



# Finnish Forest Sector Economic Outlook 2007–2008

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This is a translation of an abbreviated version of the Finnish original and is based on statistical information available in early October.

## **Subscriptions**

[www.metla.fi/julkaisut/  
suhdannekatsaus/index-en.htm](http://www.metla.fi/julkaisut/suhdannekatsaus/index-en.htm)

This Economic Outlook is published in PDF format annually in late November.

ISBN: 978-951-40-2066-7 (PDF)

November 2007

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## Summary

*Strong GDP growth in Europe during 2007 has boosted housing construction and thus the demand for sawnwood, and has also increased the consumption of certain paper grades. The unusually large increase in the export price of sawn softwood has also pushed up stumpage prices for softwood sawlogs by a considerable amount. By contrast, pulpwood prices have risen more modestly, and the trend in paper export prices on the European market has remained weak on account of oversupply. Improved profitability in the Finnish sawmilling industry has led to higher production volumes in the first half of the year, whereas in the paper industry, production increases have been kept in check by the rise in production costs and the weak trend in export prices. Commercial fellings for the full year will rise to a new record level as a result of increased production in the forest industry and a reduction in roundwood imports from Russia. The operating profit on timber production in non-industrial private forestry will also reach a record high.*

*In 2008, GDP growth on the forest industry's export markets will slow down a little, and housing production in the euro area will decrease on account of higher interest rates. Tougher competition will already be evident on the sawnwood market before the end of 2007, and oversupply will curtail the rise in sawnwood prices in Europe. High roundwood costs and falling export prices for sawnwood will contribute to poorer profitability in Finland's sawnwood production, which will lead to lower production levels. In the paper industry, the rise in roundwood and other costs is expected to finally*

*push up paper export prices. The drop in sawnwood production and prices will mean that stumpage prices for softwood sawlogs will start to fall, but only gently because domestic sawlog demand will remain high as a result of the poorer import opportunities. With a slight increase in paper production and a strengthening of export prices, pulpwood harvesting will be up and prices will rise.*

*The two main uncertainties surrounding the forecasts are, firstly, the possibility that the financial crisis which began in the US housing market will affect the rest of the economy and spread around the world, and, secondly, the extent to which the euro may strengthen. A further uncertainty in the euro area concerns the interest rate policy to be followed by the European Central Bank in the next few months, and specifically its affect on housing production. In Finland, there is also uncertainty in regard to the outcome of the forest sector's collective agreement negotiations.*

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### Export Market GDP Growth Slowing Down Slightly

Although GDP growth in the world economy for the full year 2007 will be slightly lower than in 2006, it is nevertheless exceptionally high. The current upswing has been in progress for some time, and the focus on the emerging economies of Asia and Eastern Europe has become stronger during 2007.

Real GDP growth in the world economy weighted according to the distribution of Finnish forest industry exports will be 3.6% in 2007 and 3.4% in 2008. Euro area GDP growth has slowed and this will continue in 2008, but nevertheless remaining above the long-term growth trend. The growth is derived particularly from an increase in private consumer demand and investment, because export competitiveness is being weakened by the strong euro and rising costs. Germany, which is driving the euro area economy, is on a slightly faster growth track than the euro area average, as is the case for the United Kingdom economy.

The rise in interest rates has begun to retard housing construction in the euro area, and uncertainty regarding monetary policy actions in relation to GDP growth has also increased elsewhere in the world. In the United States, interest rates have already been cut with the aim of reviving the economy following a downturn in the housing market, and further interest rate cuts are possible before the end of 2007 and in 2008. Although expectations regarding world GDP growth are still positive, the uncertainty surrounding this has increased during 2007. There is considerable uncertainty, for instance, concerning the price trend in crude oil and other raw materials. It is possible, too, that the financial crisis which began on the US housing market could affect the rest of the economy and spread to other parts of the world. This is the principal uncertainty surrounding current economic forecasts. In the euro area, an additional uncertainty is the interest rate policy to be pursued by the European Central Bank over the next few months.

### Upturn in Sawnwood Prices Tailing Off

The strong demand for sawnwood and the periodic scarcity of sawnwood due to fluctuations in supply have together led to an unusually large increase in sawnwood prices in Europe. In the first half of 2007, the unit value of Finnish sawnwood exports rose to its highest level in real terms since 1997. The second half of the year will, however, see a downward pressure on the market price of sawnwood because of its

plentiful supply. A major factor in this oversupply will be the slackening growth in housing production that is forecast for Western Europe, and this will keep rising prices in check. The unit price of Finnish sawnwood exports for the full year 2007 will nevertheless be about 20% higher than in 2006. Sawnwood production is expected to be up in 2007 by almost 6%, particularly as a result of strong domestic demand, although export volumes will be close to the 2006 level.

In 2008, the forecast decrease in housing construction in many Western European countries will reduce sawnwood demand and lead to tougher competition on the forest industry's European export markets. As a consequence, a drop in sawnwood prices is anticipated, with the unit price of Finnish sawnwood exports expected to be about 4% below the average price for 2007. The expected drop in prices will nevertheless be moderate in comparison with previous cycles, in which a strong price rise has been quickly followed by a sharp and deep fall. The reason for expecting only a moderate drop in prices is the assumption that an increase in building renovations will partially compensate for the reduced demand for new construction, and that high raw material prices will start to act as a minor restraining factor on sawnwood production in Western Europe. In Finland, sawnwood demand will be down a little in 2008, leading to lower sawnwood production, though the production total will still be higher than in 2006.

### Opportunity for Price Rises Still Awaited in the Paper Industry

On account of the strong GDP growth in 2007, total paper consumption in Europe is up slightly, though there has been a drop in the demand for uncoated magazine paper. Despite the fact that paper prices have been rising gently since 2006, the price trend for Finnish paper exports has been very modest due to oversupply on the market. With low paper prices prevailing, the rise in costs in 2007 has reduced profitability in the Finnish paper industry. Export

prices have climbed slightly in recent months, but for 2007 as a whole the average price of all paper exports is expected to be 1% below the previous year's figure.

In 2008, GDP growth in Western Europe is forecast to remain relatively strong and the right conditions for an increase in demand should be in place. This increase in demand, coupled with the fact that raw material costs will be higher, should mean that producers will increase prices. This will be essential for any growth in production and exports. The potential for raising prices may well be reinforced by the fact that raw material costs have risen in other countries, too. In addition, efforts have been made to reduce the oversupply on the European market through a number of production unit closures. In 2008, the average price of paper and paperboard exports is forecast to be on a growth track, pushed up by costs, resulting in average prices 2% higher than in 2007. Factors that could threaten the materialisation of these forecasts are the uncertainty over the level of growth in the world economy and the strength of the euro.

### Two-Track Profitability Trend in the Forest Industry

The profitability trend in 2007 differs considerably from one sector of the Finnish forest industry to another. In the wood products industry, for example, strong demand and higher prices for wood products, especially sawnwood, have improved the sector's profitability significantly, even though production costs have also risen. By contrast, profitability in the pulp and paper industry has weakened a little compared with 2006, due to the rise in production costs and the weak price trend in certain paper grades, particularly magazine papers. Efficiency improvement measures are currently being taken in the sector with the aim of improving profitability.

Proportionately the biggest rise in the forest industry's costs in 2007 has been in roundwood costs. These costs have risen because of the strong increase in stumpage prices, though the impact of

stumpage prices on roundwood costs and hence the forest industry's profitability is not immediate but involves a time lag. In addition to the impact of higher roundwood costs, profitability in the wood products industry in the second half of 2007 will be weakened by the slight decline in export prices. Sawlog prices will also remain high in 2008. The increase in roundwood costs will also contribute to poorer profitability in the pulp and paper industry, although the prices of other raw materials, especially crude oil, are more significant in relative terms, both directly and indirectly. The reduction in roundwood imports has boosted the demand for domestic roundwood and focused attention on an issue of key importance for the profitability of the Finnish forest industry, namely the need to ensure a sufficient supply of wood at a competitive price.

### Domestic Roundwood Demand Increases as Imports Fall

During 2007, the impact of a strong rise in sawn softwood prices has been felt in the prices of pine and spruce sawlogs, which have increased dramatically. Stumpage prices have reached their highest levels since the 1973 oil crisis. The unusually rapid rise in sawlog prices is attributable in particular to the increased production of sawnwood, the reduction in sawlog imports and the poor winter harvesting weather that restricted the availability of roundwood. The stumpage price of softwood sawlogs for the full year 2007 is expected to exceed the previous year's average by almost 40%. Birch sawlog stumpage prices have risen considerably less quickly than those for softwood sawlogs, due to the more moderate price trend on the plywood market. The rise in pulpwood prices has been kept in check by the very modest price trend on the paper market, though the pulpwood stumpage price is nevertheless expected to be up by 12–25% on the 2006 average. Commercial fellings will rise to a new record level on account of the production growth in the forest industry and the fall in roundwood imports. The increase on the previous year is forecast to be 15%, bringing com-

mercial fellings to an unprecedented 59 mill. m<sup>3</sup>. Imports of roundwood are forecast to be down by about 10%.

In 2008, the anticipated drop in sawnwood production and prices will lead to a gradual decrease in sawlog demand and sawlog prices, as supply from non-industrial private forests will also fall slightly. Despite the declining price trend for softwood sawlogs, the average price for the year is forecast to be only a little below the 2007 figure. With plywood production remaining high, birch sawlog demand and stumpage prices are forecast to be up on the previous year by an average of 3%. The drop in sawnwood production will reduce sawlog harvesting, but pulpwood harvesting will be up because of the small increase in paper production.

Russia's export duties on its roundwood are expected to mean a moderate reduction in Finland's roundwood imports in 2008. The average pulpwood price for the year is forecast to exceed the 2007 figure by 7–10%. With a decrease in sawlog harvesting and an increase in the pulpwood harvest, the total volume of commercial fellings is forecast to be at about the level of 2007.

#### **Non-Industrial Private Forestry: Record Operating Profit but Only a Small Increase in Investment**

In both 2007 and 2008, the rise in stumpage prices will push annual stumpage earnings in non-industrial private forestry to a record EUR 2 billion. At the same time, operating profit (previously termed 'net earnings') will climb to almost EUR 140/ha. Despite the huge rise in stumpage earnings, to a level some 50% higher than in 2006, this has not resulted in a major increase in investment in timber production in non-industrial private forestry, although there is a continuous increase in investment nonetheless. Though the current emphasis in public funding is on the tending of young stands and harvesting of energy wood, the goals set out in the revised National Forest Programme include increasing support for silvicultural and forest-improvement works. Through this, the aim is to be able to increase domestic fellings

as roundwood imports decrease, especially in the longer term. Total investment in timber production will be up in 2007 to EUR 190 mill., and in 2008 to about EUR 195 mill.

#### **Assumptions and Uncertainties in Forecasting**

The aim of this *Economic Outlook* is to present clear and consistent information and analysis on the current state of the entire Finnish forest sector and the outlook for the sector in the near future. The forest sector forecasts are based on publicly available statistics, world economic forecasts, market information and other forest sector data from different sources, and research conducted by the Finnish Forest Research Institute. The views of GDP growth in the world economy and in export markets have been formulated on the basis of forecasts made by a number of different organisations, among them the Organisation for Economic Cooperation and Development, the International Monetary Fund and the Research Institute of the Finnish Economy. The forecasts given in this publication are based mainly on forest sector information available in late September and early October 2007 and world economic forecasts for 2007 and 2008.

The forest sector forecasts presented here are the views of researchers about the most likely course of events. They are point forecasts and are based on export market GDP forecasts and other background assumptions about the markets. The greatest uncertainty in the forecasts is that unexpected changes in GDP growth may occur. A key uncertainty regarding world GDP growth is once again the performance of the United States economy, and there is also uncertainty in Europe concerning the interest rate policy to be pursued by the European Central Bank and its effect on housing construction and therefore sawnwood demand. Environmental factors and environmental policy are also becoming ever more important considerations in economic growth. In 2007, the potential impact of changes in the weather has been very evident, having seen how quickly this can affect the economy and especially raw material

markets. The price of crude oil, for example, has been affected not only by supply disturbances but also weather conditions. The drop in the world price of crude oil at the start of 2007 was the result of an exceptionally warm early winter in the United States, which considerably reduced the demand for heating oil. In Europe, the exceptionally mild winter increased housing construction but hampered roundwood harvesting, reducing supplies and contributing to the strong rise in sawnwood and sawlog prices. The same could happen in roundwood markets in winter 2007/2008. The spring 2008 expiry of the paper industry's collective agreement is also a cause for uncertainty.

If GDP growth and housing construction in the main export markets in Europe fall below the forecast levels, the demand for forest industry products will also be lower than forecast. This would add to the prevailing oversupply in Europe, which would lead to an unexpectedly strong decline in sawnwood prices and would also depress paper prices. If the US dollar were to weaken significantly more than expected against the euro, this would hamper exports from Europe and add to the pressure to source supplies of forest industry products from countries outside Europe.

If GDP growth were to fall short of the forecasts, this would also affect export prices, production and profitability in the Finnish forest industry. With falling demand for wood, the adverse impact would spread from the forest industry to roundwood markets, forestry employment and the profitability of non-industrial private forestry. Growth in the Finnish forest sector would then fall short of the forecasts presented here.

*Key forecasting variables, 2007–2008.*

Forecasting variables	2007*	2008*
	% change from previous year	
Sawnwood production	6	–4
Sawnwood export	0	–4
Sawnwood export price	22	–4
Paper production	2	2
Paper export	2	2
Paper export price	–1	2
Commercial fellings	15	0
Roundwood imports	–11	–1
Softwood sawlog prices	35–36	–1
Birch sawlog prices	10	3
Pulpwood prices	12–25	7–10

*\*price changes are nominal*





## I World Economy

*Although the 2007 figure for GDP growth in the world economy will be below the previous year's level, it will still be above the average of recent years. Weighted according to the distribution of Finnish forest industry exports, real GDP growth in the world economy in 2007 will be 3.6%, and in 2008, 3.4%. However, GDP growth in the euro area will be down to 2.7% in 2007, and to 2.4% in 2008. Export competitiveness will be hindered by the strong euro and rising costs, and so the euro area's GDP growth will rely not on exports but on a revival in private consumer demand and on investment. With a growth track slightly above the euro area average, the German economy will continue to be the driving force within the euro area economy. GDP growth in the UK economy is also above the average for the euro area, though only marginally, while Sweden's GDP growth in both 2007 and 2008 will be almost one full percentage point above the euro area average.*

*GDP growth in Asia and Russia continues to be strong in 2007 and will again be high in 2008. In Japan, an important market for Finnish sawnwood exports, the economy remains on a growth track of about 2%. By contrast, GDP growth in the United States is expected to be down in 2007, to below 2%, but to pick up to approximately 2.5% in 2008. Along with the interest-rate policy adopted by the European Central Bank in the coming months, the other principal uncertainty in these forecasts is the possible spread of the fiscal crisis that started in the US housing market to affect the rest of the economy and other countries around the world.*

### Finnish Forest Industry's Main Markets and Competitors are Well Established

Despite the increased exports of Finnish forest industry products to markets outside Europe since 2000, the EU is still the industry's main market. The most important individual trading partners are Germany and, outside the euro area, the United Kingdom. These two markets account for almost one third of the forest industry's export income. The euro area accounts for over 40% of the value of the Finnish forest industry's exports, and consequently a considerable share of the industry's export income is in euros. Exchange rate fluctuations against the main trading currencies affect the income obtained from exports outside the euro area. Dollar-based exports account for an estimated 15–20% of the total. In sawmilling, the most important markets outside Europe are Asia and Africa, which together take about a quarter of the total delivery volume. In the pulp and paper industry, the US and Asia together account for almost 20% of deliveries.

Russia is becoming an increasingly important market for Finnish forest industry exports. With Sweden and Canada, it is also one of Finland's strongest competitors on the sawnwood export market. Sweden is also a competitor in the market for pulp and paper industry products. More details on the main export markets and principal competitor countries for Finland's forest industry products are given below. The other key information dealt with in this chapter as background to the more detailed economic forecasts for the Finnish forest sector

presented later on consists of the economic forecasts made by the world's leading economies (and the factors affecting these forecasts).

### Euro Area GDP Growth Slowing Down

Euro area GDP growth reached a peak in 2006, at 2.9%. Major contributory factors were the more than 8% growth in exports and an investment growth in excess of 5%. A revival in the growth of private consumption to a level of almost 2% as a result of the reduction in unemployment and the increase in households' purchasing power was also a factor after years of slow growth. The promising signs seen in private investment and in construction in 2006 continued in the first part of 2007, despite the slowdown in housing construction due to higher interest rates. Euro area price competitiveness has been impaired by the strong euro, but demand from Asia and from elsewhere in Europe has ensured that exports continue to drive GDP growth. Consumer and business confidence in the economy has also remained strong. Despite a slight dip in July, the indicators of consumer and business confidence continue to be close to their highest levels since 2000.

The remainder of 2007 is expected to be favourable for the euro area economy in general, and company order books have remained high. However, some industrial sectors in the euro area are already experiencing capacity shortages, which will curtail output growth to a small extent. The euro exchange rate against the dollar is forecast to remain in the range 1.35–1.40. Together with production bottlenecks and slower demand on export markets, this will slow down export growth to an annual figure of about 7% for 2007. Investment activity in the euro area will also continue to be brisk. Despite slower growth in housing construction, the moderately good financial position of businesses will mean growth in other areas of construction as well as an increase in investment in machinery and equipment, contributing to the almost 5% growth in total investment in 2007. With a gradual recovery also continuing in the

euro area's internal consumer demand, GDP growth in the euro area in 2007 is expected to be 2.7%.

Euro area GDP growth in 2008 is forecast to slow down to just under 2.5%. Rising production costs and the strong euro will weaken price competitiveness outside the euro area. Together with a high capacity utilisation rate, this will slow export growth to about 6%. Although private consumer demand is forecast to remain high, it will be insufficient to compensate for the slower growth in exports and investment. The slowdown in investment will be attributable to the rise in costs and especially to high interest rates.

Despite the favourable picture for the euro area as a whole, GDP growth in the area will take on broadly two different forms. Germany – the most important export market for Finland's forest industry – constitutes one third of the entire euro area economy, and in 2006 it grew by 2.9%. Figures show that Germany's growth in the first part of 2007 continued at a higher level than the rest of the euro area. Exports and investment, in particular, have risen considerably, whereas private consumption is only beginning to pick up, following the VAT increase at the turn of the year. The country's growth has been fuelled by an increase in productivity and the success of structural reforms to the economy. Germany's GDP growth for 2007 is forecast to be 2.8%, and in 2008 about 2.5%. By contrast, growth has been sluggish in the French and Italian economies on account of the rigidities present and weak competitiveness. GDP growth in the French economy is forecast to be about 2%, and in the Italian economy just under 2%, both in 2007 and 2008.

The biggest threat concerning the GDP growth forecast is the possible effect on the euro area of the crisis that has begun in the US housing market, and the interest rate policy to be followed by the European Central Bank in order to prevent such a crisis spreading. As a result of growth in the economy and the improved employment situation, inflation is climbing above the ECB target (2%), fuelled by the ECB's action in August to boost the amount of money in circulation in order to calm the financial markets and increase liquidity. An increase in the

Forecasts of economic growth (real GDP, annual percentage change).

Area	Proportion of Finnish forest industry's total export value 2006, %	Actual GDP growth % 2006	ETLA 2007	IMF 2007	ETLA 2008	IMF 2008
<b>Weighted by proportion of Finnish forest industry exports</b>	100	3.8	3.6	3.7	3.4	3.2
EU15	58.7	2.8	2.7	-	2.5	-
Euro countries	41.2	2.9	2.7	2.5	2.4	2.1
Germany	17.7	2.9	2.8	2.4	2.5	2.0
United Kingdom	11.3	2.8	2.9	3.1	2.4	2.3
Sweden	4.0	4.2	3.6	3.6	3.5	2.8
New EU member countries (10)	5.0	5.9	5.5	6.1*	5.0	5.2*
Russia	4.1	6.7	7.0	7.0	6.0	6.5
United States	6.9	2.9	1.9	1.9	2.5	1.9
Asia	11.9	8.8	8.5	9.2	7.9	8.3
Japan	4.1	2.2	2.4	2.0	2.2	1.7
China	1.7	11.1	11.0	11.5	10.0	10.0
Other	13.4					

\* Include Bulgaria, Romania and Croatia

Forecast by Research Institute of the Finnish Economy (ETLA) published September 12, 2007.

Forecast by International Monetary Fund (IMF) published October 17, 2007.

central rate before the end of 2007 would dampen investment and reduce inflationary pressure. At the same time, however, it could act as a psychological signal for a contraction in consumer demand and in consumer confidence in the economy. Moreover, if interest rates were to rise or even remain unchanged, in conjunction with a September decision by the US Federal Reserve to reduce the federal fund rate, there would be further pressure to strengthen the euro, which would weaken the euro area's export price competitiveness.

### GDP Growth Slowing but Still Strong Elsewhere in Europe

The United Kingdom's 2006 GDP growth of 2.8% has continued into 2007, with the forecast for the full year being 2.9%. This is due especially to an investment growth of more than 6% and the orientation of exports towards the euro area. The raising of interest rates by the Bank of England in early 2007 will slow investment growth in 2008 to 3%, however, and will

encourage households to save. Private consumption will also be affected by the slacker housing market. Monetary policies may be loosened, though, as inflationary pressure decreases, which would weaken the pound somewhat against the euro, increasing export price competitiveness. The UK's GDP growth in 2008 is forecast to drop to 2.4%.

Among the EU countries outside the euro area, Sweden's economy grew by 4.2% in 2006. This was attributable above all to the more than 8% growth in exports and the increase of more than 14% in industrial investment. Sweden's 2007 GDP growth is forecast to slow to 3.6% as a consequence of the weakening demand on export markets. The growth in the country's private consumption will be almost 3% in 2007, due to a drop in unemployment and higher incomes, and is forecast to rise to almost 4% in 2008. The anticipated series of interest rate rises will dampen investment growth, but total investment will nevertheless be up by more than 5% in 2008. The Swedish krona is forecast to strengthen only a little against the euro, and so, with inflation remain-

ing moderate, Sweden's export price competitiveness will continue to be good. Sweden's GDP growth will be about 3.5% in 2008.

In the European Union's new member states, rapid GDP growth is continuing in 2007, albeit below the level seen in 2006. The forecast growth for 2008 is slightly below the 2007 figure. According to the International Monetary Fund, GDP growth in 2007 will be 6.1%, and in 2008, 5.2%. There are, however, still considerable differences between the forecasts for each of these member states, with a figure as high as around 10% for Latvia and Lithuania, as against, for example, Hungary's 2%. With the exception of Hungary, the GDP growth in the new member states has been driven by high export growth (more than 10%) and strong domestic consumer demand. Investment growth is also continuing at a high level. As a consequence of GDP growth, inflation has generally been rising, however, which is weakening export price competitiveness. A labour shortage in some sectors will also limit the growth in industrial production. The emerging economies of Eastern Europe are sensitive to changes occurring in the euro area, and so a possible setback in euro GDP growth beyond that anticipated would be quickly felt among the EU's new member states.

### Russian Economy Still Going Strong

In 2006, Russia's GDP growth was 6.7%. The impressive economic statistics and high growth have continued for many years and are based on exports of energy products and especially the high world market price of crude oil. 2007 looks like being Russia's strongest growth year since 2000. The investment boom that began in 2006 is continuing to be strong in 2007, supported by the rise in foreign direct investment to record levels early in the year. The oil sector has long been trying to attract investment, as its growth has slowed to 2–3%, mainly due to bottlenecks in production capacity. The country's evolving capital market has also supported investment by increasing private sector lending. Investment is forecast to be up by as much

as 20% in 2007. As households become better off, private consumer demand is also continuing to grow at a fast pace and is forecast to be up by 12% in 2007 and 10% in 2008. There continues, however, to be a lack of diversity in the structure of Russia's exports, being based principally on the energy sector. Export growth is forecast to fall to about 4.5% in 2007 from the previous year's 7% because energy and gas production cannot be increased any further, and because rising prices and a strengthening ruble are weakening the country's real price competitiveness. Russia's GDP growth is forecast to be 7% for 2007 as a whole.

Forecasts for 2008 suggest that the figures will be almost a repeat of 2007. Investment will once again be up by 20% and will be targeted not only at the energy sector but also at other sectors. In addition to the growth in private consumer demand, there will also be an increase in the use of state budget funds for public consumption and construction of infrastructure. Exports will be affected by the same problems as in previous years, and the growth in exports will be down to some 4%. Russia's GDP growth in 2008 is forecast to be approximately 6%.

### Clear Slowdown in US GDP Growth

In 2006, GDP growth in the United States was 2.9%. This was mainly due to a growth in exports of over 8%, assisted by the weak dollar, and a growth of more than 3% in private consumption. Private investment was up by 2.4%, but this was largely businesses investing in buildings and in machinery and equipment. By contrast, housing construction was down by almost 5%. Figures for the first half of 2007 show that the rate of saving by households has risen, and that private consumption (which accounts for over 70% of nominal GDP) is slowing down. The slowdown in consumption growth is due, above all, to uncertainty concerning the development of the housing market and property values. The latter constitute the greatest single asset for the majority of US households and are often used as security for loans as well as determining the scope for consumption

spending. With uncertainty shifting in August from the housing market to the finance market, consumer confidence in the economy has further declined and the level of savings has increased. The latest figures indicating an increase in unemployment have also added to the uncertainty.

Despite the slowdown in consumer demand and the drop in house prices, the US economy is not expected to plunge into recession. Its GDP growth for 2007 is forecast to drop to just below 2%. Even though housing construction will show a contraction of almost 15% in 2007 in comparison with the 2006 figure, other construction investment will be up by around 10%. The slowing pace of consumer price rises and the weak dollar will together boost the profitability of the export industry, and exports are forecast to be up by 6.5% in 2007. This will partially compensate for the slower growth in consumption.

In 2008, growth in private consumption will be down to a level of 2% as a consequence of rising unemployment and a fall in the real purchasing power of households. Housing construction is forecast to be down by almost 13% on the 2007 figure. To revive the economy, the Federal Reserve cut its federal fund rate in September 2007 by half of one percentage point. Interest rate cuts are still possible in the remaining part of the year and in 2008, and this would revive corporate investment in machinery and equipment. In all, private investment is forecast to be up by just over 1% in 2008. With a lower rise in inflation again expected and with the dollar remaining weak, US exports are forecast to grow by over 7%. US GDP growth in 2008 is forecast to be 2.5%.

The state of the Canadian economy is strongly interconnected with that of the US economy. In 2006, Canada's GDP growth was 2.8%, and the forecast for 2007 is a slower 2.5%. The reason for the anticipated slowdown is a reduction in consumer demand and investment and a fall in export growth, especially to the US, due to a strengthening of the Canadian dollar. Although the Canadian dollar is forecast to strengthen against the US dollar by about 5% in 2008, the increase in GDP growth forecast

for the United States is expected to boost Canada's exports by almost 3%. Public consumption and investment will also be up in 2008. Canada's GDP growth for 2008 is forecast to be 2.6%.

### Asia's Growth Will Accelerate in 2008

China's annual GDP growth has been about 10% in recent years and is forecast to be at approximately this level again in 2007 and 2008. Driving this growth is an annual increase of almost 20% in investment and exports. China's export growth is attributable to its excellent price competitiveness, which is derived from the country's low costs and successful exchange rate policy, as well as the strong demand in its main export markets, the United States and Japan. Although efforts have been made to stop the economy from overheating by tightening monetary policies, the effect on investment has been relatively small. The growth in private consumption in 2007 will rise to about 9% as a consequence of increasing wealth and low unemployment. Despite the very high growth figures, China's economy has so far remained in good health structurally. Labour mobility and availability have been high, preventing the emergence of production bottlenecks, but higher earnings and rising inflation will weaken export competitiveness slightly in 2008.

Japan's economy remains on a steady growth track, with GDP growth forecast to be 2.4% in 2007 and 2.2% in 2008. The revival in private consumption and the growing level of exports in 2007 will compensate for the shrinking investment in housing construction and the lower level of public sector investment. Private consumption is being fuelled by rising employment and higher pay. The drop in exports to the United States has been successfully countered by increasing exports to China and other Asian countries.



## 2 The Finnish Forest Industry

### 2.1 Production and Exports in the Sawmilling and Plywood Industries

*The strong demand for sawn softwood and the periodic scarcity in its supply due to fluctuations in sawlog availability have led to an unusually high rise in sawnwood prices in many European countries. Forecasts indicate that housing construction in Western Europe will peak in 2007, and that the growth in housing production will start to slacken before the end of the year, in which case the over-supply of sawn softwood will force prices down in the latter part of 2007. The unit price of Finnish sawnwood exports will nevertheless be about 20% higher for the year than in 2006. Sawnwood production is expected to be up by about 6% in 2007, due especially to the high domestic demand, whereas exports for the year will be around the same level as in 2006.*

*The forecast contraction in housing construction in 2008 will reduce sawnwood demand and heighten competition in Western Europe. Consequently, a slightly declining price trend for sawnwood is expected in 2008, and the unit price of Finnish exports will be about 4% below the average for 2007. There is, however, a possibility that the reduction in sawnwood demand could be larger than expected, in which case the drop in export prices would be even greater. With a fall in housing production, sawnwood demand will also be down on the domestic market, and production will decrease, though still remaining above the 2006 level.*

*Buoyant demand for plywood has raised the export prices of Finnish softwood and birch plywood, bringing the overall unit price of plywood exports in 2007 to a level about 3% higher than the previous year. A similar percentage increase applies to the volume of plywood production and exports, the increase largely concerning softwood plywood. In 2008, the drop in housing construction will mean a slight fall in plywood demand, and so the unit price of Finnish exports is expected to remain at around the 2007 level, which will also be the case for production and export volumes.*

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#### Growth in Sawnwood Demand Tails off as Housing Construction Slows Down

In 2006, strong GDP growth and still relatively low interest rates on the European export market boosted housing construction by more than anticipated. Construction was also helped by the mild weather, which extended the construction season beyond its normal duration. A total of 102 mill. m<sup>3</sup> of sawn softwood was consumed in Europe in 2006, representing a growth of 4% on the previous year's figure. Besides new housing construction and renovation of existing buildings, the level of sawnwood demand is also affected by demand from the furniture and transport packaging sectors. In Finland, the increased demand for sawnwood and other wood products in 2007 has been due

*The Finnish sawmilling and plywood industries, 2006  
1000 m<sup>3</sup>.*

	Sawnwood	%	Plywood	%
Production	12 145	100	1 415	100
*Domestic use	4 434	37	165	12
Exports:	7 711	63	1 250	88
EU	4 448	37	1 036	73
Africa	1 278	11	3	0
Asia excl. Japan	583	4	60	4
Japan	1 238	10	18	1
North America	22	0	52	4
Russia	8	0	2	0
Other	134	1	79	6

*\*Estimated domestic use = production – exports*

*Sources: Finnish Forest Industries Federation and National Board of Customs.*

in particular to the growth in detached housing construction.

Forecasts indicate that housing construction in Western Europe will peak in 2007, with a growth of 0.6% for the full year. The rise in interest rates and the high level of house prices will gradually begin to dampen the demand for housing and thus new construction before the end of the year, but will probably be more apparent in the construction figures for 2008. This will also mean lower growth in the consumption of wood products. In Germany, the number of building permits issued for new homes in January–May 2007 was about 40% below the equivalent figure a year earlier, and in France the first half of the year saw a drop of about 6% in new housing starts in relation to the previous year. In Finland, the corresponding figure was a drop of 12% and in Sweden a drop of about one third.

Outside Europe, building starts for the first half of 2007 in Japan were down a little on the previous year, and this was followed by a sharp downturn in July. In the United States, the decrease in construction is continuing and the sawnwood market has consequently been weak. The number of construc-

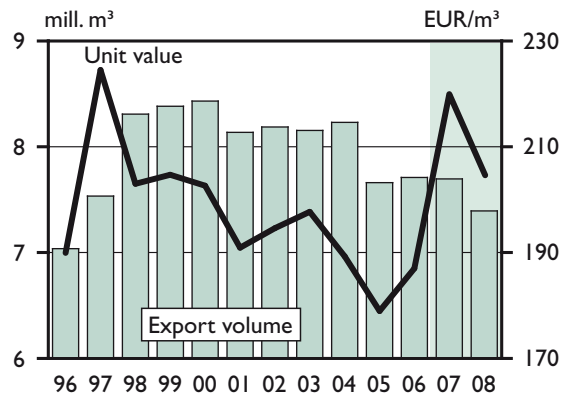
tion starts in 2006 fell by 13%, and the drop in 2007 is expected to be even greater.

In 2008, a decrease in new housing construction will occur in most Western European countries and in the United States and Canada. According to Euroconstruct's June 2007 forecast, the decline will be an average of about 1% in Western Europe. Nevertheless, construction will be up in Germany, for instance, which accounts for about one fifth of Western Europe's housing construction. In Eastern Europe (Czech Republic, Hungary, Poland, Slovakia), the rapid growth in construction is continuing, although volumes are still relatively small. Forecasts indicate that housing construction in Finland will be down by about 2%. The decrease in sawnwood demand in new housing construction in Europe will nevertheless be partially compensated by building renovations, which will be up by around 2%. The forecast levels of sawnwood demand and prices may fail to materialise if the construction slump in the United States and the lending crisis in US housing loans start to significantly reduce US GDP growth. The effect of this would also spread to Europe and cause a larger drop in construction and sawnwood demand than anticipated.

### Oversupply Pushes Prices Down

In Europe, the busy construction sector and the temporary shortage of sawnwood due to the fluctuations in sawlog supply have led to an unexpectedly high rise in sawnwood prices. The monthly unit price of Finnish sawnwood exports has risen by about 44% between December 2005 and July 2007. The rise has been greater for pine than for spruce sawnwood. In Central Europe, the supply of spruce has been more plentiful than pine, due to the large volume of fallen spruce in the January storms.

The trend in housing starts in the first half of 2007 in Western Europe indicates that the growth in sawnwood demand will begin to tail off before the end of the year. In Finland, according to the August 2007 Business Tendency Survey by the Confederation of Finnish Industries (EK), the wood products



Source: National Board of Customs

*Volume and unit value of sawnwood exports, 1996–2008 at 2006 prices (wholesale price index).*

industry expects the general economic situation to weaken in the coming months. The change in the euro-based HWWA index (timber 63×75 mm, fob, Sweden) in June–August 2007 suggests a slowing of the rise in sawnwood market prices.

It is estimated that in the first half of 2007, Germany, Austria and the Czech Republic produced 2.5–2.8 mill. m<sup>3</sup> more sawnwood than normal, partly because of the January storm damage. If Europe’s production is unrestrained in the latter part of the year and if sawlog supply remains at its present level, the oversupply will create downward pressure on sawnwood market prices. This situation will be exacerbated by the fact that high prices have boosted the production of sawnwood in Europe. Market prices are consequently expected to be declining towards the end of 2007.

The volume of sawnwood available in Europe has increased not only as a result of higher production but also due to the drop in exports to the United States. Exports to the US have become less profitable because of the strengthening of the euro against the dollar and the drop in US sawnwood prices. On the European market, the supply of sawnwood, especially construction grades, has increased from Central Europe and from Canada. The supply of better quality Nordic and Russian sawnwood has been less

plentiful, which has helped maintain the prices of higher quality grades. With many end-users switching to lower priced grades, the downward pressure on higher quality sawnwood grades is rising.

In January–July 2007, the average price of Finnish sawnwood exports was 27% higher than for the same period a year earlier. The rise in the nominal average price for 2007 as a whole is expected to be slightly lower, at 22%, because competition is likely to drive down prices in the last quarter of the year. Taking into account the forecast for the wholesale price index, the rise in real prices will be about 18% in 2007.

The slackening in housing construction in Western Europe forecast for 2008 will reduce sawnwood demand and, if supply remains high, lead to a fall in prices, especially in the first part of the year. The ups and downs of the sawnwood market have previously followed the general economic cycle. In Europe, for example, large price rises have been followed by a sharp drop in prices as demand contracts more quickly than supply (see the featured topic by Hänninen and Viitanen). The average price of Finnish sawnwood exports last rose in 1997, by a year-on-year total of approximately 20%, before dropping by about 10% in 1998, when the Asian financial crisis led to lower economic growth worldwide. The nominal average price of Finnish sawnwood exports in 2008 will be about 4% below the 2007 level. The reason for this relatively moderate forecast is the assumption that sawlog supply will decrease in Central Europe in the second half of the year, and that this would then limit sawnwood production once the storm-damaged wood has been used up. The substantial increase in sawmilling capacity over the past 10 years has boosted the demand for sawlogs in Europe, and so there could be a scarcity of good-quality sawlogs, in particular. There is also the risk that prices could fall by more than anticipated if there is nothing to limit production or if the slackening in housing construction is greater than forecast. The main uncertainty in this concerns the interest-rate policy to be pursued by the European Central Bank.



Forecasts of production and exports in the sawmilling and plywood industries, 1000 m<sup>3</sup> (percentage changes from previous year are shown below the respective volumes).

	Production			Exports		
	2006	2007	2008	2006	2007	2008
Sawnwood	12 145 0	12 800 6	12 400 -4	7 711 1	7 700 0	7 400 -4
Plywood	1 410 8	1 450 3	1 450 0	1 250 7	1 300 3	1 300 0

Forecasts of export prices for sawnwood and plywood (as percentage changes from previous year).

	2006	2007	2008
Sawnwood	11 (188 €/m <sup>3</sup> )	22	-4
Plywood	2 (524 €/m <sup>3</sup> )	3	1

\* Export prices are nominal unit values

## Decrease in Finnish Sawnwood Exports to Western Europe

As Finnish sawnwood production volumes have declined in recent years, exports to Western Europe have been falling, reducing Finland's market share of Western Europe's sawnwood imports from 20% in 2000 to about 15% in 2007. The share held by competing producer Sweden has remained at around one third, although in the first half of 2007, Sweden's exports to its traditional European markets were down on the same period the previous year. The Baltic countries have increased their output of higher added-value sawnwood products, and their market share in exports of low added-value sawnwood, which grew considerably in the 1990s, has already begun to decline, despite the increase in export volumes. Russia's market share has grown to almost 15% and its export volumes are continuously rising. Germany, which has become Europe's biggest sawnwood producer country, increased its deliveries to other European countries by more than one third in the first half of 2007. US producers have

also increased exports to Europe slightly in the first six months of the year, in parallel with the rising competitiveness caused by a fall in the US dollar rate against the euro.

The strong rise in sawlog prices throughout Europe has reduced the benefit of higher end-product prices to sawnwood producers. In the first quarter of 2007, softwood sawlog prices were up by 27% in the Nordic countries and 36% in Eastern Europe in comparison with the same period a year earlier, according to Wood Resource Quarterly. Sawlog price fluctuations in different countries in the Baltic Sea region are starting to look rather similar in terms of timing and direction.

Finland's total sawnwood exports in January–July 2007 were approximately 4% below the figure for the same period in 2006. Although exports of pine sawnwood were up by 5%, the overall decrease in sawnwood exports was due to the 11% drop in spruce sawnwood exports. Export volumes declined to Finland's traditional major buyer countries in Western Europe: the United Kingdom, France and Germany. Outside Europe, exports to Africa and the Middle East were up, due to the high demand for pine sawnwood in Algeria, Tunisia and Saudi Arabia. Finnish sawnwood exports to Japan, which is Finland's second largest export market after the UK, were up by 3% in the first half of the year, compared with the same period in 2006. The profitability of exports to markets outside Europe is affected by the strengthening of the euro against invoicing currencies. In the period January–September 2007, the euro strengthened by an average of 8% against the US dollar and 11% against the Japanese yen, compared with the same period in 2006. A decrease in housing construction will be a further factor contributing to lower sawnwood demand in Japan in the second half of 2007.

In Finland, the rise in sawnwood prices has considerably boosted the profitability of sawnwood production and exports, following the poor profitability of recent years. The increase in domestic demand has held back export growth, as a result of which exports for 2007 will be at about the same level as

in 2006. In 2008, the demand on export markets is expected to be slightly down, and sawnwood prices are consequently expected to decrease. Export volumes from Finland are forecast to drop by about 4% for the year. Having Finnish-owned sawmilling capacity in other countries (e.g. about 1 mill. m<sup>3</sup> in Russia) will allow operators to plan production differently, as domestic production can be replaced by production in units outside Finland.

### Demand on Export Markets has Boosted Pine Sawnwood Production

In January–July 2007, Finnish sawnwood production was about 6% above the figure for the same period a year earlier. The differences between tree species were quite considerable, however. For pine sawnwood, there was an increase in production of about 9%, due to a more favourable market for it in Europe than that for spruce sawnwood, and because of the good level of domestic demand. Production of spruce sawnwood was up by about 6% in the first half of 2007, supported by domestic demand. In terms of the raw material price in relation to the end-product export price, spruce has been in a less favourable position than pine. The reduction in spruce sawlog imports in the first half of the year has heightened the demand for domestic spruce sawlogs and, correspondingly, has raised the price for them. Total sawnwood production for 2007 is expected to be up by about 6% on the 2006 figure.

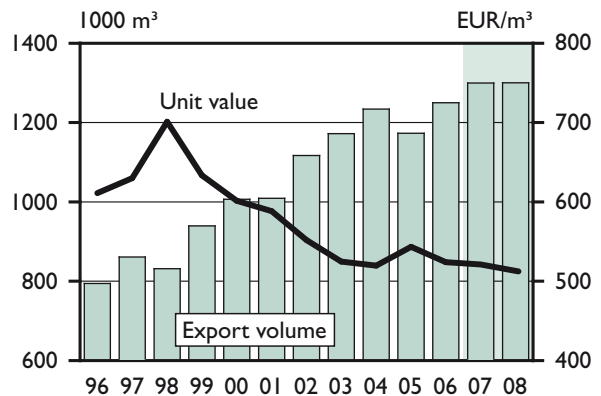
The combination of high sawlog prices, oversupply of sawnwood on export markets and uncertainty over the short-term price trend for sawnwood has, since the summer, led to announcements of temporary cuts in sawnwood production at some Finnish sawmills. A deterioration in sawmilling profitability is expected, as sawnwood prices are falling and the sawlogs purchased at top prices are starting to arrive for milling. Weaker profitability can gradually be expected to limit sawnwood production. In 2008, the profitability of sawnwood production will drop further due to lower end-product prices at the same time as production costs are rising. Although domes-

tic sawlog prices are expected to fall, other production costs will increase. A reduction in exports and domestic demand will mean a decrease in sawnwood production of about 4% in 2008.

### Strong Demand on Plywood Market

The consumption of Finnish plywood on the European export market in 2006 was approximately 7.6 mill. m<sup>3</sup>, which was about 1% up on the previous year. This increase was attributable to the growth in construction and a recovery in the furniture industry. The growth in consumption of other wood-based panels in 2006 was even higher, for instance almost 3% for OSB board. The plywood market is small in relation to the markets for other wood-based panels or sawnwood. With its production of 1.4 mill. m<sup>3</sup>, Finland is the largest plywood producer in Western Europe. Birch plywood accounts for slightly less than half of Finnish production.

Europe's net import of plywood has grown continuously in recent years, and the biggest source in 2006 was Russia, which has expanded its production and exports of mainly birch plywood in the last few years. China has also increased its market share in Europe, and especially in Germany. Competition is toughest in the cheapest construction grades. The



Source: National Board of Customs

*Volume and unit value of plywood exports, 1996–2008 at 2006 prices (wholesale price index)*

supply of these grades from South America has also increased, particularly from Brazil. The competition for high-quality Finnish birch plywood comes principally from Russian plywood. Smaller quantities of birch plywood are also supplied to the European market from the Baltic countries.

Cyclical fluctuations on the plywood market have been less dramatic than on the sawnwood market because plywood has a greater diversity of uses than sawnwood. Europe also produces less plywood than it consumes, and so overcapacity is not the problem that it is on the sawnwood market. The rise in the unit price of plywood exports has been more moderate than that for sawnwood. The average plywood export price in January–July 2007 was 3% higher than a year previously. Most of Finland's plywood exports are destined for Western Europe, where GDP growth is still likely to be fairly high in 2008. The volume of Finnish plywood exports will be up in 2007 by about the same amount as in the first part of the year, i.e. about 3%, and the nominal unit price of exports will be up by about the same percentage, on average. However, taking account of the forecast for the wholesale price index, the real unit price will be down by about 0.5%.

In birch plywood production, a raw material shortage may limit production and export volumes in autumn 2007 and in 2008, as imports of birch sawlogs from Russia have fallen by almost half in the first six months of the year. Despite the abundant birch sawlog reserves in Finland, replacing imports entirely with domestic roundwood could be difficult on account of the structure of the country's forests. With a slackening in the construction sector leading to lower growth in plywood demand, 2008 will see a slower increase in softwood plywood exports and in their average price. Production and exports in the Finnish plywood industry as a whole, and the average export price, will be close to their 2007 levels.

## 2.2 Production and Exports in the Pulp and Paper Industry

*GDP growth in the world economy in 2007 has again been strong, and, as a consequence, the consumption of paper has increased in Europe by an average of 2–3%. Despite this, it has been difficult to introduce price increases, and the actual prices for the year have been lower than anticipated. This is due to the overcapacity still prevailing in the sector. The average export price of paper in 2007 is forecast to be about 1% below the previous year's level, despite the slight rise in export prices in recent months. Besides low prices, the paper industry's profitability in 2007 has been adversely affected by the sharp rise in costs, especially the costs of roundwood and pulp.*

*Provided that the problems in the US economy do not appreciably weaken the growth outlook for the world economy, the export demand for Finnish paper should be reasonably high in 2008 as well, and the potential should be there for increasing production and exports. The European market is nevertheless a mature market, with only a moderate increase in paper consumption likely. Both the production and export of paper are expected to be up by 2% for the full year 2007.*

*Production and export growth in 2008 will depend on being able to pass higher costs on to prices. There are likely to be opportunities for this, as the rise in raw material costs is also a problem for other producer countries, and Europe's oversupply will have been reduced through production unit closures. The average export price of paper and paperboard is forecast to be on a rising track, pushed up by costs, resulting in an average increase of 2% on the 2007 figure.*

	Chemical pulp	% of production	Paper	% of production	Paperboard	% of production
Production	7 946	100	11 172	100	2 977	100
Domestic use*	5 418	68	771	7	425	14
Exports:	2 528	32	10 401	93	2 552	86
EU	1 853	23	6 701	60	1 443	48
Asia	360	5	882	8	433	15
Africa	36	0	190	1	79	3
United States	111	1	1 000	9	173	6
Russia	19	0	336	3	147	5
Other	149	2	1 292	12	277	9

\* Estimated domestic use = production – exports

Sources: Finnish Forest Industries Federation and National Board of Customs.

### Consumption Picks up in Europe

The growth in paper consumption in Europe, the main market for the Finnish paper industry, has been very slow throughout the present decade. With capacity increasing at the same time, the paper industry – both in Finland and elsewhere in Europe – has suffered from oversupply. However, in 2006 there was a significant change for the better, with an increase in Europe's paper consumption, production and exports. Paper consumption in Europe grew by an average of 2%, and the rate of increase was significantly higher than this in many countries (e.g. an average of 2.6% in the member countries of the Confederation of European Paper Industries). At the same time, consignments of paper from Europe to destinations elsewhere in the world were up by 6.8%, and imports from outside Europe were down by about 10%.

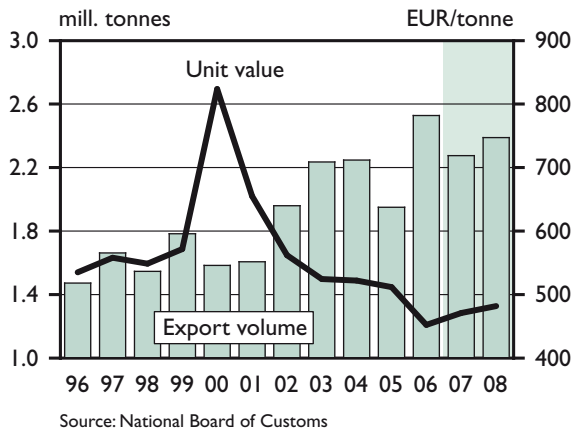
Europe's oversupply has also been alleviated by the rapid demand growth in Eastern Europe and Asia. In Russia, for instance, the combined per-capita consumption of paper and paperboard was up by 11% in 2006. Although Russia's own paper, paperboard and pulp production has grown steadily since the late 90s, the growth has been slow, and the need for imports remains. In China, too, the demand for paper has grown rapidly (at a rate of about 13%

in recent years), and China has become the world's second biggest paper producer and consumer, after the United States. If China's paper consumption growth continues at the same rate as in the past 10 years, it is estimated that China would account for about 40% of the entire world growth in paper and paperboard consumption in the next decade. The increase in China's paper consumption will be so rapid that even the growth in its own paper production will not be enough to eliminate China's need for paper imports for a long time to come.

### Expected Price Rises Did Not Materialise

In Europe, the trends in paper consumption and prices in 2007 have varied noticeably from one grade to another. Figures from the Association of European Publication Paper Producers (Cepiprint) and the European Association of Fine Paper Manufacturers (Cepifine) show that the change in estimated consumption of printing and writing papers in Europe in January–July 2007 was as follows: newsprint consumption up 0.3%, coated magazine paper up 3% and fine paper up 2%. By contrast, consumption of uncoated magazine paper was down by about 3%.

World market prices of paper began to rise slightly in 2005, and this was expected to continue



*Volume and unit value of pulp exports, 1996–2008 at 2006 prices (wholesale price index).*

in 2007. However, more significant price rises have had to wait, and the increases introduced in 2007 have been smaller than anticipated. This has been due to the overcapacity which still prevails. The Confederation of European Paper Industries reports that Europe’s paper capacity was reduced in 2006 by only 0.2% on the previous year’s figure. Although the number of mills has fallen by 2.5% in the same period, the capacity of the remaining mills has been expanded.

In order to improve profitability, Finnish paper producers also began to reduce their capacity in 2006, altogether by more than 600 000 tonnes. Production units have been closed during 2007 as well, and Finnish producers have decided to close mills located outside Finland, too. UPM, for example, took the decision to close its Canadian coated magazine paper mill at Miramichi for 9–12 months starting in late August 2007, while M-Real closed its Sittingbourne fine paper mill in the United Kingdom in early 2007, as well as two fine paper machines at Gorhrsmühle in Germany and the Wifsta fine paper mill in Sweden. Stora Enso sold off the mills it had acquired in North America and announced that it would concentrate on the European market, while seeking growth in Russia, China and South America.

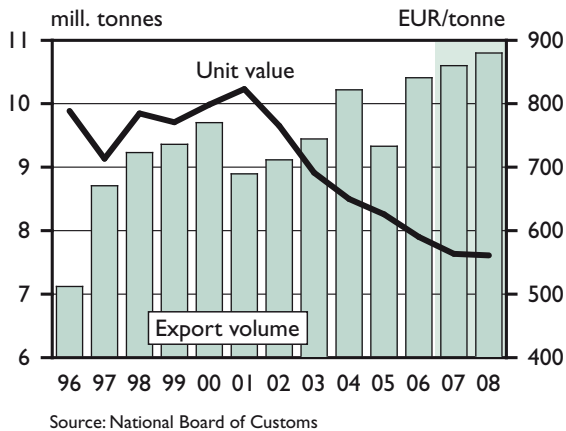
Magazine papers account for more than half (2006: 56%) of Finland’s paper exports. The price trend in magazine paper has been weak, with the average unit price of exports in January–July 2007 being about 4% lower than for the same period a year earlier. Many attempts have been made to raise prices in the past two years, but with poor success. Instead, the average price of newsprint and fine paper exports in the first half of 2007 was at approximately the level of a year earlier.

In North America, contrary to developments in Europe, both the demand for and production of paper and pulp decreased in 2006 and the first half of 2007. This has primarily been due to the downturn in the housing market and the consequent slowdown in GDP growth. The latter has been reflected in the advertising market and the consequent reduction in demand for newsprint and magazine papers. According to the independent forest industry information provider RISI, the amount of advertising space in magazines in the third quarter of 2007 was about 2% less than the average for each of the first two quarters of the year. Advertising has also been increasingly switched to on-line media.

The strengthening of the euro in conjunction with the slackening of consumption on the US domestic market means tougher competition on the European paper market, because imports to the euro area from the US are increasing. Imports of US newsprint to Europe were already up by about 16% in the first half of 2007.

In Asia, the demand for printing and writing papers has continued to grow in 2007 as well. The increase in production capacity has, however, led to an oversupply of coated fine paper in Asia. China, for example, is no longer a buyer but a net seller of coated fine paper.

The demand for printing and writing papers, and for other paper grades too, in the second half of 2007 is forecast to remain about the same as in the first six months. Production and exports of Finnish paper are expected to be up in 2007 by an average of about 2% in relation to 2006. Paperboard production increased more than the production of



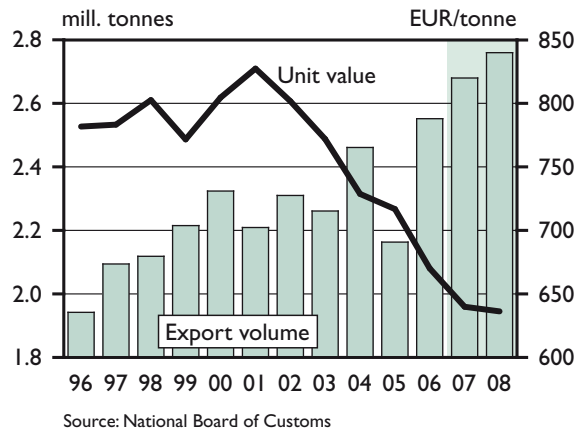
Volume and unit value of paper exports, 1996–2008 at 2006 prices (wholesale price index).

paper products in the first half of the year, because the upturn in the economy boosted the demand for packaging industry products and thus paperboard. Production and exports of paperboard are forecast to be up by about 5% in 2007.

The average unit price of Finnish paper exports in the first six months of 2007 was approximately 2% below the comparable figure a year earlier. Despite the favourable economic outlook and the fact that the prices of many paper grades look like rising slightly in the latter half of the year, the average price of paper in 2007 is forecast to be up only marginally on the level of the first six months, finishing at just 1% or so below the 2006 figure.

### Pulp Demand Growing and Prices Up

Despite the closure of paper mills in Europe, paper production and the demand for pulp have risen. The supply of pulp, on the other hand, has fallen, because pulp-and-paper conglomerates have ceased business and pulp mills have closed. According to the Confederation of European Paper Industries, pulp capacity in Europe was reduced in 2006 by about 0.5%, and the number of mills by 1.9%. The effect of this on the market has been to increase the price of pulp in a situation where the demand for



Volume and unit value of paperboard exports, 1996–2008 at 2006 prices (wholesale price index).

pulp has remained strong and buyers' stocks have been low.

The euro PIX price of softwood pulp in late August 2007 was about 5% higher, and that of hardwood pulp about 3% higher, than at the start of the year. Further price increases are also anticipated, even though paper prices are at a standstill. This situation may allow an increase in market pulp production, at least for a certain period. The market outlook could, however, deteriorate relatively soon, as new pulp capacity is on its way. In autumn 2007, a new pulp mill came on stream in Brazil (Suzano, capacity 900 000 tonnes), and another is soon to start up in Uruguay (Metsä-Botnia, capacity 1 mill. tonnes). The bulk of this production is planned for import to Europe.

Finnish pulp production for 2007 is forecast to be at the previous year's level, but pulp exports will be down by about 10%, due to the increase in domestic paper production. By contrast, the average price of pulp exports is forecast to be up by around 8%.

### Potential for Growth in Production and Exports, but Price Rises Imperative

Provided that the problems in the US economy do not appreciably weaken the growth outlook for the

Forecasts of production and exports in the pulp and paper industry (1000 tonnes); percentage changes from previous year are shown below the respective volumes.

	Production			Exports		
	2006	2007	2008	2006	2007	2008
Chemical pulp	7 946 17	7 950 0	8 190 3	2 528 30	2 275 -10	2 389 5
Paper	11 172 14	11 400 2	11 630 2	10 401 16	10 600 2	10 800 2
Paperboard	2 977 17	3 130 5	3 220 3	2 552 18	2 680 5	2 760 3

Forecasts of export prices for pulp and paper products (as percentage change from previous year)\*

	2006	2007	2008
Chemical pulp	11 (452 €/tn)	8	5
Paper	0 (590 €/tn)	-1	2
Paperboard	1 (670 €/tn)	-1	2

\* Export prices are nominal unit values.

world economy, the export demand for Finnish paper should be reasonably high in 2008 as well, and the potential should be there for increasing production and exports. The European market is nevertheless a mature market, with only a moderate increase in paper consumption likely. Both the production and export of paper are expected to be up by 2% in 2008, and the production and export of paperboard by 3%. The forecast for paper production and exports is based on the assumption that export prices can be increased, thus avoiding the possible adverse effects of capacity cuts. An increase in paper production on the domestic market will increase the need for pulp, and so pulp production is forecast to grow in 2008 by about 3%, and pulp exports by around 5%.

Profitability in the paper industry has remained weak for a number of years. Besides low prices, the paper industry's profitability in 2007 has been adversely affected by the exceptionally sharp rise in all its costs, especially the costs of roundwood and

pulp. The unusually short winter felling season in Northern Europe led to a roundwood shortage and a rise in roundwood prices, which has affected not only Finnish producers but others too. Pressure for higher pulpwood prices has been felt throughout Central Europe on account of the increased energy use of wood, and there have also been various production difficulties in both Asia and North America. In Indonesia, fellings have come to a standstill across large areas as investigations are begun into the legality of felling virgin forest. In the United States, the decrease in construction has been reflected in sawmill production and in deliveries of sawmill chips to the pulp industry, while in Canada a strike by forest workers and machinery operators in British Columbia has led to a shortage of roundwood.

Cost pressures have caused many companies to announce price rises during autumn 2007. Success in increasing magazine paper prices in particular is very important for the profitability of the entire paper industry. Attempts to raise prices may well find support in the fact that the high prices of roundwood and pulp are a problem for the whole sector. In addition, the high price of market pulp will also compel even the small producers, who rely on purchased pulp, to join the move to increase prices.

The export price of Finnish paper in 2008 will be affected particularly by the price negotiations conducted at the end of 2007, which will decide the prices for longer term supply agreements. The forecast of continued GDP growth in the world economy, together with the cost pressures common to all European producers, will mean that the prospects for price increases in 2008 are better than in 2007. The average price of paper and paperboard exports is forecast to show a rising trend, pushed up by costs, and prices are expected to be up by about 2% on the 2007 level. The export price of pulp is forecast to continue rising, at least in the first part of 2008, bringing prices for the year as a whole to a level about 5% up on the 2007 average. The price forecasts are based on the assumption that no significant changes occur in the euro rate against the US dollar and other key currencies.

## 2.3 Costs and Profitability in the Finnish Forest Industry

*Considerable differences in profitability trends are evident in the various sub-sectors of the forest industry in 2007. In the wood products industry, the strong demand and increased prices for its products, particularly sawnwood, have pushed profitability to new heights, whereas profitability in the pulp and paper industry will be slightly down on the 2006 figure as a result of the weak price trend in certain paper grades, especially magazine papers, and the rise in production costs. Action is being taken in the sector to improve efficiency and thus profitability.*

*In relative terms, the biggest rise in the forest industry's costs in 2007 is in roundwood costs. However, the impact of the strong increase in stumpage prices on roundwood costs and the forest industry's profitability is not immediate but involves a certain time lag. This impact, and the drop in sawnwood export prices, will be visible as a deterioration in the wood products industry's profitability before the end of the year and during 2008. The rise in roundwood costs will also affect profitability in the pulp and paper industry, although in relative terms its impact will be less than the direct and indirect cost impacts of other raw material prices, especially crude oil. With paper prices expected to start rising very slightly, the pulp and paper industry's profitability should rise a little in 2008 in comparison with 2007.*

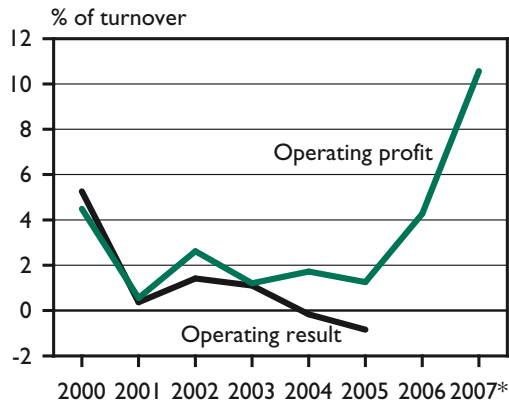
*The unprecedentedly high supply of domestic roundwood will ensure the forest industry's roundwood procurement needs are satisfied in 2007 and the first six months of 2008. The decrease in roundwood imports means that greater importance will be attached to domestic roundwood supply within the forest industry's roundwood procurement. However, the question of whether the Finnish forest industry can obtain a sufficient supply of competitively priced domestic roundwood to ensure its business viability will again arise in the latter half of 2008 at the latest.*

### Profitability in the Wood Products Industry Greater than in the Pulp and Paper Industry

According to the figures for operating profit as a percentage of turnover given in the financial statements of the largest Finnish forest industry corporations (Stora Enso, Metsäliitto and UPM), profitability in the wood products industry in 2006 was the highest so far in the present decade. Moreover, profitability has continued to improve markedly in the first half of 2007. The main contributory factor has been the sharp rise in export prices for sawn softwood since late 2005. The trend in the export price for plywood has also been favourable (in June 2007 this was 4.8% higher than the average for 2006), which has therefore also had a positive impact on income and profitability in the wood products industry.

Based on the financial statements database maintained by Statistics Finland (which covers small and medium-sized companies) and the figures for operating result as a percentage of turnover derived from it, profitability in the wood products industry has nevertheless been a little weaker than might have been anticipated on the basis of the figures for operating profit as a percentage of turnover reported by the wood products industry businesses of the three largest forest industry corporations. Taking the small and medium-sized companies into account is very important, not least in the sawmilling industry, where sawmills not belonging to any of the three major corporations together account for a considerable proportion (about 40%) of Finland's sawnwood production. According to the Statistics Finland database, the wood products industry's profitability in 2004 and 2005, measured in terms of operating result as a percentage of turnover, was negative, whereas that of the wood products businesses within the major corporations, measured as operating profit as a percentage of turnover, was distinctly positive. Despite this, the trend in each of these statistics has been very similar, and so it must be assumed that when the latest figures are published the Statistics Finland data will also indicate that the sector's profitability has improved in 2006 and again in 2007.



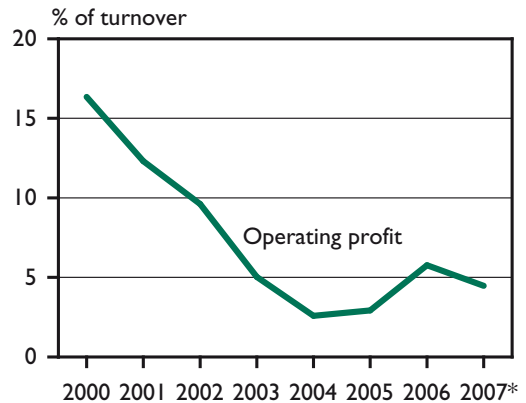


\*January-June 2007  
Source: Statistics Finland (operating result),  
Metsäliitto, Stora Enso, UPM (operating profit)

*Profitability in the wood products industry, 2000–2007, measured in terms of operating result and operating profit.*

Operating result as a percentage of turnover is based on adjusted financial statements, while operating profit as a percentage of turnover (shown in the accompanying diagram without extraordinary items) is based on unadjusted financial statements, which means that in terms of their calculation basis, they are not fully comparable measures of profitability. Furthermore, the Statistics Finland database incorporates only the operations of production units located in Finland, whereas the financial statements of the major forest corporations also include all operations outside Finland.

In order to improve pulp and paper industry profitability, the major Finnish forest industry corporations have all introduced measures to boost efficiency, including resorting to capacity reductions for the purpose of improving the market for certain paper grades. Measured in terms of operating profit as a percentage of turnover, the pulp and paper industry's profitability was at its poorest in 2004, after which it began to pick up but suffered a setback in 2005, when stoppages led to production and turnover falling short of their targeted levels. In 2006, profitability improved by almost 3 percentage points on the 2005 level, measured as operating



\*January-June 2007  
Source: Metsäliitto, Stora Enso, UPM

*Profitability in the pulp and paper industry, 2000–2007, measured in terms of operating profit.*

profit as a percentage of turnover. However, figures for the first part of 2007 suggest an interruption in this favourable trend, at least for the time being. The decline in profitability has been caused by the unexpectedly weak trend in export prices of certain paper grades, notably magazine papers. Market developments have been disappointing in North America, in particular, where the poor financial performance of Finnish-owned paper industry units has in turn affected the overall profitability of the pulp and paper industry businesses of the major forest industry corporations. The strengthening of the euro has also sharpened competition in the pulp and paper industry's main market, Europe, which has not improved the prospects for raising paper prices.

Differences in profitability do, however, exist among the different parts of the pulp and paper industry. The market for pulp and fine papers, for instance, has been favourable, and this has improved the profitability of their production. Nevertheless, the various parts of the wood products businesses belonging to the major forest industry corporations have, on average, been more profitable than pulp and paper manufacture during 2007.

## Rapid Increase in Roundwood Costs Threatens Profitability in the Wood Products Industry in Particular

Profitability in the wood products industry has improved in 2007 as a result of the favourable market and consequent growth in income. The improved profitability is nevertheless being eroded by the rise in roundwood costs. Roundwood costs traditionally consist of the following: the stumpage costs of domestic roundwood; roundwood harvesting and transport costs; imported roundwood; and the pulp and paper industry's woodchips and sawdust costs. Together these account for more than 30% of the wood products industry's total costs, with stumpage costs being the largest single item, at almost 22% of total costs. In the sawmilling industry, roundwood costs account for over half, and stumpage costs for about 35%, of total costs.

In August 2007, the average nominal stumpage price for both pine and spruce sawlogs in Finland was 45% (about EUR 23/m<sup>3</sup>) higher than a year earlier. On the assumption that other costs have remained unchanged, these higher sawlog prices have increased costs in the wood products industry by an average of more than 10%, and in sawmilling by about 17%. At the same time, however, the unit price of sawn softwood exports has risen by over 30%. This differential between product price increases and cost increases has meant a sharp rise in profitability in the entire wood products industry, and the sawmilling industry has been able to afford the high stumpage prices on account of the favourable market. By contrast, plywood production (the principal use for birch sawlogs) has not experienced the kind of boom seen in sawmilling, and the rise in birch sawlog prices has been considerably less dramatic than that for softwood sawlogs.

The rapid improvement in profitability in sawmilling and the entire wood products industry in the first half of 2007 is also attributable to the fact that the highest agreed stumpage prices will not materialise in the form of increased roundwood costs until about six months have passed, because of the

difference in timing between agreeing roundwood sales and the actual felling and final payment. The profitability figures for the wood products industry for 2007 as a whole may not therefore reach the levels suggested on the basis of the figures for the first six months. The time lag involved in translating the rise in stumpage prices into roundwood costs also incorporates a certain risk: a rapid fall in demand and prices on the sawnwood export market would lead to a sharp deterioration in profitability for the entire wood products industry, because sawlogs purchased at top prices would then be processed into products to be sold at prices below their previous level.

## Rise in Roundwood Costs also Evident in Pulp and Paper Industry

The combined roundwood costs of the pulp and paper industry account for about 14% of total costs, with stumpage costs comprising almost 4%. The stumpage price of pulpwood in August 2007 was between 13% and 30% higher than a year earlier, depending on the tree species in question. The overall cost impact of the rise in stumpage prices on the pulp and paper industry will be approximately 0.5%, assuming that other costs remain unchanged. Imported roundwood accounts for a significant share of the pulp and paper industry's costs: 20% of roundwood costs and 2.7% of total costs. In relative terms, the rise in import prices of different species of pulpwood has even been greater than that for domestic stumpage prices. In June 2007, the border price of the pulp and paper industry's most important category of imported wood, birch pulpwood, was 25% higher than a year previously. The corresponding figure for spruce pulpwood was 36%, and pine pulpwood almost 60%. The impact of this on the total costs of the pulp and paper industry is therefore just as great as the impact of the price rises for domestic roundwood. Woodchips and sawdust account for as great a share of roundwood costs in the pulp and paper industry as stumpage prices, though the rise in woodchip and sawdust prices has

been less than for roundwood. The price of imported woodchips, for example, was about 8% higher in June 2007 than a year earlier.

Roundwood costs comprise not only the price of the wood itself but also the considerable costs of harvesting and transport, which together account for about one fifth of roundwood costs in the wood products industry and about a quarter of the pulp and paper industry's roundwood costs. Harvesting and transport costs are strongly related to fuel prices, which in 2007 have remained more or less at the record levels seen in 2006. The relative impact of these costs on the industry's total roundwood costs has thus been smaller than in 2006. The higher price of roundwood, however, has pushed up total roundwood costs in 2007 by considerably more than the increase in other cost items, in both the wood products industry and the pulp and paper industry.

### Relatively Steady Trend in Other Costs

In the pulp and paper industry, the costs of raw materials other than wood account for a considerable proportion (about a quarter) of total costs. The prices of these materials (e.g. various minerals and chemicals), which are needed mainly in pulp production and bleaching and in paper production and coating, have been steadily rising in the present decade. For example, the import prices of non-metallic minerals, of which the pulp and paper industry is a major importer, rose in 2002–2006 by an average of 6% p.a., and this rate of increase has also continued in 2007.

Labour costs account for about one sixth of total costs in both the wood products industry and the pulp and paper industry. Regional and sectoral data held by Statistics Finland show that the combined nominal pay and social security costs of white-collar and blue-collar employees in the pulp and paper industry grew by 4.3% between 2005 and 2006. This increase in labour costs would have been higher without the reductions made in the number of white-collar employees in connection with reorganisations.

In the wood products industry, labour costs rose by an average of 4.9% in 2005–2006, though there were considerable differences within the sector. For instance, in the production of plywood and other wood-based panels and in the manufacture of joinery products, the rise in labour costs was approximately 8%, whereas in the sawmilling industry there was no increase at all, but instead even a decrease in real terms. This is largely explained by the fact that the sawmilling industry's workforce shrank by 3.4%, the job losses mainly concerning white-collar employees, as was the case in the pulp and paper industry.

Energy costs account for about 3% of total costs in the wood products industry and almost 10% in the pulp and paper industry. The majority of energy costs are for electricity, the market price of which fluctuates in response to factors such as the prevailing water resource situation in Norway and the price of carbon dioxide emission allowances. In 2007, Norway's water situation has been good and the price of emission allowances has collapsed, and so the rise in electricity prices has been kept in check. The price of electricity is nevertheless expected to increase again with the new emissions trading period at the start of 2008, by even as much as several dozen per cent. The high degree of energy self-sufficiency (in power and heat) of the major Finnish forest industry corporations will, however, considerably reduce the severity of the cost impact of such wide fluctuations in the market price of electricity. There are nevertheless differences in the extent of self-sufficiency in electricity between the major forest industry corporations. While almost half of the entire Finnish forest industry's electricity is self-generated, the figure for the Finnish operations of UPM, for instance, is 100%.

The price of crude oil is reflected both directly and indirectly in the forest industry's costs, for example via energy produced using fuel oil, the cost of harvesting and transporting wood raw material, the transport and manufacturing costs of other raw materials (especially chemicals), shipping costs of end products, and many other cost items. In the pulp

and paper industry in particular, the indirect effects of crude oil prices on total costs are very significant. Forecasts suggest, however, that the strongest rise in oil prices has already passed. Due to rising global demand and production disturbances, the price of oil (Brent USD/barrel) rose by 40% in 2004–2005, and by about 20% in 2005–2006. The average oil price in 2007 is forecast to be up by at least 2% on the previous year's average. In 2008, the dollar price of oil will be up by about 6% on the 2007 figure, although its euro price will rise by a smaller percentage.

With the exception of roundwood costs, the cost trend in the forest industry in 2007 has been particularly steady, and this should be the case for 2008 as well. The uncertainties regarding this forecast concern the price and availability of wood raw material and the price of electricity and crude oil. The threat of Russian roundwood imports drying up means that roundwood availability could become a more critical cost factor in the second half of 2008. This could then lead to shutdowns and thus a fall in the capacity utilisation rate, thereby affecting the forest industry's profitability.

#### **Favourable Market Boosts Forest Industry Profitability**

An important factor in the improved profitability of the wood products industry has been the drive to improve production efficiency, both in the major forest industry corporations and in small and medium-sized companies. The considerable improvement in profitability now evident is, however, primarily due to the favourable state of the market, though this

is forecast to take a downward turn. The growth in sawnwood export prices is expected to tail off in late 2007 and then to become negative in 2008. This, combined with the rapid increase in roundwood costs, will have an adverse impact on profitability in the wood products industry, which in the first half of 2007 was still at a record high.

For the pulp and paper industry, demand on export markets is also a key factor in the profitability trend. In 2007, the unexpectedly weak price trend for magazine papers has had an adverse effect on profitability throughout the sector. The slight increase anticipated in paper export prices in 2008 should improve profitability in the sector, but if it does not prove possible to pass the increase in costs on to product prices, the downward trend in the pulp and paper industry's profitability will continue.

The opportunities for cost cutting in a mature sector such as the forest industry are restricted, and there is limited scope for passing rising costs on to the prices of standard products. Moreover, the resources allocated for developing new innovations are few, and the likelihood is small that new products would succeed on a large scale. The potential for influencing profitability in the sector through internal action is therefore limited, especially in the short term. Profitability in the short term is in fact determined primarily by the state of the market for forest industry products at any given time – 2007 is a good example of this. However, action taken within the sector can and must look towards nurturing a favourable profitability trend that extends beyond market cycles, thereby securing the viable operation of the Finnish forest sector in the future.



## 3 Forestry in Finland

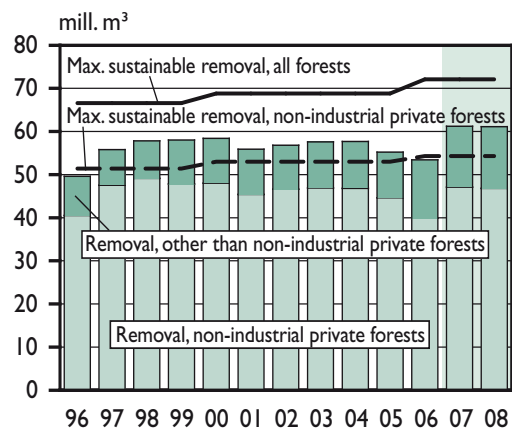
### 3.1 Utilisation of Wood Resources

*Although Finland has abundant forest resources, almost one quarter of the roundwood procured by its forest industry is imported. In the case of birch, imports are essential because the industry's consumption of birch is one third greater than that which the maximum sustainable removal will allow. In 2004–2006, the industry consumed an average of 73 mill. m<sup>3</sup> of wood annually, of which 55 mill. m<sup>3</sup> was procured domestically. The volume consumed by the industry will be significantly greater in 2007 and 2008, and the increase will be mainly from domestic sources.*

Finland has almost 23 mill. ha of forest, and the total volume of growing stock is approximately 2200 mill. m<sup>3</sup>. Pine accounts for 50% of this, spruce for 30%, birch for 16% and other broad-leaved species for 4%. The annual increment in the growing stock is about 98 mill. m<sup>3</sup>. Some 1.9 mill. ha of forest, mainly in Northern Finland, is excluded from commercial roundwood production. Forestry can thus be practised across an area of about 21 mill. ha, containing a growing stock of almost 2100 mill. m<sup>3</sup> with an annual increment of approximately 95 mill. m<sup>3</sup> (or 4.6%). Growing stock drain amounts to about 68 mill. m<sup>3</sup> p.a. (or 3.3%), and so roundwood reserves are increasing by a small amount each year.

The maximum sustainable removal is approximately 72 mill. m<sup>3</sup> of useful wood per year, while the maximum justifiable in silvicultural terms is as much as 97 mill. m<sup>3</sup>, taking account of all tree species. The annual removal of roundwood meeting the dimensional requirements for industrial wood in recent years has been about 56 mill. m<sup>3</sup>, or 78% of the calculated maximum sustainable removal (see figure). In non-industrial private forests, the proportion of the maximum sustainable removal harvested is slightly higher.

Some 61% of Finland's commercial forests are in the possession of non-industrial private owners, 24% are owned by the state, 9% by companies and 6% by other groups of owners. The state's forest



Source: Finnish Forest Research Institute

*Removals of industrial wood and maximum sustainable removal.*

*Wood consumption by the forest industry and maximum sustainable removals in Finland.*

Tree species	Consumption 2004–2006, mill. m <sup>3</sup> /yr		% of maximum sustainable removal	
	Domestic wood	Wood total	Domestic wood	Wood total
Pine	23.6	26.8	72	82
Spruce	23.5	27.7	92	108
Birch	7.0	14.7	63	132
Total	54.1	69.2	78	100

*In addition, the industry consumed 3.5 mill. m<sup>3</sup>/yr of aspen and unspecified imported wood.*

*Source: Finnish Forest Research Institute*

ownership is concentrated in Northern Finland, which is why the average increment in the growing stock for the state's holdings is low compared with forests in other ownership. Forests in non-industrial private ownership account for 69% of the growing stock increment, state-owned forests for 14%, company-owned forests for 11% and the rest for 6%. The non-industrial private forests are of crucial importance for the industry's roundwood procurement, as about 80% of the domestic roundwood (and 60% of all roundwood, both domestic and imported) consumed by the forest industry is from such forests. However, this proportion has been slowly declining as imports have risen, and imported roundwood now accounts for 25% of the total. 2007 marks a turning point, however, because the proportion of domestic roundwood in the industry's procurement is now growing, and imported roundwood correspondingly accounts for a decreasing proportion of the total.

The accompanying table shows the Finnish forest industry's consumption of roundwood, and compares these figures with the maximum sustainable removal estimated for Finnish forests. The calculation of maximum sustainable removal is based on information about the amount, composition and annual increment of the growing stock and assumes that the standard of silviculture will remain unchanged. The calculation indicates the level to which fellings

could rise without prejudicing the size of future removals.

Felling in excess of the maximum sustainable removal on a temporary basis only will not jeopardise future harvests. Flexibility of this kind, which is justifiable in silvicultural terms, is extremely widespread in Finnish forests. Spruce harvests, for example, have been very high in recent years, and spruce reserves have decreased slightly, according to information collected in 2004–2006.

From a wood resources viewpoint, pine has the best potential for quickly meeting an increase in the demand for roundwood, both as sawlogs and pulpwood. The industry's birch consumption is one third greater than the level which the maximum sustainable removal in Finnish forests will allow, and so a little over half of the industry's birch consumption is imported, mainly as birch pulpwood. The proportion of domestic birch resources harvested is not actually very high, as birch procurement is hampered by the fact that a significant proportion of birch grows in softwood-dominant forests, and downy birch principally on drained peatland. Only 9% of Finnish forests are birch-dominant. The table also shows that domestic spruce resources are being used to the full. Imports of spruce in recent years have been rapidly growing, with about 5–6 mill. m<sup>3</sup> imported each year.

Non-industrial use of roundwood – principally household firewood – is also of importance in forest management terms, but its main significance is in terms of energy use. In the tending of young stands, an increasing volume of small-sized trees are chipped into energy wood. The significance of this for forest management may grow if stands marked for first thinning attract less interest from wood purchasers.

The aims of the National Forest Programme 2010 (published in 1999; a new National Forest Programme 2015 will be published in early 2008) include an increase in the use of domestic industrial wood and energy wood. Wider use of industrial wood has not yet occurred to any significant extent, but the use of wood chips (mainly felling residues from clear cutting) for energy purposes has risen

five-fold since 1999. In 2006, thermal and other power plants consumed some 3.1 mill. m<sup>3</sup> of wood chips. Such use of wood material unfit for industrial products is very high: wood-based energy accounts for about 20% of all energy consumed in Finland and about 60% of the Finnish forest industry's energy consumption (black liquor from the pulp industry, tree bark, sawdust, etc.).

## 3.2 Roundwood Markets

*The large increase in sawn softwood prices associated with higher demand during 2007 has resulted in rising sawlog prices, to a level where pine and spruce sawlog stumpage prices are at their highest since the 1973 oil crisis. The unusually rapid rise in prices was fuelled by the unexpectedly mild harvesting weather in the winter of 2006/2007, which caused difficulty in accessing winter stands and thus led to an exceptional increase in wintertime demand for wood from stands with summer access or good access under wet, unfrozen ground conditions. Stumpage prices of softwood sawlogs are forecast to be up in 2007 by almost 40% on the previous year, while stumpage prices for birch sawlogs have risen much less rapidly, because the rise in sawnwood prices has not affected plywood. At the same time, the modest price trend in the paper market has kept pulpwood stumpage price rises in check, but these will nevertheless be up in 2007 by 12–25%. The abundant roundwood supplies from final cuttings of softwood sawlogs will boost total fellings of all roundwood categories to a new record. Commercial fellings in 2007 are expected to be up by 15% on the 2006 figure, to a total of 59 mill. m<sup>3</sup>. Roundwood imports are expected to be down by about 10%.*

*In 2008, stumpage prices of softwood sawlogs are forecast to decrease as a result of a slight drop in sawnwood production and prices and a relative increase in thinnings, which incur higher*

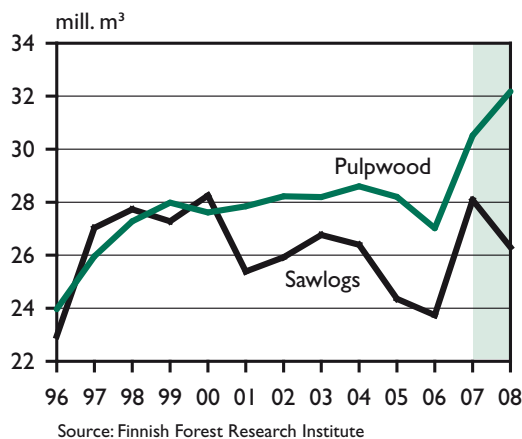
*harvesting costs. Average softwood sawlog prices for 2008 are nevertheless forecast to be down only slightly on the 2007 level. A reduction in softwood sawlog-dominant fellings will have a positive effect on birch sawlog demand, which, with plywood production remaining unchanged, will result in a small increase in the birch sawlog stumpage price. In total, sawlog fellings are forecast to be down by 6% on the 2007 figure. The roundwood duties imposed by Russia on its exported wood will mean a further moderate reduction in Finland's imports of sawlogs and softwood pulpwood in 2008. Demand for domestic softwood pulpwood, in particular, will be up as a result of an increase in paper production, the threatened higher duties on imports of Russian sawlogs and softwood pulpwood in 2009, and the possibility of poor harvesting conditions. Pulpwood stumpage prices are forecast to rise in 2008 by 7–10%, and fellings by 5%, on the 2007 figure. Demand growth for birch pulpwood will be constrained by the growing imports of hardwood pulp from South America, and demand growth for softwood pulpwood by the increase in imports of woodchips. In all, commercial fellings will be almost unchanged from their 2007 level.*

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### Record Commercial Fellings in 2007

With the sawnwood price rise that started in 2006 being reflected in softwood sawlog prices, these prices are higher in 2007 than at any time since the 1973 oil crisis. The average stumpage prices of pine and spruce sawlogs for the full year 2007 are expected to be almost 40% up on the previous year's level. This has resulted in an increase in roundwood supply, with the total volume of softwood sawlogs purchased in January–September being more than double the figure for the same period the previous year.

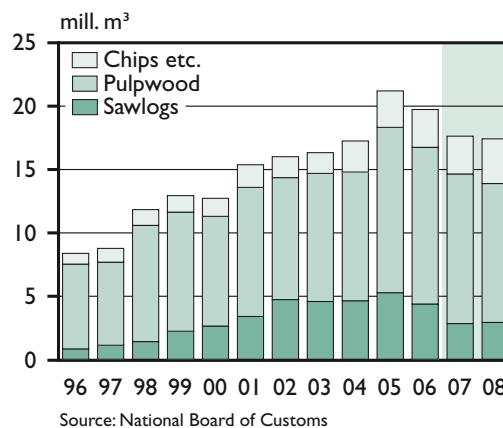
The rise in prices of other roundwood categories has been considerably less dramatic, although their



Commercial fellings of sawlogs and pulpwood, 1996–2008.

supply has increased significantly along with that of softwood sawlogs. In roundwood sales conducted in 2007 (predominantly final cutting stands), forest owners' decisions to sell have been based on the price trend for the main roundwood category in their stands, i.e. softwood sawlogs. As birch sawlogs and pulpwood also accumulate in final cutting, purchases of pulpwood are up as well, by over 50%. Pine and birch pulpwood prices, though low, have risen significantly more than spruce pulpwood prices. The stumpage prices of pine and birch pulpwood in 2007 are forecast to be 24–25%, and spruce pulpwood 12%, higher than in 2006. Stumpage prices of birch sawlogs are forecast to be up by 10%. Although this percentage is lower than for softwood, the volume of birch sawlogs purchased is almost double the quantity bought in 2006. Despite this, the plywood industry has suffered a shortage of birch sawlogs, due to harvesting problems.

Demand for wood from stands with summer access or good access under wet, unfrozen ground conditions was at record high levels during the winter of 2006/2007. The exceptionally mild winter created problems for harvesting wood from stands intended for winter access, and most of the harvesting from these winter stands has had to be postponed until



Volume of imported roundwood by category, 1996–2008

the following winter. In summer 2007, the forest industry's summer stocks of harvested roundwood amounted to only 6 mill. m<sup>3</sup>, which is some 3 mill. m<sup>3</sup> below the average for the previous five years. During the spring and summer, harvesting from stands with summer access or good access under wet, unfrozen ground conditions was significantly greater than normal. In January–August 2007, sawlog fellings were one fifth, and pulpwood fellings one tenth, above their 2006 levels. It is anticipated that winter 2007/2008 will see a high level of fellings from previously purchased stands fit for winter harvesting. The abundant roundwood supply during 2007 will mean a record level of commercial fellings for the full year. Despite this, the increase in the industry's use of wood will keep end-of-year stocks of roundwood at approximately their 2006 level, at almost 8 mill. m<sup>3</sup>. The forest industry's standing roundwood stocks are high, as the figures show that a record 45 mill. m<sup>3</sup> of wood was purchased in the period from October 2006 to September 2007.

Commercial fellings for the full year 2007 are expected reach 47 mill. m<sup>3</sup> in non-industrial private forests, more than 5 mill. m<sup>3</sup> in forests owned by the state-run enterprise Metsähallitus, and 6.5 mill. m<sup>3</sup> in forests owned by the forest industry. In all,



*Commercial fellings, roundwood imports and stocks of harvested wood, 2006–2008.*

Roundwood type/ Ownership group	2006 mill. m <sup>3</sup>	2007 mill. m <sup>3</sup>	Change %	2008 mill. m <sup>3</sup>	Change %
Commercial fellings, total	50.8	58.4	15	58.2	0
Non-industrial private forests <sup>1</sup>	39.4	46.8	19	46.5	-1
Company-owned forests	6.4	6.5	1	6.6	1
State-owned forests <sup>2</sup>	5.0	5.1	1	5.2	3
Sawlogs	23.7	27.7	17	26.0	-6
Pulpwood	27.0	30.6	13	32.2	5
Roundwood imports	19.8	17.7	-11	17.5	-1
Commercial fellings and roundwood imports, total	70.6	76.1	8	75.7	0
Stocks of harvested roundwood	7.7	7.7	0	6.8	-12

<sup>1</sup> Includes municipalities, parishes, etc.

<sup>2</sup> Metsähallitus manages state-owned forests

Sources: Finnish Forest Research Institute and National Board of Customs.

commercial fellings are expected to total almost 59 mill. m<sup>3</sup>. The biggest increase in commercial fellings in comparison with the 2006 figures has been in non-industrial private forestry (up by almost 20%), whereas in forests owned by the forest industry and by Metsähallitus the total was little changed. In all, commercial fellings in 2007 will be up by 15% on the previous year's total.

Elsewhere in Europe, too, the roundwood market has been exceptional in 2007. In January, a fierce storm (the 'Kyrill' storm) felled approximately 42 mill. m<sup>3</sup> of wood in Central Europe, mainly in Germany and the Czech Republic, while in Sweden, the 'Per' storm felled some 12 mill. m<sup>3</sup> of wood. In total, storm damage in Europe amounted to about 54 mill. m<sup>3</sup>, or more than one tenth of the annual harvest of approximately 450 mill. m<sup>3</sup> in the 27-state European Union. The volume of wood harvested directly as a result of the storms is slightly greater than the storm-damaged volume, because harvesting storm-damaged trees often requires action across a wider area. Central Europe's storm-damaged trees have so far been absorbed by the market on account of the high demand for sawnwood.

### Russia's Export Duties are Changing the Structure of Roundwood Imports

About three quarters of Finland's roundwood imports are from Russia. In 2006, Russia was the source of almost all the imported sawlogs and birch pulpwood, a little over half of the imported woodchips and spruce pulpwood, and about two thirds of the imported pine pulpwood. The significance of imported Russian wood for the Finnish forest industry is nevertheless changing. In June 2006, Russia introduced an export duty of at least EUR 4/m<sup>3</sup> on its exported softwood, and in July 2007 this was increased to a minimum of EUR 10/m<sup>3</sup> and the duty extended to cover birch of diameter more than 15 cm as well. The minimum duty on aspen is EUR 5/m<sup>3</sup> (see table). Russian birch pulpwood continues to be free of any export duty, because the country does not have the processing facilities for it. These export duty increases do not, for the time being, apply to woodchips.

Russia's export duty increases are changing the structure of Finland's roundwood imports. The reduced level of imports in 2007 is nevertheless attributable not so much to the export duties as to the exceptional roundwood harvesting conditions,

which caused a lot of problems for Russia, too. The reduction in imports of softwood pulpwood is expected to continue in the remainder of 2007, because even before the Russian duties introduced in July, import prices already exceeded the domestic delivery sales price; the duty of at least EUR 10/m<sup>3</sup> served to widen the gap further. The reasons for continuing to import softwood pulpwood are the economies of scale associated with the large size of consignments and the forest industry's need to obtain sufficient reserves of softwood pulpwood for use and storage up to the end of the year. The drop in sawlog imports will slow down towards the end of 2007, bringing the volume of imported sawlogs for the full year to a level down one third on the 2006 figure. The reason for this is that the price of Russian sawlogs is below the stumpage price of sawlogs procured domestically, even after the addition of the duties. In total, Finland's imports of roundwood in 2007 are expected to be down by one tenth on their 2006 level.

Russia plans to increase its roundwood export duties further in April 2008 to a minimum of EUR 15/m<sup>3</sup>. However, even after this increase, roundwood importers are not expected to reduce their volumes significantly. It is therefore anticipated that imports of softwood pulpwood and of sawlogs in 2008 will be close to their 2007 level. No change to Russia's export duty on woodchips (5% of value) has so far been announced, although the Russians have discussed the matter. Finland's woodchip imports from Russia will be up, because Russia's supply of

woodchips will increase as its sawnwood volumes rise.

Along with woodchips, imports of birch pulpwood (diameter less than 15 cm) – Finland's most important category of imported roundwood – will remain at present levels in the next few years, perhaps even increasing slightly, provided that supplies from Russia continue to be adequate. The uncertainty attached to this forecast concerns the fact that total fellings in Russia may decrease as a result of the export duty decisions if no economic use can be found in the short term for other categories of roundwood obtained in the fellings. In total, Finland's roundwood imports in 2008 are forecast to be down by only 1% on the 2007 figure. If Russia's planned export duties are implemented, imports of softwood pulpwood and sawlogs from Russia will sharply decline from 2009 onwards due to their unprofitability, and total roundwood imports from Russia would probably fall to less than half of their 2006 level.

The forest industry is adapting to the difficulties of obtaining imported wood by making production capacity changes in order to better meet the needs of domestic roundwood supply and other import opportunities. At its Kajaani mill, UPM, for example, will start producing mechanical woodpulp from pine pulpwood in early 2008. This is a significant development because until now it has been technically possible to produce mechanical pulp only from spruce. According to UPM, a mill-scale trial at Kajaani will then allow the method to be applied at

*Duties for roundwood exported from Russia.  
Duties, % on export value, or at least EUR/m<sup>3</sup> o.b.*

Date	Softwood		Birch, over 15 cm		Birch, under 15 cm		Aspen	
	%	€/m <sup>3</sup>	%	€/m <sup>3</sup>	%	€/m <sup>3</sup>	%	€/m <sup>3</sup>
1.7.2007	20	10	20	10	-	-	10	5
1.4.2008	25	15	25	15	-	-	10	5
1.1.2009	80	50	80	50	-	-	80	50
1.1.2011	80	50	80	50	80	50	80	50

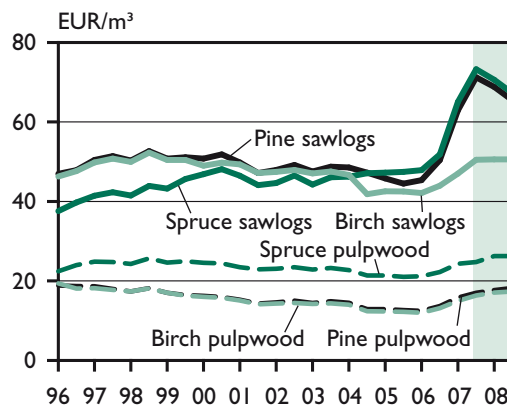
Source: [www.idanmetsatieto.info](http://www.idanmetsatieto.info)

the company's other paper mills that use mechanical pulp. A different example of capacity changes is provided by Stora Enso's Oulu and Uimaharju pulp mill investments, which have meant a cut in birch sulphate production and, correspondingly, an increase in the production of softwood sulphate.

A proportion of pulpwood imports will also be replaced with higher imports of pulp. The volume of imported hardwood sulphate has grown by about 50% annually since 2000, and this is expected to continue. Hardwood sulphate has so far been mainly from Brazil, which is the world's biggest producer of commercial hardwood pulp. Brazil's Veracel pulp mill, 50% owned by Stora Enso, was opened in May 2005 and is integrated with Stora Enso's Oulu paper mill in Finland. As a result, birch sulphate production was discontinued in September 2006 and the Oulu mill switched to using domestic softwood sulphate. In the future, some of the increase in Finland's imports of hardwood sulphate will be from Metsä-Botnia's pulp mill in Uruguay, which is expected to begin operating in the final quarter of 2007.

### Challenges in Domestic Roundwood Harvesting Continue into 2008

The decreased activity in the construction sector in 2008 will reduce the demand for sawnwood, which will mean lower prices and a cut in production. The industry's end-of-year stocks of roundwood are forecast to be close to the five-year average, despite its increased use of wood, due to the high level of fellings in 2007. Even though sawnwood prices have been declining, the average nominal stumpage prices of pine and spruce sawlogs in 2008 is forecast to remain close to the 2007 level, because roundwood supply will have fallen. There is, however, a possibility that the fall in the demand and price of sawn softwood will be greater than forecast, and if so, this would weaken the demand for softwood sawlogs and thus reduce stumpage prices by more than expected. In all, sawlog fellings in 2008 are forecast to be down by 6% on the previous year's figure. Due to



Source: Finnish Forest Research Institute

*Semiannual stumpage prices by roundwood category, 1/1996–2/2008 at 2006 prices (cost of living index)*

*Average stumpage prices in non-industrial private forestry, 2006–2008.*

Roundwood	2006	2007	Change	2007	Change
	EUR/m <sup>3</sup>	EUR/m <sup>3</sup>	%	EUR/m <sup>3</sup>	%
Pine sawlogs	48.8	66.3	36	65.5	-1
Spruce sawlogs	50.4	67.9	35	67.1	-1
Birch sawlogs	43.4	47.8	10	49.3	3
Pine pulpwood	13.3	16.6	25	18.4	10
Spruce pulpwood	21.8	24.6	12	26.3	7
Birch pulpwood	12.7	15.8	24	17.5	10

the reduction in fellings in softwood sawlog stands, the availability of birch sawlogs will also deteriorate, widening the gap between the demand for and supply of birch sawlogs and pushing up stumpage prices by 3% .

The demand for domestic pulpwood will be up in 2008, raising the volume of fellings by 5%, as roundwood imports decline and paper and paperboard production increases. The higher demand will mean an increase of 7–10% in pulpwood stumpage prices in 2008 and a reduction in the industry's end-of-year stocks of roundwood.

The increase in domestic fellings in 2008 will depend to a great extent on harvesting capacity. In winter felling, harvesting capacity has traditionally been fully utilised, and the past year has demonstrated in no uncertain terms how the realisation of winter weather risks can dramatically reduce the volume of roundwood obtained for processing. In April–July 2007, there was some 30–60% more harvesting machinery and labour on felling sites than in 2006. The corresponding percentage difference for the January–June period was still quite small, due to the problematic harvesting weather. Changes in the required harvesting capacity and labour resources cannot be made quickly, however. The lower harvesting productivity associated with increased thinnings and with possible problems in harvesting conditions, and the implications of this for harvest volumes, may again lead to occasional raw material shortages in 2008.

### 3.3 Investment and Profitability in Non-Industrial Private Forestry

*Total investment in timber production in Finnish non-industrial private forestry for the full year 2007 will rise to almost EUR 190 mill., and in 2008 to about EUR 195 mill. These increases are attributable to a greater amount of financing by the private forest owners themselves. In 2007 and 2008, private forest owners will receive more than EUR 2 billion annually in stumpage earnings, which is almost 50% more than in 2006. Despite this, the amount of investment in timber production in non-industrial private forestry will not increase greatly.*

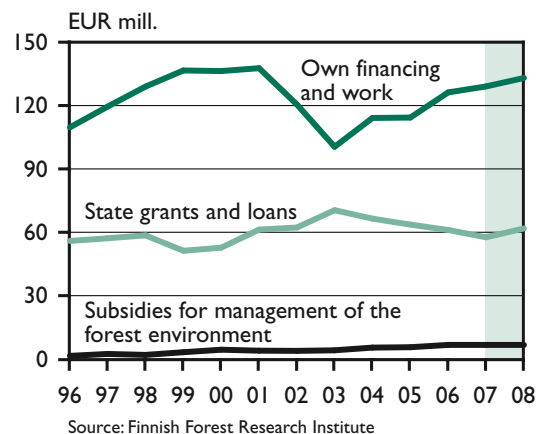
*Operating profit from timber production in non-industrial private forestry in 2007 will be up to almost EUR 140/ha, an all time record. The increase in stumpage prices has raised the estimated value of forest assets and has boosted the investment return on timber production to 30%.*

#### Increase in Private Forest Owners' Financing

Total investment in timber production in Finnish non-industrial private forestry for the full year 2007 will rise to almost EUR 190 mill., due to an increase in funding by the private forest owners themselves. In 2008, total investment will increase further, to about EUR 195 mill.

The amount of financing by the private forest owners themselves has, for the most part, risen steadily since 2003. In 2007, it will reach almost EUR 130 mill., although this is still significantly below the level prevailing in 2000. More than half of the financing and work input from the private forest owners will be in forest regeneration work.

The amount of silvicultural work supported with sustainable forestry funding undertaken in non-industrial private forests in 2006 totalled approximately EUR 95 mill., of which more than one third, or EUR 34 mill., constituted funding by the forest owners. In 2007, the amount of funding by private forest owners will be down by about EUR 2–3 mill. In 2008, however, both state funding and funding by the forest owners will increase, each by several million euros, provided that the revised legislation concerning the financing of sustainable forestry receives EU approval.



*State and forest-owner funding of investments in non-industrial private forestry, 1996–2008 at 2006 prices (cost of living index).*

## Tending of Young Stands Means More State Funding

The Government's budget proposal for 2008 includes a total of approximately EUR 62 mill. in subsidies and loans for work to ensure sustainable roundwood production. Various changes are expected during 2008, including a revision of the National Forest Programme, with the revised Programme scheduled for implementation before the end of the year. The intention is to influence long-term felling volumes by expanding the support for silvicultural and forest-improvement works to an annual EUR 86 mill. It is also hoped that the revised Act on the Financing of Sustainable Forestry can be introduced during the year. In addition, work will be carried out on the Forest Biodiversity Programme for Southern Finland 2008–2016, which will complement the National Forest Programme.

The main focus of the funding in 2008 will again be on the tending of young stands and harvesting energy wood; the funding for these will be up by EUR 3 mill. on the 2007 figure. Some 60% of the almost EUR 46 mill. of funding available will be used for tending young stands and for harvesting energy wood. If the EU does not approve the revised financing legislation in respect of energy wood, the use of the funding in question may be delayed and thus the year's allocation may be partially unused.

## Financing for Management of the Forest Environment is Mainly Environmental Support

The Government's budget proposal for 2008 reserves, for the third successive year, about EUR 7 mill. for managing the forest environment. About EUR 4 mill. of this is for paying environmental support under section 19 of the Act on the Financing of Sustainable Forestry. More than one third of the money reserved in the budget proposal will be specifically for environmental management projects.

Private forest owners are granted environmental support for all but minor losses involved in preserving important habitats referred to in the Forest Act. Between 1997 and the end of 2006, the amount

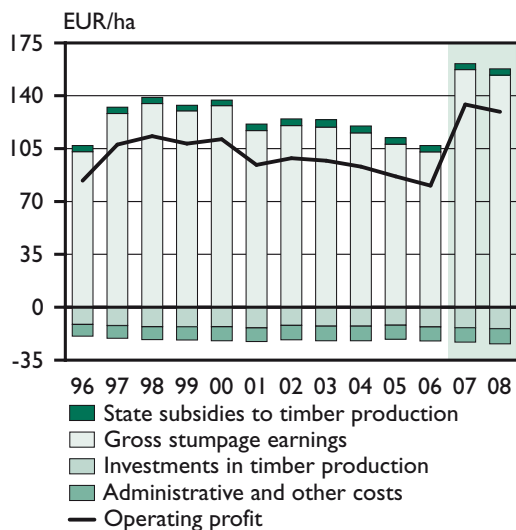
paid in environmental support amounted to a total of almost EUR 17 mill. Almost one third of this sum has gone to forest owners in areas covered by the Lapland and Northern Ostrobothnia regional forestry centres. In 2006, more than EUR 1.2 mill. of the entire country's EUR 4.2 mill. in environmental support was paid to forest owners in Northern Ostrobothnia.

## Sharp Rise in Stumpage Earnings

Gross stumpage earnings of private forest owners in 2007 will for the first time exceed EUR 2 billion. The previous peak was in 1998, when gross stumpage earnings were, in today's terms, in excess of EUR 1.8 billion. In 2006, the figure was EUR 1.37 billion. The 2007 total of almost EUR 2.1 billion in stumpage earnings thus represents an increase of about 50% on the previous year. Most of this huge increase is attributable to the almost 40% rise in spruce and pine sawlog stumpage prices.

The increase in stumpage earnings is also due to the greater volume of fellings in non-industrial private forestry. Commercial fellings in privately owned forests in 2007 will be almost 20% up on the figure for 2006. In 2008, there will probably be slightly greater emphasis on thinnings, though total fellings will be around the same level as in 2007, at about 47 mill. m<sup>3</sup>. With sawlog prices falling a little and pulpwood prices rising, stumpage earnings in non-industrial private forestry in 2008 will again exceed EUR 2 billion, but will not quite reach the level seen in 2007.

Total annual investment in timber production in non-industrial private forestry in recent years has corresponded to 12–13% of gross stumpage earnings. This figure, i.e. the rate of investment, will be down in 2007 to about 9%, mainly due to the growth in stumpage earnings. An increase in internal financing would provide a good basis for removing the backlog of work in managing young stands, provided that sufficient forest workers would be available for this. Keeping the investment rate at, say, 12% would require an additional annual invest-



Source: Finnish Forest Research Institute

*Earnings, cost and operating profit in non-industrial timber production, 1996–2008 at 2006 prices (cost of living index).*

*Non-industrial private forestry balance sheet calculation for 2006 and forecast for 2007–2008, EUR/ha.*

	2006	2007	2008
<b>Gross stumpage earnings</b>			
Whole country	102.8	155.6	150.9
Southern Finland	133.8	203.0	195.9
Northern Finland	38.2	56.8	57.1
<b>– Gross costs</b>			
Whole country	22.3	23.1	24.3
Southern Finland	26.2	27.1	28.5
Northern Finland	14.3	14.8	15.4
<b>+ Subsidies</b>			
Whole country	4.2	3.9	4.2
Southern Finland	3.9	3.7	3.9
Northern Finland	4.7	4.4	4.7
<b>= Operating profits</b> (before taxes and external capital costs)			
Whole country	84.7	136.4	130.8
Southern Finland	111.6	179.5	171.3
Northern Finland	28.5	46.4	46.4

*Northern Finland is defined as the Provinces of Oulu and Lapland*

Source: Finnish Forest Research Institute

ment in timber production of at least EUR 60 mill. Since the current increase in stumpage earnings will also boost the Government's tax revenues by EUR 150–200 mill., this should improve the potential for increasing the amount of state support offered.

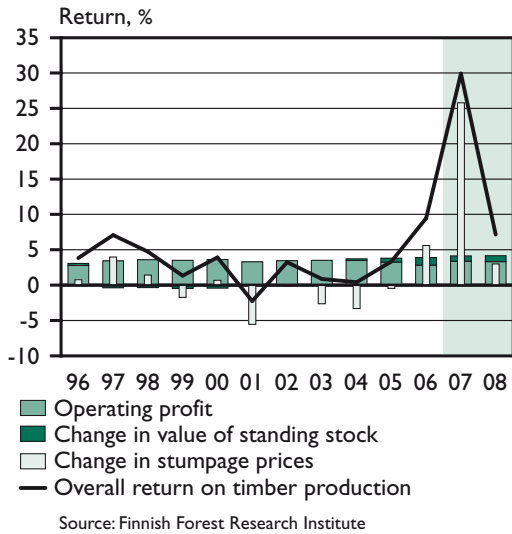
### Operating Profit from Timber Production Rises to Almost EUR 140/ha

The increased volume of fellings and the rise in stumpage prices have boosted stumpage earnings from non-industrial private forestry to EUR 156/ha, the highest level since records began in 1965. With the forest industry's need for wood remaining high and imports of wood decreasing, the demand for domestic roundwood will remain strong and stumpage earnings will again be at record levels in 2008. In 2007 and 2008, the total annual cost of timber production will rise by EUR 1/ha to EUR 24/ha for the country as a whole; in Southern Finland, the figure will be EUR 27–28/ha and in Northern Finland, EUR 15/ha.

The rise in stumpage prices and the increase in fellings will together raise the level of operating profit (previously termed 'net earnings') in non-industrial private forestry in 2007 to a record EUR 136/ha, which in real terms is almost EUR 20/ha above the previous peak in 1998. The figure is expected to be almost as high in 2008.

### Return on Timber Production Rises to 30% in 2007

The rise in stumpage prices that began in autumn 2006 was evident as only a small rise in average stumpage prices for the year, and the real investment return on timber production was 9% – significantly above the 10-year average (3%). In 2007, however, the full impact of the stumpage price increases will be seen in the investment return, which will rise to a record 30%, an unprecedentedly high figure. Even when stumpage prices rose after the early 1990s recession, the return was short of 20%. The average



*Overall real return on timber production, 1996–2008 at 2006 prices (cost of living index).*

stumpage prices for different pulpwood categories are expected to continue rising in 2008, bringing the return for the year to 7%, which is still high in relation to the 10-year average.

The investment return on forest ownership is based on calculating the return on timber production in relation to capital tied up in the forests. The calculation of overall return is made up of several components: operating profit based on monetary transactions; the change in the balance sheet value of the growing stock, based on net forest growth; and the change in stumpage prices. Harvest value is used as the value of forest assets (volume of standing stock multiplied by the stumpage price for each type of roundwood).



## Featured Topic

### Cyclical Fluctuations in Europe's Sawnwood Market 1970–2007

*Riitta Hänninen and Jari Viitanen*

More than half of Finland's sawnwood production is exported, and more than half of the sawmilling industry's export income is from markets in the European Union. The United Kingdom, France and Germany have long been key export markets for Finnish sawnwood, and in 2006 these three countries accounted for altogether one third of the sawmilling industry's export income. Although exports outside Europe have increased, dependence on European markets means that the Finnish sawmilling industry is still vulnerable to demand and price fluctuations in Europe.

Since the introduction of the euro and with it the euro area, of which Finland is part, the fluctuations in the unit price of sawnwood exports have been smaller, although cyclical fluctuations do still occur. A cyclical swing in euro area sawnwood prices occurred in 2006, for instance, which also led to a rise in Finnish sawnwood export prices. The average export price in July 2007 was 33% higher than a year earlier. The price of sawnwood was last at this level in real terms just before the 1997 Asian financial crisis, which was followed by a downturn in the world economy.

In the past 40 years, a number of cyclical swings have occurred in Europe's economies that have been strongly reflected in the Finnish sawmilling industry. Direct comparison of these cycles is difficult, however, because various factors related to economic structure, capital mobility and economic integration have changed at different times in both the Finnish economy and its export market economies, and these factors individually and collectively have affected sawnwood demand and supply. Nevertheless, we examine below, in general terms, the cyclical sensitivity of Europe's sawnwood market, the cyclical fluctuations that have occurred and the background factors affecting these in the period 1970–2007.

#### Cyclical Sensitivity of the Sawnwood Market

Sawnwood prices and volumes exchanged on the international market are determined on the basis of demand and supply. If demand exceeds supply, the market price will rise, and if supply exceeds demand, the price will fall, assuming that no change occurs in other market factors. The magnitude of these changes will, in turn, depend on the price elasticity of demand and supply and the scale of production. The demand for sawnwood is a derived demand, which means that fluctuations in this demand will be linked to cycles in the end uses for sawnwood, particularly in housing construction.

Strong dependence primarily on a single end use adds to the cyclical sensitivity of the sawnwood market. Moreover, this dependence is linked via the construction sector to the fundamental forces at play in the economy. Private-sector housing construction is very sensitive to changes in interest rates and the disposable income and assets of consumers, whereas public-sector construction projects can be used as a means to balance out general cyclical fluctuations in the economy. These fundamental economic realities are generally governed by national economic policies, the openness of the country's foreign trade and the extent of its integration with the world economy. Separately or in combination, changes in these factors will affect sawnwood demand and prices.

Price fluctuations are also influenced by competition between sawnwood and substitute materials and between producers. Although the degree of concentration in sawnwood production in Europe has grown in the past few years, it is less than in the paper industry, for example, where price fluctuations, at least in recent times, have been relatively small. In earlier years, competition in Europe



was also fuelled by the increasing supply of Canadian sawnwood following a drop in demand and prices in its main market, the United States. However, during the current downturn occurring in the US construction sector, US producers have increased supply to Europe.

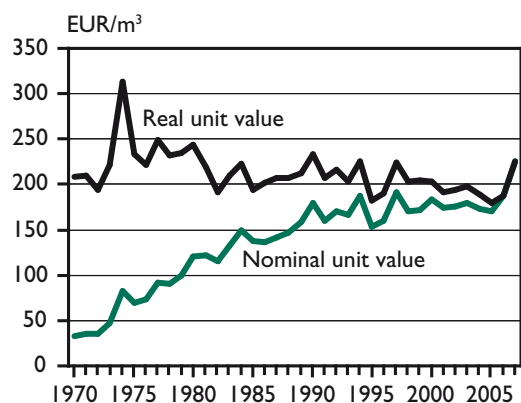
An important factor exacerbating sawnwood cycles in Europe has been the increase in market supply as a result of producers' rising price expectations for sawnwood. Although investment in additional capacity can take a couple of years or so, sawmilling can be increased quickly and significantly in response to a rise in demand by introducing further shifts to increase output. Large increases in output have usually led to a situation of oversupply, followed by a rapid fall in sawnwood prices. A critical factor in determining sawnwood supply in the long term is the level of sawlog reserves in the forests and the potential for their economic utilisation. In the short term, disturbances in the availability of sawlogs may also contribute to cyclical fluctuations in the sawnwood market. In a booming economy, the sawlog price can rise by more than average as demand grows, for example because of seasonal factors. In 2006, the price of sawlogs was pushed up in many European countries because of wood harvesting problems associated with weather conditions. In Finland, the change in the forest taxation system (which increased the supply of sawlogs during the transition period) led to a drop in supply in 2006 just after the end of the transition period. In Sweden and in Central Europe, roundwood supply, especially that of spruce, increased at the start of 2007 because of significant storm damage. With roundwood harvesting focusing on storm-damaged trees, the price of

pine sawnwood rose on the European export market as the diminished availability of pine sawlogs limited the amount of pine for sawmilling.

### Sawnwood Exports and Price Fluctuations Follow the General Economic Cycle

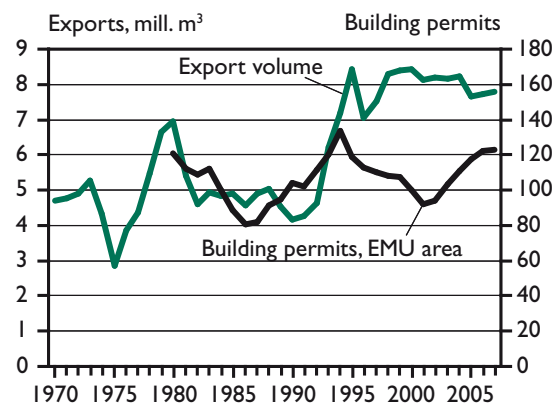
The total volume and unit prices of Finnish sawnwood exports have reflected fluctuations in sawnwood demand that have occurred in line with the general economic cycles in export markets (Figures 1 and 2). The oil crises of the early 1970s and 1980s were preceded by an increase in sawnwood demand in response to GDP growth, and this led to a rise in prices and production costs. In 1974, the export price of Finnish sawnwood rose in nominal terms by 76% and then fell the next year by 16%. Due to inflation, the drop was even greater in real terms: 26%. At the same time, export volumes declined. The gradual liberalisation of capital markets in Finland and many Western European countries that began in the mid-1980s led to a growth in housing construction as loans were easier to obtain, and the consequent increase in sawnwood demand meant that unit prices of exports began to rise gently.

From the 1970s until the early 1990s, Finland operated an active exchange rate policy with which it attempted to counter changes in export price competitiveness in buyer countries. After the first oil crisis, the devaluation in 1977 boosted export volumes of sawnwood considerably, and the 1982 devaluation had a moderate impact on sawnwood export growth too. The effects of the currency revaluations made in 1979, 1984 and 1989 are all evident



Source: National Board of Customs

Fig 1. Nominal and real (at 2006 prices) unit values in the Finnish sawnwood exports, 1970–2007.



Sources: National Board of Customs, Finnish Forest Research Institute

Fig 2. Finnish sawnwood exports, 1970–2007, and building permits in EMU area (index 2000=100).

as a distinct downturn in sawnwood exports in subsequent years. Following the creation of the euro area, the impact of exchange rates in trading among the euro countries has of course disappeared and thus the price trend has been much steadier.

The sharp increase in sawnwood exports since the early 1990s cannot, however, be explained merely in terms of the devaluations made at the time. Although exports increased as a result of improved competitiveness and it was therefore possible to compensate for the decline in domestic construction at the time of a major recession, there were also significant changes occurring on the supply side. For example, the collapse in Russia's exports in the early 1990s created space on the Western European market. When sawnwood production capacity was later increased in Finland, this was aided by an increase in softwood sawlog imports from Russia and the Baltic countries. The various price agreement periods governing the domestic roundwood market also affected the supply and price of sawlogs. The Asian financial crisis of 1997–1998 affected the entire world economy and also had a clear impact, through lower demand, on both the unit prices and volume of Finnish

exports. The 20% rise in the nominal price of sawnwood exports in 1997 was followed by an 11% fall in 1998.

Before the present decade, price fluctuations on the sawnwood market in Europe appear to have been largely demand-driven. However, the upswing of 2006–2007 has been affected by changes in sawnwood supply, due more than ever before to fluctuations in raw material supply. Sawnwood production capacity in Europe, which has grown by about one third in the past 10 years, has boosted the demand for sawlogs to a significantly higher level than before. At the same time, use of the forests has become more diverse, and pressures to protect forests and to increase the production of bioenergy have increased, which has brought new demands on forest use. The threat of a reduction in imports of Russian roundwood will add further pressure to intensify the utilisation of Western Europe's forests. Even though Europe has an abundance of wood and despite the FAO statistics confirming that forests are being used at a sustainable level, the relatively rapid growth in raw material demand has evidently risen to a level at which disturbances in roundwood supply can bring about even rapid changes on the sawnwood market.