Importance of Internal and External Factors when Adapting to Environmental Changes in SME Sawmills in Norway and Finland: The Manager's View

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Abstract

Drawing upon the resource-based view (RBV) of the firm and Porter's five forces, this study examines CEOs' perceptions of the drivers of competitive advantage in Finnish and Norwegian small- and medium-sized (SME) sawmills. Using qualitative data from CEO interviews and secondary data sources, the results show differences in relevant resources among SME sawmills. In some cases, high-quality raw material is a driver of above-average industry performance, while certain organizational resources, together with correct positioning within an industry, are a way to compensate for a lack of other sources of competitive advantage. Resources such as advanced production technology or a flat organizational structure are essential to diluting the weaknesses of the case companies. Our cases also clarify the important role of intangible resources (e.g., personnel being willing to change).

Keywords: competitive advantage, industrial organization, resource-based view, environmental change, sawmill industry

Introduction

The competitive landscape of the sawmill industry is changing rapidly. Increasing global competition, accelerating technological change, substitutes, and expanding customer expectations are creating a turbulent environment for small- and medium-sized (SME) sawmills. Managers are thus forced to look for new sources of competitive advantage and formulate business strategies that utilize their core advantages.

Management strategists and industrial economists have long been interested in the determinants of firm performance (McGahan 1999). There are two dominant but conflicting perspectives on this issue: the industrial organization perspective (e.g., Porter 1980, 1991) and the resource-based perspective (e.g., Barney 1991, Wernerfelt 1984). As a consequence, a large number of empirical studies have focused on the details of performance drivers, including in the context of the forest industry (Bonsi et al. 2008, Bull and Ferguson 2006, Korhonen and Niemelä 2004, Lähtinen 2007, 2009, Stendahl et al. 2007, Tokarczyk and Hansen 2006).

The aim of this paper is to evaluate resources and capabilities in the sawmill industry and to connect such metrics with external factors. Does the CEO's focus on internal or external factors explain differences in performance? How are CEOs in wood-industry companies reacting to changes in the industry? Do firms with different resources react differently to environmental change?

In this article, we combine two major perspectives: the industrial organization (IO) and resource-based view (RBV) of the firm. By IO, we mean Porter's framework of competitive strategy (Porter 1980). With his five forces, Porter adopts an outside-in perspective regarding market structure and its effect on the firm. Porter (1980) argues that competitive advantage is related to a firm's ability to implement broad generic strategies within an industry. The RBV of the firm was introduced by Penrose (1959). In contrast to IO, this perspective views the issues of strategy, resources, and competitive advantage from a different angle. The RBV is an inside-out perspective that ties competitive advantage to economic performance (Barney 1986, 1991, Cooner 1991, Dierickx and Cool 1989, Peteraf 1993, Wernerfelt 1984). A firm has competitive advantage if its economic performance is above the industry average (Peteraf 1993).

The appropriate use of these two perspectives has been

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frequently discussed (e.g., Barney 2001, Priem and Butler 2001a, 2001b). Is the RBV a useful perspective for strategic management research, or is the outside-in perspective preferable? In this article, we have chosen to combine the two. In 1959, Penrose argued that both internal and external factors are important and that a dynamic time-specific component also exists. Wernerfelt (1984) points out that Porter's framework and the RBV constitute two sides of the same coin. The question of whether performance is driven by firm- or industry-specific factors has been crucial to the field of strategy. Grant (1991) and Spanos and Lioukas (2003) argue that both are important. In the case of the sawmill industry, economic cycles have strongly influenced the economic performance of the whole industry, which indicates the importance of industry-level factors. However, within the industry, some firms have been able to consistently record higher profits. To understand firms holistically, we need an analysis of both external factors (Porter's five forces) and internal factors (RBV).

This article begins with a theoretical discussion of the empirical drivers of performance, IO (Porter's five forces), and the RBV and how they can be complementary. This perspective is also the framework for the present study. The second part of our article explains the choice of method and provides an overview of the material used. Next, quotations and results from interviews are separated into internal and external factors. Finally, results are discussed and conclusions are provided.

Theoretical Background and Framework

Industry-level factors – Porter's five forces

Industrial organization economics is one of the most popular frameworks for evaluating environmental factors that may impact a firm's performance (Hoskisson et al. 1999). The main justification for using industrial organization economics is that industry structure is the most important factor influencing firm profitability (Kay 1991, Porter 1981). In competitive strategy (Porter 1980), the central analytical framework focuses on the five forces that drive industry competition: 1) the threat of new entrants, 2) the bargaining power of buyers, 3) the bargaining power of suppliers, 4) the threat of substitute products or services, and 5) rivalry among existing firms.

Michael Porter's five-forces framework uses an outside-in perspective. A firm's ability to gain competitive advantage depends on how well it positions and differentiates itself in an industry (Porter 1979). This industry structure framework can be applied at the industry level by groups of firms with similar strategies (strategic group) or even at the level of the individual firm (Porter 1991). Industry structure is influenced partly by firms and partly by exogenous factors. Successful firms will occupy an attractive position within the industry. According to Porter (1991), an attractive position arises from competitive advantage, which can be divided into two basic types: 1) lower costs than its rivals and 2) the firm's ability to differentiate products and/or services so that it can charge a premium that exceeds the extra costs of differentiating. Firms that occupy a similar position within an industry form a strategic group (Porter 1980).

Resource-based view – a framework for firm-level analysis

The resource-based view examines the resources and capabilities that allow firms to achieve a sustainable competitive advantage (Amit and Schoemaker 1993, Barney 1986, Dierickx and Cool 1989, Mahoney and Pandian 1992, Oliver 1997, Wernerfelt 1984). The view can be traced from the seminal work of Penrose (1959), who analyzes the firm as a collection of productive resources. Since the publication of Wernerfelt's (1984) article on the RBV, it has become one of the standard theories in the strategic management literature. It tries to answer the following question: "Why do firms in the same industry vary systematically in terms of competitiveness?" The RBV's explanation for this is that the intra-industry variation in competitiveness is based on each firm's unique bundle of resources and capabilities (Barney 1991, Peteraf 1993, Wernerfelt 1984).

Various definitions and classifications of resources have been proposed. Grant (1991) divides resources into homogenous classes such as financial resources, physical resources, human resources, technological resources, reputation, and organizational resources. Zahra and Das (1993) and Collins and Montgomery (1995) classify resources into tangible resources, such as human, physical, and financial, and intangible resources, such as reputation, organization, and patents.

Hall (1992) emphasizes the role of intangible resources such as assets and competencies and divides assets into legal assets, such as contracts, patents and trademarks, and non-legal assets, such as reputation and supplier networks. Other relevant intangible resources are expertise (not only as related to employees and managers but also the expertise of other stakeholders) and organizational culture. Perhaps the most frequently used classification of RBV divides concepts into resources (technology, personnel, management, and geographical location) and capabilities. The latter category focuses on a firm's ability to utilize existing resources available in the market and to further develop those resources (e.g., Amit and Schoemaker 1993, Prahalad and Hamel 1989, 1994, Teece et al. 1997).

The resource-based view of the firm does not consider all firm resources. It focuses only on strategic resources, which are sources of competitive advantage. One widely used test was proposed by Barney (1991, 2001): to be a source of sustained competitive advantage, resources and capabilities must be: 1) *Valuable*. A valuable resource enables a firm to improve its market position relative to competitors; 2) *Rare*. To be of value in sustaining competitive advantage, resources must be in short supply relative to demand; 3) *Isolated from imitation or substitution*; and 4) *Immobile and costly to imitate or to replicate*.

The RBV is an inside-out perspective whereby firm resources are sources of competitive advantage. A firm's resources include all the assets, capabilities, processes, etc. that are controlled by the firm. *Financial resources* include internal capital and debt-capital sources. *Physical resources* include a firm's equipment and plant, its geographic location, and its access to raw materials. *Human resources and capabilities* include the experience, training, relationships, insight,

judgment, etc. of individual employees and managers in a firm. *Organizational resources and capabilities* include a firm's administrative framework (management, planning and control systems), a firm's reputation, and its working atmosphere.

The definitions of resources and capabilities are typically all-inclusive and not always ideal for discriminating between resources or capabilities that are manipulated by management and those that are not (Priem and Butler 2001a). Priem and Butler (2001b) describe the processes by which valuable resources are built and generate competitive advantage as taking place inside a "black box." As Johnson et al. (2003) state, "the value of a resource depends not on its existence but on its utilization." In the case of SMEs, RBV is problematic because SMEs often lack the resources and capabilities to develop their own markets (Nooteboom 1993). In addition, in many cases, their small size makes it difficult for them to reap the benefits that would arise from economies of scale, scope, and the experience curve (Nooteboom 1993).

Framework for the present study — industrial organization economics and RBV as two complementary perspectives

Competitive advantages lead to profits that exceed the industry average. For more than 50 years, there has been debate between researchers in industrial organization economics and the field of strategic management about the source of profits. The debate continues even today (Roquebert et al. 1996). In the late 1930s, Ed Mason argued that there was a rather deterministic association between market structure and profitability (Roquebert et al. 1996). However, at the same time, researchers such as Nourse and Drury (1938) claimed that management largely determined firm advantages and firms were not simply at the mercy of industry factors (Roquebert et al. 1996).

In the field of business strategy, it has also been recognized that the industrial organization economics and RBV perspectives complement each other in explaining firm performance (Amit and Schoemaker 1993, McKiernan 1997, Peteraf 1993, Spanos and Lioukas 2001). Eriksen and Knudsen (2003) point to the possibility of integrating internal and external perspectives of competitive strategy. They also emphasize that industry context and firm strategies are not independent constructs. In fact, Penrose (1959) notes that an environmental change within an industry "may change the significance of resources to the firm." In other words, Penrose (1959) suggests that both internal and external factors are important for management and that there is a dynamic, time-specific component. Wernerfelt (1984) agrees that Michael Porter's framework and the RBV constitute two different aspects of the same matter. These two drivers of firm performance can be applied in the same analysis because both views have the same unit of analysis and explain the same phenomenon: intra-industry differences in profitability.

As stated previously, the strategic management literature offers two ways to identify sources of competitive advantage: the outside-in perspective and the inside-out perspective. In our synthesis, we combine an internal firm analysis and an external industry analysis (Figure 1).

Data and Methods

Barney (2002) emphasizes four characteristic dimensions of any resource or capability as a source of competitive advantage: It has to be valuable, rare, costly to imitate, and exploited by the firm (VRIO framework). Rarity, which is one factor in Barney's (e.g., 1995) VRIO framework, also supports the methodological choice made in this study. We can assume that resources and capabilities behind competitive advantages are firm-specific and that the identification of

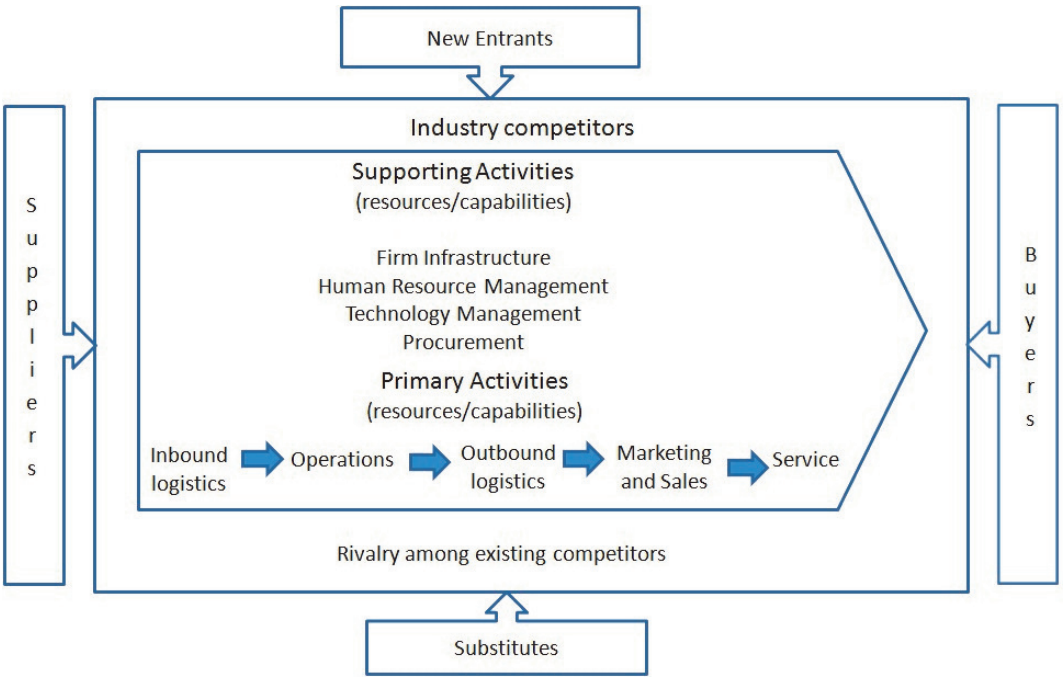

Figure 1. — Framework for case analyses. To be a source of sustainable competitive advantage, resources/capabilities must be valuable, rare, isolated from imitation or substitution, immobile, and costly to imitate or to replicate.

these resources would be difficult if we were to use a quantitative methodology. Accordingly, we have chosen a qualitative approach because the primary objective is to obtain a holistic, in-depth view of resources and capabilities as a source of competitive advantage and to increase our understanding of links between industry-level factors. According to Eisenhardt (1989), case study research is appropriate for exploratory research with a focus on: 1) documenting a phenomenon within its real-life context, 2) exploring the boundaries of a phenomenon and 3) integrating data from multiple sources. Qualitative methods are traditionally used for gaining an overview of a topic or phenomenon of interest.

The research process started with a discussion with academic and industry experts and the identification of suitable case firms from the sawmill industry. It became evident that a qualitative methodology was most appropriate to capture the diversity of operating environments and firm-specific resources and capabilities, and thus would provide more insight than quantitative methods.

To increase reliability, we designed a semi-structured interview protocol. We left a considerable amount of flexibility for follow-up and exploring manager insights. Questions in the interview included the following:

1. Which core resources and/or capabilities (core competencies) have contributed to the above-average performance of your firm?
2. How have these resources been helpful in responding to opportunities and threats in the operating environment?
3. Have decisions concerning strategy been a reaction to changes in the operating environment and positioning within the industry, or have they been a consequence of utilizing and developing the resources and capabilities of your firm? Have they been both?
4. To be a source of sustainable competitive advantage, resources and capabilities should be the following: valuable (importance of right strategy), rare, inimitable, and lacking substitutes. Are these the kinds of resources or capabilities that are characteristic of your firm?

Sample

We used a multiple-case design that included eight cases — four in Norway and four in Finland. An intensity sampling strategy was used to select the cases. An intensity sample consists of information-rich cases that intensely manifest the phenomenon of interest (Patton 1990). Several criteria were used to select cases. We invited eight experts, including managers from the wood industry and researchers, to identify high-performing small- or medium-sized sawmills that are well known within the industry. To validate the responses provided by the experts, we obtained secondary information about the chosen firms, including newspaper articles, annual reports, and financial statements.

Data Collection

In the first phase of the study, we contacted the CEOs of well-known, high-performing firms within the sawmill industry and invited them to participate in an interview. One Finnish CEO refused because they would not give away information about their competitive advantages. Interviews were conducted with the CEOs at their offices.

Individual case studies were undertaken at eight Norwegian and Finnish SME sawmill firms (Table 1). The method of interviewing CEOs was considered ideal for the collection of primary data because it did not require us to determine in advance the questions that would be discussed. Informal conversation with other managers, publicly available published CEO interviews, newspaper articles about our chosen firms, annual reports, financial statements, and archival documents were used as secondary data (Table 1 — see next page).

The interviews lasted between 45 and 90 minutes, and all audio was recorded. The resource-based (inside-out) view of the firm and Porter's (1980) five forces (outside-in) model framed and guided our interview protocol. The value-chain concept was used as a model for various firm activities. The interview protocol did not dictate which resources, capabilities, or external factors would be discussed. Priority was always given to topics raised by the interviewee. If necessary, researchers raised firm-specific issues based on secondary data to clarify different aspects of the framework.

Analysis

One challenge of case studies can be the large amounts of highly variable data (Yin 1994). In the present study, our qualitative-analysis protocol utilizes both within-case analyses and cross-comparisons between cases (Miles and Huberman 1994, Yin 1994). The use of firm memos, tables, and categorical schema based on the study model helped us to manage the data and generate insights. Iterative rotations between interview data, secondary data, study frameworks, and the researcher's knowledge of the prior literature (cited earlier in this paper) were employed in our analyses. These types of techniques and procedures allow for the gradual refinement of conclusions and are commonly believed to be necessary for case-study research (Glaser and Strauss 1967, Yin 1994)

The aim of the theory-based interview protocol was to provide a 'roadmap' for an interview, not to dictate what the most relevant themes are – i.e., sources of competitive advantage – for each firm. In all interviews, CEOs were encouraged to express their own views. The interview transcripts were categorized into sub-themes, which are shown in Table 2 (see page 4). The sub-themes were described in our interview protocol, which was given to the CEOs at the beginning of each interview. As a final step, we created a complete record of each of the sub-themes, some of which were new and unanticipated.

The transcripts were sent to each of the respondents for comment. Issues related to firm competitiveness are often sensitive. Interviewed CEOs were offered an opportunity to review quotations used in this study and were given the option to redact any sensitive data that might have influenced themselves or their firms negatively. This is also a mechanism for increasing reliability (Miles and Huberman 1994). Certain firm-specific issues related to marketing strategy and negotiation strategies with buyers were redacted at the request of interviewees.

Phone calls and e-mail were used to generate feedback following our preliminary analyses. This feedback was used

Table 1. — Introduction of selected cases and overview of collected primary and secondary data.

Case	Description of sawmill	Type of data collected
Case I	• Small sawmill in area of high log prices • Operations cover whole value chain despite the small size • Annual turnover (million €): 5 • Total assets (million €): 3.7 • Main product: sawn lumber – spruce	- Semi-structured interview with CEO - Financial statements and balance sheets (past five years); analysis of financial statements (EBITDA margin, equity ratio, gross profit/loss ratio) - Newspaper and business journal clippings
Case II	• Declining raw material supply • Intensive investment program • Annual turnover (million €): 45 • Total assets (million €): 30 • Main product: sawn lumber – pine and spruce (pine dominates)	- Semi-structured interview with CEO - Financial statements and balance sheets (past five years); analysis of financial statements (EBITDA margin, equity ratio, gross profit/loss ratio) Newspaper and business journal clippings
Case III	• Located in the "middle of pulp and paper cluster" • Outsourced log procurement • Annual turnover (million €): 5 • Total assets (million €): 2.3 • Main product: sawn lumber – spruce and pine (spruce dominates)	- Semi-structured interview with CEO - Financial statements and balance sheets (past five years); analysis of financial statements (EBITDA margin, equity ratio, gross profit/loss ratio) - Newspaper and business journal clippings
Case IV	• Modest investments • Networked (joint ventures) • High-quality raw material • Annual turnover (million €): 20 • Total assets (million €): 8 • Main product: sawn lumber – spruce	- Semi-structured interview with CEO - Financial statements and balance sheets (past five years); analysis of financial statements (EBITDA margin, equity ratio, gross profit/loss ratio) - Newspaper and business journal clippings
Case V	• Export-oriented • Surrounded by large-scale competitors • Annual turnover (million €): 14 • Total assets (million €): 8 • Main product: sawn lumber – spruce	- Semi-structured interview with CEO and conversation with production manager and marketing manager. - Financial statements and balance sheets (past five years); analysis of financial statements (EBITDA margin, equity ratio, gross profit/loss ratio) - Newspaper, research rapport, presentations given by CEO and business journal clippings
Case VI	• Sawmill with heavy investments • Annual turnover (million €): 12 • Total assets (million €): 8 • Main product: sawn lumber– spruce	- Semi-structured interview with CEO and conversation with production manager - Financial statements and balance sheets (past five years); analysis of financial statements (EBITDA margin, equity ratio, gross profit/loss ratio). - Newspaper, research rapport, homepage and business journal clippings
Case VII	• New Greenfield investments (*) • Good logistical location • Annual turnover (million €): 11 • Total assets (million €): 8 • Main product: sawn lumber – spruce	- Semi-structured interview with CEO - Financial statements and balance sheets (past five years); analysis of financial statements (EBITDA margin, equity ratio, gross profit/loss ratio) - Newspaper, homepage, and business journal clippings
Case VIII	• Well-known overperformer of the industry • Small-scale consolidator • Annual turnover (million €): 16 • Total assets (million €): 7 • Main product: sawn lumber – spruce and pine (pine dominates)	- Semi-structured interview with CEO and conversation with production manager - Financial statements and balance sheets (past five years); analysis of financial statements (Earnings before interest, taxes, depreciation and amortization, equity ratio, gross profit/loss ratio) - Newspaper, homepage, and business journal clippings

(*) Greenfield investment: investments into new facilities in new place without past manufacturing tradition of specific industry.

Theme 1: External factors – opportunities and threats from the operating environment	
1.1	Threat of new entrants
1.2	The bargaining power of buyers and suppliers
1.3	The threat of substitute products
1.4	Competition between existing firms
Theme 2: Internal factors – resources and capabilities	
2.1	Physical resources
2.2	Human resources and capabilities
2.3	Organizational resources and capabilities
2.4	Financial resources

Table 2. — Themes from the interviews.

to provide additional insights and deepen our analyses. Discussions with a qualitative-research specialist and a finance-sector specialist helped to ensure the objectivity of the analyses. The Finnish interviews and two of the Norwegian interviews were conducted in Finnish and Norwegian, respectively. Two of the Norwegian interviews were conducted in English. To ensure optimal translations, all transcripts were carefully reviewed by researchers with Norwegian and Finnish as a first language and by a researcher with English as a first language.

Results

The results are presented in two main sections. The first section looks at external factors affecting competitive advantage. It focuses on opportunities and threats within the operating environment. The second section looks at internal factor effects on competitive advantage and focuses on resources and capabilities.

External factors – opportunities and threats within the operating environment

Nordic sawmills have faced competition from lower-cost commodity producers like Russia, the Baltic countries, and other countries in Central and Eastern Europe during the past decade (Spelter et al. 2004). Many investments that have boosted production in those countries have been made by companies from EU countries and even from more distant geographies, e.g., North America (Spelter et al. 2004). To address this challenge, Nordic sawmills have been forced to adopt value-added and niche strategies, increasing their investments to boost productivity and thereby achieve economies of scale, and to aggressively seek new market opportunities (Virtanen 2005). Naturally, currency exchange rates have shaped the import and export patterns of sawn softwood products (e.g., Spelter et al. 2004). A typical comment from CEOs was:

> *"These external factors [the threat of new entrants, the bargaining power of buyers, the bargaining power of suppliers, the threat of substitute products or services, and rivalry among existing firms] place us in a tough competitive situation. We have to try to survive while [our competitors] try to push us out of business." (Case I)*

In this section, according to the identified sub-themes, we divide external factors into four groups: 1) the threat of new entrants, 2) the bargaining power of buyers and suppliers, 3) the threat of substitute products and 4) competition among existing firms.

Threat of new entrants

The threat of new entrants derives mainly from lower-cost countries, e.g., in Eastern Europe. Many transitional nations entered Western European markets during the 1990s. Today, domestic forest resources, e.g., in the Baltic States, are fully utilized and many input prices, including raw materials, are approaching the rates of the Nordic countries. New EU member states, some of which have substantial forest resources, have received significant greenfield investments. Also, the immediate advantages of EU membership have tended to improve their competitiveness via: 1) savings in transport time due to border deregulation; 2) the facilitation of value-added tax procedures; 3) the removal of possible anti-dumping duties; 4) access to EU structural development funds for industrial development; 5) consistent quality and trade regulations and 6) increased market information (Spelter 2004). One CEO analyzed the threat from new entrants as follows:

> *"But the largest threat is from these new EU member states, not because they have joined the EU but because they are receiving subsidies to build up their sawmills." (Case I)*

Other CEOs emphasized how the utilization rate in some new EU member states is now approaching levels that discourage any further production expansion. Despite this fact, subsidies are supporting investments in the latest technology; consequently, their competitiveness may outpace that of states from the "old" EU.

The sawmill industry has been seen as a valuable industry for rural development policy programs because it is relatively labor-intensive and mainly uses inputs from rural areas (Indufor 2002). On the other hand, public subsidies have led to unfair competition. According to Indufor (2002), subsidized mills are achieving cost advantages of 10 to 17 percent, which can encourage aggressive pricing. One CEO said:

"These subsidies have been heavily criticized […] it is [because of them] that competition has intensified." (Case I)

The bargaining power of buyers and suppliers

The bargaining power of buyers influences profits in the sawmilling industry. High visual quality has been considered a competitive advantage for Nordic producers. Although the furniture industry has used relatively small volumes compared to the total production of Nordic sawn lumber, decreasing margins in the furniture industry together with the increasing bargaining power of large retail furniture chains have led to price erosion. One CEO discussed market change as follows:

"But then this 'IKEA phenomenon' arrived. Today their products (wooden furniture from pine) are made from raw material of the lowest possible quality and with the cheapest available labor." (Case II)

Production of medium-density fiberboard has been rising during the past 10 years, with an average annual growth rate of more than 15 percent in the EU/EFTA sub-region (Spelter et al. 2004). This increasing demand in many countries is primarily due to the so-called "laminate flooring effect": European laminate flooring has become increasingly popular in recent years (Spelter et al. 2004).

In Finland, three of the largest sawmills also operate a joint venture pulp company. For independent sawmills, pulp production is not viable because of overwhelming capital requirements. The sawmilling industry uses a divergent production process. When mills produce a single product, they will also derive side products that can be hard to sell (undesirable sawn lumber dimensions/quality grades and by-products). One such product is pulp chips, but for independent sawmills, revenues from these chips can be substantial.

These facts strengthen the bargaining positions of large integrated companies, which in the Finnish case are also competitors in the log and sawn lumber markets. When an independent sawmill has its own log purchasing organization, it is not only a question of chips but also one of pulpwood, which is an unwanted raw material for independent sawmills and must be sold to pulp companies. When the number of buyers is limited, these pulp companies use their bargaining power. A Finnish CEO stated:

"Even though these negotiations can last for many days, I have never managed to change the price points." (Case II)

In Norway, the sawmilling and pulp industries are not integrated. Norske Skog, the largest pulp producer, with four pulp mills, dominates the chip market.

"It is a monopoly. They tell us the prices, and there is no further discussion." (Case V)

In a mature industry like sawmilling, where growth is low, true product prices are declining and the main input prices often fail to follow the sawn lumber price trends. This has led to low profitability and a scarcity of investment, which in turn has resulted in low productivity.

SME sawmills must match their resources and capabilities with the right business strategy consistent with the structure of their industry. As Porter (1980) states, strategy can be viewed as a positioning within an industry in such a way that the damaging forces are weakest. One of the Norwegian CEOs (case company VII) emphasized the company's strategy of concentrating on the Norwegian market, where it had more impact on prices and was able to increase profits due to the high quality of local timber.

"Sweden is seven times larger than Norway, and Finland is five times larger than Norway. The result is that, in Europe, we cannot do anything to alter the prices of end products or the quality requirements." (Case VIII)

For one Finnish company, changes in the operating environment have required a substantial investment program. Environmental conservation programs have reduced harvesting opportunities by 30 percent. One CEO explained the problems as follows:

"First, it led to problems with raw material costs – the shortage led to price increases, and consequently competition in the sawn lumber markets increased. So now [firms are reporting major losses]." (Case II)

The threat from substitute products

Nordic countries have a long history in the woodworking industry. Because of the climate, trees grow slowly, and the lumber quality is high. This has given Nordic lumber a good reputation. In recent years, competitors of Nordic sawmills have copied the Nordic brand:

"For example, in Germany this so-called Nordic Holz is its own brand, and when our competitors, such as those in Germany, source logs from Sweden, the Baltic states, or Russia, they still sell under the same brand. But, of course, they cannot sell their entire product line under this brand." (Case I)

Burrows and Sanness (1999) point out that concrete, steel, etc. have historically been substitutes for solid wood as a material. Even in downstream woodworking industries, there are some engineered wood products (EWP) that can easily be substituted for sawn lumber as a raw material. The competitiveness of some EWP products is linked with the low cost of raw materials, large-scale production technologies that offer economies of scale, and the use of more advanced adhesives (Pihlajamäki and Hytönen 2005).

"One of our customers has been talking about substitutes for the last five years. When I discussed this with them, they said that if the price of sawn lumber rises too far, substitutes will become an option. This customer can use medium-density fiberboard on the same machinery as spruce with only minor modifications. The price of medium-density fiberboard has decreased substantially […] So solid wood still has its advantages." (Case I)

Competition among existing firms

Consolidation within the sawmill industry has led to a shift toward fewer and larger competitors. Especially in Finland, these are often integrated with the pulp and paper industry. The three biggest producers are responsible for approximately 50 percent of all sawn lumber in Finland (Virtanen 2005). All are directly owned by or linked to the pulp and paper industry. Two Finnish CEOs contrasted the pricing policies of integrated large-scale sawmills with their own pricing policies:

> *"I have noticed in the sawn lumber markets that integrated sawmills will lower their prices during springtime, when the consumption of sawn lumber rises. The reason is a mystery to me […] And then last summer, they dropped the prices for no reason. In principle, the demand was very strong. I imagine they reduce their prices to grow market share. Of course, from their perspective, they are under significant pressure to sell their entire production run, which amounts to millions of cubic meters […]" (Case I)*

This type of industrial evolution is strategically important because it impacts the sources of competitive advantages for Nordic sawmills. Each component of Porter's five-force model has changed during the past two decades. The changes have been mainly at the industry level, but some changes have been firm specific.

Internal factors – resources and capabilities

In this section, we divide internal factors into four groups of resources and capabilities: 1) physical, 2) human, 3) organizational, and 4) financial.

Physical resources

The woodworking industry is raw material-intensive. The cost of raw materials is normally around 60-70 percent of total costs, and the quality of the timber can determine the quality of the end product. There is a global market for sawn timber, but location is important for timber supply operations. High transportation costs and the strong relationship between forest owners' associations and local sawmills result in sawmills mainly accepting timber harvested from the local area. As one Norwegian CEO *(Case VIII)* stated, the high quality of the local timber was one of the company's largest competitive advantages.

Transportation cost is the main factor that confers upon local sawmills a competitive advantage in terms of acquiring local timber. The location and quality of local timber are therefore important for strategic decisions made by SME sawmills, and this also affects how they react to environmental change. One CEO said:

> *"We are situated in an area with a high density of whitewood. It is very strong, […] but the glulam business has not increased, it has decreased. Accordingly, we had to find other customer groups who needed high-density wood. We are now serving the roof truss business […] We have tried to use high-strength timber, that has been a key part of our strategy […] We are now a pure whitewood sawmill. It was the right decision to concentrate in the whitewood industry." (Case VI)*

In one case, geographical location has also influenced in- and out-bound logistics and even the maintenance of sawmill machines. Geographical location supports strategic decisions.

> *"Our location is great. We are near the Russian border. These days that is favorable. We can import logs more easily than sawmills located in the western part of the country. We are close to the Helsinki region, and today, half of our production gets sold to Helsinki; large construction-material chains are important customers […] One interesting thing related to this location is that we have many spare-parts companies that are very close by -- one very important firm is just 100 meters from our facility. If equipment malfunctions at the mill, we can get replacement parts immediately." (Case III)*

Focusing on just one species is a common theme among our case companies. Indeed, only two produce both pine and spruce products. However, this kind of decision is often linked to multiple resources, such as geographical location and external factors like competition for raw material. One CEO said:

> *"[…] we decided to concentrate on small-diameter logs with a maximum diameter of 23 centimeters. We made a decision to concentrate only on spruce, so now we have a very simple system: only small-diameter spruce." (Case IV).*

Most Norwegian and Finnish sawmills and seven out of the eight companies we interviewed have operated at the same site for a long time. They have incorporated new technologies over time, but production has been constrained because of their sites and facilities. One company was forced to move because of an external factor. This allowed them to create a completely new manufacturing facility with an optimized layout.

> *"We already had the machines, and we just moved them over here. Then we designed a new and totally different layout than what is normal at other sawmills, which have often had machinery progressively added, piecemeal, over time. Now we have an efficient layout." (Case VII)*

Small-timber dimensions are problematic for many sawmills because they can lead to low yield and weak production metrics. One Finnish sawmill has invested in a small-timber (small-diameter) saw line and has specialized in small-dimension material because of environmental conservation restrictions on log supply. This technology and related capabilities make small-diameter timber more valuable for them than for competitors.

For this specific case, expertise in unique products and their production process confers a competitive advantage over rivals.

As opposed to sawmills that have adopted new technology, two sawmills reported that maintaining old machines and

making them efficient with minimal investment was a competitive advantage. They respond to industry changes only by controlling costs. Another factor is timber supply. The quality of timber in their area is only suitable for low-priced construction products, and they would not secure any advantage from investing in new technology. In fact, one CEO described the strategic choices made by the firm as follows:

> "*There are two basic things that we have in mind. One is the technology that we have. I mean not what we can buy but what we have bought already. That is important because that is the basis of the company and defines our current capacity. The other thing we know is what we can produce from the local raw-material base. We know that the technology is suitable for producing for construction markets, and this matches our raw-material base, which is mainly spruce that is used in high-quality construction applications." (Case V)*

Because these companies are located in an area that lacks timber suitable for high-priced lumber products, they are specializing in efficient, low-cost production despite their relatively small size and export-oriented marketing strategy. One CEO stated:

> *"We decided to specialize by industry. We have a very close connection to end customers that produce roof trusses […] and to be in that segment, you have to be very efficient and cost effective. And that means that we have gone through every step in the production process to evaluate what we can do with the technology that we have already bought to make that machine more efficient with minimal investment, rather than buying new machines, because the technology is more or less the same. You can buy slightly more sophisticated hardware but you can probably invest a very small amount of money and still reach a high level of production efficiency." (Case V)*

One of the basic premises of the resource-based view is rarity. In the mid-1990s, there was a major investment boom in the Finnish sawmilling industry. The mainstream sawing technology during that time was the circular saw. However, one of our case firms pursued a very different approach. As its CEO said:

> *"[During the] mid-90s, everybody was investing in the circular sawing lines. But we did the opposite.[…] Because we invested in a band saw line, we can now produce dimensions that others cannot. For example, we can make flimsy center-yield sawn lumber of less than 25-mm thickness.[…] Circular sawing lines cannot -- even theoretically -- produce such flimsy sawn lumber. Or if they can, they will produce more sawdust, which means that our yield is higher."(Case I)*

One CEO emphasized the role of the equipment supplier and its interaction with the company during the investment process. To get the best possible yield from investments, the case firm pursues technology development with its supplier.

The interaction between geographical location and efficient outbound logistics is clear. Some CEOs highlighted the benefits of location in the context of accelerated economic activity. As one CEO explained:

> *"There are large firms around us [pulp and paper], so there are of lot of trucking firms that serve them, managing logistics. Helsinki is nearby, so we get on-time deliveries. I have heard about firms that do not operate as strictly as we do: their shipment delays can be one week or longer. We always deliver on the day agreed, and if not, the customer will receive delivery the next day. In that sense, this location is favorable." (Case III)*

Outbound logistics has been one weakness of exporting SME sawmills in Finland. The required volumes of shipments have, in many cases, been so large that small sawmills are not able to operate efficiently. Firms are forced to keep extra quantities in inventory or produce the missing volume of sawn lumber (needed dimensions and quality grades), lacking the optimal yields and gradings of sawn-lumber assortments. When firms began using trailers and Ro-Ro shipments, this problem was solved. This led to more customer-oriented production and the use of a lean philosophy (see Krafcik 1988). The disadvantage was weaker cost competitiveness and reduced capacity to supply firms in Germany and the Netherlands, for example.

Human resources and capabilities

Human resources are also important. All eight of our cases point to personnel as a critical element in gaining a competitive advantage. One CEO emphasized the importance of having open-minded and innovative employees:

> *"Personnel are another area where we have changed our tactics in recent years. Today we have more young people with better educations. On the saw line we have a lot of older people with a lot of experience in this industry. We are doing things in a different way (with educated young people). When you have people with different backgrounds, you will have better discussions, I think. If you have seen success in the past, then that does not automatically mean that you will enjoy it in the future, so we have to change accordingly." (Case V)*

Human resources also play an essential role when it comes to large and technically challenging investments. The ability to finance an investment is not the whole picture. Personnel also play an important role when firms modify production processes following new investments.

> *"I have been thinking about this personnel issue. In our case, we had a strong investment phase (during the 1980s). First, we wanted to modernize the sawmill and increase productivity, and personnel got used to the changes that we were continuously making, and thanks to that, the activation barrier to change is now lower. In fact, these days they are often asking, 'Isn't something new coming soon?'" (Case II)*

Manufacturing capabilities are important because in basic commodity production with low value-added operations, effi-

cient production can be seen as one source of competitive advantage.

One CEO (case VII) emphasized the importance of internal factors, which promotes the importance of the RBV as a theoretical framework, by saying:

> *"The most important thing is to be as rational as possible inside the sawmill because we cannot control the log prices […] What can we do? We can be as rational as possible inside the sawmill."(Case VII)*

Organizational resources and capabilities

One CEO from Finland emphasized the importance of the firm having its own timber-purchasing organization. With its own organization, the firm has a better ability to influence what kind of raw material it receives. He said:

> *"For us, it is the right operating mode and one source of competitive advantage […] First of all, it ends up being very cheap for us. For us, timber costs at the mill are certainly less than for large sawmills, which do not reveal their organizational costs, they disclose only their stumpage price." (Case I)*

On the other hand, with its own purchasing organization, a SME sawmill may have to face the bargaining power of pulp and paper companies when marketing pulpwood. This is not a problem if a firm is buying timber from forest owners. One Finnish case had outsourced its log-procurement function to large pulp and paper companies. A third firm had combined these two operating modes. First, it can influence the cost level of the timber, which accounts for approximately 70 percent of the total cost of sawmill operations. Second, it determines the quality of incoming logs.

Marketing and sales capabilities are essential because they allow SME sawmills to build on other sources of competitive advantage. Two Finnish companies are using a joint-venture marketing organization. This is a way to divide fixed costs of the marketing organization over a larger volume of sawn lumber and to offer a wider product portfolio (tree species for customers). All of the member companies sell some portion of their production independently, so they can benchmark the costs and benefits of joint-venture marketing. The bylaws of the joint venture have been written so that conflicts of interest can be avoided.

> *"We are all focused in different directions, we run different types of sawmills, and we do not compete with one another. We have common customers, but we deliver different products" (Case IV)*

Other, less formal marketing cooperation among SME sawmills is also a reality. In some cases, cooperation is possible without a formal organization. In one case, a firm participated in a consortium based on a "gentlemen's agreement" between the CEOs and a sawn-lumber middleman.

> *"There is a lot of wisdom behind that kind of arrangement. We also have participated in that type of arrangement; we have three sawmills, and ultimately we were able to deliver one-third of the total needs of that customer […] For a small firm like us, the customer ideally should be similarly sized. That would be a huge advantage. But it is not easy for small customers. […] Our deliveries should carry some importance for the customer, ideally. If large-scale customers purchase 1,000 deliveries per month and we only supply one of them, we are not important." (Case I)*

Among Norwegian companies, a common operating mode is to buy supplementary products from other sawmills. Both methods, namely 1) common marketing with complementary product varieties or 2) purchasing of missing qualities and dimensions of sawn lumber, can be seen as ways to offer better customer service. One Norwegian case company decided to withdraw from European markets and instead concentrate on domestic markets.

> *"Our firms (before the merger) had a high share of total exports. Most important was sawn timber, and planed timber was second in importance. These strategies have totally changed, and we are now focused on the Norwegian market. Planed timber is 100 percent sold to the Norwegian market. But we are exporting certain dimensions and qualities of lumber that are difficult to sell in Norway [...]We do not fill long contracts, mainly focusing on spot contracts, and only on orders from our customers and middlemen." (Case VIII)*

In spot markets for sawn lumber, it is possible to sell only standard dimensions. CEOs emphasized the advantages of that business but noted that concentrating only on current customers may lead to situations where the firm is not utilizing all of its market potential in the long run. One CEO (Case I) argued that the firm had many longstanding contracts but also emphasized the importance of being market- and customer-oriented and always seeking the customers that best fit the firm's business model. The customer-oriented operating approach has been noted as a prominent operating mode (e.g., Hartikainen 1997). Conversely, middlemen have the best knowledge of markets. One interviewed CEO explained:

> *"Of course, middlemen have better market knowledge and are able to find customers who are willing to accept slightly higher prices. So marketing doesn't automatically increase profits. A good middleman takes 2.5 to 3 percent, and often, when we are taking care of marketing, the customer will bargain that same amount (equal to a middleman's cut) […].Usually the middleman gets somewhat better prices than we do, but they change customers all the time." (Case III)*

The role of management is that of an essential contributor to the bundle of firm-specific resources and capabilities that enable firms to achieve competitive advantage (Acquaah 2003). One CEO emphasized the difference between the management of large companies and that of SMEs. According to him, there exist many intangible factors inside SME sawmills that differentiate them from their larger competitors. These factors are not easily transferred to the operating cultures of larger firms.

"For example, [one firm] acquired many smaller firms, profitable firms, and then it started to operate independently. This used to be a profitable firm, but now they are incurring losses. We are all looking at this business from our own perspective, just like I have done all my life. Do we know how to run this business? One thing that people do not realize is that we do not have that bureaucracy -- this is an important factor for us." (Case III)

One company in our study has a large number of shareholders, which can be seen as a weakness: The lack of committed owners may lead to the inefficient use of capital, i.e., investments and mergers that do not increase shareholder wealth, as stated by Jensen (1989, 1993). Diversified ownership of SMEs is not common, which, according to one CEO, may be a problem. However, organizational resources -- in this particular case, the corporate governance bylaws -- offer ways to eliminate this disadvantage. As the CEO said:

"The bylaws of the company are, from my point of view, very simple and clear. I have a lot of freedom; I can almost manage this company like an entrepreneur." (Case IV)

One Norwegian CEO emphasized the role of the board of directors and management networks. In recent years, the role of the board of directors has been emphasized in the corporate governance literature (e.g., Jensen and Zajac 2004, Westphal and Fredrickson 2001). One interviewed CEO wanted to emphasize the role of the board of directors. He said:

"I know a lot of people outside the company. I have worked in several firms, so I have a large network, and I also have well-educated people on the board. The chairman of the board has international experience from [company name], a sawmill manager from [company name] is on my board and is also a previous manager of this firm. […] I have a very good board, and I am using it." (Case VI)

Consolidation of the industry has been seen as a way to respond to drivers such as economies of scale, lowering inventory levels, and increased demand for direct contacts to customers (Nilsson 2001). Forest industry giants have participated in this consolidation, while for SMEs, organic growth and investment has been a more attractive option. One Finnish firm closed down one sawmill in the 1980s and concentrated on operating a single, larger mill. On the other hand, one Norwegian company was the result of a merger between SMEs. The CEO explained:

"The owners were not satisfied with the results (profitability) […] There was a strategic decision behind this (merger). We run most things the same way as the firms used to before, but now we are much more coordinated, first of all, with raw materials, and second, with marketing and sales.[…] We can do things more logically. Now we can acquire resources better, in human resources and machinery. Because they are different in these sawmills […] We see new and different opportunities than the sawmills could serve as individual firms." (Case VIII)

Financial resources

Financial resources are the most liquid form of resource because they can be used to buy other resources. In a way, financial resources are also an outcome of competitive advantage. One interviewed CEO pointed out the importance of financial resources:

"Financial resources are important as well … if you have enough capital, you can make decisions without delay." (Case V)

In one other case (Case II) where the firm has made substantial investments, financial resources have been especially important not only for investment funding but also as a resource that helps with risk management. The background and interests of the owner were seen to influence some Norwegian sawmills. Owners and the forest owners' association do not require high dividends from the firm. The owners want to preserve customers for their timber in the long run. One CEO explained:

"We are owned by the forest owners, and they are not too interested in taking money from the business […] when we have a positive number on the bottom line, they do not take that, and we can reinvest[…] So we have opportunities to invest during bad times." (Case VI)

Discussion and Implications

We aimed to gain a better understanding of CEOs' perceptions of the competitive advantages of the firms they manage. The CEOs largely confirmed our assumption about a changing competitive landscape for small- and medium-sized woodworking industries. There is increasing global competition in the softwood sawmilling sector because new entrants in Russia, the Baltic countries, and other Eastern European mills are influencing prices in the European market. Accelerating technological change in large-scale industries and expanding customer expectations along with advanced substitutes (e.g., engineered wood products) are creating a turbulent environment for SMEs.

This industry environment has different effects on large and small firms (Dean et al. 1998). Small firms have certain resources that enable them to easily overcome certain barriers (industry concentration, vertical integration) that are difficult for their larger competitors to deal with (Dean et al. 1998). Some CEOs emphasized the advantages of small size from the viewpoint of the sawmill/customer, but they acknowledged problems caused by the consolidation of users of sawn lumber, such as wooden house manufacturers, construction firms, and home improvement stores.

The sawmilling industry is a basic commodity industry where differences between products are moderate. CEOs of SME sawmills have taken these external factors as given; they do not believe that they can influence these factors. The only solution is to focus on internal issues and shape their firms' resources and capabilities in a way that develops competitive advantage.

The external factors are challenging. Price trends of sub-

stitutes have been falling while log prices have increased. Finnish CEOs criticized the pricing policies of their larger competitors. This can be understood in the context of integrated pulp and paper companies, where the role of sawmills can increase market share. They want secure, steady raw material flow from suppliers with high log prices, and they need high-quality chips for pulp production.

For SMEs, consolidation of customer industries such as different branches of construction businesses and the furniture industry has created challenges. When an SME sawmill is able to meet only limited customer needs, it has no bargaining power with the customer. Joint-venture marketing can be seen as one solution. There exist many ways to organize such a venture and still avoid conflicts of interest, as our cases have shown.

The CEOs all pointed to the same external factors that impact their strategic decisions. These environmental changes have taken the sawmilling industry by surprise after decades of good financial performance. However, sawmills can adapt to this environmental shift in different ways. The need for new strategic decisions may arise because of external factors, but strategic decisions are made as a consequence of internal resources and capabilities. Sawmills try to seek competitive advantage by utilizing their resources and capabilities. Peteraf (1993) points out four conditions underlying competitive advantage, all of which must be met. These include superior resources (heterogeneity within an industry), ex post limits to competition, imperfect resource mobility, and ex ante limits to competition. A firm's resources consist of all of the assets, capabilities, processes, etc. that are controlled by the firm. Many researchers have divided these resources into different groups, for example, financial resources, physical resources, human resources, technological resources, reputation, and organizational resources (Grant 1991). In practice, according to the CEOs we interviewed, most of the capabilities that lead to competitive advantage are cross-functional and firm specific.

We have identified certain main resources and capabilities that have been important for adaptation to environmental change. The most important resource according to CEOs is the location of the sawmill. First, it has a large impact on timber supply. A firm can import timber from other areas, but the transportation costs are high and will be a disadvantage. Moving a sawmill from one location to another is expensive and takes time. Sawmills located in an area with high-quality timber will therefore have an ex post limit to competition. Only a few sawmills have this advantage.

Sawmills without a location advantage have made other firm-specific adaptations to the same environmental changes. A primary example of this is cost-control capabilities. Because raw-material resources preclude the production of high-priced products, some firms are focusing on low-priced timber and cost reduction. Therefore, they can offer their customers lower prices. This is a cross-functional capability that requires personnel skills in manufacturing, high effectiveness in production, and good management. Some firms also have input factors that increase cost competitiveness, for example, lean administrative structures and committed personnel and management.

A primary firm-specific adaptation to these changes in environment is the ability to adopt modern technology. By investing in new technology, firms can specialize in utilizing different types of timber. An example from the selected cases is construction together with further processing. Another example would be small-timber saw lines. By adopting new technology and specializing in small dimensions, one firm has been able to increase the profitability of small-diameter timber, which is commonly thought to be less profitable, and in this way achieve competitive advantage.

Some of the CEOs emphasized that they have a small-scale advantage. By this, they mean that they have a lean organization and therefore low costs, but also that they can have a closer business relationship with their customers. They are differentiated from larger firms by their offerings of service and customized products. One clear advantage that indirectly came to light during the interviews involved the information/knowledge flows between suppliers. In SMEs with a lean organizational structure, there is a face-to-face link between suppliers, industrial workers, CEOs, and customers.

In this study, we identified three firm-specific capabilities that are sources of competitive advantage for SME sawmills and are important in how CEOs react to changes in the industry: first, the ability to adopt the latest technology; second, the ability to utilize price changes in the sawn lumber markets; and third, the capability to operate lean firms with flat organizational structures and/or production technologies. The ability to adapt to new technology requires sufficient capital resources. The ability to change markets is based on personal management skills, available marketing channels as a resource, and market knowledge with supporting informational databases. A lean organization requires two different abilities. The first is the ability to operate with few investments in terms of machinery and working capital. The second is the ability to conduct daily business with few administrative staff compared to industrial workers and multi-talented management.

Insights from CEOs have led us to conclude that our case companies faced the same external factors, but they are adapting differently because of different internal resources. Location and labor are the main resources that influence their strategic choices. In the sawmilling industry, location is important because it affects the type and volume of raw material available. A location, in principle, can easily be imitated by investing in a new sawmill, but this will not be attractive in most cases. The supply of timber is already limited, and investment in a new sawmill will be irreversible. A potential new entrant to the market knows that an established sawmill also has made an irreversible investment and therefore will produce product as long as its earnings more than cover its fixed costs. The quality and average dimension of timber are important strategic choices. CEOs of sawmills located in areas with low-quality timber try to seek a competitive advantage through efficient production and cost control. CEOs of sawmills in areas with high-quality timber tend to address environmental changes by utilizing each log optimally.

Management should not focus only on resources and capabilities as sources of competitive advantage. They can also diminish the natural disadvantages of a firm and hence promote its competitiveness. Indeed, there were some firm-specific resources that managers emphasized as being valu-

able in this way. These types of resources, e.g., a firm's bylaws, are not a competitive advantage by themselves but rather are resources that eliminate disadvantages. To date, these types of resources and their importance have not been discussed widely in the RBV literature. Their importance should not be underestimated; they dilute resource gaps compared to a firm's competitors and thus indirectly enable competitive advantages based on other resources.

These results can help CEOs to differentiate between resources that might support a competitive advantage and other less-valuable resources. Resources and capabilities that are used to the advantage of one firm can remain a disadvantage for another.

Geographical location as a resource is important because it 1) determines raw-material base and 2) determines outbound logistics. For example, a sawmill located in the middle of a geographical pulp and paper cluster can benefit from the availability of logistical services that are well developed from serving pulp and paper businesses.

This type of exploratory study with an applied qualitative approach has a number of limitations. For instance, the sample size is relatively small. This study's main limitation is that only successful firms were interviewed. To validate our findings in a new study, it would be interesting to interview less successful sawmill firms as well and to evaluate similarities and differences in resources and capabilities between successful and less successful firms.

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Literature Cited

Acquaah, M. 2003. Corporate management, industry competition and the sustainability of firm abnormal profitability. Journal of Management and Governance 7(1):57-85.

Amit, R. and P. Schoemaker. 1993. Strategic assets and organizational rent . Strategic Management Journal 14(1):33-46.

Barney, J. 1986. Strategic factor markets: Expectations, luck and business strategy. Management Science 32(10):1231-1241.

Barney, J. 1991. Firm resources and sustained competitive advantage. Journal of Management 17(1):99-120.

Barney, J. 1995. Looking inside for competitive advantage. Academy of Management Executive 9(4):49-61.

Barney, J. 2001. Is the resource-based "view" a useful perspective for strategic management research? Yes. Academy of Management Review 26(1):41-56.

Barney, J. 2002. Gaining and Sustaining Competitive Advantage. Upper Saddle River, New Jersey: Prentice-Hall, Inc. 600 p.

Bonsi, R, D.R. Gnyawali, and A.L. Hammett. 2008. Achieving sustained competitive advantage in the forest products firm: The importance of the resource-based view (RBV). Journal of Forest Products Business Research 5 (Article No. 3), 14 p.

Bull, L. and I. Ferguson. 2006. Factors influencing the success of wood product innovations in Australia and New Zealand. Forest Policy and Economics 8:742–750.

Burrows, J. and B. Sanness (eds.). 1998. A Summary of the Competitive Climate for Wood Products and Paper Packing: The Factors Causing Substitution with Emphasis on Environmental Promotions. Timber and Forest Discussion Papers ECE/TIM/DP/16. United Nations. 195 p.

Collins, D. and C. Montgomery. 1995. Competing on resources: Strategy in the 1990's. Harvard Business Review 73(4):118-128.

Cooner, R. 1991. A historical comparison of resource-based theory and five schools of thought within industrial organization economics: Do we have a theory of the firm. Journal of Management 17(1):121-154.

Dean, T., R. Brown, and C. Bamford. 1998. Differences in large and small firm response to environmental context: strategic implications from a comparative analysis of business formations. Strategic Management Journal 19(8):709-728.

Dierickx, I. and K. Coll. 1989. Asset stock accumulation and sustainability of competitive advantage. Management Science 35(12):1504-1511.

Eisenhardt, K. 1989. Building theories from case study research. Academy of Management Review 14(4):532-550.

Eriksen, B. and T. Knudsen. 2003. Industry and firm level interaction. Implications for profitability. Journal of Business Research 56(3):191-199.

Glaser, B and A. Strauss. 1967. The Discovery of Grounded Theory: Strategies for Qualitative Research. Chicago, Illinois: Aldine Publishing Company. 271 p.

Grant, R. 1991. The resource-based theory of competitive advantage: implications for strategy formulation. California Management Review 33(3):114-135.

Hall, R. 1992. The strategic analysis of intangible resources. Strategic Management Journal 13(2):135-144.

Hamel, G. and C. Prahalad. 1989. Strategic intent. Harvard Business Review 67(3):63-73.

Hamel, G. and C. Prahalad. 1994. Competing for the future. Boston, Massachusetts: Harvard Business School Press. 357 p.

Hartikainen, T. 1997. Late-industrial sawmill customers: The concept of industrial operating mode and its testing in secondary wood processing industry. Acta Forestalia Fennica 257. 93 p.

Hoskisson, R., M. Hitt, W. Wan, and D. Yiu. 1999. Theory and research in strategic management: Swings of a pendulum. Journal of Management 25(3):417-456.

Indufor. 2002. Impacts of government subsidies on sawmill industry in the European Union. European organisation of the sawmill industry/Finnish sawmill association. 18 p.

Jensen, M. 1989. Eclipse of the public corporation. Harvard Business Review 67(5):61-74.

Jensen, M. 1993. The modern industrial revolution, exit and the failure of internal control system. Journal of Finance 48 (3):831-880.

Jensen, K. and E. Zajac. 2004. Corporate elites and corporate strategy: How demographic preferences and structural position shape the scope of the firm. Strategic Management Journal 25(6):507-524.

Kay, J. 1991. Economics and business. The Economic Journal 101(1): 57-63.

Korhonen, S. and J.S. Niemelä. 2004. Guidelines for sustainable, external corporate growth: A case study of the leading European and North American companies in the wood industry. Journal of Forest Products Business Research 1 (Article No. 2). 29 p.

Lähtinen, K. 2007. Linking resource-based view with business economics of woodworking industry: Earlier findings and future insights. Silva Fennica 41(1):149-165.

Lähtinen, K. 2009. Assessing the Resource Usage Decisions and Financial Performance in Finnish Sawmills within the Resource-based View Framework. PhD. study. Joensuu , Finland: University of Joensuu. 40 p.

Mahoney, J. and J. Pandian. 1992. A resource-based view within the conversation of strategic management. Strategic Management Journal 13(5):363-380.

McGahan, A. 1999. The performance of US corporations: 1981-1994. The Journal of Industrial Economics 47(4):373-398.

McKiernan, P. 1997. Strategy past: Strategy futures. Long Range Planning 30(5):790-798.

Miles, M. and A. Hubermann. 1994. Qualitative Data Analysis: An Expanded Sourcebook. Thousand Oaks, California: Sage Publications. 338 p.

Nilsson, S. 2001. The Future of the European Solid Wood Industry (Interim Report). Laxenburg, Austria: International Institute for Applied System Analysis. 35 p.

Nooteboom, B. 1993. Firm size effects on transaction costs. Small Business Economics 5(4):283-295.

Nourse, E. and H. Drury. 1938. Industrial Price Policies and Economic Progress. Washington, D.C.: The Brookings Institution. 314 p.

Oliver, C. 1997. Sustainable competitive advantage: Combining institutional and resource based views. Strategic Management Journal 18(9):697-713.

Patton, M.Q. 1990. Qualitative Evaluation and Research Methods 2nd ed. Newbury Park, California: Sage Publications: 532 p.

Penrose, E. 1959. The Theory of the Growth of the Firm. New York, New York: Wiley. 272 p.

Peteraf, M. 1993. The cornerstones of competitive advantage: A resource based view. Strategic Management Journal 14 (3):179-191.

Pihlajamäki, P. and H. Hytönen. 2005. Suomen Metsäteollisuuden Tulevaisuudennäkymät ja Niiden Vaikutus Puuntuotantostrategioihin (Outlook of Finnish Forest Industry and its Impact on Timber Production Strategies). JP Management Consulting (Europe). In Finnish. 107 p.

Porter, M. 1979. The structure within industries and companies' performance. The Review of Economics and Statistics 61(2):214-227.

Porter, M. 1980. Competitive Strategy: Techniques for Analyzing Industries and Competitors. New York, New York: The Free Press. 396 p.

Porter, M. 1981. The contribution of industrial organization to strategic management. Academy of Management Review 6(4):609-620.

Porter, M. 1991. Towards a dynamic theory of strategy. Strategic Management Journal 12(S1):95-117.

Priem, R.L. and J.E. Butler. 2001a. Is the resource-based "view" a useful perspective for strategic management research? Academy of Management Review, 26(1) 22-40.

Priem, R.L. and J.E. Butler.2001b. Tautology in the resource-based "view" and the implications of externally determined recourses value. Academy of Management Review 26(1)57-66.

Roquebert, J., R. Phillips, and P. Westfall. 1996. Markets vs. management. What "drives" profitability? Strategic Management Journal 17(8):653-664.

Spanos, Y. and S. Lioukas. 2001. An examination into the causal logic of rent generation: Contrasting Porter's competitive strategy framework and the resource-based perspective. Strategic Management Journal 22 (10):907-934.

Spelter, H., R. Kozak, and N. Burdin. 2004. Riding the Crest of the Wave: Sawn Softwood Markets 2003-2004. Chapter 5 in UNECE/FAO Forest Products Annual Market Review 2003-2004. United Nations Publications 58(3). 116 p.

Stendahl, M., A. Roos, and M. Hugosson. 2007. Product development in the Swedish and Finnish Sawmilling Industry – A qualitative study of managerial perceptions. Journal of Forest Products Business Research 4 (Article No. 4). 24 p.

Teece, D., G. Pisano, and A. Shuen. 1997. Dynamic capabilities and strategic management. Strategic Management Journal 18(7):509-533.

Tokarczyk, J. and E. Hansen. 2006. Branding: Creating intangible competitive advantages in the forest products industry. Forest Products Journal 56(7/8):4-13.

Virtanen, J. 2005. Analysing Sawnwood Supply Distribution in Finnish Sawmilling Industry with Database Approach. Report 96. Helsinki, Finland: Helsinki University of Technology, Department of Forest Products Technology, Laboratory of Wood Technology. 181 p.

Westphal, J. and J. Fredrickson. 2001. Who directs strategic change? Director experience, the selection of new CEOs, and change in corporate strategy. Strategic Management Journal 22(12):1113-1137.

Wernerfelt, B. 1984. A resource based view of the firm. Strategic Management Journal 5(2):171-180.

Yin, R.K.1994.Case Study Research: Design and Methods. Thousand Oaks, California: Sage Publications. 166 p.

Zahra, S. and S. Das. 1993. Building competitive advantage on manufacturing resources. Long Range Planning 26(2):90-100.