

## RESTRUCTURING HAS FURTHER TO GO

€# Finland was hit by the worst economic recession in its history between 1990 and 1994. Fifteen years later, it became a key global player, in terms of high technology and competitiveness.

€# This dramatic transformation was achieved largely as a result of massive investment in research and innovation, explosive growth in the ITC (information and communication technology) and substantial productivity gains.

€# However, it would appear that further progress needs to be made. Structural problems persist – which could spell bad news for medium-term economic growth prospects:

- Finnish industry remains highly dependent upon a limited number of activities: the base has only been broadened from two to three sectors. To compound the situation, two new sources of vulnerability have appeared: i) exports and ii) Nokia;
- productivity gains leave much to be desired in the service industry, which remains lowly skill-intensive. In addition productivity gains in the ITC sector, Finland's main productivity driver, look set to lose momentum gradually. The catching-up process currently underway is expected to tail off and this will act as a brake on growth;
- despite the ageing of the population, structural unemployment is still running at high levels. The "skill-based economy" is not a panacea for the difficulties in finding work confronting the less highly-qualified.

### FINLAND'S EUROPEAN UNION PRESIDENCY PROGRAMME (SECOND HALF OF 2006)

1<sup>st</sup> priority: the Union's future. This spans the Treaty establishing the Union and discussions over future enlargement.

2<sup>nd</sup> priority: improving the Union's competitiveness. The prime objective is to find solutions for boosting European growth. Finland hopes to be able to contribute its experience in terms of innovation, energy policy, effective employment and productivity measures, openness to international trade, immigration and welfare.

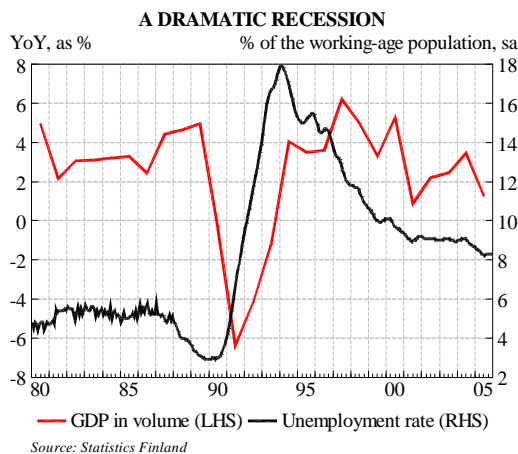
3<sup>rd</sup> priority: strengthening the Union's international role and improving the co-ordination of Member State foreign policy.

4<sup>th</sup> priority: facilitating the decision-making process with respect to security and justice.

5<sup>th</sup> priority: improving the transparency and efficiency of European regulations, clarification of the principles of subsidiarity and proportionality.

### The rebirth of an ailing economy

From an economy on the verge of collapse...



Finland was hit by a major recession between 1990 and 1994: GDP plunged by 10.3% (compound figure) between 1990 and 1993. The economic slump was mainly attributable to two shocks: the banking crisis and the demise of the former USSR.

The liberalisation of the banking industry in 1986 sparked a bank lending boom (+50% in 1987). The injection of liquidity inflated the financial and property market bubbles and poor risk management by the banks exacerbated the situation. The ensuing macroeconomic instability – notably interest rate hikes and the devaluation of the Finnish markka, at a time when 33% of outstanding debt was denominated in foreign currencies – sparked a severe crisis. Bank lending plummeted by 35.5% between 1991 and 1995 and only recovered to 1990 levels 9 years after the crash started. Finland's woes were compounded by a major external shock: the dissolution of the former USSR which had, until then, been the country's main trading partner (20% of total Finnish exports in the late 1980s).

Finnish industrial activity (24.7% of GDP 1989), highly concentrated in the forestry and metallurgy sectors, fell sharply.

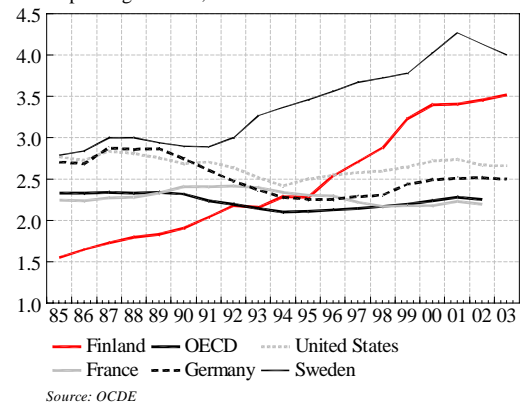
The number of business failures (excluding private entrepreneurs) jumped by 41% in 1990 and rocketed by 86% in 1991. Manufacturing industry jobs (outsourced services included) tumbled by 22.6% between 1990 and 1994. The unemployment rate soared to 18% of the working-age population at the end of 1994 vs. 2.9% at the beginning of 1990. Public finances were also badly shaken: public debt escalated from under 20% to almost 60% of GDP in less than three years.

### ... to a high-technology economy with an enviable global reputation

In 1991, Finland spent the equivalent of 2% of GDP on research. The public sector and higher education accounted for 43% of the budget. Spending on research surged to 3.5% of GDP between 1991 and 2004 (the Lisbon target for EU spending on research is 3% of GDP by 2010), largely due to private sector outlay, which accounted for 70% of R&D expenditure (the Lisbon target for 2010 is 2/3): i.e. EUR 3.68bn (+278% between 1991 and 2004). Finland thus outranks the United States and Japan in terms of R&D spending and is second only to Sweden within the EU-15.

### FINLAND IS HIGHLY R&D INTENSIVE

Total spending on R&D, % of GDP



The manufacturing industry drew in 60% of corporate sector R&D spending in 2004. The main focus is on high technology. The

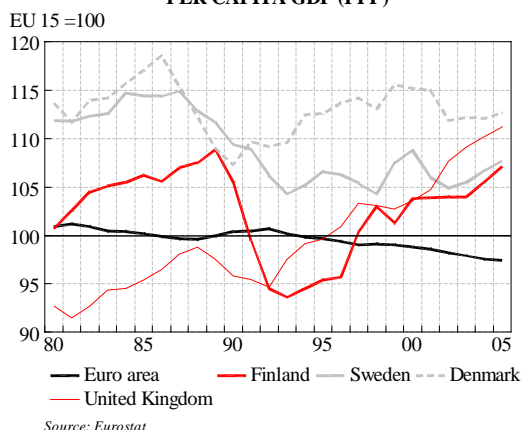
electronics sector accounts for 57% of corporate sector spending on R&D and for 43% of research staff (53% of whom are research experts).

The chemicals, machinery and capital goods, and IT-related sectors - which are the biggest manufacturing industry recipients of R&D spending after the electronics sector - each account for approximately 7% of total private sector R&D expenditure. The service industry lags behind: in 2003 its share of private sector spending amounted to only 13.7%, compared with an average of 15.2% in the EU, 25.4% in the OECD and 39.8% in the United States.

As a result of the strong momentum provided by the electronics sector and the fruits of post-recession restructuring, growth rates in Finland surpassed the eurozone and the EU-15 averages over the period 1995/2005. After falling below the EU-15 average in the wake of four years of recession, per capita GDP thus recovered to levels in line with the Scandinavian norm, as a result of strong growth in GDP (annual average increase of 4.5%, in volume terms, between 1995 and 2000, followed by +2.7% between 2000 and 2005).

Moreover, Finland's economy has acquired an enviable global reputation. It is one of the most highly-rated developed countries in the majority of comparative gradings of competitiveness, governance and innovation capacity. Finland was thus awarded first place in the World Economic Forum competitiveness rankings in 2005 (after ranking No.1 in 2004 and No. 3 in 2003).

**PER CAPITA GDP (PPP)**



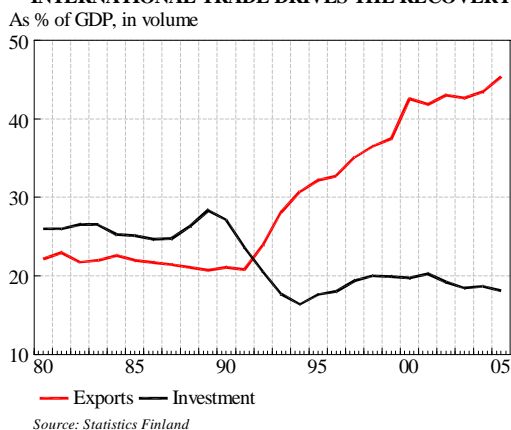
Also on the bright side, the innovation drive has taken in industrial operations – which will enable traditional sectors to diversify their production into more technically sophisticated products. The European Trend Chart on Innovation (European Commission) publishes an Innovation Sector Index which incorporates indicators concerning the role played by joint ventures within a given sector, recourse to highly-qualified human resources and also the latest technology and patent approvals and technologically innovative products. The index provides a sector and country breakdown of innovation capacity in Europe. Logically enough, the high technology sector in Finland emerges as the star performer. That said, Finnish industry as a whole proves to be more innovative than in other parts of Europe. Out of the 16 industrial sectors covered by the index, Finnish industry has ranked among the top three 11 times, 7 of which as leader.

**The economy is geared to, and dependent on, foreign trade**

The heavy dependence of Finland's economy on exports, which also have a strong sector bias, revealed the flaws in its economic development during the crisis that swept the country from 1990 to 1994. In 1994, the government started making attempts to favour export diversification, both in terms of geographical area and

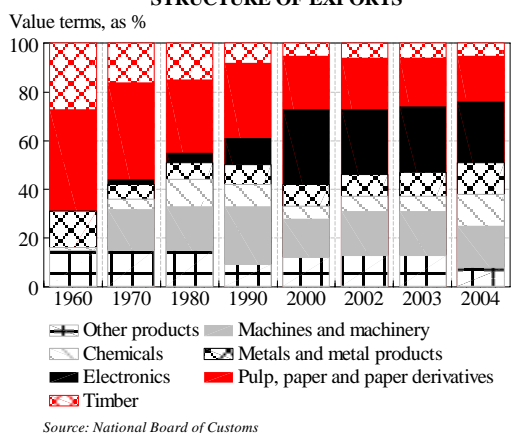
product category. This provided support for the development of the electronics industry, notably via an improvement in the national innovation system. This strategy was largely inspired by Porter's cluster theory.

**INTERNATIONAL TRADE DRIVES THE RECOVERY**



Exports accounted for 21% of GDP volume in 1990. The percentage increased to 45% in 2005. Electronics industry production exploded between 1995 and 2000 (+176%) underpinned by the global economic upswing in 1997-2000 and by strong growth in ICT sector from the mid-1990s onwards. The percentage of manufacturing industry value added produced by the ICT sector rose by 13.4 points to 22.9% between 1995 and 2001. The sector also did much to help reduce unemployment: job numbers rose by 24% between 1995 and 2004 (+39% between 1995 and 2001). In 2001, the ICT sector accounted for 10% of private sector employment, compared with an OECD average of approximately 6%.

**STRUCTURE OF EXPORTS**



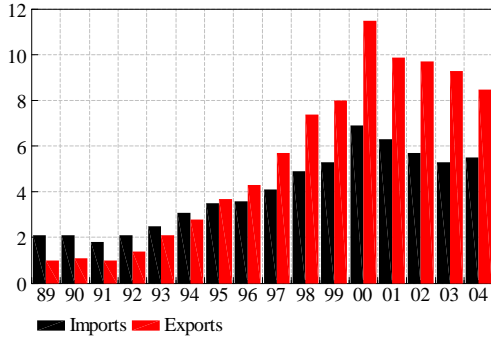
Electronic and electrotechnical products accounted for 25% of total exports in 2004. This compares with a 24% contribution from forestry industry products (unprocessed wood, paper and wood derivatives), which represents a 15 point decrease since 1990. The electronics industry's contribution to growth rose from approximately 1 percentage point in 1998 and 1999, to 2 percentage points in 2000.

Investment in high technology has paid off. In this sector, Finland's patent approvals (in the United States) and patent filings (in Europe) are well in excess of the OECD average. Furthermore, as a result of sector specialisation, Finland has acquired a leading position in the ICT arena. High technology products accounted for 17.5% of total Finnish exports in 2004 (+12.7% on 1994), largely due to the electronics sector.



**FOREIGN TRADE IN HIGH TECHNOLOGY PRODUCTS\***

Value terms, EUR bn

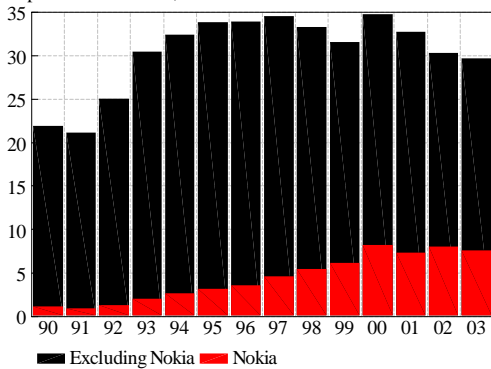


Sources: National Board of Customs, Statistics Finland  
\*OECD terminology for high technology products has been used

However, despite the change in the structure of exports and the growing contribution from the ICT industry, economic activity is still highly sector-specific. Instead of being focused on two industrial sectors, Finland's economy is now driven by three main sectors. Moreover, the electronics sector is heavily geared to Nokia. In 2003, it is estimated that Nokia accounted for almost 20% of exports and 35% of corporate sector spending on R&D. Sector-wide production fell sharply 2001 and 2004 (-17%). Despite its leading global position, Nokia was confronted by a number of major obstacles: downward pressure on product prices, rising R&D costs and competition from fast-developing emerging market companies.

**NOKIA: FINLAND'S HEAVYWEIGHT**

Exports in value terms, as % of GDP



Sources: Statistics Finland, ETLA

To compound the situation, traditional industrial sectors (low and medium-low technologies) continue to represent a relatively small percentage of Finnish production. In 2004, the forestry industry accounted for almost 18% of total industrial output, 15% of value added and 14.6% of jobs. The shocks that struck this sector consequently had a major economic impact. A massive strike led to a near-60% tumble in forestry industry output in the second quarter of 2005. This acted as a downward pull on GDP (-1.25% qoq) In conclusion, Finland's economy remains highly dependent on low-growth sectors. Investment in biotechnology, which the government considers as a priority sector (approximately 50% of public spending on R&D in 2003) has yet to result in marketable innovations. The emergence of a fourth industrial pillar, to take the up slack from the electronics industry, remains uncertain at this stage.

Highly skill-intensive services (post office and telecommunications, finance, insurance and business services<sup>1</sup>) are under-represented

<sup>1</sup> Business services include machinery and equipment rental, computer-related services, R&D and "other services" (source: OECD).

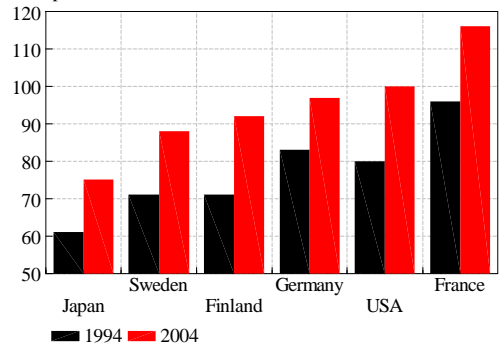
in Finland relative to other developed countries. These sectors are a major potential source of economic activity as they stand to benefit from a highly-qualified workforce and close links to ICT producing companies. Government policy aimed at stimulating R&D spending by giving priority access to public sector research centres and by supporting innovative SMEs via business services incentives, would appear to have held back development in this sector.

**Productivity gains are unevenly balanced**

The productivity of Finland's economy has improved dramatically since the early 1990s. Between 1990 and 2002, labour productivity, measured in terms of GDP per hour worked, rose by an average of 2.7%, which is well in excess of rates achieved by leading OECD countries. Hourly productivity nonetheless remains lower than in the United States and in France.

**FINLAND IS CATCHING UP, IN TERMS OF PRODUCTIVITY, BUT STILL LAGS BEHIND**

GDP per hour worked, 100=USA 2004



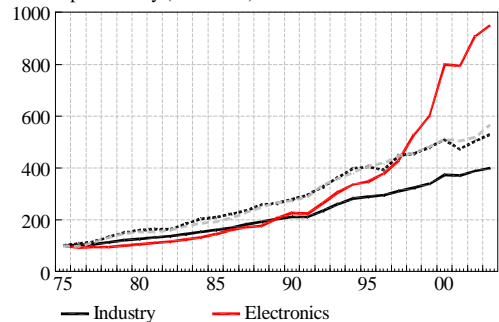
Source: Statistics Finland

The manufacturing industry is the main source of productivity gains. Since 1980, the rate of manufacturing value added produced by hour worked has gradually moved in line with that of other European countries. In 1991, the productivity of Finnish industry (measured as value added produced per hour worked) was 19% lower than in France, which has one of the highest hourly productivity rates. In 2001, the gap narrowed to 1%, putting Finland ahead of most other European countries.

In the manufacturing industry as a whole, growth in labour productivity was strong between 1992 and 2002 (annual average increase of 5.4%), driven mainly by the electronics sector (+13.9% between 1992 and 2002). Productivity gains in traditional industries (for instance, an annual average of 5.4% in the paper production industry and 6.5% in the unprocessed wood sector) can be linked to the disappearance of the weakest performing companies during the 1990-1994 crisis (industrial business failures rose by 24% in 1990 and by 86% in 1991), and the spread of technological expertise.

**EXPLOSIVE GROWTH OF PRODUCTIVITY IN THE ELECTRONICS INDUSTRY**

Labour productivity (100=1975)



Source: Statistics Finland

The sharp increase in productivity gains was the main growth driver between 1992 and 2002. Over this period, annual average GDP growth rates accelerated to 3.3%, with productivity gains contributing 2.5% percentage points. However, whilst gains in labour productivity in the manufacturing industry were substantial, they were significantly less impressive in the services industry (annual average increase of 1.7% between 1992 and 2002, compared with 2.1% in the United States). The low percentage of highly-skilled labour in the service industry acts as a barrier to the deployment of technological innovation produced by industry. As a result, despite the fact that Finland is an ICT producer, it has yet to reap the benefits as a user. Lastly, regulatory restrictions and low competition are acting as a brake on the expansion of innovative service industry companies.

#### PRODUCTION, EMPLOYMENT AND PRODUCTIVITY

	Finland	Sweden	France	Germany	USA
Breakdown of growth over the period 1992-2002, in percentage points					
Average growth rates	3.3	2.5	2.0	1.3	3.3
of which					
Productivity	2.5	2.5	1.1	1.1	1.8
Employment	0.7	0.1	0.9	0.2	1.4
Labour productivity growth rates for the period 1992-2002, in percentage points					
Agriculture	6.9	3.5	3.0	4.8	1.5
Manufacturing industry	5.4	7.0	3.6	2.1	3.9
Construction	-0.1	0.6	-1.1	-0.2	-0.2
Service industry	1.7	1.7	0.2	1.0	2.1

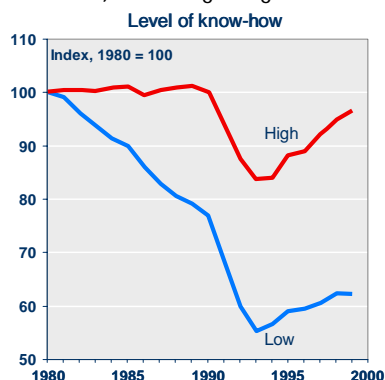
Source: OECD

Productivity gains have been slowing down since 2001 and this trend looks set to continue. Firstly, growth in the productivity of traditional industries is likely to be less resilient than in the 1990s as these gains were partly attributable to recession-related factors. Secondly, the ICT sector is almost certain to make a lower contribution, due to the fact that it has become more mature. According to the OECD, productivity gains in various service industry sectors, such as the retail industry, financial services and business services, have fallen to levels well below those achieved by better-placed countries. This means that the catching-up process has further to go. Slackening productivity gains spell bad news for economic growth prospects – particularly as Finland is beleaguered by high structural unemployment, a dwindling labour force (due to the ageing of the population) and modest capital investment levels.

### High structural unemployment

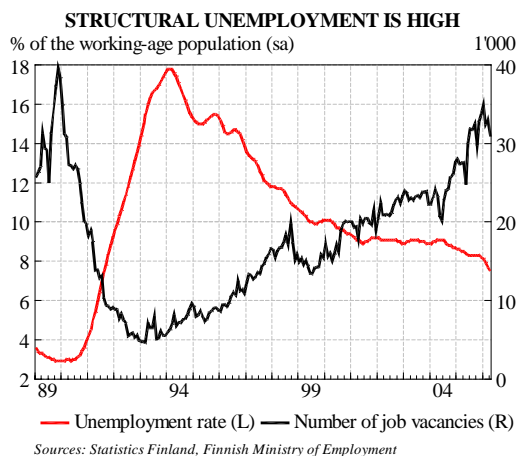
Unskilled labour levels fell sharply in the wake of the recession and ensuing restructuring measures. That said, the deterioration in the job market for the least highly-qualified was already underway in the early 1980s. The recession merely compounded the situation.

In stark contrast, skilled labour picked up sharply after the crisis. The improvement in the job market has continued since 1995 and the unemployment rate tumbled from 18% at the end of 1994 to 8% (which is still substantial) at the beginning of 2006.



Source: Mika Pajarinen & Pekka Ylä-Anttila: *Maat kilpailevat investoinneista - teknologia vetää sijoituksia Suomeen*, ETLA B 173 (2001)

The structural unemployment rate is high. The number of job vacancies is in line with levels witnessed before 1990, which was a period of full employment. Furthermore, the unemployment rate remains considerably higher than that of other Scandinavian countries with virtually identical welfare and statutory contribution systems. Finland's job market suffers from imbalances in supply and demand. The differential between the unemployment rate of the least highly-qualified (i.e. those without second cycle diplomas) and the average unemployment rate widened from 4 points in 2002 to 5 points in 2005: i.e. an unemployment rate of 12.7% in the fourth quarter of 2005. In addition, the unemployment rate is particularly high amongst the under 25s (16.1% at the end of 2005) and the least highly-qualified segment of this age bracket is the worst hit (an unemployment rate of 22% compared with 13.1% for those with higher education diplomas).



Sources: Statistics Finland, Finnish Ministry of Employment

And so, the economic model aimed at developing a high technology economy is not an effective remedy for the structural problems besetting the job market. Integrating the job market is a difficult undertaking for the least qualified. The low level of growth in unskilled services will fail to absorb surplus labour supply.

To make matters worse, Finland has to contend with the fact that the ageing of its population is occurring earlier than in other European countries. The dearth of skilled labour, caused by the retirement of the baby boom generation, could exert upward pressure on wages (the hourly cost of labour rose by an average of 3.6% in 2005 vs. + 2.6% in the eurozone and, in the first quarter of 2006, the respective figures were +3.2% and 2.2%). This trend is likely to lead to a loss of industrial competitiveness, which will put Finland in a difficult position, given its high dependence on foreign demand and growing competition from low labour-cost countries. Finland will have to solve major problems on the training front in order to find jobs for its entire working-age population.

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