A qualitative investigation of competition in the U.S. hardwood lumber industry

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Abstract

Competition in the U.S. hardwood lumber industry was investigated through interviews with company executives. The largest and smallest companies in the industry were found to be the most production oriented. When the competitive strategies of the companies were categorized using Porter's (21) strategic typology, Overall Cost Leadership strategies were found to be the most common. Focus strategies were found only as part of a dual Overall Cost Leadership/Focus strategy. The majority of companies compete for customers based on quality, customer service, and price. Proprietary grading is an important competitive tool for a few larger companies. The most frequently reported trends in the industry were shortened distribution channels, increased specialization in the products sought by lumber buyers, and movement of the inventory carrying function back to the lumber supplier.

Studies of wood-based industries commonly focus on descriptions of structural characteristics such as the number of companies, output, productivity, raw material use, and markets served. Examples of studies that provide this type of information about the hardwood lumber industry include: Wengert and Lamb (27,28), Cardellichio and Binkley (8), Spelter and Phelps (23), Luppold and Dempsey (18), Luppold (16), and Bush and Sinclair (5), as well as publications of the U.S. Department of Commerce - Bureau of the Census (25) and other government agencies (24,26). Other studies have taken an econometric approach to describing the hardwood lumber industry (1,14).

The existing literature describes many aspects of the hardwood lumber industry. However, one aspect, the basis and nature of competition, has been largely ignored in studies of hardwood lumber and other wood-based industries. Notable recent exceptions include: Rich (22) and O'Laughlin and Ellefson (20) for large wood-based companies, Cleaves and O'Laughlin (9) for companies in a portion of the structural panel industry, and Luppold (15) for the hardwood lumber industry.

The hardwood lumber industry in the United States can be characterized as fragmented (21) with well-established markets and widely accepted product standards (specifically, the National Hardwood Lumber Association grade rules). However, some consolidation has occurred in recent years (25) and markets for hardwood lumber have changed.

Luppold (16) reported a 500 percent increase in eastern hardwood lumber exports between 1965 and 1989. Consumption of eastern hardwood lumber in the pallet and cabinet industries grew steadily between 1972 and 1987. During the same period, consumption of eastern hardwoods for flooring and upholstered furniture decreased. Demand for western hardwoods in Pacific Rim and West Coast markets has grown significantly since 1976 (4).

Traditional methods of competing in the hardwood lumber industry may also be changing as the industry and its markets change. However, there is a lack of in-

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Forest Prod. J. 41(11/12):43-49.

depth research that addresses competition in the industry. The hardwood lumber industry is often described as competitive or very competitive without elaboration concerning the ways in which companies compete.

This study is an attempt to improve understanding of the ways in which hardwood lumber companies compete, the competitive strategies they utilize, and trends in the industry that could affect competition. Knowledge of these trends can help decison makers predict and plan for the future needs of the industry.

Methods

Executives at 20 of the largest (by production) hardwood lumber manufacturers in the United States were interviewed between June and August of 1989. The companies were identified through a review of production data provided by industry fact books (10,19), trade association membership directories, The Weekly Hardwood Review (2), and telephone conversations with company personnel. In addition, knowledgeable Forest Service, university, and trade association personnel were consulted to aid in compiling and checking the list of companies.

While every effort was made to avoid overlooking possible top 20 companies, the sample was not considered a definitive list of the largest hardwood lumber companies in the United States for two reasons. First, one company that was thought to be in the top 20 declined to be interviewed. In addition, production figures from various sources are inconsistently reported. Some production figures reflect only the volume of lumber actually produced at mills owned by the company, while other figures reflect lumber produced internally and lumber that is produced by independent mills but distributed by the company. These problems made the compilation of a definitive list of the largest 20 hardwood lumber producers in the United States extremely difficult. However, the sample did include many of the largest and, arguably, most influential companies in the industry and was deemed significant for this reason.

In multi-industry companies, interviews were conducted with executives in the business unit producing hardwood lumber. In single-industry companies, interviews were conducted with the top executive or, when the top executive was not available, with senior marketing and sales personnel. Interviews were generally limited to one executive at each company. However, at a few companies it was possible to interview several people to gain additional insight.

Interviews were semi-structured and exploratory. Areas of inquiry included: the current state of competition in the industry, the competitive strategy utilized by the company, the importance of various marketing variables, and trends in the industry that could affect competition. To assess changes, a naturalistic inquiry approach was taken (11).

Interiews were limited to executives at the 20 largest hardwood lumber companies in the United States. However, inquiries were not limited to competition among this group of companies. Respondents[1] were asked to discuss competition in all segments of the industry. This method of obtaining data relies on the experience and perceptions of the company executives. However, it was felt that since only a small number of interviews could be conducted, executives at large companies would provide the best overview of the industry. Since many of the executives had been employed with smaller companies and they often competed with smaller companies, they had considerable knowledge of competition in all segments of the industry.

Unless otherwise noted, the qualitative data provided by respondents are the basis of the information presented in this paper. To protect the confidentiality of the interviews, company names and proprietary information are not included.

Results and discussion

Industry segments

There are several ways in which the hardwood lumber industry can be segmented to aid in understanding competition. However, one of the most useful categorizations, and the one suggested by several respondents, is based on production volume.

Four general groups of companies can be defined: Giants (hardwood lumber production greater than 100 MMBF per yr.), large companies (35 to 100 MMBF/yr.), medium-sized companies (10 to 35 MMBF/yr.), and small companies (less than 10 MMBF/yr.). While this is a rough categorization, it is useful in understanding competition in the industry and is presented for this purpose. The following sections discuss the general competitive characteristics of companies in the Giant and Large categories, as well as companies in the combined Medium/Small category.

Giant companies. – Giant hardwood lumber companies are business units of wood-based corporations. They tend to be production cost and volume oriented and, in eastern markets, typically sell large amounts of green lumber to high volume end users (such as furniture and pallet producers) as well as kiln-dried lumber to distributors.

Giant companies benefit from economies of scale in distribution (freight charges, for example) and in timber purchasing. They offer the customer a competitive price, a wide selection of species, and the ability to ship large volumes quickly. Product availability is a competitive advantage of companies in this category and, as a result, lumber users may purchase from these firms when their normal suppliers are unable to meet their species or volume needs.

In giant companies, the large number of customers, geographic distances, and number of sales employees limits the development of relationships with custom-

[1]In the interest of brevity, the company personnel with whom interviews were conducted are referred to as respondents in this paper.

TABLE 1. – *Reported competitive strategies of hardwood lumber producers included in the study.* [a]

Size category[b]	Generic competitive strategy[c]					
	OCL	Focus	Diff.	OCL & Focus	OCL & Diff.	Focus & Diff.
	(% of respondents)					
Giant	12	--	--	--	6	--
Large	29	--	12	6	6	6
Medium	6	--	6	--	12	--
Totals[d]	47	0	18	6	24	6

[a]A total of 17 respondents provided this Information.
[b]Giant = greater than 100 MMBF/year large = 35 to 100 MMBF/year medium = 10 to 35 MMBF/year.
[c]OCL = Overall Cost Leadership: Diff. = Differentiation.
[d]Figures do not total to 100 percent due to rounding error.

ers. Because of the large volume of lumber these companies market and the size of their sales staffs, they tend to serve many markets for hardwood lumber rather than focusing on a particular market segment. Because of a desire to sell large amounts of lumber quickly, giant companies may be more willing to become involved in price-based competition than are large- and medium-sized companies.

The pricing actions of giants can influence national hardwood lumber markets in the short-term. Giants may also dominate markets in certain geographic areas. However, even the largest of the giants have little long-term effect on hardwood lumber prices because they represent only a small portion of industry production. Based on 1989 production figures (17), the largest 5 firms produce only 5 percent of the total hardwood lumber industry output.

Large companies. – The industry's large companies (35 to 100 MMBF/yr. although companies in this category are concentrated in the lower half of the range) generally compete using methods that differ from those used by the giant companies. Large companies, while conscious of production costs, often attempt to differentiate their products through consistent quality, packaging, customer service, and long-term relationships with customers. Large companies concentrate on producing kiln-dried lumber and prefer to sell their own production rather than distribute lumber produced by independent mills. They are often involved in exporting and, in domestic markets, may concentrate on lumber distributors.

Because of their smaller sales staffs and the involvement of the company owner(s) in sales activities, large companies typically develop long-term relationships with customers. These relationships help to protect them from competition in their geographic area.

Medium- and small-sized companies. – The medium/small category undoubtedly accounts for the greatest number of companies in the industry. Smaller companies in this category do not often have the resources to support a sales staff and, consequently, are heavily dependent on lumber brokers and wholesalers to market their products. Dependence on channel intermediaries to perform many of the marketing functions results in company personnel that are production oriented and limits relationships with lumber users. Medium-sized companies typically operate somewhere in the competitive range bounded by large and small companies.

As an alternative to marketing through brokers or wholesalers, companies in the medium/small category may develop a relationship with a local lumber user (for example, a furniture manufacturer). These users often consume a large portion of the company's production and the arrangement results in the lumber producer becoming a quasi-captive supplier. There are several advantages to this type of arrangement, sales force requirements are minimal, lumber is moved rapidly and consistently to allow for consistent cash flow, the lumber user may help protect the producer from excessive swings in the lumber market, and the lumber user may help to finance improvements or additions to the producer's production facilities.

Generic business strategies

To gain an overall picture of the ways in which the sample companies competed with other companies in the industry, respondents were asked to choose the one of Porter's (21) three generic strategies (Overall Cost Leadership, Differentiation, and Focus) that best described the competitive strategy utilized by their company. As with any model, Porter's strategic typology has limitations. Hendry (12), while noting these limitations, states of Porter's model (p.443), "If any model of strategic options can be said to have attained the status of a 'standard' model it is surely this one."

Respondents were provided with the following brief descriptions of each generic strategy, which are essentially the same as those used by Rich (22) in his study of large wood-based companies. With the Overall Cost Leadership strategy, the firm seeks to achieve overall low cost through aggressive construction of efficient scale facilities, adoption of new technologies, avoidance of marginal customer accounts or market segments, and cost minimization in areas such as marketing. With the Differentiation strategy, the firm seeks to differentiate the product and service offered, creating something that is perceived industry wide as being unique. Differentiation may take many forms, such as consumer service, brand image, strong captive distribution system, and/or a reputation for being on the forefront in new product development. With the Focus strategy, the firm focuses on a particular type of buyer, market group, or segment of the product line. The firm seeks to serve a particular target very well, better than its competitors who are competing more broadly.

All companies in the giant category identified, at least in part, with the Overall Cost Leadership generic strategy (Table 1). Many respondents indicated that their company's intended strategy was most accurately represented by a combination of generic strategies. Among the companies in the giant category, this reflected a movement from a Cost Leadership orientation toward a Differentiation orientation.

None of the giant companies indicated they used a

Focus strategy. Companies of this size are likely to have the skills and resources necessary to implement a Focus strategy if they desired. However, respondents indicated that focusing on a single market segment would limit potential sales and make them vulnerable to demand fluctuations in that market.

The large company category was the most strategically diverse. With the exception of the Focus strategy, all strategy types were represented. Strategy types in the medium size category were limited to Overall Cost Leadership, Differentiation, or a combination of the two strategy types.

Large- and medium-sized companies may avoid Focus strategies for reasons similar to those of the giant companies. However, this does not necessarily indicate that a Focus strategy is inappropriate for small lumber producers (6). In fact, the previously mentioned quasi-captive relationships between lumber users and small producers suggests a Focus strategy.

The competitive strategies used by the respondents' companies generally support the findings of Rich (22). Rich found that the majority of wood-based corporations in his sample used an Overall Cost Leadership strategy, but that there was a trend toward the use of Differentiation or Focus strategies. In this study, Overall Cost Leadership was the most common single strategy and strategies involving differentiation were well represented. However, none of the study companies utilized a Focus strategy.

Elements of competition

Respondents indicated that competition in the industry was based on product quality, customer service, and price — in that order of importance.

Quality. – Respondents defined quality in terms of packaging as well as the physical characteristics of the lumber (Fig. 1). Quality in terms of lumber includes accurate grading, double-end trimming, thickness accuracy, freedom from checks, and other lumber characteristics. These lumber quality characteristics were considered by respondents to be the minimum for competing in the industry.

Packaging aspects of quality include the grade mix within a load, banding, protective wrapping, and trimming all the lumber in a package to the same length. The latter three factors were termed presentation by several respondents. The emphasis on presentation appears to have started with export markets and was later carried over to domestic markets as customers began to appreciate export-style packaging in the lumber they purchase domestically.

Respondents indicated that presentation is particularly important for the distribution center market and other markets that purchased kiln-dried lumber. Packaging considerations were less important for markets that purchase green lumber since the lumber packages are often broken down to be placed on stickers. In addition, respondents indicated that green lumber buyers are generally less concerned with the appearance of the lumber they purchase.

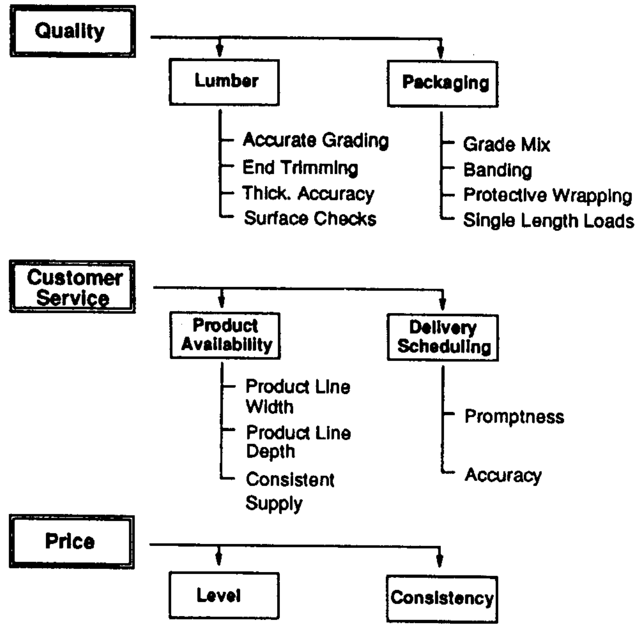

Figure 1. — Primary elements of competition in the hardwood lumber industry.

According to respondents, the level of quality demanded by some markets is not ensured by National Hardwood Lumber Association (NHLA) grade rules. For example, even though surface checks may be allowed by NHLA rules, manufacturers may grade checks as defects to improve the quality of the lumber they supply to certain markets. Other quality considerations include the proportion of higher grade material in mixed grade orders and consistency of length and width within a shipment.

Customer service. – The factors most commonly mentioned concerning customer service were product availability and delivery scheduling (Fig. 1). Product availability includes product line width, product line depth, and consistency of supply. For example, the ability to supply lumber during wet periods when logging is difficult is a customer service consideration.

Delivery scheduling includes both the ability to ship promptly and the ability to meet quoted shipping dates (accuracy). Delivery scheduling was considered to be particularly important when serving manufacturers of secondary products, partly because of the use of Just-In-Time inventory management systems. Respondents indicated that delivery scheduling is less important when serving channel intermediaries such as distribution centers.

Additional aspects of customer service include custom grading, willingness to ship mixed loads, the ability to meet large volume orders, and the way in which complaints are handled. The ability to provide custom grading and sorting was predicted to become increasingly important in the future.

Credit terms and the ability to provide technical information were considered less important aspects of customer service. Credit terms are relatively standardized throughout the industry and companies often depend on trade associations and government agencies to provide technical information. However, firms producing proprietary grades of lumber find it necessary to provide technical assistance and work with customers to aid them in using their products.

Price. – A comparable price was considered by most respondents to be a prerequisite for operating in the industry rather than a primary competitive tool. Prices reported in publications such as the *Hardwood Market Report* (13) and *The Weekly Hardwood Review* (3) are commonly used as the starting point for negotiations. Pricing often takes the form of *Hardwood Market Report* plus or minus an allowance to account for factors such as local availability, weather, the relationship between buyer and seller, and specific length or width requirements. In some markets, price stability (consistency) is an important consideration.

Respondents indicated that, in contrast to producers, price is the primary competitive tool used by distribution channel intermediaries since they may have little control over the quality characteristics of their product. In some cases, it was felt that the pricing actions of these intermediaries strongly influence, even control, market prices. Price was also thought to be more important to new customers than to established accounts. This difference reflects compensation required by lumber buyers to offset the risk involved in dealing with a new supplier.

Timberland ownership. – Respondents were unanimous in indicating that timberland ownership could afford a company a competitive advantage. However, they generally believed that this advantage accrued only to companies that had purchased timberlands some time ago. The purchase of timberlands at this time was considered an unprofitable investment and the purchase of timber cutting rights or management contracts were suggested as better alternatives for securing a supply of raw material. One company provides loans to local loggers to help ensure raw material availability.

For companies owning timberlands, competitive advantage can take several forms. The company may be able to realize greater profit margins while selling at the prevailing market price or the company may be able to gain market share by selling below the market price while maintaining an acceptable profit margin. Companies with timberland holdings may also use these holdings as a hedge against high stumpage prices by purchasing timber on the open market when prices are relatively low and cutting their own timberlands when prices are high. When they do purchase timber, companies with timberland holdings have more power in dealing with timber suppliers.

Proprietary grading. – The use of proprietary grading systems was not widespread among the companies studied. However, some companies have adopted this competitive tool. Proprietary grading systems can help to shift a company's products from commodity markets, where prices are largely controlled by factors external to the company, to specialty markets where the company can exert more control over price. A company is also afforded a competitive advantage if its proprietary grades fit the needs of a market segment well enough to create barriers to entry into the market and switching costs for the user. For example, companies that wish to enter the market served by producers of proprietary grades face the expense of developing their own grades, changing their production system to produce the grades, and convincing customers of the value of their grades. Proprietary grades can also help a company to develop brand loyalty among its customers.

A disadvantage of proprietary grading is the additional resources required to develop, produce, and market the lumber. Changes may be needed in production equipment and additional sorting maybe necessary. Employees may require additional training and increases in the sales staff maybe necessary to provide customer support and overcome customer resistance to the grades.

Brand identification. – All companies were asked about the importance of branding as a competitive tool. The responses suggest that very few firms have used a branding strategy to gain a significant competitive advantage in domestic markets. Activities designed to generate brand awareness include the use of a company logotype (logo) in advertising, promotion, and on products.

Most respondents agreed that a company logo was important, even required, in export markets. Personal relationships are often limited in these markets due to geographic distances and the number of channel intermediaries involved. As a result, company logos are an important way in which brand recognition and loyalty are developed.

However, respondents were generally unconvinced of the usefulness of company logos on lumber shipped to domestic markets. Because personal relationships are more common in domestic markets, the ability of producer logos to generate brand loyalty was considered weak.

Some companies use a logo on all shipments (domestic and export), while others used one only on export products. Use of a logo also varied with customer type. For example, some channel intermediaries do not want lumber packages marked with a logo or the producer's identification since they sell the lumber under their own brand.

Advertising and other promotional activities. – Opinions concerning the importance of advertising as a competitive tool ranged from "very important" to "a total waste." Many respondents reported they placed informational advertising in trade publications but they were not convinced of the effectiveness of such advertising.

For many companies, informational advertising in trade publications is the extent of their promotional activities. However, companies using proprietary grades typically make greater use of promotional literature to explain their grading system and elaborate on the benefits of the grades.

In contrast to company-specific advertising, respondents were very positive about trade association efforts to promote hardwoods to domestic and foreign consumers. An example commonly cited was the Hardwood Manufacturers Association's solid wood furniture promotional program.

Other factors. – Several additional factors affect competition in the hardwood lumber industry and should be noted. Due to regional differences in timber supply and quality (and the limitations imposed by shipping costs), location has a large impact on competition among companies in the industry. Companies that develop long-term relationships with lumber users in a geographic area may be able to dominate that segment of the market.

Another important consideration is the difference between competition in low-grade (generally defined as No. 2 Common and under) lumber markets and markets for medium- and high-grade material. Until this point, this paper has discussed competition for customers that purchase medium- and high-grade lumber. Lumber producers often concentrate their efforts on these markets and view low-grade lumber as an unavoidable by-product of the manufacturing process.

Low -grade material (lumber and cants) is often sold to pallet producers. Unlike medium- and high-grade lumber, pallet lumber and cants are often marketed under contract. This arrangement provides stability of price and supply to the purchaser and a constant, low-maintenance market for the producer.

Finally, it should be noted that, due in part to the strong demand for hardwood lumber in recent years, competition for raw material may be more important to many companies than competition for customers.

Industry trends

Respondents were asked to give their views concerning trends in the hardwood lumber industry that could affect the way in which companies market their products and compete for customers. Frequently reported trends included shortened distribution channels, increased specialization of orders, and movement of the inventory carrying function.

The shortening of distribution channels results from an increase in direct transactions between lumber producers and lumber users, transactions that bypass channel intermediaries. This trend probably would not be a great change for firms that have their own sales staff. However, for smaller firms that presently market their products through channel intermediaries, this represents a major change in the way they do business.

Increased specialization in the products that customers desire was another reported trend. Respondents reported increased requests for specific lengths or mixtures of lengths, specific widths, and specific grade mixtures (for example, No. 2 and better with 20% No. 1). Some respondents suggested that this trend will continue to the point of certain markets buying dimension parts rather than traditional grade lumber. However, few respondents thought the NHLA grade system would be replaced. Rather, they suggested producers will match lumber to the customer's specific needs within the NHLA guidelines.

Several of the companies interviewed have positioned themselves to take advantage of the trend toward specialization of orders by developing flexible sorting and grading systems and by diversifying into dimension operations. For many of the remaining firms, this trend could require investment in new processing equipment and increase production costs in the short term.

A third trend, which has already been seen by many respondents, involves the movement of the inventory carrying function back toward the lumber producer. Stated another way, lumber users have reduced their inventory levels and, to compensate, require more rapid and accurate shipments from lumber suppliers. This requirement has increased the inventory level lumber producers must maintain in order to service certain customers.

Respondents attribute this trend to the adoption of Just-In-Time inventory systems and increasing inventory carrying costs. The adoption of Just-In-Time systems by lumber users will increase the competitive advantage of larger companies that can provide the customer with prompt delivery of a wide variety of species and grades. This trend will also place a financial burden on small companies that depend on the rapid cash flow provided by immediate shipment.

Summary and conclusions

Hardwood lumber is a diverse industry. Companies in the industry show considerable variation in terms of markets served, distribution channels used, competitive methods, and overall business strategy. Companies also vary in terms of production volume, corporate affiliations, and numerous other factors. However, some patterns are evident and these patterns aid in understanding competition within the industry.

Competition in the industry is based, primarily, on quality, customer service, and price. All three of these elements were found to be multi-faceted. The primary aspects of quality are accurate lumber manufacturing and packaging. Customer service consists primarily of product availability and delivery scheduling. Price consists of level (the actual price) and consistency (how often prices change).

Large companies and some medium-sized companies in the industry tend to avoid the use of price as a competitive tool and concentrate instead on quality and customer service. Giant companies may be more willing to compete based on price but do not ignore quality and customer service. Small companies often rely on channel intermediaries to market their products or quasi-captive arrangements with lumber users. Consequently, small companies tend to be production oriented.

Several industry trends were consistently reported.

These trends include shortened distribution channels, increased specialization of orders, and the movement of the inventory carrying function backward in the distribution channel.

Several of the companies studied indicated that they utilize a Differentiation strategy either alone or in combination with Overall Cost Leadership. Calori and Ardisson (7) found that, in the mature industries they studied, the major opportunity for differentiation was in adopting a Total Quality concept (product quality regularity, punctuality of deliveries, quick response to unexpected orders, quick and correct answers to requests, and short delivery times). This Total Quality concept embodies many of the factors this studv found important and is a good way of visualizing the basis of competition in the hardwood lumber industry.

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