UNIVERSITY OF LJUBLJANA

FACULTY OF ECONOMICS

MASTER THESIS

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FACULTY OF ECONOMICS

MASTER THESIS

# THE PERFORMANCE OF FOREST COMPANIES AFTER LIBERALISATION OF THE FOREST PRODUCTS MARKET IN SLOVENIA

Ljubljana, October 2009 BOGOMIL BREZNIK

Student Bogomil Breznik, hereby certify to be the author of this Master's thesis that was written under the mentorship of Prof. Dr. Jože Pavlič Damijan in compliance with the Act of Authors and related Rights – paragraph 1, Article 21. I herewith agree this thesis to be published on the website pages of Faculty of Economics.

Ljubljana, 29 October 2009 Signature:_____

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# 1 INTRODUCTION

## 1.1 Research Problem

It is over ten years since the Slovenian forest products market was liberalised. The conditions of marketing forest products have significantly changed. What is crucial is that the number of business entities involved has grown in terms of both supply and demand. Which conditions must be fulfilled to enforce market laws and to what extent they are being met today needs to be established.

The country's former forest economies have been transformed into private forest companies. Since all of these companies acquired the right to a 20-year concession to exploit national forests for the purpose of this research they are called concessionaires. The remaining forest companies in the country are called non-concessionaires.

The forest products market is where supply and demand interacts. It is composed of a group of buyers and sellers exchanging timber products.

The thesis focuses on two groups, namely unworked non-underbark or underbark timber, and roughly worked timber (the forest products market).

We were interested in the free forest products market at the national level. All quantities are represented in equivalents of round timber. The equivalent of round timber in $m^3$ is the quantity of round timber which is on average required to produce a unit of semi-product, material or end-product made from timber.

## 1.2 Purpose and Objective of the Master's Thesis

This master's thesis focuses on the following issues:

- The functioning of forest companies after liberalisation of the forest products market in Slovenia; the characteristics and peculiarities of the forest products market in Slovenia; the advantages and shortcomings of trade in forest products after the liberalisation, along with the market power of forest companies which was based on the actual values of individual economic items, and a comparison with other activities. Here, deviations are critically assessed. Revenue and expenditure, profit, loss and value added, as well as liabilities are included in the analysis of the forest companies' market power.
- The revealed Comparative Advantage (*RCA*), the Grubel-Lloyd method (*Intra Industry Trade*) and the Greenaway-Hine-Milner method (*GHM*) are used to evaluate the forest products market from the viewpoint of goods trade after liberalisation of the forest products market in Slovenia.
- An analysis of the production, sales, imports and exports of forest products in the forest products market in Slovenia is carried out. Based on this analysis, we try to find new

business opportunities for Slovenia and its advantages in international timber trade, and identify the consequences of the international trade in forest products after liberalisation of the forest products market.

## 1.3 Research Hypotheses

This master's thesis seeks to verify the following research hypotheses:

*Since the Slovenian forest products market was liberalised, the number of forest companies has grown in terms of both supply and demand.* The main argument in favour of the increased number of companies is the possibility of establishing a forest company which can trade freely in forest products at home and abroad, and is no longer obliged to sell or buy forest products from private forests through forest organisations in individual areas. The establishment of forest companies in the country also did away with both the monopoly of forest organisations in relation to the private sector and the purchasing of forest products based on average prices but not actual quality. By abolishing the monopoly or purchasing at average prices, the value of forest products in private forests has risen. Consequently, this strengthened the interest of private forest owners to start felling immediately after the forest products market was liberalised.

The research hypothesis will be proven by examining statistical data from the Agency of the Republic of Slovenia for Public Legal Records and Related Services and by analysing literature and sources.

*Forest companies in Slovenia have used modern communication methods insufficiently when trading in forest products since the forest products market became liberalised.* The argument supporting this research hypothesis is the fact that no forest company in Slovenia has started trading in forest products on the Internet, and that e-mail has been insufficiently used as an alternative to telephone conversations via fixed and mobile networks, personal contacts, ordinary mail and fax messages. The research hypothesis will be proven with an interview carried out among concessionaires and non-concessionaires, and with research so far undertaken in this field.

*The market segment comprising forest products has comparative advantages in international trade and has developed from the perspective of intra-industry trade.* Support for this research hypothesis is found in the fact that Slovenia exports more forest products than it imports, and that the values of the imports and exports are balanced. The research hypothesis will be proven with an analysis of statistical information from the Statistical Office of the Republic of Slovenia.

## 1.4 Research Sources

We encountered many problems capturing statistical information about the traffic in forest products and especially with the accuracy of the gathered information. For this reason, the

primary sources obtained through a guided interview conducted amongst forest companies along with secondary sources which we interpreted afresh were used in the thesis.

Sources of more recent and more specific information include manuals, various statistical databases, and articles published in the literature.

In this part, forest products which are being launched in the market (market forest production) are predominantly dealt with.

The quantity of forest production is expressed in net $m^3$ and was obtained by subtracting the remains in forests after felling (15% for coniferous trees, and 12% for deciduous trees). Forest products sold by their owners are considered market forest production. Therefore, the quantities of timber intended for home use must be subtracted from the forest production.

The annual quantity of trees marked for felling is used as information about the forest production. Here, it is presumed that forest owners actually cut down all trees that are marked. While this is not exactly true, in our opinion the difference is small and also influenced by other factors, e.g. inadequate figures to assess the quantity of possible felling.

Less reliable are the data about quantities of forest products which are not sold as round timber by owners. The amount of timber intended for home use and own processing can only be estimated.

Sources in the field of timber marketing were reviewed for the period between 1973 and 2008, namely for Austria, Germany and Switzerland, which were published under the search phrase ‘timber trade’, namely for all published in the English and German languages.

The Internet was used to obtain additional information on how forest products markets function in the countries discussed, and the statistical information required to prepare the thesis.

Information was also obtained through personal contacts with technical assistants and researchers from all the countries discussed who are actively engaged in forest products trade and carry out research into the forest products market.

## 1.5 Research methods

The following research methods are used in this research:

- The method of analysis and synthesis, and comparative methods to compare related phenomena in other countries are used to study theoretical findings and literature.

- The following research methods are used: describing, explaining, and in the final part also a prediction method and methods of deduction and induction.
- Microsoft Excel (*MS-Excel*) is used for data preparation and processing.
- A guided interview is carried out among concessionaires and non-concessionaires.
- To evaluate the forest products market in Slovenia from the international trade viewpoint, we used the Revealed Comparative Advantage Concept, the Grubel-Lloyd method to measure *IIT-Intra Industry Trade*, and the Greenaway-Hine-Milner method (*GHM*).

  With *RCA, the Revealed Comparative Advantage* concept, it is established whether Slovenia has comparative advantages or comparative weaknesses in international trade. The *RCA* Index is established for the period between 2001 and 2008. The Revealed Comparative Advantage concept is based on the presumption that the imports made by an individual country imply which domestic activities are not competitive, while exports denote the competitive domestic activities or activities which have comparative advantages in international trade (Donges, 1977, p. 344). Comparative advantages are measured among groups of products (forest products) in the Republic of Slovenia. If *RCA is > 1*, this means that a production group has comparative advantages in international trade.

  The Grubel-Lloyd method is used to measure *IIT-Intra Industry Trade* in joint trade for the period between 2001 and 2008. The *IIT* Index helps establish whether the values of exports and imports were balanced or imbalanced. Based on the value of the *IIT* Index, it is concluded if the forest products market has developed from the viewpoint of international trade. The values of the *ITT* Index ranged between 0 and 100. The higher the *IIT* Index, the more this market segment – in our case the forest products market – is developed. If the values of exports and imports of an observed industry were the same or balanced, the *IIT* Index came close to 100, while the *IIT* Index approached 0 if the values of exports and imports differed significantly or were imbalanced.

  The Greenaway-Hine-Milner (*GHM*) method is based on the proportion between the value of total exports and imports. The value is calculated on the basis of the proportion between the value and amount of the total imports and exports for each year separately. The indicated method is used to establish the quality of imports and exports in Slovenia. The Greenaway-Hine-Milner method is based on the use of the average price index. If the proportion between the average prices of exports and imports in the observed industry is within the range of $GHM \geq 0.85$ *or* $GHM \leq 1.15$, horizontal intra-industry trade is prevailing. This means that it is a matter of horizontally differentiated products with the same quality of exported and imported products. On the other hand, the prevailing intra-industry trade in an individual industry is vertical if the proportion between the average prices of exports and imports in the observed industry is within the range of $GHM < 0.85$ *or* $GHM > 1.15$. In this case, we have vertically

differentiated products where the imports and exports of an individual product or product group are not of the same quality (*Appendix 3*).

# 2 RESEARCH OVERVIEW

Up until 1991, it was predominantly Winkler who dealt with the present research problem in Slovenia. He found that compulsory joint timber sales from all forests, closed timber sales in the region, selling at average prices, and a relatively small number of suppliers and big number of buyers of timber were typical of the policy of selling forest products before the country's forest products market was liberalised. The free sale of forest products represents an important change in forest management and, besides important advantages, it also has several weaknesses. In order to successfully introduce the advantages of free timber sales, the same management conditions must be ensured for timber sellers as well as buyers, an information system must be built, market research conducted, good business practices consistently followed, the voluntary integration of individual timber suppliers for organised sales encouraged, and an active forest policy also effected for the sale of forest products (Winkler, 1991, p. 20).

Together with European countries, Asian countries are the biggest importers of forest products. Following the steep growth seen in the 1950s, global trade in forest products settled down and started increasing again by the end of the 1980s (Winkler, 1986, p. 32). Winkler established that European trade in forest products was vigorous. The most important round coniferous timber exporters were Germany and Russia, while Austria, Italy and Sweden were the most important importers. The most important deciduous timber exporters were Russia, France, Germany and Hungary, while Finland, Italy, Sweden, Belgium, and Spain were the most important importers.

Winkler (1989, p. 128) established that entrepreneurship requires a different organisation of forest companies and that real market sales of forest products would also demand the different functioning of sales departments and market research. He also noted that forestry would have to open up to the world and that the essence of such opening lies in strengthened international professional co-operation and inclusion in international forest products trade.

With the free sale of forest products, forestry is entering a new period. According to Krajčič (1990, p. 71), agreements on prices at the national level, the so-called cartel agreement, would become a thing of the past. He believed that competition and entrepreneurship would come to the forefront. In the price analysis of forest products, Krajčič established that, compared to Germany and Austria, quality is underestimated in Slovenia.

In 1989 and 1990 the quantitative production of sawn timber was dropping since in 1989 it had reached 82% of the previous five-year average, and 71% in 1990. According to Šinko (1992, p. 44), reorganisation of the forest service and the changed method of selling forest products are to be blamed for the drop. He also found that forest owners would also appear as the consumers of timber for saw processing as they would saw their own timber. On account of their own unexploited sawing capacities, they would also supply sawing services to other timber buyers or forest owners.

Since 1991 several researches of the discussed research problem have been undertaken in Slovenia. Šinko (1993, p. 86) established that Slovenia should apply an active policy in organising the forest products market during the transition to a market economy. According to him, all activities carried out by forest policyholders had pointed to the fact that no attention was being paid to this area of the forest economy. He also believed that concessionaires hold a significant advantage over the other forest commercial companies in the forest products market on account of their capital, knowledge and traditional connections.

With the liberalisation of the forest products market after 1993 a range of commercial companies engaging in timber trade was established. The previous forest economies which were transformed into public limited companies hold an approximately one-third share of purchases in the private sector. Together with timber from national forests, they therefore cover a little over 60% of the forest products market. Concessionaires do not have a monopoly in the market as they represent each other's competition. Payment deadlines in the timber-processing industry are increasing. The forest companies should cluster in order to achieve a better market position (Krajčič, 2002, p. 31).

Timber traffic is more active in the North-South direction than the other way around. The main exporters of thick coniferous timber are the United States of America and the Soviet Union; France is the biggest exporter of thick deciduous timber, while the Soviet Union and France are the main exporters of thin coniferous and deciduous timber. The primary importers of thick timber are Japan, China and S. Korea; Sweden, Finland, Austria and China are the biggest importers of thin timber. Slovenia's major exporting partners are Italy, Austria and Croatia. At the same time, Slovenia is also an important importer of forest products. Many decide to export timber also because payment deadlines are more favourable in the foreign than the domestic market. In most European countries, the sale of forest products is not arranged by special regulations. Usually, general commercial principles apply. This means that the state does not interfere much in trade, also making the timber sale methods very diverse. In the majority of cases, the joint sale of forest products is promoted everywhere. In Austria, forest owners or forest establishments chiefly sell timber on their own. Joint sales represent approximately 10-20% of total sales, and they are increasing. The quantitative export of forest products has changed noticeably in individual years in Slovenia. It has chiefly depended on domestic and foreign market conditions.

With regard to the application of standards, Šega (2002, p. 38) finds that, in practice, the old Yugoslav *(JUS)* standards are still used to determine the quality of sawn timber even though they are no longer valid, while we accept the European (*EN*) standards, concerning which we are far behind, as our national (*SIST*) standards. The Technical Committee *CEN/TC 175*, which prepares the European standards for round and sawn timber, has so far drawn up 77 standards, of which 44 have already been adopted, and 33 are still in the process of adoption. Of these 77 standards, Slovenia (the Slovenian standards are prepared by *SIST/TC LES* – Round and sawn timber) had only adopted 9 as its national standards by the end of 2002.

Based on answers to the question 'Who saws your logs' in a questionnaire carried out among forest owners, Winkler (1996, p. 79) established that only 19.3% of forest owners saw their timber by themselves at home, for 8% somebody they knew who has a saw saws their logs, for 25.4% a sawyer does it, for 5.2% a sawing company does it, for 42.1% logs are not sawn at all, while 10% of the respondents did not provide an answer. The questionnaire also showed that 51% of full-time farms have a saw and 9% of those that do not have one are planning to build one. 46% of potentially full-time farms have a saw and 9% are planning to build one.

Based on a questionnaire carried out among concessionaires in Slovenia, Pogačnik (1997, p. 295) established that the most profitable business is trade with timber and transport.

Winkler (2000, p. 323) establishes that a public auction (licitation) is only sensible for the most valuable or the rarest forest products since high selling prices can be achieved through a public auction. A public auction for the sale of other products or chopped wood would, however, be senseless as there are not many buyers for them. The fact that a public auction is inappropriate for all forest products is also proven by experience in Croatia. Winkler also finds that the forest products market is nowadays open and that timber is transported and sold throughout the entire Slovenia and abroad. He emphasises that a qualified and trustworthy organisation to monitor market conditions has to be determined.

The trends of forest product selling prices in the Slovenian national forests match the European trends. Selling prices have drastically dropped in the last decade. The drop in timber prices in 2000 is chiefly attributed to lower demand in the construction activity in some European countries and, on the other hand, to an increased supply of timber. The connection between the Slovenian and European markets is strong (Krajčič, 2001, p. 43).

Europe started dealing with the mentioned problem much sooner than Slovenia. The person who dealt with this problem most profoundly was Mantel. Among other things, he formed theoretical bases for studying the forest products market and made extremely in-depth analyses in the field (Mantel, 1973, p. 266).

Gäbeler (1984, p. 41) found that the main cause of the crisis in the forest products market is the too high prices of domestic logs and the strong pressure to lower the prices of sawn timber. According to him, it is especially decreased use in the construction industry which was strongly affecting prices. He saw a partial solution in the increased use of sawn coniferous timber and higher imports of logs.

Schwarzbauer (1985, p. 113) established that the calamities of forests were severely affecting the price of forest products, but the forest products market was reacting to changes in supply and demand very carefully.

In a forest products market analysis, Schwarzbauer (1995, p. 231) concludes that the production of sawn coniferous timber was increasing in Austria, namely by 1.3% at the annual growth level, and that the use of timber in Austria was rising faster than in other European Union countries.

Murphy (1998, p. 107) establishes and analyses the efficiency of implementing electronic transactions for forest products in Ireland. At the same time, he emphasises that great effort must be made in the implementation of electronic transactions. A lot of money has to be invested, especially in training and hardware. Thanks to electronic transactions, the sale of forest products has increased by 90% in Ireland.

Solberg (1998, p. 96) researches and analyses the European market (excluding Switzerland) and concludes that typical differences occurred in the European market in the period between 1985 and 1995. The use and production of forest products increased in all European countries, while the prices of forest products dropped everywhere. He finds differences among the methods of selling forest products as well as the publication of information on favourable economic trends in individual countries, and regulations governing trade in forest products.

Based on the cycle theory (Schumpert, 1961, p. 275), Baudin (1999, p. 24) established that the European sawing industry was in the third phase of development or the phase of decelerated development.

Šušnjar (1999, p. 33) found that conditions in the European market had changed due to the enlargement of the EU and adjustment of the economic policy of countries in transition. He believed that EU enlargement would affect the production and prices of forest products.

Tromborg (2000, p. 57) believed that the global trend of sawn timber production is increasing. Based on his own calculations, he forecast that the global production of sawn timber would on average rise by 1.17% a year in the period between 1994 and 2010.

Pitis (2000, p. 43) found that Internet use among forest product traders has significantly expanded in the last decade. Within the last two years of his analysis of the 1990s this increase has been especially big. He noticed a typical increase especially among exporters

of forest products. His analysis of timber traders showed that even 80% of them use the Internet for their work, and that 66% of them have already made their own Internet site.

In an analysis of the forest resource management, Posavac (2001, p. 34) established that the use and production of forest products was in a big crisis and that they were lower than it was 40 years ago. Based on data provided by the Central Bureau of Statistics, he found that the production of sawn beech timber took first place in Croatia between 1991 and 2000, followed by sawn oak timber.

Kangas (2002, p. 243) found that Slovenia's trade with the European Union is increasing. He found that between 1993 and 1999 the production, import and export of logs as well as sawn timber grew in Slovenia. In general, he established that trade between the EU candidate countries and the EU member states was expanding. Here, he singled out Poland and the Czech Republic.

Based on an analysis for the period between 1993 and 1999, in which he discussed forest products as well as sawn timber, Kangas (2002, p. 254) established that in 2004 Poland was the largest producer of sawn timber among the EU candidate countries, the Czech Republic was the largest exporter, while Hungary was the largest importer.

# 3 THE PERFORMANCE OF FOREST COMPANIES AFTER LIBERALISATION OF THE FOREST PRODUCTS MARKET IN SLOVENIA

## 3.1 Characteristics of the Forest Products Market

Forestry is an industry operating in the business-to-business market. The forest products market can be described as a raw materials market composed of individuals and organisations which obtain goods or services for the production of other products or services. The raw material the forestry industry uses to compete in the market is forest products. Usually, buyers are organisations which determine the market and typically distinguish it from the consumer market by the market structure, characteristics of demand, character of a purchasing unit and type of decisions and decision-making process. Mantau (1981, p. 655) establishes that the heterogeneity of forest products is very important, causing the creation of partial markets for individual forest products that are separated in terms of time and space. Trade among companies in the business-to-business market significantly differs from trade between companies and consumers in the consumer market.

The material differences between the business-to-business market (forest products market) and the consumer market are as follows (Šinko, 1992, p. 57):

- The business-to-business market chiefly involves the marketing of products among organisations and not to end-users. The market is represented by companies which sell their products to companies for further processing.

- The business-to-business market is significantly larger than the consumer market.
- The business-to-business market has a much smaller number of buyers. A typical feature of this market is the small number of big buyers who make high-value purchases. It is important that a company is familiar with the main actors in the market and a buyer's organisational structures.
- Due to the small number of buyers and the importance and power of buyers that are big, relations between suppliers and buyers in the business-to-business markets are very close. Suppliers often adapt their supplies to suit the needs of individual buyers.
- This market is also geographically focused on individual countries. The Slovenian market is predominantly geographically focused on neighbouring Croatia, Italy and Austria. This is an instance of buyers which are close together in geographical terms.
- Inconsistent demand for and supply of individual forest products is typical of this market. This is where the mostly seasonal demand for and supply of deciduous logs comes to light, which also strongly affects the price. Its distinctive feature is that it is higher at the start of the season and falls steeply in spring.
- Participants in the forest products market often sell or buy directly, without agents.

## 3.2 Trade in Forest Products in Slovenia before and after Liberalisation of the Forest Products Market

### 3.2.1 Trade in Forest Products before Liberalisation of the Forest Products Market in Slovenia

In Slovenia, forests are divided into 14 forest management regions. In 1965, private forests were also included in forest management regions when the common planning and management of all forests of an area regardless of the ownership sector was initiated. Before privately-owned forests were given over for management by forest companies, they were managed by agricultural co-operatives. Due to organisational fragmentation and inappropriate internal organisation, the private sector had been developing poorly.

The Act Regulating Co-operative Work of 1976 precisely determined micro organisations in the economy. The Act provided that fundamental co-operative work organisations (*TOZDs*) and fundamental organisations of co-operators (*TOK*) had to be formed in forest companies. *TOZDs* managed publicly-owned forests, while *TOK*s managed privately-owned forests.

Forest management areas were also defined as basic self-financing units. This meant that the forest management companies which managed the forests of a region had to make enough revenue from their economic activity, which included obtaining and selling forest products, so they could settle all the costs incurred and create the necessary funds for investment in forests.

The following was typical of the sale of forest products in the period before the forest products market was liberalised (Winkler, 1991, p. 15):

- the compulsory joint sale of forest products from public and private forests through regional forest companies;
- a relatively poor sales programme and a relatively small number of big buyers;
- closed sales within a region; and
- sales at insufficiently differentiated prices of forest products (sales at average prices).

The most disputable was the compulsory sale of forest products through forest management organisations. In a questionnaire (Winkler, 1991, p. 17) carried out among 865 forest owners, 63.3% of the respondents answered that they were not in favour of timber purchasing; only 20.5% of the respondents were in favour, while 17.2% answered that they did not cut or sell timber. It may be concluded from the questionnaire that most forest owners were not in favour of the sale of forest products through the forest management organisations, which was compulsory at that time. Winkler (1989, p. 130), on the other hand, contended that the belief about forest owners achieving better sales success by freely selling forest products by themselves was wrong. With free price formation, the timber of individual producers is not competitive with the timber of organised producers. Small private owners cannot compete with their small quantities of timber. Some only have a few pieces of quality products. They might be independent from the production and technical view, but from the commercial view they are entirely dependent on traders.

Winkler (1989, p. 127) established that only 7% of forest owners which owned 28% of all private forest surface areas were members of a fundamental organisation of co-operators. Most of these members had the largest forest holding, amounting on average to 10 ha. Greatest interest in membership was shown by the biggest forest owners.

For the period before the market's liberalisation, Winkler (1989, p. 129) established that in 1982 most forest products from private forests were collected on forest roads. This share amounts to 80.1% for all forest owners. He also found that the share of forest products sales on the forest road was lower in the case of non-farmers, totalling 69.2%, who were, unlike farmers, co-operators not ready to carry out all forest production phases.

***Table 1:*** *Structure of forest product collection from private forests in 1982 (in %) in Slovenia*

| | Place of collection | | | | |
|---|---|---|---|---|---|
| | Total | On the stump | By stump | On the forest road | Storage |
| All owners | 100 | 8.6 | 1.4 | 80.1 | 9.9 |
| Farmers: | 100 | 7.2 | 1.1 | 81.7 | 10.0 |
| -co-operators | 100 | 4.8 | 1.2 | 85.0 | 9.1 |
| -non-co-operators | 100 | 10.7 | 0.9 | 77.1 | 11.3 |
| Non-farmers | 100 | 18.7 | 3.4 | 69.2 | 9.1 |

*Source: Winkler (1989, p.128)*

The joint sale of forest products was mostly reasoned with the urgency of continuing the organised supply of the timber-processing industry with forest products. This was understandable given the big liabilities in the timber balance sheet in Slovenia and the insufficient market performance.

Joint sale was a logical consequence of the joint management of public and private forests. The joint sale of forest products from private and public forests had a number of advantages and weaknesses.

The *advantages* of jointly selling forest products were:

- A more reliable timber industry supply;
- A higher concentration of work and products could be achieved; and
- more reliable and easier data capturing about felled timber was enabled.

The *weaknesses* of jointly selling forest products were:

- The mostly closed sale of forest products within forest management areas regardless of the processing industry's capacity to provide a quality evaluation of the products. This also weakened the material position of forestry and forest owners.
- The sale of timber at average prices or not being capable of a greater differentiation of the prices of forest products by quality and the possibility of a better evaluation in the process (Winkler, 1989, p. 126).
- Compulsory sales pushed out the institution of private property and reduced the interest of forest owners to work in the forests as they had no influence over the sale of forest products (Krajčič, 1990, p. 75).
- Growth comprises the illegal felling and illegal processing and sale of timber. A consequence of this was that forest owners avoided paying contributions (contributions for forest and biological reproduction and the payment of turnover tax) and consequently sold forest products at significantly higher prices. Usually, high-value

forest products were sold this way. Winkler (1989, p. 130) established that during that time a large number of small private sawmills was located in Slovenia, which were supposed to officially be for private use. In reality, however, their objective was timber processing for further sale.

Winkler (1991, p. 10) established the structure of the sale of forest products in Slovenia by groups of buyers in the period between 1981 and 1985. For this period he found that the structure of buyers, business-to-business trade, was very rich in Slovenia. The data show that the majority (56.7%) of forest products was sold to the timber-processing industry. This is confirmed by the relatively small number of big buyers or sales to buyers known in advance. On the other hand, it involved a closed trading system within the borderlines of the former common country and the compulsory handing over to the domestic timber industry, wood pulp industry, mining etc. In his research regarding the period between 1981 and 1985, he found that the number of buyers was relatively large, but the sale of forest products was concentrated on a small number of big buyers. Despite the high number of buyers, no real marketing mechanism was established and despite the closed sale of forest products within the areas it was obvious that buyers were not interested enough in cheaper and higher quality goods. Quality was then unfortunately not a concern, which confirms the above research hypothesis. At the same time, this caused serious damage to the forests. The forest products market at that time underestimated the issue of quality and thus did not promote the quality production of forest products.

Among other things, the sale of forest products at average prices was disputable and questionable for this period. The timber-processing industry was very content with the guaranteed agreed prices so long as it was able to sell all of its products in the market without considering quality or price.

It is also questionable whether we can talk about the monopoly of forest economies from the viewpoint of the sale of forest products at that time. Like today, it was no longer possible to talk about a monopoly then but merely about an oligopoly, meaning there was a relatively large number of buyers and a small number of suppliers. We could speak about the monopoly of forest economies at that time only in relation to the private sector, which confirms the research hypothesis posed above. Here we mean the compulsory sale of timber from private forests through forest management organisations. The sale of forest products gained the dimension of a monopoly via agreements about the prices of forest products within the General Forestry Association of Slovenia.

Winkler (1991, p. 23) described where the Slovenian timber-processing industry purchased most forest products in the 1981–1985 period in his research. He found that in this period the timber-processing industry purchased 80% (96% of coniferous trees and 63.4% of deciduous trees) of all forest products in Slovenia. Of this, it purchased 82.7% of all forest products in its forest management area (92.4% of coniferous trees and 67.4% of deciduous trees). It is interesting datum that only 17.3% of all forest products moved among the forest management regions, which the Slovenian forestry industry sold to the domestic timber-

processing industry. From what is indicated, it may be concluded that the movement of forest products among the areas in that period was relatively small.

Before the Second World War, Slovenia was a traditional exporter of round (untreated) wood. Large amounts of timber were also exported immediately after the war when timber was almost the only exported goods. Later on, exports of forest products fell drastically. The decrease in exports of forest products was a consequence of the orientation to processing as much raw material at home as possible. The increased exports was predominantly a consequence of the unsettled relations between the forestry and timber industries, especially as regards the obtaining of foreign hard currency, and also the occasional saturation of the processing industry with some forest products. Slovenian exports of forest products were chiefly directed to European countries, namely Italy (above 90%), the Federal Republic of Germany, and Austria. Small quantities of forest products were also exported to the Middle East. The latter was most likely a consequence of Yugoslavia's membership in the Non-Aligned Movement. Until 1965, Slovenian imports of forest products were small, and only began increasing later on. The logs mostly included logs of tropical deciduous trees (from the Ivory Coast, Gabon, Cameroon, and the Central African Republic). The prevailing pulpwood was pulpwood from coniferous trees (from the Soviet Union, Hungary and the German Democratic Republic). This foreign trade exchange also occasionally experienced an interesting phenomenon of overlapping. This meant that the same forest products were first exported and at the same time also imported. Unlike this, other European forest product trade was very lively and in full swing at that time (Winkler, 1991, p. 26).

### 3.2.2 Forest Products Trade in Free Timber Trade Conditions

The liberalisation of the forest products market was one of the previously mentioned demands made by forest owners.

The free sale of forest products represented an important change in forest management. Together with enforcement of the direct owner's responsibility for all work in his forest, free sale meant the final farewell to the joint management of all forests regardless of their ownership.

The forest products trade in Slovenia encompasses national and private forests. It is carried out by concessionaires, forest companies and forest owners. The transformation of ownership by introducing concessionaires was carried out in line with regulations on the ownership transformation of companies, but this process could only start after the assets of the previous forest economies had been distributed.

The collapse of former Yugoslavia also brought strong social and economic changes to the field of forestry. In Slovenia, the Ownership Transformation of Companies Act was adopted (1992) based on which the former socially-owned forests became state-owned forests, while the adoption of the Act on Forests (1993) freed up the forest products

market. The Ownership Transformation of Companies Act states that before the social capital of companies was established, the agricultural land and forests was to be excluded from the assets of companies as they had come under the ownership of the Republic of Slovenia or communities and were entirely transferred to the management of the Agricultural Land and Forest Fund of the Republic of Slovenia. Liberalisation of the forest products market happened much sooner in practice. Before this, only forest management organisations, which continued the work of managing the national forests until the granting of a concession to exploit forests, were authorised for trade in forest products from the then socially-owned and private forests. In Slovenia, a range of forest management companies and sole owners dealing with the felling, purchase and sale of forest products emerged, which also confirms the above research hypothesis.

Based on the Decree on Concessions for the Exploitation of Forests Owned by the Republic of Slovenia (1996), the former forest economies gained a concession for forest exploitation managed by the Agricultural Land and Forest Fund of the Republic of Slovenia for a period of 20 years without a public tender. Krajčič (2002, p. 32) establishes that the former forest economies which were transformed into public limited companies have a 60% market share in Slovenia in the sale of forest products, and that they purchase approximately one-third of all forest products in the private sector. This clearly shows that forest management companies now play an important role and have assumed the role of the biggest timber traders. Yet, in no case can it be claimed that they hold a monopoly as they are each other's competition in the market.

All concessionaires have been transformed into public limited companies (*PLC*), except for one which was transformed into a limited liability company (*Ltd.*). In most cases, the other forest management companies' act as limited liability companies (*Ltd.*) or sole owners (*sole owners*). We have established that the number of forest companies had doubled by 2002, which confirms the above research hypothesis.

***Table 2:*** *Number of forest companies between 2002 and 2008 (number of units in the business register of Slovenia for the activity sub-class with the code 02.400 – Services for forestry as at the last day of the year)*

| **Year** | **Number of forest companies** |
|---|---|
| 2002 | 83 |
| 2003 | 82 |
| 2004 | 87 |
| 2005 | 103 |
| 2006 | 119 |
| 2007 | 128 |
| 2008 | 159 |

*Source: Agency of the Republic of Slovenia for Public Legal Records and Related Services 2009*

The liberalisation of the forest products market also changed the sawing industry in Slovenia so that there were fewer big plants and more small plants. Merzelj (1987, p. 241) found that in 1984 there were 198 sawmills. Of this, 70 were regularly engaged in this activity, and 128 had this as a supplementary activity. In this way the share of the entire production of sawn timber in plants where 25,000 $m^3$ of logs is sawn per year decreased from 60% to 40%, and the share of production in small plants where up to 10,000 $m^3$of logs is sawn per year rose from 6% to 25%. The number of small sawmills increased in this time, but an estimate of the precise number of these plants cannot be given since most of them are not officially registered. Studies have shown that the number of officially registered plants in this time increased by over 100%, but there are still several times more unregistered plants, so-called 'farm sawmills'. These numerous plants treat their own logs and those of other and look for buyers of their products at home and abroad.

After liberalisation of the forest products market, many forest owners and others established that the production of sawn timber could be profitable. The possibility of opening sawmills was large as people had much experience in timber processing and, besides this, the equipment for temporary plants was cheap and simple, and the supply for them was very abundant.

***Table 3:*** *Number of sawmills between 1994 and 2003 in Slovenia*

| | **Type of company** | | | | | |
|---|---|---|---|---|---|---|
| Year | Ultd. Comp. | Ltd. | PLC | Sole owner | Other | Total |
| 1994 | 1 | 272 | 2 | 446 | 7 | 728 |
| 1995 | 5 | 273 | 1 | 487 | 9 | 775 |
| 1996 | 9 | 252 | 3 | 479 | 8 | 751 |
| 1997 | 8 | 258 | 3 | 366 | 5 | 640 |
| 1998 | 10 | 275 | 3 | 363 | 5 | 656 |
| 1999 | 10 | 266 | 3 | 338 | 5 | 622 |
| 2000 | 10 | 224 | 3 | 324 | 4 | 565 |
| 2001 | 10 | 214 | 3 | 319 | 4 | 550 |
| 2002 | 7 | 208 | 3 | 304 | 7 | 529 |
| 2003 | 7 | 186 | 2 | 290 | 79 | 564 |

*Source: Agency of the Republic of Slovenia for Public Legal Records and Related Services 2004*

As mentioned, a range of other commercial companies and sole owners is acting in the forest products market besides concessionaires. Limited liability companies and public limited companies are classified as open commercial companies. Sole owners are engaged with the mentioned activity in the form of a closed company. Based on experience obtained by companies in the ten-year battle for survival in the forest products market, the most appropriate type of company is the limited liability company and a sole owner to a smaller degree. It is less recommended and riskier to act as an individual sole owner. An individual sole owner is responsible for the liability of his company with all his assets

already in line with the basic definition, unlike a limited liability company whose capital assets are composed of the contributions subscribed by partners and which is responsible for the company's liabilities with the company's assets and not also the personal assets of its partners (source: *the Companies Act*). The company type of sole owner is more appropriate for service activities but not so much for trading in forest products. There are probably many reasons why entrepreneurs decide on the company type of a sole owner and not so much on a limited liability company to carry out their timber trading activity. We believe that the reason lies in the shortage of financial assets needed to be paid in to establish a limited liability company that then become the capital assets of that newly established company. The reason limited liability companies do not decide to transform into public limited companies is also most likely of a financial nature as a public limited company is very expensive. Besides this, another reason is that most companies which trade in forest products do not have enough employees.

Most concessionaires have transformed into public liability companies. Only some are listed on the stock exchange. A positive side of being listed on the stock exchange is that it is easy for the owners to establish the company's market value and that it makes transactions more transparent. Further, the sale of shares to the broadest public improves the quality of the company's transactions and increases its good reputation. On the other hand, this also has weaknesses which are reflected chiefly in the fact that companies are more exposed to the eyes of potential buyers on the stock exchange, and the founders lose control over the company through the wide sale of shares; this can also cause problems with legal regulations and procedures for issuing shares; high organisational costs as well as fluctuations of share prices on the market can have a bad influence on a company's transactions. We believe there are many reasons companies do not decide on a public limited company, with one of them probably being that there is no interest in trading in these securities and that the management and owners of concessionaires' forest companies perhaps have no interest or are even slightly afraid of it after signing a 20 year concession agreement. After entering the EU competition might only harm them. This might make our forest companies an easy target for the many foreign gigantic companies.

In general, the market is divided into downstream and upstream markets. Trade in forest products is carried out between two entities, the seller and the buyer. After liberalisation of the forest products market, all commercial companies which fulfil the general conditions for the economic activity and have the appropriate registration can be engaged in timber trade.

The necessary conditions that must be fulfilled for the uninterrupted performance of the free forest products market are the following (Winkler, 1992, p. 30):

- the same management conditions for sellers and buyers;
- a good information system and market research;
- the standardisation of forest products;

- the enforcement of good business practices;
- the voluntary integration of individual forest products providers; and
- an active forestry policy regarding the sale of forest products.

The following entities act as *sellers* in the free forest products market:

- private forest owners individually, integrated into co-operatives or other types of integration;
- private owners as civil persons;
- concessionaires; and
- forest companies selling final forest products.

The following entities are *buyers*:

- forest companies;
- wholesale traders;
- retail traders;
- processing companies or tradesmen; and
- consumers directly.

## 3.3 Advantages and Weaknesses of the Free Sale of Forest Products

The first condition for the successful sale of forest products is market performance (Winkler, 1995, p. 256). The basis for market performance is that enough providers and buyers of forest products act in the market and that there are as few administrative restrictions on sales as possible.

Now that the forest products market is free and market economy conditions govern the market, every commercial entity alone decides when and with whom it will do business. In forest products trade, a forest owner or commercial company sells forest products (logs, sliced timber) to another commercial entity.

The main advantage of free forest product sales is the free price formation and formation of other business relationships between timber sellers and potential buyers. Each individual owner or provider of forest products individually decides on a sale and on a buyer based on many factors. The non-obligatory realisation of the annual available cut enables greater flexibility to a forest owner (Winkler, 1995, p. 245). He alone decides on the extent and time of felling and selling. He thus has the possibility to decide, in a way speculatively based on market supply and demand, when he will get the best demand in the market. The most important factors that affect the business relationship between a provider and a potential buyer comprise the price of the supplied goods, terms of payment (payment

deadlines) and in the case of international transactions insurance of agreed transactions. Although insurance is not free-of-charge, it is worth it in most cases. Lately, bank guarantees have been used predominantly as a form of insurance. Every provider tries to achieve the highest price possible and short payment deadlines, as well as decrease transaction risk to the minimum. A risk always exists which is why good business practices are important. In general, it is said that the risk increases when we enter a business relationship with an individual commercial entity for the first time, and decreases after a few business deals have been successfully closed.

## 3.4 Sale of Timber from Public Forests and the Organisation of Public Auctions for Forest Products Sales

### 3.4.1 Types, Conditions and the Course of Public Auctions of Forest Products

A public auction is a method of selling where, based on a previous public announcement (notice) and previously determined auction conditions and with an announcement of the sale price, a seller offers a certain forest product for sale at a certain time, at a certain place and in the presence of interested parties (Winkler, 1992, p. 32).

Persons wishing to buy such forest products are called interested parties. The seller supplies forest products at a specified price, which is the starting (bid) price. Interested parties who wish to participate in a public auction are prospective buyers or bidders (Winkler, 1992, p. 34).

Each bidder must, to show the earnestness of his bid, provide a guarantee, i.e. a sum determined by the seller. The bidder whose bid is accepted at the auction is the winning bidder. When the auction is approved, the winning bidder becomes the buyer (Winkler, 1992, p. 36). At an auction, standing timber, end wood products or a combination of both can be sold.

Public auctions differ by the form in which bids are placed and by the method in which a seller accepts one of the bids. With form, we differ between an oral and written auction. With the method of accepting, we know ascending and descending auctioning. An oral auction is carried out by an ascending or descending auctioning, while a written one is only ascending. A verbal bid contains nothing else than the sum offered by the bidder. On the other hand, bids in a written auction are more extensive (Winkler, 1992, p. 40). Every auction must be publicly announced and its conditions specified (Winkler, 1992, p. 30). A concessionaire must draw up an auction plan in which he determines the bid price for forest products and their location (Winkler, 1992, p. 45).

Forest products intended for public auction must be transported to corresponding storage areas and marked so that it can be established which economic unit and department they come from.

An auction must be publicly announced in the Official Gazette of the Republic of Slovenia or on the Internet if the site address is published in the Official Gazette of the Republic of Slovenia. At least eight days must pass between the time a bid is published in the Official Gazette of the Republic of Slovenia or the Internet (Winkler, 1992, p. 46).

The course of a written public auction starts with the placing of bids. A bid must enclose a guarantee. This is a sum determined as a percentage of the bid price. Bidders must enclose the guarantee to prove their earnestness to participate in the public auction. After the auction is finished, the winning bidder's guarantee is accounted for in advance, and others who were not successful have it returned within eight days. Every participant at a public auction offers a guarantee and the one who bought a product (winner) pays an advance (Winkler, 1992, p. 46).

During the opening of bids, all bidders and the grantor can be present. The bids or bidders that do not have all the required formal and material elements or that demand a change of the stated conditions , and bids which were accepted after the expiry of the deadline, are not considered and are eliminated from the process in the first step. When the bids have been opened and read, the seller determines which bid is the most favourable, which makes the bidder of this bid the winner of the public auction (Winkler, 1992, p. 47).

Only the highest price is considered at the sale. If several bidders offer the same highest price, the commission establishes whether a certain bidder's bid contains some more favourable conditions (e.g. terms of payment, business loyalty and similar) besides the price, or the commission may also call an additional verbal auction where each raised sum cannot be lower than 5% of the bid price.

Based on the Decree on Concessions for the Exploitation of Forests Owned by the Republic of Slovenia (1996) an auction is also considered to have been concluded if no bid arrives for the auction or if none exceeds the bid price. In such a case, the bid price is considered the market value of the timber. In this case, concessionaires have to purchase timber at the bid price.

A complaint may also be filed against the procedure of a public auction before the minutes on the course of the public auction has been completed. The commission which led the procedure decides on the complaint and writes its decision in the minutes. The commission's decision is final and can only be contested before an ordinary court of law.

Within three days of the end of a public auction, a concessionaire must:

- inform the bidders in writing about the selection of the most favourable bid; and
- send a copy of the minutes with attachments to the grantor.

After the selection has been made, the winning bidder signs the conditions of the public auction or concludes a contract, pays an advance and takes over the forest products that were bought.

### 3.4.2 Timber Sales from National Forests

The method of selling timber from national forests should be prescribed in line with the Decree on Concessions for the Exploitation of Forests Owned by the Republic of Slovenia (1996), be carried out by concessionaires. To ensure timber sales at market value, based on Article 9a of the Decree concessionaires should offer all forest products obtained from the forests which are the subject of the concession at a public auction. Based on Article 11a of the Decree, concessionaires are obliged to offer forest products which are the subject of the concession at a public auction after 1 September 2000. Based on Article 9b of the Decree, concessionaires can also sell forest products directly to certain buyers. The same Article states that a concessionaire can sell forest products to buyers directly only if the following is considered:

- the concessionaire is obliged to give the contracts of sale and sales invoices with the accompanying documents to the grantor for insight;
- concessionaires must mark all logs, poles and technical wood with a diameter above 20 cm with identification plates and, for the remaining timber, the entire cargo must be marked with an identification plate;
- at the dispatch of timber on a forest road, the numbers of the products, the diameter and the site must be entered into an accompanying document;
- concessionaires must provide the data to the grantor in electronic form; and
- the basis for determining the compensation for the concession is the sales invoice with accompanying documents.

In the case of a direct sale, costs totalling 6% of the forest products market value on the forest road or at a sum agreed by the contracting parties in the annual annex are recognised besides the recognised costs.

All forest products from national forests must be marked with identification plates until they are sold to an end-user.

Based on the Decree on Concessions for the Exploitation of Forests Owned by the Republic of Slovenia (1996), a public auction and approved direct sale to buyers are therefore the only methods of selling forest products from national forests. Yet public auctions are not carried out in Slovenia. Only direct sales are carried out here. For this purpose, concessionaires enter into short-term annual contracts and long-term contractual relationships which are annually aligned by adopting annexes on conditions set out by the grantor.

Types of sales of forest products from public forests:

- direct sale to an external buyer (fco buyer or fco forest storage);
- sale to an external buyer through interim storage;

- own processing; and
- timber sale on the stump.

Some concessionaires also process forest products by themselves. This makes them serious competition to wood-processing and sawing plants. Despite the principles of entrepreneurial freedom and competition, it should be considered whether concessionaires represent loyal competition to other companies engaged in this activity in terms of processing forest products from national forests, or whether it would be more reasonable to assume the principles that govern the company Austrian Federal Forests.

The Agricultural Land and Forest Fund of the Republic of Slovenia anticipates certain changes in the sale of forest products from national forests. Its primary focus is to make concessionaires start carrying out public auctions, first for the more valuable forest products, and then also for the remaining logs. For less valuable forest products, the Fund envisages concluding long-term contractual relationships or sales without a public auction.

Given Slovenia's accession to the EU, the Agricultural Land and Forest Fund of the Republic of Slovenia, in following the example of Croatia, does not anticipate that public auctions for forest products from national forests be carried out so as to offer different conditions to foreign potential buyers than offered to domestic ones.

### 3.4.3 Purchase of Logs from National Forests at Public Auctions

By means of a guided interview (2009), we established that the country's other forest companies would be interested in all logs supplied at a public auction, and not only the most valuable ones.

To buy logs at a public auction, the other forest companies are prepared to pay a guarantee or submit a bank guarantee as a reassurance to carry out the transaction (*Guided interview, 2009*).

### 3.4.4 Organisation of Public Auctions and the Standardisation of Forest Products

We found (*Guided interview, 2009*) that public auction to sell forest products from national forests are not carried out. It is also true that Slovenia does not have all the conditions in place for this. It would be most of all necessary to adopt standards for forest products. The question is thus which standards would be used by concessionaires to determine forest products in the case of holding public auctions. In a direct sale, the buyer and seller agree on quality criteria but in the case of a bid where more promising buyers are expected, forest products must be determined unambiguously. Otherwise, the sale is made in line with the seen-bought principle. This means that all forest products supplied must be available and that a prospective buyer has the possibility to estimate the quality and quantity.

Public auctions would bring an increase in the prices of forest products from national forests. We believe that the selling prices of the forest products could even be 30% higher in the case of the most valuable products. Forest companies would determine the price based on expectations about competitors' prices. Each company seeking to succeed at an auction would have to offer a higher price than the competitor. It must, however, be pointed out a public auction is sensible in the case of selling the most valuable or the rarest forest products. The sale of other products (e.g. pulpwood) or chopped wood, for which there are not many different buyers, is senseless. Only the sale of the most valuable forest products would justify the costs of holding public auctions.

In the research (*Guided interview, 2009*), we established that non-concessionaires do not purchase forest products from concessionaires, but they would be interested in purchasing forest products from national forests through a public auction. They are ready to pay a guarantee or submit a bank guarantee as a reassurance of the transaction taking place. They are interested in purchasing all forest products at a public auction, not only the best ones.

Winkler (2000, p. 325) establishes that the costs of holding a public auction on a forest road would amount to 2.81- 3.18 EUR/$m^3$, which is 10-11% of the average selling price for timber. The realisation of a public auction at a special auction place outside a forest would, however, be significantly more expensive and amount to 5.34 - 5.71 EUR/$m^3$, which represents 18-20% of the average selling price. Hence, if concessionaires only received 12% of the market value for timber recognised as the realisation costs, they would certainly not be interested in the transport and collection of forest products at special auction places outside a forest.

Purchasing at a public auction would be interesting especially for timber processors which can evaluate the purchased timber in further processing. Public auctions are not appropriate and technically realisable on a forest road or for big amounts of various forest products. The latter is carried out by a special commission nominated by a concessionaire. This has so far not happened. The causes of complications occurring in relation to realisation of a public auction are both on the side of the concessionaire as well as the grantor or everybody responsible who is late in adopting the necessary standards for forest products.

By means of the guided interview (2009) we established that all forest companies included in the research believe that Slovenia needs unified *standards for forest products*.

They also believe that the determination of quality criteria will remain the buyer's and seller's domain despite the adoption of standardisation.

### 3.5 Analysis of Forest Companies after Liberalisation of the Forest Products Market in Slovenia

We carried out a guided interview among concessionaires and non-concessionaires. We thereby obtained information on how these commercial entities are adapting and

responding to constant changes in both domestic and foreign markets, what their views are on changes in the domestic and foreign market, how they use new communication possibilities, especially the Internet and e-mail. We were also interested if they trade with timber on the Internet, what they think would have to be changed in relation to the monitoring of favourable economic trends in domestic and foreign markets, whether the method of selling forest products from national forests would have to be changed, where they purchase and sell forest products, and what payment deadlines they achieve at home and abroad. The interview comprised 7 concessionaires and 5 non-concessionaires. Two questionnaires were drawn up for the needs of the research, namely one for concessionaires and the other for other forest companies (*Appendix 1 and 2*).

All twelve of the selected forest companies were ready to take part in the research. Before the interview was carried out, we sent the questionnaires to all forest companies and had brief telephone conversations with authorised persons to present the purpose of our research. We sent questionnaires to the companies in June 2009. A week after they had received the questionnaires, we asked them if they were ready to answer our questions. All forest companies were ready to do so. In this way we avoided the phase of problem presentation and decreased the total time spent on realisation of the interview. We carried out the interviews in June 2009. None of the forest companies included in the research wants to be named.

The following was compared among the forest companies:

- the share of forest product purchases from private forest owners;
- the share of forest product purchases in domestic and foreign markets;
- the country of forest product purchases;
- the place of forest product sales;
- the country of forest product sales;
- the payment deadlines achieved in domestic and foreign markets;
- the share of the use of modern communication methods (e-mail);
- the sale and purchase of forest products on the Internet; and
- the application of standards to determine the quality of forest products.

***Table 4:*** *Comparison of conditions among concessionaires and non-concessionaires in the forest products market in Slovenia after liberalisation of the forest products market*

| | **Concessionaires** | **Non-concessionaires** |
|---|---|---|
| Share of the purchase of logs from private forest owners (in %) | | |
| Total | 100 | 100 |
| Forest road | 80 | 60 |
| Storage | 20 | 40 |
| On the stump | 0 | 0 |
| Public auction | 0 | 0 |
| Internet | 0 | 0 |
| Share of the logs purchase at home and abroad (in %) | | |
| Total | 100 | 100 |
| Domestic market | 97 | 100 |
| Foreign markets | 3 | 0 |
| Country of forest product purchases (in %) | | |
| Total | 100 | 100 |
| Croatia | 90 | 0 |
| Bosnia and Herzegovina | 5 | 0 |
| Serbia | 5 | 0 |
| Macedonia | 0 | 0 |
| Place of forest product sales (in %) | | |
| Total | 100 | 100 |
| Wood-processing plants | 0 | 0 |
| Small sawmills | 100 | 100 |
| Chemical industry | 0 | 0 |
| Country of forest product sales (in %) | | |
| Total | 100 | 100 |
| Austria | 80 | 40 |
| Italy | 20 | 60 |
| Croatia | 0 | 0 |
| Hungary | 0 | 0 |
| Payment deadlines in domestic and foreign markets | | |
| Domestic market (in days) | 90-160 | 90-150 |
| Foreign markets (in days) | 60-90 | 60-90 |
| Share of the use of e-mail (in %) | 10-20% | 10-15% |
| Sales and purchases of forest products using the Internet | Do not sell | Do not sell |
| Application of quality determination standards | The old Yugoslav standards (JUS) are chiefly applied for forest products | The old Yugoslav standards (JUS) are chiefly applied for forest products |

*Source: Guided interview (2009)*

We found that participants in the forest products market buy most of their forest products on the forest road. No forest company included in the guided interview (2009) purchases on the stump. For comparison, we established that in Austria, Switzerland and Croatia most forest products from private forests are sold on the forest road and also on the stump. This share is especially high in Austria and in Croatia (Breznik, 2004, p. 41).

***Table 5:*** *Place of collecting forest products from private forest owners in the countries discussed (in %)*

| | Place of collection | | | |
|---|---|---|---|---|
| Country | Total | On the stump | Forest road | Storage |
| Austria | 100 | 3 | 97 | 0 |
| Switzerland | 100 | 12 | 88 | 0 |
| Croatia | 100 | 7 | 93 | 0 |
| Slovenia | 100 | 23 | 75 | 2 |

*Sources: Schwarzbauer (1998, p. 77), Sekot (1999, p. 260) and Breznik (2004, p. 42)*

The participants buy most forest products in the domestic forest products market. We expect this share to further increase in the following years. The share of forest products purchased by concessionaires is somewhat higher (*Guided interview, 2009*).

Krajčič (2002, p. 33) finds that the extent of purchasing forest products from private forests increased by almost 30% between 1994 and 2000. The prevailing type of purchase is on the forest road (70%), followed by on the stump (28%). The share of purchasing on the stump is on the rise, which is a positive trend according to him. The results of his research were confirmed by the research carried out by Breznik (2004, p. 63).

We found (*Guided interview, 2009)* that no forest company included in the research buys certified forest products, which does not mean that there is no demand for certified timber. The problem lies in the fact that at the moment it can only be bought from concessionaires from national forests in Croatia and Austria. Breznik (2004, p. 58) established that furniture-making companies, which export furniture chiefly into the USA, the Netherlands and England, create the demand for such products.

Forest companies sell all forest products to small sawmills. The foreign markets in which forest products are sold are especially Italy and Austria. We believe that sales to more distant countries would not be possible due to the excessive transportation costs (*Guided interview, 2009*).

Quality determination standards are not compulsory. We found that the old Yugoslav standards are still used to determine the quality of forest products (*Guided interview, 2009).* We believe that sales in European markets will significantly contribute to solving this problem.

Based on the results of the analysis, we found that there are no major differences between concessionaires and non-concessionaires as regards the current condition and that both have many similar problems.

### 3.5.1 Conditions of Sale in the Forest Products Market in Slovenia and Abroad

Payment deadlines, and especially payment discipline, are poor in Slovenia. This is also what the findings of the guided interview (2009) have shown; payment deadlines in the domestic forest products market can even extend to 160 days. The cause of this could be inconsideration of or disrespect for what has been agreed, an insufficiently effective criminal justice system, and the undercapitalisation of companies. The findings have shown that the payment deadlines which forest companies achieve abroad are significantly shorter. They range from 60 to 90 days. We also found that longer payment deadlines are not an important enough reason for forest companies to reduce their sales of forest products to the Slovenian wood-processing industry (Breznik, 2004, p. 43).

### 3.5.2 Use of Modern Communication Methods and the Internet for Trading in Forest Products after Liberalisation of the Forest Products Market in Slovenia

We need to be aware that electronic communication between buyers and sellers is important in the internal performance of companies and in business-to-business transactions. Besides speed and reliability, it also enables more efficient business performance. The use of the electronic communication method will have a strong influence on the competitiveness and development of companies in the future (Potočnik, 2002, p. 287). For this reason, it would be sensible to organise corresponding workshops in forest companies, where the staff would be trained in this direction and in turn contribute to higher efficiency and success.

The findings of the guided interview (2009) have shown that e-mail is not used enough. Forest companies do not operate electronically to a sufficient extent, which confirms the above research hypothesis. The share of e-mail as an alternative to fixed and mobile line telephone conversations, personal contact, ordinary mail and fax messages is between 10 and 20%, which confirms the research hypothesis above. Even though the companies included in the research only see positive sides of such electronic performances, communication is still carried out by ordinary mail and telephone. Personal contact remains the most efficient. Forest companies which operate with foreign business partners (other forest companies and large sawmills) use e-mail more than those that operate only at home. In any case, a trend of the increasing electronic transfer of messages and data is seen among the companies. It is true, however, that companies which trade in forest products will never be able to solve everything through e-mail. The development of telecommunications and computing science will not be able to replace personal contact among business partners.

Along with changes in ways of trading, the monitoring of favourable economic trends and obtaining other relevant information for the successful performance of forest companies, the share of modern communication methods use will undoubtedly increase in the future since all trends abroad and in Slovenia point in this direction. Even though the companies mostly see advantages in this, minor mistrust and disinclination can still be perceived.

No company included in the research (*Guided interview, 2009*) trades in forest products on the Internet, which confirms the above research hypothesis. The causes can be found mostly in the fact that there is no need for such transactions as forest companies still use traditional methods in the buy and sell process. In agreement between the buyer and seller, most make purchases on the forest road and in storage. It is very difficult to forecast when timber products in Slovenia will be sold on the Internet. For such purchases, the interest of a few timber traders is not enough. We believe that, with the right organisation of forest owners and forest companies, the joint sale of forest products could be made on the Internet. It can, however, be expected that sawn timber will be sold on the Internet sooner than forest products.

Accession to the EU has accelerated the setting up of a system which would enable trading on the Internet. For a country like Slovenia, electronic transactions would represent a huge step in international co-operation and transactions. This is a new way of doing business where people, products, services, their prices and promotion are in a constant flow. The number of Internet users has been increasing every year. In 1994, there were a total of 5.7 million users in the USA, Asia and Europe. In 2000, this number rose to 53 million. The extent of Internet sales in 2002 is estimated at USD 400 billion (Stepan, 1999, p. 83).

The use of the Internet and e-transactions has developed with exceptional speed especially since 1990. Companies and their buyers have realised that they can do certain tasks faster, more comfortably, with better quality and especially cheaper through the World Wide Web. The web supplies an infinite source of information and simple access to new business contacts and markets.

An interesting fact about the Internet is that it does not have a real owner. Every company or user is the owner and administrator of its part of the network.

Various kinds of interesting business information can be found on the Internet. Quite some time has already passed since the idea and subsequent realisation of the purchase and sale of sawn wood on the Internet. A pioneer and currently the only successful provider of the mentioned service in Slovenia is the company Internova d. o. o., but its supply only comprises small private forest owners and some sawmills. Besides this, it supplies machines and services for work in wood-processing plants and, based on data provided to it by sawmills and forest companies, it makes a pricelist for sawn timber and forest products. In a short conversation with the relevant staff in the company, we were told that the demand for their service is increasing and that in the future they will also try to provide plenty of useful information about verified buyers outside Slovenia. Their offer can be

found on the website *http://www.borzalesa.com*. Two well-known Internet service providers for the sale of forest products in Europe are Internationale Holzboerse (*IHB*) and Timberweb. They offer a wide range of different possibilities to make good business contacts. Other less-established and recognised service providers have followed, namely:

- Forest und Holz;
- Timberweb;
- International Holz Boerse;
- Swedishwood; and
- Asiatimber.

Breznik (2004, p. 64) finds that none of the countries discussed (Slovenia, Croatia, Austria and Switzerland) sells its forest products from national or private forests on the Internet. The implementation of such sales has turned out to be very successful in Ireland where Internet sales were launched in 1996. He finds that 90% of forest products are sold electronically there. With this type of transaction, they have gained many new buyers and a great deal of information. Buyers make purchases right from their offices. Such transactions certainly have their own advantages and weaknesses.

*Advantages* of the Internet timber sale are:

- A decrease in transaction costs for buyers and sellers;
- A big number of buyers and sellers in a very short time;
- enlargement of the base of buyers and sellers;
- a decrease in company promotion costs;
- quick access to sellers; and
- very fast responses by buyers and sellers.

*Weaknesses* of the Internet timber sale are:

- loss of direct contact between the buyer and seller;
- data protection;
- a shortage of technical equipment and knowledge;
- costs for the system set-up; and
- mistrust of e-transactions.

### 3.5.3 Interest by Forest Companies in Researching the Forest Products Market and the Publication of Findings in a Special Forest Paper

We noticed that no market research paper has yet been published in Slovenia, although forest companies are interested in such a publication. The reasons Slovenia still does not have such a market research paper may lie in the fact that no initiative has been taken in this direction yet. Such a market research paper would significantly contribute to forest companies being better informed about events in domestic and foreign forest products markets.

Breznik (2004, p. 66) establishes that such a newspaper is published in Austria and Switzerland. Switzerland, and especially Austria, could serve as example for Slovenia.

Breznik (2004, p. 62) finds that the Slovenian company Internova d.o.o. publishes a magazine 'Lesarski utrip' which covers a specific segment of the forest products market. Its target group is wood-processing plants and the furniture industry. But no publication covers the forest products market. The interest of forest companies in advertising compared with the furniture industry in Slovenia is of course smaller. Perhaps this is also one reasons the company Internova d.o.o. has stopped researching and monitoring the forest products market. It tries to include the forest products market and the sawn forest products market only in the part where it annually publishes pricelists of forest products and sawn forest products provided to it by selected forest companies and sawmills.

Publishing costs of an independent newspaper are very big. That is why we believe that for the beginning, the publication of appropriate information would be sensible in the form of a monthly newspaper supplement which already discusses a similar issue (e.g. the Finance newspaper). This would also be sensible because a larger part of the discussed population could be reached this way (most forest companies and sawmills).

### 3.5.4 Professional Monitoring and Researching of the Forest Products Market

From the research (*Guided interview, 2009*) we concluded that all forest companies believe Slovenia needs an organisation which would be engaged in monitoring and researching the domestic and foreign forest products markets. Slovenia does not have an organisation professionally engaged in this. The companies included in this research obtain information about the conditions in domestic and foreign markets chiefly from the Internet, special foreign market research papers, and from business partners. Concessionaires also obtain information through the Chamber of Commerce and Industry of Slovenia, which is a member of the European Confederation of Woodworking Industries.

The operative level of forest products market researching should serve direct business decisions and enable adaptation to current economic trends in the market. The free sale of timber products, especially their fragmented supply, and an increased number of buyers dictate the formation of an information system about supply and demand. It is difficult to

expect that individual suppliers and buyers would successfully monitor market trends by themselves. It would be sensible for a specialised marketing organisation to take over the monitoring of current economic trends in the market. A market research paper would also be useful (Winkler, 1991, p. 21). All the forest companies included in this research agree on this.

The *objective* of such service is the following (Winkler, 1995, p. 54):

- to contribute to the establishment of marketing mechanisms in trade in timber products in Slovenia;
- to make our integration into the international trade easier; and
- to reduce the costs of forming sales and purchase paths with current market information.

The *tasks* of such a service would especially be (Winkler, 1995, p. 55):

- to monitor supply and demand in the market;
- to organise the supply for sale and demand;
- to organise the supply for sale and demand for the purchase of primary timber production products;
- to monitor supply and demand for the realisation of forest works;
- to monitor domestic prices;
- to monitor selling prices abroad, especially in neighbouring countries or in the markets important for Slovenia;
- to make forecasts about supply and demand; and
- to prepare timber balance sheets.

The forest companies included in this research (*Guided interview, 2009*) believe that the *advantages* of such an organisation are especially the following:

- a joint sales network;
- the joint sale of forest products;
- a better international negotiating position, which can improve trading conditions;
- associations can supply many services to their members at lower prices (financing purchases of forest equipment);
- with a joint appearance in the market, an association achieves higher selling prices and lower selling costs; and
- an association can do more in-depth and extensive research into the forest products market than individual companies.

Besides the advantages, the forest companies included in this research (*Guided interview, 2009*) see some *weaknesses* of such associations, namely:

- joint sales and joint appearances in the market could create a monopoly which is inconsistent with the protection of competition;
- owners included in an association often lose contact with the market and are informed by such an association only about already consolidated information, which is not necessarily the best for everybody; and
- on account of the expansion of a trade association, the latter becomes increasingly clumsier and bureaucratised. This can increase its time to react to fast changes.

All forest companies included in this research (*Guided interview, 2009*) are interested in services which such an organisation would offer, and are ready to pay for them. They all agree that the information obtained by such an organisation should not be published in a market research paper. Breznik (2004, p. 64) finds that in Austria and Switzerland information on current economic trends are published in newspapers and on the Internet.

The forest products market in Austria is monitored by the Proholz organisation, the Ministry of Agriculture and Forestry (*Bundesministerium für Land- und Forstwirtschaft*), and the Chamber of Commerce and Industry (*Wirtschaftskammer Österreich – Fachverband der Holzindustrie Österreich*). Proholz is a non-profit organisation financed by the state. Membership and information provided by it is free-of-charge for all companies, not only domestic ones. At first, it focused on the domestic forest products market of the timber-processing industry. Later on, it expanded its activities to forestry and only then to the European and global forest products market. This expansion was partially forced by the increasing trade in goods between Austria and Japan and the USA. It must be pointed out that Austria took advantage of the opportunity offered by the European Union and increased the trade in goods or its market share in the sale of sawn coniferous timber in Japan. An increase in trade with Japan is a long-term goal of the European Union. Proholz has branch offices in all Austrian regions. We have established that the quality of Proholz's information varies among the different branch offices. The Federal Timber Association, which monitors the supply of timber, is also in charge of information in Austria. Besides such information, it provides other notices for users (Breznik, 2004, p. 75).

Proholz is engaged in various activities, including the following (Breznik, 2004, p. 76):

- monitoring the selling prices of coniferous and deciduous logs in the domestic and foreign markets;
- monitoring expert findings at home and abroad;
- analysing information: their findings strongly contribute to the right decisions being made by Austrian companies and other interested companies; and

- organising and regularly informing the members about seminars at home and abroad.

Unlike Austria which has been successfully monitoring the forest products market for quite some time with the help by Proholz, Switzerland does not have an organisation to monitor trading trends in international markets. But it has an organisation *Waldwirtschaft Schweiz,* which joins all individual regional forest organisations by individual districts and successfully manages the domestic market.

Another such organisation in Switzerland is Selva, which is organised as an association of forest organisations. It was founded in 1919 and is composed of 171 forest organisations and 92 individuals. Besides organisations, forest owners and individuals can become members. Selva collects and publishes information on public auctions for the entire Switzerland. Reports published after each auction contain information about tree species, quality, the price achieved at public auctions, and information about a district or forest area where timber comes from. Besides an exchange report, they also publish regular monthly reports which contain information on events in the domestic forest products market. Apart from advising forest owners, managing the exchange for coniferous and deciduous logs, Selva informs its members about events in the forestry and timber industries, but not events and changes in international markets.

Breznik (2004, p. 52) finds that no organisation deals with researching the domestic or foreign forest products market in Slovenia and Croatia. In Slovenia, the company Internova d.o.o. tries to inform its members about the current supply and conditions in the Slovenian forest products market. The company only provides information on supply and demand, but does not research the domestic and foreign markets. The guided interview (2009) has shown that all forest companies believe Slovenia needs an organisation to be professionally engaged in monitoring and researching the forest products market. In forest companies, this is predominantly a task given to sales services which will be able to make up for everything that has been missed and start responding to and monitor fast changes in both domestic and foreign markets only by means of reorganisation and employing staff with corresponding qualifications or by organising additional training in the field of economics and computing. Forest companies would expect various types of information from such an organisation, especially prices in the foreign forest products market and potential buyers demanding high as well as lower quality timber products.

### 3.5.5 Certification of Forest Products in Slovenia

Certification is a system where an independent party states in writing that a certain timber product was made by a producer which follows certain forest management standards (Glück, 1996, p. 29). Krajčič (1990, p. 72) establishes that certification is one of the measures of economic policy guaranteeing the sustainability of forest management.

Two certification schemes are established in the European space, namely the Pan-European Forest Certification (*PEFC*) and the Forest Stewardship Council (*FSC*). Ferlin (2002,

p. 91) finds that the Slovenian national sustainable forest management standards can serve as a unified starting point for both potential certification schemes.

In the forest ownership structure (approximately 80% of forests are privately-owned), Slovenia is predominantly inclined to the *PEFC* certification scheme which enables regional, group and individual certification. If for objective reasons (e.g. forest owners are not interested) the certification of all forests or entire regions cannot be effected at the same time, individual (e.g. for national forests) and group certification (for interested big forest owners) could start (Ferlin, 2002, p. 92).

We found that certification is only carried out in national forests in Slovenia. That is why only concessionaires have experience in the sale of certified forest products (*Guided interview, 2009*).

The results of the research (*Guided interview, 2009*) have shown that the forest companies do not have much experience in purchasing certified forest products. But they believe that this is essential for progress and being placed in the developed European market. We are convinced this will be a must within two years. Besides this, we see mostly advantages in this project as we will be able to show the market that we have been striving for quality for quite some time now.

In Switzerland and Austria, the project of certification enabling purchases of certified forest products from national and private forests is already in progress. In Croatia, certification in the national forests was already concluded in 2002. It adopted the *FSC* certification scheme in all 16 forest administrations. The reason it decided on the *FSC* certification scheme is mostly due to the demand in foreign markets (Breznik, 2004, p. 81).

The fact is that certification is not necessary by itself. The market in general eliminates everything that is unnecessary and makes transactions difficult. Certification is important from the aspect of a product itself and not the whole assortment of forest products. Certification is important especially for those actors in the forest products market who sell their products to buyers who demand a certificate.

It is expected that certification will be performed gradually and mostly among private forest owners. The expansion of the project will depend chiefly on the price private undertakings will have to pay to certify their forests. The price to obtain a certificate based on data from Germany totals approximately 3 EUR/ha. Research which was carried out among German, Finnish and British companies has shown that forest certification is necessary and will significantly contribute to more diligent forest management, and that the wood-processing industry would have to use only certified forest products. Schwarzbauer (2000, p. 277) established that in Europe the market share of certified forest products totalled 7% in 2000. It is envisaged that in 2005 it will reach a 35% share and that

forest certification will cause an increase in variable costs and a decrease in forest production in Western Europe.

The results of the research (*Guided interview, 2009*) also show that all forest companies believe forest certification is necessary. We assume that big private forest owners will be significantly more interested in certification. The pressure from forest product buyers will certainly be bigger on them. Certification is in any case a positive step and will contribute a lot to development of the market. Certified forest products will make Slovenia much more attractive to buyers from the developed part of Europe who will be ready to pay more for timber with a certificate. Since forest certification is not compulsory, the right approach to awareness of it by private forest owners is vital. This is where the profession will play an especially important function. We can expect bigger pressure from the forest products market which wants to sell products with a certificate.

### 3.5.6 Timber Quality Determination Standards

Standards in the field of forest products comprise the areas of terminology, measuring dimensions, measuring errors, and classification by quality based on tree species (Piškur, 2003, p. 385).

Standardisation, as the name already explains (standard = a measure, a touchstone), is an activity which tries to make different expressions, procedures, characteristics and criteria comparable. Standards are in principle voluntary and individual groups can agree that the use of those which significantly influence life is compulsory. Standards in the discussed field belong to a set of voluntary standards.

For several years, standards for round and sawn wood have been the subject of discussion. Opinions on the suitability and even necessity of standards are very different and contradictory. The difference in opinion originates from the fact that standards were compulsory for a long time, and the state used them to prescribe a range of products and even prices for them which were entirely different from actual market prices. On the other hand, the quality of logs was also connected with the quality of sawn timber which of course is connected, but not in the way as it was presented. This meant that nobody followed the standards. Such a negative experience with standards for forest products and sawn forest products made standards practically valueless.

This is why the question appears as to why a standard for determining quality in the forest products market is needed at all. The answer is of course simple. The conditions our new state finds itself in are different from the previous ones. The fact is that today standards are not compulsory, although they are necessary in the conditions of free timber trade. The price of timber moves freely and is not bound to a standard, although the price is a reflection of the quality a standard lays down besides other conditions.

Based on the research we established that forest companies chiefly use the old Yugoslav standards, while we adopt the European standards as our national standards and we are very late in doing this. The Technical Committee which prepares the European standards for round and sawn timber has so far prepared 77 standards, of which 44 have already been adopted, and 33 are in the process of being adopted (Šega, 2003, p. 165).

Of these 77 standards, Slovenia (the Slovenian standards are prepared by SIST/TC LES – Round and sawn timber) had adopted 52 as national standards by the end of 2004. Another 21 are in the process of preparation. The adopted standards comprise also standards for determining the quality of coniferous forest products and standards for determining the quality of sawn coniferous and deciduous timber. No standards for determining the quality of deciduous forest products have been adopted (Šega, 2003, p. 167).

The Austrian regulation in the area of standards for forest products also follows the European standards, while in practice national practices (Oesterrreichen Holzhandelsuzancen) prevail. Those national practices are not entirely comparable with the European standards as the latter contain four quality classes, whereas the Austrian practices contain three. This makes quality by classes' incomparable (Piškur, 2003, p. 384).

Germany determines different quality classes in individual federal states. Germany is aware of the importance of the new European standards given the loosely determined rules for determining round timber quality.

In the process of joining the EU, the Czech Republic followed the statutory regulation in Germany. In the area of standards, it has adopted all the European standards and kept some of its own that encompasses aspects not covered by any of the European standards. The path the Czech Republic has chosen would also be sensible for Slovenia.

The European standards presented by the Technical Committee are classified as:

- terminological standards which contain terms for round and sawn timber (three-language dictionaries with definitions of terms);
- standards providing methods for measuring dimensions and characteristics of round and sawn timber, and methods to measure the humidity of timber;
- standards providing the classification of round and sawn timber based on measurements and a visual estimation of quality;
- standards providing the classification of sawn timber for pallets and industrial packaging; and
- standards for wood in joinery, wood floors, wall and ceiling panels, wooden stairs and wood used for windows and doors.

Standards represent a basic measure of the state of development of the forest products market; they are necessary and essential. All companies included in the research (*Guided interview, 2009*) believe Slovenia needs standards. In Slovenia, the standard lay down by the buyer and seller will apply for quite some time to come. Again the question arises as to whether standards will be accepted and used after they are adopted.

## 3.6 Market Conditions in the Slovenian, Austrian and Swiss Forest Products Markets

The Slovenian forest products market was compared with the Austrian and Swiss ones as regards the following parameters and areas:

- the adoption of quality standards;
- the organisation of forest owners and timber traders to achieve better market conditions;
- professional monitoring and researching of the forest products market;
- reliability or details of statistical information about the forest products market and sawn forest products market;
- publishing a market research paper covering events in the forest products market;
- the certification of forest products;
- trade in forest products on the Internet; and
- the organisation of public auctions for purchasing forest products.

We established that in most of the parameters and fields discussed the Austrian and Swiss forest products markets are better developed than the Slovenian forest products market. Extremely big deviations are seen in the organisation of forest owners and timber traders to achieve better market conditions, professional monitoring and market researching, the reliability of statistical data, publishing market research paper, and in the field of forest certification.

***Table 6:*** *Comparison of conditions in the Slovenian, Austrian and Swiss forest products markets*

| | **Slovenia** | **Austria** | **Switzerland** |
|---|---|---|---|
| Quality standards | We have not adopted all standards for timber quality determination yet. We still need standards for coniferous timber quality determination. | It has adopted all standards for timber quality determination. | It has adopted all standards for timber quality determination. |
| Organisation of forest owners and traders of timber for achieving better conditions in the forest products market | Not organised | Are organised in communities and associations on the level of regions and the state | Are organised in associations in individual districts |
| Professional market monitoring and researching | We have no such organisation | It has Proholz, an organisation financed by the state monitors events in the domestic and foreign markets | It has Selva and Waldwirtschaft Schweiz, organisations which monitor events in the domestic market |
| Reliability of statistical information | Not detailed enough and unreliable, and does not enable a thorough forest products market analysis. | It has very detailed information on forest products and sawn forest products, which enables a thorough analysis. | It has very detailed information on forest products and sawn forest products, which enables a thorough analysis. |
| Publication of market research paper covering events in the forest products market | Not published | Several newspapers are published, among which the most established are Holz Kurier and Holz-Zentralblatt | Several newspapers are published, among which the most established is Wald und Holz |
| Certification of forests | Carried out in national forests based on the FSC certification scheme | Already in progress. The PEFC certification scheme was adopted mostly in national forests, and FSC in some private forests. | Already in progress. A certification scheme has been adopted. In some districts PEFC has become established, and FSC in others. |
| Timber trade on the Internet | Not possible | Not possible | Not possible |
| Purchase of forest products from national and private forests at public auction | Not possible | Organised by individual agricultural communities | Organised within individual districts for forest products from national and private forests |

*Sources: Breznik (2004, p. 63) and the guided interview (2009)*

## 3.7 Market Power of Forest Companies in Slovenia

The market power of forest companies was established based on actual values of individual economic items and a comparison with other activities. Here, we critically assessed the deviations. Forest companies create only some of their revenue from forest work. All of them have a range of other activities besides this (e.g. transport of timber, purchase of timber in the private sector, forest construction etc.).

### 3.7.1 Structure of Forest Companies in Terms of Company Size

In line with the Companies Act (1993), companies are classified as micro, small, medium and large depending on the number of their employees, the sum of their revenue and average value of their assets. The table below shows the structure of forest companies compared to some other activities in 2008.

***Table 7:*** *Size of forest companies compared with certain other activities in 2008*

| Size of companies | Forest companies | | Construction | | Wood-processing industry | | National economy | |
|---|---|---|---|---|---|---|---|---|
| | Number | Share | Number | Share | Number | Share | Number | Share |
| Large | 6 | 9 | 56 | 1 | 2 | 1 | 774 | 1 |
| Medium | 2 | 3 | 80 | 1 | 1 | 1 | 763 | 1 |
| Small | 6 | 9 | 247 | 4 | 11 | 6 | 2,390 | 5 |
| Micro | 56 | 80 | 6,363 | 94 | 163 | 92 | 48,070 | 92 |
| Total | 70 | 100 | 6,746 | 100 | 177 | 100 | 51,997 | 100 |

*Source: Chamber of Commerce and Industry of Slovenia, intranet of the Chamber of Commerce and Industry of Slovenia 2009*

The structure of forest companies in terms of the size of companies is distinctively oriented in the direction of micro companies when compared to other activities. In a way, this makes forest management difficult as small companies are more sensitive to market fluctuations and at the same time more of them are needed for a certain scope of work, which increases the costs of forest management.

### 3.7.2 Revenue of Forest Companies in 2008

Revenue is determined with the selling value of quantities sold and also comprises other items which increase the profit or loss.

***Table 8:*** *Revenue of forest companies compared to the entire Slovenian economy in 2008*

| | Value in EUR | Share in national economy in % |
|---|---|---|
| Revenue (excluding change in inventories) | 158,657,546 | 0.19 |
| Net sales revenue | 152,333,193 | 0.19 |
| Net sales revenue in the domestic market | 101,685,523 | 0.18 |
| Net sales revenue in the foreign market | 50,647,670 | 0.21 |
| Financial revenue | 1,881,204 | 0.07 |
| Financial revenue from shares | 955,047 | 0.07 |
| Financial revenue from loans given and business shares | 926,157 | 0.07 |
| Other revenue | 882,745 | 0.21 |

*Source: Chamber of Commerce and Industry of Slovenia, intranet of the Chamber of Commerce and Industry of Slovenia 2009*

We found that the revenue of forest companies represents a relatively small share compared to the entire Slovenian economy. Financial revenue, financial revenue from shares, and financial revenue from loans given and business shares are well below the average. Other revenue, as well as the net sales revenue in foreign markets is, however, above the average. Similar to the national economy, sales revenue represents the majority of all revenue, which is also what Krajčič (2001, p. 36) established for concessionaires in 2000. Based on the guided interview (2009) and research by Krajčič (2001, p. 37) we can conclude that the majority of revenue in the forest industry is created by concessionaires.

***Table 9:*** *Revenue of concessionaires in 2001*

| | **Share in national economy in %** |
|---|---|
| Revenue - total | 0.19 |
| Net sales revenue | 0.19 |
| Financing revenue | 0.10 |
| Revenue based on shares from profit | 0.09 |
| Extraordinary revenue | 0.29 |

*Source: Krajčič (2001, p. 52)*

Based on research by Krajčič (2001, p. 51) we established that the concessionaires' financing revenue is well below the average (concessionaires have very few deposits at banks or other companies) and so too is the revenue based on shares from profit (they have little equity participation in other companies or such participation is poor). On the other hand, extraordinary revenue is far above the average, which improves the overall image of the results of companies, although it is not based on company transactions in the current year. We estimate that this is mostly the case of receivables written-off in the past period, disinvestments (the sale of non-productive assets) and cashing in of long-term provisions which were formed during the transformation of ownership.

### 3.7.3 Expenses of Forest Companies in 2008

Expenses refer to the production costs of quantities sold and also comprise other items which decrease the profit or loss.

***Table 10:*** *Expenses of forest companies compared to the entire Slovenian economy in 2008*

| | **Value in EUR** | **Share in national economy in %** |
|---|---|---|
| Expenses | 154,790,243 | 0.19 |
| Operating expenses | 151,914,607 | 0.19 |
| Costs of goods, material and services | 103,007,144 | 0.16 |
| Labour costs | 37,397,872 | 0.34 |
| Costs of salaries | 26,465,197 | 0.33 |
| Depreciation | 9,178,959 | 0.30 |
| Financial expenses | 2,100,128 | 0.05 |
| Financial interest expenses | 1,427,346 | 0.14 |
| Other expenses | 775,508 | 0.43 |

*Source: Chamber of Commerce and Industry of Slovenia, intranet of the Chamber of Commerce and Industry of Slovenia 2009*

Similar to the national economy, operating expenses represent 98% of all expenses. Compared to the national economy, the costs of goods, material and services are lower in the case of forest companies, which is understandable as the nature of work does not demand such high expenditure. A distinctive deviation is seen in labour costs, which are almost twice the average in the economy. Depreciation is also above the average (companies probably decide on a faster value write-off and obviously have relatively new work equipment). The above-average extraordinary revenue can be attributed to write-offs of receivables (the poor payment terms of forest companies).

Krajčič (2001, p. 53) also reached similar conclusions when he carried out an analysis of concessionaires' expenses in 2000. Based on both studies, we established that in 2000 the differences in the share of concessionaires' expenses were minimal compared to the share of expenses of all forest companies in 2008.

***Table 11:*** *Expenses of concessionaires in 2000*

| | **Value in EUR** | **Share in national economy in %** |
|---|---|---|
| Expenses | 154,790,243 | 0.19 |
| Operating expenses | 151,914,607 | 0.19 |
| Costs of goods, material and services | 103,007,144 | 0.16 |
| Labour costs | 37,397,872 | 0.34 |
| Costs of salaries | 26,465,197 | 0.33 |
| Depreciation | 9,178,959 | 0.30 |
| Financial expenses | 2,100,128 | 0.05 |
| Financial expenses for interest | 1,427,346 | 0.14 |
| Other expenses | 775,508 | 0.43 |

*Source: Krajčič (2001, p. 53)*

### 3.7.4 Profit, Loss and Value Added of Forest Companies in 2008

In a profit analysis the breakdown of profit into total profit and operating profit is very important. Operating profit (loss) shows the company management's efficiency in the activity carried out by it in the current year, while the total profit also considers other (extraordinary) revenue and expenses.

Value added is established by subtracting the costs of goods and services and other operating expenses from the net sales revenue, own use and other revenue.

***Table 12:*** *Profit, loss and value added of forest companies in 2008*

| | **Value in EUR** | **Share in national economy in %** |
|---|---|---|
| Total profit | 7,585,547 | 0.19 |
| Total loss | 2,934,238 | 0.17 |
| Income tax | 1,382,586 | 0.18 |
| Value added | 51,915,766 | 0.29 |

*Source: Chamber of Commerce and Industry of Slovenia, intranet of the Chamber of Commerce and Industry of Slovenia 2009*

The share of the total profit of forest companies in the national economy is the same compared to the share in revenue or costs. For concessionaires in 2000, Krajčič (2001, p. 56) established that this share is already lower.

In 2008, forest companies created approximately EUR 9 million in earnings before interest and tax. In 2008, the net profit of forest companies totalled approximately EUR 6 million.

With regard to the share of revenue in the national economy (0.19%), the value added of forest companies is relatively high (0.29%). The cause is especially found in the lower costs of goods, material and services compared to other industries. For 2001, Krajčič (2001, p. 51) established that, in the case of concessionaires, this share totals 35%.

***Table 13:*** *Profit, loss and value added of concessionaires in 2000*

| | **Share in national economy in %** |
|---|---|
| Total profit | 0.16 |
| Total loss | 0.07 |
| Income tax | 0.17 |
| Value added | 0.35 |

*Source: Krajčič (2001, p. 51)*

### 3.7.5 Structure of the Assets of Forest Companies

The structure of company assets tells us about the property of the business system at a given moment (Hočevar&Igličar, 1996, p. 172) and it is a result of a company's transactions from its foundation to date. The optimal structure is not easily and uniformly definable, while it also differs among companies.

***Table 14:*** *Structure of forest companies in 2008*

| | **Value in EUR** | **Share in national economy in %** |
|---|---|---|
| Assets | 141,737,284 | 0.14 |
| Long-term assets | 76,676,234 | 0.12 |
| Intangible fixed assets | 1,834,153 | 0.09 |
| Tangible assets | 61,079,637 | 0.17 |
| Long-term investments | 11,564,721 | 0.06 |
| Short-term assets | 63,614,319 | 0.16 |

*Source: Chamber of Commerce and Industry of Slovenia, intranet of the Chamber of Commerce and Industry of Slovenia 2009*

Compared to the national economy, the share of forest companies' assets is lower than the share of revenue and expenses, as they total approximately EUR 142 million.

The value of assets represents the book value of forest companies' assets. In the comparison, the deviations are big especially in intangible long-term assets, which indicate the small tendency towards development by forest companies. Long-term investments are also below the average (investments in the equity of other companies, loans given…), which indicates the smaller investments of forest companies in this area compared to the average in the economy. This can also be attributed to the fact that the wood-processing industry, which is closest to forest companies by its activity, is not attractive to investments because of the crisis.

### 3.7.6 Liabilities of Forest Companies

Liabilities show where the assets of a business system come from (Hočevar&Igličar, 1996, p. 173), meaning whether assets are one's own or foreign. The value of liabilities always equals the value of assets. Liabilities are divided into the value of own capital (equity capital) and the value of a company's liabilities to others (the value of foreign assets, such as credits taken, creditor receivables…). Equity capital is composed of the following:

- capital put in by the owners when establishing a company;
- retained (undistributed) profit from past years;
- reserves (statutory, other); and

- a revaluation adjustment of capital.

Liabilities to others can be short-term (liability of return before one year) and long-term (liability of return after one year). Such liabilities comprise:

- loans; and

- liabilities to suppliers, the state, workers and others.

Financing a business system with own capital can have two key advantages (Mramor, 1993, p. 65). In company transactions, this type of financing has the fewest limitations. A company is not bound by contract to pay dividends nor is it precisely bound by time to pay the principal. Besides this, it has much easier access to additional credits when needed. The main weakness of financing with equity capital is a lower return on a share at a certain profit.

The use of long-term debt offers significant advantages in company transactions but, on the other hand, it increases operating risk. When a company's return on investment is higher than the costs of debt (interest), the return on a share increases with rising debt. The increase in debt also increases the dependence of the operating result (profit) on the extent of production, and the operating result is significantly more sensitive to the extent of production than in the case of lower outstanding amounts.

Several factors influence the decision about the extent of outstanding amounts. Companies with a very stable extent of transactions and consequently stable revenue and expenses, such as the post office etc., enable a higher share of financing by debt. Concessionaires could be included in this group as the extent of their production does not change significantly over the years, and in this way revenue and expenses are also relatively stable. The higher profitability of a company can also mean it can handle higher outstanding amounts.

Short-term debt is usually employed to finance seasonal fluctuations. Usually, business banks, suppliers, workers or the state are a source of financing.

***Table 15:*** *Liabilities of forest companies in 2008*

| | **Value in EUR** | **Share in national economy in %** |
|---|---|---|
| Liabilities | 141,737,284 | 0.14 |
| Equity | 80,195,843 | 0.22 |
| Long-term liabilities | 11,299,906 | 0.04 |
| Short-term liabilities | 45,989,718 | 0.12 |

*Source: Chamber of Commerce and Industry of Slovenia, intranet of the Chamber of Commerce and Industry of Slovenia 2009*

We have established that, compared to the national economy, forest companies have significantly more own assets (capital), while they have very few foreign assets, which is also what Krajčič (2001, p. 53) established for concessionaires in 2000.

***Table 16:*** *Liabilities of concessionaires in 2000*

| | **Share in national economy in %** |
|---|---|
| Liabilities | 0.18 |
| Equity | 0.29 |
| Long-term liabilities | 0.02 |
| Short-term liabilities | 0.10 |

*Source: Krajčič (2001, p. 53)*

With regard to the relative stability and predictability of revenue and expenses of concessionaires, we would expect the share of debts to be higher. A practical rule is that the shares of own and foreign sources should be approximately 50% (Pučko&Rozman, 1996, p. 251); however, forest companies and also concessionaires deviate significantly from this rule.

### 3.7.7 Comparison of Financial Indicators between Forest Companies and Certain Other Activities

Financial indicators are relative numbers obtained by dividing a certain economic category by some other.

***Table 17:*** *Financial indicators of forest companies and certain other economic activities in 2008*

| Name of indicator | Forest companies | Construction | Wood-processing industry | National economy |
|---|---|---|---|---|
| Financial independence (equity capital/means) | 0.566 | 0.184 | 0.422 | 0.348 |
| Share of tangible assets (fixed assets/ means) | 0.431 | 0.195 | 0.528 | 0.350 |
| Total economics (income/expenses) | 1.025 | 0.983 | 0.978 | 1.019 |
| Return on capital (net profit/equity capital) | 0.041 | 0.110 | 0.031 | 0.046 |
| Revenue per employee in EUR (revenue/average no. of empl.) | 98,597 | 128,869 | 92,154 | 166,149 |
| Labour costs per employee in EUR (labour costs/ average no. of empl.) | 23,241 | 18,195 | 17,495 | 21,376 |
| Net profit per employee in EUR (net profit/ average no. of empl.) | 3,850 | 3,853 | 1,365 | 6,579 |
| Net loss per employee in EUR (net loss/ average no. of empl.) | 1,812 | 1,162 | 2,672 | 3,335 |
| Value added per employee in EUR (value added/ average no. of empl.) | 32,263 | 27,658 | 24,568 | 35,279 |
| Share of depreciation (depreciation/expenses) | 0.059 | 0.022 | 0.063 | 0.037 |
| Share of labour costs (labour expenses/expenses) | 0.242 | 0.139 | 0.186 | 0.131 |

*Source: Chamber of Commerce and Industry of Slovenia, intranet of the Chamber of Commerce and Industry of Slovenia 2009*

Forest companies are financially very independent, i.e. they do not have outstanding amounts. This means they have a relatively favourable credit rating at banks, which affects their loan conditions. A low indicator can also mean that a company is not ready to expand its activity more rapidly and therefore increases the risk, which indicates certain business inactivity (lack of innovation) of owners or managers. It is known that forest companies do not have very profitable possibilities for expansion into related activities, and forestry as an activity is very limited in terms of expansion. Construction is the most indebted among the activities compared, while the timber industry is at the national average. The potential expansion of forest companies to timber processing would mean a decrease in their financial independence.

Return on capital in forest companies is very favourable compared to other activities, especially because the value of capital is high.

Since it is a labour-intensive industry, revenue per employee is lower than in the activities compared, while labour costs per employee are higher because of the higher salaries and unfavourable age structure of employees.

On account of labour intensity, the profit and loss per employee in forest companies is much lower than in the national economy. Both indicators are, considering the labour intensity of the industry, distinctively more favourable than for the timber-processing industry.

Value added per employee is comparable with the national average due to the lower costs of material and services despite the high labour intensity of the activity.

The above-average share of depreciation in expenses can point to a partial ballooning of expenses and consequently lower operating profit. But, to prove this statement a more in-depth study would be needed, which exceeds the framework of this research.

The share of labour costs is almost twice the average in the economy and it is also significantly higher than in the construction and timber-processing industries. This indicates the extreme dependence and sensitivity of company performance on the labour market and collective negotiations.

### 3.7.8 Comparison of the Average Gross Salaries of Forest Companies with Certain Other Activities and Forestry in the Public Sector

The gross salary of employees comprises all payments (basic salary, bonuses, salary settlements…) for regular work and compensation (annual leave, paid holidays and public holidays, sick leave…) given by an employer to an employee for work. The gross salary does not include the material costs of the employee (e.g. transport to work, reimbursement for meals and annual leave…) or contributions of and taxes on employers. The annual gross salary per employee is calculated by dividing the total mass of assets of gross salaries by the number of employees calculated from hours. On the annual level, 2,088 hours per employee are considered.

***Table 18:*** *Average gross salary per employee in 2008*

| | **Forest companies** | **Construction** | **Wood-processing industry** | **National economy** |
|---|---|---|---|---|
| Salaries per employee in EUR (costs of salary/aver. No. of empl.) | 16,447 | 13,097 | 12,690 | 15,486 |
| Index | 100 | 80 | 77 | 94 |
| Average number of employees by working hours | 1,609 | 56,817 | 1,236 | 510,754 |

*Source: Chamber of Commerce and Industry of Slovenia, intranet of the Chamber of Commerce and Industry of Slovenia 2009*

Costs of salaries per employee in forest companies are 6.4% higher than the average in the economy. Krajčič (2001, p. 56) established that the costs of salaries per employee in the

case of concessionaires in 2000 were 11% higher than the average in the economy, and that salaries in the forest industry were always somewhat higher than salaries in the economy.

We established that salaries in the timber-processing industry and construction are significantly lower than salaries in forest companies.

Krajčič (2001, p. 55) found that salaries at the Agricultural Land and Forest Fund in 2000 were significantly higher than those at concessionaires.

***Table 19:*** *Average annual gross salary per employee in 2000*

| | **Concessionaires** | **Construction** | **Wood-processing industry** | **National economy** | **Forestry service** | **Agricultural Land and Forest Fund** |
|---|---|---|---|---|---|---|
| Index | 100 | 78 | 72 | 90 | 102 | 162 |
| Average number of employees by working hours | 1,750 | 40,841 | 10,017 | 468,136 | 749 | 72 |

*Source: Krajčič (2001, p. 55)*

# 4 ANALYSIS OF FOREIGN TRADE IN FOREST PRODUCTS IN SLOVENIA

## 4.1 Analysis of the Forest Products Market in Slovenia

Reliable and sufficiently detailed statistical information plays a very important role in the market analysis of forest products. But since there is not enough detailed statistical information available for Slovenia after 1990, our work on the forest products analysis was very limited. We found that when it comes to analysing the forest products market, such as Schwarzbauer's (2000, p. 265) analysis for Austria, we lack data about the prices of forest products. The Austrian Statistical Office has information about timber prices since 1960. Since we do not have such information, we cannot make comparative analyses with other European countries and from this viewpoint also identify what are Slovenia's weaknesses and advantages in the forest products market. That is why we have included the extent of production, import and export, and the sale of forest products in the analysis of the forest products market in Slovenia.

Slovenian forests are represented in the market by forest products from private and national forests and other legal entities. After 1995, production started to increase. In 2000, the production of logs increased on account of stronger demand for coniferous logs. Compared to 2000, the production of logs for sawmills and wood for heating increased significantly. This fact is most likely a consequence of insufficient monitoring as there is no accurate data, especially about the purposes of use of felled thin timber. The structure of forest products in the 1995–2001 periods did not change. After 1998 the greater share of both coniferous as well as deciduous logs is noticed (Breznik, 2004, p. 67).

Most forest products come from private forests, which on average total approximately 1,200,000 $m^3$ of timber per year.

***Table 20:*** *Forest production in Slovenian forests between 1995 and 2007 (in 1000 $m^3$)*

| | **1995** | **2000** | **2003** | **2004** | **2005** | **2006** | **2007** |
|---|---|---|---|---|---|---|---|
| Round timber - total | 1751 | 2253 | 2591 | 2551 | 2733 | 3179 | 2882 |
| Coniferous trees | 1042 | 1209 | 1549 | 1556 | 1713 | 1885 | 1789 |
| Deciduous trees | 709 | 1044 | 1042 | 995 | 1020 | 1294 | 1093 |
| | | | | | | | |
| Logs for sawmill and plywood | 918 | 1120 | 1291 | 1372 | 1403 | 1712 | 1699 |
| Coniferous trees | 677 | 786 | 939 | 1107 | 1210 | 1422 | 1413 |
| Deciduous trees | 241 | 334 | 352 | 265 | 192 | 290 | 286 |
| | | | | | | | |
| Timber for pulp and slabs | 519 | 396 | 572 | 283 | 288 | 445 | 353 |
| Coniferous trees | 292 | 302 | 452 | 210 | 246 | 331 | 223 |
| Deciduous trees | 227 | 94 | 120 | 73 | 42 | 114 | 131 |
| | | | | | | | |
| Other round industrial timber | 88 | 205 | 369 | 171 | 99 | 39 | 41 |
| Coniferous trees | 73 | 121 | 158 | 114 | 85 | 22 | 27 |
| Deciduous trees | 15 | 84 | 211 | 57 | 14 | 16 | 15 |
| | | | | | | | |
| Timber of heating | 226 | 532 | 359 | 725 | 943 | 984 | 788 |

*Source: Statistical Office of the Republic of Slovenia 2008*

From a questionnaire (Winkler, 1996, p. 36) carried out among forest owners, we estimated that 70% of felled forest products reach the market. From this estimation and data provided by the Statistical Office of the Republic of Slovenia, approximately 2,000,000 $m^3$ of timber has come onto the Slovenian market within the last three years, of this approximately 1,200,000 $m^3$ is coniferous timber and approximately 800,000 $m^3$ is deciduous timber. Most forest products come from private forests, which on average total approximately 1,200,000 $m^3$ of timber per year (Tavčar, 2004, p. 63).

A problem occurs especially concerning the issue of the highest possible growth. Tavčar (2004, p. 61) established that a comparison with possible felling in forest plans shows, the same as in all recent years, a significant lagging of the amount of selected trees behind the annual amount allowed to be cut down in Slovenian forests. This difference occurs exclusively on account of private forests and the main reason is the increasingly unfavourable proportion between the price of timber and the costs of production.

The utilisation quotient, which is expressed as the quotient between actual felling and the highest possible annual available cut, totalled 0.96 in the 1994–2004 period for national

forests. This shows the strong interest of concessionaires in realisation of the planned annual available cut. For forests in private ownership, Tavčar (2004, p. 62) found that the utilisation quotient was 0.65 in the same period, which reveals the significantly lower interest of small forest owners. The main causes of such a low rate of utilisation in the private sector are the following:

- small own needs for timber;
- expensive felling and bringing in of forest products;
- low timber prices;
- awareness by forest owners of the need for felling;
- low economic dependence of forest owners on revenue from forests; and
- the size of land.

In the period between 1994 and 2004, the average utilisation quotient of the maximum allowed annual felling in Slovenian forests amounted to 0.76. This means each year we could supply approximately an additional 600,000 $m^3$ of timber to the market or that the planned annual felling is on average 24% below the maximum allowed annual cut (Tavčar, 2004, p. 70). This lack of utilisation has a negative influence on the quality of forests. It also damages forest owners, forest companies, the processing industry and the state in terms of reduced taxes.

The low level of utilisation of the maximum allowed annual felling in private forests could be reduced by adopting the following measures:

- By increasing cadastral income tax. This measure could consequently increase the average land size as forest lands would be sold by those forest owners who possess small forest land plots, and bought by those who possess more of them.
- By relaxing or waiving cadastral income tax payments for all those forest owners who manage their forest with due diligence, meaning they realise all those silvicultural measures envisaged in the forest plan of an individual area.
- With subventions from the state which accelerate other silviculture of forests.

If we manage to raise the level of utilisation of the highest possible growth especially in private forests, we will increase the supply of forest products in the Slovenian market since this is what the natural possibilities in Slovenia enable us to do. With the increased felling of forest products, the utilisation of sawing capacities and thus the production of sawn timber in Slovenia would go up.

We established that, despite denationalisation in the market, cut timber from national forests still plays an important role in the market. Despite the only 20% ownership share in Slovenian forests, approximately 800,000 $m^3$ of timber annually comes to the market from national forests.

***Table 21:*** *Exports and imports of forest products in 1995–2007 (in 1000 $m^3$)*

| | 1995 | 2000 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|---|---|
| Exports - total | 137 | 217 | 280 | 244 | 423 | 558 | 720 |
| Logs for sawmill and plywood | 65 | ... | 129 | 109 | 201 | 241 | 269 |
| Timber for pulp and slabs and other round industrial timber | 14 | ... | 91 | 74 | 96 | 141 | 237 |
| Fuel wood | 59 | 48 | 61 | 61 | 126 | 175 | 214 |
| | | | | | | | |
| Imports - total | 272 | 357 | 376 | 403 | 409 | 421 | 260 |
| Logs for sawmill and plywood | 18 | ... | 48 | 49 | 61 | 60 | 50 |
| Timber for pulp and slabs and other round industrial timber | 245 | ... | 328 | 345 | 328 | 303 | 146 |
| Fuel wood | 9 | 1 | 1 | 9 | 20 | 58 | 64 |

*Source: Statistical Office of the Republic of Slovenia 2008*

Based on the guided interview we established that especially logs of the lowest and highest quality are intended for export. Slovenia's main exporting and importing partners are Italy and Austria (Winkler, 1995, p. 122), which is also confirmed by our research.

We established that until 2004 Slovenia had imported more forest products and that, as of 2004, it had exported more forest products, and that the share of deciduous logs in exports is higher than coniferous logs in the total forest production.

Imports of forest products have also been increasing from Slovakia, the Czech Republic and Russia, while exports of sawn timber have been increasing to Italy, Austria and Croatia. Lately, new possibilities and markets have been opening up in the East, namely Japan and China for exports of sawn timber, and Russia and Slovakia for imports of logs (Breznik, 2004, p. 81).

We found that the Statistical Office of the Republic of Slovenia does not have data about forest product sales after 1990 available. We believe the main reasons for this lie in denationalisation and consequently the change in the ownership structure. Capturing data about sales is very difficult due to the changed conditions. The problem is mostly because, despite its efforts, the Statistical Office of the Republic of Slovenia does not receive the necessary information from certain companies.

Data about forest product sales gathered by Šinko (1992, p. 72) are available for the period between 1970 and 1990. He concluded that sales fluctuated greatly in that period. After 1989, a drop in sales is noticed. Fluctuations caused severe problems for processors which covered part of their needs with imports. He believed that if the timber-processing industry is to depend on Slovenian timber, steadier delivery will have to be ensured. His starting point was the hypothesis that, in the discussed period, deliveries from Slovenian forests were a consequence of the forest management policy which was based on professional bases of a sustainable and multipurpose forest. In the mentioned period, extremely stronger

sales of mining timber, poles of coniferous and deciduous trees, pulpwood, coniferous timber for woodchip boards and chestnut tree timber for the production of tannin were noticed.

For the discussed period, Šinko (1992, p. 74) also established that the course of sale was very unpredictable as he identified sudden extreme changes in all cases, to which both sellers and buyers responded with difficulty. To efficiently forecast future market conditions, he proposes extensive researching which would only be sensible when the final-product market, the timber intermediary product market and the forest products market start operating.

Lately, a problem with the sale of thin forest products has arisen. Our research has shown that forest products of lower quality are sold chiefly to Italy. It is not difficult to sell quality products. Demand for them is very strong at home and abroad.

Similarly as with forest product sales, we had problems gathering data about the prices of forest products (selling and purchase prices), which are almost impossible to capture, after liberalisation of the forest products market.

After liberalisation of the forest products market, Krajčič (2001, p. 51) made an analysis of the selling prices of forest products. In the analysis, he compared the price indexes for Slovenian forest products with European trends. He chose the year 1996 as the reference year, when the index of European prices of timber within the European raw material price index (*HWWA*) totalled 100.

***Table 22:*** *Trend of selling prices of forest products in Europe*

| **Business year** | **Index of achieved prices of timber on the forest road (1996=100)** | **HWWA Index (1990=1996=100)** | **Difference** |
|---|---|---|---|
| 1994 | 115 | 117 | -2 |
| 1995 | 117 | 114 | +3 |
| 1996 | 100 | 100 | 0 |
| 1997 | 93 | 97 | -4 |
| 1998 | 90 | 85 | +5 |
| 1999 | 84 | 82 | +2 |
| 2000 | 79 | 81 | -2 |

*Source: Krajčič (2001, p. 52)*

He established that the trend of forest product selling prices matches European trends and that selling prices in Europe have drastically dropped in the last decade. He attributes the drop in prices especially to the recession and decrease in building activity in Germany and some other European countries. Krajčič (2001, p. 52) established that the selling prices of

forest products were higher in years when the share of coniferous trees was higher in the forest product structure.

Based on the timber price trend analysis of the Slovenian market, Krajčič (2001, p. 53) found a negative trend. His findings were also confirmed by our research. The prices of forest products are still dropping in real terms. This is typical of both the domestic as well as all foreign markets. In Slovenia, however, decreased demand in the domestic market also contributes to negative trends, which proves that the timber industry still does not reach the level of production it used to have, or that it fulfils its timber needs with timber from Eastern European countries. The decrease in the selling prices of forest products reduces realisation of the forest management objectives.

## 4.2 Evaluation of the Forest Products Market in Terms of Trade in Goods

The data used in calculation of the parameters below were obtained from the customs tariffs collected under tariff number 4403, which comprises timber, unworked non-debarked or debarked or without sapwood, or roughly worked (quartered). The data were obtained from the Statistical Office of the Republic of Slovenia (*Appendix 3*).

### 4.2.1 The Revealed Comparative Advantage Method (*RCA*)

The comparative advantage concept is one of the more important theoretical aids for explaining international specialisation (Damijan, 1995, p. 115) and serves as a criterion of the efficiency of the inclusion of the domestic economy in global trade. The concept is based on the presumption that the imports of an individual country highlight which domestic activities are non-competitive, while imports highlight the competitive domestic activities or activities which have comparative advantages in international trade (Donges, 1977, p. 256). Comparative advantages are measured between individual products or groups of products in a certain country. The newer comparative advantage theory (Lafay, 1993, p. 187) concerning the domestic production structure emphasises the favourable availability of natural resources in a certain country as one of the key factors in the creation and development of comparative advantages.

To calculate comparative advantages, the following equation was used:

$$RCA = \frac{\frac{X_i}{\sum X}}{\frac{M_i}{\sum M}} \qquad (1)$$

Where:

$X_i$ is exports of an individual product or product group;

$M_i$ is imports of an individual product or product group;

*X* is total exports; and

*M* is total imports.

If *RCA > 1*, such a product or product group has comparative advantages in international trade. If a product group has comparative advantages, we can talk about a developed market of this product group.

***Table 23:*** *Trend of the comparative advantages index (RCA) for forest products in 2001-2008 in Slovenia*

| Year | RCA |
|---|---|
| 2001 | 0.60 |
| 2002 | 0.55 |
| 2003 | 0.52 |
| 2004 | 0.45 |
| 2005 | 0.74 |
| 2006 | 0.93 |
| 2007 | 1.35 |
| 2008 | 1.85 |

*Source: Calculation based on data from the Statistical Office of the Republic of Slovenia 2009*

We established that the revealed comparative advantage index (*RCA*) in the discussed period was not above one until the year 2007. From this it follows that Slovenia had comparative weaknesses in international trade until 2007. Since 2007, Slovenia has had comparative advantages in international trade, which confirms the above research hypothesis. Further, we established that the index dropped further after 2003. The drop is connected with increased imports of forest products. Until 2007, Slovenia imported more forest products than it exported. The comparative advantage fluctuation trend was decreasing until Slovenia's entry into the EU. Afterwards, the trend has increased. The increase in the index was expected mostly on account of the termination of the free-trade agreement and consequently the new introduction of customs, which has made forest products from countries of former Yugoslavia significantly more expensive, and this consequently is leading to lower imports.

### 4.2.2 The Grubel-Lloyd Method (*IIT-Intra Industry Trade*)

The Grubel-Lloyd Index is used to measure intra-industry trade within total trade. Namely, Grubel and Lloyd defined intra-industry trade (*IIT*) as the value of exports in a certain industry, which are at the same time covered by the value of imports in the same industry.

To calculate the Grubel-Lloyd Index, the following equation was used:

$$IIT = \left( 1 - \frac{|X_i - M_i|}{X_i + M_i} \right) * 100 \; ; \qquad 0 < ITT < 100 \qquad (2)$$

Where:

$X_i$ is exports of an individual product or product group; and

$M_i$ is imports of an individual product or product group.

The written equation represents the standard Grubel-Lloyd Index for measuring intra-industry trade in the total trade of an individual industry. If the *IIT* index = 100, the values of exports or imports are completely equal ($X_i = M_i$), and is thus a matter of a total overlapping of exports with imports, or of total intra-industry trade. Therefore, if the values of exports and imports in an observed industry are approximately the same or balanced, the *IIT* index is close to 100, while the *IIT* index is close to 0 if the values of exports and imports are significantly different or imbalanced (Černoša, 2003, p. 154). The higher the *IIT* index, the more this market segment, in this case the forest products market, is developed, which confirms the above research hypothesis.

***Table 24:*** *Trend of intra-industry trade (IIT) of forest products index in the 2001-2008 period (in %)in Slovenia*

| Year | IIT |
|---|---|
| 2001 | 71 |
| 2002 | 69 |
| 2003 | 65 |
| 2004 | 58 |
| 2005 | 80 |
| 2006 | 92 |
| 2007 | 90 |
| 2008 | 77 |

*Source: Calculation based on data from the Statistical Office of the Republic of Slovenia 2009*

We established that the *IIT* index for the production group which deals with forest products is quite high. If we derive from the definition, we can conclude that the forest products market is developed from the aspect of intra-industry trade.

### 4.2.3 The Greenaway-Hine-Milner Method (*GHM*)

The Greenaway-Hine-Milner method is based on the average price index. The quality of exports or imports of forest products was determined with this method. The method is based on the proportion between the average price of total exports and imports.

If the proportion between the average prices of exports and imports of an observed industry is within the range of $GHM \geq 0.85$ *or* $GHM \leq 1.15$, horizontal intra-industry trade prevails. This means that it is a matter of a horizontal lie differentiated products with the same quality of exported and imported products. The prevailing intra-industry trade in an individual industry is, on the other hand, vertical if the proportion between the average prices of exports and imports of an observed industry is within the range of GHM $< 0.85$ *or* $GHM > 1.15$. In this case vertically differentiated products are involved, where the quality of exports and imports of an individual product or product group is not the same (Černoša, 2003, p. 153).

To calculate the Greenaway-Hine-Milner (*GHM*) Index, the following equation was used:

$$GHM = \frac{PX_i}{PM_i} \; ; \qquad (3)$$

Where:

$PX_i$ is the average price of exports of an individual product or product group; and

$PM_i$ is the average price of imports of an individual product or product group.

The price represents the proportion between the value and quantity of exports or the proportion between the value and quantity of imports of an individual product or product group (Černoša, 2003, p. 155).

We established that, in our case, vertical intra-industry trade prevails. This means we have vertically differentiated products with the same quality of exported and imported products.

***Table 25:*** *Trend of the Greenaway-Hine-Milner (GHM) Index for forest products in the 2001-2008 period (in %) in Slovenia*

| Year | GHM |
|---|---|
| 2001 | 0.36 |
| 2002 | 0.40 |
| 2003 | 0.59 |
| 2004 | 3.28 |
| 2005 | 0.78 |
| 2006 | 0.66 |
| 2007 | 0.46 |
| 2008 | 0.53 |

*Source: Calculation based on data from the Statistical Office of the Republic of Slovenia 2009*

## 4.3 Characteristics of International Trade in Forest Products

International trade is a very dynamic activity. Economists estimate it has been growing faster than world production. Such fast growth is enabled exactly because of the inclusion of new areas in the world and production fields in international transactions. International transactions stimulate the faster growth of those organisations which are actively included in it (Hrastelj, 1990, p. 385).

International timber trade is a consequence of the uneven distribution of natural resources at the global level and the international distribution of work, and depends on the natural technological and economic conditions of an individual country (Šinko, 1992, p. 61).

In international trade, countries specialise in exporting those products which enable them to exploit their comparative advantages (Seppala, 1991, p. 107). This usually means that they export goods produced with production resources which the country has 'in abundance', and import goods for production regarding which they lack their own resources (Bonnefoi, 1990, p. 10).

Seppala (1991, p. 109) believed that, in the future, foreign exchange currency proportions, paper recycling, trade liberalisation and political and economic conditions in Eastern Europe would particularly affect international trade. Aspirations to export final wood products with more value added would be especially noticeable.

The international trade of timber is the same as with trade across national borders, invaluable for Slovenia as it enables the country's economic survival. More and more companies are joining it. The reasons for entering international markets can be found in too high production capacities and the wish for better conditions of sale. When a company decides to operate in international markets, it must first of all decide how many markets and countries it will enter (Potočnik, 2002, p. 202). Most companies first sell in the neighbouring countries' markets as they know them well and therefore operate more easily there. This is also what the results of the guided interview (2009) suggest. When a company decides on a certain market, it must find the best way to penetrate it. But it must be aware that the penetration of international markets is very risky, which is why it is important that a company first precisely studies and analyses the selected market and its possibilities of achieving success in it.

When trading in forest products in international markets, it is especially important to know the following (Hrastelj, 1990, p. 386):

- characteristics of the population of individual countries (here, we not only mean differences in language, race and culture, but also in the qualification structure of the labour force, which directly affects the real income of the population and interest rates);
- purchasing power;

- distances affecting transport costs (but since the buyer and seller are located far from each other, the risk is significantly bigger than in national trade);
- differences in the weight and measurement system, and standards;
- differences in the law and legal way of thinking (here, we are thinking of regulations governing the establishment and transactions of external industry organisations, customs regulations, arbitration procedures etc.); and
- differences in business practices.

Many companies have not succeeded in foreign markets as they did not previously study all factors which are fundamental to successful international trade.

Apart from what has been mentioned, the organisation of international trade alone is important as in the implementation of individual trade deals it is not only the buyer and seller who are included but also various specialised organisations known to the market economy. The latter include trading agents, banks and other financial institutions, transporters, forwarding agencies, insurance companies, market research organisations marketing and PR offices, organisations for qualitative and quantitative control and the acceptance of goods, and other institutions (Hrastelj, 1990, p. 390).

## 4.4 Does the International Forest Products Market and Integration with European Corporations Represent an Opportunity for the Slovenian Forest Products Market?

Slovenia is a small country. But, from the content view, a country located in Europe is not small anymore. As a European country, Slovenia has significantly different economic features than undeveloped non-European small countries. This is why we presume that economic development, geographical location, inclusion in regional economic integrations and the current global arrangement are much more important factors than size alone. These factors influence whether the theoretically expected differences in content between small and large countries are also actually manifested in their external trade performance (Damijan, 2000, p. 154). Small countries like Slovenia have the possibility to become large if they strongly open up to the world and thus enable their companies to develop faster. By being open, Slovenia would become a stronger and larger country. This is confirmed by the example of Austria, which is geographically and demographically a small country but, based on its economic openness and successfulness, it is actually larger and belongs among medium-large countries.

The research has shown that our forest companies make business contacts mostly with their neighbours (Austria, Italy and Croatia). This also applies to Croatia, Switzerland and partially for Austria. Because of internal problems, Slovenia has only started opening itself up recently. We established that the discussed country that has opened itself up most of all is Austria, which has opened its way to Japan with sawn coniferous timber. The most attractive European market for all of the discussed countries is Italy. The reasons lie in its

strong wood-processing industry. The Italian market is especially attractive for better forest products and sawn timber of a lower quality. The quality criterion in Italy has long been known as the lowest in Europe.

Since Slovenia has been opening outwards after it joined the European Union, the importance of international transactions will grow. The reasons for the country's openness are mostly seen in the fact that the domestic market is too small in the big differentiated supply of natural forest wealth to achieve the desired goals. Especially the following markets are opening up: the Czech Republic, Russia, Israel, Japan, China, the Middle East and the USA. India and many other new markets can be counted among the potentially bigger trading partners.

Breznik (2004, p. 72) established that forest companies in Middle East and Asian markets cannot sell sawn timber directly, but only through agents. This means we are limited with the produced quantity to trading with our neighbours and that we can only act in the Middle East, Japanese and US markets as sub-suppliers. But our excellent strategic position gives us an opportunity to become very attractive to those foreign investors which would be ready to invest their assets in the modernisation or construction of new sawmills and storage areas where sawn timber would be collected and sent to a target customer from the Port of Koper. To realise such goals it will not only take changes in the forest product market, but we believe it will need changes especially to the tax legislation which at the moment is very unfavourable to foreign investors, and in the abolition of administrative obstacles to the opening of companies. Such changes will contribute a lot to the development and revival of the Slovenian forest products market, as well as modernisation of the timber industry which at the moment is very obsolete. In the case of realising such goals, we can after a certain period of time become what Austria is today. All this gives us a very favourable strategic position in Europe and, until the accession of new EU members, especially Croatia, also a very favourable strategic position in the EU. One of the business opportunities which is opening and is already an adopted and established instrument in Europe is the sale and purchase of sawn timber on the Internet. The Internet enables the relatively simple penetration of international markets and it is the cheapest way to obtain important information. Our companies could seize new business opportunities by making contacts with the providers of such services and including them in their systems.

All of this speaks in favour of international trade and especially integration with large timber corporations (Stora Enso) as an exceptional opportunity for the Slovenian forest products market, which could significantly contribute to the development of the entire forest products market and region if the objectives are well-determined and realised.

# 5 SYNTHESIS OF THE MAJOR FINDINGS AND PROPOSED MEASURES FOR IMPROVING THE PERFORMANCE OF FOREST COMPANIES IN SLOVENIA

## 5.1 Synthesis

The forest products market is an industry which operates in both the business-to-business and consumer markets. Business-to-business marketing predominantly involves timber product marketing among organisations. There are significantly fewer buyers in the business-to-business market and it is larger than the consumer market.

The forest products market in Slovenia is very poorly organised, which is evident in the fragmented supply of forest products. Forest owners act alone and are unorganised in the forest products market. In this way they cannot significantly influence the conditions of sale. Timber traders are also not organised in different types of integration so as to be more successful when selling. Integration could be especially attractive to small forest owners. The forest products market in Slovenia is not organised yet, namely in the sense that the sale of timber from national forests would be organised for public auction. It is sold based on already concluded long-term contractual relationships. We also do not have a timber stock exchange in place which could supply forest products from private forests to buyers.

After liberalisation of the forest products market in Slovenia, the number of business entities has grown both in terms of supply and demand, which was mostly a consequence of the free timber trade and cancellation of the compulsory delivery of timber through former forest organisations in the area, which confirms the above research hypothesis.

Following liberalisation of the forest products market, the prices of timber in the market are based on supply and demand, or the last prices are determined through negotiations between a buyer and seller. The determination of the last price is also influenced by geographical factors and discounts. The prices of forest products primarily depend on the export prices of sawn timber and they are independent of the amount of imported forest products. The prices of timber in Slovenia match European trends (Breznik, 2004, p. 83).

Despite the fact that 80% of forests in Slovenia are privately-owned, permitted annual felling amounts in private forests are only realised to the extent of about 60%. Forest production in Slovenia is rising. Low- or high-quality logs are mostly intended for export.

Until 1990, the felling of forest products in Slovenia was highly correlated with the production of sawn timber on account of the strong connection between the raw material base and the sawing industry at that time (Breznik, 2004, p. 66). Since 1990, there has been no correlative dependence between the discussed parameters. The causes of this lie especially in denationalisation, free timber trade and the insufficiently detailed statistical information from the Statistical Office of the Republic of Slovenia, which is a result of the statistical sample being too small.

The Austrian and Swiss forest product markets operate better than the Slovenian one. What especially separates them are deviations in the organisation of forest owners and timber traders, professional market monitoring and researching, the reliability of statistical data and the publication of market research paper. Certification in national forests has already started in Slovenia. This is why certified timber can only be bought from concessionaires.

In the forest products market the standard for determining timber quality is usually as agreed between a buyer and seller. In Slovenia, standards for determining the quality of coniferous forest products have been adopted on the national level. But we do not have standards for deciduous forest products.

Forest companies in Slovenia have not sufficiently used modern communication methods when trading in forest products since liberalisation of the forest products market in Slovenia, which confirms the above research hypothesis. E-mail and the Internet are not established enough among forest companies in the forest products market. Forest companies communicate and exchange data especially by phone and fax. They use the Internet only for communication with companies abroad. Further, we are convinced that the development of telecommunications and computing will not be able to replace personal contacts between business partners.

Payment deadlines in the forest products market in Slovenia are too long, ranging between 90 and 150 days. Forest companies achieve better payment deadlines abroad than in Slovenia. Payment deadlines abroad are between 60 and 90 days.

Forest companies in Slovenia purchase most forest products in the domestic market and sell them to small sawmills. The part which is sold abroad goes to Austria and Italy. The places where forest companies purchase forest products are the forest road and from storage.

To analyse the forest products market from the viewpoint of trade in goods, the method of comparative advantages (*RCA–Revealed Comparative Advantage*), the Grubel-Lloyd method (*IIT–Intra Industry Trade*), and the Greenaway-Hine-Milner method (*GHM*) were used. We established that the forest products market is developed from this viewpoint, which confirms the above research hypothesis.

Slovenia does not have an organisation that is professionally engaged in monitoring and researching the conditions in domestic and foreign forest products markets, and publishes information in a market research paper.

Forest companies only create some of their revenue from forest work. All have several other activities besides this. The structure of forest companies is distinctively oriented in the direction of micro companies. Compared to the national economy, the market power of forest companies is small. Forest companies have below-average financial revenue, financial revenue from shares, and financial revenue from loans given and business shares.

But they have above-average other revenue as well as net revenue from sales in foreign markets. In their expenses, forest companies deviate significantly in labour costs, which are almost twice the average in the economy. Depreciation is also above-average.

The share of the total profit of forest companies in the total economy is the same compared to the share in revenue or costs. In 2008, net profit totalled approximately EUR 6 million. The value added created in forest companies is relatively high. Compared to the national economy, the share of forest companies' assets is smaller than the share of revenue and expenses.

Compared to the national economy, forest companies have significantly more own assets, while they have very few foreign assets. Compared to other activities, the return on capital in forest companies is very favourable, especially because the value of capital is high.

Due to it being a labour-intensive industry, revenue per employee is lower than in the activities compared, while labour costs per employee are higher because of the higher salaries and unfavourable age structure of workers. Given the labour intensity, profit and loss per employee is much lower in forest companies than in the national economy. Considering the labour intensity of the industry, both indicators are distinctively more favourable in comparison with the wood-processing industry. Due to the low costs of material and services, value added per employee is comparable with the national average despite the labour-intensive activity.

The above-average share of depreciation in expenses suggests the partial ballooning of expenses and consequently lowers operating profit. But, to prove this statement, a more in-depth study would be needed, which exceeds the framework of this research. The share of labour costs is almost twice the average in the economy and it is also significantly higher than in the construction and wood-processing industries. This indicates the extreme dependence and sensitivity of company performance on the labour market and collective negotiations. Salary costs per employee in forest companies are 6% higher than the average in the economy. Salaries in the wood-processing industry and construction are significantly lower than salaries in forest companies.

International timber trade is invaluable for Slovenia. More and more forest companies are becoming involved in international trade. A small country like Slovenia can only become 'large' by opening itself up to the world and thus enabling the faster development of its companies. Many business opportunities for international trade are also offered by Internet sales and purchases, which enables relatively a simple and inexpensive penetration of international markets. They do not do this directly but through agents. These countries especially demand fir and pine lumber (Breznik, 2004, p. 51). Selling prices achieved in these markets are however lower than in the domestic market.

## 5.2 Proposed measures for improving the performance of forest companies in Slovenia

Since the performance in the Slovenian forest products market has become tougher, certain measures are needed to improve the performance of forest companies. We believe the following measures, which would increase the competitiveness of Slovenian forest companies, are sensible:

- Elimination of unfair competition in the domestic environment. Law-makers are shutting their eyes to the gray economy, which is immense in the forest product market.
- Encouragement for the integration of forest companies. The trends in the EU confirm that companies are integrating and that co-operation among companies is taking the form of clusters.
- Since e-mail and the Internet in the forest products market are not established enough as a communication medium among forest products market participants, their use should be taught at training sessions in companies, and employees would have to be motivated to use them as information flows through e-mail are cheaper and faster than other methods of communication.
- Shorter payment deadlines in Slovenia could be achieved especially with more restrictive legislation in this field and significantly higher penalties for violators.
- A change in tax legislation by decreasing tax rates. Tax on profit created is extremely high, which has a negative influence on both domestic and foreign investors.
- The abolition of administrative obstacles to the opening of companies.

# 6 CONCLUSION

Since the liberalisation of the forest products market in Slovenia, *the number of business entities has increased in terms of both supply and demand* on account of the freed timber traffic and cancellation of the compulsory delivery of timber through former forest organisations in the area, which confirms the above research hypothesis.

Forest companies in Slovenia purchase most forest products in the domestic market. Payment deadlines in the forest products market in Slovenia are too long, ranging between 90 and 150 days. Forest companies achieve better payment deadlines abroad than in Slovenia. Payment deadlines abroad range between 60 and 90 days. Payment deadlines are too long especially because participants in the forest products market do not stick to what they have agreed. Compared to the national economy, the market power of forest companies is small.

Slovenia does not have an organisation that is professionally engaged in monitoring and researching conditions in the domestic and foreign forest products markets, and which publishes information in a market research paper.

Following liberalisation of the forest products market, timber prices in the market are formed based on supply and demand, or the last prices are determined by negotiations between a buyer and seller. The determination of the last price is also influenced by geographical factors and discounts.

The prices of forest products primarily depend on the export prices of sawn timber and they are independent of the amount of imported forest products. The prices of timber in Slovenia match European trends.

Forest companies in Slovenia have *insufficiently used modern communication methods for trading in forest products* since the forest products market was liberalised in Slovenia, which confirms the above research hypothesis.

In the forest products market, the standard for determining timber quality is usually as agreed between a buyer and seller. In Slovenia, standards for determining the quality of coniferous forest products have been adopted. But we do not have standards for deciduous forest products.

The Slovenian forest products market does not operate well enough in the organisation of the forest products market, standards for determining timber qualities, payment deadlines, the collection of statistical information, as well as professional monitoring and researching of the forest products market, which is also what the comparison with the Austrian and Swiss forest products markets showed.

In international trade, the forest products market has comparative advantages and has *developed from the viewpoint of intra-industry trade*, which confirms the above research hypothesis.

The forest products market in Slovenia is very poorly organised, which is evident in the fragmented supply of forest products. Forest owners and timber traders are not organised in different types of integration so as to be more successful when selling. The forest products market in Slovenia is also not organised in the sense that timber from national forests is not organised to be sold at public auction.

## 7 SUMMARY

It is over ten years since the Slovenian forest products market was liberalised. The conditions of marketing forest products have significantly changed in this time. The number of business entities has grown both in terms of supply and demand on account of

free timber traffic and the cancellation of the compulsory delivery of timber through former forest organisations in the area.

Compared to the national economy, the market power of forest companies is small. The structure of forest companies is distinctively oriented in the direction of micro companies.

Payment deadlines in Slovenia are too long. The reasons for this can primarily be found in disrespect of what was agreed, financial indiscipline, and low penalties for violators.

No organisation is professionally engaged in monitoring and researching the market in Slovenia. The foundation of such an organisation is in the interest of Slovenian forest companies.

Modern communication methods have not been established yet in Slovenia for the sale of forest products. Forest companies do not trade in forest products by using the Internet. The use of e-mail is not established well enough among forest companies. They still use predominantly telephone and fax to communicate.

Only concessionaires trade with certified forest products in Slovenia. But preparations for the implementation of a forest certification project in private forests are in progress.

Concessionaires as well as non-concessionaires purchase most forest products from forest owners on the forest road.

Forest companies sell forest products abroad mostly to Italy and Austria. Only the most valuable products and low-quality products are exported to these markets.

The forest products market analysis has shown that it is developed from the viewpoint of trade in goods.

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# APPENDIXES

## APPENDIX 1: QUESTIONNAIRE FOR CONCESSIONAIRES

1. Do you purchase forest products only on domestic markets or also abroad?

| PURCHASE OF FOREST PRODUCTS - HOME/ABROAD | YES | NO |
|---|---|---|
| Home | | |
| Abroad | | |

2. In case you purchase forest products also abroad, we would like to know in which countries and what is the foreign share of the total purchase?

| COUNTRY OF PURCHASE OF FOREST PRODUCTS | SHARE in% |
|---|---|
| Croatia | |
| Bosnia and Herzegovina | |
| Serbia | |
| Macedonia | |
| Others… | |

3. Where do you purchase forest products from private forest owners and how much is the share of the total purchase according to the place of purchase?

| PLACE OF PURCHASE OF FOREST PRODUCTS | SHARE in % |
|---|---|
| • On forest road | |
| • On stump | |
| • Storage | |
| • Public auction | |
| • Internet | |
| • Others… | |

4. Where do you sell forest products and what is the share in relation to the total sale on domestic market?

| PLACE OF SALE OF FOREST PRODUCTS | SHARE in % |
|---|---|
| • Wood processing plant | |
| • Smaller sawmills | |
| • Chemical industry | |
| • Others… | |

5. Where do you sell forest products abroad and what is the share in relation to the total sale?

| COUNTRY OF SALE OF FOREST PRODUCTS | SHARE in % |
|---|---|
| Austria | |
| Italy | |
| Croatia | |
| Hungary | |
| Others… | |

6. What forest products according to quality and type do you sell abroad and what is the share in relation to the whole sale ?

| TYPE OF FOREST PRODUCTS | SHARE in % |
|---|---|
| Higher quality | |

| | |
|---|---|
| Lower quality | |
| Forest products from conifers | |
| Forest products from deciduous trees | |
| Others… | |

7. Does your company buy and sell forest products by internet? Would you be so kind to name the service provider!

| **PURCHASE AND SALE BY INTERNET** | **YES** | **NO** | **Service provider** |
|---|---|---|---|
| We buy forest products by internet | | | |
| We do not buy forest products by internet | | | |

8. What are payment periods on domestic and foreign markets?

| **LENGTH OF PAYMENT PERIOD ON DOMESTIC MARKET** | **YES** | **NO** |
|---|---|---|
| Up to 30 days | | |
| From 31 to 60 days | | |
| From 61 to 90 days | | |
| Others.… | | |
| | | |
| **LENGTH OF PAYMENT PERIOD ON FOREIGN MARKET** | **YES** | **NO** |
| Up to 30 days | | |
| From 31 to 60 days | | |
| From 61 to 90 days | | |
| Others.… | | |

9. Are payment conditions better on domestic or foreign market (please specify)?

| **PAYMENT CONDITIONS HOME/ABROAD** | **Better YES/NO** | **Worse YES/NO** | **Explanation:** |
|---|---|---|---|
| Home | | | |
| Abroad | | | |

10. Are foreign companies better business partners than domestic and why?

| **BUSINESS PARTNERS HOME/ABROAD** | **Better YES/NO** | **Worse YES/NO** | **Explanation:** |
|---|---|---|---|
| Home | | | |
| Abroad | | | |

11. What is your opinion about supply and demand, which is whether it has changed on domestic and foreign markets in the last two years?

| **SUPPLY AND DEMAND** | **YES** | **NO** | **Explanation:** |
|---|---|---|---|
| Home | | | |
| Abroad | | | |

12. Do you think that Slovenia needs uniform standards for quality evaluation of forest wood products?

| **STANDARDS FOR QUALITY EVALUATION OF FOREST PRODUCTS** | **YES** | **NO** |
|---|---|---|
| We need them, as they are crucial for purchase and sale of forest products. | | |
| We need them, as they are necessary in conditions of free trading with wood. | | |
| We do not need them, as the standard is defined by buyer and seller when trading with forest products. | | |

| | | |
|---|---|---|
| We do not need them, as the price of wood is free and not prescribed by standard. | | |
| We do not need new standards, as we use old Yugoslavian ones. | | |
| Others… | | |

13. What are in your opinion present circumstances on domestic and foreign market of forest products (please specify)?

| **CIRCUMSTANCES ON FOREST PRODUCTS MARKET** | **Explanation:** |
|---|---|
| Home | |
| Abroad | |

14. In what way does your company communicate with other companies? We would like to know to what extent do you use individual communication possibilities?

| **COMMUNICATION WITH COMPANIES** | **YES** | **NO** | **Use in %** |
|---|---|---|---|
| Personal contact | | | |
| e-mail | | | |
| Internet (Skype) | | | |
| Conversation by phone on stationary network | | | |
| Conversation by phone on mobile network | | | |
| Fax | | | |
| Telex | | | |

15. What are in your opinion advantages and drawbacks of electronic and interenet communications (Skype)? Please, specify at least three advantages and drawbacks!

| **ADVANTAGES** | **DRAWBACKS** |
|---|---|
| • | • |
| • | • |
| • | • |

16. Do you have within your company a person or a department engaged in research of domestic and foreign market of forest products?

| **RESEARCH DEPARTMENT WITHIN THE COMPANY** | **Reply** |
|---|---|
| We have | |
| We do not have | |

17. We would like to know from where you get information about conjuncture movements or circumstances on domestic and foreign markets?

| **INFORMATION ON DOMESTIC AND FOREIGN MARKET CIRCUMSTANCES** | **YES** | **NO** |
|---|---|---|
| From internet | | |
| Slovenian chamber of commerce or the competent association | | |
| Special conjunctural newspapers | | |
| From business partners | | |
| Television | | |
| Radio | | |
| Others… | | |

18. Do you think that the Slovenian market needs a professional organisation which would research and monitor developments on domestic and foreign forest products markets?

| **ORGANISATION FOR MONITORING FOREST PRODUCTS MARKET** | **YES** | **NO** |
|---|---|---|
| We need it | | |
| We do not need it | | |

19. How do you imagine the performance of this organisation and what are its advantages?

| **ADVANTAGES OF ORGANISATION FOR MONITORING FOREST PRODUCTS MARKET** | **YES** | **NO** |
|---|---|---|
| Joint selling network | | |
| Joint sale of forest wood products | | |
| Selling network of association easily reaches bigger buyers | | |
| Quality, extent and efficiency improvement of production | | |
| Better international negotiating position which may help improve selling conditions | | |
| Associations may offer numerous services to its members at reduced prices. We have in mind mostly financing and education of forest owners. | | |
| By joint action on the market the association may attain higher selling prices and reduced costs. | | |
| Trade association may offer more products at the same time. In this way costs for buyers are reduced. | | |
| • An association may afford a more profound and wider market research than individual owners. | | |
| • Others… | | |

20. If your opinion is positive we would like to know what information would be of interest for your company?

| **TYPE OF INFORMATION** | **YES** | **NO** |
|---|---|---|
| About better sale of forest products | | |
| Forest products market research | | |
| Education | | |
| Others… | | |

21. If your opinion is negative we would like to know about its drawbacks?

| **DRAWBACKS OF ORGANISATION** | **YES** | **NO** |
|---|---|---|
| • Joint selling and joint action on the market may cause a monopoly which is in conflict with the protection of competition. | | |
| • Owners, who are assembled in such association often loose contact with the market and are notified by the association only about already transfigured information, which is not necessarily the best for all,. | | |
| • Due to expansion of the trade organisation, the latter becomes ever more rigid and bureaucratic. This may lead to prolonged reaction times towards quick market changes. | | |
| • Others… | | |

22. Are you prepared to pay for services, offered by such organisation?

| **PAYMENT FOR PERFORMED SERVICES** | **YES** | **NO** |
|---|---|---|
| We are prepared to pay | | |
| We are not prepared to pay | | |

23. Should the information, collected by the organisation be openly published in a conjunctural newspaper?

| **OPEN PUBLICATION OF ADOPTED INFORMATION IN A CONJUNCTURAL NEWSPAPER** | **YES** | **NO** |
|---|---|---|
| Should be published | | |
| Should not be published | | |
| Others… | | |

24. In the case of existence of an »Association of wood traders« in Slovenia, which would enable better sale of forest products to its members (payment conditions, higher prices) we would like to know whether you are ready to sell all forest products via this association or only the ones which are for you more problematic for sale?

| **SALE OF FOREST PRODUCTS VIA ASSOCIATION** | **YES** | **NO** |
|---|---|---|

| | | |
|---|---|---|
| We are ready to sell all forest products | | |
| We are ready to sell only those which are more diffucult for sale | | |
| We are not ready for sale via the association of wood traders | | |
| Others… | | |

25. What is your opinion and experience about purchase of certified forest products?

| **PURCHASE AND SALE OF CERTIFIED FOREST PRODUCTS** | **YES** | **NO** |
|---|---|---|
| We do not have any experience with the purchase of certified forest products | | |
| We have experience and we buy them abroad (Croatia, Czech Republic..) | | |
| We do not trade with them as they can not be bought on domestic market | | |
| Others… | | |

**APPENDIX 2: QUESTIONNAIRE FOR NON-CONCESSIONAIRES (other companies)**

1. Where do you purchase forest products from private forest owners and how much is the share of the total purchase according to the place of purchase?

| **PLACE OF PURCHASE OF FOREST PRODUCTS** | **SHARE in %** |
|---|---|
| • On forest road | |
| • On stump | |
| • Storage | |
| • Public auction | |
| • Internet | |
| • Others… | |

2. Where do you sell forest products and what is the share in relation to the total sale on domestic market?

| **PLACE OF SALE OF FOREST PRODUCTS** | **SHARE in %** |
|---|---|
| • Wood processing plant | |
| • Smaller sawmills | |
| • Chemical industry | |
| • Others… | |

3. Where do you sell forest products abroad and what is the share in relation to the total sale?

| **COUNTRY OF SALE OF FOREST PRODUCTS** | **SHARE in %** |
|---|---|
| Austria | |
| Italy | |
| Croatia | |
| Hungary | |
| Others… | |

4. Does your company buy forest products from concessionaires?

| • **PURCHASE OF FOREST PRODUCTS FROM CONCESSIONAIRES** | • |
|---|---|
| • We purchase | • |
| • We do not purchase | • |

5. Would your company be interested for the purchase of forest products from state forests via public auction?

| | |
|---|---|
| • **PURCHASE OF FOREST PRODUCTS VIA PUBLIC AUCTION FROM STATE FORESTS** | • |
| • We are interested | • |
| • We are not interested | • |

6. We would like to know in what forest products from state forests would be your company interested by purchase via public auction?

| PURCHASE OF FOREST PRODUCTS VIA PUBLIC AUCTION | YES | NO |
|---|---|---|
| For the best quality | | |
| For the worst quality | | |
| For all forest products | | |
| For forest products from deciduous trees | | |
| For forest products from conifers | | |
| Others… | | |

7. Are you prepared to pay security fee for the purchase of timber via public auction or secure the business execution by a bank guarantee?

| | |
|---|---|
| • **PAYMENT FOR THE SECURITY OF BUSINESS** | • |
| • We are prepared to pay | • |
| • We are not prepared to pay | • |
| • Others… | • |

8. Do you purchase forest products only on domestic markets or also abroad?

| PURCHASE OF FOREST PRODUCTS - HOME/ABROAD | YES | NO |
|---|---|---|
| Home | | |
| Abroad | | |

9. In case you purchase forest products also abroad, we would like to know in which countries and what is the foreign share of the total purchase?

| COUNTRY OF PURCHASE OF FOREST PRODUCTS | SHARE in% |
|---|---|
| Croatia | |
| Bosnia and Herzegovina | |
| Serbia | |
| Macedonia | |
| Others… | |

10. What forest products according to quality and type do you sell abroad and what is the share in relation to the whole sale ?

| TYPE OF FOREST PRODUCTS | SHARE in % |
|---|---|
| Higher quality | |
| Lower quality | |
| Forest products from conifers | |
| Forest products from deciduous trees | |
| Others… | |
| Others… | |

11. Does your company buy and sell forest products by internet? Would you be so kind to name the service provider!

| PURCHASE AND SALE BY INTERNET | YES | NO | Service provider |
|---|---|---|---|
| We buy forest products by internet | | | |
| We do not buy forest products by internet | | | |

12. What are payment periods on domestic and foreign markets?

| **LENGTH OF PAYMENT PERIOD ON DOMESTIC MARKET** | **YES** | **NO** |
|---|---|---|
| Up to 30 days | | |
| From 31 to 60 days | | |
| From 61 to 90 days | | |
| Others.… | | |
| | | |
| **LENGTH OF PAYMENT PERIOD ON FOREIGN MARKET** | **YES** | **NO** |
| Up to 30 days | | |
| From 31 to 60 days | | |
| From 61 to 90 days | | |
| Others.… | | |

13. Are payment conditions better on domestic or foreign market (please specify)?

| **PAYMENT CONDITIONS HOME/ABROAD** | **Better YES/NO** | **Worse YES/NO** | **Explanation:** |
|---|---|---|---|
| Home | | | |
| Abroad | | | |

14. Are foreign companies better business partners than domestic and why?

| **BUSINESS PARTNERS HOME/ABROAD** | **Better YES/NO** | **Worse YES/NO** | **Explanation:** |
|---|---|---|---|
| Home | | | |
| Abroad | | | |

15. What is your opinion about supply and demand, which is whether it has changed on domestic and foreign markets in the last two years?

| **SUPPLY AND DEMAND** | **YES** | **NO** | **Explanation:** |
|---|---|---|---|
| Home | | | |
| Abroad | | | |

16. Do you think that Slovenia needs uniform standards for quality evaluation of forest wood products?

| **STANDARDS FOR QUALITY EVALUATION OF FOREST PRODUCTS** | **YES** | **NO** |
|---|---|---|
| We need them, as they are crucial for purchase and sale of forest products. | | |
| We need them, as they are necessary in conditions of free trading with wood. | | |
| We do not need them, as the standard is defined by buyer and seller when trading with forest products. | | |
| We do not need them, as the price of wood is free and not prescribed by standard. | | |
| We do not need new standards, as we use old Yugoslavian ones. | | |
| Others… | | |

17. What are in your opinion present circumstances on domestic and foreign market of forest products (please specify)?

| **CIRCUMSTANCES ON FOREST PRODUCTS MARKET** | **Explanation:** |
|---|---|

| CIRCUMSTANCES ON FOREST PRODUCTS MARKET | Explanation: |
|---|---|
| Home | |
| Abroad | |

18. In what way does your company communicate with other companies? We would like to know to what extent do you use individual communication possibilities?

| COMMUNICATION WITH COMPANIES | YES | NO | Use in % |
|---|---|---|---|
| Personal contact | | | |
| e-mail | | | |
| Internet (Skype) | | | |
| Conversation by phone on stationary network | | | |
| Conversation by phone on mobile network | | | |
| Fax | | | |
| Telex | | | |

19. What are in your opinion advantages and drawbacks of electronic and interenet communications (Skype)? Please, specify at least three advantages and drawbacks!

| ADVANTAGES | DRAWBACKS |
|---|---|
| • | • |
| • | • |
| • | • |

20. Do you have within your company a person or a department engaged in research of domestic and foreign market of forest products?

| RESEARCH DEPARTMENT WITHIN THE COMPANY | Reply |
|---|---|
| We have | |
| We do not have | |

21. We would like to know from where you get information about conjuncture movements or circumstances on domestic and foreign markets?

| INFORMATION ON DOMESTIC AND FOREIGN MARKET CIRCUMSTANCES | YES | NO |
|---|---|---|
| From internet | | |
| Slovenian chamber of commerce or the competent association | | |
| Special conjuncture newspapers | | |
| From business partners | | |
| Television | | |
| Radio | | |
| Others… | | |

22. Do you think that the Slovenian market needs a professional organisation which would research and monitor developments on domestic and foreign forest products markets?

| ORGANISATION FOR MONITORING FOREST PRODUCTS MARKET | YES | NO |
|---|---|---|
| We need it | | |
| We do not need it | | |

23. How do you imagine the performance of this organisation and what are its advantages?

| ADVANTAGES OF ORGANISATION FOR MONITORING FOREST PRODUCTS MARKET | YES | NO |
|---|---|---|
| Joint selling network | | |
| Joint sale of forest wood products | | |
| Selling network of association easily reaches bigger buyers | | |
| Quality, extent and efficiency improvement of production | | |
| Better international negotiating position which may help improve selling conditions | | |
| Associations may offer numerous services to its members at reduced prices. We have in mind mostly financing and education of forest owners. | | |
| By joint action on the market the association may attain higher selling prices and reduced costs. | | |
| Trade association may offer more products at the same time. In this way costs for buyers are reduced. | | |
| • An association may afford a more profound and wider market research than individual owners. | | |
| • Others… | | |

24. If your opinion is positive we would like to know what information would be of interest for your company?

| TYPE OF INFORMATION | YES | NO |
|---|---|---|
| About better sale of forest products | | |
| Forest products market research | | |
| Education | | |
| Others… | | |

25. If your opinion is negative we would like to know about its drawbacks?

| DRAWBACKS OF ORGANISATION | YES | NO |
|---|---|---|
| • Joint selling and joint action on the market may cause a monopoly which is in conflict with the protection of competition. | | |
| • Owners, who are assembled in such association often loose contact with the market and are notified by the association only about already transfigured information, which is not necessarily the best for all,. | | |
| • Due to expansion of the trade organisation, the latter becomes ever more rigid and bureaucratic. This may lead to prolonged reaction times towards quick market changes. | | |
| • Others… | | |

26. Are you prepared to pay for services, offered by such organisation?

| PAYMENT FOR PERFORMED SERVICES | YES | NO |
|---|---|---|
| We are prepared to pay | | |
| We are not prepared to pay | | |

27. Should the information, collected by the organisation be openly published in a conjunctural newspaper?

| OPEN PUBLICATION OF ADOPTED INFORMATION IN A CONJUNCTURAL NEWSPAPER | YES | NO |
|---|---|---|
| Should be published | | |
| Should not be published | | |
| Others… | | |

28. In the case of existence of an »Association of wood traders« in Slovenia, which would enable better sale of forest products to its members (payment conditions, higher prices) we would like to know whether you are ready to sell all forest products via this association or only the ones which are for you more problematic for sale?

| SALE OF FOREST PRODUCTS VIA ASSOCIATION | YES | NO |
|---|---|---|
| We are ready to sell all forest products | | |
| We are ready to sell only those which are more difficult for sale | | |
| We are not ready for sale via the association of wood traders | | |
| Others… | | |

29. What is your opinion and experience about purchase of certified forest products?

| PURCHASE AND SALE OF CERTIFIED FOREST PRODUCTS | YES | NO |
|---|---|---|
| We do not have any experience with the purchase of certified forest products | | |
| We have experience and we buy them abroad (Croatia, Czech Republic..) | | |
| We do not trade with them as they cannot be bought on domestic market | | |
| Others… | | |

**APPENDIX 3:**

Data concerning the quantity and value (in USD) of exports and imports for tariff number 4403 (timber, unworked, debarked or non-debarked or without sapwood, or roughly worked (quartered)) between 2001–2008, which were used to calculate the comparative advantages index (*RCA-Revealed Comparative Advantage*), Grubel-Lloyd index (*IIT-Intra Industry Trade),* and Greenaway-Hine-Milner (*GHM*) index

| **Year** | | **Quantity** | **Usd** | **Usd total** |
|---|---|---|---|---|
| 2001 | Export | 965596 | 11951 | 9252443 |
| | Import | 637265 | 21945 | 10147595 |
| 2002 | Export | 429618 | 14325 | 10356973 |
| | Import | 330385 | 27356 | 10932460 |
| 2003 | Export | 323511 | 16503 | 12766914 |
| | Import | 394818 | 34309 | 13853856 |
| 2004 | Export | 473934 | 17199 | 15878866 |
| | Import | 3798403 | 42069 | 17570893 |
| 2005 | Export | 450302 | 27056 | 17896029 |
| | Import | 524497 | 40362 | 19626302 |
| 2006 | Export | 499856 | 33073 | 20984568 |
| | Import | 388599 | 38875 | 23014071 |
| 2007 | Export | 496859 | 46370 | 26552514 |
| | Import | 187950 | 38151 | 29480499 |
| 2008 | Export | 463814 | 47257 | 29232893 |
| | Import | 154357 | 29598 | 33937272 |

**APPENDIX 4: Glossary**

**Conifer -** Any of various mostly needle-leaved or scale-leaved, chiefly evergreen, cone-bearing gymnospermous trees or shrubs such as pines, spruces, and firs.

**Deciduous -** Shedding leaves at the end of a growing season and regrowing them at the beginning of the next growing season. Most deciduous plants bear flowers and have woody stems and broad rather than needle like leaves. Maples, oaks, elms, and aspens are deciduous.

**Forest –** Forest is a dense growth of trees, together with other plants, covering a large area of land. The science concerned with the study, preservation, and management of forests is forestry. The forests of the world are classified in three general types, or formations, which are primarily expressions of the climate in which the vegetation grows.

**Forest product -** A forest product is any material derived from a forest for commercial use, such as lumber, paper, or forage for livestock. Wood, by far the dominant commercial forest product, is used for many industrial purposes, such as the finished structural materials used for the construction of buildings, or as a raw material, in the form of wood pulp, that is used in the production of paper. All other non-wood products derived from forest resources, comprising a broad variety of other forest products, are collectively described as non-timber forest products.

**Forest products market -** The forest products market consists of chips and particles, sawnwood, wood fuel, wood residues, industrial roundwood and wood-based panels, but excludes paper and pulp. The market's volume represents production and is shown in cubic meters.

**Fuelwood -** Wood in the rough to be used as fuel for purposes such as cooking, heating or power production.

**Hardwoods** – Generally one of the botanical groups of trees that have vessels or pores and broad leaves, in contrast to the conifers or softwoods.

**Industrial roundwood -** All industrial wood in the rough, including sawlogs, veneer logs, pulpwood, and other industrial roundwood.

**Lumber** – The product of the saw and planning mill for which manufacturing is limited to sawing, resawing, passing length-wise through a standard planning machine, crosscutting to length, and matching. Lumber may be made from either softwood or hardwood.

**Other industrial roundwood -** Roundwood used for tanning, distillation, match blocks, gazogenes, poles, piling, posts, pitprops, etc.

**Roundwood -** All wood in the rough, obtained from removals. Includes sawlogs, veneer logs, pulpwood, other industrial roundwood, and fuelwood.

**Softwoods –** Generally, one of the botanical groups of trees that have no vessels and in most cases, have needlelike or scalelike leaves, the conifers, also the wood produced by such trees. The term has no reference to the actual hardness of wood.

**Timber -** Timber is a term used to describe wood, either standing or that has been processed for use — from the time trees are felled, to its end product as a material suitable for industrial use — as structural material for construction or wood pulp for paper production.

**Timber, Standing** – Timber still on the stamp.