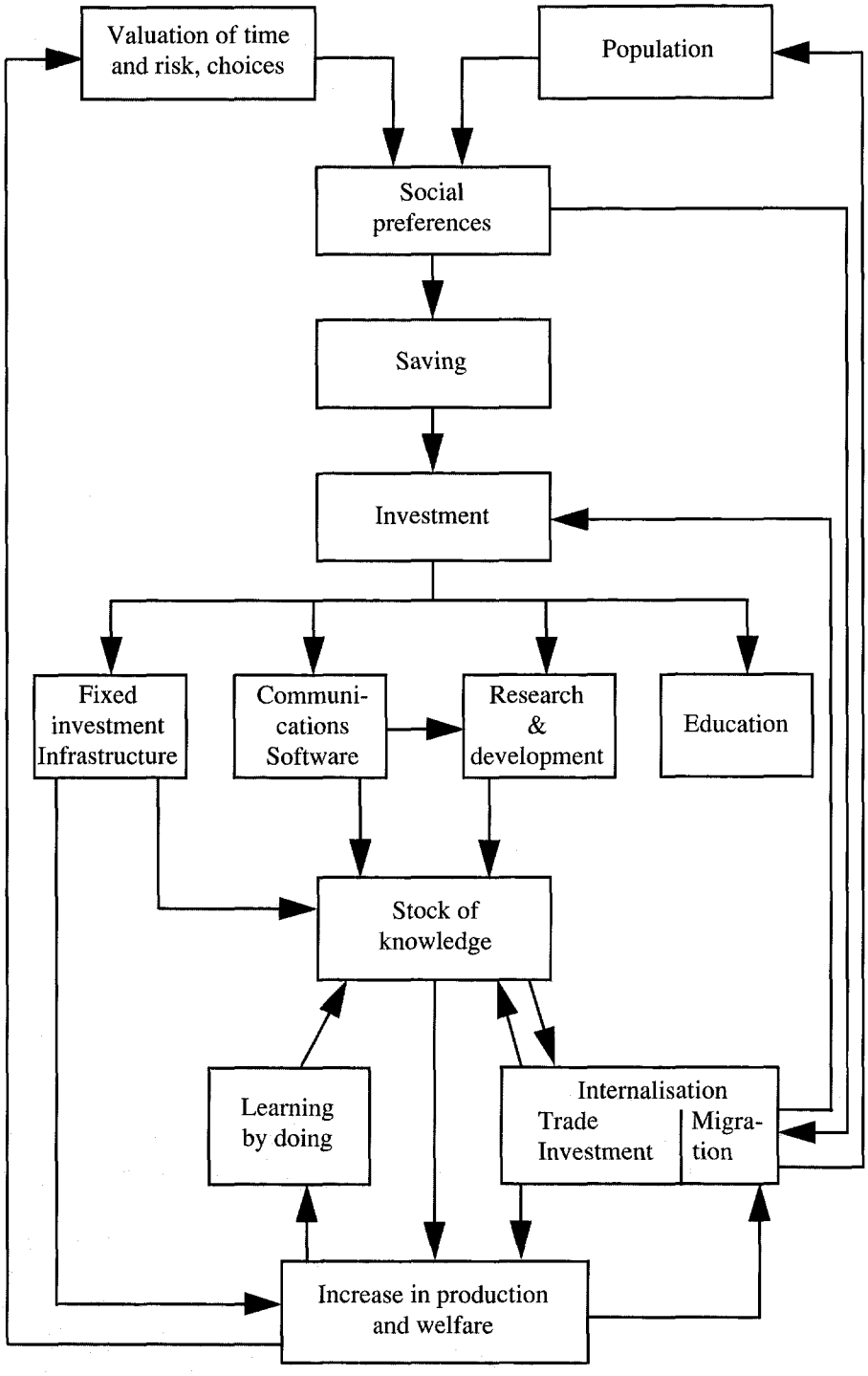


Figure 1.2 Knowledge, growth and internationalisation

Source: Applied from Minne, 1993.

connections, direct investment by multinational firms and joint ventures test the success of innovative activities. The knowledge base and its elements are all closely tied to the international network.

If a society places special emphasis on the importance of long-term objectives and the desire to invest in the creation of new products and processes and if companies take risks, the investments to spawn new knowledge are great. Population trends (ageing, fertility, immigration and structure of households) affect the objectives of a society. The investments to foster knowledge and its distribution between different sectors of an economy determine to a large extent the rate and orientation of economic growth.

The knowledge base and capacity to produce knowledge do not depend solely upon investments in research and development, but rather upon the efficiency of research centres (see Minne, 1993). The cheaper the creation of innovations, the more worthwhile it is to invest in knowledge-based output and the greater the incentives for innovation. Human capital is the main input, so a skilled work force ensures a comparative advantage. Investment in education is a key factor in determining the quantity of human capital. The increasing availability of information, especially via networks, spurs an increase in productivity of researchers since they are able to benefit better from the positive spin-offs of the knowledge base.

The production of knowledge also spurs globalisation. New knowledge leads to the manufacture of new and specialised products. Consumers and firms can benefit from the widening selection spawned by trade. Thus the international trade in knowledge-intensive products, in particular, is growing faster than world trade. Multinational companies found research units close to the headquarters. The diffusion of new knowledge bolsters the productivity of researchers and consequently economic growth.

Innovation, Technological Development and Growth

2

Summary and Conclusions

Growth in total factor productivity in Finland has been among the highest in the OECD countries during recent decades. The swift increase in the capital intensity of production has affected this trend, but not as much as it should have in the light of international comparisons. There is still plenty of room for improving the level of productivity.

The efficiency of fixed investment has been weak in Finland. Most of the investment has been directed toward the sheltered, monopoly-prone domestic market sectors, where it has been possible to safeguard returns by price hikes. There have also been problems with investment incentives, primarily the low or negative real interest rates that prevailed until the mid-1980s which kept the required return on investments low. The adoption of new technology and the income generating ability of the economy has been weakened by the collapse in investment and consequent shrinkage in the net capital stock.

Since economic growth is increasingly based upon created factors of production and the ability to create commercially feasible product and process innovations, the development of a long-term knowledge base is an important prerequisite for success. When developing a knowledge base, the most significant aspects are the education and research systems as well as interfirm links and knowledge networks.

The Finnish educational expenditures have been on par with international standards up until recent years. The population is nevertheless divided clearly between the older age groups with less education and better educated younger age groups. This sets requirements for developing adult education. Adult education provided on the job is in a key position, since formal education cannot predict the technological skills that are needed for rapidly changing production activities.

The cuts in educational expenditures in line with efforts to rein in state borrowing are harmful from the standpoint of expanding the knowledge base and innovative activities. In order to be an attractive site for production Finland must develop and maintain top-notch know-how centres. The universities are being required to carry out internal reforms, bolster the co-operation with outsiders as well as continue structural development measures aimed at improving the success of operations. In addition to the amount of education, consideration must be made of the curriculum and composition of degrees.

Learning by doing along with the high labour force participation rates of women and the work experience of the large age groups has upgraded the knowledge base of society and productivity. High unemployment, especially long-term unemployment, decreases the positive impact on productivity of learning by doing. Long-term unemployment may constitute a difficult constraint for the learning by doing of the adult population.

Research and development expenditures in Finland have risen quickly to the international average level. Business enterprises account for over

half of these expenditures. Public financing accounts for only 5 per cent of business enterprises' research and development expenditures, which is considerably less than the average share of some 15 per cent in the OECD countries. On the other hand, other types of state aid, often hindering reforms, are available to enterprises in Finland. When cutting other types of support for enterprises, it would be necessary to raise the public sector's share of financing the R&D activities of the enterprise sector. The grounds for public financing of product development are the wide-spread externalities of firms' research and development activities for growth of the national knowledge base and productivity.

The increasing of R&D expenditures has been reflected also in results. Patent applications both at home and abroad have risen swiftly and the share of high-tech products in both production and exports has risen. The growth has been strong in sectors where research investments were the highest in the 1980s. The shares of low-tech products within production and exports are nevertheless relatively high compared to other industrialised countries.

The diffusion of technology is of fundamental importance in economic growth, especially for a small country. This is promoted with the aid of knowledge networks. The physical prerequisites for the transfer of knowledge are rather good in Finland by international comparison. The channels for the diffusion of technology have also included imports of machinery and equipment, purchases of patents and licenses, studying and working abroad as well as seminars and publications. Direct investment by foreigners and recruitment of top foreign experts to Finland have been modest. Ownership restrictions, stringent work regulations and high income taxation have hindered the exploitation of the latter-mentioned channels of diffusion.

Co-operation and interaction have been of decisive importance in the diffusion of technology. The co-operation between business enterprises and research institutions will be of increasing importance in the future in order to divide up the growing product development costs and risks.

The co-operation between research institutes and firms will gain greater emphasis as the need for basic research increases, since in more and more fields basic research is needed in order to develop new products and production methods. The dividing lines between basic research, applied research and product development are indeed becoming more blurred. Finnish firms have equal possibilities to participate in European co-operative networks via international agreements. The EU framework programmes as well as European research and development programmes, e.g. EUREKA, give firms possibilities to engage in co-operation with foreign firms, research institutions and universities. The EU research programmes develop important basic research and create general preconditions for growth of business activities and productivity.

The greatest shortcomings in the Finnish innovation system have been in financing, which has presented a dilemma especially for growing small

and medium-sized enterprises. The increasing of risk financing from current levels is necessary for fostering the conditions for the growth of knowledge-based enterprises. These sectors require public as well as private capital. The recent expansion of risk financing activities in the form of private investment funds has directed relatively large individual sums to already mature enterprises and reorganisation of their ownership. The interest of public capital investment has been focused only on the firm regarded as most promising.

The availability of capital financing has been insufficient, particularly for knowledge-intensive SME's as well for small and early stage investment required by SME's. One solution to this problem could be capital investment by private individuals. The average size of investments by private individuals is smaller than for professional investors and their interest is focused especially on firms in the start-up stage, where financing is needed for completion of product development and trial marketing.

The government can foster the business conditions for SME's also by developing export-promoting activities, offering experienced expertise to companies and supporting the participation in co-operative networks. Furthermore, the public sector can function as a customer and user of innovation. It also has an important role in creating norms, standards and regulations as well as co-ordinating international co-operation between central governments.

2.1 Technological Development and Innovation Are Driving Forces behind Growth

Economic growth is based over the long run on improvements in the quality of products and production methods as well as growth in efficiency and productivity. An increase in the amount of the factors of production is not enough to sustain permanent growth. Innovation as well as new technology are adopted often via material investments. New ideas must be incorporated in machinery and equipment before they can provide an impetus to growth through the final products. Every new idea or patented invention is not an innovation. An innovation is an invention that has led to commercial success or clear advances in the production of marketless goods (Freeman, 1982).

What Are Innovative Activities and Innovation?

Innovations make it possible to supply markets with totally new or improved old products or bring about new or improved production methods. Innovation can be divided into product, process and organisational innovations. Product innovations are a question of the type of products manufactured. Process innovations are related to production processes, i.e. how products are manufactured. Innovation can also be a new organisational solution (Edquist, 1993).

The most significant impetus to development of new products and production methods is the possibility to earn additional profits. This is safeguarded by, among other things, patent protection. Companies fighting for survival must manufacture products that are better and/or produced at lower costs than competitors. If the innovative activity is insufficient, know-how is not developed or the changing needs of customers are not taken into consideration, the company will sooner or later go out of business or fade away. Customer orientation, the satisfaction of customer demands with individualised tailor-made products, has become an increasingly important factor in the spawning of innovations. Markets generate ideas for new innovations, but markets also function as testing grounds for the "virtues" of innovations. A prerequisite is a continuous monitoring and analysis of the flow of information coming from the markets.

Innovative activities can be seen as a process with three stages: basic research, applied research and development. Basic research entails activities to gain new knowledge, which is not aimed primarily for practical applications. Basic research includes analysis of properties, structures and dependencies, the aim of which is to test and formulate new hypotheses, theories and laws. Basic research is ordinarily carried out in universities and research institutions. The results of basic research are often freely available.

Applied research includes activities aimed at gaining new knowledge, the primary goal of which is practical applications. It can be, for example, the search for applications to basic research or creation of new methods and means to solve certain problems.

Development, in turn, means research results and/or use of knowledge gained via practical experience to create new materials, products, production methods or systems or the fundamental improvement of those already existing (Statistics Finland, 1993b). Most of the research expenditures of business enterprises are used precisely for development. According to a study of US industrial firms, three fourths of expenditures on innovation are related to development, one fifth to applied research while basic research accounts for less than 5 per cent (National Science Foundation, 1979). Approximately the same results have been obtained for data from Great Britain (Stoneman, 1983).

Innovative activity and the transformation of inventions into commercial products are multidimensional processes, which include, for example, training regarding the adoption of process innovations as well as procurement of programmes and new technology[4] (Statistic Finland, 1992c). Training expenditures account for a considerable portion of innovation expenditures. Since new products must be made known, innovative activities include also marketing, the share of which in the innovation expenditures of industrial firms is ordinarily 10-20 per cent on average in

[4] Technology diffusion is thus a part of innovative activities. The dividing line between innovative activities and technology is rather blurred.

Knowledge as a Factor of Production

One characteristic of knowledge that is deemed essential for economic growth is that it can be used in as many production processes as desired at the same time. This facilitates knowledge spillovers, the dissemination of knowledge from one place to the next and from one firm to the next. Another special characteristic of knowledge is that it can be used as many times as desired without wearing out (Romer, 1990). The knowledge base, on the contrary, accumulates knowledge when used. To be sure, knowledge can go out of date, which may make it obsolete. The more knowledge that has accumulated in enterprises and the overall economy, the more users of knowledge there are exploiting it and the better the possibilities to create new knowledge. In the production of knowledge, on the other hand, the exchange of knowledge is of key importance.

Furthermore, knowledge (for example, a scientific law, theory, mathematical result, computer programme, mechanical drawing etc.) does not cease to exist after its inventor is dead. The adoption and use of knowledge are nevertheless person-specific and in many fields knowledge is difficult to accumulate without personal contacts with experts. The efficiency of knowledge transfer is indeed a decisive factor from the standpoint of creating and preserving knowledge.

Knowledge is a fixed cost for a knowledge-developing company. The additional costs from its use are low compared to the costs of developing the knowledge. The covering of high fixed costs requires extensive markets. If as a result of knowledge leaks competing firms are, at almost no cost, able to use knowledge that was developed in another firm at considerable expense, the motivation for innovative activities may decline (Romer, 1990). For this reason it is appropriate for a firm to attempt to prevent others from exploiting the knowledge it has developed.

In studies on innovative activities it has been found that many firms seek to protect their innovations by concealing knowledge. The secrecy is necessary if the exploitation of innovations elsewhere cannot be prevented. From the standpoint of the overall economy, the secrecy nevertheless prevents the diffusion of useful knowledge and leads to economically useless duplication of research activities.

The need for secrecy can be reduced with the help of sufficient patent protection. If sufficient protection cannot be gained from patent laws, public financing may be decisive for maintenance of certain innovation activities deemed necessary. On the other hand, the lags in imitation of innovations may be so long that a firm developing an innovation has sufficient time to enjoy market power. The knowledge created in enterprises is often firm-specific, special knowledge gained over a long period of time, which other firms are unable to exploit, at least not at very low cost, due to a lack of competence, even if they obtained another firms' key knowledge for their own use. A lack of competence can thus prevent or at least slow down the diffusion of knowledge from one firm to the next (Patel & Pavitt, 1994).

The productive opportunities of a firm depend in large part upon what it could do earlier (Dosi et al., 1990). It is difficult for a firm to procure know-how by means of acquisitions, for example, in fields where it has no prior experience. The accumulated knowledge base and know-how capacity are essential factors for economic growth also because they facilitate the adoption and adaptation of knowledge developed by others.

developed countries (Dosi et al., 1990). The success of innovative activities is affected, for instance, by the competence and commitment of the personnel, co-operation between different departments such as marketing, product development and production as well as co-operation between business enterprises, research institutions and universities (e.g. Kline, 1985).

A relatively small part of all innovation pertains to completely unknown products and methods, which often lead to new industrial branches and broad changes in the production structure. These types of changes have during this century been spawned by innovations related to information technology beginning in the 1950s with commercial computers. Innovations which have wide applications are called generic innovations or technology. For example, the laser can be regarded as this type of technology. It has gradually been applied to different purposes ranging from measurement and navigation to music production, text printing, surgery and telecommunications. A considerable portion of innovations created by firms nevertheless have narrow fields of application or entail marginal improvements in already existing products, processes, production and organisation systems, distribution, telecommunications, etc. (Freeman, 1993b).

If innovation has a wide impact on the entire economy or society, it can be called a new (productive) paradigm or megatechnology (Freeman, 1988). During this century this group includes information technology as well as electronics and technology based on the use of synthetic materials. The new field of biotechnology based on the transformation of genes can at least in the future be included in this group.

The ability to adopt and apply new know-how or new ideas is of crucial importance in innovative activities[5]. The willingness of firms to adopt new know-how is based on the knowledge base created: the knowledge that accumulates in the firm over time, i.e. the skills of the management and employees. On the level of the entire society the success of innovative activity and the economy hinges upon the knowledge base accumulated over a long period of time in enterprises as well as research institutes and universities. The knowledge base spreads into use and is expanded via formal education, learning by doing, research and development activities and knowledge adopted from abroad. From the standpoint of adopting knowledge, the telecommunications infrastructure is very important.

Market as Ultimate Test of Innovation

It is sometimes claimed that the direction of technological progress is independent of the economic incentives. Nevertheless scientific ideas are ultimately tested in the commercial markets and their exploitation almost always requires sizeable fixed investment. Institutional, regulatory and

[5] Innovative activities contain elements of imitation, the copying of products. On the other hand, imitation requires experience in innovative activity in order to succeed, and it will not succeed without sufficient basic know-how. The border between innovative activities and imitation is not always clear.

economic factors affect the pace and direction of technological change. Firms invest in new technology when they forecast potential earnings. A significant portion of research in the OECD countries is financed by private enterprises. The enterprises' share of research and development expenditures during recent years has been 60-70 per cent in many industrial countries. In Finland the share was 57 per cent in 1991 (OECD/STI). Learning to adopt technology is a long and expensive process. The rate of adopting technology is affected by institutions, ownership rights and price structures, which together determine the profitability of acquiring the knowledge in private enterprises (Grossman & Helpman, 1993).

R&D expenditures represent only a portion of the resources that firms use for learning aimed at creating new products and new methods. Learning, which is often seen as small improvements in design and technique, is important in the overall picture of technological progress. Knowledge must be accumulated so that each idea is based on previous ideas. In contrast, machinery must be renewed as it wears out. Every markka earmarked for producing new knowledge increases the "net knowledge base" by the full amount, while perhaps 2/3 - 3/4 of private investment in machinery and equipment is replacement of worn out assets. The return on research and development to society may surpass the individual rate of return to a wide extent because spillovers of knowledge benefit outsiders as well.

If the patent system protects the ownership rights of innovators efficiently or if innovations cannot be copied quickly, they have exclusive rights for a certain amount of time to produce the good or use new production methods. A firm can thus acquire monopoly profits on the basis of earlier generations of products. When innovators seek to create the next generation of similar products, everyone starts from where the predecessors left off. Market leaders obtain monopoly rents, which are the reward for research investments.

Even though the driving force behind technological progress is thus to a large extent the innovative activities of the enterprise sector, the research and development work carried out in universities and research institutions as well as various kinds of co-operation often play a significant role. The most important factor in the innovation process is human capital, i.e. skilled labour, which is produced in the universities and the availability of which in the future is still a decisive factor, for example, in the investment decisions of enterprises.

International Links Decisive in Technological Progress

Countries trade and communicate with one another with the aid of rapidly developing information technology more than ever before. The increased exchange of goods and ideas has created an increasing dependence with respect to the technological success of different countries. Innovations are tested in the international markets. The international dimension of technological progress is thus decisive.

In some countries knowledge-intensive products can be improved upon in the research laboratories of another country. Technological progress is very international, at least from the standpoint of a small country. A country which has a comparative advantage in skilled labour specialises in activities utilising human capital. Even if this type of country originally produced less knowledge-intensive products, it could over time upgrade its position in technological competition. Countries that are rich in human capital often are large in terms of population (USA, Germany, Japan). Over the long run, these countries achieve a relatively dominant position in several high-tech industries and can export the products of these industries in order to obtain capital-, raw material- or labour-intensive products. The relatively input-richness thus determines the production structure over the long term.

In principle, knowledge flows around the world quickly and without cost. The locating of research units in certain corners of the world nevertheless indicates that physical proximity with other researchers entails advantages. New ideas spread by way of competent personnel and persons are often tied to their place of residence. The existence of regional or national technological externalities traditionally play a key role in determining comparative advantages. The spillover effect creates a self-perpetuating cycle, along with which a country can transform its production structure based on natural resources or low wages.

The evaluation of innovation helps us to answer the question of why participation in the international division of labour can speed the economic growth of a country. First, the residents of a country integrated in with global markets have greater access to technical knowledge than those in isolated countries. Second, international competition speeds the benefits gained from industrial research. Success is best achieved on international markets by creating innovations that are significant on a global scale. Globalisation widens the number of potential customers, so that integration can boost industrial output. More open trade increases the profitability of research and development in a country if the firms in this country in question are competitively equal with foreign firms. In small and remote countries and in countries where skilled labour is relatively scarce the precondition of an open economy is not always enough to spur the emergence of competitive products, even if the formal prerequisites for free interaction exist (Grossman & Helpman, 1993).

The diffusion of technology reflects upon the international division of labour. The firms of developed countries seek to create new innovative products, while firms operating in developing countries often concentrate upon copying products developed abroad (e.g. China). The innovation model in developed industrialised countries and the copying model in developing countries give arise to product cycles in international markets. The firms of industrialised countries produce and export many products in the initial stage of the technological life cycle. Manufacturing of many products shifts to developing countries when the production methods become more widely known.

Impact of Innov ti ns on L bour Mark t

The short-term impact of innovations on labour markets are associated with the factors needed for spawning innovations - personnel competence, incentive systems and technology. The creation of new innovations requires that the employees have strong professional skills, which can be further upgraded by on-the-job training.

As innovation spreads and production expands the demand for skilled labour grows. Labour bottlenecks may appear even during times of high unemployment. The state has a major role to play in alleviating the problems of mismatches in the labour market by offering training for the low skilled unemployed.

The main incentives in motivating employees required in developing innovations are good working conditions, such as flexible working times. It is the most natural to agree upon these matters, at least within certain limits, on the level of the workplace. The key question regarding the labour negotiations are whether centralised or union-level agreements provide leeway for adaptation of guidelines on the local level that would foster firms' innovative activities and encourage employees to learn new things.

New technology spawned as a result of innovation affects as a production factor as well as the labour force that adopts it. The uneven spread of new technology to different industrial sectors, firms and vocational groups tends to increase the differences in productivity between workers, which spurs pressures for wider wage differentials.

Technological progress has a major role also with respect to evaluation of the long-term impact of innovation on the labour market. The concepts "jobless growth" and "technological unemployment" are related to growth in production that is based on employment displacing technology. Different types of innovation nevertheless have different types of effects on employment[6] (Edquist, 1993). The adoption of new technology brought about as a result of process innovation increases the productivity of workers and reduces the demand for labour. On the other hand, the growth in the demand for products the prices of which have fallen owing to the new production process boosts production and alleviates the negative effects of process innovation on employment.

Product innovation is a question of developing new investment and consumer goods. With respect to investment goods the overall impact of innovation on employment may be negative. For example, the manufacture of robots creates new jobs, but their use in the production processes eliminates jobs over the long run. From the standpoint of one country the export of investment goods naturally increases employment.

[6] In economic theory technological development is traditionally understood to pertain only to process technology, not including product and organisational innovations. An exception is Joseph Schumpeter, who included all three within the concept of innovation.

Product innovation aimed at developing consumer goods generally boosts employment over the long run. The employment impact is positive especially if the consumer good satisfies a new demand, such as the experiences with mobile phones have shown. The positive employment impacts strengthen via the spread of product innovations as other firms begin to manufacture new consumer goods.

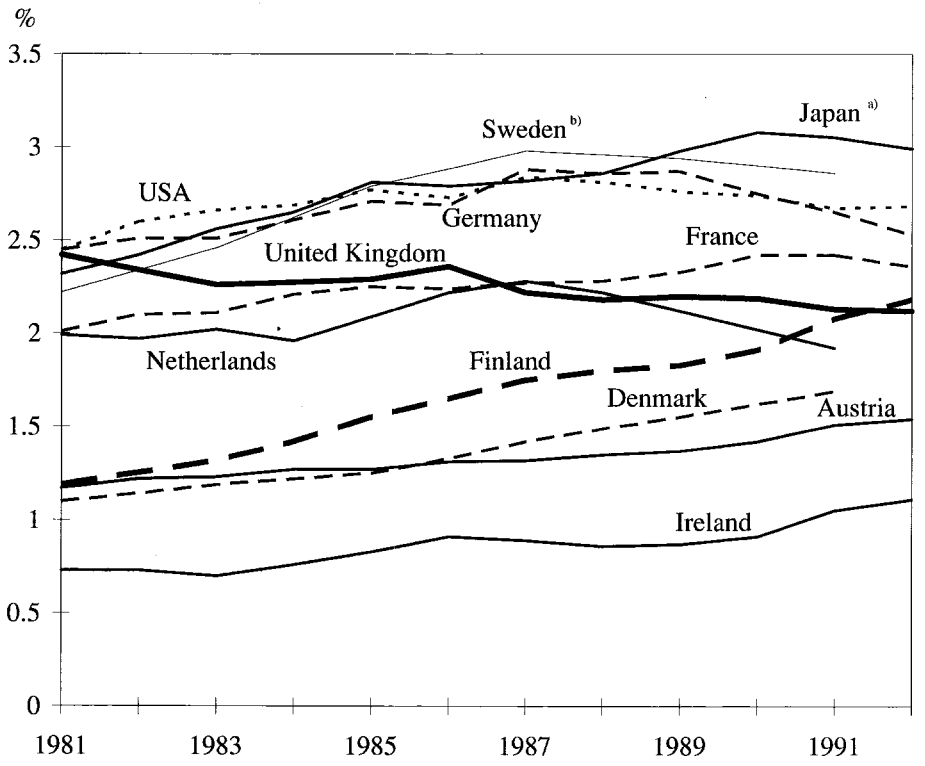
Organisational innovation, for example the solutions made by the Japanese automobile industry like "lean production", have cut the manufacturing time of products and improved the productivity of labour. With these organisational solutions the time of manufacturing a car has decreased from 100 hours to as low as 20 hours (Edquist, 1993). Rather little is still known about the impact of organisational innovations on employment. Evidently, they vary greatly between different organisational solutions.

2.2 Research and Development

The human capital accumulated by way of education and learning by doing is a major input in research and development. Research and development is necessary in order to manage in the face of competition to develop products and processes. R&D activities are aimed at creating new competitive and production-boosting innovations. In many sectors R&D activities are nevertheless also a prerequisite for exploitation of knowledge created elsewhere. The new products spawned via successful R&D activities can prompt an improvement in the terms of trade, which can lift national income and foster growth in domestic demand.

R&D investments have swiftly grown in Finland in recent decades also by international comparison. During the last two decades the domestic R&D base, i.e. cumulative R&D expenditures, increased by four-fold, while the R&D base in many other industrialised countries "only" doubled or tripled (Coe & Helpman, 1993). R&D expenditures grew in Finland especially in the 1980s. Their share relative to gross domestic product rose from the relatively low level of the early 1980s to the average international level of over two per cent in the early 1990s (Figure 2.1).

R&D expenditures in Finland totalled slightly over FIM 10 billion in 1992 (OECD/STI, 1994). Business enterprises financed 57 per cent of the expenditures. The private sector's share of research and development is high in other industrialised countries as well. Companies with over 500 employees account for most of the R&D expenditures of companies. For example, in the early 1990s the ten largest industrial firms accounted for over half of all industrial R&D expenditures (Säynevirta & Ylä-Anttila, 1994). The investment is concentrated in large firms, but small ones are also a significant source of innovations and can have a fundamental impact upon technological progress. In Finland small and medium-sized enterprises account for 23 per cent of total industrial R&D investment (TEKES, 1994).



a) In Japan the accounting procedures for R&D expenditures differ from international practices, which raises these expenditures as a percentage of GDP in Japan somewhat.

b) In Sweden certain types of research on humanistic topics are not included in the R&D expenditures of the public sector and the private nonprofit sector, for which reason the figures are slightly underestimated in international comparison.

Figure 2.1 Research and Development Relative to Gross Domestic Product in 1981-1992, per cent

Source: OECD/STI.

Slightly over 40 per cent of Finnish research is carried out in universities and research institutes, the respective shares of which are approximately equal. Most of the R&D expenditures of both the universities and public sector and especially those of enterprises are directed toward industrial research (Figure 2.2). Industry's share of total R&D investment is somewhat lower in Finland than in the Netherlands, where research oriented toward industrial applications accounts for 92 per cent of the R&D carried out by enterprises, 57 per cent of that carried out by research institutions and 34 per cent of that in universities[7] (Minne, 1993). The corresponding shares for Finland were 80, 50 and 42 per cent respectively.

[7] There is nevertheless reason for caution in international comparisons. The figures also for Finland presented in figure 2.2 on allocation of R&D investment can be regarded only as rough estimates. The table has been compiled by recalculating the figures of Statistics Finland on research and development by scientific fields (for universities and public sector) and by industry (for companies).

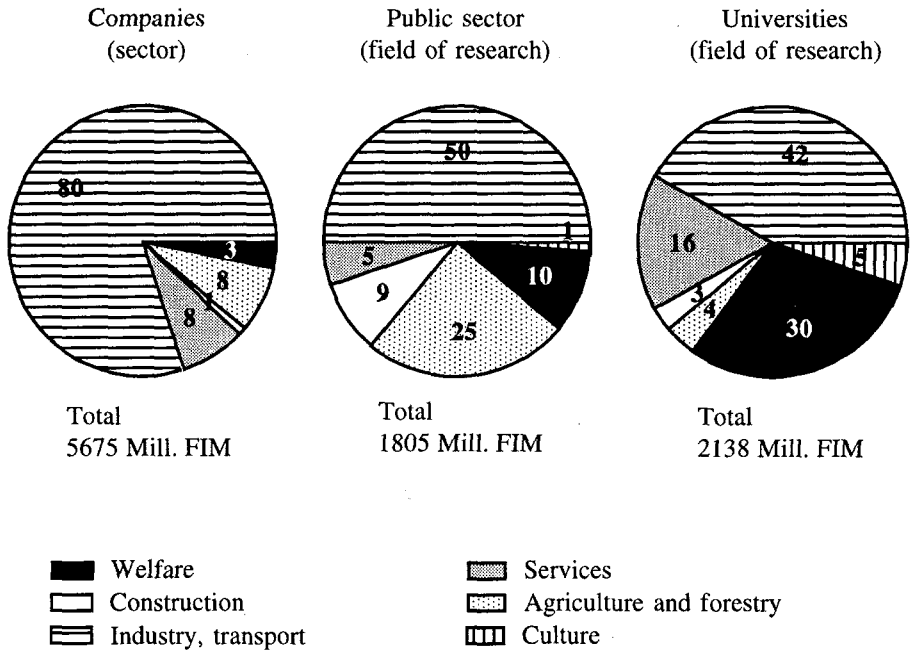


Figure 2.2 Research and Development[a] Investment by Sector and Type of Activity in Finland in 1991, per cent

a) The R&D expenditures of enterprises and universities do not include construction investment (enterprises: FIM 123 million; universities: FIM 109.6 million). The R&D expenditures of the public sector comprises only variable costs (wages, other variable costs). Construction and other investment totalling FIM 321.0 million (construction investment FIM 153.3 million + other investment FIM 167.7 million) are not included in the figures.

Source: Statistics Finland.

In Finland the electro-technical and electronics industry accounts for slightly over half of the industrial research in the overall enterprise sector. As regards product groups, most of the R&D expenditures were focused upon electronics fields and telecommunications, the share of which was 15 per cent of all R&D carried out by enterprises in 1991. The largest product groups included pulp and paper products, industrial chemicals, instruments and fine mechanical devices, pharmaceuticals, electrical machinery and equipment, foodstuffs, computer services, energy and water utilities as well as metal products. The ten largest product groups accounted for over 60 per cent of total R&D expenditures.

In addition to industrial applications research is carried out in the enterprise sector in the service and foodstuffs sectors. The public sector has concentrated considerably more upon research for the foodstuffs sector. There is more research in the universities directed toward industrial and transportation and communications fields (research on natural sciences and technical fields) as well as research on welfare-related fields

(e.g. medical sciences, psychology, social sciences) than in enterprises or elsewhere in the public sector. The natural purpose of basic research carried out by the public sector is to affect the productivity of the private sector indirectly. On the other hand, the role of the public sector is important when the research is decisive from the standpoint of the society, but the private sector lacks the interest to carry it out owing, for instance, to excessive risks and/or too low yield expectations. For this reason, among others, the research of the public and private sectors has emphasised different fields.

Investments aimed toward R&D indicate the significance of the knowledge base of the country in question and its different industrial sectors. R&D investments are risky investments, the return on which is difficult to forecast. Investments do not reveal the efficiency of the research activity, i.e. whether the investment will generate returns. The success of an economy in the long run hinges upon whether the investments spur new commercially useful innovations.

What Have R&D Investments Accomplished?

The results and efficiency of R&D activities, like many other intangible investments, are difficult to quantify precisely. One measure of the innovativeness of an economy is the number of patent applications made each year. In Finland the number of patent applications relative to the size of the population has grown during the 1980s (Figure 2.3). Furthermore, the relative number of patent applications has been higher than in Germany, Sweden and the United Kingdom throughout the 1980s. In 1991 it was the highest of the comparison countries. The number of patent applications fell in the following year, but rose again in 1993. Patent applications in that year numbered some 4.4 per ten thousand persons.

In Finland most of the domestic patent applications, about a fourth, are considered as pertaining to work methods and transport according to the international patent classification scheme. The share of electro-technical patent applications has increased during recent years and in 1993 it was about 14 per cent. The top-five groups included physics as well as the machinery and the construction industries with approximately equal shares (Statistics Finland, 1994b).

The number of patent applications that are made abroad for Finnish inventions has increased especially in the late 1980s. A similar trend has occurred also in other comparable small countries. The number of patents applied for abroad relative to those applied for in the home country[8] (diffusion rate) depicts the spread of domestically developed ideas abroad and measures the profitability of inventions on international markets (Figure 2.5). The rise in the diffusion rate is nevertheless partially a result of the greater prevalence of international patent applications in line with economic integration.

[8] This is based on the idea that applications for patents are made abroad a year after the domestic applications are made.

Patent Applications and Su cessfulne of R&D

The rise in the number of patent applications has been partly a result of increased R&D investment and the successfulness of research activities. Figure 2.4 indicates that the higher the R&D was relative to gross domestic product on average during 1982-1991, the higher the number of patent applications during the same period.

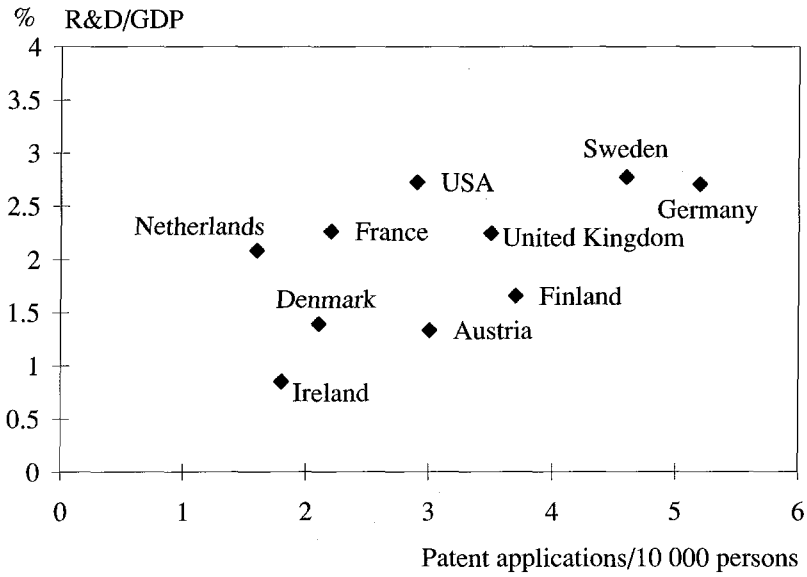


Figure 2.4 *R&D Expenditures as a Percentage of Gross Domestic Product and the Inventiveness Ratio (Domestic Patent Applications per 10000 Persons) on Average during 1982-1991*

Source: OECD/STI

When analysing the successfulness of research activities using the patent statistics, one should keep in mind that not all innovations are patentable. Nor are all patentable innovations necessarily patented, but rather attempts are made to prevent the exploitation of innovations by outsiders, for example, by keeping knowledge secret. Patenting activity does not necessarily reflect the number of innovations. An increase in patent applications may be a sign of changes in patenting behaviour, for instance, due to shifting trends in patentable research results or keener international competition (Vuori & Vuorinen, 1994). On the other hand, it has been shown that all patented ideas are not adopted into use. The commercial benefits bolstering growth in productivity are thus not realised.

When evaluating the connection between the inputs and outputs of research activity, one must take into consideration that transforming an idea into a commercial innovation takes several years, estimated by some at 5-10 years. Furthermore, it may take years before developed innovations spread to all potential users. Thus, for example, the swift growth in research investment in the early 1980s might not bear fruit until the latter half of this decade.

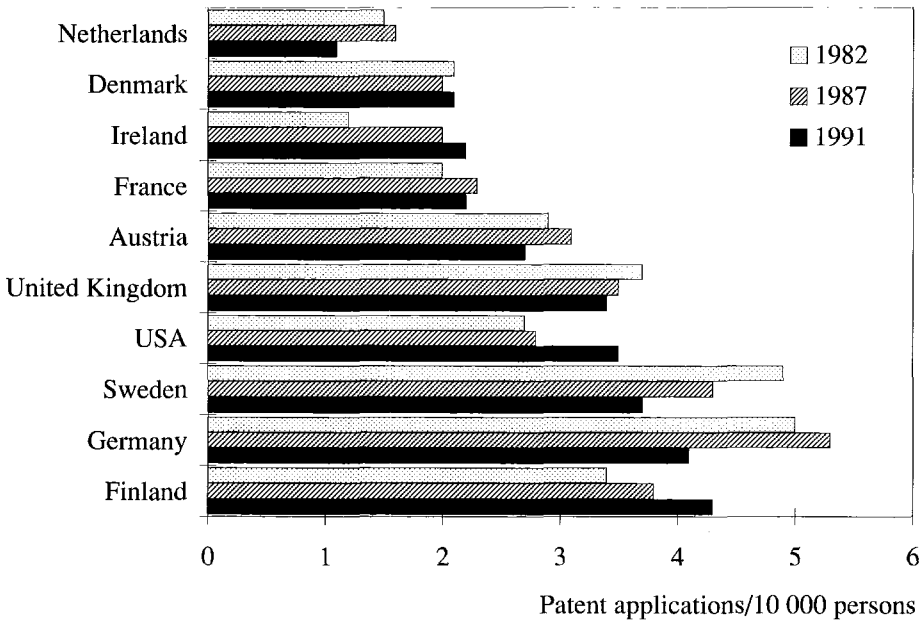


Figure 2.3 Inventiveness Ratio: Domestic Patent Applications per 10000 Persons in 1982, 1987 and 1991

Source: OECD/STI

The situation of countries on the international front is often compared using the patents granted to them in the United States, which is the largest one-country market area. In 1993 Finns accounted for 0.6 per cent of all patents granted to foreign applicants[9]. This proportion is on par with Finland's share of world trade. The share of the Japanese out of patents granted to foreigners was overwhelmingly the largest - almost half - while Germany's accounted for 15 per cent.

Transfer of Knowledge

Well functioning channels for the transfer of knowledge are a prerequisite for creation of a knowledge base. The significance of knowledge transfer channels has gained greater emphasis as a result of the regional dispersion of business activities as well as the shortening of the life-cycle of many products. On the other hand, the development of telecommunications technology has affected the internationalisation of enterprises and the emergence and success of international business networks. International networks have enabled a widening of the scope of knowledge transfer as well as its regional dispersion. Networks also enable the physical dispersion of research activity to different locations. Research resources can be focused upon certain types of research without bringing the resources geographically to one place. The spread of innovations is also increasingly

[9] Patents granted to foreigners accounted for 46 per cent of all patents granted in the United States.

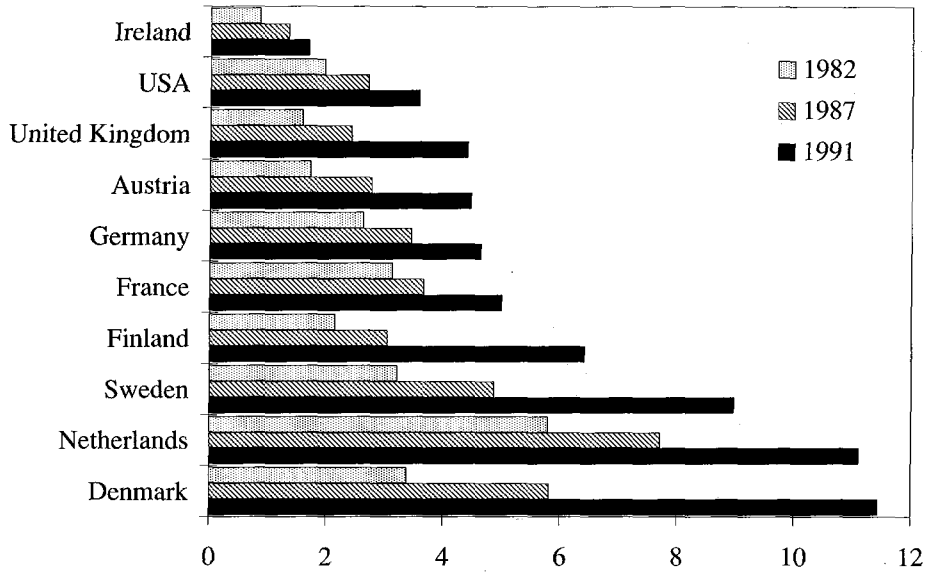


Figure 2.5 *Patents Applied for Abroad in 1982, 1987 and 1991 Relative to Patents Applied for in Home Country in Preceding Year (Diffusion Rate)*

Source: OECD/STI

swift because of the knowledge channels facilitated by information technology.

Finland's telecommunications infrastructure is of a rather high standard and technically advanced by international comparison (TIKAS, 1995). The number of telephone hookups per resident in Finland in the traditional fixed network is high internationally, some 54 hookups per 100 residents, which was the fifth highest of the OECD countries. The highest number, about 68 hookups per 100 residents, was in Sweden.

The number of mobile phone hookups per resident also ranks near the top internationally and the number is growing swiftly. In the first half of 1994 the number of hookups per resident was along with Sweden the highest in the world, almost 11 hookups per 100 residents, while in the rest of Europe (excluding eastern Europe) the average was a little over 2 and in the rest of the Nordic countries slightly over 8. The corresponding number in the United States was less than half of that in Finland and Sweden. Moreover, communication in Finland is relatively inexpensive even over longer distances. The prices of mobile phone services and phone calls abroad are among the cheapest in the world (Table 2.1).

The infrastructure of knowledge transfers can also be described by purchases of microcomputers. Purchases in Finland in the late 1980s were among the highest in the world. During the recession years Finland fell behind international trends (Table 2.2), but during recent times the purchases of microcomputers have again increased substantially.

Total investments in telecommunications in Finland were slightly over FIM 2.2 billion in 1993. Investments have fallen from the peak of the late 1980s and early 1990s, when annual investments were around FIM 3 billion. Even though the recession has affected the net sales and earnings of the teleoperators, their share of investment has nevertheless remained at an internationally comparable level. In 1993 the share in Finland was 25-30 per cent, which is on par with the levels in industrialised countries where the telecommunications network is relatively developed. In countries

Norway	71.97
Finland	81.24
Denmark	85.85
Sweden	86.95
Japan	91.76
France	94.67
United Kingdom	96.13
Germany	96.74
Netherlands	98.44
Ireland	102.71
Austria	103.56
USA	113.19
OECD average	100

Table 2.1 *Comparison of Price Basket[a] of Companies' Foreign Phone Charges at Beginning of 1994, Ind (OECD average) = 100*

a) Calculated using purchasing power parity prices. The comparison of the price basket is based on the first three minutes of a four minute call. It is assumed that 75 per cent of the calls are made in the day and the rest at night.

Source: Televiestintätilasto, 1994.

where the network is still underdeveloped, for example in Portugal, Italy and Greece, the investment ratio was about 40 per cent.

The opening of competition in the telecommunications industry has progressed further in Finland than in other European countries. This has spurred investments related to adoption of new technology. Deregulation was begun also in the United States and United Kingdom in the 1980s. In many European countries the sector is still under the control of a national monopoly and international competition in the telecommunications field is just beginning. Speeding up the timetable for deregulation is of crucial importance so that European competitiveness will not weaken with respect to the US and Asian countries and so that companies operating in the telecommunications field in Europe would be guaranteed the possibilities for success (ERT, 1994).

	1989-1993	1989	1993
USA	213	12	59
Germany	129	16	34
France	111	17	27
United Kingdom	136	19	37
Norway	211	28	58
Sweden	177	27	49
Denmark	185	24	53
Finland	149	29	31
Europe	145	20	37

Table 2.2 *Purchases of Microcomputers in 1989-1993, number per thousand residents*

Source: Lilius/IDC.

In many European countries the prices of tele-services are high owing to a lack of competition and the communications networks undeveloped, which hinders data transfer and weakens its quality. The communications between countries is limited by the incompatibility of national data transfer systems. Certain standards vary in different continents, for example the television and mobile phone standards differ in the US and Europe. The compatibility of telecommunications services and equipment also inside Europe is deficient. For example, the adoption of a faster and less mistake-prone ISDN network enabling data and picture transfer has not got off the ground successfully since the national systems have been incompatible and the prices of services have been too high. Common international standards would promote the spread of technology. They would also encourage new telecommunications companies to enter the market while at the same time client-oriented firms would no longer be dependent upon one or a few systems and equipment distributors.

The lack of standards in Europe slows the development of the telecommunications industry. Finland's advanced telecommunications infrastructure nevertheless creates the prerequisites for developing new innovations even in the face of international competition. If the high goals and recommendations set recently for developing the Finnish information society (TIKAS, 1995) are successful, Finland will be one of the leading information societies in Europe and even globally. A high quality telecommunications infrastructure is a resource that can enhance the interest in Finland as a site for production. The erection of an efficient telecommunications network over the border to Russia would promote this development.

Ext rn liti s of Knowledge and T chn logical Diffusion

Innovation and technological transfer go hand in hand. Economic success depends in great part upon exploitation of already created knowledge. The diffusion of technology to countries lagging behind in development has enabled them to close the gap with more advanced countries. On the other hand, even in developed economies the use of knowledge and technology created elsewhere is a prerequisite for success.

In the transfer process it is important to keep in mind the divergent nature of know-how and technology from other production inputs. The performers of research are not the only ones to benefit from the results but rather positive externalities spread via various channels to other firms and industries, even if those performing the research do not wish so. There are spillovers in knowledge-intensive production that have been shown to have positive effects on the profitability of other industries and firms (e.g. Vuori & Ylä-Anttila, 1992; Nadiri, 1993).

The impact of the diffusion of know-how and its magnitude are industry specific. Often the benefit of research to society is greater than the benefit to the individual. Significant spillovers to other industries have been observed in Finland as coming from, for example, manufacturers of electronic circuits and telecommunications equipment, electric machinery and equipment, pulp, paper and paper products, timber and wooden products, as well as metal products (Vuori, 1994). For the time being it has not been possible to carry out quantitative evaluation of the impact of research activities because the interplay of the variables is rather complicated and measurement problems large.

Knowledge spillovers can occur in many ways. An enterprise can, for example, "tear apart" a competitor's product and copy the technology included in the product. Knowledge can also be obtained from various publications and research reports and seminars. Knowledge shifts from one firm to the next as employees change jobs. Acquisitions, mergers and other types of interaction with firms, especially in networks, are important channels for the diffusion of knowledge. The promotion of innovative activities indeed requires increasingly more co-operation between enterprises since research and development demands large amounts of resources. On the other hand, the co-operation between companies is limited by anti-trust and other restrictions on competition. It is also difficult for a company to obtain completely new knowledge since the firm's own knowledge base must be sufficient for it to be able to exploit the knowledge.

The openness of the economy and sound knowledge transfer channels are decisive factors for the diffusion of knowledge. Connections with foreign research units, imports of technology, licenses, patents, foreign direct investment and research of multinational companies, international co-operative agreements between companies and governments, foreign publications, student exchange and employees educated abroad bring

knowledge of new technology, materials, production processes and organisational methods to the home country.

The spread of knowledge from one area or country to the next often requires close interaction between people, which explains the birth of the Silicon Valley and this type of knowledge-intensive concentrations of companies. Close-knit co-operation and close geographical proximity are also of significance when adapting research results of universities and research institutes. Co-operation also has a positive impact upon innovative activities, especially of small enterprises. A study on research using US data found that small enterprises benefit relatively more from university research than large ones (Acs et al., 1993). The focusing of university research also more on the needs of small companies and promotion of active co-operation between universities, research institutions and small enterprises has been seen in Finland as one way to foster the opportunities for innovative activities by small enterprises.

The international exchange of university students is an important channel for transferring knowledge. According to figures of the Ministry of Education 1.5 per cent of all university students in Finland went abroad to study during the 1993-1994 term. About a thousand persons participated in job trainee programmes via official organisations during the same time. The significance of foreign patents and licenses is reflected, for instance, in the technology balance, which is measured as the ratio of the revenues from patents and licenses sold relative to expenditures on their purchases (Table 2.3). The ratio of revenues to expenditures is low in Finland, which indicates that considerably more patents and licenses have been bought from abroad than sold to foreigners. In addition to the expenditures and revenues on patents and licenses, the technology balance is indicative of technical services and foreign R&D activities related to the transfer of international technology.

	1985	1991
USA	5.62	4.47
Japan	0.80	0.94
France	0.84	0.71
Germany	0.71	0.72
United Kingdom	1.13	0.75*
Netherlands	0.36	0.50
Austria	0.23	0.26
Sweden	1.77	1.88
Finland	0.04	0.14*

* In 1990.

Table 2.3 Technology Balance in 1985 and 1991

Source: OECD/STI.

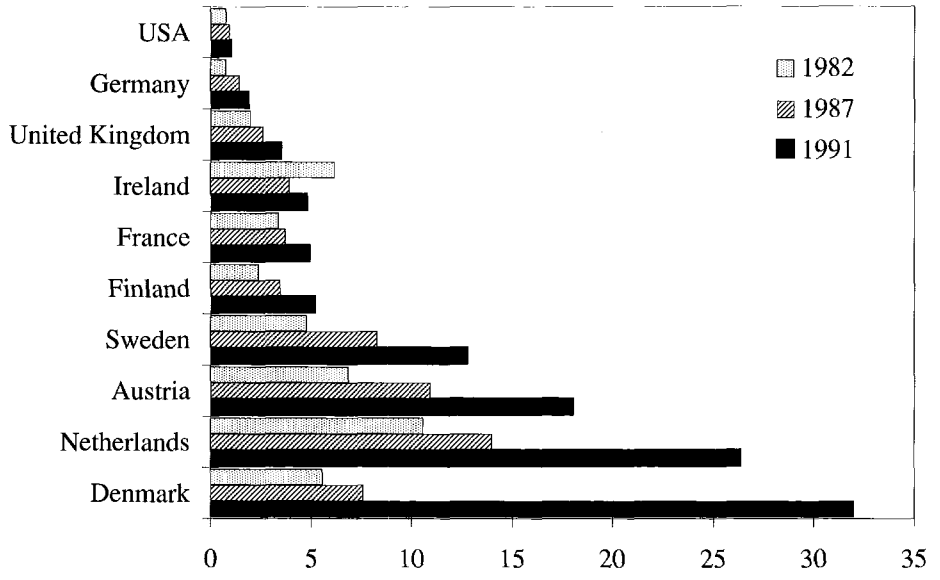


Figure 2.6 *Ratio of Foreign Patent Applications to Domestic Patent Applications in Some Countries in 1982, 1987, 1991*

Source: OECD/STI.

The diffusion of foreign technology to the Finnish economy is depicted also by the ratio of foreign patent applications made in Finland to domestic patent applications. The proportion of foreign patent applications is relatively low compared to other small economies (Figure 2.6). In other small economies innovations have spread via foreign patents more than in large countries, and their number relative to domestic patent applications is relatively high. On the other hand, in countries on the leading edge of technology the ratio is comparatively low.

The significance of the sources of knowledge varies by industrial sector. In some sectors a country's own research activity is the main source of technology, while technology purchased from elsewhere and know-how is decisive for the development of other sectors. For example, the companies' own R&D plays a significant role in the pharmaceutical industry, the manufacture of heavy electrical equipment and telecommunications equipment. On the other hand, in the textile and wood industries new technology is contained to a large extent in machinery and equipment purchased from outsiders. These industries have indeed been able to cooperate in the equipment design with the manufacturing firms. In the 1980s at least half of the total technology of Finnish manufacturers, on average, is estimated to have consisted of their own research results. The other half is the use of technology developed by others (Vuori, 1994). In all sectors the company's own research activities and applied technology are dependent upon one another and complements, which makes promotion of them both simultaneously important in technology policy.

Finland and World Trade

3

Summary and Conclusions

GATT has brought clear ground-rules to world trade and has been especially important to small open economies, the possibilities of which to influence world trade regulations are otherwise rather limited. For enterprises free trade has meant better predictability of the business environment and possibilities to gear their operations toward larger market areas than the domestic market. The existence of the ground-rules in conjunction with the transport connections and progress in telecommunications have led to the internationalisation of companies and interlinking of economies. This globalisation of economies has made the free trade system rather permanent; it is not easy to turn back the clock.

Western industrial countries learned the significance of free trade via their own bad experiences: the rise of protectionism during the depression of the 1930s lengthened and deepened the depression and strained the political relations between countries. After World War II western industrial countries were rather unanimous about the need for free trade. Until recent years GATT was nevertheless regarded as primarily a club for rich countries. The attitude of developing countries toward free trade did not become more positive until the late 1980s, when economic policies based on isolation had not been able to solve economic problems. At the same time the European socialist countries began to transform their economies into market economies while participating more intensively in the international exchange based on market mechanisms. In addition to expansion geographically the GATT process expanded to deal with new fields such as services, agriculture and protection of intangible rights. GATT, which was intended to be a temporary scheme, was ultimately replaced by a permanent system, 50 years after the first failed attempt.

In tandem with the freeing of world trade, the liberalisation of regional trade has been rekindled. As western European integration gained new momentum in the late 1980s, regional integration systems have spread outside of Europe. The free-trade areas have not proven to be a problem for liberalisation of world trade as long as the GATT process has made progress on the global level. In addition to liberalisation of internal trade within free-trade areas, regional trade barriers have also been reduced. Finland's membership in the European Union brings Finland a chance to wield influence on the trade policy of a large trade bloc, but eliminates the possibility to stay outside of disputes between large trade groups appearing despite progress on liberalisation. Russia, like China, is a large country that is not a WTO member. Its remaining outside the realm of the common ground-rules and a sudden shift in its trade policy are among the greatest risk factors inherent in Finland's foreign trade.

From the standpoint of Europes's future division of labour, it is of crucial importance that the transition taking place in Central and Eastern Europe continues in favourable manner. A prerequisite for this is the elimination of trade barriers. Only the opening of markets will spur interest in business

activity attracting the large investment flows needed in the area. This means increased competition and the strengthening of pressures caused by structural adjustment in both the east and west. In the east the problems include the production structures inherited from the past and market distortions, the correction of which may cause serious economic and social conflicts.

In the west the prevailing trend is primarily one of the deepening of integration. Western European countries have converged toward one another with respect to economic activity as well as structure. The European Union is an alliance of similar economies and societies, where the benefits of integration come from use of similarities, not differences and the corresponding deepening of the division of labour within the region. This is reflected in the structure of trade: the significance of intra-industry trade has continually increased. In conjunction with growing regionalism, Europe has also been opening itself in the direction of the global economy. This pertains particularly to many labour-intensive sectors with low value added, where western European industry has lost its competitiveness. The food manufacturing sector has, on the other hand, been opened only slowly to outside competition.

The welfare gains from widening the scope of markets and raising production efficiency are offset somewhat by adjustment costs. They can be significant if the production structures diverge and concentration increases. The stressing of locational factors means faster growth, but more profound structural adjustment, migration as well as greater unemployment and regional differences.

In this type of situation it is important to see what kind of competitive advantages relatively small economies like Finland can exploit and develop. Finnish industry has lost some traditional comparative advantages, but at the same time it has overcome certain significant comparative disadvantages. Finland's competitive edge is based increasingly upon skilled labour and high-level research. This is already clearly evident in the foreign trade structure.

The change in the structure of foreign trade also reflects a phenomenon that could be called growth in neighbouring region trade. Exports to neighbouring regions, regardless of whether they go to the west or the east differ in structure from other exports. The elimination of logistic barriers to trade and lower transport costs are widening the scope of trade in neighbouring regions as a result of integration. This could be of significance over the longer run if the competitive disadvantages of having a small domestic market diminish for this reason.

The blending of the Central and Eastern European economies in with Western Europe will put the ambitious goals related to European integration to the test. Even though it seems that the economic preconditions for these countries to become EU members will not be fulfilled for a long time, the change going on in Central and Eastern Europe is already affecting Western European developments. In the first stage this affects the com-

modities markets, where the competition from the east is deemed a serious threat in certain sectors, such as the iron and steel industry. It has been shown, however, that on the whole this threat to Western European industry is not significant.

A more fundamental problem is the competitiveness of Eastern European industry and the condition of the existing capacity. The opening of trade and increasing competition can place these countries in a difficult position. Despite the reforms in Central and Eastern Europe there are still plenty of structural aberrations that are caused by distortions in the price system, a lack of markets for production factors, subsidies and concentration of production. In these countries the service sector, on the other hand, is underdeveloped so that the inevitable streamlining of industry need not lead to a rise in open unemployment and emigration on a wide scale.

Western European integration is fundamentally a political process, even though until now it has focused largely upon economic ground-rules. The integration of Eastern and Western Europe does not depend solely upon economic conditions, in the light of which close integration would appear to be a rather distant phenomenon. Political developments can speed integration, which would at the same time have a profound effect upon the internal developments of the EU.

3.1 Why Do We Need Free Trade?

Since the end of World War II, growth in international trade has continuously exceeded the growth in output. The emphasis in trade has shifted increasingly from basic commodities toward industrial products and services, the trade in which between industrialised countries has climbed. The significance of trade varies greatly by country. In the United States and Japan foreign trade represents about a tenth of gross domestic product, while in small open economies the corresponding figure is higher. The prices of tradable goods have fluctuated greatly, which has caused considerable difficulties to some governments and enterprises.

Increased trade has meant greater specialisation of production, which has led to more efficient allocation of resources and fostered utilisation of economies of scale. For consumers this has offered greater consumption possibilities at lower prices and in the form of greater product selection. From the standpoint of growth the exploitation of larger market areas than the domestic market has facilitated the covering of high product development costs.

Despite the benefits of trade, nations have historically sought to impose barriers on trade such as tariffs and quantitative limits, i.e. quotas. Quotas set absolute ceilings on imports and are thus a more efficient trade barrier, but quotas also shift the proceeds to the holder of the import license

instead of the government as in the case of tariffs. Both generate welfare losses for the producers and consumers, since production is inefficient and prices are high. New studies have concluded that the welfare losses are greater than earlier believed. Previously, the emergence of new products

International Trade Theory's Explanation for Trade

David Ricardo's presentation of the theory of comparative advantage, which is based on production technology differences between countries, is the oldest and best known of the international trade theories. The production of each country is determined in line with opportunity costs and the countrie's specialise in products where the opportunity costs are the lowest. A country can thus import products that it could manufacture more cheaply than another country since it is worthwhile to specialise in products that it can manufacture even more cheaply.

The liberal mainstream of international trade theory after World War II has been based on the theoretical model named after the Swedish economists Heckscher and Ohlin based on the comparative advantage theory of specialisation. According to the Heckscher-Ohlin theory the differentials in production between different countries are nevertheless based on differences in production factors, not technological differences as Ricardo maintained. The countries export products that are manufactured using production factors they have in relative abundance. For example, Finland exports forest products because Finland has a relative abundance of the natural resources needed by the forest industry. According to the theory, free trade increases consumption possibilities and welfare while output grows thanks to specialisation. The theory assumes, for example, that there is perfect competition and fixed returns to scale.

A new international trade theory has come along side of the trade theory based on comparative advantage to account for international trade. The increase in intra-industry trade between industrialised countries has stood in contradiction with the trade theory based on comparative advantage[11]. Countries have not specialised so that each produces different products but rather automobiles, for example, are imported and exported between producer countries. The new theory is based on monopolistic competition between enterprises. Enterprises produce somewhat distinguishable product lines and benefit from economies of scale as production rises. The removal of trade barriers facilitates the growth of production and exploitation of scale economies. The increasing returns to scale within firms lead to larger firm size and imperfect competition. This happens since fixed costs are high, for example, due to large start-up or product development costs. External returns to scale are not related to the size of the enterprise but rather the size of the overall production sector. In the same place there can be a large group of small firms in the same industry, such as in Silicon Valley in California and in the City of London. The diffusion of know-how benefits all firms. The structure in question is typically marked by perfect competition. (e.g. Krugman, 1987; Krugman & Obstfeld, 1991).

[11] Intra-industry trade has dominated the trade between industrial countries, but the Heckscher-Ohlin theory explains the trade between industrialised and developing countries rather well, see e.g. Wood (1994).

on the market was not taken into consideration (Romer, 1993b). New products often entail high start-up costs and tariffs can hamper the emergence of new products on wider markets and hinder the covering of high fixed costs, thereby multiplying the welfare losses.

Political interests explain why trade barriers have been used despite their drawbacks. They have prevented the realisation of the economically optimal solution, free trade. The liberalisation of trade between countries has proven to be especially difficult, while free trade has already been realised within nations almost without exception. After World War II it was widely perceived that in order to promote free trade nations would have to initiate wider co-operation in international trade matters. The GATT Treaty (General Agreement on Tariffs and Trade) signed in 1947 was the first world-wide agreement that delineated the governments' trade policy, which had previously been considered to be the sovereign concern of each state.

As a result of the GATT negotiations tariffs have declined to a fraction of the post-war level. Problems have arisen when as the level of tariffs has been lowered industrial countries in particular have sought to protect domestic production by other means. Developing countries, on the other hand, sought for a long time to distance themselves from the system led by the industrialised countries nor did they bind their tariffs to GATT results. The production structure of the industrialised countries has also changed as the significance of the services and know-how-based output has grown. The GATT process dealt only with trade in merchandise until the latest Uruguay Round, but now the negotiation results were extended to trade in services and protection of trade-related aspects of intellectual property rights. The latest round also marked the opening of the industrialised countries' markets to imports of agricultural and textile industry products from developing countries.

Proceeding via successive negotiating rounds has meant that GATT has constituted a process aimed at reducing the level of trade barriers as much as possible. Owing to factors of uncertainty related to the liberalisation of trade and political interests, it has not been possible to achieve this goal all at once, but rather a tactic of proceeding one step at a time has been followed.

Free Trade Areas and Liberalisation of Global Trade

In addition to the multilateral GATT system trade has been liberalised regionally. The first wave of regional liberalisation of trade, i.e. regionalism, took place in the 1960s. The only remnants of those days that remained standing were, in practice, the EEC and EFTA. During the last ten years regionalism has experienced a second coming. The old integration systems in Europe have deepened and expanded at the same time as new free trade areas have been established outside Europe (Bhagwati, 1993). There is great variability in the regional free trade systems' depth, which

US Attempts to Liberalise Regional Trade: NAFTA and APEC

As European integration has deepened and expanded the United States has sought to set up its own regional free trade schemes, which depicts the growing significance of Latin America and the Pacific Ocean region to the United States. The North American Free Trade Agreement, NAFTA, signed by Canada, the United States and Mexico, went into force at the beginning of 1994. In terms of gross domestic product (about USD 7 trillion) and population (368 million) it is approximately the same size as the European Union. Before NAFTA the United States and Canada had a bilateral free trade agreement, which has now been replaced by NAFTA. The intention is to widen NAFTA to include Chile as well.

NAFTA consists of two industrialised countries and a developing country. Mexico's gross domestic product per capita is only a third of that in the United States, which is reflected also in the wide difference in the cost of labour in the two countries. The fear of losing jobs to Mexico was the greatest reason for opposition to the agreement in the United States. Similar arguments were heard in conjunction with the enlargement of the European Community in 1981 and 1986. For example, Greece's and Portugal's gross domestic product per capita at the beginning of their membership were slightly over 40 per cent of that of Germany.

The NAFTA area trade is very important to Canada and Mexico, contributing over three fourths of their exports while for the United States it represents only about a fourth of its exports. NAFTA phases out the tariffs between the countries over a ten-year period, with the exception of agricultural products, where the transition period is 15 years. Important parts of the agreement include the stipulations demanded by the United States regarding environmental protection and social rights of employees. NAFTA is not a customs union and the agreement includes country-of-origin guidelines aimed at preventing the circumvention of import barriers by outsiders.

APEC (Asia-Pacific Economic Co-operation) is an economic co-operative organisation encompassing North America, Chile, Oseania and East Asia aimed at formation of a free trade area by the year 2020. In addition to trade the intention is to free investment. It is purely economic in nature and geographically rather dispersed. The formation of a close-knit bloc does not appear very likely. APEC accounts for about 50 per cent of the world's combined exports and its internal trade generates over two thirds of the APEC countries' total trade. APEC includes some of the fastest growing economies in the world (e.g. China and the East Asian tigers) and the realisation of free trade would further bolster the significance of the Pacific Ocean region as a hub of world trade.

refers among other things to the amount of goods subject to free trade, mobility of factors of production and relations with external regions. The European Union has deepened its integration as all goods and production factors are free to move. It has been a customs union with respect to external countries for a long time and its trade policy has been centralised. The next level is the North American Free Trade Agreement, NAFTA, where

most of the goods are freely mobile between member countries. Labour is not allowed to move freely nor are there common external tariffs. A third group consists of free trade areas between developing countries, which in practice have not progressed very far in trade liberalisation. Nevertheless some, such as the Latin American Mercosur[12], have quickly freed mutual trade and turned into a customs union (IBRD, 1994).

In principle the regional liberalisation of trade offers nothing that liberalisation of global trade would not offer. The traditional analysis of trade is based on the effects of trade creation and diversion. Trade creation occurs when trade between the members of the free trade region grows to replace the relatively inefficient production inside the member countries. Trade diversion occurs when imports from outside the region are replaced by inefficient production within the region. Thus outside countries suffer from a decline in exports, which can, however, be offset by the dynamic effects occurring in the free trade area. As a result of these dynamic effects including for instance keener competition, the economic growth of the region and imports from outside increases[13] (Krugman, 1991c).

The creation and expansion of free trade areas are often spurred by non-economic considerations. The creation of free trade areas and their boundaries, like the boundaries of countries, are usually not based on economic efficiency but rather political reasons. In an economic sense regionalism could be justified as being faster, more efficient and more reliable than liberalisation of global trade, as can be seen by looking at the cases of NAFTA and the EU. The impact of regionalism on liberalisation of global trade can nevertheless also be negative. Regionalism can easily turn the attention of countries away from liberalisation of global trade toward regional integration, with efforts being focused only on trade among the member countries. A worse alternative is a world economy consisting of trade blocs, which hinders the exploitation of comparative advantages and economies of scale worldwide.

	Organisation (year established)			
	EU (1957)*	NAFTA (1992/94)	Mercosur (1991)	ASEAN (1967)
Total exports, bill USD	1508	630	46	155
Internal trade share, %	68	37.9	15.8	16.5
External imports/GDP, %	8.1	7.0	5.3	26.9

* EU figures calculated for 15 member countries.

Table 3.1 Most Significant Free Trade Areas in 1993

Source: GATT/IT ; IBRD, 1994.

[12] Free trade zone consisting of Brazil, Argentina, Paraguay and Uruguay, which since the beginning of 1995 has been a customs union. The free trade nevertheless includes numerous exceptions.

[13] UNCTAD has calculated that outside countries benefit from the formation of the European internal market if the consequent dynamic effect is at least five percent relative to GDP.

The members of the EU trade with non-EU countries clearly less than with other members of the EU (Table 3.1). Over two thirds of all individual members' trade is directed toward other members. The total non-EU imports relative to gross domestic product are nevertheless on par with the corresponding levels of foreign trade relative to the size of the economies in the United States and Japan. When looking at the impact of European integration for outsiders it can be seen that in agricultural products the customs union has displaced non-member countries. The amount of agricultural imports relative to gross domestic product has fallen by about 50 per cent since the early 1970s, while in industria products the share of non-EU imports has risen. The external imports of the East Asian members of ASEAN has tripled relative to GDP since the early 1970s, which is indicative of ASEAN's loose integration and the economic policy practised. Also in other free trade areas, such as EFTA, imports from outside the area have not been displaced[14]. With the exception of the EU's agricultural policy, it is difficult to find evidence that regionalism would have crowded out non-member countries[15] (IBRD, 1994). Internal trade has nevertheless grown faster than external trade.

It appears that the trade blocs have not yet crowded out non-member countries. On the other hand, until the 1990s free trade has prevailed in practice only in Western Europe. The situation appears to be changing as free trade is promoted also in America and Asia, where ASEAN has once again begun to strengthen its activities. A world economy consisting of three trade blocs (see e.g. Krugmanb, 1991; Bhagwati, 1993) could also have negative effects. Trade blocs have more monopoly power than individual countries, so that they can more easily affect the terms of trade and raise so-called optimal tariffs. A trend like that in the 1930s, where the world economy was divided into blocs and the value of trade fell each year, is still not foreseeable. At that time the formation of blocs was related to the dividing into different currency regions. The risks from formation of inward-looking blocs would have been much greater if the GATT Uruguay Round had failed. There is also reason to note that the GATT agreement did not forbid regional trade organisations, but rather placed some general conditions on their formation, which due to pressures from stronger countries have been interpreted rather loosely (Bhagwati, 1994b).

Globalisation of Economies

GATT has reduced the fear of unilateral actions by others, since it has brought clear ground-rules to world trade. It has offered a basis for comparing the level of nations' trade barriers and provided governments with grounds for rejecting demands at home by protectionistic interest

[14] It is still too early to evaluate the impact with respect to NAFTA and Mercosur.

[15] The large share of internal trade does not indicate external displacement since the members of many free trade areas are natural trading partners, for example due to geographical proximity. Gravity models seek to calculate the effects of these natural factors on trade flows, so that in many studies (e.g. Frankel & Wei, 1993) it has been found that members of bloc engage in more mutual trade than the natural factors would indicate.

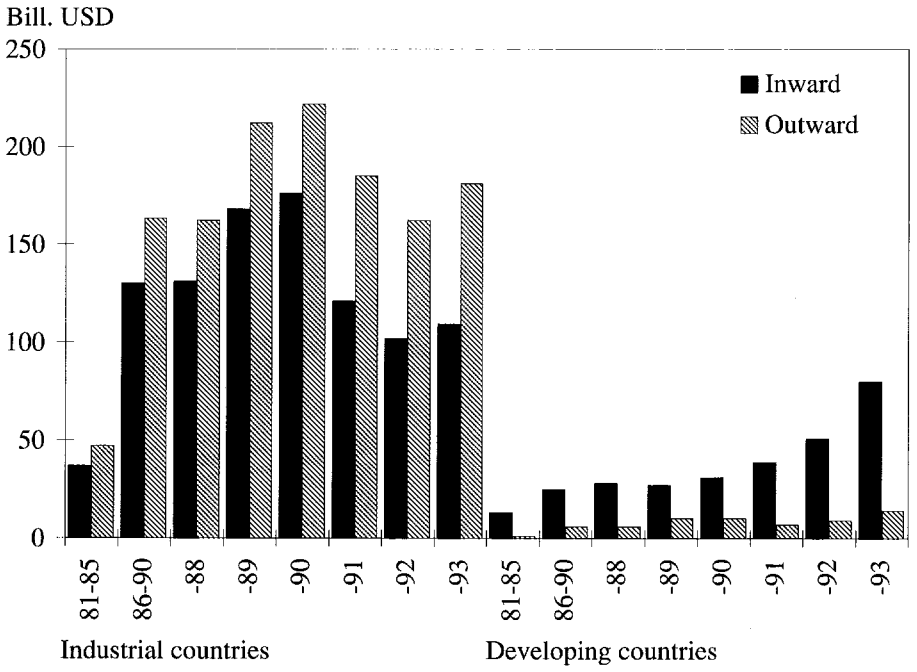


Figure 3.1 Global Direct Investment, Bill. USD, in 1981-1993*

* The years 1981-1985 and 1986-1990 are annual averages.

Source: UN.

groups (Blake & Walters, 1987; Petersmann, 1994). For producers GATT has meant a stable, more predictable international economic environment. The interaction of companies and networking has grown considerably.

The intertwining of economies is reflected in the growth of intra-industry trade. This has meant, for example, that the reductions in tariffs in each product group have applied to larger numbers of countries than would have occurred under conditions of perfect specialisation of production. The lowering of tariffs in each product group has thus received rather wide support in GATT. The small share of intra-industry trade has also been regarded as an indication of protectionistic trade policy. Of the large industrialised countries Japan has had a low share of intra-industry trade, about 40 per cent, while in the European Union and United States intra-industry trade has constituted about two thirds of all trade. In addition to growth in intra-industry trade, world trade has been concentrated increasingly around the trade between the industrial countries, even though after World War II it was believed that in the future trade would be carried out increasingly between industrialised and developing countries on the basis of comparative advantage. The share of trade between industrialised

countries has risen from 38 per cent in the beginning of the 1950s to 76 per cent in the beginning of the 1990s (Saxonhouse, 1993; OECD, 1994).

During the last 25 years the number of multinational companies has tripled. The direct investment between countries grew three times faster in the 1980s than the volume of trade (Figure 3.1). Technical progress has reduced the significance of distance in trade and telecommunications, which has enabled companies to locate various activities farther from one another and multinational companies to spread out their production to different countries. The trade between countries has increasingly been composed of the transport of goods within a company, and trade barriers can hinder also a company's "domestic" activities. Defining the origin of products has become increasingly difficult. Economic globalisation can thus be regarded as a significant factor fostering the liberalisation of trade. The possibilities of governments to prevent the transport of goods and services over borders dwindle and, on the other hand, multinational firms have a significant impact on the shape of national trade policy.

Companies dependent upon foreign operations have functioned as a significant interest group promoting free trade. Milner (1988) regards the growth in the influence of international companies as the reason for the success of the liberal trade system after the recession of the 1970s. By active influence they curbed the growth of trade barriers and prevented the collapse of the trade system as occurred in the Great Depression of the 1920-1930s. For example, in the late 1970s the US semiconductor industry demanded that the government take action to stem the competition from Japanese firms, but opposition from IBM and Texas Instruments, which depended upon Japanese markets and products imported from there, prevented protectionist measures.

3.2 Europe: Two Lines of Development

Europe's new economic architecture is moulded by two parallel trends. The first is the integration of Western Europe, which has both deepened and widened in recent years. The second is related to historical changes taking place in Central and Eastern Europe. The blending of the former socialist countries and the Western European economies is a challenge that already now affects the development of the European Union.

The integration of Europe is explained partly by the continent's own history, primarily in the post-war period. It can also be seen as part of a more general trend in the international economy, called regionalism. The aspirations toward regional integration have increased in various parts of the world. Deepening integration has triggered a domino effect around its edges where each country is forced to ponder the drawbacks of remaining outside (Baldwin, 1993).

It is useful to evaluate Europe from a global perspective. The most durable criteria for integration objectives can be found from foreign

Integration and the Structure of Trade

Integration is often associated with effects that come from the removal of trade barriers. Integration leads to a more efficient international division of labour and increased welfare. This means the differentiation of structures and specialisation of countries in accordance with their comparative advantages. International trade is based in this case on differences between countries: production resources, preference structures and differences in the level of technology.

The trends observed in international trade flows during recent decades, especially with respect to the trade among industrialised countries, have given cause to re-evaluate the premises of trade theory. The significance of comparative advantage has changed. In international trade the aspects of imperfect competition have been emphasised, e.g. economies of scale and product differentiation. In line with these factors, the elimination of trade barriers has not culminated in specialisation by industry, but rather the swiftest growth in international trade has been in intra-industry trade. A large portion of world trade consists of trade in similar products differentiable primarily by their external characteristics.

The explanations for international trade are not mutually exclusive. The operation of markets changes the nature of the international division of labour. In a world of imperfect competition comparative advantages are increasingly firm specific and product differentiation enables mass production and achievement of other benefits from efficiency in smaller units than before. The significance of comparative advantage related to the production factor base has declined as the mobility of production factors has been liberalised. In addition to these two factors, keener competition has been a third, increasingly significant source of potential integration benefits (Krugman, 1988).

In this conjunction, Western European integration can develop in accordance with two structural alternatives.

- In the first alternative the benefits of integration come primarily from mass production and greater efficiency in the functioning of markets. The realisation of this scenario would mean greater emphasis on intra-industry trade also in the future.
- The second alternative is that the deeper integration of the markets leads to more pronounced specialisation of production by industrial sector and region, as has occurred in North America (Krugman, 1991c). The realisation of this trend would be reflected in the growth of inter-industry trade also in Europe.

The latter alternative might significantly hinder the realisation of the objectives set for integration. Inter-industry specialisation would entail regional and professional adjustment, which would be considerably more difficult than change taking place via intra-industry specialisation - exemplified by increased product differentiation and different kinds of product strategies. It is nevertheless clear that the adjustment in different industrial sectors to the integration of markets can occur in different ways, so that actual developments will be a combination of both scenarios.

relations. How well will European companies fare in light of the competition from the multinational US and Japanese companies? How strong will the Western European economy have to develop so that the markets can be opened completely to competition from Eastern Europe and developing countries? Is European integration natural or strategic integration by nature (Jacquemin & Sapir, 1991)? The former is a question of integration based on geographical proximity while the latter is a matter of formation of strategic blocs related to trade policy interests.

It can be thought that factors related to natural integration, such as the proximity of markets, direct investment and new business strategies, the significance of which are enhanced by integration solutions, direct trade flows more than trade policy per se. As a consequence of the liberalisation of world trade in general, the remaining trade barriers are in many cases so low that they are not enough to offset the differences in competitiveness between different countries.

If regional integration has distorted the competitive environment in Western Europe, it can be assumed that in Central and Eastern Europe the distortions caused by the production capacity, prices and market activities inherited from the days of planned economies are even more serious. The experiences with the adjustment of Finland's eastern trade and the collapse of eastern German industry give an indication of the nature of integration in the disintegrated east and its impact upon the competitiveness of industry.

On the basis of the European agreements already signed, certain Central and Eastern European countries will gain access to Western European markets during this decade. It is possible that later they could become members of the European Union. The merging of markets all across Europe is perhaps inevitable before long. How will this affect the conditions for production activities and the competitive environment in Europe as a whole? How will the impact of this adjustment reflect upon the possibilities for more open world trade and to reap the benefits of global integration?

The transition taking place in Eastern Europe has been the subject of numerous studies undertaken, among others, by various international organisations in recent years. For example, the EU Commission has been carrying out an extensive study on these developments. The problem with studies like this is that the most important question regarding the future - the position of Russia and its impact upon Europe - is often sidestepped. The question of Russia's economic developments and the opening of its markets is important not only to Finland, but all Eastern and Central European countries as well. This makes it a key issue also from the standpoint of Europe as a whole.

Benefits of Integration and the Internal Market Alternativ

The benefits of integration derive mainly from three sources: benefiting from comparative advantages, exploitation of mass production and other efficiency-enhancing measures, and efficiency-promoting competition. The latter mentioned in particular is of crucial importance in deepening market integration, which is included in the European Community's internal market programme begun in the 1980s.

One of the purposes of this programme was to strengthen the global competitive position of European industry. Europe was lagging behind in international competition, especially in high-tech sectors. The EC sought to foster the formation of large European enterprises that were sufficiently strong in terms of competitiveness. These would be an alternative to various country's own "national champions", which have been supported with significant national support measures. Various kinds of state aid to industry have been seen as one reason for the distortion of the competitive environment and the weakness of competitiveness.

The new phase of European integration is ambitious. At issue is above all else the elimination of restrictions on competition. The aim is to bring about deeper integration of markets as well as to affect the behaviour of enterprises. The "four freedoms" of the internal market - free mobility of goods, services, capital and labour - were reflected in the attempts to curb the increasing concentration entailing negative effects from the standpoint of the competitive environment. The common market of 12 (or 15) countries has room for several sufficiently large enterprises so that the benefits of mass production and efficient competition can be achieved simultaneously.

In deepening integration increasing numbers of enterprises would operate as European enterprises. The EU's own appraisal of the impact of the internal market reflects to a large degree this same view, which stresses changes in the competitive environment and the efficiency gains achieved via structural adjustment (Table 3.2).

A small portion of the benefits from integration would come immediately from removal of trade barriers. This and the elimination of restrictions on competition nevertheless have significant direct impacts by changing the competitive environment.

		% of GDP
Stage 1.	Elimination of trade barriers	0.2 - 0.3
Stage 2.	Elimination of other barriers to competition	2.0 - 2.4
Stage 3.	Structural adjustment and growth of output	2.0 - 2.1
Stage 4.	Increased competition and efficiency gains	1.6 - 1.6
Total		5.8 - 6.4

Table 3.2 EC's Estimate of the Benefits of Integration

Source: Emerson et al., 1988.

Effects of Market Integration

European markets and competitive conditions have typically been distorted by a bilateral duopoly of segmented markets: strong position of domestic manufacturers reflected in monopoly pricing and wide margins at home; and dumping of exports (Flam, 1992). The greater the market power the domestic producer had enjoyed previously and the more effectively it had been used, the greater the welfare effects of market integration.

The magnitude of the potential gains from adjustment via markets is depicted by the variability of the price structure for goods and services inside the EC. Variability can be assumed to reflect the remaining restrictions on trade and competition. The narrowing of price level gaps is indicative of the welfare effects of market integration. The realisation of these welfare gains depends, on the one hand, on the impact of increasing competitive pressures on firms' margins and, on the other hand, on the cost savings achieved from exploiting efficiency gains (Emerson et al., 1988).

In the calculations for Finland it was found that a decisive share of integration benefits come from active measures supporting the change in the competitive environment (VATT, 1992). In the calculations the industrial sectors were divided into four different groups. Industries were considered to be EEA sensitive in sectors where harmonisation of technical specifications and liberation of public procurement would bring significant changes. Industries were deemed to be EC sensitive if EC membership (e.g. common agriculture policy, trade policy) would cause significant changes. The open sector consisted of those sectors that have already adjusted to international competition, such as the forest industry. The sheltered sector was formed by industries where the import shares of both Finland and the EC countries were low.

The price differential between Finland and the EC countries in the 1980s in the sheltered sector was 80 per cent, while in EEA-sensitive sectors it was 10 per cent and in EC-sensitive sectors 55 per cent. Exchange rates have subsequently changed considerably. This change has not, however, eliminated the dilemma of the sheltered sector, which in Finland is especially severe. Corresponding results are obtained also when comparing price structures (Kajaste & Varis, 1994; Alho, 1993). The stringency of competition policy and other changes in the business environment depend fundamentally upon the extent to which monopoly pricing in the sheltered sector disintegrates. EU membership entails price adjustments spawned by greater competition in many sectors. This will affect how the benefits are distributed and reflect upon the welfare of consumers.

Agglomeration Alternative

The deepening of market integration can also entail a scenario that diverges considerably from the development trends realised so far in Western Europe. As the differences between nations and borders gradually fade and if transportation costs decline significantly, the future division of labour in Europe can be determined according to the factors of location

theory (Krugman, 1991c). The utilisation of mass production and decline in transportation costs prompt production activities to shift toward certain centres - due to accumulation of demand or supply of production inputs - as has happened in already for years in the United States.

Regional production centres and industrial belts (Detroit, Silicon Valley) have formed over time in the United States. At the same time Europe diverged economically and new trade barriers sprung up between various countries. As a result of the diverging trends, the regional structure in the United States is more differentiated and regions are more specialised than in Europe. As the barriers on the mobility of goods, services, labour and capital are removed in Europe, it may be that the change in the production structure will increasingly resemble the sectoral differentiation that has taken place in North America. Large market centres in particular may gain more significance in determining the location of production and trade flows.

Realisation of this scenario could have a substantial impact on the development of the European Union. Fundamentally, the European Union is an alliance of similar economies and societies, where a prime objective of economic development is economic convergence. The standardisation of structures is an important condition for realisation of the economic and monetary union as smoothly as possible. The economic and social standardisation is also a precondition for opening up the common trade policy of the European Union and closer integration as a part of the global economy.

The question of the structural development of industries is important because it determines the needs for adjustment. Growth in intra-industry trade would mean that adjustment would occur primarily within enterprises. This would cause considerably less friction for the economy and society than inter-industry changes in the division of labour spurring greater regional and vocational mobility throughout the EU (Hine, 1989).

Intra-industry trade is explained, among other things, by the similarity of the countries engaged in trade, their level of development and the size of the economies (Balassa & Bauwens, 1988; Parjanne, 1992). Transport costs have been shown to reduce the share of intra-industry trade while belonging to an economic bloc raises it. Product differentiation as well as investments in R&D activities and marketing are correlated with growth in intra-industry trade while its share declines in relation to concentration and firm size. Studies on direct investment indicate that a growing portion of cross-border investment is intra-industry investment taking place between similar types of countries, which would mean also increased intra-industry trade.

The mobility of production factors and trade in differentiated products are complementary to each other, and they are attributable to a great extent to the same factors (Glegg, 1990; Cantwell, 1990; Greenaway, 1989). The phenomenon is explained by firm-specific comparative advan-

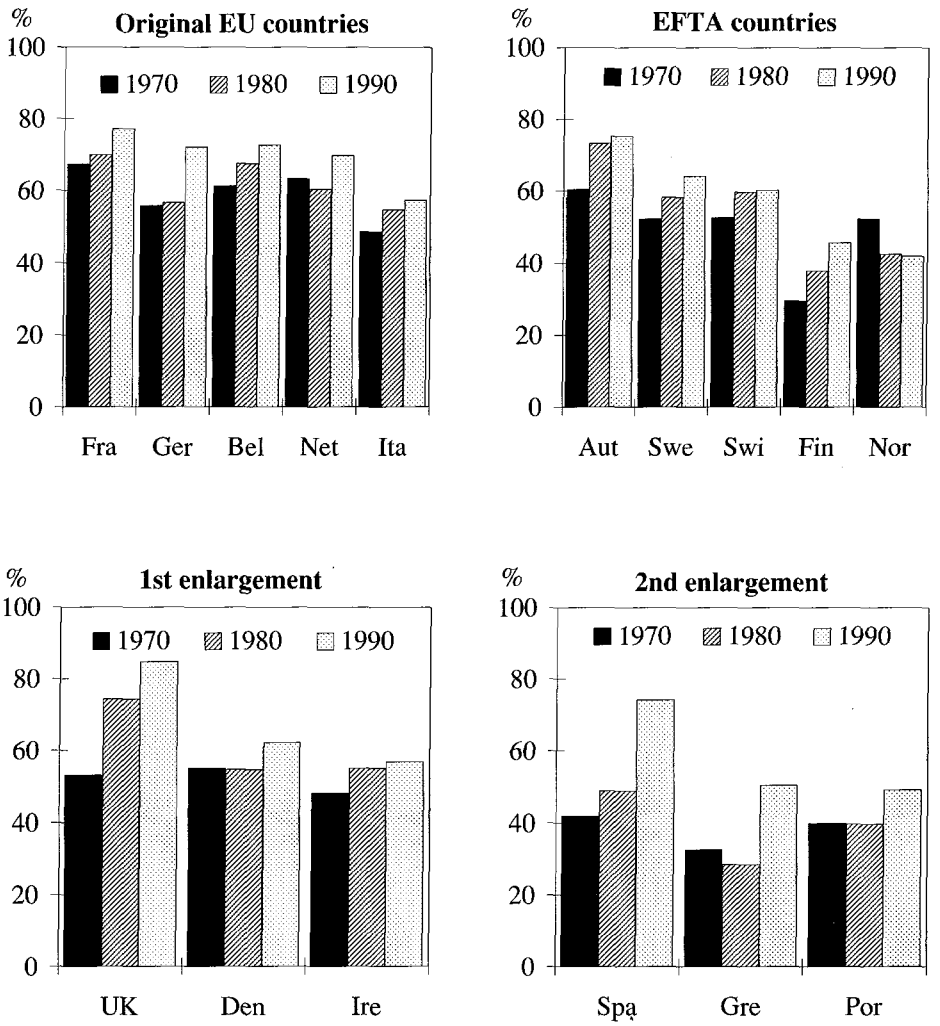


Figure 3.2 Intra-industry Trade as a Percentage of Foreign Trade in 1970, 1980, and 1990

tages, the regional differentiation of companies and the growing importance of proximity to markets. According to this theory the impacts of trade and investment flows on one another are not particularly clear. The activities of international firms affect trade flows interactively along with the size of the markets and transport costs. For the time being the deepening of integration in Europe has been reflected in the growth of intra-industry trade (Figure 3.2).

The developments until now support the view that the elimination of trade barriers strengthens product differentiation based on intra-industry specialisation, from which especially small economies with rather narrow domestic markets benefit (Globerman & Dean, 1990). On the other hand, for example the governmental support measures provided in conjunction

with the liberalisation of trade have perhaps curbed sectoral specialisation and distorted developments to a certain extent. Another reason why future trends may differ from those in the past is that the benefits for aggregate output spurred by technological change and flexible production are greater than the benefits from greater product specialisation. In certain countries the slowdown in the growth of intra-industry trade observed in the 1980s is, however, perhaps due simply to the fact that the level of intra-industry trade is already very high in these countries.

Finnish Foreign Trade and Western European Integration

Finnish exports have been marked by the same kind of global adjustment as in other industrialised countries. Even though the sharp fall in non-EU trade stems directly from the collapse in eastern trade, the trend reflects to a large extent the same phenomenon. Bilateral countertrade with the Soviet Union represented a certain type of trade barrier for Finland, protection from competition of third countries. For this reason even a considerable improvement in competitiveness was not able to restore the position of the sectors suffering the worst damage. It is clear that eastern trade partly distorted Finland's foreign trade and industrial structure and for this reason gave the wrong signals about the comparative advantage of Finnish industry (Kajaste, 1992).

An overview of changes in Finland's competitive position is presented in figure 3.3. Finland's comparative advantages are depicted in the graphs by net exports relative to gross trade (exports + imports) for trade with the European Union as well as trade with other countries. The industries presented are those where Finland's foreign trade is important and/or the market position has changed clearly.

According to these measures, Finland's trade with the EU gives a quite different picture than foreign trade with other countries. Finland's EU trade is export-oriented (index positive) in only three industries: metal, wood and paper products. Exports are higher than imports also in certain other sectors. This is due partly to the fact that foreign trade in the 1980s was dominated by trade with the Soviet Union and Sweden, which by nature is regional trade. EU membership has the effect that internal trade is becoming more and more regional trade.

The competitive positions of Finnish exports in both market areas have improved in many metal industry sectors, while the competitive position of the consumer goods industry geared toward eastern trade has weakened. In the 1980s Finland gradually went through a transition, as a result of which the factors affecting comparative advantages have changed appreciably. These changes are related to the significance of the vocationally educated and skilled labour force, the internationalisation of firms' activities as well as the application of high technology in production processes and product development. Correspondingly, in low-wage, low-

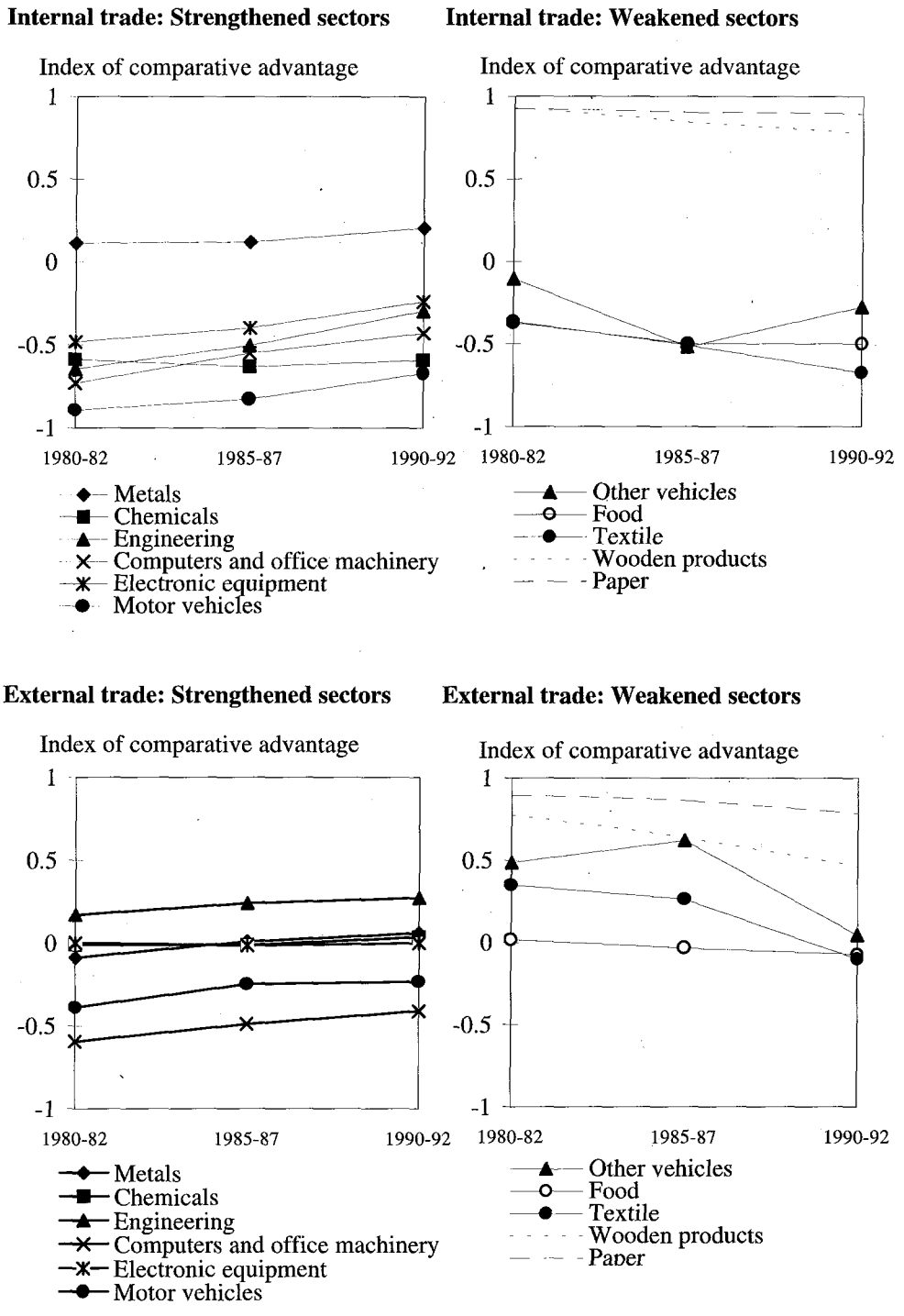


Figure 3.3 Changes in Finland's Comparative Advantage in the 1980s

skill sectors the relative competitive position of Finnish industry weakened considerably. These changes reflect the liberalisation of the trade policy environment so that trade flows will be marked by similar trends in the future as well. A separate question is the future role of the forest industry.

The Finnish forest industry is an example of a change where the original comparative advantages (raw timber) have been gradually steered in a certain direction via national policy and firm-level measures (price of energy, advanced process technology) and where the benefits of mass production are still of crucial importance. In tandem with the benefits of mass production there are increasing demands for flexibility in production (use of raw materials, closeness to clients). An increasing portion of the trade flows of also this sector are taking the form of intra-industry trade (Kajaste, 1994). The competitive advantages of this sector are less and less national and more and more firm-specific. This is in turn a key factor in explaining the trends and direction of direct investment. According to a study carried out in the EU on firm acquisitions and mergers, the paper industry ranked third in the number of firm reorganisations in 1990-1992 (Lehner et al., 1994).

In Finland the share of intra-industry trade has increased appreciably in almost all sectors. The swift pace of change is due to the low starting level but also the structural change in the economy. Internationalisation has been initiated only gradually. For the time being the trend has been a question more of integration of production than of markets. In the consumer goods industry the intra-industry trade with the EU countries has declined. The integration of production is related particularly to the growth in direct investment, as a result of which, for example, the internal trade of firms is increasing.

New Trade Flows

The transformation of Central and Eastern Europe is feared to mean an appreciable increase in competition in Western Europe in the next few years. Inexpensive agricultural and industrial products would spur significant adjustment pressures especially in southern Europe.[16]

New studies have evaluated the Eastern European country's future share of world trade and the impact of the growth in trade on the economic structure of Europe. According to the studies the trade of these countries could increase manifold.

Collins and Rodrik (1991) took the structure of trade in 1928 as a starting point for evaluating potential trade flows in 1988. When comparing the potential with the realised trade, it was found that the gap between the two was considerable: for Czechoslovakia and Hungary the gap was 2.5- to 3.5-fold while for Bulgaria, Poland and Romania 4- to 5-fold.

[16] According to an ECE study (1989) the structure of the western exports of Central and Eastern European countries resembled at least in the 1980s the exports of southern European countries and they had developed increasingly in this direction. Southern European countries' EC membership prompted to some extent a trade diversion in imports of textiles (Greece, Portugal) and machinery (Spain). The study dealt with the exports of industrial products.

A study by Wang and Winters (1991) was based on a gravitation model. The results are largely consistent with the calculations of Collins and Rodrik, and indicate that the growth potential for trade is large. Another main finding is that the trade between Central and Eastern Europe has been oversized, even if the proximity of the countries is taken into consideration[17].

The most significant difference between the two projections is related to the direction of the trade. According to the gravitation model the opening of the Central and Eastern European markets would benefit relatively the most the United States and Japan and the least Germany and the EFTA countries, which already now have significant trade with Eastern Europe. The share of developing countries' trade is already now significant so appreciable increases in these trade flows would not be anticipated.

In their study based on a gravitation model, Hamilton and Winters (1992) estimated the structure of merchandise trade and the comparative advantages of Eastern Europe as world trade is liberalised. Increasing the efficiency of agriculture in Eastern Europe affects global markets. This reflects clearly upon Europe as a whole and the future of EU agricultural policy. Hamilton and Winters also stress the importance of the level of education in Eastern and Central Europe and seek to refute the view that in the future Eastern Europe would compete only with Southern European countries in cheap industrial products with low value added.

Baldwin (1994), also based on a gravitation model, goes further than the above-mentioned studies. It includes a programme spelling out in what order the economies in eastern and western Europe should be integrated. Integration has proven to be difficult partly because the former socialist countries do not have a strong sense of belonging together and avoid temporary common arrangements as they aspire toward membership in the European Union.

According to Baldwin the liberalisation of trade should roughly double the EU and EFTA countries' volume of eastern trade. Finland is in a slightly different situation. According to the gravitation analysis Finland's exports to the Soviet Union 1989 were three times too high, but export to other former CMEA countries could have been four times greater. The developments since 1989 have indeed been according to projections. The share of the area of the former Soviet Union in Finland's exports has fallen to about 10 per cent and the share of other former socialist countries has increased appreciably.

[17] The Collins and Rodrik study estimated first what would be the foreign trade share of these countries relative to GDP. Then they sought to estimate the shares of various markets in the foreign trade of these countries. The point of departure was the trade shares of 1928, since after this the direction of trade flows has been affected by many types of trade barriers. The assumption has been that after trade is liberalised Europe would return to the old structure, with only the shares being adjusted. An example of this is the weakening of Great Britain's position in world trade. Wang and Winters used data on 76 countries, but not Central and Eastern European countries. In the model the bilateral trade flows were determined by GDP, population size, and distances between countries. Thus it was possible to forecast the potential trade flows of the Central and Eastern European countries in a situation where they would be integrated with the world trade system.

Experienc s fr m the Front Lin s: Finland and Austria

Finland and Austria have experienced the effects of the transformation of Eastern Europe from the front lines. In both countries the Central and Eastern European countries' share of foreign trade has been traditionally larger than in other Western European countries.

In Austria the transformation of Eastern Europe meant the opening of new markets and growth in trade (Table 3.3). In particular, Austrian consumer goods and brand-name products have invaded these new markets. The expansion has partly led to the undertaking of manufacturing activities under license. A corresponding phenomenon is observable to some extent also in Finland's new eastern trade, especially in the neighbouring regions such as Estonia.

If Europe's trade with the east expands in the projected manner, Austria's market shares will evidently decline. The Austrian WIFO institute has attempted to estimate the significance of the current changes on the growth and employment in the Austrian economy (Kramer, 1993). When making the projections, they sought to take into account not only the expected reduction in market shares over the longer run, but also the increased competition that domestic production will face from imports from third countries. The Austrian industry's structure includes a considerable amount of production based on medium-level technology and raw materials. The competition from Eastern and Central Europe is anticipated to focus on these sectors in particular.

According to calculations the crowding out effect attributable to the changes in the competitive conditions over the medium term would be about 6 per cent of industrial output and 7 per cent of industrial employment (35 thousand persons). Other sectors would lose about 15 thousand jobs due to the effects of keener competition. The other side of the coin is the growth in the export possibilities. This is believed to mean about 60-65 thousand new jobs so that the net impact would be 15 thousand new jobs, i.e. 1/2 per cent of the labour force. The impact is not very large but its realisation would require a significant structural adjustment.

In other simulations based on a short-term forecasting model, a considerably greater impact was projected (Wörgötter, 1993). In the evaluation of the changes in Eastern Europe not only the direct effects on trade were taken into consideration but also the effects on building investment, interest rates and migration. The net change was estimated at 50 thousand persons (1.5 per cent of the labour force). The results give a considerably more optimistic picture of the impact of the opening of Eastern Europe on Austria. The effect on production was slightly over 2 per cent, investment 3-4 per cent and employment 1.5 per cent.

While the opening of the Eastern European markets sparked an upswing and strong recovery in investment in Austria, the change in the conditions of eastern trade meant a negative demand shock for Finland at the beginning of the decade. The magnitude of the effects has been the same in the two countries; only the sign of the change has been different.

The collapse was proceeded by an appreciable downturn in eastern trade during the latter half of the last decade, spurred primarily by the fall in the markka-denominated prices of imported oil over a five-year period. At the same time during 1985-1990 the Soviet Union's share of Finnish exports fell from 21.5 per cent to 12.7 per cent. In 1991 after the collapse of the Soviet economy and disbanding of the CMEA, eastern exports accounted for only 5 per cent of Finland's exports. In slightly over five years' time about 15 per cent of the traditional export market had been lost. Bilateral countertrade with the east distorted competitive conditions and over the longer run also the structure of the economy. This has been reflected in the adjustment in those industries where specialisation in eastern trade was the most pronounced (Kajaste, 1992b).

	Exports				Imports			
	Share (%) average		Change (%) average		Share (%) average		Change (%) average	
	1986-89	1989-92	1986-89	1989-92	1986-89	1989-92	1986-89	1989-92
United States	1,1	1,2	39,4	1,9	0,5	0,4	0,1	1,0
Japan	1,5	1,0	-0,7	-19,4	1,8	1,6	17,0	-5,7
Germany	3,6	4,7	13,0	22,3	3,9	4,6	6,7	30,4
France	1,9	1,7	6,1	18,7	2,6	2,2	1,8	9,9
Italy	2,8	3,1	14,4	16,9	3,9	3,9	15,2	8,3
United Kingdom	1,4	1,2	8,2	10,3	1,5	1,3	9,6	1,2
Austria	7,8	8,5	9,2	19,7	6,4	6,0	2,1	17,0
Belgium	1,2	1,2	7,2	16,3	1,9	1,6	4,8	9,2
Denmark	1,7	2,6	14,3	25,5	2,2	2,6	3,2	21,3
Netherlands	1,2	1,6	18,3	21,0	2,1	1,9	9,7	0,7
Norway	1,0	1,2	21,4	20,8	1,5	2,2	20,9	13,2
Spain	1,4	1,3	11,8	12,2	2,2	1,8	45,5	-4,1
Sweden	1,8	2,1	10,2	14,1	3,0	2,8	14,4	3,8
Switzerland	2,7	2,4	12,9	-4,5	1,3	1,2	-4,9	1,0
OECD	2,2	2,2	11,2	11,2	2,1	2,2	8,9	11,4
Finland	17,5	10,7	1,1	-24,2	15,4	11,6	7,2	-13,7

Table 3.3 *Central and Eastern European countries' share of foreign trade, OECD countries.*

Source: OECD

The opening of new markets takes time, so we can ask to what extent has the rapid expansion of western exports after 1991 been based on the old capacity freed from eastern trade. Furthermore, we can try to evaluate whether the new eastern trade, which has already more than doubled during 1992-1993, will be based on the same elements as the traditional bilateral countertrade.

Reorientation of Paper Exports

The fall in eastern exports of the forest industry was extremely steep. In a couple of years the paper industry lost markets worth over half a million tonnes (7 per cent of this sector's exports) as the Soviet Union disintegrated. The reorientation of various grades of paper is presented in table 3.4, which indicates the changes in exports in thousands of tonnes over 1989-1991 and 1991-1993.

Most of the adjustment took place prior to the 1991 devaluation of the markka. The greatest change occurring in 1989-1991 pertained to the exports of graphic paper, where exports headed outside of Europe as well as to the Soviet Union fell. Exports to the EU area, on the other hand, rose by 27 per cent and exports to Germany by 50 per cent. The exports to Germany thereafter ceased to grow, but demand in other European markets was buoyant and exports to non-European areas increased sharply, especially to North America.

	News-print		Graphic paper		Kraft paper		Other paper	
	1991/89	1993/91	1991/89	1993/91	1991/89	1993/91	1991/89	1993/91
EU area	6.9	-6.7	600.2	333	22.7	9.8	45.3	15.7
Germany	57.5	-36.1	229.4	0.3	16.4	-9.8	17.5	-0.1
Rest of EU	-50.6	29.4	370.8	333	6.3	19.6	27.8	15.8
EFTA	15.4	-1.2	31.6	14.7	2.5	-1.2	3.3	-2.2
Rest of Europe	-26.8	52.3	-268.7	110	-54.1	-4.7	-29.5	3.2
Former USSR	-41.3	3.1	-291.7	-3	-52.6	-9.2	-23.1	-2.9
Other countries	14.5	49.3	23	113	-1.4	4.6	-6.4	6.1
Rest of world	85.2	43.9	-115.6	443	10	4.7	14.2	7.4
Total	80.7	88.2	247.5	901	-18.8	8.7	33.3	24.1

Table 3.4 *Adjustment of Paper Exports after Collapse of Eastern Exports, change in thousand tonnes*

Source: Board of Customs Statistics

A reorientation of export volumes of even such a large magnitude did not spawn overwhelming difficulties. It is difficult to apply the premises for the theory for a small open economy, according to which the exporters have to adapt to prices set on international markets. Since Finland holds a large share of the world market for graphic paper (25 per cent of world exports), it is unavoidable that finding new buyers for export volumes of this magnitude will disturb the markets to a certain extent. The growth in Finnish graphic paper exports to Western Europe in 1989-1991 corresponded to about half of the growth in the markets (FAO, 1993). At the same time world market prices began to fall sharply (Kajaste, 1994).

The strong growth in paper exports to Central and Eastern European countries (other European countries) is noteworthy. Prior to the break-up of the CMEA Finland did not export paper at all to Czechoslovakia and only small volumes to Poland and Hungary. In 1989-1993 the trade in paper and paper products increased by five-fold with Hungary, 15-fold with Poland

and 25-fold with the former Czechoslovakia. The disintegration of the CMEA seems to have removed certain trade barriers. Only now have the KEVSOS free trade agreements between Finland and eastern European countries gained significance.

Finnish eastern trade is undergoing a considerable structural transition. The steepest decline, over 50 per cent, took place in a fifth of the product groups. These groups accounted for over 3/4 of eastern exports in 1988. On average eastern exports fell in this group by 87 per cent over a five-year period. The share of this group declined by almost a fourth. The growth in western exports in these groups was slightly slower than average, so that this investigation does not provide any clear indications of supply effects related to the freeing of capacity. These groups include the main export industries, such as the paper industry and shipbuilding. The reorientation of the forest industry's exports occurred quickly.

The new eastern trade includes also many completely or almost completely new products. The share of this new type of exports is now about 40 per cent of total eastern exports. Part of these are products where Finnish exports are primarily transit trade. For example, passenger cars,

	Exports to Eastern Europe and Soviet Union							
	Stopped	Contracted	Contracted	Increased	Increased	New exports	No Eastern exports	Total
		> 50%	< 50%	< 50%	> 50%			
Product Categories* (n.)	4	53	24	22	78	39	42	262
Exports to Eastern Block:								
%-shares 1988	0.3	78.2	12.4	5.5	3.8	0	0	100
%-shares 1993	0	23.2	19.7	14.8	37.6	4.8	0	100
Change (%) 1993/1988	..	-87	-31	22	339	..	..	-56
Exports to Western Countries:								
%-shares 1988	0.6	58.1	8.7	13.5	15.8	2.2	1.1	100
%-shares 1993	0.5	55.4	10.8	14.8	15.5	2.2	0.9	100
Change (%) 1993/1988	21	58	107	82	62	65	35	66
Share of Exports to SU (%)								
1988	7.7	19.1	20.1	6.4	4	0	0	15
1993	0	1.9	7.8	4.4	10.1	10.3	0	4.6

* According to the 3-digit SITC classification of foreign trade statistics, except for paper and paper products, which are according to the 4-digit level.

Table 3.5 Finnish Exports in 1988 and 1993 classified by change in Eastern Exports

fruit and alcoholic beverages accounted for about 9 per cent of Finnish exports to Russia. The previous monitoring of the domestic content would not have even permitted this type of business activity. This trend is partially also a consequence of subsidised exports of foodstuffs. In this case the new exports to the east are temporary and will perhaps shrink in the future. There are also signs reflected in the changing trade structure regarding the effects of Finland's close proximity to Russia on trade flows that are similar to those for Austria. The reasonable success of Finnish furniture and footwear indicates that these sectors enjoy a competitive advantage as a vestige of the days of the Soviet Union owing to the quality level and good reputation.

The same phenomenon is also evident when looking at the change in the structure of Finnish trade with Central and Eastern European countries. Table 3.6 presents figures on a two-digit SITC level regarding the structural change in trade between Finland and these countries during 1987-1993. The investigation comprises a total of 64 product groups. The data has been used to calculate equivalence indices, via which the structure of Finland's trade can be compared with different countries and the structural change occurring in the trade between these two points in time can be evaluated.

The first part of the table compares eastern exports and imports to the trade with the OECD countries. In 1987 the structure of exports to Czechoslovakia least resembled Finnish exports to the OECD countries. This difference had disappeared by 1993. The structure of exports to the Soviet Union in 1987 was closer to that of western trade than exports to Russia or Estonia. The imports from Poland and Slovakia were furthest in structure from Finnish OECD imports.

The second part of table 3.6 provides a comparison of Finnish trade with various neighbouring regions in 1993. The comparison includes Sweden, with which Finland is closely integrated. The structure of Finnish exports to Sweden, Estonia and Russia resemble each other considerably. The greatest divergence in Finnish exports occurs between those to Sweden and Russia. The developmental gap between the countries is highlighted more clearly, however, by the considerable structural difference in Finland's imports from these countries.

Some of Finland's trade flows previously reflected the distorted conditions under which trade with Eastern European countries was conducted. The distortions have not been completely eliminated and new problems have cropped up. The reorientation of eastern trade flows is spurred by three factors in particular (Rautava, 1994b). First, eastern trade has decentralised. Despite the collapse in the volume of trade, the number of those exporting to the east rose already in 1991. Second, the shift in the structure of trade reflects a change in the significance placed on different sectors and the reformation of decision-making factors in the former Soviet economy. Gradually, Finnish direct investments have also begun to affect the reorientation and structure of exports. The third factor includes the

a) Trade structure compared to Finland's trade with OECD

	Exports		Imports	
	1987	1993	1987	1993
Poland	0.918	0.9782	0.781	0.6120
Hungary	0.976	0.9591	0.935	0.9323
Czechoslovakia	0.825	..	0.937	..
Czech Republic	..	0.9562	..	0.9372
Slovakia	..	0.9104	..	0.7454
Soviet Union	0.961	..	0.622	..
Russia	..	0.9098	..	0.8704
Estonia	..	0.9148	..	0.8884

b) Similarity of Finlands's trade with neighbouring countries 1993

	Exports		Imports	
	Estonia	Sweden	Estonia	Sweden
Russia	0.983	0.9658	0.787	0.8394
Sweden	0.982	..	0.89	..

Table 3.6 Equivalence Index for Finlands's Trade

numerous negative factors related to the disintegration of the old system, such as problems related to the financing of trade, customs formalities as well as crime. Trade with Russia will continue to undergo fundamental change in the future and it can also be expected to expand.

Finland's EU membership is anticipated to have a positive impact upon Finland's and Russia's economic relations (Hahl, 1993). At the beginning of 1993 trade between Finland and Russia became subject to tariffs. If the partnership and co-operative agreement signed by the EU and Russia evolves into a free trade agreement at some stage in the future, the situation will change once again. On the other hand, a comparatively small portion of Finland's eastern imports are subject to the EU tariff schemes. Oil and wood are, for example, duty free. The EU's trade policy measures such as anti-dumping regulations and import quotas could gain considerable importance in this connection. If quotas are adopted in the EU as a whole, it is possible that the goods subject to quotas coming from Russia would end up primarily on the Finnish market, causing regional market disturbances (Rautava, 1994a).

3.3 Finns in New Growth Regions

The internationalisation of Finnish companies has taken place relatively late and rapidly (see section 4.3). Manufacturing activities were not carried out abroad to any significant extent until the 1980s, when investments

abroad grew sharply. The stock of direct foreign investments relative to the value of exports rose from five per cent at the beginning of the 1980s to almost 40 per cent by the end of the decade (Kinnunen, 1991). The emphasis of the investments has been on the EFTA countries, primarily Sweden, and the area of the European Union, but productive capacity has also been acquired from North America. The shares of Asia and Latin America in this internationalisation trend have been relatively modest until now.

Asian Markets Have Finally Been Found

Finnish exports, like its direct investments, have been focused on geographically close areas, the EU and EFTA countries and until the 1990s the former Soviet Union. Exports to the flourishing economies of East Asia have not increased until the 1980s and their value is now ten times higher than in the beginning of the last decade. The share of exports to these countries did not grow, however, until the 1990s, when the value of exports to East Asia exceeded the value of exports to the former Soviet Union (figure 3.4). The trend indicates that Finnish manufacturers have sought to penetrate Asia's new flourishing markets only when forced to do so after exports to the Soviet Union collapsed and the other traditional export markets, such as Western Europe, went into recession.

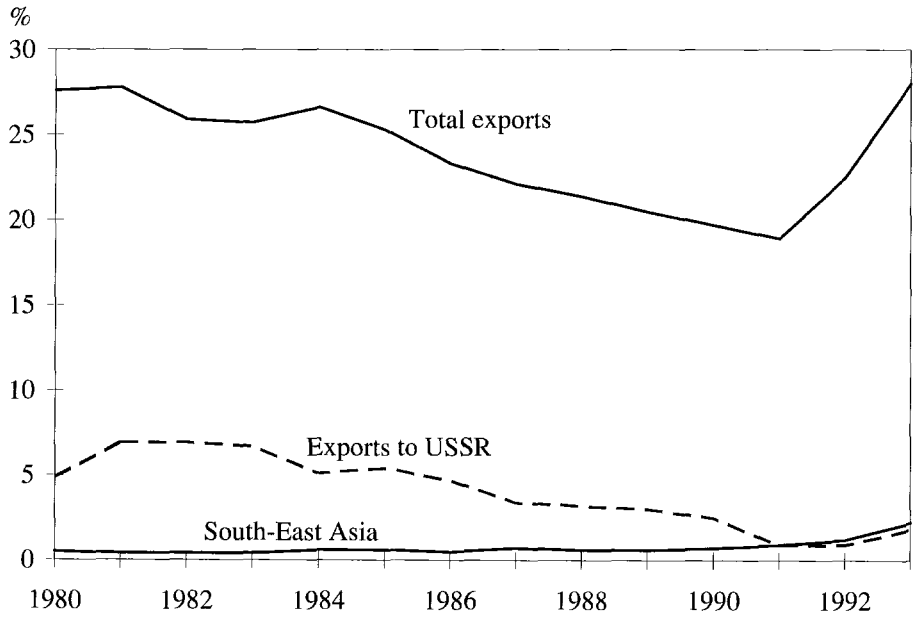


Figure 3.4 *Finland's Total Exports and Exports to East Asia and the Region of the Former Soviet Union* in 1980-1993, per cent of GDP*

* Until 1991 the Soviet Union, thereafter Russia, the Baltic countries, Ukraine and Belorus.

Sources: Statistics Finland, Board of Customs.

Finland's exports to East Asia grew particularly fast in 1993. The value almost doubled over that of the previous year. The most significant trading partners were China, Korea and Thailand, even though the gap from other countries was not large. The greatest growth was experienced in exports headed for Indonesia, the Philippines and Thailand owing to exports of combined paper machine and generator systems. In 1994 there was a sharper increase in the value of exports compared to the previous year with respect to China, Hong Kong, Korea, Singapore and Malaysia, while exports to Indonesia, the Philippines and Thailand fell appreciably.

	1993				1994
	Bill. FIM	Share, %	Change*	Trade balance	Change*
Japan	2194	1.6	60	-3772	44
China	1468	1.1	19	1	52
Taiwan	858	0.6	32	-165	-14
Malaysia	633	0.5	73	-25	30
Korea	1417	1.1	69	690	42
Hong Kong	1188	0.9	67	546	50
Singapore	1060	0.8	93	477	41
Thailand	1620	1.2	143	1206	-40
Indonesia	1306	1	304	1169	-55
Philippines	1037	0.8	297	867	-62

* Percentage change relative to previous year. The 1994 figure is for January- November.

Table 3.7 Finnish Exports to East Asian Countries in 1993-1994

Source: Board of Customs.

Finland's trade with East Asia has been running a surplus despite the large deficit with Japan. In 1993 the surplus grew significantly owing to the swift growth in exports. Despite the increase in exports Finland's market share in East Asia is still modest. In this decade Finland's share of these countries' imports has varied from 0.1 per cent to 0.6 per cent, which is weaker on average than Finland's share, about 0.5 per cent, of total world imports (Salo, 1993). Finland's market share in the region has nevertheless doubled in ten years.

The competition for market shares in the region is keen, but the structure of Finnish goods exported is conducive to growth. Well over half of the exports to this region have been those belonging to the metal industry, exports of various kinds of machinery, equipment and electronic telecommunications devices, the demand for which is fostered by the swift economic growth in the region as well as the needs to develop the infrastructure. The structure of goods exported differs from the overall structure of Finnish exports. The value added content is higher on average and the share of the forest industry is under a fifth.

The battle for market shares in East Asia is waged also via direct investments. The investment by Finnish companies has taken place relatively late, as did internationalisation in other directions. Before the mid-1980s no noteworthy investments were made to the region. These countries' share of total foreign direct investment flows has been relatively low, on average below two per cent of the total flow of investment during 1985-1993. The investment reached a peak in markka terms in 1989 at around FIM 300 million. For several years the level has remained below FIM 100 million (figure 3.5).

Most of the investment has been made in Malaysia, Korea and Singapore. Malaysia was not emphasised until the early 1990s while Singapore attracted investment more in the 1980s when a considerable portion of the annual investment was directed there. In 1993 Korea was the most important recipient country. A large part of the investments made in this region are concentrated on the sales support of Finnish companies. Of the countries investigated only Malaysia has more manufacturing firms than sales firms.

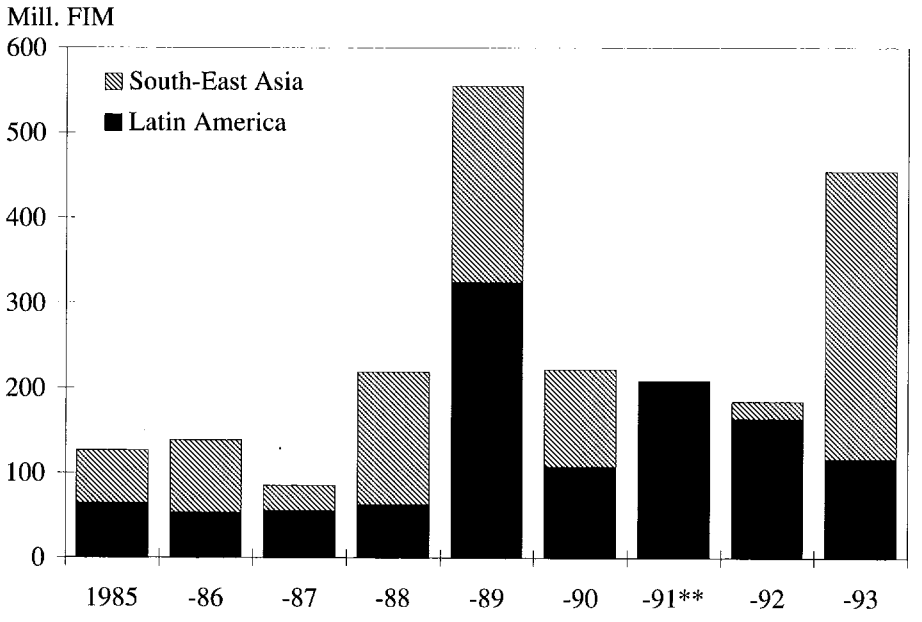


*Figure 3.5 Direct Investment from Finland to East Asia and Latin America during 1985-1993, Mill. FIM**

* Net capital flows excluding reinvested profits and investments in real estate and housing by households.

** The figure for East Asia was negative owing to sizeable disinvestment in Singapore.

Source: Bank of Finland

Finnish Exports to Latin America Still L w

Exports to Latin America have accounted for an average of 1-2 per cent of Finland's total exports during the 1980s. The significance of the region to Finland has not grown during the last decade in contrast with the East Asian countries. This is partly the result of the deep economic crisis of the region and instability, the turnaround from which has begun only in recent years. Latin America's share of Swedish exports was clearly higher in the early 1980s, but by the end of the decade it was of the same magnitude as in Finland (figure 3.6).

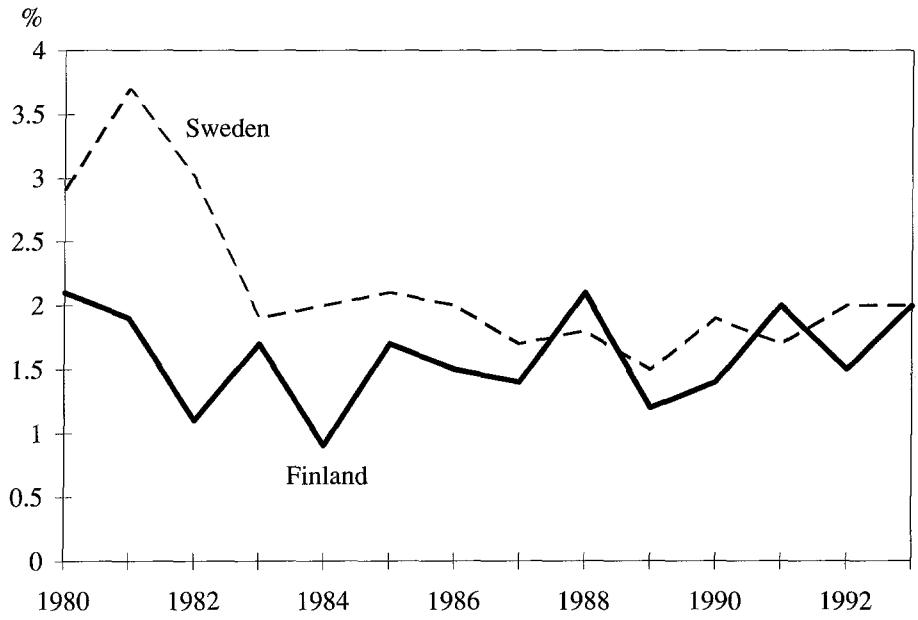


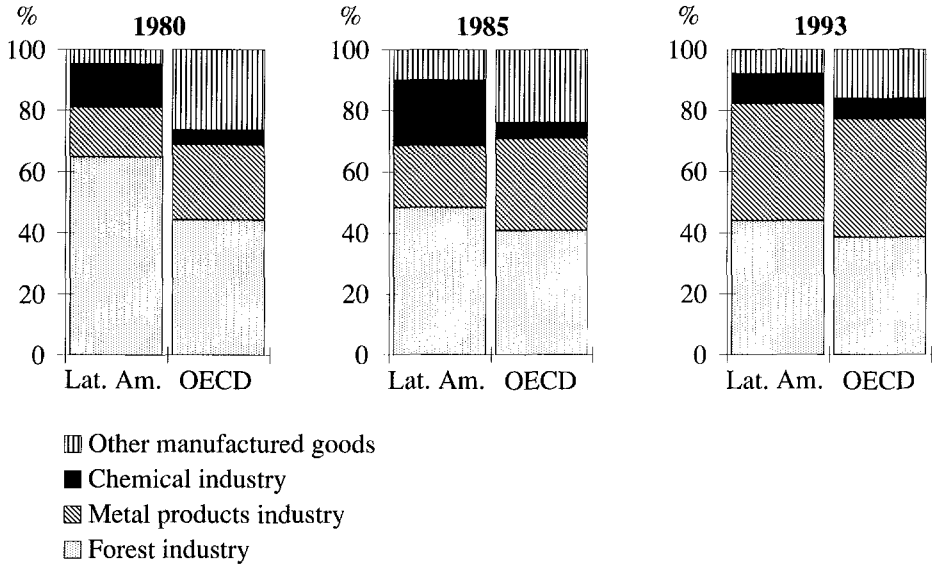
Figure 3.6 Latin America's Share of Total Finnish and Swedish Exports in 1980-1993, per cent

Source: IMF/TS.

Finland's main trading partners in Latin America in order of size are Brazil, Chile, Argentina, Mexico, Columbia and Venezuela. Each country accounts for 0.1-0.3 per cent of total exports. The sales to these countries consist primarily of forest and metal industry products. This region has also bought considerable amounts of chemical industry products, especially in the 1980s. Nowadays most of the exports consist of paper and board as well as industrial machines and equipment. Pigments and tanning chemicals constitute the largest group of chemical industry products. Compared to Finland's exports to OECD countries, the value added content of exports to Latin America is slightly higher on average.

As in Finland's other export sectors, the exports of the metal industry to Latin America, consisting primarily of machinery, equipment and transport equipment, have expanded clearly since the early 1980s. The metal

sector's share within exports to Latin American countries has risen to approximately the same level as in Finland's exports to the OECD countries, almost 40 per cent of total exports. At the same time the share of the paper industry has fallen correspondingly. The relative position of the chemical industry has fallen compared to the situation in the mid-1980s (figure 3.7).



* Brazil, Chile, Argentina, Mexico, Columbia and Venezuela.

Figure 3.7 Industrial Structure of Finnish Exports to Latin America and OECD*

Source: Board of Customs. Countries in 1980, 1985 and 1993

Direct investments from Finland to Latin American countries have been slightly higher on average than those to the Asian economies during the last decade. While investments to the rest of the world dwindled in the early 1990s, investments to Latin America were relatively high, over 7 per cent of Finland's total investments. This share has subsequently declined and the Asian economies have been a more attractive site for investment by Finnish companies (see figure 3.5).

Globalisation of Companies

4

Summ ry and Conclusions

The globalisation of Finnish companies on a wider scale is still such a new phenomenon that it is not possible to make broad conclusions regarding its impact on the Finnish economy. In some cases swift internationalisation has surely been related to imprudent acquisitions and the taking of large risks. The market shares gained via acquisitions have not proved to be profitable or the takeovers of companies have failed in other respects. Internationalisation has nevertheless been a must for companies, since in many cases it is almost the only way to make the most of their innovations' market power. In this manner they can quickly reach global markets and be able to cover their product development costs. Exports alone may be too slow and inefficient a channel.

Finnish companies have ordinarily kept their core know-how in the home country and most of the research and development activities of Finnish multinational companies are carried out in Finland. In order to safeguard this trend in the future, it would be important to strengthen the institutional factors fostering the upgrading of quality and motivation of the labour force and the creation of economically useful knowledge, and encouraging the widespread diffusion of the results within the country. Furthermore, the inflow of foreign knowledge and expertise must be promoted. This process can be promoted, among other things, by the following actions:

- Mechanisms should be created in the co-operation between publicly financed research institutes and companies so that all those benefiting from projects help to cover the costs. This should be the aim also on the level of the European Union.
- The diffusion of knowledge and creation of new knowledge require strong basic research. Bilateral student exchanges should be supported. Keeping knowledge networks on the leading edge internationally would promote the dissemination of knowledge.
- State aid to businesses should concentrate upon creation of the new, not perpetuating the old. It is vital to rectify the imperfections in the financial markets that lead to insufficient R&D investment.
- In order to keep skilled labour in the country the burden of income taxes should be eased.

Increasingly greater pressures to decentralise production are spurred in a situation where the countries compete for the location of companies with state aid that distorts the functioning of markets. In the worst case, in addition to taxation, countries can compete with low exchange rates, R&D subsidies, investment incentives, and lenient legislation on employee rights. The new internationalisation of companies means that the pressures for international harmonisation of factors affecting the business conditions directly facing companies will increase (OECD, 1993g). The

individual components of the production chain are more sensitive to changes in the business environment than traditional vertical company organisations. Political competition can be avoided by making international agreements which set norms for attracting business activities.

4.1 Location of Production and International Integration

The position of a country in the international division of labour is affected by the comparative advantage of the country, geographic factors and history. Production tends to be located where production costs are the most reasonable, and where the clients are near. The specialisation of the countries driven by comparative advantage gives arise to differences in technology, natural resources and supplies of other production factors. Even if there were no great gaps in costs, companies would also make direct investments located close to the consumers in order to win market shares. In this way the drawbacks from remoteness can be avoided in transport, trade barriers and client contacts. Mobile production trends to shift toward concentrations of consumption leading to the high standard of living and possibly population megacentres, such as California or the east coast in the United States. This trend is offset by changes in comparative advantages: the rise of costs in these centres and the possibilities of companies to produce in several places. Furthermore, many industrial branches are not very mobile due to raw material ties. History and chance have a bearing on what is manufactured and where. An early start and learning may give companies an advantage that is enough to cover the locational costs. Direct investments are a way of benefiting from the know-how of other countries and companies.

The benefits of multinational production must be weighed against its drawbacks. The operations of a company can be understood as a production chain where the different functions such as financing, product development etc. are linked to each other via resource and information flows. Additional costs are incurred, due to the dispersal of the production chain and controlling of units located in different countries, which limits their possibilities for co-operation. Thus, for example, Finland's ample forest resources have been sufficient to ensure that most of the forest industry's vertical production chain is located in the home country, even though comparative advantage would not require this in all links of the chain.

The impact of the activities of a multinational company on the international division of labour depends in great part on how different operations are located and their co-operation (integration) is organised. This is affected mainly by developments in transport technology and telecommunications. Three basic solutions can be distinguished regarding the level of integration that have followed one another chronologically. In practice the type of solution varies greatly by industrial branch. The adjacent table (4.1)

depicts the development of the various solution archetypes and emergence of global markets in different commodity groups.

Traditionally the foreign subsidiaries resemble the structure of the parent company. They organise their production independently and common activities with the parent company are modest (UN, 1993). The reason for this kind of investment is to circumvent trade barriers or transport costs and they were typical of the protectionistic period. In the next stage of development, "low integration", the subsidiary and parent company have combined certain operations, such as financing and subcontracting.

1960	1970	1980	1990
Independent	Low integration	Deep integration	
Textile industry	Automobile industry	Communications	Financial services
Footwear, etc.	Shipbuilding, etc.	Consumer electronics, computers, etc.	Air traffic
Labour intensive	Capital intensive	High technology	Know-how

Table 4.1 Dominant Forms of Production Integration

Source: Andriessen-Esch, 1993; UN, 1993.

4.2 Deep Production Integration

Already in the 1980s there were indications that the way firms organise their international activities is changing. The main factors are concentration of activities motivated by cost efficiency and decentralisation enabling firms to be close to clients.

The numerous and increasingly smaller parts of production chains can be combined without physical proximity and placed in the most profitable location. A subsidiary can take responsibility for the entire procurement or financing instead of having all national divisions performing this independently (UN, 1993; Hoole & McGrath, 1992). A multinational company can thus reduce the duplication of its activities and benefit from worldwide cost differences. The parts of the production chain move where there is a comparative advantage in the ir production. Thus, for example, it is most sensible to concentrate financial services where there are ample financial institutions and professionals, marketing, where there are clients, etc. The fact that a country enjoys comparative advantage in some stage of the production chain is less of a guarantee than previously that the other parts of the chain will stay close by (UN, 1993).

At the same time it becomes possible to have new production stages carried out in bulk across borders. For example, the Swiss airline Swissair has its labour-intensive bookkeeping routines carried out in India and American insurance companies handle their claims applications in Ireland (UN, 1993). It is not difficult to imagine that in the future the corresponding tasks of Finnish companies would be performed in Estonia. Already now some Helsinki hotels have their laundry washed in Tallinn.

Client orientation is evidenced by companies locating their production chains close to their clients. The service can thus be improved and the exchange of information facilitating product development between a company and its clients can be hastened.

The internationalisation of production increases as a consequence of deeper integration. This trend is supported by technological change, "post-Ford"[18] production methods and competition in product development. The most important technological factor of change is information technology and especially telecommunications, via which the various parts of companies engaged in international co-operation can be organised in a qualitatively new way. The shift to a more flexible and information-intensive production facilitates and often requires the wider dispersion of production.

R search and Development Competition

The gradual shift away from Fordistic mass production has increased the significance of know-how in production. Of key importance have been the customisation of products for clients and high quality. The time for developing a product and its lifetime have shortened. An innovative product or process brings a monopolistic competitive advantage and high margins until competitors imitate the technical solution or develop better ones. Increasing amounts of funds must be invested in research and development and in intangible investments in general.

R&D competition emphasises the speed of information flows both between the manufacturer and the clients as well as within the company. Speed in product development requires that the wishes of the client are forwarded swiftly within the company from customer service to product development and vice versa. Direct local contacts have always been the best way to gather information from clients. The improvement of customer service has always been one of the main reasons for making foreign direct investments (Wilkins, 1970). The co-operation between producers and clients in product development, service and training make having a local presence almost a necessity[19]. An increasingly greater portion of industrial

[18] Post-Fordistic production methods mean, among other things, that traditional conveyor belt work is replaced by flexible automation and mass production instead of tailor-made products.

[19] For several reasons it is not worthwhile to acquire these operations from the market, but rather they have to be produced within the company. Problems arise, for example, in the leaking of technological knowledge and retaining the company's reputation.

value added also comes from these auxiliary functions. Companies emphasising a close proximity to clients locate their production as well as research where the markets are.

Firms have had to adjust to the challenges of information flows both geographically as well as organisationally. Many large companies have reduced the number of organisational levels in order to hasten the flow of information so that they can react to the demands of clients faster. The flattening of the organisation increases the productivity requirements of the remaining work force. The widening of the scope of tasks requires appropriate basic and firm-specific vocational training (Repo, 1992). Internationalised R&D-intensive companies compete for skilled labour globally with other companies in the same segment.

Attempts are being made to divide the growing burden of product development via co-operation between companies. In segments demanding sizeable product development efforts there have been more co-operative agreements[20] in recent years than previously. With co-operation companies competing keenly in the final goods markets can reduce the risks associated with product development (UN, 1993).

Flexible Production

The shift away from the traditional modes of mass production began in the 1970s on the floors of Japanese car factories. Today the flexible production methods are widely applied. The main characteristics of the flexible methods are flexible automation, reduced inventories and continued upgrading of product quality. The methods are better suited for changes in demand and customisation of products than Fordistic conveyor belt production. At the same time it has become possible to produce smaller series efficiently, i.e. economies of scale have been reduced in production.

Flexible production and increased product development inputs increase internationalisation. In many industrial branches the focal point of the benefits from mass production has shifted from factories to research institutes. The utilisation of the fruits of product development in several places at the same time is beneficial. When efficient production can be achieved in small plants, all production does not need to be concentrated in larger units. Thus the dispersal of production near the market becomes relatively important as intangible investment grows, especially when transportation costs or other drawbacks caused by remoteness are significant (Brainard, 1993). Flexible methods raise the efficiency of skilled labour, so that the pressures to shift from a location in close proximity to clients to one with inexpensive unskilled labour is reduced.

In connection with flexible production the application of new information technology bolsters the efficiency of subcontracting. Subcontracting

[20] Co-operative agreements are often called strategic alliances, which emphasises their ad hoc nature as co-operative opportunities are seized upon in line with the particular strategic situation prevailing at the moment.

work has increased. Improved information flows and lower tariffs have promoted international subcontracting, which has grown faster than domestic subcontracting (OECD, 1992b). Growth has been affected by the fact that the electronics industry, which uses a lot of subcontracting, has expanded sharply. The lower capital costs associated with post-Fordism and the improvement in the prerequisites for subcontracting have increased the operative possibilities of small and medium-sized companies.

The shift to flexible production methods creates pressures for change in European labour markets. Orders come on short notice and the amount of work may vary considerably. This has brought great pressures to adjust working times and the work force in accordance with the order books. Even though flexible production raises the efficiency of capital and eases customisation, the system entails new risks. If the work force can be dismissed quickly in line with fluctuations in the order books, slumps would exacerbate unemployment more quickly. The failure of one link, for example, because of a strike or accident, would cause sizeable production losses due to low inventories.

Location of R&D and Beneficial Spillover Effects

The effect of internationalisation on the distribution of spillover benefits promoting growth hinges upon how the spillover effects spread between the state and economic agents. If all knowledge spreads around the world instantaneously, it is irrelevant who engages in innovative activities (Grossman & Helpman, 1994). This is not a realistic assumption. In contrast it is observed that many knowledge intensive activities tend to converge towards "Silicon Valleys" and that positive externalities are limited to a rather small area. On the other hand, the externalities may be directed toward other production segments. This idea is central to cluster research. The possibilities for positive externalities spur the government to support investment in research by industry.

The possibilities of multinational companies to decentralise their R&D activities brings new aspects to the analysis of externalities. Traditionally companies have carried out research in the home country, but telecommunications and the upgrading of the general knowledge level of the world create the conditions for decentralised R&D activity. Research activities are located in regions where there is a lot activity in the same sector, giving units that are located geographically far away a possibility to enjoy regionally limited externalities[21]. The improvement of the preconditions for decentralisation means that R&D activities tend to be located in coun-

[21] These kinds of activities improve the worldwide mobility of knowledge. At the same time it reduces the monopoly profits available from innovation and may reduce the total amount of research.

tries which have a comparative advantage in R&D activities, where the so-called created competitive factors are in order[22] (Helpman, 1984). There is a risk that some countries will lose even their former R&D activities.

Competition in product development emphasises the role of innovation as a decisive factor in the success of companies. Companies do not innovate: people do. This can lead companies to compete internationally for experts. In many companies in industrial branches based on scientific research, research is carried out in all the scientific centres of the main market areas. The companies originally from large countries carry out most of their research in the home country[23]. On the other hand, it has been observed that remote small European countries in particular locate their R&D activities abroad more than the average. One explanation for this is that the close proximity to customers in product development requires that production investment leads to R&D investment. A significant portion of the industrial companies of small remote European countries are international owing to the small size of their own markets.

4.3 Late and Swift Globalisation of Finnish Companies

Prior to the mid-1980s Finnish companies did not have appreciable foreign production activity. In the early 1990s the forest industry had a large stock of investments abroad. From 1985 the share of the metal and chemical sectors started to rise swiftly while the growth of the forest sector was more modest. In 1992-1993 investments picked up again in the metal and chemical industry (figures 4.1 and 4.2). In the beginning of the decade about half of the direct investment stock was in EFTA countries, primarily Sweden. Beginning in 1986 the focal point of investments was in the area of the European Union. High investments were made in North America in certain individual years, such as 1984 and 1989 (Kinnunen, 1991).

Finland has received comparatively few direct investments compared to other Western European countries (table 4.2). One reason for this is that restrictions on direct investment were stringent in all sectors in 1939-1967 and in the mining and forest industry in 1967-1993. Furthermore, during the days of foreign exchange regulation the Bank of Finland also restricted the foreign borrowing of foreign-owned companies. With the birth of the EEA the remaining restrictions on foreign ownership of industrial activities were eliminated (Heikkilä, 1994)[24].

[22] If the locations of two R&D units do not differ in terms of costs, companies choose the location closest to its plants. The benefits from decentralisation can nevertheless break the link between the proximate location of production and R&D.

[23] The trend may change with respect to the companies of large countries. According to a recent US study foreign R&D investment increased nine-fold in 1985-1993 while domestic R&D expenditures remained almost unchanged (FT, 1994c).

[24] Direct investments are nevertheless monitored and if important national interests are endangered foreign ownership can be restricted.

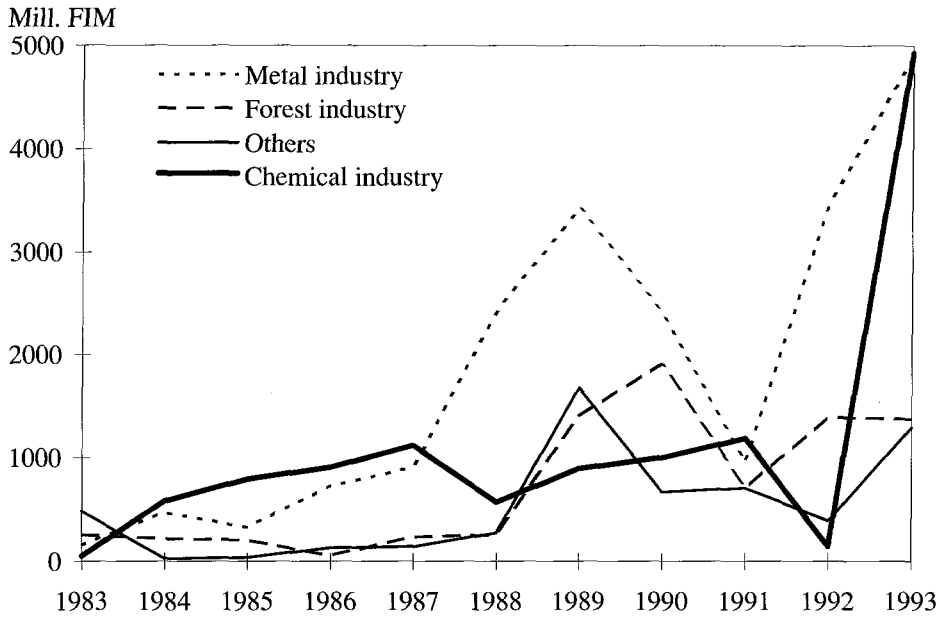


Figure 4.1 *Finnish Industry's Direct Investment Flows by Sector during 1983-1993, million FIM*

Source: ASTIKA.

Of the direct investments to Finland half have been made in industry, a third in the wholesale and retail trade, with the remainder going to services including financing. The most important group in industry is the electrotechnical industry, the share of which is over half. The statistics are dominated by three acquisitions, Nokia Data and Strömberg (electrotechnical) as well as Meriteollisuus (metal).

	1985	1990
Finland	2.5	3.7
Sweden	4.3*	5.2
Austria	3.9**	6.2
West Germany	3.7	4
United Kingdom	14	23.1

* in 1986. ** in 1984.

Table 4.2 *Stock of Inward Direct Investment Relative to Gross Domestic Product, per cent*

Source: Heikkilä, 1994

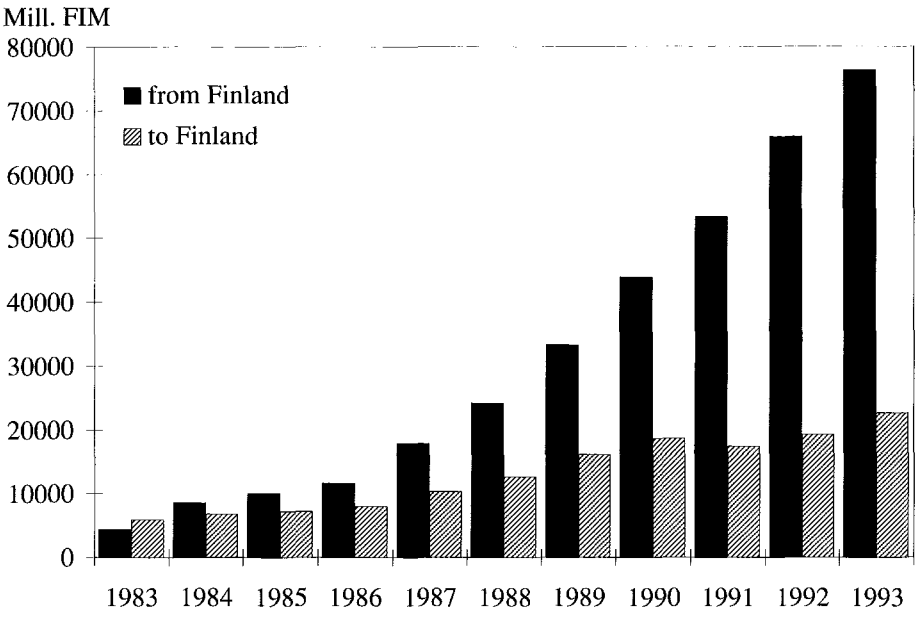


Figure 4.2 *Stock of Finnish Outward Direct Investment during 1983-1993, million FIM*

Source: ASTIKA

Market Orientation of Finnish Investment

The allocation of direct investment related to internationalisation depends in part upon the nature of the geographical location of an industry. Production of country-specific goods is commonly the case when the manufacturing of products and consumption cannot be separated very far from each other or there is wide variation in the country-specific product requirements. This is the case in many services as well as in the food and building materials industries. Country-specific segments consist primarily of private economic activity. Even though services accounted for 16 per cent of Finnish total exports in 1993, there are not many service companies among the Finnish multinational companies. The most significant Finnish multinational companies operating in country-specific segments are Kone and the building materials production of Metra. The opening of the former Soviet Union and the membership in the European Union have led the food industry to undertake numerous direct investments, the purpose of which is to form strong companies in the Baltic region.

The manufacturing and sales of multinational companies operating regionally are concentrated on the home area of the company, such as, for example, Europe or North America, even though production can be divided in the region between various countries. A majority of the Finnish multinational companies in the forest, chemical and basic metal industries

operate primarily in Western Europe. This is evident in the figure depicting the regional distribution of the direct investment of Finnish companies (figure 4.3).

The companies operating in many of the segments mentioned are dependent upon local raw materials and they enjoy economies of scale. In the 1980s the strongest internationalisation by Finnish companies took place namely in regional companies. For the time being they are the most important group of enterprises from Finland's standpoint.

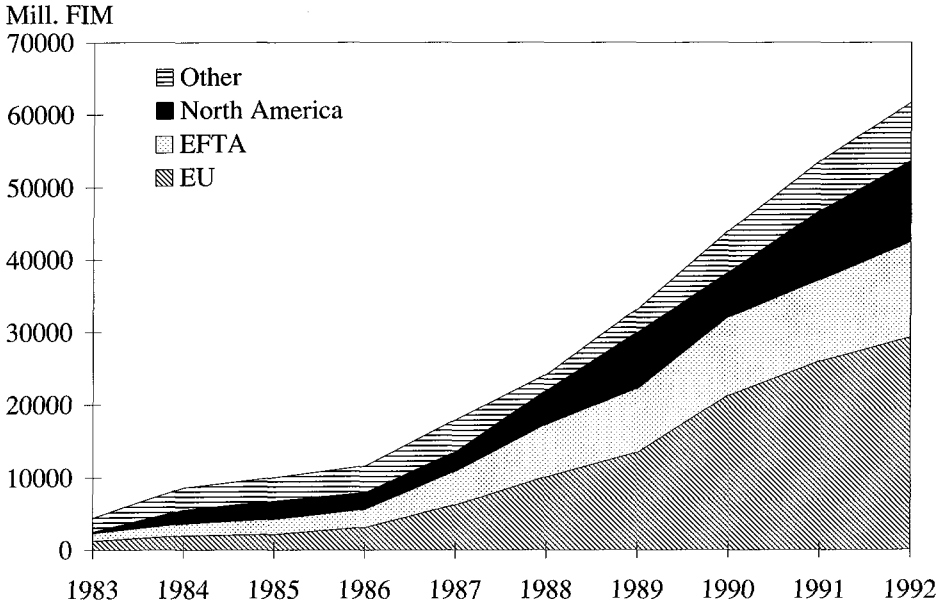


Figure 4.3 *Regional Distribution of Finnish Direct Investment Abroad during 1983-1992, million FIM*

Source: Bank of Finland

Companies operating globally have significant market shares and often production in all three trade blocs. Global industrial branches are ordinarily marked by high investments in product development and marketing. The sales margins of products are high as long as they have a technical lead over competitors, so that it is important to market it as widely as possible. Close client contacts and local distribution channels are necessary for product development and customisation.

In the future country-specific companies will concentrate their support functions. Routine tasks will be shifted toward low-cost countries, in Finland's case primarily to neighbouring regions. Production is already decentralised in nature. European integration and the opening of Finland's neighbouring regions will bring additional possibilities for Finland's country-specific segments and companies. Regional companies will also shift the activities of their headquarters away from Finland. The

From Neste Chemicals to Borealis

Neste operates in oil refining and related industries. After the second oil crisis at the beginning of the 1980s, the future demand for oil products looked weak, except for fuels and petrochemicals. Neste chose a strategy of growing with both. The expansion into petrochemicals occurred in three stages. First, in the early 1980s Neste bought a couple of domestic plastic manufacturers, Pekema and Styrema. In the second stage plastic manufacturers were acquired from the Nordic countries, especially Sweden. Third, in the late 1980s production capacity and clients were acquired from the Benelux countries, France and finally Portugal.

There are several reasons why Neste Chemicals acquired foreign production capacity. The scale advantages of production are significant both in manufacturing and product development (figure 4.4). The development of plastic and processes is associated with sizeable fixed investments in product development and in manufacturing large plants operate more efficiently than small ones. Thus a high turnover is needed to cover R&D investment and production must be concentrated in large plants. On the other hand, close proximity to clients is a benefit to product development and transport. It is possible, for example, that tailor-made plastic parts are tested in the clients machines before mass production. Production tends to shift where the markets are. In Europe plastic is used the most in Germany and France (Rantanen, 1992). The size of the company can also be of strategic importance in markets dominated by a few large companies.

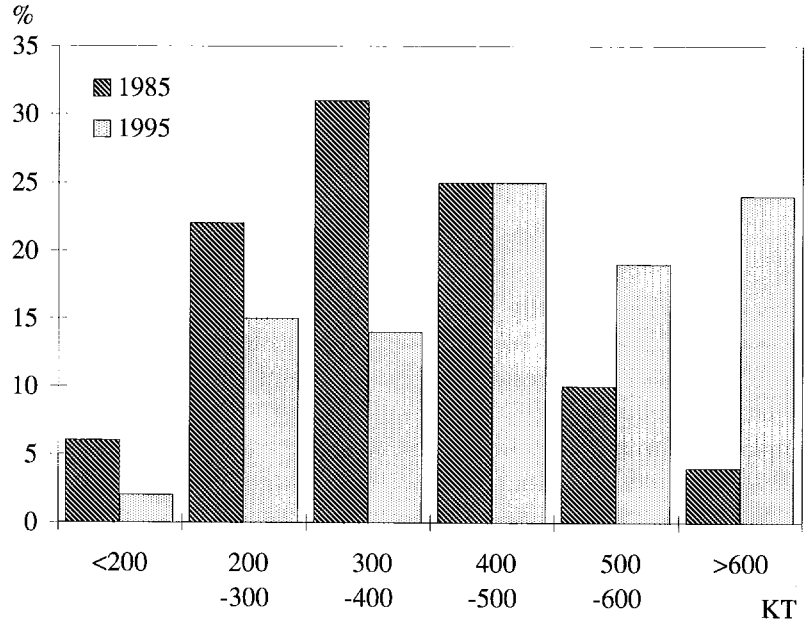


Figure 4.4 Unit Size of Crackers in 1985 and 1995

Source: Neste Oy.

In 1986 the price of crude oil fell appreciably, but plastic prices declined by a smaller margin (figure 4.5). The profitability of production rose. At the same time the consumption of plastic began to rise. Starting in 1986 the capacity utilisation rates of plants in Western Europe were over 90 per cent and in the peak year even 99 per cent. Neste Chemicals expanded its activities further by firm acquisitions.

The favourable market situation encouraged other manufacturers to increase their production capacity. During the Kuwait War (1991-1992) the purchasers stockpiled plastic until their inventories were full, after which prices dropped and production became very unprofitable. In 1992 Neste had to close down its unprofitable Portugal plant purchased in 1989.

The heavy investment programme implemented by Neste in the late 1980s weakened the solvency of the company. It would have been difficult for the company to stand the billion markka losses stemming from plastic production for long. The solution turned out to be to seek production on an even larger scale. In 1994 the largest segment of Neste Chemicals, polyolefins, was merged with the plastic production of Norway's Statoil. The new company, Borealis, is Europe's largest plastic producer.

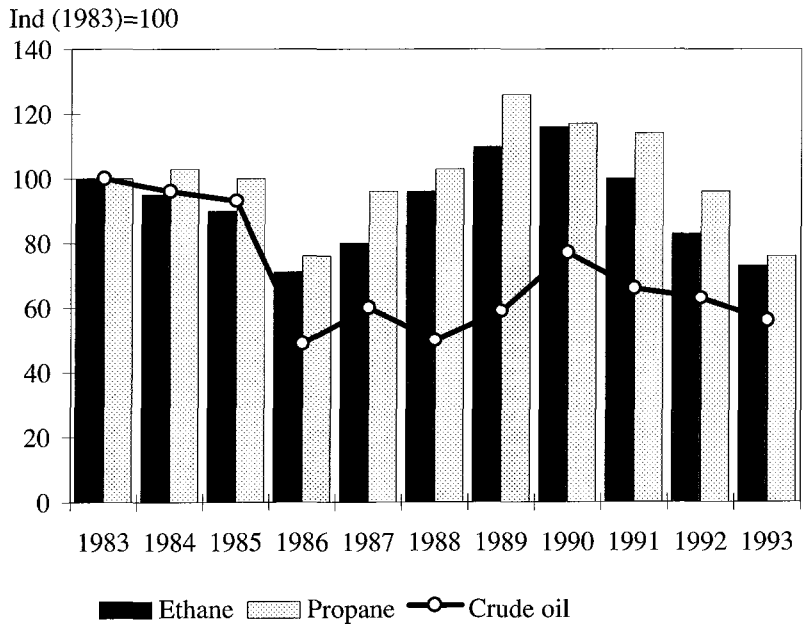


Figure 4.5 *Prices of Main Products of Neste Chemicals and Crude Oil in 1983-1993, Ind. (1983)=100*

Source: Neste Oy.

emphasis in financial operations and marketing in particular is shifting abroad (Puhakka, 1994). There will not be great changes in the locations of the production of old regional multinational companies, but rather the regional structure of companies in the beginning stages of internationalisation are just now taking shape. The global industrial sectors have been among the fastest growing ones during recent decades. The Finnish companies operating globally are primarily in the electro-technical and machinery industries. Their technological know-how base is generally still in the home country, but a large portion of their growth has been channelled abroad.

Special Features of Finnish Firms' Globalisation

The large companies forming the backbone of the Finnish economy were traditionally multisector and multiproduct companies. They expanded into new product groups when the growth outlook for old ones weakened. The trade with the Soviet Union grew steadily and protective tariffs sheltered the domestic markets, which grew swiftly after the war. A typical firm had plenty of loosely related products in its product mix, the production of which did not always enjoy any synergistic benefits to speak of. In the late 1970s when the growth in eastern trade was modest and the domestic markets recovered slowly from recession, many companies came to the conclusion that in the future growth would be found from western markets.

At the same time it was apparent that the liberalisation of international trade[25] would bring keener competition especially in the home market and success in the western markets was deemed to require the scale economies and efficiency of greater production. In companies it was decided that they could not be sufficiently strong in all product groups but rather they would have to concentrate upon the more promising products and eliminate the rest. A consequence was the reorganisation of industrial activities carried out in the 1980s in Finland. Size and market share cannot be acquired in unlimited quantities from the home country. It was natural that foreign acquisitions were considered next. In addition, companies wanted to have production activities in the markets where the competitors are. The development of Neste Chemicals shows how the logistics of scale economies and growth encourages international expansion.

Another special feature of Finnish internationalisation is its rather late start and very swift realisation. In 1980 the stock of Finnish foreign direct investment was only about FIM 2.8 billion, i.e. 1.5 per cent relative to GDP. In 1990 the corresponding figure was about 8.4 per cent. For example, about 75 per cent of the Swedish-owned production abroad took place in companies that were multinational already thirty years ago (Olsson, 1992).

When the EEC's tariffs were lowered in the late 1970s, the competitive position of Finnish companies in western markets improved. Nevertheless

[25] The EEC agreement went into force gradually in the 1970s.

Globalisation of Outokumpu Oy

Outokumpu Oy, a state-owned company since the 1930s, is engaged in mining activities and metal refining. The mining operations and copper product units were internationalised appreciably in the 1980s. The mining operations of the company succeeded well but the copper product division ran up large losses. The reasons for the divergent success were the points of departure for globalisation.

The roots of globalisation go back to the mid-1970s when it was observed in the company that the conditions for mining activities in Finland were weakening as the profitable finds began to be depleted. The company wished to safeguard its continuity and availability of raw materials without excessive dependence upon external suppliers of goods. In addition the aim was to strengthen the company's position in the European markets where the greatest competitors were. The internationalisation of the copper production entailed the considerable expansion of the company as well as the range of products. The company acquisitions were used to gain know-how, marketing and client expertise. It is easy to enter the copper industry since it is not capital intensive. The company's copper division bought companies from the United States, Sweden and Spain in 1983-1990.

The international mining activities of Outokumpu succeeded very well. The main production and technology of this sector are areas where the Finns had know-how and experience. Marketing does not play a major role. Mining is stable in its nature: the turnover of technology is long and changes slow. Furthermore, Outokumpu invested in countries where there were already mining activities, so that experienced personnel were available.

The copper product division ran into difficulties. The takeover of the companies acquired failed. The company was unable to make inroads in cost efficiency and productivity. Furthermore, the product strategy was too client oriented, too specialised at the expense of profitability. The assimilation of know-how takes a long time. The expansion of the copper product division was not based on the company's own special know-how as strongly as in mining activities. The expansion was too ambitious with respect to the resources and experience of the management.

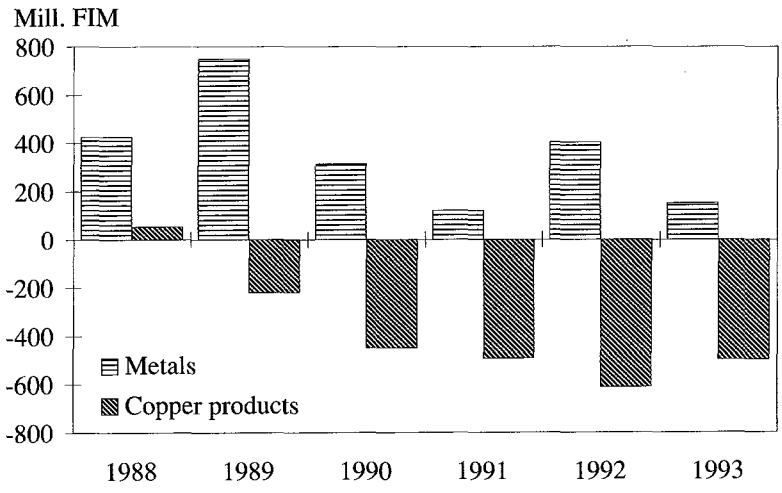


Figure 4.6 *Profits of Outokumpu's Basic Metal Production and Copper Product Division during 1988-1993, million FIM*

the European competitors were, with the exception of the forest industry, larger and carried out their production closer to the markets. Rapid internationalisation was intended to bolster size and market shares. This trend was the most prominent in the chemical industry, where Kemira and Neste sought to expand their operations. The same intention was behind the failed television acquisition of Nokia. The investments were hastened by the desire of the companies to safeguard their position in the deepening internal market of Europe and by the optimism spawned by the sharp economic upturn. Under conditions of swift growth the payback periods of risky investments also appeared short. The breakdown of credit rationing and controls on capital movements enabled firms to finance more ambitious projects than before.

Rapid expansion created problems. When making direct investments Finnish companies in general, except for the forest industry, opted for company acquisitions instead of new investments. The aim was often to gain market shares along with the deal[26]. Company acquisitions nevertheless entailed large risks. The greatest risks were spurred by a purchaser not being fully familiar with the company being acquired. In addition, company acquisitions require experience, which many Finnish investors lacked. The target country and the culture of the corporate culture were not well enough known and the takeover process failed or was prolonged. The strong boom and Euro-optimism led to mistakes in judgement about the strength of the coming demand and thus mistakes in company acquisitions. Finns were willing to pay too much for market shares.

The competitiveness of Finnish knowledge-intense activities is decided by the quality of the labour and location of the company's core know-how. The quality requirements for labour have grown. Globalisation has opened up wide international labour markets to companies. The choice between domestic and foreign recruitment depends upon the factors of production and quality, availability and wages of the labour force.

Finland's Attractiveness for R&D Investments

R&D investments that are not directed toward serving the company's clients are ordinarily directed where the core know-how is. Core know-how refers to know-how that creates a basis for the company's business activities and differentiates it from other companies. It is often intertwined with other R&D activities, but in principle it can include, for example, marketing know-how. The core know-how per se is not mobile, but changes in the company's business activities may occur as a consequence of company acquisitions that lead to redefinition of the core know-how and possibly to a new location so that the domestic R&D dwindles. Companies interviews indicate that the regional and country-specific core knowledge was ordinarily in Finland. The core know-how of global companies was dispersed in many places, also outside of Finland.

[26] It is noteworthy that the forest industry, which has traditionally had the largest market share, has carried out primarily greenfield investments.

Most of the R&D of Finnish companies is carried out in the home country but as internationalisation has proceeded the share of R&D taking place abroad has grown. In 1987 the share of R&D expenditures carried out by foreign units was 15 per cent while in 1992 it was already 29 per cent (Åkerblom, 1994). In general it is worthwhile for R&D and production to be located close to each other, so that prior to the internationalisation of production R&D activities tend to be carried out at home. The factors in favour of domestic R&D activities are the reasonable cost of skilled labour and in certain cases the reputation of the company as a work place. A leading Finnish company may be attractive to Finns, but it can be rather unknown abroad where it is difficult to get the best labour.

The foreign labour markets could be utilised by hiring more foreign experts to Finland. In many of the companies interviewed it was regarded as a problem that top experts cannot be attracted on reasonable salary and other terms to Finland. The most important reason cited was the high income taxation. It order to gain the same net salary as in low-tax countries, foreign experts would have to be paid more gross wages than the company's Finnish management. It is difficult to say how much factors that cannot be affected, such as the climate and culture, hinder the hiring of foreign experts.

Decentralised R&D is changing into a more popular alternative. In applied R&D the benefits of close proximity to clients requires local operations. Telecommunications technology and the rise in the general level of education in the world encourage the establishment of foreign research centres. It is possible to benefit from the extensive resources of university networks in this manner. The competitiveness of Finnish company's technology does not depend upon the ability of Finland to produce its own professionals, but rather the company's ability to utilise human capital where it operates.

Decentralised R&D activities are vulnerable to the danger that the core know-how will shift or be created abroad so that the domestic activities will gradually whither. From Finland's standpoint it is of vital importance that in the case of products where the need to be close to clients or transport costs are great, Finland does not have special advantages in addition to know-how. Practical examples about the shifting of core know-how from Finland have nevertheless been related to company acquisitions, not merely decentralised product development (Hölsä, 1994b).

4.4 Impact of Globalisation on Finland's Economy

In the debate on foreign investments of industry, the main attention has been focused on the short-term effects, perhaps because of the profoundness of the change. In particular, doubts have been raised that failure of the investments has led to job and investment losses, thereby deepening the recession. The long-term effects have not been evaluated at all.

The solvency[27] of a company sets constraints on its ability to invest. The capital invested abroad could at least in the short run crowd out certain domestic projects. Figure 4.7 depicts the difference between domestic capital formation and foreign direct investment. Starting in 1988 direct investments, the majority of which take place in manufacturing sectors, have exceeded domestic net capital formation. On the other hand, the difference between gross investments and direct investment has not changed appreciably except for 1988 and 1989, when direct investments were at their peak.

Two competing hypotheses about the employment impact of direct investments are commonly presented. According to the first, direct investments substitute the exporting of jobs for the exporting of merchandise. According to the second, direct investments are a prerequisite for retaining and creating domestic jobs. The number of foreign employees of Finnish industrial companies has risen at the same time as the number of domestic employees has decreased. Finnish companies internationalised during the 1980s primarily via acquisitions and their foreign work force has grown

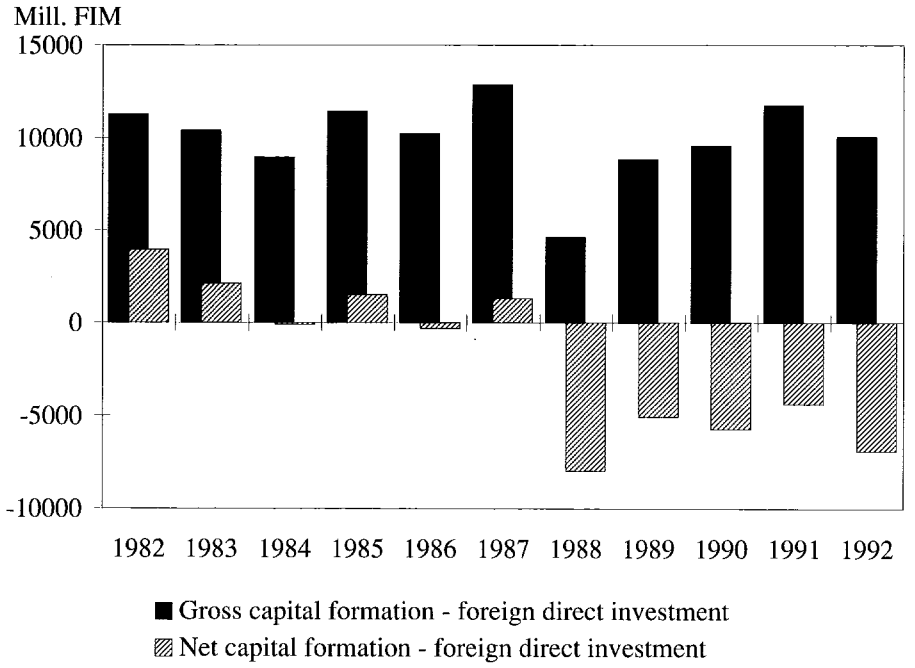


Figure 4.7 *Difference between Finnish Direct Investments Abroad and Domestic Capital Formation of Mining and Manufacturing Industries, Mill. FIM*

Source: ASTIKA.

[27] Kinnunen (1991) compared domestic and foreign investments and has not found evidence of crowding out effects.

quickly. It is likely that the domestic work force would have decreased in any case, as has occurred in many OECD countries. It is impossible to say whether the decline would have been slower or faster without foreign investments.

Since Finnish globalisation is a rather new phenomenon, it is interesting to compare Finnish companies with more "mature" Swedish multinational companies. In both countries large companies have a dominant share of production and exports. Large Finnish companies employ relatively more at home than their previously internationalised Swedish counterparts (figure 4.8). Between 1974 and 1990 the large companies of the Nordic countries have increased their work force almost solely in their foreign units (Heum - Ylä-Anttila, 1993). It is possible that the focal point of employment in internationalising Finnish companies is shifting abroad.

It is a widespread belief that due to incompetence the Finnish companies' conquest of Europe/the world has often ended in huge financial losses and catastrophe. There are numerous examples of this. As measured by operating margins the profitability of foreign industrial operations in the 1980s was not as good as it was in Finland (Kinnunen, 1991). The comparison of the profitability of different parts of corporations located in different countries is nevertheless difficult owing to the internal transactions of the group, transfer pricing and newness of investments. Finland's

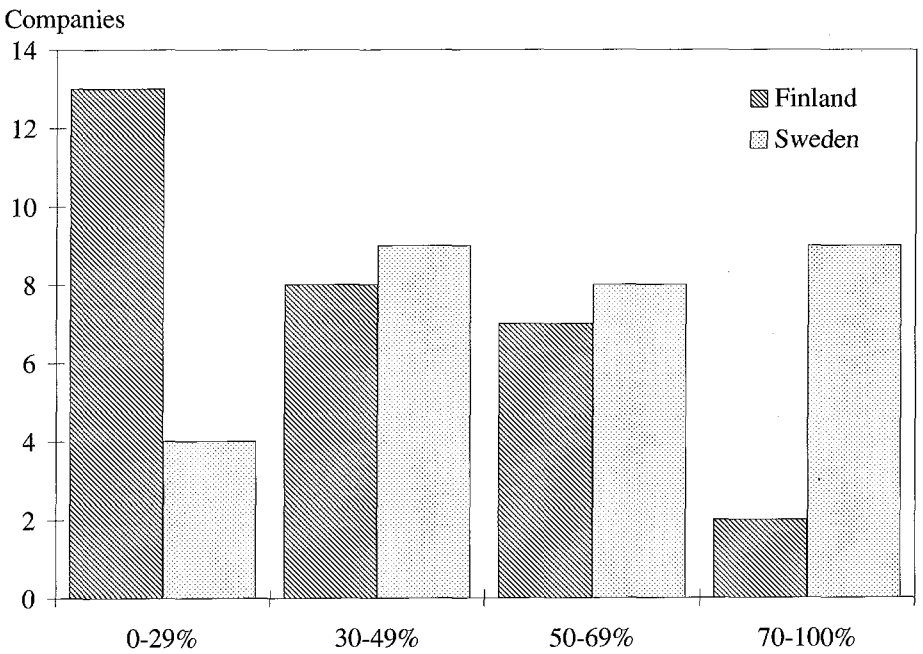


Figure 4.8 *Share of Employees Abroad within Companies' Total Labour Force, Top 30 Companies*

Source: Heum - Ylä-Anttila, 1993.

low effective corporate taxation encourages international companies to shift their revenues to Finland by overpricing sales from Finland. The difficulties with starting up activities and acquisitions often weaken the profitability of new projects, even if the investments are justified in the long run.

Finland has not received significant greenfield investments as direct investments, but rather the buyers have been interested in existing capacity. From the standpoint of the target country an acquisition can have both negative and positive effects. One of the factors behind the failed Finnish endeavours was that the Finnish management was taking its first feeble steps in internationalisation and there was a lack of competence. Foreign ownership may well improve the management resources in Finnish companies. Foreign investors can also bring solvency and augment the credibility of the company as a distributor of goods. This has also happened in Finland, for example in the case of Nokia Data, Strömberg and Meriteollisuus. They manufacture products where it is important to the client that the products will have continuity for years to come. The companies have fared rather well after the devaluation and the new owners have been willing to invest in the Finnish plants.

One of the negative aspects of acquisitions is the reduction in competition. Especially when the acquisition is associated with the shutting down of production capacity in Finland, these investments cannot be regarded as desirable. Over the long run, competition in product development, the need to be close to clients and flexible production are such critical competition factors that internationalisation has to be regarded as a must. It would be a favourable development if also foreign companies took greater interest in acquisitions and especially in new investment in Finland.

Environment, Companies and Technology

5

Summary and Conclusions

Environmental protection is both strengthening and globalising. During a few decades environmental problems can become so severe that they begin to lower significantly the welfare of all the inhabitants of the world. The rise in income appreciably increases the demand for a clean environment around the world. The environment is simultaneously a luxury and a necessity. Furthermore, in a few decades decisions will have to be made about what kind of energy is to be used as oil reserves are depleted.

World trade and economic growth have until now weakened the situation of the global environment. The rapid growth of consumption and output has offset the positive effects of technological development and the expansion of environmental protection on the quality of the environment. For the time being, the use of technology has been successful only in slowing down the destruction of the environment.

Global environmental problems must be solved via co-operation. It is impossible to keep trade and the environment separate. In conjunction with international environmental agreements it is necessary to agree how the stipulations of the agreements and the ground-rules of trade can be integrated as well as how the countries that attempt to be free riders are to be punished.

Technical development will not eliminate the basic problem of scarcity in the future. Technology can nevertheless be used over the long run to influence the ground-rules needed to take into account the global limits as well as the level of welfare that can be achieved with the combined resources of mankind. Inappropriate ground-rules and an inappropriate focus of technical development will lower the welfare of the richer countries, too.

The swift growth of newly industrialising countries is due partly to a failure to internalise costs. Companies have certain costs paid by residents and the environment. The burden of these costs has been placed more upon the companies in Europe, Japan and the United States. The competitive situation will level off in the future since the societies of developing countries will have to allocate costs efficiently. For example, the industrialisation of China will affect all the inhabitants of the world due to the increased carbon dioxide emissions.

If the change in climate is combated with an international carbon dioxide tax, Finland will have to adapt to the tax. In Finland the energy tax affecting industry gives the right message about the coming rise in the price of energy and is a solution easing adjustment in the long run. The adjustment will also be eased by a more diverse production structure than at present and a national energy savings policy begun ahead of time. Finland's production structure is diversifying and the development can be promoted by shifting the emphasis of taxation from labour to other resources. It

is possible with energy savings policy to reach a certain advantage in technological fields. Thus Finland will benefit also commercially from the international environmental policy.

The advantage of Finland's energy and natural resource-intensive industrial structure is that Finland has had to and will have to develop efficient environmentally friendly technology. The technical solutions are now being sold primarily to industrialising countries. On the other hand, the strengthening of lighter industries stressing know-how fosters the birth of entirely new environmental industries. By using advanced technical and scientific know-how it is possible to manufacture competitive products in environmental protection and environmental technology. It is worthwhile for Finnish research and development as well as Finnish companies to invest in environmental research and environmental technology. In the future environmentally friendly technology is a must.

European regional environmental problems are solved a great deal within the European Union as well as via negotiation between the European Union and bordering countries. Finland's own actions are not sufficient to save the Finnish environment, for example, from acidic deposits, most of which comes from the EU countries or Eastern Europe. Finland has already invested considerable resources to solve regional environmental problems as to reduction of acidic deposits and improving the situation of the Baltic Sea. These costs place a burden upon Finland's competitiveness in the EU. The solutions to these regional environmental problems should place a burden on those EU countries that are currently free riders.

5.1 Growth, World Trade and the Environment

Growth of the world economy and integration between economies has multidimensional effects on the world environment and use of resources. In principle, the relation between international trade and the environment takes three forms (Anderson & Blackhurst, 1992):

-The growth in world trade and integration of economies, which is reflected in the reduction in trade barriers and liberalisation of the mobility of factors of production, affects production and trade volumes as well as the regional distribution of production and consumption. These factors affect the global as well as the local and regional environment.

-The environmental protection measures of large countries affect the flows of trade and factors of production and other economies via their actions.

-Environmental emissions transcend national borders. Thus it is natural that when drawing up the ground-rules for trade and factor mobility the cross-border environmental effects must also be taken into consideration.

The trade-off between economic growth and environmental protection as measured in public surveys depends somewhat upon the economic situation. Between 1986 and 1992 the conception prevailed in Europe that both environmental protection and economic growth were desirable simultaneously (table 5.1). In 1986 over half of the respondents in most EU countries ranked environmental protection of primary importance. In 1992 the corresponding share was at most a third. At the same time the share of those ranking economic growth in first place declined. According to these results the opinions would have become more uniform and moderate. This is partly a consequence of the weakening of the employment situation in the early 1990s. On the other hand, in Finland, the United States and Japan environmental protection kept its position and gained greater support in the late 1980s. The recession of recent years may have changed attitudes, at least in Finland.

The concern about the environment is explained by two factors: knowledge about environmental problems and the expected economic situation. If world economic growth is relatively swift, the weight of environmental protection will increase as a result of income effects. Another factor increasing the weight of environmental protection is that environmental problems are permanent in nature. People have become more aware of environmental problems that affect the entire globe, such as the ozone layer and climatic change.

	Environmental protection of prime importance		Economic growth of prime importance		Both possible	
	1986	1992	1986	1992	1986	1992
United States (1984/1990)	68	71	28	19	..	..
Japan (1981/1990)	28	36	11	8	41	43
Finland (1983/1989)	47	63	11	6	35	26
Belgium	35	23	8	5	49	67
Denmark	55	34	3	2	30	60
France	56	13	11	5	29	79
Germany	50	29	3	3	41	66
Greece	47	21	12	6	23	71
Ireland	40	15	23	12	26	59
Italy	55	18	6	4	32	71
Luxembourg	65	28	6	6	28	59
Netherlands	45	31	9	2	40	65
Portugal	38	18	11	9	33	62
Spain	47	19	12	6	17	69
United Kingdom	50	22	11	5	32	66

Table 5.1 *Support for Economic Growth and Environmental Protection in Certain Countries in 1986 and 1992, per cent*

Source: OECD, 1987, 1993h.

Two Views of Economic Growth, Trade and the Environment

The principles of world trade can be viewed in two completely different ways from the perspective of the development of the quality of the local and global environment. At the extreme, we can differentiate the view emphasising environmental protection from the view emphasising traditional economic growth. Most opinions fall somewhere in-between these views on the environment and world economy.

Persons emphasising environmental protection assume that world growth will mean increasing raw material and energy consumption, rising transportation and increasing environmental emissions. The liberalisation of factor movements reduces the possibilities of individual economies to follow independent environmental policies. Since capital can move from one country to the next, production may ultimately shift where there are absolute, not comparative advantages. Competition by easing back on environmental regulations ultimately leads to the deterioration of the environment everywhere (Daly, 1994). Also regional integration, such as in the European Union, seems to have detrimental effects on the possibilities of countries to decide for themselves about the quality of their local environment. Directives liberalising trade and competition stand in conflict with the environmental directives of the European Union, and the former would win. Competition will prevent the efficiency of environmental protection since those saddled with environmental protection costs will lose to their competitors in the market.

Persons placing a high value on economic growth see that economic growth means increasing resources for environmental protection. Economic growth will help especially poor countries, where absolute poverty leads to an overloading of the environment. The increase of the income level will raise the value of leisure time amongst the inhabitants of poor countries, which means that the forests will be saved as people shift from using of wood to other types of fuel. Economic growth will reduce the future burden on the environment and curb population growth (Anderson, 1993).

The integration of economies will bolster the efficiency of production and thereby increase available resources, thereby alleviating environmental problems. Integration will facilitate the monitoring of cross-border pollution emissions and agreements whereby environmental norms are tightened in all competitor countries at once. In an integrating global economy technical innovations spread faster than in a less integrated world. This lowers the costs of environmental protection of all countries, since both ordinary and environmental technology can be bought where the price/quality trade-off is best.

In general the proponents of economic growth view the relation between economic growth and the environment optimistically. The pricing mechanism of the market economy directs resources toward efficient uses, the replacement of replenishable natural resources and new technical solutions. Thus the availability of raw materials and the burden of emissions on the environment do not hinder global economic growth over the long run (Nordhaus, 1993).

Microeconomic Adjustments

Different views of the environment and economic growth also entail separate types of adjustment in companies and mechanisms for solving environmental problems. According to the proponents of economic growth the solution of environmental problems happens best via market mechanisms and technical development is sufficient for most resource and emissions problems. The economic incentives, such as emission fees, lead in market economies to efficient exploitation of adjustment capacity. Price incentives can minimise the costs of achieving environmental goals. Environmental taxes lead also to technical progress, which is more favourable from the standpoint of the environment than the use of standards. The environmental industry must also be competitive. The actions of the government should be limited, in addition to the levying of environmental taxes, to focusing only upon the financing of companies as well as basic research in technical and natural science fields. For example, research on changes in the environment is a field typically relying on public funds. It is often emphasised, however, that environmental policy should not be so radical that it forces companies into bankruptcy.

Environmental protection can be thought of as being divided into two groups depending on the adjustment of the company. According to the more old-fashioned view companies are the root of all evil from the standpoint of environmental damage. Companies adjust to environmental objectives only if stringent norms are imposed. Technical progress has to be prompted by governmental action since companies have no incentives to develop environmental technology.

A significant portion of the environmental protectionists has adopted a newer view whereby the consumers as buyers and citizens as voters are ultimately responsible for the choosing between environmental quality and consumption. Citizens direct companies via consumption, financing and legislation, so that merely blaming companies for environmental problems is too simple. The objectives of a company and the know-how associated with them are partly to blame for the spoiling of the environment, but companies also have the tools that can be used to solve these problems. In a decentralised economy it is possible to shift to a sustainable situation by implementing profound changes in the ground-rules. Bankruptcies and the diminishing of the output of certain industries are necessary phases in bringing about a more sustainable production structure.

The implementation of environmental protection can be interpreted as at least partly surprising changes in the ground-rules of a society. Thus it is easy to understand why the employees of firms resist environmental protection more stringently than the shareholders. The ownership of stock is often diversified, i.e. the environmental protection measures do not affect the value of a part of the portfolio at all or they can even have a

positive effect. Thus the change in the ground-rules is one of the risks inherent to investing. On the other hand, the replacement of a lost job with a new one can be considerably more difficult.

The differences in views applies also to the areas that a society emphasises in controlling activities. The growth optimists believe that innovations, which are developed primarily in companies, will solve the problem of economic growth and the environment. The proponents of environmental protection maintain that the innovation occurring in companies will not be enough, but rather there is also a need for inventions produced by the government and the control of activities by society to foster innovation. In addition to technical development and technical controls, there is also a need for a radical redirection of production and consumption. Part of the environmental protectionists support, for example, emissions fees because they can be used to minimise the costs of achieving a certain level of emissions. It is the responsibility of society to place emissions fees so high that the damage to the environment will decline to the desired level.

Companies and the Environment

Companies can be divided into three groups as regards environmental problems. A great deal of production causes environmental emissions and uses resources for the most part indirectly via the services and commodities it purchases. In Finland nine industries out of 29 have indirect coefficients for use of primary energy that are higher than the direct coefficients (Mäenpää & Tervo, 1994). In the United States about 60 per cent of the gross domestic product is generated by services and in Finland the corresponding share is about 50 per cent. The environmental effects of services (excl. transportation) arise indirectly for the most part.

There is nevertheless reason to make a distinction between production and consumption effects. A change in the production structure is not sufficient to prevent a deterioration of the environment if the consumption structure does not become more environmentally friendly. For example, the emissions of nitrogen oxide in manufacturing can be reduced but at the same time the emissions of private consumption can grow owing to growth in transportation. On the other hand, the significant effect of technology and the slightly positive effect of changes in the production structure on environmental quality have been offset by the change in the consumption structure resulting from rising incomes (Jänicke et al., 1992).

Development Stages of Environmental Policy from the Perspective of Companies

The environmental policy focused toward companies has in Finland, as in several other market economies developed in three different stages. First,

until the 1970s, environmental policy was based primarily upon the regulation ex officio. The strategy of the company was to understate environmental problems or to show that alleviating them would entail excessively high costs in already operating plants. The costs of reducing emissions were rather high in the initial stage since environmental technology had not been developed. For example, it would have been impossible for pulp and paper manufacturing to achieve current emission levels with the technology available in the 1970s. The stringent fuel exhaust norms imposed on passenger cars in California in the mid-1970s would have been impossible to realise without the subsequent development of catalytic converters.

In the second stage in the 1980s environmentally aware consumers began to "pressure" companies directly on the basis of environmental grounds, e.g. to boycott the seafood products of various countries because of their whale hunting. Finland's prime example of consumer activism is a catalogue compiled on Finland's greatest polluters (Wahlström et al., 1992). Environmental organisations, such as Greenpeace, undertook direct action against companies. Companies also became allied with certain environmental organisations, such as the World Wildlife Foundation. Finnish paper manufacturers have had to explain the sustainability of Finnish forestry methods to Central European paper buyers.

The reaction of the management at the onset of the second stage has been the same as during the first stage. They have sought to show that the consumers are wrong and try to offer them the "correct" information. Recently situation has changed. For example, the changing of forestry methods and adoption of certificates of origin for timber mean that companies are reacting to the demands of consumers.

In the third stage companies seek to predict the reactions of officials or consumers and to use the environmental friendliness of the product and production process as a sales device. The textbook example of this has been the launching of phosphate-free detergents in the 1980s. First, the reorientation of strategies has been prompted by the changing view of the nature of environmental problems. These have been regarded as serious and permanent phenomena that must be solved. Second, the implementation of environmental protection policies simultaneously in many industrial countries decreases the significance of the effects on competitiveness. Third, the companies take into consideration the environmental values of consumers. Fourth, many examples have shown that at least limited environmental problems can be efficiently solved without overwhelming cost effects. Fifth, companies have observed that development of environmental technology has also spawned commercial products so that at least a part of the production costs can be recouped via the environmental technology market. For some companies the environmental technology has become a significant source of net income.

The second and especially the third stage are marked by more comprehensive environmental protection than previously. The intention is to

minimise the environmental damage over the entire product life-cycle, i.e. the effects related to raw materials, production, product manufacturing, transportation, use and disposal. Environmental problems often turn out to be more serious than originally believed. In certain cases environmental problems have a decisive bearing upon the very future of a certain industrial sector and therefore the companies in this sector undertake co-operation to solve the environmental problem (Taylor, 1992).

Companies can also be allowed to participate directly into the solving of international environmental problems. There are no international decision-making schemes whereby individual countries or companies can be threatened with sanctions into abiding by agreements made. Therefore the solving of certain environmental problems occurs so that the governments negotiate among themselves as well as with the multinational companies at the root of the problem. This was the case in the preparation of the treaty on limiting and discontinuing the manufacture of substances harmful to the stratosphere (Montreal Protocol). The competition between companies is controlled and the monitoring tasks of national officials is eased since companies keep an eye on each other. The agreements made can be shaped to take into consideration the distinct situations in different countries and companies. Agreements between countries enable compensation to be granted to those countries that incur considerable adjustment problems. The agreement protecting the ozone layer of the stratosphere has proven to be a relatively workable solution (Enders & Porges, 1992).

Along with the third wave of environmental protection two important megatechnologies have simultaneously been developed: biotechnology and information technology. The applications of these technologies are far-ranging. The technologies offer considerable possibilities for conservation of energy and raw materials. These technologies are easily directed to raising the conventional efficiency of consumption and production unless the markets are steered toward invention of environmental applications and their implementation.

5.2 Environmental Companies

Part of the companies benefit directly from the solving of environmental problems. These companies produce, among other things, equipment for purifying and measuring emissions. These companies constitute a heterogeneous group since environmental technology combines metal, electrical, process and information technology know-how. Biotechnology is also used increasingly in environmental technology. Part of the environmental companies are the subsidiaries of companies burdened by environmental protection measures. These subsidiaries have emerged in conjunction

with the solving of the emission problem of the parent company, subsequently becoming independent. The average size of environmental companies is considerably smaller than the average size of companies in the polluting industry.

Environmental companies have been born in different ways (Keltanen & Salminen, 1992). Pure environmental companies have emerged in the sector merely via the solution of environmental problems. These include companies that provide waste processing and soil purification services. Companies applying technology produce conventional technology such as filters and measuring devices that can be used for environmental protection purposes. There are also firms of this type in the biotechnology sector, such as companies producing soil purifying bacteria. Energy technology companies use environmental friendliness as a sales device and, for example, in the United States energy companies sell environmentally friendly energy saving equipment and services. A fourth group includes process industry companies that have had to make their technology more environmentally friendly and thus created solutions that can be sold also to other companies. There are examples of this type of company in the paper processing and chemical industries.

	1990 Bill DM	1990 %	2000 Bill DM	2000 %	Growth 1990 - 2000 %/p.a.
Western Europe	165	35.5	317	36.5	6.5
Eastern Europe	29	6	47	5.5	5
North America	150	32.5	275	31.5	6
Asia	61	13	116	13.5	6.5
Rest of world	60	13	115	13	6.5
Total	465	100	870	100	6.5

Table 5.2 *World Markets for Environmental Protection in the Years 1990 and 2000*

Source: Keltanen & Salminen, 1992.

The global market for environmental protection is anticipated to growth substantially faster than the world economy and international trade. The growth will be swift in all market areas.

The customers of environmental companies are either ordinary consumers that wish to buy environmentally friendly products, government agencies such as the municipalities purchasing sewage treatment plants, or above all else companies such as producers of electricity that buy equipment to eliminate sulphur dioxide in their coal power plants. An environmentally friendly product and technology are always relative

concepts, since there are no products or manufacturing processes requiring no raw materials or energy.

The product development stages for environmentally friendly products are the same as those for other goods (Kemp et al., 1992):

- Scientific and basic research stage, which produces inventions.
- Development of individual product stage.
- Taking to market stage.
- Spreading of product.

The invention, adoption and spread of environmentally friendly products are based primarily upon market incentives, such as pricing by authorities and environmental awareness of consumers. On the other hand, the adoption of process innovations has for the time being been based primarily on the obligatory norms (Kemp et al., 1992). An invention will become a commercial innovation if stages three and four succeed. Environmental goods and environmentally friendly processes can follow the same kind of life-cycle as other goods and processes. They may face competition from newer products and processes that displace ageing technology.

Taking the products to market and the spread of products are more difficult for environmental products than for ordinary products, because the immediate reactions of consumers and the spread of environmental awareness among consumers are uncertain. Even the manufacturers are not necessarily aware of alternatives to environmentally damaging processes so that the environmental awareness of consumers regarding products is perhaps deficient or even incorrect (Kemp et al., 1992; Kemp & Soete, 1992).

Many fields of environmental technology have passed the pioneer stage and the competition between companies resembles competition with product and process innovation. Owing to the nature of the problems the products have since the beginning been tailor-made for the customers and developed in conjunction with the customers. Especially large environmental companies use a significant portion, even 10 per cent, of their turnover on research and development (Salminen & Mettälä, 1993). Another explanation for the customisation is that companies have been demanding buyers. Even though environmental protection costs in many countries represent only 1-2 per cent of GDP, there are industrial sectors where they have been a significant investment cost, which has affected the quality and cost awareness of the buyers.

A rapidly growing field is the consulting services for environmental protection, which includes among other things both environmental advice and management consulting (OECD, 1992c). Small environmental technology companies may establish joint consulting bureaus to monitor technology, environmental science, environmental awareness of customers

and the development of environmental legislation in various countries. These consulting bureaus fill the considerable need for information. They can also affect the development of legislation by offering officials and political decision makers information on how to solve environmental problems. Their assistance can be used also in allocating public funds to various environmental technology and research fields. This kind of consulting work is useful to society since, for example, multinational consulting firms can prevent the development of legislation addressing environmental problems only for which there is a domestic solution available. A high degree of commercial approaches to environmental protection will be achieved only when companies voluntarily market environmental solutions to the public at large and political decision makers. It is unlikely that market-driven environmental protection would lead to excessive environmental protection owing to the exaggeration of environmental problems.

Advanced environmental technology is used to solve the minimisation problem of the environmental impact over the entire life-cycle of the product or the environmental problems that arise when cleansing emissions. The third wave of environmental technology extends also to the restoration of the quality of the environment such as cleaning up polluted areas of land. This is a difficult scientific/technical problem since it is hard to restore the environment to a level than it was previously. Biotechnology is anticipated to offer a solution to cleaning land areas. The developers of the third wave of environmental technology face the same risks about succeeding in product development as is typical in research and development-oriented companies. The demand-related risks are estimated to be greater than in other companies, because the final demand for the products depends upon legislative developments and the efficiency effects of abiding by environmental laws.

	1990 Bill DM	1990 %	2000 Bill DM	2000 %	Growth 1990 - 2000 %/p.a.
Water treatment	530	30	940	27.5	6
Waste management	450	25.5	890	26	7
Air protection	430	24.5	850	25	7
Measurement technology	35	2.5	90	2.5	10
Services	250	13.5	540	16	8
Noise	70	4	105	3	4
Total	1 765	100	3 415	100	7

*Table 5.3 Outlook for Environmental Technology Fields**

* Environmental technology covers a wider area here than environmental protection in table 5.2.

Source: Ympäristötekniikka 94.

The environmental technology market is presumed to double almost in the 1990s (Salminen & Mettälä, 1990). The growth in all subsectors is faster than world economic growth. The environmental markets of the industrialised countries will grow in the high technology direction but in the developing countries and especially in Asia the emphasis will be on the markets for basic technology.

	Product variant	New product	Process variant	New process	New raw material or raw material variant
Air	City-diesel	Lead-free petrol	Removal of sulphur from exhaustion gases with chalk	Pressurised fuel combustion	Replacement of CO_2 fossil fuels with bio-fuels
Water	Phosphate-free detergent	Alcohol-based detergents	Partial bleaching of pulp with oxygen bleach	Bleaching of pulp with biobleach	
Waste	Renewable ink cartridges	Recyclable plastic	Use of waste rubber and plastic in asphalt, use of recyclable paper in manufacturing paper	System of Vabio Oy distinguishing between organic and nonorganic material	Replacement of PVC with polypropylene, replacement of cadmium in PCB with other substances

Table 5.4 Examples of Various Types of Environmental Technology

The fastest growing environmental technology field is measurement technology, the annual growth in which is estimated at ten per cent. It is likely that Finnish companies will have a possibility to fare well in these markets.

Even though the environmental protection markets are already vast, the description of environmental protection is rather difficult. Table 5.4 presents various examples of environmental technology.

Dividing into variations of processes and new processes or into new products and variations of products is difficult. For example, it can well be claimed that the pressurised combustion of fuels is only a variation of a process since the fuel is still the same (for example, coal) with the insight being the combustion process. The classification is subjective as was mentioned above in connection with the environmental friendliness of products and processes.

5.3 Finland as a Developer and Adapter of Environmental Technology

The use of environmental technology until now can be classified as being in the beginning stages of development except perhaps for certain areas such as the water treatment of large manufacturing plants. The basic principles of some technologies used in the environmental protection sector have remained unchanged for almost 30 years. The situation has undergone rapid change recently since the emphasis has shifted to prevention of problems instead of "solutions at the end of the pipeline". In particular, attempts are made to minimise the production of waste and inputs used. Environmental markets are indeed to a greater extent technologically driven and technology is used increasingly as a competitive weapon. There are also considerable R&D activities in this field.

Awareness of environmental problems and environmental legislation have developed so quickly that technical progress, the maturing of which into a marketable products is a very long-term endeavour, has not been able to react quickly enough to new challenges posed by demand. Since the developments in legislation have been difficult to predict and because they have been based primarily upon obligatory norms, the circumstances facing companies in the environmental market have been rather uncertain. Many producers have been waging a defensive battle against tighter environmental regulations. A fundamental part of this defence is based on the attempts to show that the tighter regulations lead to difficult technological adjustment problems.

Environmental technology applications have succeeded best if it can be shown that they produce not only environmental benefits but also financial benefits for consumers, for example, in the form of raw material or energy savings. Examples of this include fodder enzyme techniques. From the standpoint of tightening environmental requirements it is fortunate that both the new information technology and biotechnology offer many possibilities to save raw materials and energy. Many of the fastest spreading environmental technologies have been developed from technologies originally developed for other purposes.

Population and economic growth mean growing pressures on the environment. Growth in transport, energy consumption and food production as well as safeguarding supplies of clean water and sufficient standards of hygiene around the world are some examples of quality-related problems facing the globe also in the future. The most efficient and environmentally acceptable technologies and production methods are the keys to avoiding these kinds of problems.

According to recent forecasts the demand for environmentally friendly products and production processes will grow around the world by about 5-7 per cent a year during this decade. According to OECD forecasts the volume of the market in the year 2000 will be about USD 300 billion (Flavin & Young, 1993). The largest markets are still in developed countries, such

as North America and Europe, where the markets are forecast to grow by about 5 per cent per annum. Environmental protection has been emphasised already for decades in these countries and environmental legislation has been undeveloped.

It is typical of Finland as well as other European countries that the environmental protection sector consists of a few large companies and a large group of small ones. According to a study conducted by the EU Commission, company acquisitions are taking place and the markets are becoming increasingly concentrated under the control of larger companies (European Commission, 1994). Scale economies and the preferences of customers favour large companies. The development of technology favours the shifting to larger companies as the environmentally friendly production processes become increasingly complicated and integrated.

The environmental protection sector is significant[28] in countries which have long traditions in environmental protection. Japanese, German and American companies are strong, but successful companies and expertise can also be found from many small countries. Table 5.5 presents key figures for a few of the most important countries' environmental industries.

Country	Output Billion USD	Share of Exports in Production, %	Employment 1000 persons
West Germany	27	40	320
United States	80	10	800
Japan	30	6	200
France	12	14	90
United Kingdom	9	17	75

Table 5.5 Environmental Protection Sector in Various Countries in 1990

Source: OECD, 1993d.

In 1990 according to study by the EU Commission, there were about 20 thousand environmental sector companies in Europe as a whole employing about 600 thousand persons. In Finland this industrial sector generated a turnover of about FIM 15 billion in the early 1990s while employees numbered about 15 thousand (e.g. Salminen & Mettälä, 1993; Keltanen & Salminen, 1992). There were about two hundred companies exporting their products, with exports accounting for about two thirds of the turnover, which is rather high. The natural explanation for this may be that a small country does not offer wide enough markets for companies serving a narrow market niche, so the value added must be sought from abroad. The environment-related sectors are clearly concentrated under the control of a company in a certain field. The water treatment sector is

[28] The environmental protection sector includes waste management, water protection, air protection, soil protection and cleansing, noise control and environmental protection services (such as consulting).

dominated by European companies, e.g. Sweden's Alfa Laval and Germany's Bilfinger and Berger, the largest in the field of waste management is the US company Waste Management, while the Japanese companies Mitsubishi and Hitachi are the leaders in the air filter sector. Finland's strongest fields are related to the environmental technology of the forest industry, energy production and metallurgy industry. Finnish technology ranks among the top in the world in these sectors. The technology of water treatment technology in Finland is also internationally competitive.

It is important for the competitiveness of the Finnish forest industry that pulp and paper can be manufactured in an environmentally friendly fashion. For this reason the Finnish equipment manufacturers in this field have invested heavily in upgrading their environmental friendliness. Energy solutions are based to a great extent upon the special features of Finnish energy production, e.g. use of low-heat value fuels in Finland has necessitated the development of efficient combustion processes. In the metallurgical sector the typical aim of industry has been to exploit energy efficiently owing to the energy-intensive nature of these operations. For similar reasons the Finnish know-how in efficient use of raw materials is of high standard. The water treatment technology is also based to a great extent upon special features of Finland: shallow lakes where industry has released emissions have required the development of processes putting as little burden on the waterways as possible. On the other hand, the cold winters have necessitated extremely dependable measures with respect to biological purification of water.

Pyroflow - Combustion Control

Ahlström has been a pioneer as a developer of so-called circulating fluidised bed (CFB) combustion. Thanks to CFB combustion coal can be burned generating low sulphur dioxide and nitrogen dioxide emissions without expensive smoke scrubbers. In addition it is possible to burn various types of fuels, which is not possible in conventional furnaces without great modifications. The usefulness of the technology is augmented by applications of joint heat and electricity production. The environmental friendliness of the technology has been weakened by the phenomenon that the combustion process generates nitrous oxide or laughing gas, which like carbon dioxide is a greenhouse gas, but also a gas harmful to the ozone layer.The original idea for Pyroflow was conceived in the mid-1970s, partly by accident in conjunction with the R&D activities of Ahlström, but the development of the technology has been fostered by the close dependence between the Finnish forest industry and energy production and the know-how of these fields. The birth of the Pyroflow idea was not spurred by

environmental concerns but in subsequent refinements environmental aspects have been significant factors steering development.

At the same time as Ahlström developed the CFB boiler, many rival firms developed the bubbling bed boiler. CFB combustion has proven to be a more successful technology for two reasons. The success of Ahlström's research work was spurred by the fact that research and development had to be financed without public aid. The further refinement of Pyroflow has subsequently obtained support via projects of the Ministry of Trade and Industry and energy programmes of the United States government.

Patents and co-operation in development activities have also been significant in the developing of Pyroflow into a successful technology. The patents have been of absolute necessity for development since they are the only and best way to protect inventions in these types of projects. Ahlström has applied for patents in all its successful inventions in all market areas of the world. Co-operation has been carried out actively with clients, but also with the research institutes of universities, which has provided support in necessary basic research.

The abundance of coal and its cheapness justifies its use in energy production, but its environmental effects are very problematic. The success of environmentally friendly coal combustion technology is not self-evident since energy production is very conservative and the prime goal is to ensure the availability of energy to customers. Proving the reliability of CFB boilers with the aid of a demonstration plant was of key importance enabling the demand potential in the markets to be exploited. The Pyroflow boilers of Ahlström have proven to be reliable in use and their emissions have remained below all norms. The improvement in competitiveness has enabled Finnish CFB boilers (Ahlström and Tampella) to expand their market shares, which in recent years has been over half of the CFB boilers in the world.

Reliable operation over a several year period has reduced the doubts about the performance of the technology so that the risk and uncertainty related to the new technology have diminished. The Pyroflow boilers have been sold primarily to the United States, but recently also to East Asia and China. The development of this kind of technology requires a long time for it to be ready for commercial applications. Furthermore, the development activities proceed one step at a time so that, among other things, the size of the plants has been and will be expanded only a little at a time. The effects of the learning curve will then be of decisive importance.

The development of CFB boilers has brought spillover effects to Ahlström, but also to other developers of Finnish energy technology. Ahlström is one of the boiler manufacturers in the world that has developed pressurised CFB boilers. The use of pressurised gas is also under development. Tampella is developing and marketing the same kind of technology as Ahlström, which indicates that Finnish know-how in this field is competitive, since in the whole world there are only a handful of other manufacturers in this field.

Financial System in Economy's Division of Labor

6

Summary and Conclusions

The development of the financial system has a positive effect on economic growth. An especially important part of the financial system is the financial institutions, especially the banks. For example, in Germany and Japan the banks are regarded as an important component of growth. Close company-bank relations have developed into long-term co-operation, where the interests of both counterparties are taken into consideration. This has had a favourable impact on the efficiency of these countries' investment. In Finland, on the other hand, the close-knit bank relationships are more or less obligatory. In practice there are no other channels for external financing available. The bank cartel and excess demand for credit have led to a situation whereby the position of small and medium-sized enterprises in particular is weak and the terms of credit entail real assets being pledged as collateral to back the loans.

The development of telecommunications has enabled more efficient securities markets activities and internationalisation of financial markets. The financial systems have been deregulated in almost all industrialised countries or industrialising countries. The internationalisation of the financial system and deregulation have many positive aspects both from the standpoint of corporate financing and the economy. The benefits stem from growing competition and alternative forms of financing. More efficient allocation of savings, higher savings and smaller possibilities to exploit monopoly power are factors that doubtlessly have positive impacts upon investment and economic growth. Especially in Finland the effect of the deregulation of the financial markets may be significant when the current bank crisis is over, since the banks have to change their activities to be more company friendly and the interests of SME's have to be taken better into consideration.

There is another side to the coin, however, in these developments. The financial system is especially sensitive to mutual trust and changes in expectations. This is because of its nature: funds are channelled to investment, the returns on which are not obtained until sometime in the uncertain future. The internationalisation of the financial system and keener competition may have a negative effect on the closeness of the relationship between the market counterparties. This may be detrimental both with respect to the efficient allocation of funds as well as having procyclical effects. Increased sensitivity to disturbances and the steering of investments to other types of investments than R&D will weaken the growth potential of the economy.

The trend appears to be toward freer and more market-based financial activities. On the one hand, increased efficiency will bolster growth and welfare, but on the other hand the increased sensitivity to disturbances may have the opposite effect. The imbalance of the financial system is an especially detrimental phenomenon that has long-ranging effects also on economic growth. New types of monitoring and the need for some degree of governmental controls of market activities will evidently increase.

The prevention of global financial and foreign exchange crises has been discussed a great deal at the G-7 summit meetings of the leading industrialised countries, but for the time being without results. One proposal toward this end has been made by the Volker committee pondering the future of the IMF and World Bank regarding the formation of an economic security council of large countries. It has not been possible to make inroads in the co-ordination of economic policy because the special interests of each country have in practice always been placed before common, global interests. It can be asked whether it is even feasible to bring about effective co-ordination in a global economy driven by companies and investors. It is very difficult, perhaps even impossible to implement a tax levied on the basis of international capital movements.

6.1 Role of Financial Markets in Economy

The outcome of production activities is not realised until after the investment inputs are made, so that the basic problem of the company is covering the cost of external capital while waiting for inflows of revenue. For this reason companies engaged in production activities ordinarily represent a deficit sector in the economy. Often the economic agents with a possibility to carry out efficient investments are not the same as those willing and able to save their funds. The task of the financial system is to direct funds from surplus sectors to deficit sectors.

The role of the financial system is highlighted in an industrial economy, where specialisation and exploitation of scale economies in production has been a key source of economic welfare and growth. This has required large capital inputs, which few individual economic agents have. Without the external financing provided by the financial system profitable projects would not be carried out and the economic agents with financial surpluses would short-sightedly invest their funds in unprofitable ways that do not foster long-term growth.

An efficiently functioning financial market would channel the funds saved to the highest yielding targets. The basic requirement for efficiency is that the financial markets (e.g. Tarkka, 1993): 1) intermediate funds from surplus sectors to deficit sectors, 2) transform short-term assets into long-term debt, 3) ease the risk management of investors, 4) intermediate information between economic agents.

Financial Markets and Economic Growth

In traditional growth theory the role of the financial markets is passive. The yield on capital and amount of saving are key factors behind economic growth. The causality runs from economic growth to the financial system, which basically fulfils the role of an adjuster in the economy[29].

The observation that the amount of financial instruments is growing faster than output is nevertheless an indication that the financial system is not merely adjusting but rather that it is also of significance in economic growth (e.g. Gurley & Shaw, 1955, 1967; Goldsmith, 1969; McKinnon, 1973; Shaw, 1973). The views on the role of the financial system have been specified only recently as a result of fresh research. Analysis based on the new growth theory and modern finance theory has shown that the financial system may be of decisive importance in determining the potential for growth in the economy. Certain features of the financial system can also limit growth.

The financial system has an impact upon at least three key factors fostering economic growth (Pagano, 1992). For example, a developed financial system intermediates savings to companies carrying out investments efficiently. The more efficient the financial markets are in this respect, the less resource losses arise. This may be of great importance in undeveloped countries but the differences in operative efficiency do not explain the growth differentials of industrial countries.

Second, the financial system affects the amount of saving because as the average yield on investment grows the profitability of saving improves. The propensity to save is affected also by other features than the financial system, such as risk dispersal and transformation of instruments via which uncertainty can be reduced and sudden needs for financing can be safeguarded. The higher saving rises, the more can be invested and the greater the growth in the capital stock increasing the productivity of labour. The saving rate can partially explain the growth differentials across countries. For example, the robust growth in East Asia recently has been generally explained by the high saving rate.

Third, a developed financial system directs funds toward more efficient uses and increases the productivity of investments. The saver does not have to choose the closest and most easily available investment opportunity. The more efficiently the financial system allocates saving, the more productive the investments selected for financing will be and the greater the total productivity of the economy.

[29] Neo-classical growth theory has been shaped by the so-called monetaristic irrelevance assertion, according to which economic agents are able to see through nominal phenomena when seeking to maximise welfare. Thus monetary phenomena have no real effects. The cornerstone of neo-classical theory is the famous irrelevance assertion of Modigliani and Miller (1958), according to which the structure of corporate financing is not of significance in companies' investments.

Financial System as Promoter of Efficient Allocation

The new growth theory emphasises the significance of innovation and technological change in economic growth. Intangible investments increase the growth potential of the economy owing to externalities of knowledge: companies adopt the innovations of others, develop their own technology and ultimately the change in technology increases the productivity of the physical factors of production, capital and labour. A special problem in finance arises because of the fact that investments in human capital and innovative activities are often riskier and in many ways more demanding from the financier's standpoint than other investments.

Since intangible investments have a significant effect on the potential economic growth and the activities of financial institutions affect their amount and efficiency, the structural factors of the financial system have an obvious impact on economic growth. King and Levine (1993 a,b,c) observe a positive correlation between economic growth and the development level of the financial system[30], which is defined in their study in accordance with the magnitude of financial instruments relative to gross domestic product. On the other hand, the development level of the financial system is affected by the share of credit channelled via financial institutions. Financial institutions are seen to specialise in risk management and efficient intermediation of funds. Therefore the growth of the financial sector increases the efficiency of investment and the amount of innovation. Especially with respect to intangible investments the financial system will have to address the following problems:

-Intangible investments are often realised after a rather long period. Thus there are special risks associated with their yields. The economic conditions may change before yields are realised and innovations may appear on the market that take away the possibilities of investments already made to earn intermittent monopoly profits.

- The yield expectations of intangible investments are difficult to project. For example, estimating the profitability of high technology investments requires special expertise. Obtaining this kind of expertise may require fixed costs, as a result of which estimating the riskiness requires an exceptionally large amount of resources.
- The yields on intangible investment may be difficult for the financier to verify and recoup. The know-how remains inside the head of those receiving the financing. In contrast with investments in fixed and marketable assets, for example real estate or machinery, the collateral value of investments in innovation is low, and therefore associated with exceptionally great risks to the financier.

[30] The study by King and Levine presents the results obtained until now in a sizeable research project conducted by the World Bank on links between financial markets and economic growth. The research project is a part of a larger research programme of the World Bank investigating factors behind economic growth using the so-called new growth theory as the point of departure.

Form and Significanc f the Financial Syst m's Structur

The financial system consists of financial institutions and systems for exchanging financial instruments. The most important financial institutions are banks, the task of which has traditionally been to act as in intermediary for instruments not tradable on secondary markets. Nontradable instruments require a financial institution willing to act as an intermediary and keep the instruments on its own balance sheet. Tradable instruments in turn can be traded on secondary securities markets, where they change hands for publicly quoted and accepted prices quickly and at low cost. By using tradable instruments companies can acquire market financing directly from investors. The newer theory concentrating especially on imperfections in financial markets has emphasised financial institutions as being a prerequisite for efficiency in financial markets.

The recipient of financing often has a better impression of the nature of an investment than the financier. The asymmetry of information creates problems that affect the structure of the financial system to a great extent[31]. Since the profitability of the investment becomes apparent only later, the financier extending a loan is "buying a pig in a poke". The essential question is then what kinds of means does the financier have to ensure that the investment will be a lucrative endeavour.

Information problems have a bearing upon the magnitude of the debt/equity ratio when acquiring financing and how, for instance, the rise in debt will affect the investment behaviour of the company (Fazzari et al., 1988). On the one hand, borrowing may increase the willingness of the company to take risks in order to cope with the debts. On the other hand, borrowing may reduce the leeway of the company and force it to operate in an efficient way.

From the standpoint of the company, it is not insignificant who acts as the financier (MacKie-Mason, 1990). Banks are of significance especially in companies that have difficulties in raising funds directly from the markets. These are primarily small, new and unknown companies. Since banks can monitor the activities of companies efficiently, they also have a possibility to use their position in an unfavourable manner from the perspective of the company. Excessive power in the banks may spawn inefficiencies since the objectives of the banks do not necessarily coincide with the overall efficiency objectives (e.g. the Finnish banking crisis).

Other financial institutions such as development companies and investment firms can also obtain special know-how on certain industries and financing methods that can be used to reduce information problems. On

[31] Jensen and Meckling (1976) define the costs spurred by asymmetrical information as agent costs. In broad terms agent costs can arise either because of the investor's inability to differentiate between sound and poor investments or because the investor cannot monitor the activities of the company without significant investments to acquire information. If the investor cannot monitor the activities of the company, the company may operate in a suboptimal manner from the perspective of the investor. The magnitude of the agent costs depends on the original nature of the asymmetry of the information and the possibilities to acquire additional information, which can be used to alleviate the problem.

the other hand, they also increase the liquidity of the securities market and promote the general prerequisites for acquiring equity funds. This will reduce the influence of banks in companies.

6.2 Special Features of Finnish Financial System

Finland's financial system has been marked by exceptionally stringent regulation until the last decade; the roots of this regulation go back to the international depression of the 1930's. The problems associated with the overindebtedness of companies and agriculture led the Bank of Finland to impose an interest rate cartel for bank deposits. This was the beginning of a prolonged period of regulation that was extended after World War II to include the domestic credit market and foreign exchange regulations. A second factor affecting the structure of the financial system has been the lack of neutral tax treatment of financial assets until the corporate and capital tax reforms carried out in recent years. The tax exemption of deposits has favoured the banking system while investing in the stock market has been less attractive.

The basic objective of financial market regulation can be regarded as isolation of the domestic financial market and control in a way allowing leeway of an independent economic policy. This can be seen as the aim of regulation also in Finland. Ultimately, the policy followed has culminated in the so-called devaluation cycle, based on maintaining an external balance and promoting investment via a low real rate of interest. The development of the financial markets was nevertheless associated by unfavourable elements that were revealed during deregulation.

R gulation and Its Legacy

The restrictions on foreign capital movements imposed until the mid-1980s enabled domestic banks to function like a cartel and were a prerequisite for the regulation of the domestic financial market. An essential feature of the Finnish banking system was the regulation of average bank lending rates, which was supported by an interest rate cartel for deposits dampening competition among the banks. The deposit rate cartel was related to the tax exemption of interest on deposits, which augmented the lucrativeness of bank savings compared to other forms of saving. As a consequence of average interest rate restrictions and the deposit rate cartel there was excess demand for credit resulting in credit rationing.

The prerequisite for a low, sometimes even negative real rate of interest, was that companies and savers had no alternative financial channels available. Finnish securities markets were very thin by international standards throughout the regulatory period. The rate of interest on deposits determined the level of private saving, which was supported by

financial surpluses in the public sector. At the same time the control of capital mobility meant that domestic saving corresponded to the lending by financial institutions[32].

The thinness of the securities markets was also affected by the low demand for securities by institutional investors. They are an important source of liquidity in the securities markets elsewhere. In Finland the activities of insurance companies and other institutional investors were regulated and controlled. The investment activity of Finnish insurance companies differed considerably from international practices owing to the nature of the domestic pension system. Under this so-called TEL pension system companies are allowed to borrow back their obligatory pension contributions to insurance companies. At the end of 1992 over 60 per cent of the investments of insurance companies were direct loans to clients, two thirds of which were extended as a part of the TEL scheme. Bank regulation has been used efficiently to control the entire financial system as the banks have not had reason to fear competition from other forms of financing.

The universal banking model adopted in Finland has enabled banks' direct ownership in corporations, which in many cases has guaranteed the supply of financing for enterprises close to banks. Considerable concentrations of company ownership have indeed formed around the banks. Even though the universal model have been deemed to have numerous virtues, for example in Germany and Japan, there have been problems associated with the bank-led groups in Finland. First, they have formed concentrations of risk, the negative features of which are reflected in the current banking crisis. Second, as opposed to Germany and Japan, the bank-led groups are composed primarily of financial institutions and large companies. For this reason, the financing of SME's has received less attention.

The regulation of average interest rates and excess demand for bank credit has meant that the banks have held a dominant position in setting credit terms. For this reason the significance of real assets pledged as collateral has been emphasised in lending. The banks have not needed to compete on the basis of their competence in cash-flow analysis and setting requirements for collateral is an easy way to reduce credit risk[33]. The emphasis placed on collateral is reflected in the way that credit write-offs of banks were very low, on average about one per cent of total assets in the years prior to deregulation (Koskenkylä & Vesala, 1994)[34]. Over three fourths of the lending of financial institutions has been based on real assets being pledged as collateral (Jäppinen, 1993).

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[32] Naturally this requires that the external balance of the economy be maintained. Finland's current account has been in balance except for brief periods.

[33] Also recently the banks have demanded full credit guarantees with own deductibles, which has reduced the financing obtained by SME's in particular.

[34] The precise significance of collateral is difficult to appraise because banks do not make public the terms of contracts subject to bank secrecy laws.

The deposit rate cartel led the banks to compete for savings actively with nonprice-related factors, spawning a heavy branch network, high real estate costs, an unnecessarily large personnel and an exceptionally advanced payments system. These have made the operations of the banks inefficient by international standards and narrowed their profit margins (table 6.1). Even though the late 1980s was a favourable period for the Finnish banks, their profitability was weak owing to the heavy cost structure. An exceptionally large portion of net income was generated by non-interest income, which indicates, for example, the importance of loan guarantee activities in banking operations.

	Net income	Operational expenses	Profits before appropriations
Finland	3.97	3.2	0.78
Denmark	3.89	2.2	1.65
Norway	4.28	3	1.32
Sweden	3.3	2	1.33
Germany	2.81	1.8	1
France	2.81	1.9	0.93
United Kingdom	5.09	3.3	1.75

Table 6.1 *Bank Profitability in Various European Countries, as a Percentage of Average Total Assets in 1985-1990**

* Widest possible coverage in all countries. Accounting practices in Nordic countries correspond to each other fairly well, other figures should be treated with caution.

Source: Salo & Rantama, 1994.

The nature of the Finnish financial structure is illustrated by figure 6.1 comparing the net amount of financing for investment by Finnish and American companies. In both Finland and the United States the net funding for investments depends heavily upon internal financing. Despite the central position of the banking system in Finland, the significance of internal financing in the finances of Finnish companies does not differ appreciably from that in American companies. This indicates that on average companies have not been able to safeguard their liquidity significantly with bank credit. Mayer (1990) also observes that the ability of Finnish companies to compensate for insufficient internal financing with bank credit was weak by international standards during the period 1977-1985.

The significance of stock financing has also been low in Finnish companies. The share of stock financing in listed Finnish companies out of all funding has been smaller than in industrialised countries in general (Vihriälä, 1989). Even though in the 1980s in the United States an exceptional amount of equity was purchased using debt, the net worth of Finnish companies raised via equity funding was still modest. The owner-

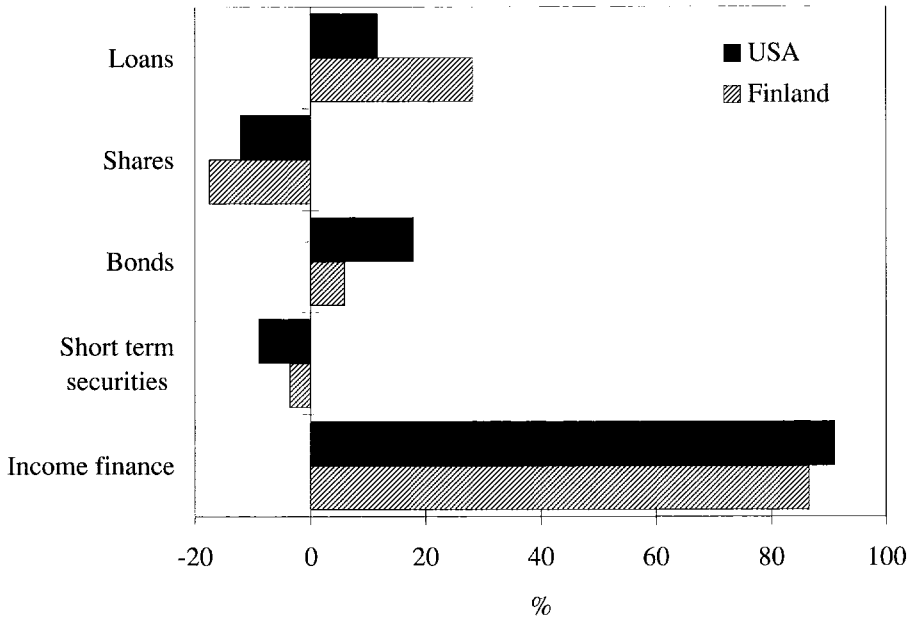

Figure 6.1 *Net Financing of Companies in Finland and United States in 1980-1990, per cent*

Source: OECD/FS.

ship stakes of Finnish companies obtained from other companies surpassed their funding raised via share issues. These were primarily portfolio investments that Finnish companies made as asset prices rose swiftly toward the end of the decade.

In Finland the share of credits from financial institutions within funding is greater, while in the United States bonds are a more significant form of financing. This depicts, on the one hand, the undeveloped nature of the Finnish bond market and, on the other hand, the large importance of the TEL system where firms are allowed to borrow back pension contributions. Owing to the TEL system insurance companies have concentrated upon financial institution credits. TEL credits account for about a third of the external financing of small and medium-sized companies and about a fifth of that in large companies. It is nevertheless noteworthy that the banks have played a key role in the TEL system by providing loan guarantees. Owing to the long-range and stable nature of their activities, insurance companies did not have reason to invest in the risky and volatile securities markets.

From Regulation to Bank Crisis

Technological development facilitated less expensive financial intermediation. It was necessary to liberalise the financial markets as means to circumvent the regulations became more common in the late 1980s. The development of financial instruments exhibited similar trends and created

demand for new financial services. The most significant actions in Finland were the elimination of restrictions on the highest and average lending rates in August 1986 and the subsequent allowance of the use of market rates of interest and prime rates as reference rates in lending. The deregulation proceeded at a comparatively rapid pace with a set of changes enabling the long-standing excess credit demand to spark swift expansion of credit. The extensive tax deduction rights that were continued until 1989 provided an extra boost to credit demand. The favourable international economic developments and improvement in the terms of trade in the late 1980s also fuelled demand.

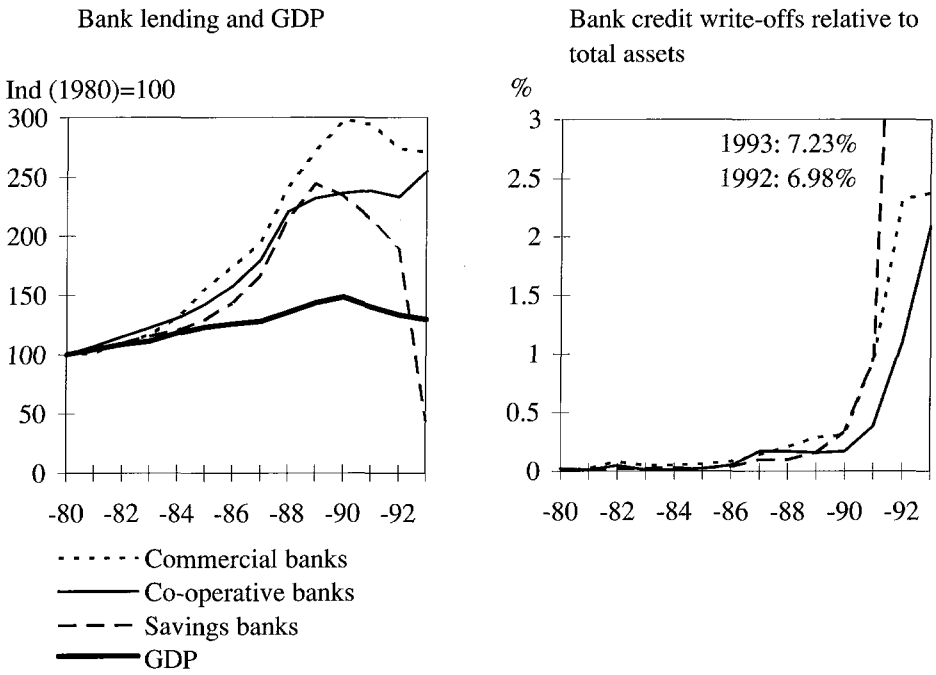

Figure 6.2 *Gross Domestic Product, Bank Lending and Bank Credit Write-offs during 1980-1993*

Source: Koskenkylä & Vesala (1994); OECD.

A special feature of the credit expansion was the strong growth in foreign debt after the abolishment of foreign exchange regulations. Finnish banks intermediated credits denominated in foreign currencies at an accelerating pace to the domestic public. The popularity of foreign credit was prompted by the lower rate of interest on foreign credit, the belief in the stable currency among borrowers and banks' client companies, and in particular the internationalisation of large companies belonging to the traditional bank-led groups.

Under the conditions of regulated markets the management of interest rate and credit risk was undeveloped since banks concentrated primarily

upon lending backed by collateral and because the profitability of large companies was safeguarded via general economic policy. Since banks were used to competing with the quality of services, networks of branch offices and bank technology, the loyalty of clients has been high in Finland. The credit expansion was also a consequence of the banks' rational attempt to conquer markets and safeguard future profitability as the conditions in the overall banking industry were deemed to weaken in the future (Koskenkylä & Vesala, 1994).

Credit expansion spawned strong growth in domestic demand. The growth in demand increased companies' profits, their solvency and desire to borrow. At the same time asset prices got out of hand and their level rose to unrealistically high levels. During 1985-1989 real estate prices doubled and stock prices tripled. The favourable trends in asset prices further bolstered the balance sheets of companies and their willingness to borrow.

Since the solvency of companies was based on the rise in asset values, which subsequently proved to be a bubble, the economy became very vulnerable. The situation was exacerbated by the lending behaviour of banks, where the emphasis was on the amount of credit not risk management. Credit was extended to an increasing extent to risky projects (Okko & Kasanen, 1994)[35].

The riskiness of bank lending was highlighted by high interest rates. The legacy from the days of regulation at the turn of the 1990s was an economy with asset prices that were too high, banks unfamiliarity with risk management and companies unaware of the conditions of free capital markets. Furthermore, the operative inefficiency of the banks made the planning of banks' long-term strategies difficult.

The bursting of the asset bubble and the fragility of the financial system hastened the economic downturn at the onset of the 1990s. There were other factors at play, largely attributable to bad luck, that spurred the unprecedentedly severe collapse in the financial system and economy. The disintegration of the Soviet Union and sharp fall in eastern trade at the beginning of the decade spurred a decline in demand, reflected in asset prices and the solvency of companies. Furthermore, the international economy simultaneously went into a slump and the world market prices of forest industry products in particular fell. The deficit in the current account increased sharply, increasing Finland's foreign debt inherited from previous years. Devaluation expectations raised real interest rates to among the highest in Europe, which put an further damper on the economy[36].

[35] The growth in riskiness is explained by the well-known theory of Stiglitz and Weiss (1981). According to this theory the riskiness of lending increases a) because interest rates rise as the climb in interest rates causes a greater cost burden for those firms that are more likely to be able to pay the loan back, and b) because banks compete for customers as a bank is unwilling to let go of its old companies that it knows to be of low risk.

[36] A logical consequence of the deregulation of the money markets was the monetary policy goal of economic stability, low inflation and a stable exchange rate. The goal was natural as such since the previous policy of devaluation cycles was based on regulation of financial and foreign exchange markets.

International Dimensions of Bank Crisis

The bank crisis has not been only a Finnish phenomenon. Many other countries where the financial system has been regulated have experienced bank crises in the aftermath of deregulation. The bank crises are marked by a common background. The credit expansion associated with the liberalisation of the financial market got out of hand. In other countries that underwent a financial crisis the changes in the international economy nevertheless affected the depth and timing of the crisis so that it was less unfavourable. The Danish banking crisis was the first in the Nordic countries. The Danish banking system survived relatively unscathed owing to the favourable development of the international economy. On the other hand, Finland, Norway and Sweden experienced banking crises when the international economy was going through a severe slump. In Norway's case the situation was exacerbated by the drop in oil prices while in Sweden there was a general weakening of exports.

The impact of the Finnish banking crisis was more profound because foreign shocks were stronger. Another reason was that lending exhibited the second fastest growth in the Nordic countries, next to Sweden. The new credit went, on average, to riskier clients. Therefore the banks' losses were the greatest in Finland with respect to their balance sheets (Koskenkylä, 1994). In Finland the banking crisis can be attributed to the imprudent and short-sighted banking activities.

In the United States the savings and loan crisis was caused by bank deregulation, which allowed savings banks specialised in housing loans to expand investment activities in market instruments. The investment activities of savings banks were focused to a significant extent upon high-yield but also risky junk bonds, which increased the risks in the banks' balance sheets previously marked by strong capital adequacy. The lending ability of the banks weakened when the risks were realised as credit write-offs, thereby spurring a credit crunch-like phenomenon.

Also in Japan the banks have experienced a downturn in profitability after the abolishment of stringent regulations, but it is not possible to speak of a banking crisis in the Nordic or American sense. Japanese banks have for the most part stuck to their traditional mode of operation, neither has the desire for risk-taking and winning of market shares been on nearly the same scale as in the Nordic countries. The regulation imposed upon the Japanese financial markets was perhaps the most stringent before deregulation.

The weakening of the financial markets in countries undergoing a banking crisis has clearly dampened economic growth and at times even turned it negative. This phenomenon emphasises the negative effects of the natural instability of the financial markets. The instability of the banking system in particular may be a threat to economic growth. The safeguarding of the equilibrium in the financial system is one of the key economic policy objectives of the future.

As a result of the recession real estate and stock prices fell, the number of bankruptcies rose and bank solvency weakened, which had further unfavourable effects. Climbing bankruptcies increased the banks' credit write-offs and eroded their shareholders' equity. The banks' situation was exacerbated by the fact that the amount and value of collateral was estimated in accordance with boom conditions. The bursting of the asset bubble meant that the funds left to a bank after a company went bankrupt were rather low. The growth of credit write-offs exceeded all expectations. The weakening of banks' capital adequacy and decline in returns on lending led to a credit crunch, where the economic slump strengthened the contraction in bank lending thereby spurring a tightening of lending terms[37]. Collateral took on even greater emphasis in lending activities. Companies were unable to replace bank credit with other financing. The banks' losses eroded their equity so much that the government had to step in and provide bank support so that the banks could fulfil their international capital adequacy requirements[38].

What Happens after the Banking Crisis?

The upheaval following deregulation has not essentially changed the institutional structure of the financial system. The banks have retained their dominant position in the Finnish financial system. The rigidity of the structure is illustrated by figure 6.3 depicting the composition of the funds

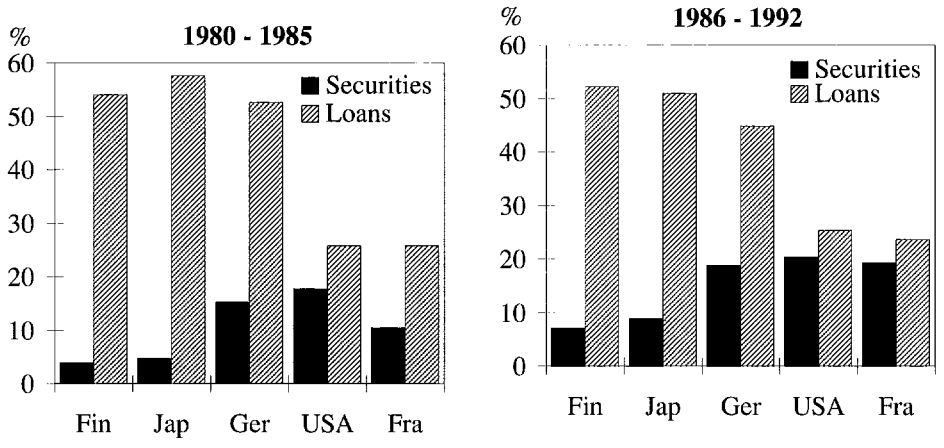

Figure 6.3 Investments of Financial Institutions in Various Countries, Per Cent of Funds

Source: OECD/FS.

[37] Solttila and Vihriälä (1992) observe a positive dependence between the savings banks' capital adequacy and lending.

[38] According to international BIS guidelines the risk-weighted capital adequacy of banks must be at least 8 per cent.

of financial institutions in certain countries before and after the deregulation of the financial markets. In Finland the share of securities in the assets of financial institutions has been the smallest of the countries compared. Deregulation has not prompted appreciable structural changes in any country. The significance of credit in the investment activity of financial institutions has in all countries remained greater than securities, even if the share of the latter has grown everywhere. The securitisation of the financial system is indeed a fundamental trend in the financial markets.

Internal financing is of decisive importance in Finland for investment, even though the advantage of other countries' bank-centred financial systems lies in the fact that companies are less dependent upon internal financing. This observation highlights one of the special characteristics of the Finnish financial system. The relationship between companies and banks in Finland has not developed into a tight market-oriented one like in Germany. Banks have not been able to offer companies flexible and all-round financing after the deregulation of the financial markets. Companies have also shopped around asking for competing offers from banks, nor has the same attention been given to patiently nurturing client relations in recent years as in other bank-centred countries. This is also reflected in the phenomenon that the funding of large companies has shifted increasingly outside of the banks and the traditional bank-led groups have dwindled. For example, in Japan where the effects of deregulation on the environment of the finance business have been at least as profound as those in Finland, the significance of bank-led groups has not decreased to the same extent.

The dependence of large companies on Finnish banks decreases as their financing shifts increasingly toward international markets, which in turn decreases the significance of the bank-led groups. The focal point of the Finnish financial system will perhaps shift to SME's and new activities, such as off-balance sheet activities. It would be especially important to concentrate on the financing problems of growth companies[39]. Finnish banks do not appear to be especially interested in financing growth companies or taking responsibility for the temporary liquidity problems of the companies. Nevertheless it is precisely the SME's that are most prone to run into problems with liquidity or availability of financing. On average, their possibilities for internal financing are worse, their indebtedness is higher and their ability to pledge assets as collateral for loans is weaker. While, for example, in Germany banks specialised in the financing of SME's have been developed, Finland lacks workable and flexible financing schemes for these companies. The regional development fund KERA has, on the other hand, sought to specialise clearly in the financing of SME's in recent years.

[39] The previously dominant position of the banks and credit rationing may have partially protected the companies from liquidity problems because under conditions of average interest rate controls it was worthwhile to minimise credit losses by helping companies with liquidity problems by simultaneously collecting higher interest from companies with better solvency (Suominen & Tarkka, 1991). After the abolishment of average interest rate controls it no longer paid to support companies with liquidity problems, at least not for the same reason.

An important question is what kind of means can be used to reduce the risk inherent in investments with the pledging of collateral. New forms of financing and financial institutions may offer partial solutions to this problem. The main problem is to form financial institutions that take care of evaluation and monitoring of investments. Finnish banks can also perform these tasks, but it would require them to take a new view toward risk and operational change. The adoption of a long-range customer-oriented approach toward borrowers will be a precondition for banking operations.

Finland had no mutual funds until 1987, when a stringent law on mutual fund activities went into force. As a consequence of unfavourable economic developments, mutual fund activities did not get off to a good start and the average ownership of mutual funds by Finns is only a fraction of what it is in the main industrialised countries (Huurinainen, 1992). The mutual funds are, for example, significant purchasers of new shares in the United States. The growth of mutual funds will enable a more diversified selection of savings instruments, from which it will be possible to make the most suitable choices in line with personal needs. The lack of mutual funds in Finland has also meant that there has been little institutional demand for securities, which has kept the liquidity of the securities market low and the possibilities of companies to raise financing via the stock and bond markets weak.

From the standpoint of companies' financing, the expansion of stock financing would be advantageous in that it would alleviate the drawbacks of having to pledge collateral. Furthermore, the leeway of financing would grow as bonds and stocks constitute a real alternative form of finance. The threat of disintermediation would force banks to improve their efficiency and develop more company-friendly and long-range forms of activities. The problem in financing with securities is that, for example, the market financier is usually in a difficult position to monitor efficiently the activities of the company and screen potential companies to be funded. Small ownership and dispersal of ownership may weaken the ability of the company to carry out long-term activities and leave the owners watching on the sidelines while power is wielded by management.

The problems of monitoring and screening companies to be financed are not as great in all forms of market financing. For example, venture capital is an internationally popular form of financing. Risk financing refers to financing where the investor carefully evaluates the growth outlook of alternative companies and participates actively in the development of the company. After the strongest phase of growth they can break their ties with the company. This can nevertheless be difficult if the liquidity of the securities market is weak. This is one reason why the development of the securities market is necessary.

The development of securities markets increases the selection available to investors. This evidently has a positive effect on saving. A change in the ways banks do business is a must for bolstering the efficiency of the

financial system. The activities of banks will have to take greater consideration of risk aspects and base their activities on evaluation of broader business considerations. Banks will not succeed using standardised operational approaches in the face of competition of an integrating international financial system. Furthermore, from the standpoint of corporate financing and investment it is essential that greater efforts are placed on cash-flow analysis in financing. The conditions for co-operation by financiers and companies must be improved and their long-range and close-knit financing relations must be regarded as a desirable goal.

6.3 Directions of Change in Financial System

There are five main factors of change affecting the structure of the financing system internationally (e.g. Koguchi, 1993):

- development of telecommunications
- development of financial theory
- globalisation of financial markets
- growth in significance of institutional investors
- deregulation.

As a result of the development of telecommunications the counterparties in the financial market can trade easily and at small cost 24 hours a day anywhere in the world. This has led to keener competition in the liquid securities markets. Competition has augmented the preconditions for arbitrage and forced cost-based pricing. On the other hand, technological developments have enabled the efficient utilisation of increasingly greater information flows, as a result of which the fixed costs related to financing have decreased. This has expanded the possibilities of economic agents to tap the international markets and more versatile forms of financing.

The greater versatility and internationalisation of financial services has brought along a wider range of risk management tools. These include forwards and futures, options, swaps and other derivatives. The growth in the demand for risk management instruments has also stemmed from the growing role of institutional investors, pension institutions and insurance companies in the international financial system. Their growth has been spurred to a large extent by change in the age structure in the industrialised countries: a greater share of the population has accumulated savings for retirement.

Risk management tools make it possible to obtain the desired risk/yield combination at a low cost and to "play" for considerable stakes in the expanding international securities markets. As a result the possibilities of the government to control the financial markets have been eroded and in many western countries the financial markets have been completely

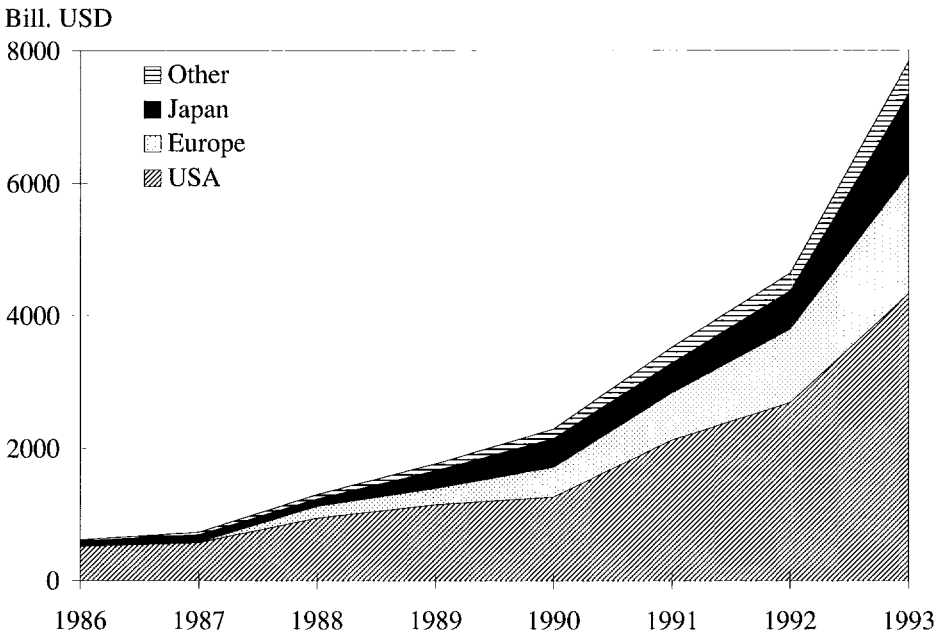

Figure 6.4 World Derivative Markets in 1986-1993, Bill. USD

Source: IMF.

deregulated (OECD, 1992d). On the other hand, the growth in the liquidity of the derivatives market and the possibilities for large profits via speculation have made the markets increasingly fast moving, which in turn is estimated to increase the riskiness of the financial markets. The relatively swift growth in the derivatives market has been spurred by the general opening of the European market and partly also by the shift in the weight of the money markets back to the old continent.

The sensitivity of capital movements has increased also relative to the tax treatment of capital, which has emphasised the need to harmonise national tax treatment. In the future national decision makers will have rather little leeway to impose capital or corporate taxation diverging appreciably from that elsewhere.

Since the majority of transactions are related to risk management, the expansion of the international financial markets has not necessarily meant a corresponding change in companies' financial flows. The changes in corporate financing have primarily occurred via the intermediation of banks in the markets. The change in the business environment of banks has been marked by two trends in corporate finance. On the one hand, banking activities are internationalising and the competition for dependable companies as well as deposits is increasing. On the other hand, the financial markets are undergoing securitisation everywhere, which ap-

pears to be shifting the focal point of corporate financing in a more market-oriented direction. At the same time banks have had to branch out into new fields and adjust their activities to new demands.

Significance of Bank Competition

Until now the trends in the financial markets have spurred keener competition primarily in the wholesale banking activities, where the banks have advantages related to the scale of operations and special activities. In this sector there have been several mergers between banks and bank groups. The internationalised markets have offered a greater variety of investment vehicles and sources of financing. Large companies have also been able to operate on the wholesale markets and they have gradually begun to raise funds directly from these markets.

The banking competition in the traditional retail banking has remained more moderate. Despite the opportunities for internationalisation banks have rarely attempted to finance the investments of companies in completely new market areas. This is evidently caused by the high barriers for branching out into new banking activities. In corporate financing a bank with a long history in this field is in a superior competitive position compared to newcomers, because they have previous knowledge of the business conditions facing the companies they finance.

In this respect there are nevertheless clear differences between countries. In Japan, Germany and the Nordic countries, where the relationships between companies and banks are the closest, the share of foreign banks in the banking industry is under 20 per cent. In contrast in market-oriented countries, such as the United States and United Kingdom the share is over 50 per cent (BIS, 1992). The barriers for entering markets depend greatly upon the market structure. The closer the relationship between the domestic banks and the companies, the stronger their competitive advantage compared to foreign banks. It can be expected that the foreign competition in retail banking will not reduce the significance of domestic banks appreciably, especially in the financing of SME's.

Banking activities require considerable investments in real estate and information technology. The network of automatic teller machines characteristic of banks weakens the possibilities of entering this sector (Vesala, 1993). In Finland, where the banks have invested heavily in auxiliary services, the technical barriers for newcomers are high (e.g. Salo, 1994). The switching costs of customers in lending and funding are high in bank-centred countries like Finland. Depositors do not switch to new and unknown investment vehicles without compensation, but rather factors of reputation are important in this respect. A well-known and solvent foreign bank could compete successfully in terms of reputation with Finnish banks.

The effects of keener competition in the wholesale markets may reflect upon the retail banking activities as well. The international financial markets are generally believed to have reached their maximum size (e.g. OECD, 1992d). There is perhaps overcapacity in these markets, which can be reduced only via bankruptcies, mergers or withdrawal from the markets. This can increase competition in retail banking operations also in Finland, because part of the overcapacity of wholesale banks will perhaps shift at least partly to these markets.

The barriers of entry in retail banking activities are nevertheless so high that it is unlikely that there will be a situation of so-called contestable markets where the banks in practice operate under conditions of perfect competition owing to the potential for foreign competition. The changes in retail banking activities will perhaps not be as great as those foreseen in certain studies (Cecchini, 1988; Garner & Teppet, 1992). The prime benefits of increased competition for clients are the decline in borrowing costs as banking efficiency rises and as the banks cannot use their monopoly power to as great an extent as previously. Thus banks will perhaps have to place greater emphasis on risk analysis, and for example the significance of collateral will decrease. In turn there is a negative side in that the possibilities of the banks to create close long-term banking relationships will weaken as customers shop around asking for competing offers from banks. The threat of foreign bank competition may prolong the Finnish bank crisis, because competition will keep margins low.

Investment Banking Activities

A second major trend in financial markets in addition to internationalisation has been securitisation. The tradability of instruments on secondary markets requires that the instruments of investors can be traded in the markets at a generally accepted price and converted relatively easily into liquid funds.

It is fruitful to divide securitisation into two forms (e.g. Honeygold, 1989). First, securitisation may occur as banks introduce instruments tradable on secondary markets into the financial system. Second, it may occur as companies raise funds for their investments directly from the financial markets instead of bank financing. This can be called genuine securitisation. As a result of genuine securitisation, the security markets carry out the tasks of the financial system: diversification of risk, safeguarding of liquidity and exchange of information. The changing role of banks is indicated by the increased prevalence of investment banking, which refers to the off-balance sheet activities of banks. In addition to the resale of debts, important investment banking activities include guarantees and issues of securities. Investment banking activities are estimated to increase the significance of securities markets in corporate financing at the expense of traditional banking operations.

The difference between traditional banking activities and investment banking concerns primarily the length and nature of the financing agreement. In the former the commitment is backed by the law while in the latter the commitment is less formal. An investment bank cannot monitor the activities of the company in the same way as in the traditional banking operations because the commitment lasts only until the securities have been issued.

Investment banking activities can be regarded as a way of banks and companies to improve the efficiency of banking activities as financial instruments and technical developments facilitate new types of activities. In this respect securitisation would appear to reduce the financing costs of companies in order to make investments more attractive. In addition, customers - both investors and companies alike - can use customised instruments suiting their particular needs. On the other hand, the risks of banking activities related to investment banking may increase the vulnerability to disturbances of the entire financial system.

There are several reasons for the growth in investment banking activities. Off-balance sheet activities facilitate banking activities without strictly defined responsibilities. Thus a bank can circumvent the requirements set by the public officials on capital adequacy or cash reserve requirements. The circumvention of regulations facilitates more lucrative banking activities since a bank can channel its funds into the most profitable targets. Another reason mentioned is a bank's ability to bear risk, which is based on the presumption that the government is unwilling to let banks go bankrupt, even if the risks are realised as losses[40]. According to this view, banks do not have to suffer the consequences of their risk taking. Furthermore, the development of information technology improves the liquidity of the securities markets and reduces the costs of trading. This increases their attractiveness in the eyes of investors.

M rket Financing

Securitisation can mean financing on genuine market terms, so that the other institutions operating on the market replace banks as the bearer of risk and gatherer of information. As a result of market financing, the role of the secondary market would change from what it is in the bank-centred financial system. Instead of the securities markets functioning primarily as a way of safeguarding the liquidity of the company's owners, they would constitute a real channel of funding for companies and as an alternative to bank loans.

Large companies and listed companies are increasingly inclined to raise financing directly from the international financial markets. It is no longer worthwhile for them to pay banks for intermediary services. The growing interest of institutional investors in securitisation has increased the advantages of financing with securities at the same time as the weakening of

[40] So-called too big to fail doctrine.

banks' capital adequacy and rise in international debt problems have increased the costs of bank operations. Furthermore, the abolishment of international regulations has enabled many companies to raise funds via the securities market for which it was not possible previously.

The amount of funds raised directly from international financial markets has grown in recent years, even if the growth has not been as fast as the growth of the derivatives market. Most of the funds have been raised in the form of bonds. The amount of share issues has remained relatively low. Moreover, most of the bonds have been issued by central governments, international organisations or banks. In order to raise funds directly from international markets the issuer must be a well known and safe investment and, for example, a rating from an international rating agency is almost a must.

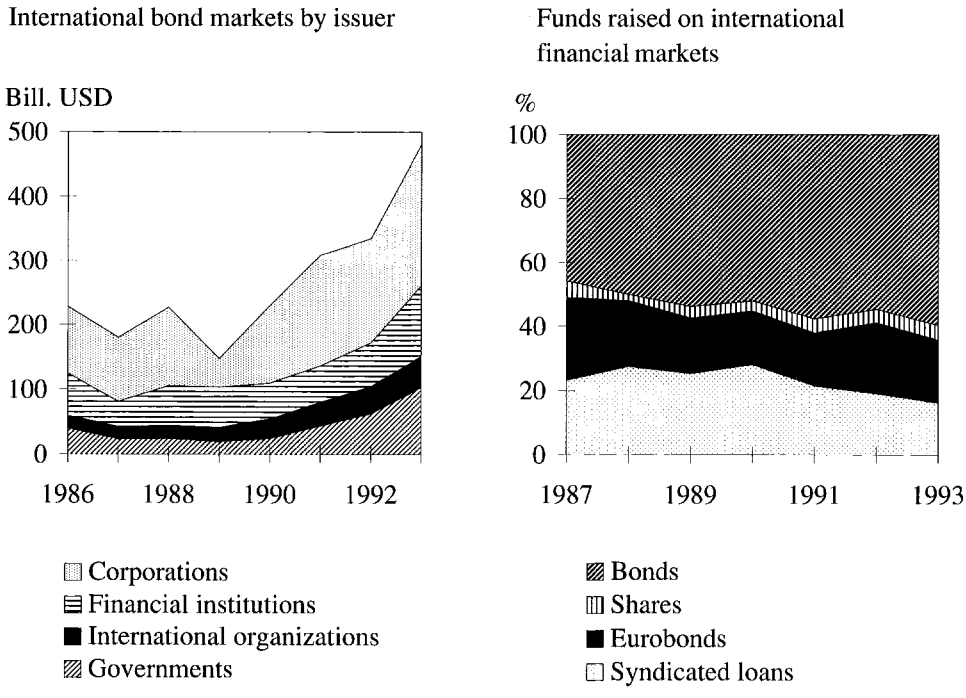

Figure 6.5 International Financial Markets in 1986/87-1993

Source: IMF

The Finnish stock market and especially the bond market are so undeveloped that their growth potential is very great. The securities market has expanded in Finland fairly slowly owing to the bank centredness and the recession after the deregulation of the financial markets. The share of bank deposits in savings has remained higher in Finland than elsewhere. The concentration of other financial institutions, especially insurance institutions, on lending in their investment activities has slowed the development

of the securities markets. The growth of the securities market in Finland has for the time being been prompted by the banks' own emissions programmes, not the market financing of companies. The banks have remained a major source of external financing for companies.

Changes in Financial System, Economic Growth and Equilibrium

The increase in bank competition and structural change in the financial system toward financing on market terms affect the economic growth in many ways. The lower the cost at which funds are intermediated from surplus sectors to deficit sectors, the more funds available for production-increasing investments. In this respect increased competition and securitisation are favourable trends. They reduce the costs associated with financial activities via efficiency-boosting competition and financial market innovations.

The improvement in the efficiency of the financial system and keener competition increase the yield generated by savings. Furthermore, the deepening of the financial markets reduces the risks inherent in investments since they can be diversified easily on the markets. These factors have a positive impact upon saving and increase the volume of investment.

Greater bank competition may, on the other hand, shorten the long and close-knit financial relationships between banks and companies and weaken the risk-bearing ability of companies. This can in turn have a negative impact on intangible investments in particular. On the other hand, keener competition in retail banking activities may force banks to concentrate on narrower market niches (Forestieri, 1993). If bank competition leads to the upgrading of know-how and specialisation, it will be easier than before to obtain financing based on cash-flow analysis, instead of the bank placing special weight on investments in fixed assets that can be pledged as collateral. At the same time the cyclical sensitivity of companies can be reduced since banks will grant financing to companies for longer periods on terms dictated by the possibilities for yields, not on the basis of collateral and balance sheets.

The effects of securitisation are also conflicting. It offers companies new alternatives in raising financing. Institutional and private investors do not necessarily have the same wealth of information that has accumulated in the banks. This increases the costs associated with monitoring and screening problems between companies and investors, especially in the case of demanding and long-term investments. For this reason the willingness to commit to long-term financing relationships will decrease, the focal point of investments may move toward short-term investments and liquidity aspects will take on greater weight in investment decisions. Since investments in intangibles are generally marked by uncertain yields, long payback times and low collateral values, this trend may lead in an undesirable direction from the standpoint of growth.

Increased bank competition and securitisation also have an impact upon the vulnerability of the economy to disturbances, which in turn is related to economic growth. The sensitivity to disturbances may increase as a result of the off-balance sheet activities of banks and diversification of bank activities. Banks operating in several financial sectors may incur difficulties in a particular sector, thereby spawning a "domino effect". The overall funding of the banks may become more expensive and the bank could be driven into profitability problems that grow bigger than the original disturbance would warrant[41]. The growth in uncertainty may reflect upon other banks as the disturbance spreads through the entire financial system.

The instability of the financial system can increase also because the banks' off-balance sheet activities enable greater risk taking than on-balance sheet activities monitored by public officials. Furthermore, the profitability of banking activities may weaken in general as competition increases. The weakening of profitability and increasingly sophisticated international financial relationships raise the sensitivity of the international financial system to crises. An international financial crisis can be sparked by the debt problem of developing countries or cyclical factors in the securities market. The susceptibility of the financial system to disturbances means that there is a greater possibility of macroeconomic crises. The debt-deflation problem and a credit crunch are increasingly likely and dangerous phenomena. The recent financial crises in Finland and many other western countries are examples of macroeconomic risks related to banking activities.

Securitisation and off-balance sheet activities are prompted by pressures emanating from international financial markets. The increasing competition in the international financial system means that capital flows shift rapidly as agents constantly search for higher yielding investments. Banks are tempted to increase off-balance sheet activities even under the threat that this will increase their instability and expose the financial system to external shocks if increasing competition erodes the profitability of traditional activities.

Because the ability of the government to control banking activities is reduced as a result of securitisation, its possibilities to achieve certain economic policy goals are weaker. The expanding scope of banking activities means that the ability to monitor the trend in monetary aggregates and control inflation will weaken. The possibilities to control inflation can weaken especially if the banks do not need to be concerned about their own risks. If competition between banks and governmental protection lead to increased risk taking, the threat of inflation is clear (Chiappori, 1991). The growth in uncertainty about inflation will increase, on the other hand, the risks related to investment and fluctuations in asset values, as a result of which the risk of financing will increase and the required

[41] Recent examples of problems with financial conglomerates can be found from Finland and other Nordic countries. Clear domino-effect examples are the collapse of the financial conglomerates British & Commonwealth holding companies and Drexel Burnham Lambert in 1990 (Koguchi, 1993).

real interest rate will rise. This would have a detrimental impact on the willingness to invest and economic growth.

The need to regulate the financial system would grow as a result of the trends depicted above. The possibilities for national regulation have nevertheless dwindled. Because the stability of the financial system is of key importance for the world economy, the development of the system in an unstable direction should be offset with international measures. The questions related to bank supervision will indeed be of fundamental importance in the European System of Central Banks being formed.

Adjustment to New Economic Environment

7

Summary and Conclusions

Finland must decide about its role in the currency policy system of the EU in the next few years. The currency situation, where some of the currencies float, some float in wide bands and some in narrow bands, cannot last for long. The economic development of the countries and perhaps the economic policy goals will diverge so much that the aims to deepen integration in the EU will not be realised in the manner planned.

Finland's difficulties in participating in the common monetary union are deemed to pertain to the structure of the economy, which transmits the divergent fluctuations of other EU countries here. Finland's production and foreign trade structure has nevertheless changed closer to that prevailing in western Europe. A significant change occurred when the clearing-base trade between Finland and the Soviet Union was discontinued. Finland's country structure of foreign trade does not differ appreciably from that in other EU countries. The share of trade with non-EU countries is somewhat greater than in countries in the heart of the EU, but the same situation prevails in other countries on the periphery of the EU.

The feature that distinguishes the structure of exports from that in other EU countries is the pivotal role of the forest industry as an earner of net export revenues. In this respect the situation has changed all the time. The rapidly growing machinery and equipment exports have increased their share and at the same time the share of intra-industry trade has increased. As the share of internal, intra-industry trade in the EU continuously rises the external disturbances differing from those in other countries decrease.

Uncertainty about the effects of membership in EMU are related more to behavioural models learned from history than the vulnerability of the production structure. Finland has been used to adjusting to external and internal disturbances with changes in relative prices and income distribution brought about by exchange rate changes. The economic fluctuations are not, however, decisively greater or different than in even the most stable EU countries. It is also evident that the fluctuations have been strengthened by the devaluation-inflation policy followed. A prerequisite for success in EMU membership is that all economic agents will have to commit themselves to the low inflation target. The adjustment to economic disturbances must happen via adjustment in forest and other raw material incomes, wages and prices.

The labour market will bear a greater responsibility in adjusting to changes in the economic environment. The pressures will not come solely from the loss of an independent monetary policy but also from changes in

the global division of labour and globalisation of companies. The challenges of the changes in the global division of labour must be met by promoting growth in innovation and national knowledge bases. The exploitation of these factors of strength requires the globalisation of companies. Both of these development trends emphasise the concentration of the companies' internal systems for motivation, compensation and development.

When renewing the ground-rules of the labour market it must be taken into consideration that the lowering of unemployment is a necessity. The point of departure for collective agreements must be the interests of the overall labour force, not just the interests of those employed at any particular time. This can best be safeguarded by settlements at the level of central organisations for employers and employees. Since increasing the flexibility of labour markets nevertheless requires agreement on practical matters at the level of the workplace, it is difficult to find a suitable negotiation mechanism. The position of the trade unions will become important when learning the new ground-rules and new balances of power. For example, Denmark has tried to apply these kinds of combined approaches and their development should be undertaken in Finland as well.

The promotion of economic adjustment does not reflect solely upon the labour market. Also other institutions and companies will have to change their operative strategies. The ability of companies to adjust can be augmented with technological choices, organisational structures and co-operation so that they retain their ability to function even in the face of supply and market disturbances. When developing the educational system, emphasis must be placed on the need for a comprehensive scope and flexibility. The financial system must provide better support than previously in taking risks associated with developing innovations. The tax treatment of different sectors and various types of financing should be as neutral as possible.

7.1 Currency Policy at a Crossroads

If relative prices changed frictionlessly and adjusted completely to changes in the environment, exchange rates would be unnecessary and the world could shift to a common money. The economy would adjust to these changes most efficiently without extra wheels in the machinery of the economy. Since there are nevertheless rigidities in the economy and prices do not adjust in a frictionless manner to external disturbances, the exchange rate may be a necessary ball bearing for promoting the adjustment of the economy and reducing the friction of markets. The greater the rigidity in the labour markets, the more necessary it is for adjustments to occur via exchange rates.

Common Currency Area or Floating Exchange Rates?

The debate on optimal currency areas began with the writings of Robert Mundell and Ronald McKinnon in the 1960s. They maintain that two countries should use a common currency if the costs related to abolishing exchange rate flexibility are less than the benefits brought by the international division of labour.

The costs of fixed exchange rates stem from the fact that a country cannot dampen the negative effects of unpredictable disturbances by using exchange rate policy[42]. The disturbances that symmetrically affect countries within a stable exchange rate area can be dampened with a common monetary policy. The difficulties are presented by asymmetrical disturbances that affect only one part of the currency area. The only economic policy tools that can be applied by an economy experiencing this dilemma are incomes and fiscal policies. Since a fundamental cyclical policy tool has been lost, the costs of a stable exchange rate are reflected in stronger cyclical fluctuations. The stronger and more often the asymmetrical disturbances occur, the greater the real economic costs.

The magnitude of the costs and the strength of the cyclical fluctuations depend upon the structure of the country's economy and the flexibility of the markets, especially the labour market. The more differentiated the country's production structure is compared to other countries in the currency area, the more probable asymmetrical disturbances are. On the other hand, the effects of the disturbances depend upon the wage flexibility of the labour market and mobility of labour. As flexibility increases, the significance of asymmetrical disturbances decreases because the real exchange rate determining competitiveness can shift without changes in the nominal exchange rate. The growth in the mobility of the labour force reduces the effects of disturbances by evening out the supply of labour in the overall currency area and by increasing the flexibility of the labour supply.

While the costs of the currency area are spurred by macroeconomic factors, the benefits are largely microeconomic. The benefits are generated primarily by the phenomenon that when making foreign transactions there is no longer a need to switch from one currency to the next. Even though the cost savings from foreign exchange are real, according to certain estimates about 0.3 per cent of GDP (Gros & Thygesen, 1992), the most significant benefits from the currency area lie elsewhere.

Flexible exchange rates are deemed to increase the ability of the economy to adjust and dampen the impact of foreign disturbances by stabilising fluctuations in the real exchange rate. Empirical evidence from recent decades indicates nevertheless that changes in real exchange rates are greater in those currencies that float freely, and they have not necessarily had stabilising effects on the economy (e.g. Marston, 1987;

[42] The viewpoint of an optimal currency area is related to the Keynesian approach, where the government can increase economic utility by addressing faults stemming from the rigidities in the labour markets.

Krugman, 1989). Both wide short-term fluctuations in currencies and long-term deviations from the "right" value may have even weakened the ability of the economy to adjust to changes in the economic environment.

For example, the fluctuations in the real exchange rate of the US dollar increased by 15-fold after the collapse of the Bretton Woods system. This was hardly the result of changes in the competitive situation, but rather strong fluctuations characteristic of the international foreign exchange markets and partly factors unrelated to economic fundamentals. When the price level of the economy is generally rather stable, the fluctuations in the real exchange rate lead to fluctuations in the nominal exchange rate. One explanation for this phenomenon is that exchange rates tend to "overshoot" compared to the real adjustment need required by the external disturbance. A second explanation is that speculative activities increase the instability of the financial markets. A third possible reason for the greater instability of floating exchange rates is the instability of economic policy. The unpredictability of economic policy may spur rapid changes in the future yield expectations in the financial markets, where the role of expectations is great. Especially if the central bank adopts an active role in the foreign exchange markets, the returns from speculative activities may grow at the expense of the central bank. This in turn may have a negative impact on the equilibrium of the markets (e.g. Winters, 1991).

The fluctuations in exchange rates increase the risks associated with the economic environment of companies[43]. Therefore the elimination of exchange rate risk is desirable from the standpoint of companies. As a consequence of the reduction in risk, the costs of hedging risks will decrease, trade will grow and the benefits derived from trade will increase. Furthermore, the allocation of international capital will improve as investment activities increase. In certain opinion surveys it has been shown that companies clearly favour fixed exchange rates. Exchange rate risk is nevertheless not equally significant for all companies. For example, for multinational companies exchange rate risk is of less significance, because they are able to diversify risks on global markets more efficiently than others. Difficulties are experienced primarily by small companies, for which exchange rate uncertainty causes considerable harm owing to low risk-bearing ability. In addition to the improvement in the business conditions of companies, stable exchange rates increase competition as export prices become more comparable. This benefits the consumers especially, but also increases the efficiency of resource allocation.

In countries with floating exchange rates there have been current account problems, which the exchange rates have increased rather than reduced. Floating exchange rates do not necessarily fulfil the conditions of so-called purchasing power parity even over the medium term. For example, the changes in the US dollar and the Japanese yen did not rectify the continuously growing current account problems between these coun-

[43] The risk-increasing effect of floating currencies is not self-evident since under fixed exchange rates uncertainty may be caused by fluctuations in other prices.

tries in the 1980s. The US foreign debt and Japanese foreign assets have continuously grown since the mid-1980s despite the continual weakening of the dollar. The persistence of the current account problems has increased uncertainty and had a detrimental effect on the efficiency of activities (e.g. Krugman, 1989).

One of the most important benefits of the common currency area is the long-term efficiency gains resulting from market integration. The rise in efficiency is not only a momentary phenomenon, but rather it is related to the rise in the yield curve on capital. This increases the willingness to save and invest, which in turn spawns greater capital inputs available per worker. From this standpoint, the growth in production and rise in the efficiency of labour are significant welfare improvements caused by a currency area (Baldwin, 1991).

The optimality of the currency area thus depends on the costs and benefits of fixing the currency, the magnitude of which is determined on the basis of the frequency and strength of asymmetrical disturbances. The greater the rigidity of the labour market and the more one-sided the structure of goods exported, the stronger the disturbance spreads through the economy[44].

Credibility of Currency Policy

The credibility of a certain economic policy is based on the desire and ability of the country to adhere to the political policy regime announced. This is depicted by the time consistency of the policy. If it is suspected that when making decisions the policy makers do not intend to act in the future in the manner announced, this will result in a credibility problem. Barro and Gordon (1983a) maintain that the credibility problem leads to unfavourable results from the standpoint of the common interest. Their study dealt with the employment/output equilibrium of the economy when the aim of the central bank is both low inflation and high employment. The main finding is that the economic agents have to adjust to higher than optimal inflation if the central bank cannot credibly adhere to its objective of low inflation. When unemployment rises the central bank is always tempted to achieve the intermediary employment goal by inflating the economy. The economic agents react to this by rationally raising inflation expectations and eliminating the short-term employment effects of inflation over the long run.

From the standpoint of the credibility of currency policy, the chain of events in monetary and currency policy can be depicted as follows. When there are rigidities in the economy perpetuating unemployment, policy makers are tempted to surprise the economic agents in the open sector

[44] For example, the optimality of the currency area comprised of the Netherlands, Belgium and Germany would appear to depend considerably upon the fact that in these countries the adaptability of the labour markets is rather great. The countries do not need exchange rates to smoothen external country-specific disturbances.

with a devaluation. Thus the real wage level declines, competitiveness improves and employment rises. The long-term equilibrium is generated by a "game" between employees and the central bank, where the central bank maximises employment and minimises inflation, at the same time as employees maximise their expected income. As unemployment rises the economic agents predict the coming devaluation and raise their nominal wage demands thus reducing the employment effects of the devaluation.

Devaluations and the subsequent inflationary periods are repetitive even if the goal of the policy makers would be to keep inflation as low as possible. Expectations about repetitive exchange rate changes also keep the level of interest rates high. The long-term employment benefits are not attained, but rather employment may be lower as a result of the higher inflation and higher real rate of interest than when the commitment to a low inflation and stable currency policy enjoys credibility.

Credibility factors are emphasised when the exchange rate is defended. Expectations about the change in the exchange rate generate pressure against the currency, as a result of which the exchange rate perhaps has to be changed. Thus the expectations are self-fulfilling. The weaker the credibility of the policy makers, the greater the expectations of a change in the exchange rate. Therefore, the achievement of credibility is the main task of the central bank.

Credible commitment to a stable exchange rate policy means the ability of the economy to abandon inflationary growth (cf. Giavazzi & Pagano, 1988). The central bank cannot surprise the economic agents with unexpected inflation even if it so desired. The fundamental question is what factors affect the ability to create a credible, balanced monetary policy anchor out of the nominal exchange rate. In principle the low inflation and stable exchange rate belong together; refraining from one will facilitate achievement of the other. For example, Aghevili et al. (1991) have observed that inflation is higher on average in countries with floating rates than in countries with stable currencies. A fixed exchange rate is a clearer anchor, because it is easier for economic agents to monitor its realisation.

Credibility is affected primarily by two factors. On the one hand, the credibility of the exchange rate peg depends upon how worthwhile the fixed exchange rate is to the economy. If the fixed currency area does not fulfil the properties of an optimal currency area, investors will not believe the assurance about the irrevocability of the commitment to a fixed exchange rate. Furthermore, the credibility is affected by the economic policy history of the country. The shorter the fixed exchange rate history and the more easily the exchange rate has been changed previously, the more sensitive the devaluation expectations. By continually demonstrating the ability to stick to a disciplined policy, the economy can gradually build a favourable reputation. Credibility can be lost in one night by devaluing the currency, but restoring it can take 10 years of a persistent anti-inflationary policy.

The credibility of the commitment to a fixed exchange rate depends also on the nature of the commitment. Unilateral agreements are naturally easier to break. The more counterparties there are to the agreement and the closer the country is integrated in the economies of the counterparties, the less likely it is that a country will pull out of the agreement. If the goal of a fixed exchange rate is written into the law, the costs of devaluation are higher and devaluation more difficult.

Sensitivity of Finnish Economy to Disturbances and EMU

Finland's membership in the European Union is often shown to lead to positive welfare effects in the long run. The plans regarding EMU[45], on the other hand, spur wide divergence of opinions. Economists are not unanimous about whether the possible implementation of the monetary union would increase the welfare of individual member countries.

The monetary union is deemed to cause welfare losses in the countries sensitive to disturbances. Sensitivity to disturbances generally refers to wide variability in exports, inflation, gross national product, investment or other economic variables, with the fluctuations taking place at different times than in other countries. The commitment of individual countries to an area where the average fluctuations are smaller and at different times is feared to cause it difficulties in adjusting to the common monetary policy of the area. The more sensitive the country is to disturbances, the greater problems it incurs in adjusting to the requirements of the monetary union, regardless of the origin of the disturbances. On the other hand, the monetary union and its stringent convergence criteria can affect the developments in countries where the disturbances are to a great extent endogenous and where the policies and institutions strengthen the disturbances.

Fluctuations in a closed and regulated economy, particularly under conditions of regulated international capital movements, which are greater than in other countries were not necessarily so disastrous because regulation meant that actions of policy makers and economic agents were fairly predictable. In fact, many key economic factors, such as nominal interest rates, could be decided upon at the negotiating table, and market reactions did not have to be taken into consideration. The favourableness of both international and national economic developments concealed the inefficiencies plaguing the economy.

The convergence criteria of the monetary union force economic agents as well as policy makers to actively work toward convergence of economic developments within EU circles. Under conditions of free international capital mobility and less stringent regulation of the economy, aiming and

[45] In the third stage of EMU even the theoretical possibility for an independent monetary and exchange rate policy would be lost forever.

working to promote stable growth is in the interest of everyone. This especially pertains to countries with a high foreign debt and whose economic history has been sensitive to disturbances. In order to maintain credibility, it is important that the debt can be serviced in a systematic and persistent fashion so that the country can retain its independence and freedom of action relative to the creditors.

Special Features of Finland's Economic Structure

The features characteristic of Finland's foreign trade have been the large share of the forestry industry products and eastern trade within exports as well as the low shares of intermediate trade and intra-industry trade. The forest industry has been and will be in the future an important segment of the economy and especially in exports, because it is based on the utilisation of Finland's most important natural resource. Its relative significance will nevertheless decrease because the demand for forest industry products will grow more slowly than that for the products of the electrotechnical industry, the share of which is increasing quickly in exports. The companies in the Finnish forest industry seem to be further increasing their presence in the main markets by locating their production there, so that only part of the growth in this sector will take place in the home country.

During the last twenty years the goods structure of Finnish exports has diversified and approached that, for example, of Germany. The share of forest industry products has decreased and the share of machinery and equipment has grown (table 7.1).

The clearing-based trade between Finland and the Soviet Union was one factor that enabled Finnish economic developments in the 1970s and 1980s to diverge from those in Western Europe. Since most of the imports

	Finland		Germany
	1970	1993	1991
Foodstuffs and tobacco	3.5	2.6	5.6
Textiles, clothing etc.	6.6	2.3	6.2
Wood industry	15.9	8.1	1.4
Paper and pulp	40.1	27.9	3.3
Chemical products	4.3	10.6	19.9
Basic metals	6.2	8.8	7.8
Machinery and Equipment	18.8	35.9	53
Other	4.6	3.7	2.8
Total	100	100	100

Table 7.1 *Goods Structure of Finnish and German Exports, Share of Merchandise Exports, per cent*

Source: Board of Customs; OECD.

from the Soviet Union were oil and other energy, the fluctuations in the price of oil were reflected in changes in the volume of eastern exports. The rise in the price of oil spurred an increase in the exports to the Soviet Union. For this reason the impetus for adjusting, for example, in the labour market to the rise in the price of oil was more moderate than in other countries. The strengthening of inflation spurred a rapid deterioration in the competitiveness of exports to western markets. This was the case especially after the first oil crisis.

The modest significance of intermediate trade has been associated with the extensive Soviet trade and the rules of origin applied therein. After the disintegration of the Soviet Union, trade with Russia has been opened up and in the future there would appear to be possibilities for significant increases in intermediate trade. The significance of trade with neighbouring regions will perhaps grow in the future. The barriers to trade with neighbouring regions are not as great as in other foreign trade and the companies engaged in it are smaller than traditional export companies.

The smallness of the share of intra-industry trade is explained partly by the special nature of Soviet trade, but especially the smallness of Finland's own markets compared to the export potential of the forest industry and self-sufficiency in production of foodstuffs. The forest industry and especially the position of the foodstuffs sector will change appreciably in the future. In both sectors the share of imports used domestically will grow and intra-industry trade will increase.

Western European countries have approached each other both in terms of economic activity and structure. The volume of intra-industry trade is interpreted as depicting the depth of the integration between economies. Trade between EU countries is largely intra-industry trade. It is based to a great extent upon the economies of scale and product differentiation. In addition to economies of scale, during recent times emphasis has been placed on flexible production, so that it will be possible to better benefit from the opportunities offered by integration.

The country structure of Finnish goods exports has approached that of other Western European countries. In 1985 the country structure of Finnish exports still differed from the average in OECD Europe the most of all EU and EFTA countries (see Kotilainen et al. 1994)[46]. In 1992 Finland was ranked near the middle in a corresponding comparison and e.g. the country structure of exports of Denmark, Belgium and the Netherlands differed more from OECD Europe more than Finland's. The country structure of exports in these years was nevertheless very similar in most of the countries. Finland's country structure of exports resembled that of

[46] Kotilainen et al. (1994) investigate the dissimilarity of the EU and EFTA countries' manufacturing industry structure and structure of exports by country. The differences in the manufacturing industries production structures is measured with indices where the relative share of each industry in one country is subtracted from the corresponding share in another country. The structure of exports by country is investigated with the same index where the industrial shares are replaced by country-specific export shares. The value of the index can vary between 0 and 2; when the structure is exactly the same the value of the index is 0 and when completely different the value of the index is 2.

Germany and to a surprising extent also Italy. One reason could be the rather large share of Russian exports also in these countries.

The industrial structures of Western Europe countries were also relatively similar in 1990 according to Kotilainen et al. (1994). Finland's production structure resembled the most that of EFTA's former members (United Kingdom, Austria, Sweden and Denmark) and the current members (Norway, Switzerland). Germany's production structure differed from Finland's production structure considerably even though the country structure of exports resembled each other. One significant reason for the difference in Germany's production structure compared to many small countries is the large share of the automobile industry.

Have the fluctuations in Finland's economy been exceptionally large? The prerequisites of the European Union to form a monetary union have been investigated diligently in recent years. In studies comparisons have been made using the fluctuations in the main macroeconomic variables of economic developments in different countries and groups of countries. If the fluctuations are small, the individual countries are thought to be able to manage reasonably well without an independent monetary policy.

Bayomi and Eichengreen (1992) analyse inflation and changes in GDP during 1963-1988. On the basis of the magnitude of standard deviations they find that of the EU countries Germany, France, Belgium, the Netherlands and Denmark would be among the most suitable members on the common monetary union. Of the EFTA countries, Austria, Sweden, Norway and with reservations also Switzerland would be fit for monetary union from the perspective of standard deviations.

ETLA's study by Kotilainen, Alho and Erkkilä (1994) investigated the annual changes in manufacturing output in 15 EU and EFTA countries during 1970-1992. In Finland both the average growth and the variability of the growth were rather large. The countries with greater standard deviation than Finland were Italy, Greece, Luxembourg and Portugal, where except for Luxembourg the average growth was faster than in Finland. The higher growth appears to be correlated with greater fluctuations. The exception is Austria, where the above-average growth was combined with a relatively low variability. Modest growth is correlated in turn with high variability in Luxembourg as well as the United Kingdom and Sweden.

The results of this kind of comparison depend, among other things, upon the selected factors, countries and time period. Table 7.2 presents the averages and standard deviations[47] for certain variables for 1961-1990 and 1961-1993 for Germany and certain small European countries. Germany was selected for the comparison because of its central role in the EU's exchange rate mechanism (ERM). Other countries constitute a group in the EU which is suitable in terms of size and structure and at the same time a demanding reference level. The calculations are made for two periods of time in order to see the effect of the recession in recent years.

[47] The stars denote averages and standard deviations that are statistically significant.

	Terms of Trade				Export volume			
	Average		Standard deviation		Average		Standard deviation	
	1961-90	1961-93	1961-90*	1961-93*	1961-90	1961-93	1961-90*	1961-93*
Finland	6.6	-0.06	2.94	2.84	5.24	5.37	5.99	6.45
Belgium	-0.1	0.02	1.6	1.61	6.33	6.01	4.78	4.67
Netherlands	0.03	0.002	1.5	1.43	6.04	5.78	4.46	4.36
Austria	0.03	0.1	1.95	1.89	6.94	6.51	4.39	4.5
Sweden	-0.6	-0.53	3.03	2.92	5.23	4.97	4.28	4.33
Germany	0.52	0.55	3.86	3.71	6.46	5.4	4.45	4.96
Denmark	-0.03	-0.05	3.32	3.17	5.29	5.11	2.85	2.99

	GDP volume				Investment volume			
	Average		Standard deviation		Average		Standard deviation	
	1961-90	1961-93	1961-90	1961-93	1961-90	1961-93	1961-90*	1961-93*
Finland	3.85	3.12	2.47	3.39	3.49	1.47	6.09	8.71
Belgium	3.37	3.14	2.31	2.39	3.66	3.11	6.35	6.35
Netherlands	3.35	3.16	2.32	2.3	2.96	2.67	5.79	5.61
Austria	3.43	3.25	1.93	1.97	3.94	3.76	4.98	4.86
Sweden	2.88	2.46	1.88	2.24	3.1	1.73	4.2	6.02
Germany	3.16	3.06	2.21	2.26	2.44	2.91	5.01	4.96
Denmark	2.89	2.74	2.7	2.62	2.87	2.14	9.69	9.55

	Private consumption deflator				Private consumption volume			
	Average		Standard deviation		Average		Standard deviation	
	1961-90*	1961-93*	1961-90*	1961-93*	1961-90	1961-93	1961-90*	1961-93*
Finland	7.62	7.34	4.27	4.17	3.86	3.13	2.7	3.48
Belgium	4.97	4.74	3.05	3	3.06	2.93	2.03	2.06
Netherlands	4.65	4.49	3.16	3.06	3.73	3.57	3.01	2.93
Austria	4.52	4.44	2.05	1.97	3.44	3.29	1.85	1.84
Sweden	7.33	7.23	3.24	3.24	2.29	1.94	2.08	2.36
Germany	3.43	3.49	1.86	1.78	3.53	3.88	2.25	2.25
Denmark	7.29	6.81	3.12	3.35	2.4	2.33	3.26	3.12

Table 7.2 *Macroeconomic Indicators from Various Countries in 1961-1990 and 1961-1993, average annual change, per cent*

Source: OECD/OLIS/Economic Outlook.

Of the averages only the average inflation rates differed in a statistically significant manner from each other. As regards variability only the variability of GDP volumes did not differ statistically from each other.

In the entire reference group the differing of the variability from each other is often due to the "too" small or large variability of one or two countries. Thus the variabilities of the volume of exports do not differ from each other in a statistically significant manner, when Denmark is omitted from the analysis owing to its "too small" variability. There are no

significant differences in the variability of the volume of private consumption between Finland, the Netherlands, Germany and Denmark. Belgium, Austria and Sweden constitute a separate group. As regards variability of inflation Austria and Germany constitute their own small-variability group. There are not significant differences between other countries. When the average rate of inflation is also taken into consideration, Finland, Sweden and Denmark form their own "natural" group. The variability of investment does not differ in a statistically significant manner if Denmark is omitted from the analysis. During the period 1961-1993 Finland's variability is exceptionally large. As regards the terms of trade Finland, Sweden, Germany and Denmark constitute a large-variability group while Belgium, the Netherlands and Austria form a small-variability group.

When measured with changes in aggregate demand Finland's variability have not differed appreciably from that in the more stable EU economies. The fluctuations in the terms of trade in particular have been relatively small in Finland. Otherwise Finland's fluctuations have been slightly larger, especially if the period investigated includes the recession years of the 1990s, which have increased the fluctuations especially in real variables in Finland. The greater the weight of the recession years in the analysis, the greater the variability in Finland's real variables. The recession was nevertheless a culmination of many unique factors and own mistakes that cannot be compared to "normal" external fluctuations and the repeating of which is not very likely, especially in a different economic environment.

Are Economic Fluctuations Different than Elsewhere?

The asymmetry of fluctuations generally refers to the divergence in the timing of fluctuations. Sensitivity to disturbances[48] may mean merely the degree of variability (standard deviation) but also differences in variability or timing. The sensitivity to disturbances and the asymmetry of variability are measured in different ways. The different methods have in common the fact that the reference selected is generally the average trend in a certain country group.

Tarkka and Åkerholm (1992) investigated the diversity in GDP growth. They account for the annual changes in GDP in the EU countries as well as Finland, Austria, Norway, Sweden and Switzerland with the average annual change in GDP in OECD Europe. The variability of an individual country's annual GDP growth is decomposed into the variability for OECD Europe as a whole and for each country's own variability. Whether the development of an individual country is symmetrical or asymmetrical relative to OECD Europe is determined in accordance with which variability is greater.

[48] The term idiosyncratic is often also used, referring to the country specifity of the fluctuations.

According to the results in Finland's country-specific variability dominates the common variability of OECD Europe during the period 1973-1990. The same appears to hold also for other members of EFTA at that time. Norway's own variability is about one hundred times greater, Sweden's about thirteen, Finland's about eight, Switzerland about twice and Austria slightly more than unity. Of the EU countries, the country-specific variability of Spain, Ireland and Greece exceeds the common variability.

When the analysis is performed for two different time periods, 1973-1981 and 1982-1990, the results change. In the second period only in Belgium, the Netherlands, Italy, Germany and Switzerland is the common variability greater than the country-specific variability, even though only in France, the Netherlands, Portugal and Germany did the country-specific variability increase. Contrary to what could perhaps be assumed, the relative share of country-specific variability increased in the 1980s. The choice of the time period appears in this case to have a bearing upon the results of the analysis.

Bayomi and Eichengreen investigate the uniformity of changes in inflation and GDP in the EU[49] and EFTA countries during 1963-1988. The variability of GDP in the core group of the EU is explained for the most part by common factors[50]. The correlation of common factors on the periphery of the EU and in the EFTA countries is lower. The correlation of common factors in the variability of inflation in the peripheral areas of the EU is the highest and closer to that of the core of the EU than in the EFTA countries. When evaluating each of the three decades it can be concluded, however, that the peripheral areas of the EU and the EFTA countries are closer to each other in terms of GDP and inflation variability than they are to the EU core.

In terms of fluctuations from demand and supply disturbances[51], Bayomi and Eichengreen obtained similar results: the EFTA countries resemble the EU peripheral area with respect to demand disturbances, but in terms of supply shocks the EFTA countries appear similar to the EU core. The disturbances in the EU core countries are also the most uniform with Germany. Norway's disturbances are negatively correlated with Germany, and on the basis of this analysis it appears unlikely that Norway would be a member of the monetary union. Finland's position as an EU fringe country and within the group of EFTA countries does not deviate appreciably from this perspective. On the basis of the overall analysis the study

[49] The group of core EU countries consists in this study of Germany, France, the Netherlands, Belgium, Denmark and Luxembourg while the peripheral area includes the United Kingdom, Italy, Spain, Ireland, Portugal and Greece.

[50] Bayomi and Eichengreen use the principal component method, where the first principal component's share of the variability of the common factors is the greatest. Correlation in this respect refers to the first principal component's percentage share of the total variability of GDP and inflation in each country group.

[51] For each country they estimated a two-factor AR model, for which they restrict the parameters on the basis of a simple demand and supply framework in order to identify demand and supply disturbances.

nevertheless concluded that Austria, Sweden and Switzerland resemble the EU core countries more than Island, Norway and Finland.

In the ETLA study (Kotilainen et al., 1994) the correlation of the annual growth of various countries' manufacturing output with that of OECD Europe is investigated for the period 1970-1992. Finland's correlation is the third lowest of the group of 15 EU and EFTA countries. Only Norway's and Sweden's correlations are lower. In terms of manufacturing growth Sweden's situation appears especially problematic. As was mentioned above Sweden's manufacturing displays low growth with great variability. Moreover, Sweden's changes in production are the least uniform of the 15 EU and EFTA countries with OECD Europe.

Figure 7.2 depicts the correlation of fluctuations in certain macroeconomic variables with respect to Germany (Table 7.3). Finland's correlation with Germany differs appreciably[52] compared to other countries in 1961-1990 with respect to investment and GDP as well as exports and the terms of trade. Finland is nevertheless not the only deviant country. The change in Sweden's investment, GDP and exports correlate with Germany's and are on the same level with that of Finland. Except for Austria the correlation vis-à-vis investment is rather similar in other countries. The correlation with respect to inflation in Austria is slightly higher than elsewhere and in Sweden slightly lower. The correlation regarding the

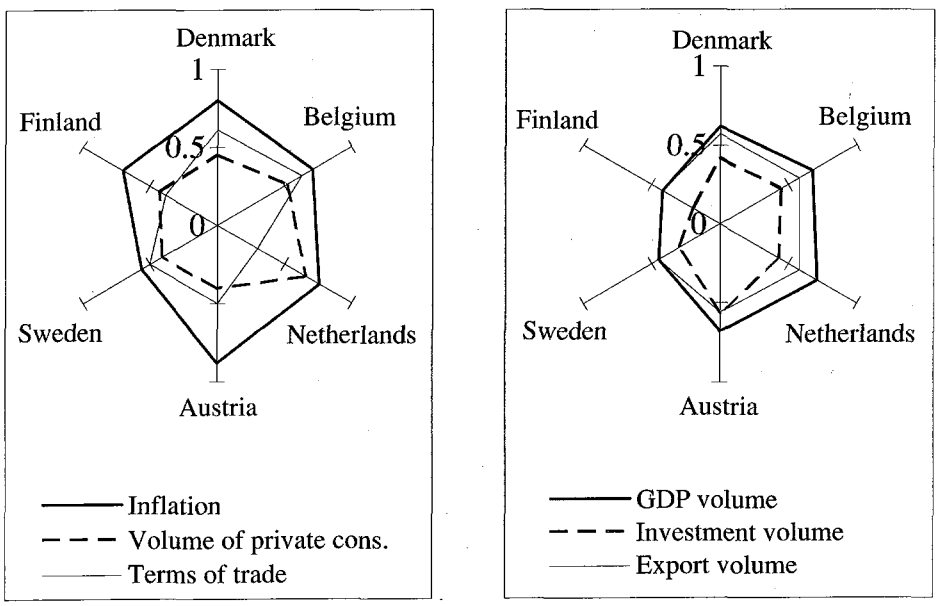

Figure 7.2 Correlation of Economic Fluctuations Relative to Germany during 1961-1990

Source: OECD/OLIS/Economic Outlook.

[52] No simple test exists for determining whether the correlations differ from each other to a statistically significant extent.

terms of trade is slightly lower in Finland and the Netherlands than in other countries. The private consumption differs clearly in the case of the Netherlands and somewhat in Belgium.

In a comparison of the period of 1961-1993 with 1961-1990, it is noted that taking the three extra years into account changes Finland's correlations for the entire period considerably with respect to exports and somewhat also for investment, GDP and private consumption. The same phenomenon is observed for Sweden (Hassler, 1994 and table 7.3). The selection of the period may thus have a significant impact on the decisions regarding the similarity of developments in various countries.

	Terms of Trade		Export volume		Investment volume	
	1961-90	1961-93	1961-90	1961-93	1961-90	1961-93
Finland	0.38	0.38	0.42	0.1	0.2	0.15
Belgium	0.63	0.62	0.58	0.56	0.45	0.45
Netherlands	0.3	0.29	0.58	0.59	0.43	0.44
Austria	0.5	0.5	0.56	0.62	0.57	0.59
Sweden	0.5	0.48	0.45	0.3	0.3	0.26
Denmark	0.61	0.6	0.57	0.66	0.42	0.38

	GDP volume		Private consumption volume		Private consumption deflator	
	1961-90	1961-93	1961-90	1961-93	1961-90	1961-93
Finland	0.42	0.31	0.43	0.35	0.7	0.65
Belgium	0.68	0.7	0.52	0.55	0.71	0.65
Netherlands	0.71	0.56	0.66	0.66	0.76	0.72
Austria	0.68	0.7	0.4	0.42	0.88	0.85
Sweden	0.45	0.44	0.41	0.44	0.56	0.5
Denmark	0.62	0.56	0.45	0.42	0.8	0.66

Table 7.3 *Correlation of Economic Fluctuations Relative to Germany during 1961-1990 and 1961-1993*

Source: OECD/OLIS/Economic Outlook.

Should Finland Join EMU?

The special features distinguishing the Finnish economy from other EU countries have diminished. The most significant difference in foreign trade has been Finland's extensive countertrade with the Soviet Union. The share of this trade declined swiftly already in the 1980s and at this moment eastern trade is conducted by the same ground-rules as in other EU countries. Due to Russia's close proximity, Finnish-Russian trade will nevertheless remain larger than Russia's trade with other EU countries. Correspondingly, the dependence of other EU countries on other non-EU

countries may be of the same magnitude as Russia's share in Finnish trade. Finland differs from other EU countries in that Finland is a forest industry country. Even though the structure of production and exports has diversified, the forest industry will continue to be a key earner of net export revenues for a long time. Partly for this reason the share of intra-industry trade in Finnish-EU trade will perhaps remain lower on average. In several other EU countries the most significant export sector is the metal industry, which has a wider product selection in terms of both investment and consumer goods compared to the paper industry. As a natural resource- and capital-intensive sector the paper industry's price fluctuations and situations of over- and underproduction are steeper than in other sectors.

On the basis of sensitivity to disturbances it appears that Finland would not have overwhelming difficulties being included in a solution where a majority of the current members participate. The fluctuations of the Finnish economy over the long run are not significantly greater than in other small EU countries. The correlations of the variability vis-à-vis Germany do not significantly differ from those of other small EU countries. It is also clear that the change in the economic policy environment as such will decrease the fluctuations with respect to other countries in the future.

The adjustment of the Finnish economy for participation in EMU is not, however, riskless. The problem is related more to behavioural habits than the structure of the economy. In history these have naturally supported each other. Finland is accustomed to using a devaluation as the prime means of addressing foreign and internal disturbances. The abandonment of this tool and the changing of pricing and wage behaviour will not be a painless process in Finnish business circles.

The aim of the European Union is low inflation. The EU and EMU offer better ways for an individual country to achieve credibility in the fight against inflation than unilateral pegging. The terms for achieving low inflation will be internalised better if it is understood that the independence and efficiency of monetary policy are in any case very restricted under conditions of free capital movements. EMU offers an inflation-prone country like Finland perhaps the best possibilities for achieving a stable and durable foundation for growth.

Concerns about whether Finland will succeed in the third stage of the EU's economic and monetary union culminate in monetary and exchange rate policy. The question of whether Finland will benefit more by forsaking its currency and monetary policy or by retaining a theoretical possibility for an independent monetary policy. A significant portion of Finland's prosperity comes from abroad via trade. Since over three fourths of Finland's foreign trade is directed toward other EU countries, Finland would have to assimilate to the policy of the EMU group even if it were not a member of the monetary union.

7.2 Labour Markets in Transition

Changing Environment of Labour Markets

The adjustment of the labour markets to the internationalisation of companies and the liberalisation of production factor mobility takes time. When the mobility of capital is restricted, the possibilities of national economic policy place a greater responsibility on the labour markets in fostering the stabilisation of the economy and conditions for growth. The opening of economies, technological progress and growing demands for employees' skills have an impact on the wage structure via the differentials in employees' productivity.

The internationalisation of companies changes the relations with the labour markets. Even though employment-related regulations, such as dismissal of employees and participation in the decision-making of companies, vary with respect to the subsidiaries in the different countries, international companies typically apply their own wage and motivational systems. This may reduce the interest of a company's management and employees in settlements at the national trade union level.

The spawning of innovations and support of new learning by doing also create pressure for changing the ground-rules of labour markets. Employee motivation and salary systems as well as new organisational solutions emphasise the significance of the workplace in wage agreements. The main question regarding the labour market is what kind of a negotiation system is best suited for increasing the power at the level of the workplace when agreeing upon working times, salaries and benefits and at the same time best for supporting macroeconomic stability and credibility.

Finland's membership in the European Union and especially the possible realisation of EMU will have an impact upon the ground-rules of the labour market. The realisation of EMU would simplify the setting of wages because the effects of changes in exchange rates on prices and real earnings do not need to be taken into consideration in the pay talks. On the other hand, the stringent convergence criteria for EMU require the internalisation of the anti-inflationary aims in the labour market.

The dual nature of the Finnish economy and the steep rise in unemployment will have long-term effects on the labour market. The insider behaviour of the export sectors and the calls in the low-wage sectors for solidarity in wage policy will weaken labour market relations. Unemployment problems have a tendency to be offset by growth in the unofficial economy as well as increased prevalence of part-time and temporary jobs. In these nontypical employment relations the commitment to the employer is weak and provision of additional training modest, which weakens the growth in productivity.

According to the OECD (1994f) the prolonged unemployment plaguing continental Europe is structural in nature and the OECD suggests labour market flexibility in order to lower unemployment. Structural unemploy-

ment is marked by the phenomenon that the inflow of unemployed is low (figure 7.3). For example, in the North American labour market regarded as competitive, the level of long-term unemployed is low, but the flow into unemployment is high. The turnover of the unemployed is high. In the EU area the risk of becoming unemployed is lower, but the probability of unemployed persons becoming employed is likewise low. In the EU the share of long-term unemployed is persistently high. In Finland the growth in the flow into unemployment has slowed and started to subside gradually in 1994. It is to be expected that as the demand for labour strengthens the flow into unemployment will continue to dwindle, but the share of long-term unemployed will grow.

As unemployment persists and the share of long-term unemployment grows the ground-rules of the labour markets will be put to the test. Differences of opinion about the unemployment problems have already caused difficulties in the co-operation between the interest groups and the government. The views on the nature of unemployment and the means to reduce unemployment differ from one another. The weakening of the co-operation between the government and the central organisations for employers and employees and the insider behaviour of the key unions may

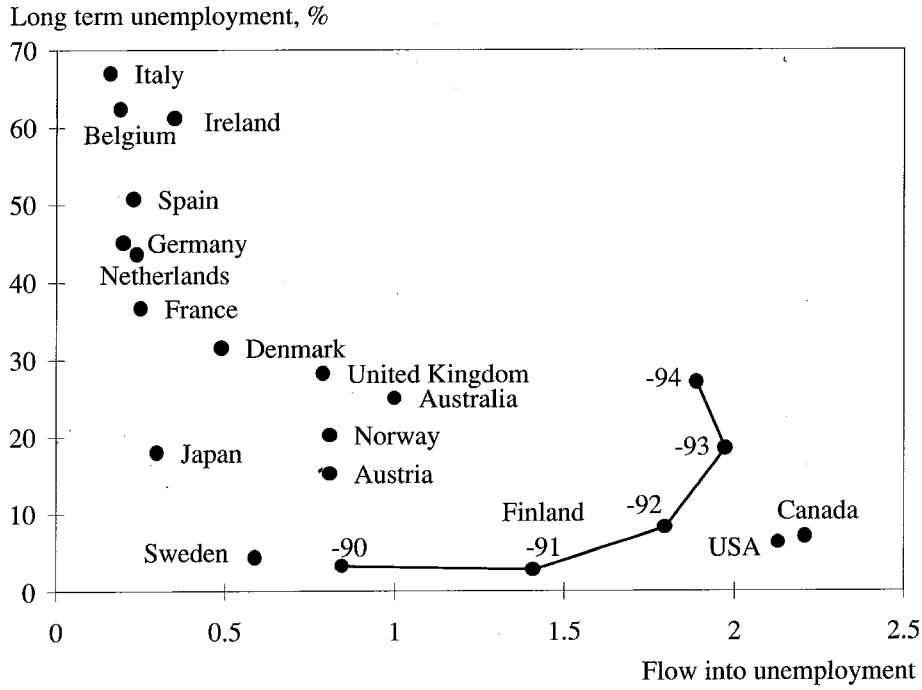

Figure 7.3 Share of Long-term Unemployed and Flow into Unemployment in OECD Countries in 1991 and in Finland in 1990-1994, per cent*

* The flow into unemployment refers to the number of persons unemployed less than a month as a percentage of the population aged 15-64, from which the unemployed have been deducted.

Source: OECD, 1993j; Ministry of Labour.

make it difficult to achieve a wage settlement fostering employment. It is not possible to work out sustainable ground-rules for the labour market without an understanding of the weight of structural and cyclical factors in Finnish unemployment.

Efficiency of Labour Markets

The efficiency of labour markets refers to the vocational and regional mobility of the labour force as well as the flexibility of the labour market in adjusting quickly to changes in the external operating environment. For Finland the flexibility of the labour market is emphasised in the eliminating the effects of typical economic disturbances. An alternative channel of adjustment is the mobility of the labour force.

The mobility of the labour force is relatively modest compared to the mobility of capital. In Europe the regional mobility of the labour force has even decreased in recent decades (Fischer & Parviainen, 1994). The possibility for free movement of labour is not spurring a large-scale migration of workers like that in the 1950s and 1960s[53]. It is unlikely that the large amounts of labour in the low-wage regions would migrate within the Union to regions with better wages. The migrant pressure from outside the EU will, on the other hand, continue to be strong (European Commission, 1994c).

The basic reasons for the relatively modest international mobility are the imperfections appearing in the labour market. They are related largely to vocational and language demands, for which the supply of the labour force adjusts only slowly. The ageing of the labour force will further weaken the mobility.

According to economic theory, wage differentials promote the mobility of labour and attract labour from slumping sectors of the economy to growing sectors. Thus wage differentials eventually fade away. In perfectly competitive labour markets the wage differentials would over the long run reflect only differences in the skills of the labour force and the strenuousness of the work. According to this so-called Walrasian view the economy functions efficiently if two equally well educated, equally talented, equally diligent workers continuously receive the same wage for equally demanding job tasks.

In a completely efficient and competitive labour market, the wage dispersion and wage differentials across industrial sectors should be small. Wide wage dispersion that is stable over the long run is not a sign of an efficient and well-functioning labour market but rather of inefficiency. The wage dispersion of industry is largest in the United States, Japan, United Kingdom and Austria. The smallest wage dispersion has been in Sweden. The wage dispersion in Finland has been near the average of the OECD (OECD, 1992e).

[53] In post-war Europe the workers with no or little education moved on mass to seek a better livelihood. A repeat of this phenomenon is not expected. Several of the countries that had a net outflow of labour at that time are currently members of the EU, and many of them now experience a net inflow of labour (European Commission, 1994c).

In the United States the growth in wage differentials and the reduction in the numbers of low-skilled jobs in industry took place in the 1970s at the same time as trade was opened up and imports from developing countries rose appreciably. According to studies the opening of trade increased the wage dispersion in the US. The opening of competition with developing countries strengthened the transition in the export industries toward sectors with greater capital intensity based on high-tech, high-skilled and high-wage production (Fouquin, 1994; Lawrence & Slaughter, 1993; Sachs & Shatz, 1994). The growth in productivity differentials between the capital-intensive export industry and the service industries of the sheltered sector would create a basis for changes in the wage structure.

The free mobility of capital is also deemed to increase wage differentials (Sachs & Shatz, 1994). In particular labour-intensive companies are tempted to invest in cheap labour countries. This leads to growth in the output of this country's output and cheap imports to industrialised countries, where the output and employment in the sector declines. A globalised high-tech company nevertheless typically looks at market growth, labour know-how and raw material base more than the cost of labour when planning where to locate its production.

The effects of liberalising trade and capital movements on employment and the wage structure have long been the subject of controversy. In the United States the criticism has been based on the fact that simultaneously there have been other changes in the home market and abroad which could have an effect of reducing low-skill jobs and boosting wage differentials (Deardorff, 1994). For example, the prevalence of organised labour in sectors exposed to the removal of trade barriers has decreased substantially (Hall, 1994). New factors affecting the wage structure also include technological progress. The lowering of trade barriers is thus not regarded to be a sufficient explanation for the growth in income differentials.

The special nature of the labour market is emphasised by the fact that relative wages in different industrial sectors are not in an equilibrium of perfect competition in any country. On the other hand, considerable similarities in the wage structure have been observed between different countries; the rank order of the average wages in various sectors is stable over the long run and similar in many countries (Eriksson, 1991). This means that in countries with a decentralised wage agreement system the sectors paying higher wages are usually the same as those in countries with centralised and solidarity-based wage policies. The wage differentials between industrial sectors do not appear to depend upon the wage agreement system (Krueger & Summers, 1988).

All of these observations are an indication of the imperfection of the labour markets. The mobility of the labour force as an adjustment channel for the labour market will remain rather modest. A lot of expectations about the adjustment means have been set regarding the flexibility of the labour market. It should be possible to react quickly to fluctuations in demand by adjusting wages and working time.

As a result of the liberalisation of capital movements the national measures based on traditional demand policy geared toward full employment have lost their effectiveness. The employment effects can even be negative if the country's current account and public sector deficits are growing. The governments of several countries have emphasised in addition to the stability of economic policy the structural reforms on the supply side. The position of an economic policy emphasising the flexibility of the labour market has been strengthened by the countries' growing budget deficits and the view that the high unemployment that has long plagued continental Europe is structural in nature (OECD, 1994f).

From the employers' standpoint the flexibility of the labour markets means, for example, that the use of labour inputs can vary to correspond to fluctuations in production activity. From the perspective of individual employees, flexibility in turn means more variety and selection in working times and whether the working time systems and job tasks correspond to the individual differences in preferences and life situations. The question is thus to a great extent one of possibilities to increase or decrease working times and change work procedures voluntarily[54].

From the standpoint of the overall economy the flexibility of the labour market means swift adjustment to changes in the employment situation, matching of the demand and supply of labour vocationally and regionally as well as the reflection of profitability differences in wage developments.

The economy reacts flexibly to external disturbances, for example, the deterioration of the current account, if real wages adjust rapidly to the new situation. If real wages do not decline, the profitability of the company will weaken, investments decline and unemployment rise. In 1973-1990 there was a positive correlation between rigidities in real wages and growth in unemployment observed in the OECD countries. The growth in unemployment was strongest in those countries where real wages were rigid, i.e. the Netherlands, Germany and Denmark. Countries with good real wage flexibility were Sweden, Finland and Austria, where the growth in unemployment in the 1980s was modest (OECD, 1992e).

In Finland and Sweden the real wage flexibility has been realised partly by devaluations and as a result of high inflation. Furthermore the situation with respect to employment has changed substantially in recent years. The rise in unemployment during 1973-1993 was the sharpest in the OECD countries. The wage behaviour probably did not change in 1991-1993 to

[54] The role of the efficiency wage models in explaining wage dispersion gains greater emphasis along with new working time schemes and flexible use of labour. In production sectors where the work of employees is independent or where the monitoring of workers has been given up completely a higher wage can be paid. It has also been maintained (e.g. Vainiomäki & Laaksonen, 1992; Krueger & Summers, 1988) that industry-specific wage differentials that are not explained by traditional factors reflect differences in efficiency compensation and motivation schemes within companies. On the other hand, the unexplained wage differentials can reflect differences in factors that are difficult to measure, such as the competence of employees (Vainiomäki & Laaksonen, 1992). The selection of the most competent and at the same time the most productive workers to certain industries would account for why better wages are paid in these sectors.

such an extent that it could explain the growth in unemployment. It is not possible to draw straightforward conclusions about whether real wage rigidities lead to higher unemployment.

The flexibility of the labour market can be gauged also with the so-called UV curve, i.e. the Beveridge curve, which depicts the inverse relationship between job seekers and open jobs (figure 7.4). The shifting of the UV curve away from the origin indicates that the number of unemployed per open job is increasingly higher. This can reflect the growth in vocational demands. The shifting of the curve is also affected by the level and duration of unemployment benefits. On the other hand, the growth in mismatching problems indicates the inability of relative wages to adjust in the labour markets.

In the comparison countries the UV curve shifted outwards in the 1980s the most appreciably in Belgium, Finland and Norway. Also in Austria the mismatching problems assumed a permanent nature in the late 1980s. Only in Sweden was the development clearly positive at the end of the 1980s. In Sweden the active labour market policy has been a significant factor in improving the matching in the labour market. The situation has now changed also in Sweden.

The role of the central government in education and as a provider of job traineeships has been of key importance in improving the flexibility in the labour market. The implementation of measures specifically targeted for limited groups as well as careful planning of the content of programs are regarded as important for having a lasting impact on employment (OECD, 1993k). In Finland of timely importance are the cost efficient state aid and development of targeted labour market programmes for special groups, such as those for long-term and youth unemployed.

The prolongation of unemployment can lead young persons to be crowded out from working life, because they do not have a stable position in the labour market. The longer the unemployment lasts, the less employment possibilities there are. The displacement from working life is hindered by a sound basic education. Furthermore, it is possible to improve the position of young persons in the labour market via training and job programmes (Pyy, 1994; Rantala, 1995). The growth in unemployment appears to have had a negative effect in the early 1990s on the job opportunities of young men since the likelihood of a young woman becoming employed was 1.5 times greater than a young man (Pyy, 1994).

From the standpoint of the aggregate economy the growth in wage differentials would lead to better mobility in the labour market. Labour mobility is tied not only to the demand situation in the labour market but also the housing situation, vocational skills, wage differentials, and the level and duration of unemployment compensation. Even though the "signal" provided by the wage differential is an important factor behind labour mobility, other factors related to the demand for labour have been found in empirical studies to be more important than wage differentials (Ingberg, 1987; Santamäki-Vuori, 1991a).

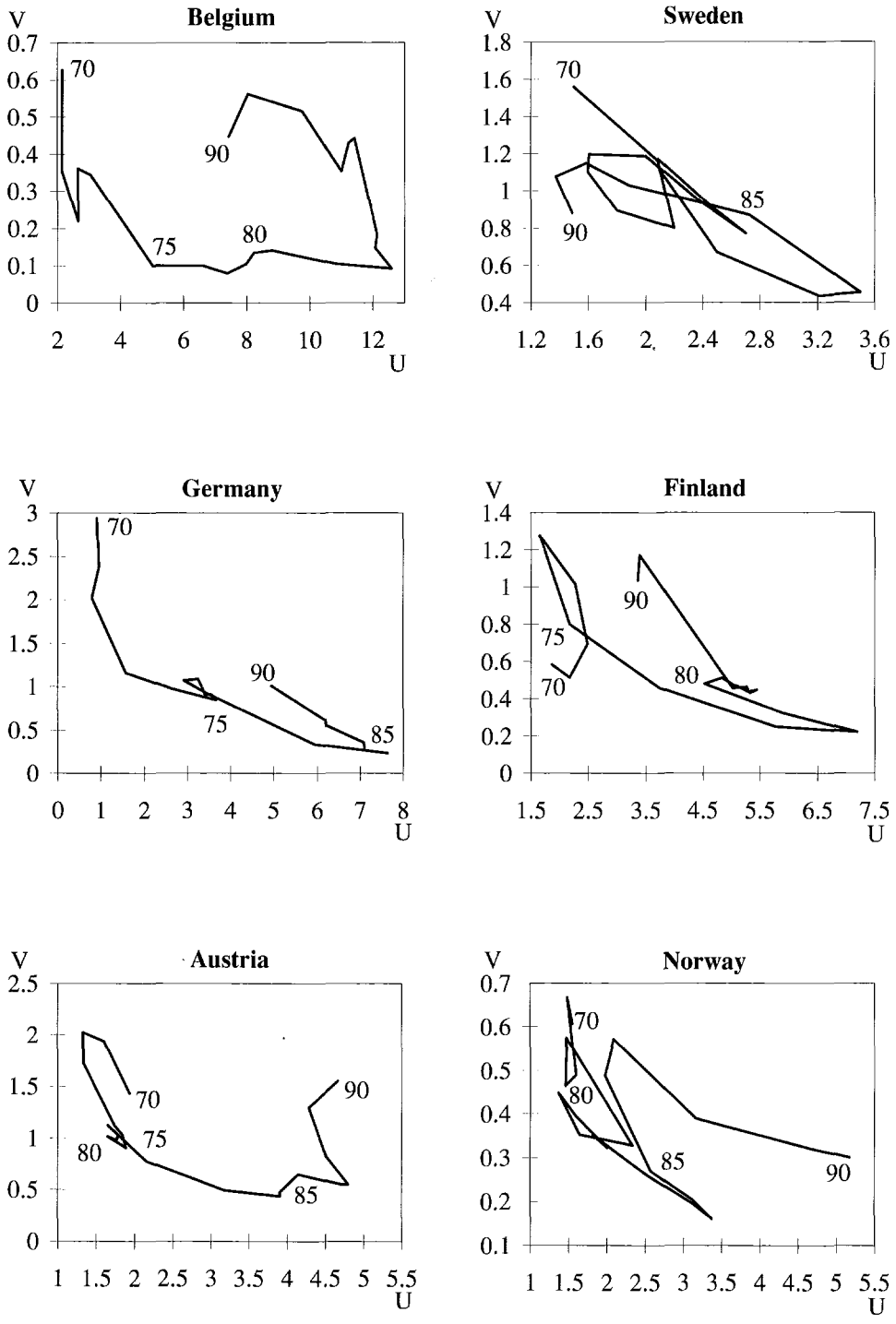

Figure 7.4 UV Curves in Certain OECD Countries in 1970-1990*

* U = unemployment rate (%), V = open jobs / labour force (%).

Source: OECD, 1992e.

Most of the labour mobility occurs in the form of mobility within industrial sectors. At least in Finland the demand for labour has a considerable effect on regional mobility (Reijo, 1993) and mobility between sectors. In the years with favourable growth expectations of 1989-1990 the mobility between sectors accounted for over ten per cent of the overall mobility of the labour force, but less than half a per cent in 1990-1991 when the demand for labour collapsed (OECD, 1994f).

The mobility of labour in the EU area will perhaps remain low. The mobility will be appear primarily in the lowest and highest wage groups of the labour market as the persons in the middle range would require considerable economic incentives. This is partly a result of the intangible costs of moving, such as learning a new language well enough that it can be used in tasks requiring high vocational skills (European Commission, 1994c). Thus greater wage differences and wage flexibility will not lead to greater mobility in the labour market if there are mismatching problems due to growing vocational and language requirements.

The mobility in national labour markets may be greater, but also there the flexibility of the labour market as a stabilising force will be more pronounced. Education and training will play a key role in upgrading the functioning of the labour markets.

Will Technological Progress Increase Unemployment and Income Differentials?

Developments in various countries show that an economy can grow swiftly without a simultaneous rise in employment. One reason for this is thought to be that production growth is based on labour substituting technology. Even though the new technological application may over the short run increase unemployment, it is over the long run of necessity for economic growth and thus the safeguarding of employment. The OECD sees the reason for unemployment in the case of Europe as stemming from shortcomings in the development and exploitation of new innovations. Since the region has not been able to benefit sufficiently from the opportunities brought by technological advances and the opening of the world economy, industrial policy has been geared toward slumping production sectors (OECD, 1994f).

High production technology crowds out low-skilled workers. When evaluated by industrial sector, for example in the United States, the share of total employment by sectors using low-skilled labour fell from 26 per cent to 14 per cent between 1968 and 1993. During the same period the share of employment rose in the sectors requiring high know-how, such as the finance and insurance sectors, business services and high-tech industries (Fouquin, 1994).

The same structural trend was observable also in other OECD countries. In Finland in 1960 a seventh of the labour force was engaged in producing,

transferring and supplying information, in 1980 a third, and in the early 1990s over 40 per cent participated in information-related tasks, i.e. over a million persons (Kauppinen, 1992). Finland's comparative advantage has shifted toward sectors based on high-tech know-how (Santamäki-Vuori, 1994).

There is wide agreement about the role of new technology as a factor affecting the wage structure (Fouquin, 1994; Lawrence & Slaughter, 1993; Sachs & Shatz, 1994; OECD, 1994f). Changes in technology affect the wage structure via the rise in the skill requirements for labour. The competence required in tasks using high technology can be developed also via job-related training. A reason for the growth in wage differentials is the uneven spread of technological advances to different sectors and vocational groups in the economy.

A consequence of the uneven diffusion of technology is that there has been a rise in the relative wages of high-skilled workers using new technology in their work. In the United States employees using a computer at work earn 10-15 per cent higher wages than non-users (Krueger, 1993). The same phenomenon also prevails in Finland (Tossavainen, 1994).

The adoption of new technology tends to widen income differentials because it increases the differences in labour productivity across different types of workers. In vocations requiring new technology, high competence and innovativeness, the work entails a great deal of specific knowledge, and it is not easy to replace the persons in these jobs with others. The insubstitutability of highly skilled and unskilled persons leads to mismatches in the labour market and to growth in wage differentials due to the insider behaviour of skilled workers.

The training of low-skilled workers is important for preventing the mismatching problems as well as for dampening the insider power of special groups or those with a monopoly position. The problem boils down to how can unemployed persons be kept competitive on the labour market. The widening of vocational skills rather than the deepening of vocational skills geared toward a narrow sector of the economy would keep the unemployed in touch with the labour market and thus speed the adjustment in the labour market.

Wages should also be used as an incentive. One of the main questions regarding the personnel policy of globalising companies is how to create incentives for initiative and learning on the job. If the efficiency conpensation and motivation systems of companies and industries differ from each other appreciably, there will also be wage differentials between industrial sectors and vocational groups.

The growth in the wage differentials are justified from the standpoint of accumulating know-how and competitiveness. The wage differentials should be allowed to grow with productivity and the standard of living in low-wage groups should be safeguarded by means of negative income taxation.

Combating unemployment by increasing wage differentials alone is difficult. International comparisons show that increasing wage differentials has a positive effect on employment, but reducing unemployment by one percent requires an increase in wage dispersion by as much as 10-15 per cent (figure 7.5). A significant 3-4 per cent decrease in structural unemployment would require a lowering of the wage level by 30-50 per cent in the low-wage groups (Ecebo, 1994). The lowering of structural unemployment by merely increasing wage differentials could endanger social stability. The United States exemplifies a country where strong growth in income differentials has brought social problems. Growth in income differentials since the 1970s has kept unemployment at a tolerable level, but the lowering of the real wages of unskilled workers during the last 20 years has caused the problem of the working poor.

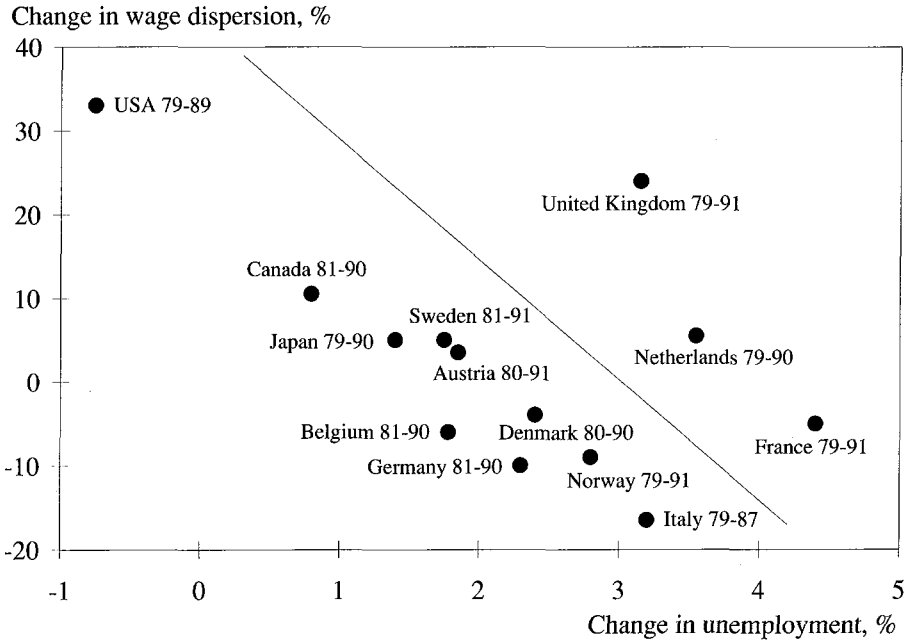

Figure 7.5 Changes in Wage Dispersion and Unemployment in Certain OECD Countries, per cent

Source: Ecebo, 1994.

Effects of EU Integration on Finnish Labour Market Model

In many OECD countries the agreement systems determining labour relations have undergone changes since the 1980s. These changes are for the most part a result of the requirements placed on the employment-related institutions of an internationalising economy to adjust.

The organisation of labour relations have been used as a basis for comparison when evaluating the possibilities of economic blocs to re-

spond to the demands of globalisation. The advantage of the socialist market economy of continental Europe is deemed to be that it combines aspects of a market economy with social responsibility. It is nevertheless emphasised that without the development of local agreement systems and elimination of structural labour market barriers it will be difficult for continental European countries to succeed in international competition (Jacobi, 1994).

The labour relations of the Nordic countries differ from those in most of the other European countries. Characteristic features of the Nordic labour market agreement system have been the centralised agreement system and the key position of the trade unions in society and the high prevalence of organised labour. The share of organised labour has been clearly higher during the last twenty years compared to most continental European countries, the USA and Japan. In Sweden and in Finland the ranks of the trade unions have continued to grow also in the 1990s.

	1970	1980	1990
Sweden	67.7	79.7	82.5
Denmark	60	76	71.4
Finland	51.4	69.8	72
Norway	51.4	56.9	56
Austria	62.2	56.2	46.2
Belgium	45.4	55.9	51.2
France	22.3	17.5	9.8
Germany	33	35.6	32.9
Italy	36.3	49.3	38.8
Netherlands	38	35.3	25.5
Portugal	60.8	60.7	31.8
Spain	27.4	25	11
Great Britain	44.8	50.4	39.1
USA	23.2	22.3	15.6
Japan	35.1	31.1	25.4

Table 7.4 *Organised Labour as a Percentage of the Labour Force in Certain OECD Countries in 1970, 1980, and 1990*

Source: OECD, 1994b.

The tripartite co-operation between the central organisations of employers and employees and the government has played a key role in the economic policy of the Nordic countries. The use of centralised incomes policy in this conjunction has resulted in relatively small income and wealth differentials compared to the EU countries. The Nordic model ensured a good employment situation until the end of the 1980s. Thereafter the model has experienced profound change.

EU membership does not spur great changes in Finland's and Sweden's labour market in the short run. The EEA already brought common labour

markets with the EU countries. EU membership entails common EU citizenship, which should be realised in 1996. The citizens of the Union will have the right to choose their place of residence anywhere in the EU area. The commitment to EU regulations will not cause significant changes in employment legislation (Bruun, 1994). In addition to employment legislation, job relationships will be governed by collective agreements. The Treaty of Rome does not have any bearing on the agreements followed in the member countries; the member countries can choose suitable forms of agreements themselves.

The effects of joining the Union on Nordic employment conditions will be channelled via other ways. The strict criteria for joining EMU will require adherence to an anti-inflation economic policy. The safeguarding of employment in these conditions will require flexibility in the labour market.

Tax harmonisation and solving the debt problem of the public sector means that the female-dominated public sector will have to increase the efficiency of its activities and evidently the trade unions of the public sector will have to accept growth in wage differentials relative to the open sector (Gonäs, 1994).

What Kind of Labour Market Agreement System Provides Best Answers to N w Questions?

One stable feature of Finland's and the other Nordic countries' labour market model has been the centralised nature of the agreement system. The centralised and the firm-specific decentralised agreement systems have both functioned well in recent history from the standpoint of employment (Calmfors & Driffill, 1988; Calmfors, 1993). Still in the 1980s small wage differentials and full employment appeared to be realised best in the countries with centralised agreement systems.

The advantage of centralised incomes agreements is deemed to be that they can take into account the effect of wage increases on consumer prices and thus real wages, thereby avoiding the wage-wage spiral. At the same time it can be taken into consideration that wage hikes in one sector can cause unemployment in other sectors, thus weakening the balance of the public sector as well.

The centralised agreement system has also been justified as improving the efficiency of production; companies that are unable to pay the wages agreed upon in the centralised agreement have to bolster the efficiency of their operations or shut down their operations in competitive markets. The centralised model is thus deemed to prevent competition based on low labour costs (so-called "social dumping").

A need for centralised agreements is also seen because of the additional costs that wage negotiations entail for small and medium-sized enterprises. Small companies seldom have experts that can negotiate with the shop

stewards backed by the trade unions. Because many of these types of information problems prevail in the labour markets (Pohjola, 1989), it is deemed justified for efficiency reasons to retain the umbrella organisations to deal with basic questions regarding employment conditions.

According to Calmfors and Driffill (1988) union-level agreements bring the worst macroeconomic results. The union-level agreements do not take into account the externalities that dampen wage inflation, which is characteristic of the centralised agreements. In the union-level agreements the unions keep a close eye on the wage increases of others or strong unions in a monopoly position may try to top the wage increases spawned by other unions' settlements.

In Finland corporatism[55] based on tripartite co-operation has traditionally held a strong position in the incomes policy followed since 1968 (Kauppinen, 1992). From time to time union-level agreements have been applied. In the 1993 union-level agreements the decision-making power on the local level was increased especially in matters concerning working times.

Attempts to increase the flexibility of the labour market in Finland have indeed concentrated upon the agreement systems at the level of the workplace. Workplace-specific agreements have been based on the fact that a company facing a sudden disturbance would be able to adjust wages faster than under the centralised method. In this way, adjustment to a changed situation would not occur solely via employment. The adjustment to regional disturbances would also be faster with the workplace-level agreement system. The predictability of macroeconomic developments is nevertheless more difficult in the completely decentralised system than in the centralised one.

A strong argument in favour of making agreements on the workplace level is that companies wish to carry out reforms at the workplace and promote learning by doing. Large international companies often have their own compensation schemes. Increasing the possibilities to make agreements at the work-place level would be the best way to take into consideration the individual productivity of employees.

Flexibility at the local level is needed over the long run from the standpoint of growth factors and competitiveness. Denmark exemplifies a small EU country that has revamped corporatism to correspond to the new conditions, where the local level agreement procedures have been developed within the framework of the centralised agreement system (Brun, 1994). The total wage in these settlements consists of four components. The first component is a fixed basic wage. The second is overtime compensation. These are decided upon centrally. The third is based on the worker's competence, which is determined on the basis of nine factors

[55] In connection with labour relations corporatism is understood as the interaction of the government and the central organisations of employers and employees, where the three counterparties negotiate about the objectives of economic, social and labour market policy (Kauppinen, 1994).

depending on the skills of the worker. The fourth component is determined on the basis of job results. The dispersion has increased in the metal and machinery industry as well as in the public sector. Workplace-level applications are being developed also with respect to other matters such as working times.

When outlining future trends it is important to remember that previous changes in the ground-rules of the labour market have always occurred as a result of political and economic crises (Kauppinen, 1992). The time may once again be ripe for changes in the ground-rules. The recession of the early 1990s will perhaps leave deep scars on Finnish society. Unemployment will remain high throughout the 1990s. The increase in the public debt will undoubtedly affect the wage developments in the public sector.

According to Kauppinen (1994) the trend is marked by greater prevalence of cartels, which are already observable in the export industries and the public sector. The most likely trend is perhaps a functional division, for example, whereby the export sector, private services and public services will band together in their own cartels.

The difference between the new and old agreement system is that in cartel-based corporatism the central organisations will make only loose outlines for agreements - if even those. The unions in the cartel will negotiate their own agreements and possibly sectoral or workplace-specific decentralised applications[56]. This kind of trend emphasising the meaning of unions entails risks because the union-level agreements generate the worst employment effects and wage-wage spirals.

Trend Is Clear, Pace Uncertain

The spawning of incentives for innovation, learning by doing and training will require strong development of centralised labour agreement and participation systems at the local level within the framework of agreement systems that safeguard basic social security. Money alone is not a sufficient incentive, but rather workers engaged in innovative activities should participate in the planning of working conditions and times as well as training programmes. It is unlikely that the equity of employees' working times, earnings and fringe benefits can be maintained in the future.

Innovations and their practical implementation depend upon human capital. It is natural that part of the benefits of innovative activities go to their developers. The compensation can be realised via bonus schemes and personnel funds.

The main employee motivation and compensation systems spurring innovations and new learning as well as technological changes tend to

[56] From the standpoint of EU integration, it is of importance that in cartel-based corporatism the central organisations still have an important role in the co-operation between the member states and the trade union movement on the EU level (Kauppinen, 1994). The future of the corporatist model depends a great deal upon how well the national interest groups can develop co-operation in the EU area. The future of the ground-rules of the Finnish labour market ultimately depends upon the strategy selected jointly by the government and the labour market organisations.

increase productivity differentials between worker groups. The growth in productivity differentials inevitably leads to growth in wage differentials. The opening of trade also tends to increase wage differentials. The greatest possible unanimity regarding the meaning and reasonableness of wage differentials would stabilise the labour markets.

Labour mobility by itself is not able to bring about adjustment in the labour market even over the long run, but rather the labour markets need considerably more flexibility of other types. The possible participation in EMU would stress the meaning of such an incomes policy that would be able to react quickly by adjusting wages to fluctuations in foreign demand.

The education and training related to the needs of internationalising companies improve the labour mobility and flexibility of the labour market by preventing mismatching problems in the supply and demand of labour. The active measures directed toward long-term unemployed will be of special importance.

EU integration does not threaten the existence of the Finnish labour market model nor limit the agreement practices chosen by each particular country. It is necessary to develop company-specific settlement schemes for wages, working times and fringe benefits within a centralised collective bargaining framework. Union-level agreements and formation of cartels between the key unions have a detrimental effect on employment.

The unemployment problem will change the characteristics of the Nordic labour market model and divide the labour force into workers with regular and irregular jobs if unemployment is not seen also as a problem sustained by structural factors.

7.3 Ability of Companies to Adjust

Successful adjustment to anticipated and often unanticipated changes in the markets and ground-rules requires flexibility. Finland's being driven into a prolonged and severe recession in the early 1990s begs the question of whether the ability of the economy to adjust to external change has been insufficient.

At the aggregate level of the economy flexibility can be understood as adaptability[57] to changes in the market, so that in the event of a disturbance the external and internal balance of the economy remains satisfactory. Adaptability is affected by the structure of both the goods and production factor markets, production capacity, financial markets, the functioning of the labour markets, public sector activities and how well the changes in the ground-rules brought by internationalisation have been internalised in the various levels of decision making.

[57] The terms adaptability and flexibility can be used to mean the same thing. Adaptability is nevertheless a wider concept. It includes the flexibility and adaptability of many different factors while flexibility generally refers to the properties of an individual factor.

Of significant importance for the adjustment ability of the overall economy is the flexibility of companies. Companies are to a great extent responsible for investment activity and the long-range nature of business activities and the ability to react to changes in the markets are in a key position. The difficulties in business circles and the subsequent mass unemployment indicate that enterprises were not able to revise their strategies and adjust to the changes in the market and disturbances. The activities of Finnish companies have been marked to a certain extent by a tendency to lag behind others. For example, enterprises have sought new markets in many cases only when forced to do so.

Significance of Flexibility in Companies

Companies are founded in general with the intention of continuing well into the indefinite future, so that flexibility in companies can be defined, for example, as the ability to serve customers in changing situations. Flexibility is akin to insurance against market changes, disturbances and uncertainty hindering the activities of companies as well as for ensuring financial stability and growth. Traditionally inventories have been the companies' buffers against future uncertainty. They do not suffice, however, as a means of adjustment for quick changes in competitive situations, technology or the structure of demand. Adjustment to these factors often requires the changing of the entire business idea of the company.

Flexibility is an important means of competition. In some companies the most significant flexibility factor and means of competition can be the delivery times and offering of training, spare parts and maintenance services for customers if desired. In other companies the main flexibility factor is to be able to customise products to the needs of the client, offer individualised service instead of mass production. The flexibility of production technology thus plays a significant role. Technological progress has made it increasingly possible to produce tailor-made goods in a cost-efficient manner and to promote the flexibility in delivery times. The competitive advantage of many companies is indeed based on delivery times and well functioning logistic, which can also minimise inventory costs.

The flexibility of a company is related also to the speed with which it can implement needed changes, fulfil new needs and produce new ideas. In addition, flexibility is linked to the ability of the company to minimise the cost of the process of change. The costs associated with improving flexibility have a considerable bearing upon whether the diversification of the product mix should even be attempted. The upgrading of flexibility is never free. For example, a plant designed to produce a certain amount of goods is probably able to produce the necessary amount in a more cost efficient manner than a plant designed to manufacture variable amounts of output. The benefits of flexibility should be measured against the costs it creates. It can sometimes be cheaper for the company to seek new markets for old products than to renew its range of products.

Dimensions of Flexibility

The flexibility of a company can be divided into three dimensions: strategical, tactical and operative flexibility (Carlsson, 1989). Strategic flexibility refers to very long-range policies and visions when the uncertainty about the future is greatest. Operative and tactical flexibility in turn are related to the short- and medium-term horizon and changes that perhaps can be better forecast.

Strategic flexibility is related to the long-term planning of a company's business policies, so that the range of alternatives is wide. Strategic flexibility denoted the ability of a company to reorient itself in markets, make possibly even drastic changes in products, base its activities on completely new goods if necessary or change its strategy and plans of action. Strategic flexibility is needed when a company is no longer able to base its activities on old customers or products or when the profitability of activities requires the change of the entire business organisation.

The revamping of operations, manufacture of completely new products or changing of the production process are dependent upon simultaneous changes in the organisation. The structure of the organisation and the human resources are indeed important factors in the strategic flexibility and adaptability of the company. In many cases it is possible to bring about extensive changes in production activities merely by organisational means. Innovative development of working tasks can upgrade the flexibility of rigid production technology.

The adaptability of a company depends to a great extent upon the employees' attitudes and willingness to change. These factors are affected appreciably by the management's skill and competence. The willingness to change and adaptability of individuals are affected by personnel training and the employees' knowledge and skills. Versatile skills increase the capacity for adjustment.

Tactical flexibility is related above all to the company's technological choices, which are affected among other things by the expected level of demand for the products and changes in the structure of demand, technological progress, possible new competitors and incentive effects spurred by competition. The choice of technology is affected by the stage of the product's life-cycle, existing competitors and expectations about the availability and quality of raw materials and factors of production.

The technological limits on flexibility have been reduced, for instance, with flexible production schemes. The aim of these schemes is to make it easier to modify the various stages of the production process and the products manufactured. Flexible production schemes enable small amounts of production better than before by reducing the minimum amount required for cost-efficient production. The adoption of flexible production schemes always entails costs that set limits on the economic feasibility of flexibility.

Operative flexibility refers to whether a company is able to adjust its operations and change its way of conducting business in a very short period of time. An operatively flexible company does not become unable to function, for example, because of damaged machinery and equipment or sudden interruptions in the availability of raw materials and factors of

production. The company can also change its work rhythm if necessary and, for example, in peak times speed up the manufacture of certain parts.

The mutual substitutability of production inputs, such as capital, energy and labour, is often slight in the short run or the realisation of a change at least spurs considerable costs, with perhaps the exception of service sector companies. A company can strive to organise its production so that it can adjust to changes and disruptions in the short run. The company can give some of its tasks to be carried out by subcontractors and concentrate itself upon areas of its core know-how. The co-operation with other companies can be tight by taking co-operative partners actively along in the development and planning of services geared toward the needs of its own customers.

Institutions Limit or Promote Flexibility of Companies

Flexibility is ultimately a microeconomic phenomenon and the ability of companies to react determines to a great extent how adaptable the economy is in the face of external disturbances. The companies' possibilities to respond to market changes is nevertheless affected by the internal organisations of companies as well as how the various institutions and submarkets of the economy function. Among other things, the labour markets, the standard of education, incentives created by tax and state aid policies as well as the financial markets create a framework for the flexibility of companies.

Institutional structures can help the adaptability of the company or hinder efficient activities. The institutional environment also affects whether companies have incentives to be flexible. For example, the degree of competition in markets influences the need for flexibility. Competitive pressures augment adaptability by encouraging companies to create new and cheaper goods and production processes increasing the efficiency of the economy. Controls and various kinds of subsidies in turn discourage new development, which slows the adjustment of the economy's production structure to anticipated changes in demand and distorts competition between companies.

According to the liberalistic line of thought, perfect competition leads to the best allocation of resources. This approach disregards, however, the costs of obtaining information, which are always spurred by interaction of people. Institutions or the rules of human interaction reduce the costs of gathering information.

A clear advantage of a system of rules is that, if economic agents know that others follow the same system of rules, they have better possibilities to predict the course of events. It is known ahead of time how economic agents will react in different situations. This provides a longer time perspective for decisions.

A society's system of rules is comprised of governmental laws and other regulations as well as the moral laws applying to all individuals. These should create an incentive system that encourages innovative activity as well as the ability and desire to adjust quickly. Adaptability is a new creative factor of growth.

The flexibility of companies in Finland has been at most mediocre. Generous subsidies have increased inefficiency and slowed the structural change distorting competition and preventing the efficient allocation of resources. Intermittent devaluations, which can be compared to direct support of export companies, favour old industries and perpetuate rigidities in the structure of the economy. New approaches have been sought only when forced and the demand potential of growing markets has not been exploited soon enough.

The financial markets have likewise favoured the old industries. Financing has been guaranteed for large companies, but the availability of financing for small and growing companies has been problematic owing to a lack of collateral and the high cost of money. Finland's regulated banking system has been relatively rigid, nor has it been marked by sufficient persistence. The bank-centred system as such cannot be regarded as the reason for rigidities since in many countries, such as Japan and Germany the banking system has functioned well and safeguarded the availability of long-term financing for large and small companies.

Factors Affecting Economic Growth According to Johan Myhrman (1994)

Institutions ->	Incentive ->	Forces sustaining growth ->	Growth
Taxes	Expected GDP	Economies of scale	
Public expenditures	Risk-taking	Innovation	
Morals	Attitudes	Adaptability	
Ownership rights			

Social institutions determine to a great extent the strength and orientation of incentive systems. Long-run economic growth is determined in accordance with incentives for innovation as well as willingness and ability to change in the face of new conditions, in other words incentives for flexibility. It is important for success that the time horizon within which all economic agents, especially enterprises, plan and operate is long. Of decisive importance for the behaviour of companies is expected institutions, i.e. expectations about the company climate. As regards private business activities, small and medium-sized enterprises as well as incentives for new entrepreneurship are in a key position.

The availability of financing in Finland can be expected to improve also for small companies, even though the risk-bearing ability of banks is weak at the moment and caution is a dominant feature of the financial institutions' activities. The promotion of risk investment has gained a great deal of attention recently. The potential competition from foreign banks has forced domestic banks to focus more attention on small companies.

Of key importance from the standpoint of the adaptability of companies is the flexibility of the labour market, especially the possibility for flexibility in wages and working time on the level of the workplace. Workplace-specific agreements under conditions of swift changes in market demand would provide the best possibilities for companies to adjust. Then the adjustment would not occur solely via unemployment. An important consideration from the standpoint of companies is the availability of educated persons. The flexibility of the labour market can be promoted with training geared toward the needs of companies, which improves labour mobility and hinders mismatches between the demand and supply of labour.

Corporate taxation in Finland after the corporate tax reforms is one of the lowest in the OECD countries, making Finland a more attractive investment target. The neutrality of taxation between different industries has also increased, which will improve the efficiency of the allocation of capital and investment and promote the diversification of the production structure. The tax wedges for domestically financed investments, i.e. efficiency losses caused by taxation have decreased substantially. Furthermore, there is better neutrality with respect to the form of financing in Finland than in many European countries.

The position of an economic policy emphasising economic policy has been augmented by high unemployment, which is partly structural in nature, and by the growing budget deficit and rise in the public debt, which has eliminated the room for manoeuvre of the public sector. The basic factors of success are flexible adjustment to the new situation and adoption of technological advances faster than others. The incentives of the system of institutions for companies and individuals as well as the possibilities for flexibility offered by this system have a decisive bearing upon economic growth.

Role of Public Sector In Promoting Growth

8

In international comparisons a positive connection has been observed between economic growth and political democracy (e.g. Alesina et al. 1992; Helliwell, 1994). Democratic rights and free dissemination of knowledge are basic prerequisites for the spread of technology and innovation. Clear legislation and a corruption-free government create a stable environment for fixed investment and education open to the entire population enables the accumulation of human capital. The democracy of western countries has proven to be durable from the standpoint of growth in welfare.

In almost all western countries the growth of the role of the public sector has been associated with democracy. New activities have been continuously given to the government to be handled. The extension of political decision making increasingly into the affairs of businesses and private persons has created a complicated regulation system. The rigidity of the system, on the one hand, and the unclearness or instability of the regulations, on the other hand, have been considered to be a burden on the economy (e.g. SOU, 1993).

In advanced democracies it has been increasingly questioned whether public regulation has gone so far, especially in income transfers and development of public services, that it hinders the growth in welfare. Public indebtedness is a problem in almost all OECD countries and it is feared to keep inflationary expectations and interest rates high. Furthermore, public monopolies and other interference in market activities are deemed to create more distortions and inefficiencies than positive externalities.

Cutbacks in public expenditures by privatising public activities, reducing subsidies and other benefits or the eligibility of recipients, by simplifying administration or slowing the rise in the wages of the public sector are general trends in western countries. In countries like Finland the deficit reduction need pertains especially to public welfare expenditures, accounting for two thirds of public expenditures, excluding debt servicing expenditures.

Finland's public debt will not decline to a reasonable level without spending cuts. When implementing these cuts attention should be placed on the expenditures' internal, growth-promoting allocation as well as the various incentives of social insurance and service schemes. Obligatory social insurance with wide coverage entails positive growth effects owing to risk diversification. Savings in expenditures can be generated by lowering the level of benefits. The incentive and poverty traps associated with the current system can be prevented primarily by easing the tax burden on earned income and by better matching of changes in incomes and subsidies. Raising the efficiency of service production will spur savings in public expenditures. New schemes should be considered carefully and tested before implementation

8.1 Effect of Public Welfare Expenditures on Growth

Are the effects of public welfare expenditures on economic growth only negative? This has been the subject of lively debate recently in Finland. Excessive income transfer and social insurance schemes have been regarded as partly to blame for the slowdown of growth in Europe. The Nordic welfare state has been deemed to have come to a dead end. The high level of social security and its financing has been seen as causing incentive traps spurring rigidities in the labour markets, growth in the tax burden and the danger of the public sector being driven into a debt spiral (Dreze & Malinvaud, 1994; Lindbeck et al., 1994).

Macroeconomic Effects on Growth and Economic Stability

Income transfers and the possibly negative incentive effects of public services on the supply of labour lower the level of economic activity, so that the changing of the distorting schemes can spawn a one-time increase in the level of production. The permanent impact on the rate of growth in turn depends upon how the technical progress is internalised, which is possible to spur via formation of human capital and real investment. If the financing of social security, especially pensions, crowds out the resources available for these purposes, welfare expenditures can permanently lower growth.

The public social security safety net reduces the need of households to protect themselves from future losses of income with private saving. The accumulation of pension benefits on the other hand enables persons to exit the labour force earlier and thus increases the overall need for lifecycle savings. No consensus has been reached on the net effects. In some studies the public, for the most part unfunded, pension system has been seen as dampening the formation of capital (e.g. Feldstein, 1994b). In other studies the opposite conclusions are reached (Atkinson, 1987, 1994).

The funding of social security via the activities of private insurance institutions, on the other hand, brings large institutional investors to the capital market and can have a negative effect on the risk taking and rate of economic growth as a result (see Bencivenga & Smith, 1991). Institutional investors tend to be interested in quick gains, so that it may be difficult for a company to gain financing for long-term, risk-sensitive development projects.

The tendency of public indebtedness to raise interest rates has been found to be modest in studies. The greatest pressure on the level of the interest rates comes from the swift growth in public borrowing, especially if the debt is taken from abroad. Country-specific interest premia tend to be related particularly to the foreign indebtedness of the overall economy and devaluation risk, which sustained the lack of confidence in the country's economy. A rise in the cost of servicing the public debt spurs

pressures to cut expenditures if the tax burden cannot be raised. This pertains to the entire public sector and trims aggregate demand. Over the long run bringing the debt under control is nevertheless a must for restoring the confidence in the country's economy, which provides leeway also to the public sector. Finland is now in a situation where bringing the public debt under control constitutes a key constraint for economic policy.

From the viewpoint of economic fluctuations, social expenditures play a decisive role as an automatic stabiliser in the economy. If the disturbances afflicting the economy are temporary in nature, the stabilising effect of the social security safety net will reduce the need for households to protect themselves and will increase welfare (Stiglitz, 1969). On the other hand, it generates externalities sustaining consumption demand via multiplier effects at the aggregate level. The growth in the public debt resulting from temporary disturbances should not be curbed with a sudden tightening of the tax burden and a corresponding easing later. This increases also tax wedges and spurs deadweight losses due to the difference in the timing of consumption and investment decisions (Barro, 1979). The interpretation of whether a disturbance is temporary or permanent is decisive in determining how quickly to curb swift growth in the deficit and often divides views on economic policy. The pivotal question is what kind of long-term trends are envisioned for the economy. In Finland the public debt must be brought under control before the next recession, so that the automatic stabilisers could work again.

Incentive Effects from the Viewpoint of Resource Allocation

In order to save public expenditures, calls have been made for streamlining the social security system by shifting from schemes covering the entire population towards means tested schemes and careful focusing of benefits toward the poor. This approach disregards the incentive traps that means testing creates in the lower end of the income distribution scale. This would spawn a group permanently dependent upon support. The passivification of these persons would reduce social mobility. The social stigma, on the other hand, could create social tensions and political uncertainty, which would have a detrimental effect upon growth (cf. Alesina et al., 1992). Wide coverage in social security would spread the tax wedge effects over a wide group of income recipients and avoid the creation of permanent incentive traps (Atkinson & Mogensen, 1993).

Shifting to means tested schemes would require that those not eligible to participate would be responsible themselves for organising their own social security. Voluntary insurance schemes are plagued by underinsurance and free-rider problems, and they do not provide sufficient possibilities to manage risk at the level of the individual. The low number of persons taking private unemployment insurance stands as a case in point.

The obligatory nature and wide coverage of the social security system ensures the efficient diversification of risk by promoting social, vocational and regional mobility. Similar positive effects appear also in other social institutions such as labour market legislation and agreements compared to leaving matters solely up to the markets. The improvement of the risk-bearing ability has positive effects especially with respect to mobility-related decisions, which have an impact for a long time and facilitate the changing of the production structure.

The problem with the wide coverage of social security in Finland is its expensiveness. Because swift improvement in the ratio of employed to the rest of the population is unlikely, savings in expenditures would mean trimming benefits but keeping the coverage of the scheme wide.

A characteristic feature of the Nordic welfare state is the extensive amount of public services produced. The situation in Central Europe is marked by the flow of money through the social security insurance schemes. A distinguishing aspect of public services is that they cannot be resold from one consumer to the next. Furthermore, when making the initial choice the consumer typically commits himself to either the private or public alternative.

Public service production is an example of support which is tied directly to the consumption of certain good. As a tool of incomes transfer policy, support provided in the form of goods is often regarded as worse than a corresponding amount of monetary support because monetary support preserves the opportunity to buy services from the private market or use the support in alternative ways (Friedman, 1962).

The support given in the form of services can nevertheless enable a more efficient outcome than merely relying upon income transfers. This is due to the negative incentives related to taxation and income transfer policies followed by the government. For the most part support and taxes must be linked to properties that are under the decision-making power of the economic agents, for example income (Mirrlees, 1971). The government does not know the real production capability of the individual. Talented persons can decline to make additional efforts and earnings in order to avoid taxation and to be eligible for the income transfer. If the demand for services could be distinguished at the level of the individual, these kinds of negative incentives can be reduced by offering public services instead of income transfers[58].

The demand for many services, such as education, health and social services, is lowest in the middle of a person's life cycle, when earnings are generally at their peak. Children's day-care services and health care services can be seen as goods fostering the amount of work supplied, so that support increases efficiency. Furthermore, in families the choices are multidimentional. The choices have to do with the number of children, housing and supply of labour. For this reason the short-term supply effects

[58] This topic has been dealt with extensively in recent years (see Guesnerie & Roberts, 1984; Blackorby, 1990; Blackorby & Donaldson, 1988; Munro, 1992; Edwards et al., 1993).

can be overemphasised in political debate at the expense of family policies and mobility-promoting measures related to the life cycle. This has been the case in Finland recently.

In order to hinder clear poverty traps in Finland, the marginal rate of income taxation should be lowered and harmonised better via changes in various kinds of support and payments. In this way situations can be avoided where an increase in earnings means a decline in disposable income.

The imperfection of the credit markets and risk-avoidance of individuals lead to insufficient educational investments if they are financed primarily with private capital. The reason for this is that the private financial system concentrates upon financing of fixed capital, the condition of which can be more precisely defined and measured than human capital. In the private financial system long-term commitments are avoided and risks reduced by renewal of loan agreements. This enables the monitoring of the condition of invested capital in connection when the loan agreement is renewed. It is also considerably easier to use fixed capital as collateral for a loan.

The appraisal of the outcome of educational investments takes a longer time. From the standpoint of the financier a gradual increase in sunk costs presents a considerable moral hazard[59] problem for the individual. In connection with education mention should be made of the externalities stemming from public educational services favourable from the standpoint of the labour markets, for example compared to on-the-job training. The same observation holds also with respect to dividing of the financial responsibility for infrastructure and basic research. With respect to support for productive activity the role of the public sector would remain non-existent under conditions of functioning financial markets.

The coverage and obligatory nature of the public systems has facilitated significant investments in creating the infrastructure for education and public health care. This has evened out the risks carried by individuals, safeguarded financing and spurred additional economic growth (Barro & Sala-I-Martin, 1992). Because decisions on education are affected by the cost of the total period of the schooling, wider use of payments for example in the financing of universities narrows educational choices. From the life-cycle viewpoint progressive income taxes are supplementary factors by which gifted individuals finance the educational system afterwards as compensation for the benefits gained previously.

The supply of services has recently been depicted using the orderer-producer model, where the private sector serves as the producer of a service but the responsibility for financing is spread out over insurance, public support and user fees. This creates a situation where the incentives of a private producer can have a twisted impact and cause a need for

[59] The moral hazard problem arises in situations where an individual's actual effort to which in an ideal situation the wage scale would be linked cannot be perfectly distinguished from factors independent of the actions of the individual. The individual's information monopoly means that it is not possible to get him to exert effort as efficiently as when information is available on the level of effort.

appreciable controls. Private supply is especially efficient in segmented markets as well as in the fields of product development and differentiation, which may lead to the simultaneous paradox of saturation and scarcity. Health care in the United States is a model example of this. Furthermore, market segmentation may over time lead to persons better off to be unwilling to support the socially marked groups that have come to depend upon public funds. Reorganising the production of public services should proceed one step at a time with the reforms being carefully tested beforehand. In particular, schemes that are loose in terms of the responsibility for financing must be avoided.

Pressures to Harmonise Welfare Expenditures

At the end of the last century the formation of strong nation states offered an opportunity to efficiently benefit from economies of scale related to the production of public goods and financing. This trend was spurred by the relatively closed nature of the nation state. In a system determined on the basis of nationality, for example the income transfers within a life cycle and also between different generations are closely intertwined if the labour does not move easily from one country to the next.

In Europe the situation has changed to a certain extent. EU integration has eliminated the nation states' border protection against the mobility of people. The globalisation of world trade has strengthened both the direct effect of competitive factors and, for instance, the repercussions in the financial markets of decisions by indebted countries to reduce their public expenditures. Tax competition and free rider problems make it difficult to benefit on a wide scale from the possibilities offered by public activities.

If public services are financed by taxing production factors that are free to move from one state to the next, the resulting tax competition between countries will lead to incomplete production of services offered locally and pressures to reduce welfare-related expenditures. The debate on the intergenerational distribution of income and its fairness reflects a fear that the unwritten intergenerational income distribution agreement will be nullified in the context of the EU because of tax competition and emigration. The linkage of the use of services to the place of residence will nevertheless dampen the mobility of labour compared to corresponding income transfers. The welfare policy of the Nordic countries stressing the supply of services raises the emigration threshold compared to Central Europe and provides leeway in tax and income transfer policies.

In the EU there is a clear need for an international agreement to control social security and tax competition and to create a federalist tax system, even though progress on these matters may prove to be very slow. For this reason, there are concerns about integration and the monetary union because with time pressures will arise to harmonise the level and structure of services, even though the differences in the national conditions would

advocate more individualised taxation and public service systems. Worries about the consequences of tax competition have been exploited in the political debate by repeatedly emphasising the inefficiency and waste of the public sector. This dialogue is nevertheless often based on purely ideological grounds and old economic theories, where incentives and imperfect information are not taken into consideration.

8.2 How Can the State Promote Success?

Terms of Activities Dictated Largely From Outside

In an open world the prerequisite for success is that the changes in the ground-rules related to globalisation must be internalised at all levels of the economy. What then is the role of the nation state? What possibilities does an individual state have to steer its own development so that favourable growth in welfare and sound employment can be safeguarded for its citizens?

An important point of departure for governmental activities is to guarantee the advantages of the country's enterprises and other economic agents compared to other countries. This requires active participation in international organisations especially when agreements are drafted. Finland's joining the European Union was important from the standpoint of safeguarding Finnish interests. This does not exclude an active role by the state in Finnish trade policy with non-EU countries and groups of countries. It would be especially important to help companies break into other markets and exploit demand in new areas of growth.

A single small nation cannot stabilise international disturbances. There is a burning need for stable monetary conditions worldwide. The control of international disturbances can be improved with the help of economic policy co-ordination between larger countries and economic regions. For the time being these kinds of stabilising international actions have remained at the rhetorical level and have not had a great impact. Individual countries can foster the achievement of stable monetary conditions primarily by managing their own economies well. In this way sufficient credibility with respect to economic policy can be achieved.

The point of departure when appraising the conditions for Finland's success is that the mobility of goods, capital and people cannot be unilaterally limited. The control mechanisms are global or regional and their specific form is determined within international organisations. Due to Finland's geoeconomic position, a critical issue is the nature of the economic border between the EU and Russia. For example, the adoption of import quotas in the trade between Russia and the entire EU could cause market disturbances especially in Finland.

In order for Finland to grow faster than its competitor countries over the long run without incurring difficulties with the foreign debt, the country should export goods the demand for which is growing faster than international demand on average. Significant new product innovations should be continuously spawned in Finland and turned into marketable goods. This kind of production and foreign trade structure ensures that fast growth will not lead to a deficit in the current account. The Finnish foreign trade structure has not fulfilled the prerequisites for fast growth very well. Because the production structure changes slowly via investment, the growth in the international economy, especially Western Europe, will determine also Finland's growth rate for at least the next ten years (Leppänen & Pyy, 1995).

The basic question for the future is how to guarantee that Finland is an attractive location for people and production. Finland's role in the international division of labour will be partly based in the future as well on the traditional comparative advantages, the most significant of which is the wide-ranging know-how of the forest sector and the externalities it creates for the rest of the economy. Alongside of this sector Finland will have to develop production based on other knowledge, i.e. create new comparative advantages with the aid of public sector incentives.

Fr mework and Limits of Public Sector Activities

What are the possibilities for economic policy and public sector activities over the long run? If economic policy is considered to be of significance, what kind of policy should it be? The basic factors of economic development are weak if the economy lacks ingenuity, diligence, thriftiness, creativity and open attitudes toward internationalisation. Growth policy is increasingly focused upon the removal of trade barriers, among other things via the following measures:

- The improvement of economic stability and economic policy credibility help to reduce the real interest rate permanently. This in turn creates possibilities above all for expansionary and efficiency raising investments in the capacity of the open sector, as a result of which the production machinery includes ample amounts of new technology and the ability to repay the foreign debt is good.
- The public sector invests sufficient amounts in education, research, health care and other corresponding types of activities which increase human capital. This expands the knowledge base of the society.
- Such kinds of institutions and legislative frameworks are created for the financial markets that the financial system remains stable and fosters the spawning of new companies and risk-sensitive investments with long-term impacts.
- The labour market functions so that the price and cost level rises at most at the rate of competitor countries and the flexibility of the labour market improves.

- Incentives are developed in taxation, income transfers and services that promote efficiency, saving, risk taking and entrepreneurship as well as rewards working and improves the work atmosphere.
- The physical infrastructure of the economy, above all else the transport and telecommunications network, is kept continuously competitive.

Economic policy must clarify the rank order of the importance of various goals. In integrating economies a demand sustaining policy cannot be followed until the foreign and public debt are brought under control. The experiences of small countries indicate that stabilisation precedes stimulatory measures. Otherwise the resulting public sector saving deficit could be offset by the private sector savings surplus. This has been the case at least in the Netherlands, Ireland and Denmark since the mid 1980s. The return to stability typically entails adjusting the domestic demand that has ballooned too large to the limits presented by export demand. For this reason it is especially important to maintain a stable balance between exports and domestic demand.

When the possibilities of small integrated economy to follow an independent stabilisation policy are slight, this begs the question of whether the public sector can promote the stability via measures affecting the structure of the economy. The operative possibilities of the Finnish economy are affected over time by the structure of the society and economy as well as the behavioural models learned over history. The changes in structures and behaviour are relatively slow. The changes in the operative mechanism of the economy via the above-mentioned public sector incentives can over time reduce the need for special stabilisation policies.

The main goal of fiscal and monetary policy, two key components of economic policy, is to safeguard economic equilibrium. In practice, the means for regulating demand by varying growth in public expenditures are nevertheless modest, because the public debt has risen high in almost all industrialised countries and the public sector is still running a deficit. Economic agents also make the measures to regulate public sector demand futile with their own pre-emptive actions. The central bank responsible for monetary conditions must keep the value of the exchange rate within certain limits even under conditions of floating rates, so that the independence of monetary policy is in practice also very restricted.

The objectives of economic growth, efficient allocation of resources and improvement in economic flexibility can be realised primarily only with the aid of indirect public sector incentives. By creating incentives the government can provide possibilities and sanctions for responsibility and flexibility on the agents' own terms. At the same time this improves the conditions for growth-promoting institutions. The tools are legislation, i.e. the clarification of the economy's own internal ground-rules, the allocation of public expenditures and taxation, and production and dissemination of information primarily in the form of education and research.

An important task of the public sector is the correction of market failures. Markets are not able to take responsibility for education, research and innovative activities required for creation of the infrastructure. For example, networking and increasing the efficiency of small and medium-sized enterprises' activities require increased public research and development investment and upgrading of financing offered by the public sector. Networking and shifting into smaller units result in diversification of the structure of the economy.

A prerequisite for networking is efficient flow of information inside and between companies. Therefore, the further development of information networks and their infrastructure would be a must for success. Due to the shortening of the product life-cycle, swift internationalisation is vital for companies. This enables the coverage of the large fixed costs needed for innovations in the context of wider markets. Internationalisation can be promoted by upgrading information networks, supporting the taking of risks and raising the efficiency of education.

The deepening of integration increases co-operation in research and development. It can be expected that the international research co-operation and researcher exchanges between universities will increase. Participation in research projects and exploitation of the results gained in the planning of economic policy is important from the perspective of expanding the knowledge base.

Economic Policy in the European Integration Environment

Finland's economic history in recent decades as regard the attempts to foster more stable monetary conditions is not very promising. In economic activities history always limits the future alternatives. The changing of policy lines will require changes in behaviour, so that the objective of stable monetary conditions is internalised in the behaviour of economic agents.

The Finnish economy is closely linked to the international economy via interest rates. Finland's long-term real interest rate in February 1995 was 2.5 percentage points higher than that in Germany, which is a competitive handicap especially for small companies dependent upon domestic financing and the domestic market sector.

Finland's interest rate premium reflects the mistrust toward the economic management of our country. The main factors are:

- Uncertainty about bringing the state debt under control.
- Long inflation history and fear that Finns will once again try to get out of this dilemma by inflating the economy.
- Uncertainty about whether the production capacity, which has shrunk in line with the investment slump, will be able to earn enough foreign currency revenues in order to service the foreign debt.

When the country has failed in its attempts to keep the currency stable, the restoration of credibility will require a persistent economic policy. Of key importance are:

- A credible governmental stabilisation programme lasting over several election periods to which the public sector strongly commits itself.
- Consensus in companies and employee circles as well in the public sector that inflation and the weakening of the markka is an unfavourable alternative over the long run.
- The ability of management to make efficient investments. In particular the shifting of entrepreneurial risk to the state is detrimental from the standpoint of efficiency.

The fulfilment of these criteria are necessary before Finland can seriously consider joining the European monetary union. The grounds for joining the European monetary union must be that Finland benefits from agreeing to tie its own hands. In the monetary union Finland will commit itself to giving up its floating currency and the independence of monetary policy. The costs and benefits depend first of all on whether Finland belongs naturally to Europe's optimal currency area. Second, they depend upon whether participating in the monetary union will ease the adjustment of the economy to the demands presented by the currency area.

The question of whether Finland belongs to the optimal currency area in connection with the formation of EMU is related to Finland's goods and country structure of export production. Finland has experienced disturbances differing from those in other countries primarily via the world markets for forest industry products and Soviet trade. The benefits from membership in the monetary union depend upon whether these disturbances will continue in the future. Recent studies indicate that the price disturbances of foreign origin that Finland experiences are not appreciably greater than the disturbances of other small European countries nor are they greater compared to various other small European countries (see chapter 7). The volume disturbances are, however, somewhat greater than those elsewhere. This is nevertheless because Finland has via its own actions, such as the devaluation-inflation policy, strengthened the disturbances of foreign origin.

Within the framework of a monetary union reflecting deepening integration, possible asymmetric disturbances must be "digested" by adjustments in price and volume. The gain of course is increased credibility. The country commits itself to following a predictable economic policy line, which would eliminate the Finnish premium in real interest rates. As country risk dwindles the interest rate will decline permanently to the level of competitor countries and the conditions for investment will improve. Membership in the monetary union will reduce uncertainty among enterprises and households. The growth in the risk-bearing ability of enterprises

will increase investments also for research and development activities. The monetary union will probably ease the research, product development and financial problems of small and medium-sized enterprises in particular, i.e. it would foster the attempts to internationalise the activities of this enterprise group.

As a member of the monetary union the required budget policy discipline will grow. The current public sector deficits would have to be turned into surpluses and later the deficits would have to be corrected during the economic cycle. This restricts the leeway in initiating wide-scale reforms. The budget restraint will, however, force more efficient use of tax funds. State aid and income transfer policies that sustain inefficient structures must be eliminated. It is nevertheless possible to support activities fostering growth and renewal by the internal reallocation of public expenditures.

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The Global Economy and Finland Helsinki, VATT, the Government Institute for Economic Research, 1995, 210 pp. (A, ISSN 0788-4990; No 21) ISBN 951-561-155-5.

Abstract: The publication examines how a small economy such as Finland can succeed as a member of the European Union at the same time as integrating into the global economy. The point of view accords with the so-called endogenous growth theory. The need to stay in the forefront of technological development is stressed, as are innovation, the importance of taking full advantage of international markets and the role of government in creating the preconditions for growth. These are examined in particular in the light of the experiences and needs of Finland and Finnish companies.

The publication also assesses the changes that have occurred in various institutions, such as the financial system and the labour markets, and changes that are still needed. In addition the rules of international trade are examined, including changes in currency systems, measures aimed at the liberation of world trade and the implications of tighter global environmental protection for companies' operating environment.

Finland's membership of the EU highlights the importance of the development of pan-European economic ties for the Finnish economy. Besides the effects of EU membership, special attention is paid to the problems and effects of the integration of western and eastern Europe.

Key words: global economy, growth, innovation, globalisation, Finland

The Global Economy and Finland Helsinki, VATT, the Government Institute for Economic Research, 1995, 210 pp. (A, ISSN 0788-4990; No 21) ISBN 951-561-155-5.

Tiivistelmä: Julkaisussa tarkastellaan Suomen kaltaisen pienen, Euroopan unionin jäsenenä maailmantalouteen integroituvan talouden menestymisen ehtoja. Näkökulma on ns. endogeenisen kasvun teorian mukainen. Siinä korostuvat teknologisen kehityksen eturintamassa pysyminen, innovatiivisuus ja kansainvälisten markkinoiden täysimääräinen hyödyntäminen sekä julkisen vallan rooli kasvuedellytysten luomisessa. Näitä tarkastellaan erityisesti Suomen ja suomalaisten yritysten kokemusten ja kehittämistarpeiden valossa.

Julkaisussa arvioidaan myös erilaisten instituutioiden, kuten rahoitusjärjestelmän ja työmarkkinoiden muutoksia ja muutostarpeita. Näiden ohella tarkastellaan kansainvälisen talouden pelisääntöjä, kuten valuuttajärjestelmien muutoksia, maailmankaupan vapauttamiseen tähtääviä toimenpiteitä ja globaalin ympäristönsuojelun tehostamisen vaikutuksia yritysten toimintaympäristöön.

Suomen EU-jäsenyys korostaa koko Euroopan kattavien taloussuhteiden kehityksen merkitystä Suomen talouteen. EU-jäsenyyden vaikutusten ohella keskeisenä tarkastelukohteena onkin Itä- ja Länsi-Euroopan yhdentymiseen liittyvien ongelmien ja vaikutusten arviointi.

Avainsanat: maailmantalous, kasvu, innovaatiot, kansainvälistyminen, Suomi

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The framework for Finland's growth policy has changed. The Economic and Monetary Union, increasing instability of international financial markets and dominant role of multinational companies limit the possibilities for public intervention. How can the public sector promote growth in a globalising economy? Growth must be based more and more on increasing productivity by innovative activity and technological development. This is alleviated by participation of new regions and states in industrial competition, Eastern Europe and Asia in particular.

These issues are the focus of this report, The Global Economy and Finland. It was originally published in Finnish by the Government Institute for Economic Research and the National Fund for Research and Development in February 1994.

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