

ECONOMIC COMMISSION FOR EUROPE

Timber Committee

October 2019

FINLAND

MARKET STATEMENT

1 GENERAL ECONOMIC TRENDS

In 2018, the Finnish economy grew by 1.7 percent. According to the quarter-to-quarter figures, the economic growth decelerated, and in the last quarter of the year the growth was no more than 0.1 percent compared to the third quarter. Even though the private consumption still sustained economic growth, the main reason for the economic slowing down was the poor performance of exports, the growth rate of which fell by 6.5 percentage points from the previous year and remained only at 1.1 percent on annual bases. Also, the investment activity slowed down together with the increasing risks and uncertainties concerning global economic environment.

In the beginning of 2019, the expectations of economic development were still rather optimistic even though the consensus was that the economic growth in Finland is gradually slowing down. During the first half of this year, the economic growth remained fairly moderate, as in the first quarter of 2019 GDP in Finland grew by 0.5 percent from the previous quarter and 0.9 percent compared to the first quarter of 2018. According to Statistics Finland's preliminary data, released in August 2019, the corresponding figures from the second quarter of the year were 0.5 and 1.2 percent, respectively.

After the summer months the outlook for the Finnish economy has worsened, and the economic growth forecasts have been revised downwards for both this and next year. While Finland's economic performance is heavily dependent on international trade, weakening economic growth is primarily a result of slower growth in the euro area and in the global economy. Especially, the recent weak information concerning German economy, the most important export destination for Finland, will indicate decreasing demand and orders for Finnish industry. The recent business tendency survey in September 2019, released by Confederation of Finnish Industries, indicates that the industrial confidence in Finland has decreased and it is below the long term average. Contrary, the construction confidence is still rather strong and it even rose in September challenging the predicted slowdown. However, the industrial production is expected to increase only moderately in the near future. Order books continued diminishing and their levels were just below long-term average. Investment growth will slow down this year as well due, among other things, to the slowdown in residential construction.

It is typical, that during the post-peak of economic cycle, the employment is still slowly improving and wages and salaries are increasing, which still promotes private consumption growth. This holds also for the Finnish economy and is supported by the fact that the recent consumer confidence indicators, released by Statistics Finland in September 2019, revealed that the consumer confidence concerning consumers' own current economic situation has remained rather unchanged during the

summer and early autumn. Only the expectations on Finland's economy were very pessimistic. The most recent economic outlooks project that the Finnish economy will grow by 1.2–1.5 percent in 2019.

At the moment, the economic outlook for Finland in 2020 seems to be more pessimistic than optimistic. Weakening economic performance is mainly due to the fragile international demand and trade affecting also Finnish export industry and production. The still increasing purchasing power of households together with slowly decreasing unemployment will feed and remain the domestic private consumption growth. The growth of investment activity, on the other hand, is projected to slow down compared to 2019. Especially, the construction activity is cooling down. In 2020, the Finnish GDP is projected to grow roughly by 0.5–1.1 percent. However, the likelihood that Finland will drift into recession is also not excluded.

The main uncertainties concerning the performance of Finnish economy in the near future are related to international issues, such as politics and conflicts, which comes for Finland as given. The escalation of the trade war between China and the USA, the confusion and possible outcome of Brexit negotiations, the political uncertainty in the USA and in many European countries, the Italian debt crisis, the political situation and military actions in the Middle East, the conflicts and sanctions related to the Russian Federation, some to mention, are easily affecting global demand and Finland's exports, and, thus, the Finnish economy as a whole.



Sources: Statistics Finland, Research Institute of the Finnish Economy (2019f, 2020f)

2 RECENT POLICY MEASURES

The updated Finland's National Forest Strategy 2025 was adopted by the Government in February 2019. It specifies the main objectives for forest-based business and activities until 2025. In the transport sector, increased lengths and weights of trucks, benefiting for instance wood chips transports, were adopted in January 2019, as an amendment of the regulating Government decree. Finland will also prohibit coal in energy use by May 2029, as the regulating act was passed in March 2019. In forest taxation, companies without forest industry will be allowed combined tax reporting of their business and forestry profits and losses. Earlier, companies had to make separate tax reports. This business income tax amendment will enter into force in 2020.

During the 2019, the hottest forest discussion in Finland has rolled around the forest carbon sink issues. In Finland, calculations for forest reference level in accordance to LULUCF regulation are made at the Natural Resources Institute Finland (Luke) by employing a sophisticated forest simulator and optimising program MELA. The corrected results to LULUCF reference level were released and delivered to the EU Commission in June 2019. The reference level for Finland, including wood products is -38 million tons (CO₂ eq.) and without wood products -31 million tons (CO₂ eq.). These numbers may still change depending on their evaluation by the Commission.

Finland has had since June 2019 the new Prime Minister Antti Rinne's Government. The new Government focuses related to forests (includes also other targets) in the State Budget 2020 are increased spending in nature protection by EUR 100 million annually. This will include also increased spending for the METSO forest protection programme. LULUCF-sector carbon sinks will be strengthened by EUR 10 million in 2020, rising to EUR 14.5 million from year 2021 onwards. Additionally, there will be a EUR 50 million temporary increase in spending for LULUCF-sector carbon sinks during 2020–2022. Energy sources replacing coal will also be compensated and the taxation of energy peat increased, as the long-term target is to reduce energy use of peat by half by year 2030. Today, energy peat is often used combined with energy wood in power plants.

3 MARKET DRIVERS

In 2018, the total nominal value of Finnish forest industry exports increased by nearly 10 percent from the previous year to EUR 13.2 billion. The high level export demand was illustrated by the fact that the share of forest industry products with respect to the value of Finland's total exports of goods increased by just under one percentage point from the previous year to 21 percent. However, the development of exports of forest industry products was twofold, as export revenues were driven in particular by increased export volumes, as well as higher unit prices, in the pulp and paper industry. In the wood working industry, on the other hand, the total value of exports fell by less than 0.5 percent with respect to the previous year as export volumes of plywood and sawnwood decreased.

The value of exports in the pulp and paper industry was boosted in particular by export deliveries of pulp, which increased by just under 10 percent, and unit prices rose by a fifth. The total nominal value of wood mass exports rose by as much as one-third from the previous year to EUR 2.6 billion. The prolonged downturn in paper also temporarily started to rise last year, as the export volume of paper increased by a couple of percent and the unit export price increased by more than 5 percent. The export volume and average export price of carton board each increased by around 4 percent.

The total value of exports of the wood working industry in 2018 was EUR 2.9 billion. Export volumes of sawnwood fell by 7.2 percent to 8.7 million cubic meters. However, the nominal average export price of sawn timber increased by almost 9 percent. Exports of plywood also contracted by just less than 3 percent, with unit export prices rising by just under two percent.

The share of paper in the value of total exports of Finnish forest-based products has been significantly reduced for many years as a result of decreasing demand and restructuring. However, the favourable market development of paper last year temporarily slowed down this trend and the share of paper decreased only by just a percentage point. Paper still accounts for about one third of the value of Finnish forest industry exports. In 2018, the wood working industry accounted for 22 percent (EUR 2.9 billion) of the value of exports of forest products and the pulp and paper industry

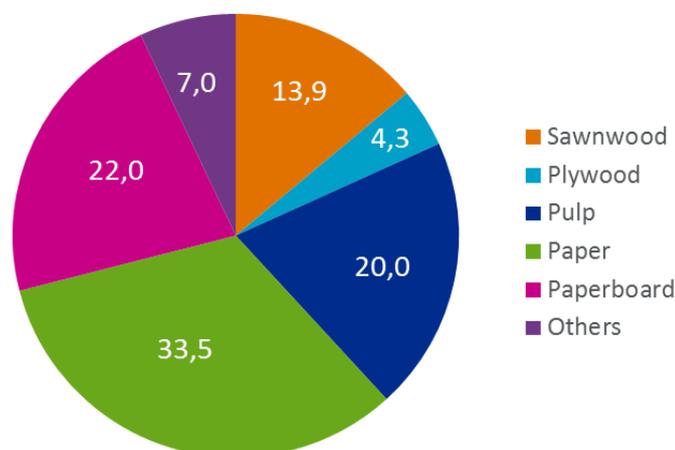
for 78 percent (EUR 10.3 billion). It should be also noted that the value of exports from pulp is already close to the value of exports of sawnwood.

Typically, there are not any significant changes in the distribution of the value of forest industry exports in successive years between the different target areas, and the changes are slow. However, there were two major exceptions last year, both of which are related to China. Measured by the value of exports of the pulp and paper industry, China's importance has raised, particularly as a result of increased export deliveries of pulp. China, on the other hand, contracted last year as a target for export earnings for the wood working industry. However, it has been possible to target declining sawnwood deliveries to China by increasing export volumes to countries in North Africa.

In spite of the gradually growing importance of Asia and China, the euro area still remains the most important target area for Finnish forest products. In the wood working industry, almost 30 percent of the export revenue came from the euro area in 2018. The corresponding share in the pulp and paper industry was 39 percent. Germany alone accounted for 14 percent of the value of Finnish forest industry exports. Contrary to prior estimates, so far Brexit did not have a significant impact on Finnish forest products exports to Britain in 2018, with nominal export revenues rising 9 percent on the previous year to EUR 975 million. This was due to both improved export price development and increased demand as the British expanded their inventory and prepared for the post-Brexit period.

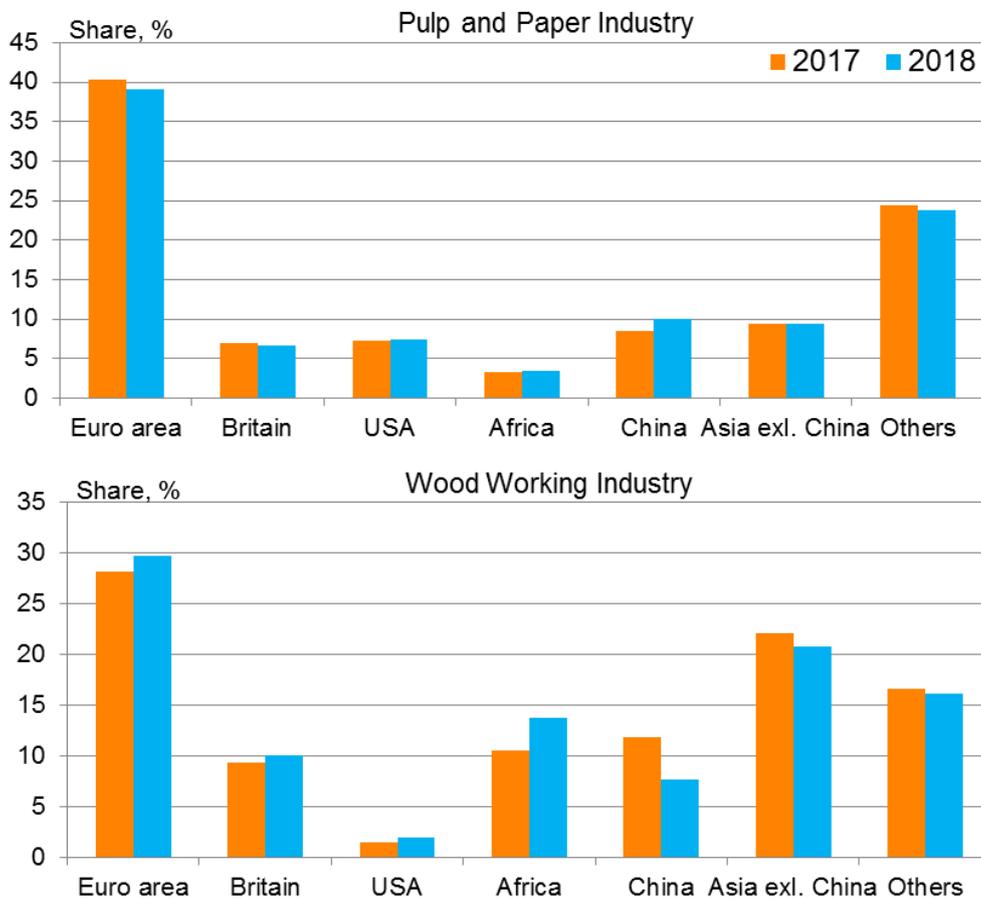
While most of the products manufactured by the Finnish forest industry are exported, the industry is highly dependent on the development and changes in international trade and demand in the main export markets. Also, the development of exchange rates (USD, CAD, SEK, GBP, JPY, RUB, CNY) with respect to euro is an important factor of competitiveness of the Finnish forest industry not only outside of euro area to promote exports, but also inside the euro area when competing against the imports from outside of the euro area. In the Finnish paper industry, about 90 percent of production is exported, while in wood working industry the corresponding share is close to 70 percent. Although target countries of exports slightly differ between the forest products categories, the most important export destinations are Europe, Asia, Near East and North Africa.

Shares (%) of the export value of forest industry products by industry in 2018



Sources: Finnish Customs, Luke

Distribution of the value of exports of Finnish forest industry products in 2017 and 2018



Sources: Finnish Customs, Luke.

4. DEVELOPMENT IN FOREST PRODUCTS MARKETS

A. Raw wood

During January-August in 2019, roundwood trade in private forests in Finland has decreased by 21 percent compared to the previous year. The trade decrease is especially strong with logs (-32 percent) and less with pulpwood (-10 percent). From tree species, the trade of spruce is affected by greater decreases than those of pine and birch. The stumpage prices of sawlogs were at highest in November 2018, from which they have been falling in every month. In contrast, the stumpage prices of pulpwood species have remained approximately at the same level. Industrial wood harvesting has decreased by 4 percent in January-August 2019. Especially, harvesting of logs has decreased (-8 percent) whereas harvesting of pulpwood has remained almost at unchanged level (-1 percent).

In 2019, the total removals of industrial wood in Finland are estimated to decrease by 4 percent to 58.5 million cubic meters under bark (u.b.). The fellings are decreasing both in private forests and in forests of the state and companies. The fellings of sawlogs are anticipated to decrease by 8 percent to 24.4 million cubic meters (u.b.), due to the decreasing demand for sawnwood and plywood. The fellings of pulpwood will remain almost unchanged at 34.1 million cubic meters (u.b.).

Roundwood imports are forecast to remain almost unchanged at 9.8 million cubic meters (u.b.) in the current year. Together the total removals of industrial wood and roundwood imports are projected to decrease by 3 percent to 68.3 million cubic meters.

Due to reduced demand for sawnwood and plywood, the stumpage prices of sawlogs are expected to decrease by 6 percent in 2019. Significant growths of softwood pulp and paperboard production will maintain the stumpage prices of pulpwood at unchanged this year.

In 2020, the total removals of industrial roundwood are projected to decrease by 4 percent to 56.1 million cubic meters (u.b.), as the economic growth will slow down in major markets. The removals of sawlogs are projected to decline by 3 percent while those of the pulpwood will decrease by 5 percent. In total, industrial wood fellings and roundwood imports are projected to decline by 3 percent to 66.1 million cubic meters.

B. Wood energy

Wood based energy accounted for 27 percent of all energy consumed in Finland in 2018. The consumption of wood fuels grew by 4 percent, and it remained the most important individual energy source in Finland. EU targets for renewable energy are calculated relative to final energy consumption. Calculated in this manner, the share of renewable energy sources in Finland rose to more than 40 percent in 2018 according to Statistics Finland's preliminary data. Finland's target for the share of renewable energy is 38 percent of final energy consumption in 2020, and this share was reached for the first time as early as 2014. The Finnish Government has set an ambitious goal for 2030: the share of renewable energy in the final consumption should be increased to approximately 50 percent.

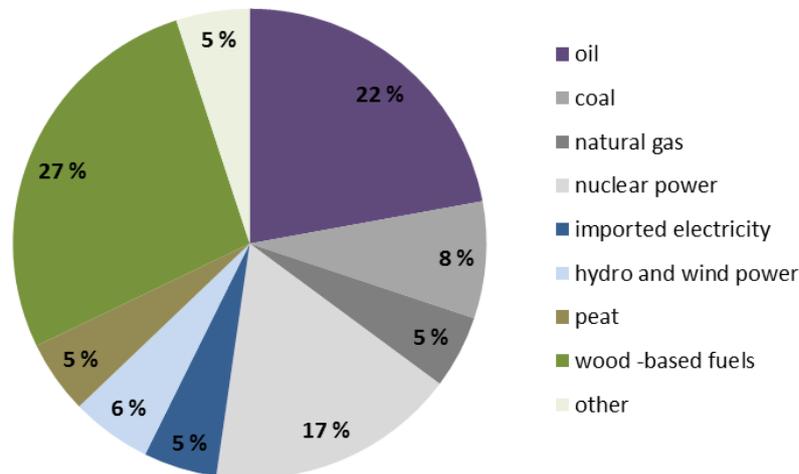
The target for 2020 in Finland is to use 13.5 million cubic meters (m³) of forest chips annually. However, it seems that this target will not be achieved. In 2018, the use of forest chips was 8 million m³ of which 7.4 million m³ was used in heating and power plants. The use of forest chips increased by 3 percent from 2017. Small diameter trees are by far the most important raw material source for forest chips in Finland (53 percent of forest chips in 2018), logging residues accounted for 36 percent of raw material, and stumps and stem wood 5 percent each. The use of forest chips is estimated to increase slowly, 2 percent both in 2019 and 2020.

The plant price of forest chips in 2018 was EUR 20.3 per megawatt hour, which is one percent lower than 2017. In 2019, the average plant prices of wood chips are expected to increase rather slowly, one percent annually.

Domestic production of wood pellets in Finland increased 19 percent to 385 000 tons in 2018. Apparent consumption (production + import – export) was 436 000 tons. Deliveries by pellet producers based on domestic pellet production decreased by 5 percent compared to the previous

year, amounting to 332 000 tons. Both domestic consumption and production of pellets is estimated to increase only slightly in 2019 and 2020.

Energy consumption in Finland in 2018 by source of energy



Source: Statistics Finland.

The emission trading has a strong influence on the competitiveness of wood-based fuels and their use in energy plants. Price of EU emission allowances has been increased strongly during the last years (from around 5 €/t CO₂ to 25 €/t CO₂), and together with rise in world market prices of fossil fuels (especially coal) it has created the situation, where forest biomass is more competitive.

However, changes in taxes, subsidies and regulations have fast and strong influence on the use of renewable energy sources in bioenergy markets. In the European Union, there are several directives concerning the usage of solid and gaseous biomass in energy production under construction. Uncertainty with emission trading together with different directives are postponing investment decisions and making future planning difficult and highly challenging.

In Finland coal-fired power and heating generation will be banned as of 1 May 2029. The coal ban will promote a low-carbon energy system, stimulate the use of renewable energy sources, and ensure healthier living environment.

C. Certified forest products

In Finland, the current amount of certified forests endorsed by the international Programme for the Endorsement of Forest Certification schemes (PEFC) is about 18.1 million hectares. This accounts for 91 percent of the forests used for wood production. After introducing the Finnish certification standard in 2011, the forest area certified under Forest Stewardship Council (FSC) scheme has increased to 1.62 million hectares or approximately 7.9 percent of the forest area. 1.58 million hectares are double certificated (by mid-2018).

The use of forest certification labels in forest products has experienced only modest changes over the last year. The number of PEFC Chain of Custody (CoC) certified companies in mid-2018 was

239, whereas FSC has granted 142 CoC certificates. PEFC has introduced the group certification scheme earlier, the first FSC group certificates were granted August 2018. These group certificates lower the economic burden of holding the certificate for companies that meet the strict turn over or number of employee criteria. Both forest and CoC certificate schemes contribute to the sustainable wood material criteria of the Nordic Ecolabel (The Swan), a widely recognised consumer oriented eco-label in the Nordic countries.

D. Value-added wood products

E. Sawn softwood

Year 2018 was the peak of business cycle for the Finnish sawmill industry. The average export price of softwood sawnwood increased by 9 per cent and the production volume grew by one percent to 11.8 million cubic metres. Simultaneously, the economical results of sawmills improved and investments were made to eliminate production bottlenecks. The export volume of softwood sawnwood, however, diminished by 7 per cent in 2018, which meant the end of eight-year-period of continuous growth in the Finnish sawnwood export volumes.

In 2018, the largest change in the Finnish sawnwood exports was the decrease of exports to Chinese markets by 38 per cent. In 2017, the year-over-year growth rate of sawnwood exports to China was 64 per cent and China was by far the most important export destination for Finnish sawnwood. In 2018, Egypt regained its traditional position as the largest single destination country of Finnish sawnwood exports. Sawnwood exports to China were dominated by spruce sawnwood for furniture industry, whereas exports to Egypt consisted almost entirely of pine sawnwood.

In North African markets, the highest year-over-year growth rate, 90 per cent, was attained in the sawnwood exports to Algeria in 2018. As in the case of Egypt, the Finnish sawnwood exports to Algeria consist mainly of pine sawnwood. The high growth rate was attributable to the abolition of import licenses that halted the sawnwood exports to Algeria for five months in 2017. In North African markets the price development of sawnwood was mainly positive, which increased the supply of sawnwood to the area.

Construction activity grew by 3.3 percent in Finland in 2018, and the growth in construction has been continuous since 2015. Despite the booming construction, however, the domestic consumption of sawnwood seems to have stagnated to about 3.2 million cubic metres during the recent years. This figure includes the changes in sawnwood stocks. The subdued development of sawnwood consumption reflects the fact that the growth has been most pronounced in construction of multi-storey apartment buildings while construction of one family houses that are typically made of wood in Finland has not grown much. The apparent consumption of sawnwood (production – exports + imports) increased to 3.7 million cubic metres in 2018, and the difference between apparent and observed, statistical consumption figures indicate that sawmills' sawnwood stocks inflated.

Finnish sawmill industry in 2018.

| | Sawnwood 1000 m ³ | Share of production % | Volume change 2018/2017 % |
|-----------------------|---------------------------------|--------------------------|------------------------------|
| Production, of which | 11840 | 100 | 1 |
| Domestic market* | 3138 | 27 | 32 |
| Exports, of which | 8702 | 74 | -7 |
| Euro area | 2230 | 19 | 0 |
| <i>Germany</i> | 510 | 4 | 2 |
| <i>France</i> | 482 | 4 | -5 |
| <i>Estonia</i> | 380 | 3 | 0 |
| <i>Others</i> | 858 | 7 | 2 |
| Other Europe | 1301 | 11 | -1 |
| <i>United Kingdom</i> | 913 | 8 | 2 |
| <i>Others</i> | 388 | 3 | -5 |
| Asia | 2930 | 25 | -24 |
| <i>China</i> | 1078 | 9 | -38 |
| <i>Japan</i> | 920 | 8 | -7 |
| <i>Israel</i> | 436 | 4 | -8 |
| <i>Saudi Arabia</i> | 231 | 2 | -38 |
| <i>Others</i> | 265 | 2 | -9 |
| Africa | 2154 | 18 | 12 |
| <i>Egypt</i> | 1282 | 11 | -1 |
| <i>Algeria</i> | 518 | 4 | 90 |
| <i>Others</i> | 353 | 3 | -1 |
| North America | 27 | 0 | 124 |
| Others | 60 | 1 | 106 |

*Apparent consumption of sawnwood production in Finland = production – exports. Sawnwood includes softwood and hardwood sawnwood.

Sources: Finnish Customs, Finnish Forest Industries Federation.

Outlook for years 2019 and 2020

In January–July 2019, the Finnish softwood sawnwood exports increased by 4 percent in year-over-year terms. However, the price trend was downward. The unit value of spruce sawnwood exports decreased by 4 percent and the unit value of pine sawnwood exports by 8 percent. Prices fell especially fast in North African markets. Also, in China and Japan prices were trending downwards. In sawnwood exports to Europe, the unit values of pine and spruce sawnwood were slightly higher in January–July 2019 compared to same period year earlier. However, also in exports to Europe, the unit values have fallen since the price peak of autumn 2018.

Currently, negative price trend of softwood sawnwood is a global phenomenon. The demand for sawnwood has not grown as fast as anticipated especially in North America and China during 2019. Simultaneously, the production volumes have been high and sawnwood stocks grown, which has inflated the supply in many market areas. Pressure on sawnwood prices has also grown in Europe due to large scale processing of damaged wood in Central Europe. Sawnwood made of damaged wood is increasingly exported to markets outside Europe, which has further increased the pressure on prices, especially in China and North Africa.

The continuing negative sawnwood price trend will eventually lead to production cuts that will balance the supply with the demand and stabilise the price development. However, notable price improvements are not expected in autumn 2019. Finnish sawmills are also planning to restrict their output in autumn 2019/in the beginning of 2020. In addition, Stora Enso announced the closure of Kitee sawmill by the end of 2019. It is forecast that in 2019, the production of sawnwood will decrease by 2 per cent in Finland, while the export volume will remain slightly larger than in 2018. The average export price will fall 7 per cent in 2019. In 2020, the production is expected to decrease further by 4 per cent as the export volumes and domestic consumption diminishes. However, the downward trend of export price of sawnwood is expected to start stabilising in 2020.

F. Sawn hardwood

In Finland, hardwood sawnwood is a marginal product, the estimated annual production volume of which has varied between 40 000 m³ and 110 000 m³ during the last twenty years. In 2018, the production of hardwood (mainly birch) sawnwood was reduced to 40 000 m³, the lowest volume since the beginning of 2000's. Currently, only one sawmill of industrial scale is sawing birch in Finland. However, Valoisa Wood Ltd. is planning to build a new hardwood (birch, aspen) sawmill in Akaa, province of Pirkanmaa. The production capacity would be 20 000 m³ at first and later enlarged to 30 000–40 000 m³. The sawmill would start up in 2021 at the earliest.

G. Wood-based panels

In Finland, the production of wood-based panels is dominated by plywood. There is no OSB or MDF/HDF production, while both particle board and hardboard is produced in one mill only. In 2018, the production volume of plywood reached 1.23 million cubic meters, which was one per cent less than in 2017. Softwood (spruce) plywood (incl. LVL) accounted for 68 percent of plywood production and the remainder was hardwood (birch) plywood. Compared to 2017, in 2018, the export volume of plywood decreased by 3 percent, whereas the average export price rose by 2 percent. Investments have been made especially in LVL production: Stora Enso's LVL plant in Varkaus reached full capacity (ca. 70 000 m³/a) in the second quarter of 2018, and Metsä Wood's new LVL line (capacity 65 000 m³/a) in Punkarharju mill was under construction in order to enter production in 2019. In 2017, Metsä Wood invested in a new LVL line in Lohja mill, which increased the mill's LVL capacity by 20 000 m³.

Finnish plywood industry in 2018.

| | Plywood 1000 m ³ | Share of production % | Volume change 2017/2016 % |
|-----------------------|--------------------------------|--------------------------|------------------------------|
| Production, of which | 1230 | 100 | -1 |
| Domestic market* | 218 | 18 | 8 |
| Exports, of which | 1012 | 82 | -3 |
| Euro area | 444 | 36 | -8 |
| <i>Germany</i> | 172 | 14 | -6 |
| <i>Netherlands</i> | 133 | 11 | 7 |
| <i>Others</i> | 139 | 11 | -21 |
| Other Europe | 425 | 35 | -1 |
| <i>United Kingdom</i> | 139 | 11 | 3 |
| <i>Sweden</i> | 123 | 10 | -6 |
| <i>Denmark</i> | 58 | 5 | 1 |
| <i>Norway</i> | 50 | 4 | -11 |
| <i>Others</i> | 55 | 5 | 11 |
| Asia | 56 | 5 | 20 |
| Africa | 7 | 1 | -26 |
| North America | 56 | 5 | 22 |
| Others | 25 | 2 | -2 |

* Apparent consumption of plywood production in Finland = production – exports.

Sources: Finnish Customs, Finnish Forest Industries Federation.

Outlook for years 2018 and 2019

In the first half of 2019, the production of plywood was 5 percent lower than during the same period year earlier. Competition in birch plywood markets in Europe has tightened, and as year 2019 has progressed, Metsä Wood, UPM, and Koskisen Group have announced plans to adjust plywood production. In January–July 2019, the export volume of birch plywood was 11 percent lower than during the same period last year. The export volume of softwood plywood was in January–July 2019 roughly the same as year earlier, and the export price of softwood plywood had increased by 4 percent.

The total plywood production is expected to diminish by 4 percent to 1.18 million cubic metres in 2019. Due to production adjustments, the supply-demand balance is not expected to deteriorate in Europe, and the average export price of plywood is expected to increase slightly in 2019. Year 2020 is not anticipated bring any major changes for Finnish plywood production or exports.

H. Pulp and paper

Finnish paper and paperboard industries are highly dependent on the changes in international demand. In 2018, 94 percent of the Finnish paper and 96 percent of paperboard production was exported. The main destination is the European Union, and more than half of paper and paperboard is exported to EU countries. Other important export regions for paper are Asia and North America. Capacity investments in chemical pulp have enabled increments in market pulp exports, but still more than half of the production volume is used by domestic paper and paperboard industries. The main export destination of pulp is Europe. However, as an individual country, China is currently by far the most important single market. In 2018, 36 percent of the Finnish pulp exports were to China.

There have been significant changes in the structure of the Finnish pulp and paper industry during the last 10–15 years. Due to the decline of international demand for paper, significant amount of paper machines have been closed down. Capacity changes have continued during the recent years. Despite closures paper is still by far the most important export product of the Finnish forest industry.

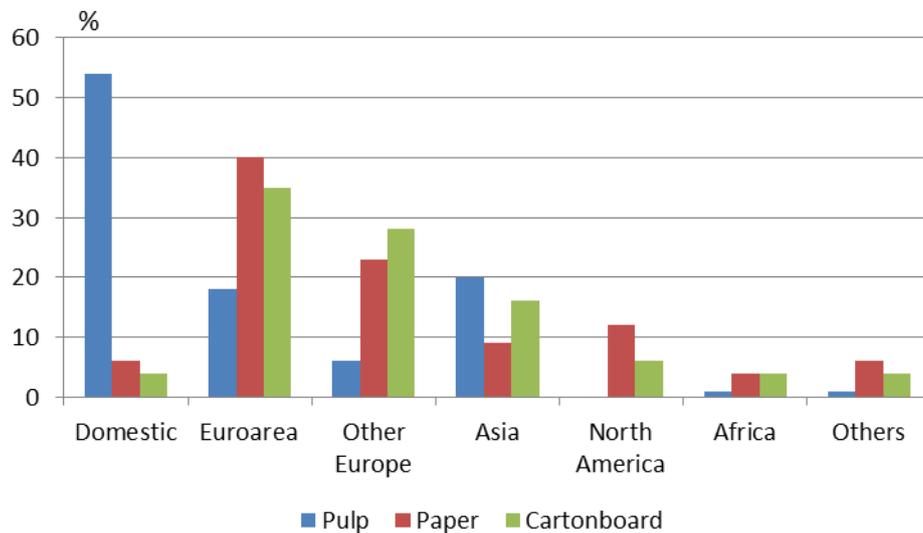
At the same time with decline in paper production, capacity of paperboard industry and its share of total forest industry production have increased. Recently, two big paper machines have been converted to board machines: Stora Enso's investment in Varkaus (390 000 t/year, kraftliner) started production in autumn in 2015 and Kotkamills's (400 000 t/year, folding boxboard) unit was opened in summer 2016. Furthermore, by the end of 2020 Stora Enso is switching production from woodfree coated paper to cartonboard and kraftliner in one of the paper machines of Oulu mill in northern Finland. The other paper machine of the mill will be shut down by the end of September 2020.

Significant increase has occurred also in pulp production capacity in Finland. Especially, Metsä Group's pulp mill in Äänekoski expanded production capacity in the country (net increase 0.77 mill. t/year, total capacity 1.3 mill. t/year) in 2017. UPM has carried out several expansion projects in company's pulp mills in Finland. Capacity expansion has been a consequence of increasing demand for pulp. In 2018, the volume of pulp production in Finland was approximately 16 percent higher than it was in 2014. Currently there are several greenfield plans to further increase pulp production capacity in Finland.

In 2018, both Finnish paper production and export volumes increased by one percent. Production increased from 6.65 to 6.73 million tons. Development was opposite to European development as according to Euro-Graph, demand for graphic papers declined in Europe in 2018 by 5.5 percent. One of the reasons for positive development in Finland was integrated pulp production, which benefits paper production when pulp prices are high. Also production of paperboard increased last year. The growth was approximately 5 percent and it was still partly due to earlier investments. The production of chemical pulp increased last year by 6 percent. Increase was due to increased capacity and still good demand in global market. Export was 12 percent higher than a year before.

All in all the development of export volumes and export prices was positive in 2018. Especially, export volume and price of pulp increased significantly. Price increase was due to tight market situation in global pulp market. In paperboard market demand remained good and export price increased 4 percent from previous year. Also export price of paper rose almost 6 percent. Rise was mainly due to high price of pulp.

Exports of Finnish pulp, paper and cartonboard in 2018 (% of production)



Sources: Finnish Customs, Natural Resources Institute Finland, Finnish Forest Industries Association

Outlook for 2019 and 2020

The outlook for Finnish pulp and paper industry for 2019 and 2020 is characterised by decrease of paper production. Only small changes are expected to be seen in pulp and paperboard production volumes. Paper production is expected to decline significantly due to closure of two paper machines in Stora Enso mill (the other is converted to paperboard production) in autumn 2020 and closure of one paper machine in UPM's Rauma mill at the end of 2019.

In Europe, the key export market for Finnish paper, total demand for graphic papers declined almost 6 percent in 2018 compared to 2017. During the first seven months of this year, demand declined more than 7 percent compared to January-July 2018. Consumption was down especially in coated and uncoated mechanical paper grades. Due to digitalisation downward trend will continue also in coming years. Also paper prices have been decreasing most of year 2019.

Along with demand decline in Europe, paper export from Finland declined by 8 percent during the first half of 2019. The same development is expected to continue the rest of the year and slightly accelerate by the end of the year when closure of paper machine in UPM paper mill is realised. In 2020 production and export is expected to decline even more due to capacity closures. The volumes of paper production are estimated to end up to about 6.3 million tonnes in 2019 (in 2018: 6.7 million tonnes) and to 5.7 million tonnes in 2020.

Export price of Finnish paper has been relatively stable in 2019. Compared to first six months of last year the average export price has, however, increased by 9 percent. This is because of relatively weak comparison period. In Europe prices have been decreasing since spring. This impacts also on Finnish export, but the average export unit price of paper from Finland is estimated to be higher than last year. Next year average export price will decrease. This is due to declining pulp prices and diminishing demand.

During the first half of 2019, the export of Finnish paperboard decreased by 3 percent. Paperboard (especially folding boxboard) market is in autumn rather balanced and production and export volume of Finland is expected to decrease only slightly this year and to grow a little next year. Average export unit price is estimated to rise in 2019.

The production of chemical pulp increased 5.5 percent in Finland during the first half of this year. Increase in export volume of bleached pulp was 11 percent. The main reason for growth was expanded production capacity, still strong global demand and declining domestic consumption of pulp. Most notable capacity increase was Metsä Group's Äänekoski mill in 2017, which still had an impact on the growth rate of production and export volumes at the beginning of this year. At the same time export price of bleached pulp decreased by six percent. Major reasons for price decrease relate to global economic uncertainty and high pulp inventory levels.

As demand for pulp is increasing in the long run, and as there are no major new mills starting production this year or the next, general outlook for global pulp market is still bright. At the moment, market situation is unstable, but it is expected to stabilise to some extent by the end of the year. In Finland, the volume of pulp production is this year slightly higher than last year. Export volume is expected still to rise significantly from last year. However, mean export price will be clearly lower than last year. Next year production volume is expected to slightly decrease, but export volume to increase, as a consequence of declining domestic consumption. Export price of pulp is expected to decrease slightly from this year's price level.

I. Innovative wood products

The promising outlook for the use of wood in multi-storey residential buildings as well as in large non-residential buildings and civil engineering has encouraged investments in production of engineered wood products, especially LVL and CLT, in Finland during the recent years. After a slow start, the use of wood in multi-storey apartment buildings is gradually gaining pace also in Finland. In 2019, the 14 stories and 50 metres high apartment building, Joensuu Lighthouse, was completed in Joensuu. The frame of the building was constructed using both LVL and CLT.

In the several pulp mill investment plans, such as in Kemijärvi, Kemi, Paltamo, and Kuopio, as well as in the completed Äänekoski pulp mill, new products and processing of by-products are playing an increasingly important role. As for the Äänekoski pulp mill, Metsä Group's innovation company Metsä Spring Ltd. is building a EUR 40 million demo mill to produce wood-based textile fibres from wood pulp using a novel solvent. The mill is planned to start in November 2019.

In late 2018, Spinnova Ltd. completed its pilot production line in Jyväskylä. Spinnova innovation is to produce textile fibres from wood pulp without potentially harmful dissolving chemicals. In 2017, Brazilian pulp company Fibria invested EUR 5 million in Spinnova and became company's majority shareholder.

In packaging, the start-up company Sulapac Ltd. has introduced a new, totally biodegradable composite containing only sustainable and renewable material. Sulapac's composite is designed to substitute plastics especially in packaging and can be processed with the existing machinery. Sulapac has succeeded in raising funding for the next step of enlarging its businesses.

Stora Enso is investing EUR 10 million in a pilot mill to produce bio-carbon from lignin at Sunila mill, Kotka. The product of the pilot mill is designed to substitute graphite in Li-ion batteries. The construction is to start by the end of 2019, and the mill is planned to be completed at the beginning of 2021.

J. Housing and construction

In 2018, the housing constructions increased by 2.7 percent while the total construction activity increased by 3.3 percent. The outlook for the prevailing year, however, is rather pessimistic along the down turn of the economic growth in Finland. According to the recent statistics released by Statistics Finland in September 2019, the building permits were granted for a total of 11.9 million cubic metres in May to July 2019, which was 5.8 percent lower than in the corresponding period one year ago. The cubic volume of residential building construction declined as much as 22.9 percent, but the cubic volume of other types of buildings grew. The volume of ongoing building production decreased by 1.4 percent in May to July 2019 with respect to the corresponding time period year before. The volume of construction of residential buildings declined in the period by 6.5 percent and that of other than residential building construction, in turn, increased by 2.9 percent.

The recent business tendency survey of industries, released by the Confederation of Finnish Industries in September 2019, revealed that the construction confidence indicator rose in September and is still above its long term average, which slightly contradicts the recent construction forecasts. Also, the companies' assessments on order books improved modestly and the level was still above normal. However, the confidence in construction industry has clearly weakened since the beginning of the year.

In 2020, the construction activity will continue to slow down. The recent forecast of The Research Institute of the Finnish Economy (ETLA) reveals that that the building construction in Finland is estimated to increase only 0.2 percent in 2020. The residential construction activity is no more promising with only 0.4 percent growth.

Granted building permits and building starts, mil. m³, moving annual total

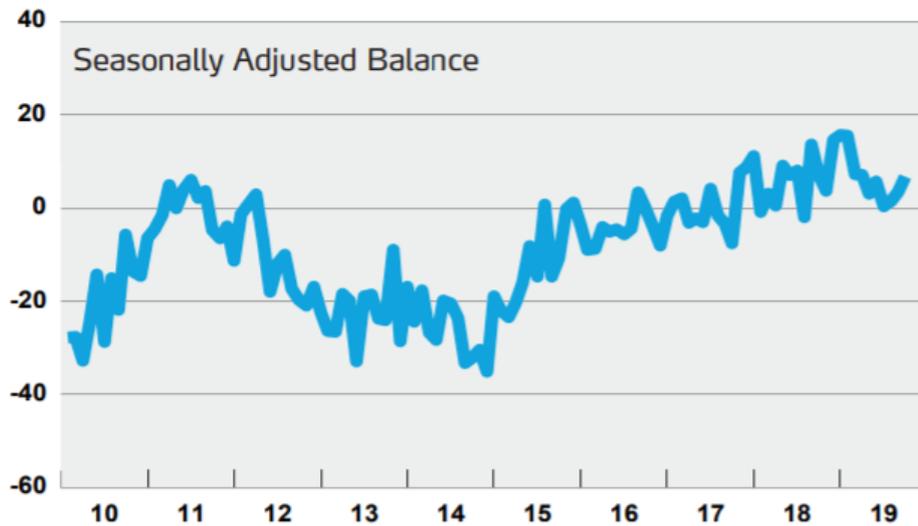


Volume index of newbuilding 2010=100, trend



Source: Statistics Finland, September 2019

Construction Confidence Indicator



Source: Confederation of Finnish Industries, September 2019

Construction in Finland 2018–2020f

| | 2018 | 2019e | 2020f |
|---|--------|--------|--------|
| Construction, change in volume, % | 3.3 | 0.0 | -2.0 |
| Renovation construction | 1.0 | 1.8 | 2.0 |
| Construction investments, change in volume, % | 4.2 | -0.9 | -4.5 |
| Building construction | 4.9 | -0.4 | -5.2 |
| Land and water construction | 0.5 | -3.0 | -1.0 |
| Starting up of building construction production, mill. m³ | 39.9 | 37.5 | 35.5 |
| Residential buildings | 13.7 | 12.1 | 11.7 |
| Free-time residential buildings | 0.6 | 0.6 | 0.7 |
| Commercial and office buildings | 6.6 | 4.8 | 4.3 |
| Public service buildings | 3.9 | 4.4 | 3.9 |
| Industrial and warehouse buildings | 9.8 | 10.1 | 10.2 |
| Agricultural buildings | 3.4 | 3.8 | 3.2 |
| Other buildings | 1.9 | 1.9 | 1.6 |
| Number of housing production start-ups | 46 200 | 39 000 | 36 000 |
| Non-subsidised | 37 600 | 30 400 | 27 400 |
| State-subsidised housing | 8 600 | 8 600 | 8 600 |

Source: Confederation of Finnish Construction Industries RT, April 2019

5. TABLES

A. Economic Indicators

| Key economic indicators | 2018 | 2019f | 2020f |
|------------------------------------|------|-------|-------|
| Gross domestic product growth, % | 1,7 | 1,1 | 0,9 |
| Consumer price index change, % | 1,1 | 1,0 | 1,1 |
| Wage and salary earnings change, % | 1,7 | 2,5 | 2,7 |
| Unemployment rate, % | 7,4 | 6,5 | 6,3 |
| Current account surplus/GDP, % | -1,6 | -0,9 | -0,8 |
| Industrial output change, % | 2,0 | 1,8 | 1,4 |
| EUR/USD (at the end of period) | 1,16 | 1,13 | 1,12 |

Source: Research Institute of the Finnish Economy (ETLA) 16.9.2019

B. Production and Trade

1. Forest Industry Production in Finland

| Product | Unit 1000 | 2017 | 2018 | 2019e | 2020f |
|--------------------------|----------------|--------|--------|--------|--------|
| Sawn softwood | m ³ | 11 705 | 11 800 | 11 600 | 11 000 |
| Plywood | m ³ | 1 240 | 1 230 | 1 280 | 1 320 |
| Particle board | m ³ | 92 | 92 | 92 | 92 |
| Fibreboard | m ³ | 20 | 58 | 58 | 58 |
| Mechanical pulp | ton | 3 396 | 3 508 | 3 094 | 2 915 |
| Chemical pulp | ton | 7 702 | 8 152 | 8 218 | 8 098 |
| Pulp, total | ton | 11 098 | 11 660 | 11 312 | 11 013 |
| Paper, total | ton | 6 654 | 6 725 | 6 309 | 5 698 |
| Paperboard | ton | 3 622 | 3 819 | 3 757 | 3 785 |
| Paper & Paperboard total | ton | 10 276 | 10 544 | 10 066 | 9 483 |

Sources: Finnish Forest Industries Federation (2017–2018)

Natural Resources Institute Finland (wood products, pulp and paper 2019e–2020f)

2. Exports of Finnish Forest Industry Products

| Product | Unit 1000 | 2017 | 2018 | 2019e | 2020f |
|---------------------------|----------------|-------|-------|-------|-------|
| Sawn softwood | m ³ | 8 358 | 8 686 | 8 700 | 8 400 |
| Plywood | m ³ | 1 039 | 1 012 | 970 | 960 |
| Particle board | m ³ | 21 | 24 | 24 | 24 |
| Fibreboard | m ³ | 48 | 46 | 46 | 46 |
| Mechanical pulp | ton | 288 | 344 | 282 | 289 |
| Chemical pulp | ton | 3 367 | 3 770 | 4 035 | 4 158 |
| Pulp, total | ton | 3 655 | 4 114 | 4 317 | 4 447 |
| Paper, total | ton | 6 224 | 6 315 | 5 924 | 5 351 |
| Paperboard | ton | 3 552 | 3 679 | 3 620 | 3 646 |
| Paper & Paperboard, total | ton | 9 776 | 9 994 | 9 544 | 8 997 |

Sources: Finnish Customs and Finnish Forest Industries Federation (2017, 2018),
Natural Resources Institute Finland (wood products, pulp and paper 2019e–2020f).

3. Imports of Forest Industry Products

| Product | Unit 1000 | 2017 | 2018 | 2019e | 2020f |
|---------------------------|----------------|------|------|-------|-------|
| Sawn softwood | m ³ | 537 | 585 | 570 | 540 |
| Plywood | m ³ | 97 | 108 | 120 | 110 |
| Particle board | m ³ | 113 | 125 | 120 | 120 |
| Fibreboard | m ³ | 171 | 158 | 150 | 150 |
| Pulp, total | ton | 474 | 596 | 560 | 500 |
| Paper, total | ton | 130 | 112 | 110 | 110 |
| Paperboard | ton | 221 | 218 | 220 | 220 |
| Paper & Paperboard, total | ton | 351 | 330 | 330 | 330 |

Sources: Finnish Customs and Finnish Forest Industries Federation (2017, 2018),
Natural Resources Institute Finland (wood products, pulp and paper 2019e–2020f).