

PART III

GLOBAL SOCIO-ECONOMIC CHANGES

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8 Changes in Global Markets for Forest Products and Timberlands

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Abstract: In this chapter, the major global trends in the trade of forest products are briefly reviewed, followed by an analysis of foreign direct investment in forest industries. We then analyse the growth and structure of timberland investments. The driving forces of changes are identified and investigated. Trade liberalisation and a shift in consumption initially induce the change in supply of wood and wood-based products, and capacity investment growth from Europe and North America to Asia and Latin America. The reallocation of the forest industry's production capacity is associated with the role of mergers and acquisitions, leading to increased foreign direct investment in the forest industry beginning in the 1990s. The changing face of forestry and the global market for wood products are coupled with timberland investment as a form of joint response to changing economies, markets, land values, technologies, and public policies. A few boxes highlight specific local issues, including non-wood forest products and trade, forestry investment as a local case in China, market perspectives of bio-economy from forestry in the case of Ontario Canada, and the growing importance of corporate responsibility in forest-based industries in response to greater environmental awareness of consumers.

Keywords: foreign direct investment, timberland, wood products, international trade, globalisation



8.1 Introduction

In response to globalisation, climate change, rising energy prices and, more recently, the financial crisis, the forest industry and forest products trade and capacity investments have undergone profound changes. Direct driving forces of the changes in trade include shifting consumption and capacity investment growth from Europe and North America to Asia and Latin America. For example, China, a country that not long ago was a major net importer of wood products, is increasingly dominant as an exporter of value-added wood products, such as furniture. As a result of the increasing demand for woody biomass, the trade in wood-based bio-energy products, such as wood pellets, has gone up substantially in the past few years. Some policies, such as promotion of wood, subsidies, or taxing alternative materials, would strengthen demand for and utilisation of wood.

Today, the forest industry is relying increasingly on intensively managed and planted forests located in South America, Africa, and Asia. These changes cut the traditional ties between forest processing facilities and industry location with abundant natural forests. Globalisation and liberalisation have facilitated capital, human capital (labour), and technologies to move easily into regions where they are expected to be used more profitably.

The reallocation of the forest industry's production capacity is associated with the role of mergers and acquisitions, and rapidly increased foreign direct investment in the forest industry since the 1990s. The importance of foreign direct investment (FDI) in the development of forest industries in the world's emerging producer countries has been increasing. There is a close relationship between foreign trade and FDI; both substitute or complement each other with either market-seeking, resource-seeking, or efficiency-seeking motives. Therefore, it is impor-

tant not only to evaluate the current state and recent developments in the global forest industry from the internationalisation point of view, but also to discuss sources of industry competitiveness and potential ways to enhance future profitability.

From this perspective (the internationalisation of the forest industry), the main questions to be asked are: What is the current state of internationalisation in forest-based industries? Do FDI and increasing internationalisation of firms correspond with increasing returns? Does consolidation of the industry through mergers and acquisitions increase profits above the industry median? What are the impacts of the other moderating or strategic factors on profitability now, and possibly in the coming years?

The emergence of timberland investments since the 1990s is another important phenomenon, in addition to the changes in forest industry and trade. Timberland investment has been found to be a valuable niche in large, mixed-asset portfolios of the institutional investors. Forestland ownership is shifting. A majority of timberland owned by traditional forest products industries has been sold to Timberland Investment Management Organisations (TIMOs), Real Estate Investment Trusts (REITs), and Pension Funds during the past two decades. These funds are now increasingly invested in the emerging and developing countries, which brings about new challenges in operations along with the new investment opportunities. International enterprises also acquire forest land or land for plantations from Asian and Latin American developing countries in order to supply raw materials for pulp mills and other forest industries.

In this chapter, the major global trends in the trade of forest products are briefly reviewed, followed by an analysis of foreign direct investment in forest industries. Then the growth and structure of timberland investments are analysed, followed by overall conclusions on the future from the trade and investment points of view. The growing bio-energy sector and the international trade of bio-energy products are the focus of Chapter 10, therefore we will not discuss that issue in this chapter. Due to significant impacts of current markets and industry globalisation, our focus is on the “big picture” in the global trade and investment patterns; therefore, the rich diversity that exists at local-level markets and industries cannot be fully captured. Text boxes are used to highlight mainly local issues, including: non-wood forest products and trade, forestry investment as a local case in China, prerequisites for making a business case of corporate responsibility in the forest industry, and market perspectives of bio-economy from forestry in the case of Ontario, Canada. By featuring these local cases, we hope to bring more insight into the profiles of production and trade in the future forests of the world.

8.2 Global Trends in the Trade of Forest Products

8.2.1 Market Developments

The global export value of forest products increased dramatically from 1996 to 2007, rising by 73% from USD 132 billion to USD 228 billion (FAO 2009a), while global import values rose less (68%). Global trade of wood products is accelerating amid shifting regional production of raw materials. At the same time, structural change is occurring in regional production and consumption of finished and semi-finished wood and paper products.

In paper and pulp products, growth for apparent consumption increased in Europe, Latin America and the Caribbean, and in Asia (China, in particular), while consumption declined in North America (Table 8.1). Traditionally, consumption of paper products has been closely connected to population and economic growth. Over the past decade (since 2000), this connection seems to have loosened in many developed countries due to substitution of printed media by digital media. The recent rates of growth in consumption have been two to three times higher in the developing world than in the developed one (Table 8.1). Overall consumption of paper and pulp products is forecast to increase across the region with growth in population, urbanisation, and income.

Global production of paper products is expanding rapidly. In Europe, production growth has been driven partly by the expansion of exports (Table 8.1); Europe is the largest exporter of paper products. Europe’s competitive advantage in paper production is based on close high-demand markets, availability of a large quantity of recovered paper and, in particular, technological sophistication in the production of high-quality paper. Both demand and output of pulp and paper products increased in Russia over the past decade (Table 8.1). Owing to the relative economic and political stability established in the country since the major currency re-valuation of 1998, and more expansionary macroeconomic policy under President Putin since 1999, there has been a continuous increase in total output of pulp, paper, and paperboard in Russia, more than doubling since 1996. Conversely, North America’s share in global production of paper and pulp has declined, largely because of the expansion of capacity in Asia and Latin America (Table 8.1). This downward trend is unlikely to change in the coming years. In Latin America and the Caribbean, the production of key products, particularly pulp and paper, has grown since 1990. This trend is likely to continue, considering the high investments in plantations and processing. Most production is exported (Table 8.1). Export promotion programs will continue to encourage production. The region’s

Table 8.1 Consumption, production, and trade of forest products.

Areas & markets*	Sawnwood		Wood based panels		Paper & pulp		Roundwood	
	2001 1 000 m ³	2001–07 % change						
Europe								
Consumption**	1 16 607	7	59 924	36	184 434	15	554 906	26
Production	126 558	18	61 447	36	189 613	19	564 615	29
Net trade***	9 951	145	1 523	58	5 179	172	9 709	215
Russian Federation (as part of Europe)								
Consumption	11 915	-50	4 309	108	9 752	39	132 452	19
Production	19 600	18	5 150	91	13 427	24	164 700	26
Net trade	7 685	125	841	-1	3 675	-15	32 248	52
North America								
Consumption	135 493	-2	57 648	7	201 576	-4	629 509	1
Production	139 723	-2	55 567	0.3	222 563	1	634 967	1
Net trade	4 230	-12	-2 081	-196	20 987	57	5 458	11
Asia								
Consumption	74 710	37	51 270	86	201 598	42	1 044 641	4
Production	59 654	37	49 140	113	168 539	41	1 007 940	2
Net trade	-15 056	-37	-2 130	534	-33 059	-43	-36 701	47
Latin America & Caribbean								
Consumption	36 363	19	8 505	40	34 068	32	412 693	11
Production	38 169	18	9 940	55	32 954	38	410 564	13
Net trade	1 806	2	1 435	145	-1 114	155	-2 129	235

Notes: * Areas like in Faostat, **Consumption: apparent, ***Net trade: exports-imports.

Source: FAO 2007, 2009a.

share of the global market in pulp and paper products will increase, especially with continuing disinvestment in Europe and North America and the relocation of wood products industries to regions that have competitive advantages. South America's advantages include a stable investment climate, low population density, favourable conditions for tree growth, and significant technical capacity. Consequently, South America has some of the lowest wood fibre costs in the world.

The increased global production of wood pulp during the past decade has not matched that of paper and paperboard. This reflects gains in rates of paper recycling and the continuing rise in the use of recovered fibre, and decreasing use of fresh wood fibre in paper production (Suomalainen 2008). Paper recycling has grown dramatically in recent years in every region of the world. The biggest chemical pulp producing region is still North America, but its production has declined; whereas, globally, Latin America has the fastest growth in recent years.

Consumption and production of wood-based panels are currently evenly balanced among the three main markets (Asia, Europe, and North America) (Table 8.1). Asia will account for a greater pro-

portion of global wood-based panel consumption and production in the future. Within the category of wood-based panels, there is an increasing shift from plywood (which accounted for most of the wood-based panel production and consumption in the 1960s) to particleboard and fibreboard. This shift, which has important implications for wood raw-material requirements, began in Europe (where particleboard and fibreboard accounted for 90% of the panel market in 2005) and has continued in North America (70%). It has only recently started to occur in Asia, where plywood still accounts for more than half of production and consumption, with two main producers (Indonesia and Malaysia) and two main consumers (China and Japan).

The wood-based panels sector is strongly influenced by high production costs and tighter chemicals legislation in Europe and North America. Demand for all panels has decreased, leading to mill closures in Europe and North America, and the trend is expected to continue. In Europe, consumption of panels decreased by over 5%, in North America by 19%, and Russian exports decreased by 7.5% (FAO 2009a).

In woodworking industry products, both consumption and production of sawnwood increased in

Box 8.1 Non-wood forest product and trade: Lin'an, China

Yueqin Shen and Yaoqi Zhang

Non-wood forest products and trades are very important for forestry and livelihoods and rural development in China. The so-called “non-wood plant resources” in China’s forest areas include leaves, bark, fruit, seeds and flowers, as well as non-woody plants. A great quantity of food, clothing, and daily necessities are provided for the people, and remarkable economic values can be generated. The major NWFPs (non-wood forest products) in China include woody food and oil (e.g., bamboo shoots, chestnuts, walnuts, jujube, ginkgo, tea-oil), woody fat, lacquer and wax (e.g., tallow tree, tung oil tree, raw lacquer, rosin, and turpentine), forest perfume products (e.g., mountain spicy tree, eucalypts), forest drinks, edible fungi, mountain-grown edible wild herbs, and Chinese medicinal materials.

Lin'an, China provides an excellent example of the role of non-wood forest products for poverty alleviation and provision of livelihoods for local people. Lin'an, located in the northwestern part of Zhejiang Province, has a population of 520 000 people, of which 85% are rural. As a mountainous county, Lin'an is rich in forest resources, with 77% covered by forests. The quantity and quality of hickory nuts and bamboo shoots from Lin'an make

the area known as Bamboo County and Hickory County.

Hickory Nut

Hickory, an endemic plant in China, is well-known as China’s pecan. It mainly grows in the Tianmu Mountains in Lin'an. In 2008, the value of hickory products amounted to USD 80 million in Lin'an. Hickory has become a major source of income and pillar industries for some rural areas in Lin'an. Before the 1950s, hickory nut was locally consumed. After the economic reform, economic growth created demand for it and increased its price, which attracted farmers to plant and manage hickory nut. The decentralisation of collective ownership in the early 1980s provided the incentive for households to plant and manage hickory. The government has been supporting the hickory industry by subsidies and tax relief. The application and dissemination of hickory, new species selection, and improvement, planting, and management techniques have significantly improved productivity. As seen in Figure 8.1, the income from hickory has increased sharply since 2004.



Figure 8.1 Net income per capita (Rural population) in Lin'an, 1984–2008.
Note: 1 USD = 6.8 Yuan in 2008.

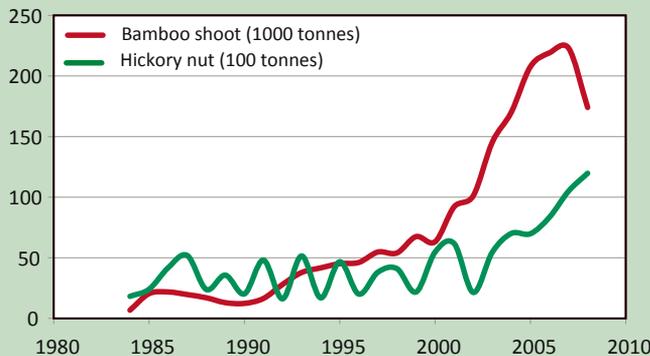


Figure 8.2 Hickory nut and bamboo Production in Lin'an, 1984–2008.

Bamboo shoots

Bamboo, an endemic plant in China, is well-known in the world. Lin'an has been declared China's Bamboo County twice (in 1996 and 2006). The advantage of the bamboo grown in Lin'an is that it is Lei bamboo, the shoots of which are used as food. Similar to hickory nut, bamboo shoots have become important for Lin'an since the 1980s as economic growth created demand for it and expanded the market (Figure 8.2). Both the area and value of bamboo shoots production have increased significantly since then. The application and dissemination of modern technology increased the economic value roughly ten-fold, from about USD 1500 per ha under traditional technology, to USD 15 000 per ha using modern technology.

At the same time, the market price increased significantly because the production season was advanced from March to January, to supply for the high demand related to the Chinese New Year. From 1996 to 2006, the bamboo growing area had increased from 47 000 to 66 000 ha, bamboo shoots production from 46 000 to 219 000 tonnes, and the market value from USD 60 million to USD 280 million. Farmer per capita income from bamboo had also increased from USD 176 to USD 324 per year. There are 46 enterprises for bamboo shoots and more than 10 bamboo shoots markets in Lin'an. The bamboo industry plays an important role in the livelihoods and rural development in Lin'an.

Europe, Asia, Latin America and the Caribbean, and declined in North America. Net export from Europe has risen dramatically in the 2000s (Table 8.1).

Projections suggest that the distribution of production and consumption among different regions will not change markedly before 2030, but that growth will increase at the global level. Production growth is expected to be highest in the Russian Federation, eastern Europe, and South America. High growth in consumption is expected in Africa and in Asia. These regions will remain dependent on imports to meet their demand. Consumption growth in developed countries is expected to be more moderate because of replacement by engineered (composite) wood products (FAO 2009b).

Consumption and production of roundwood have been expanding faster in Europe and in Latin America and the Caribbean; their net exports of roundwood have doubled, as well (Table 8.1). Of the other regions, east and southeast Asia show a minor increase, while North America remains relatively constant. It is expected that most of the output growth will occur in the three main regional markets. The greatest production expansion will be in Europe, mostly because of increases in the Russian Federation. Production in Asia and the Pacific, and in North America will also expand, largely because of increased production from planted forests. Asia and the Pacific will have a high deficit between production and consumption, increasing from about 43 million cubic metres in 2005, to 63 million cubic metres in 2030 (FAO 2009b). Thus, the region will depend on potential surplus countries, especially the Russian Federation, and possibly some countries in Latin America and the Caribbean.

In summary, the consumption and production of forest products are expected to increase, largely fol-

lowing historical trends. One shift will be the higher growth in the consumption and production of forest products in Asia, mainly stemming from the rapid growth in demand from emerging economies, such as China and India. Asia is becoming the major producer and consumer of wood-based panels and paper and paperboard (although per capita consumption will remain higher in Europe and North America). The region's roundwood production will be far short of consumption, increasing dependence on imports unless substantial efforts are made to boost wood production. However, it will be difficult to expand wood production in Asia given the high population density and competing land uses. While the wood product market has been expanding, non-wood products are still important for the local economy in many places (see Box 8.1), and the market for biomass and bioenergy seems emerging and promising (see Box 8.2)

With the history of incremental liberalisation of tariffs in the forest products trade, and the joining of the major exporting countries to the World Trade Organisation (WTO), the role of non-tariff barriers has become relatively more important for the determination of forest product trade flows. Issues such as standardisation and certification of forest products, or national regulations on packaging and recycling of products, have started to have an impact on the trade; for example, between tropical countries and the developed consumer countries in Europe. However, implementation of forest certification is not without costs. Like tariffs, it may distort global forest products trade and cause demand substitutions; first, between tropical and temperate wood products, and second, between wood and other materials (for a more thorough discussion on certification impacts, see Chapter 23). According to Gan (2005), possible

Box 8.2 Market perspective of bioeconomy from forestry: the case of Ontario, Canada

Indrajit Majumdar

Ontario's forest bioeconomy is quickly evolving like many other jurisdictions across North America. The opportunity exists for Ontario to use its abundant supply of forest biofibre, industrial capacity, infrastructure, and expertise to support rural economies, create new business opportunities, support sustainable growth, and generate new wealth. To put this into perspective, Table 8.2 below depicts the extent of forest biomass resources in Ontario and their potential for power generation.

As part of the policy implementation for forest biofibre utilisation, the province of Ontario, through the Ministry of Natural Resources (MNR), is implementing a staged competition to make available unused Crown forest resources. The purpose of this competition is to support new investment by offering wood supply security and to create green jobs in Ontario's value-added forest products and emerging bioeconomy. This project is a major step forward in revitalising the struggling forest industry. Within Ontario's managed forests, there is a wood supply that can be sustainably harvested, but that traditionally has not been used. New investment and jobs can be created in northern Ontario and for Aboriginal

communities through this project, which will help Ontario's efforts to build a healthier, more diversified forest sector. The result will be improved use of low-quality stands and trees, and improved forest renewal and cost efficiency for Sustainable Forest License (SFL) holders. The use of biofibre for new wood products and new jobs may also reduce the costs and impacts associated with traditionally burning these logging residues to prepare forest areas for renewal activities.

There is an estimated total of more than three and a half billion dollars of investment by the Ontario government to support various bioeconomy programs and institutions/organisations in Ontario. Some of the prominent programs and institutions include the Ontario Ethanol Growth Fund, Centre for Research and Innovation in the Bio-Economy (CRIBE), Ontario BioAuto Council (OBAC), Lakehead University – Biorefining Research Initiative (LU-BRI), Queen's University – Advanced Research and Innovation Institute (QU – ARII), University of Toronto – Centre for Biocomposite and Biomaterial Processing (UT – CBBP), University of Western Ontario – Bioproducts Initiative (UWO – BI), and the Ontario BioCar Initiative (OBCI).

Table 8.2 Ontario forest biomass resources and their potential for power generation.

	Mt dry biomass/yr^a	Energy Content (GJ/t dry)^b	Thermal Energy (PJ/yr)^c	Power (TWhr)^d
Residues from existing forestry	2.5	16.9	42.3	4.11
Accessing unused annual allowable cut	4.0	16.9	67.6	6.57
Harvesting forests after disturbance	3.8	16.9	64.2	6.24
Silviculture	13.8	16.9	233.2	22.67
Dedicated harvest for energy	3.0	16.9	50.7	4.93
Total	27.1		458.0	44.52

^a Million tonnes of dry biomass per year.

^b Lower heat value expressed as Gigajoules per tonne dry biomass (*GJ/t dry*). These values have been discounted to allow for the fact that the biomass typically has significant water content, which must be removed for thermal processing. The values assume about 45% water in forest biomass.

^c Peta (10^{15}) joules per year (*PJ/yr*).

^d Terawatt hour (*TWhr*) is calculated as 3.6 GJ/MW hr at 35% efficiency for biomass combustion energy, or 52% efficiency for biogas combined cycle generation.

Source: BIOCAP Canada foundation 2006.

leakages (e.g., deforestation elsewhere) associated with the adoption of regional certification and land-use shifts resulting from sectoral production shifts can result in forest certification not necessarily being a solution for curbing tropical deforestation.

8.2.2 Impacts of the Present Economic Recession on Wood Markets

In 2008–2010, the world economy experienced its worst economic downturn since the Second World War. The contraction of the housing sector, and the sub-prime mortgage crisis in the USA, severely affected financial markets and triggered a global economic crisis. The collapse of the housing sector, which has been at the epicentre of the crisis, is a major blow to wood industries. The annual rate of new housing starts in the USA declined from about 2.1 million in early 2006, to less than 0.8 million in October 2008. Several other countries, especially in western Europe, witnessed similar declines in the housing sector, although not of the same magnitude. The housing decline has led to decreases in wood demand. Wood fibre demand in North America alone fell by more than 20 million tonnes in 2009 (FAO 2009b). Consequently, scaling down of production is widespread in almost all countries and in all forest industries, from logging to sawmilling to production of wood panels, pulp, paper, and furniture. Countries that are highly dependent on USA markets, for example Brazil and Canada, have been severely affected. Declining demand for forest products and the credit crunch together have had a severely negative impact on new investments, and affected all wood industries. As existing facilities remain under-used or closed down, investments in new capacities are being deferred or dropped.

Governments acted rapidly to counter the crisis. However, nobody can be certain when – or if – the decline will hit bottom, or how long it will take for markets and consumer confidence to turn around. Some economists are saying there may be a further decline before a prolonged period of slow recovery. In any event, the demand for wood products is unlikely to reach the peak seen in 2005–2006 in the foreseeable future.

8.3 Foreign Direct Investment and Profitability in the Global Forest Industry

8.3.1 Background for Foreign Direct Investments

Due to globalisation, the business environment of the forest industry has become more competitive over the previous decades. As a consequence, there is a structural change going on in the forest products trade and investment sector. This is due to saturation of the traditional main markets in North America and Europe, while, simultaneously, the emerging economies of Brazil, Russia, India, and China have opened up with higher demand growth prospects. Together with the recent unfavourable global economic downturn (as a consequence of global financial crisis) and a more sustained pressure on paper demand in developed markets, global competition between individual forest industry firms has substantially increased during the 2000s. Increasing regional market shares is important for large companies when attempting to gain more market power. Local production and market presence are increasingly important in the eyes of large customers, which are often multinationals themselves. In the case of forest-based industry, a desire to ensure high quality and efficient procurement of raw materials, such as roundwood or wastepaper, has also motivated forest industry companies to produce globally (Laaksonen-Craig 2004).

The regional distribution of TOP 100 forest industry companies in 2007 shows that well over 60% of the companies are still headquartered in traditional production regions of Europe and North America. Companies headquartered in Asia account for 22% of paper and paperboard production and 3% in market pulp, whereas Latin America's share in market pulp is 31%, and 3% in paper and paperboard (Pulp and Paper International 2008). However, due to advancing geographic diversification, the amount produced outside home continents of Europe and North America is actually higher. For example, in the case of Stora Enso and UPM, two large MNCs (multinational corporations) headquartered in Finland, over 1 million tonnes of their total production of 24 million tonnes in 2007 was produced in China.

The strategic responses of the traditional producers in North America and Europe to globalisation pressures have varied (Laaksonen-Craig and Topinen 2005). Forest industry companies in Europe and the USA have been looking for economies of scale in the face of competitive pressure from the new low-cost producers in Asia and South America. Forest industry companies headquartered especially in the Nordic countries have looked abroad: pulp

industry investments are ongoing in South America with backward integration to ensure the roundwood supply, while, since the collapse of Soviet Union, sawmill investments made by Nordic transnational corporations (TNCs) have been headed first to Baltic countries and later to northwestern Russia. Traditionally, the American companies have been able to rely more on domestic consumer markets while, due to their smaller domestic population and consumption, the Canadian and Scandinavian companies have always been highly dependent on exporting to international markets.

From a company's point of view, the key strategic factors to increase competitiveness include diversification in product and market areas, expansion of company size, and investing in research and development (R&D) activities. The theoretical research has concentrated on understanding the impetus for FDI, but no single general theory describes why firms engage in FDI and locate production facilities abroad. Theories explaining internationalisation of firms are, for example, the factor-proportions approach (Helpman 1984, Helpman and Krugman 1985), Brainard's approach (1997), the knowledge-capital model (Markusen 2002), the resource-based view (Barney 1991, Penrose 1995, Fahy 2002, Grant 2002), transaction cost economics (Williamson 1985, Hsu and Boggs 2003), and the multinational enterprise model of Buckley and Casson (1998).

What do previous studies say about the impact of FDI in forest-based industries and its linkage to profitability? Empirically, Uusivuori and Laaksonen-Craig (2001) analysed interrelationships between FDIs and forest products exported from the United States, Sweden, and Finland. The finding of the study was that the FDIs had already substituted the exports of the United States during the 1990s, and later on, also the exports of Nordic countries. Adopting the same modelling approach on the import side, Nagubadi and Zhang (2008) found a substitution between imports and FDIs outflows of Japan, a result that supported the resource-seeking mode of FDIs. Regarding the separation of analysis by developed and developing countries, the only existing study is by Laaksonen-Craig (2004) in the case of Brazil and Chile, indicating bidirectional causality between FDIs and economic growth, and a causal relationship running from roundwood supply to FDIs. However, due to limited data, the results cannot be fully generalised at a global level. In terms of specific determinants of FDI in any given country, the work by Jalasjoki (2008) indicates that market size, energy, labour and raw material costs, and level of business taxation all play a role in deciding the location of production. The data of the study included only developed OECD (Organisation for Economic Co-operation and Development) countries, therefore, the results might apply only partially to countries

such as Russia, China, and Brazil, all of which have attracted pulp and paper industry investments.

The relationship between the performance and the location strategy has not been much analysed, although internationalisation strategies are also likely to have an impact on the economic performance of forest industry companies. At the firm level, Siitonen (2003) found that globalising North American companies outperformed European companies in terms of profitability, using data for the years 1990–1998. It was also noted that North American companies have been better valued in stock exchanges than their competitors in Europe, where investors do not apparently put a premium on companies with a more global size. Toppinen et al. (2006) found that in forest industry companies headquartered in Finland, the degree of internationalisation, as measured by share of foreign employment, impacted positively on a firms' liquidity and profitability in 1996–2003. In a study by Kirjonen et al. (2006) on the 30 largest pulp and paper companies, the performance of moderately internationalised companies was lower compared to regional companies or globalised companies, suggesting along the lines of Porter (1985) that “if you go global, do not get stuck in the middle.”

8.3.2 Development of FDI in the Forest Industry in the 2000s

The global picture on total FDIs in forest-based industries indicates that 68% of global inflows, and 84% of outflows in 2007 were derived from the developed countries because the majority of FDIs originate from mergers and acquisitions between established TNCs. In other parts of the world, the changes can be accounted for by the modest growth in the share of transition economies (southeast Europe and Commonwealth of Independent States [CIS]) and rather stable share of developing countries of the global forest industry FDI. Overall, after growth since 2003, the global FDI inflows rose in 2007 to reach USD 1.833 billion, well above the previous all-time high set in 2000 (UNCTAD 2008b).

Although the forest industry share of the global FDI stock was only 1% in 2006, the growing internationalisation of forest-based industry has been reflected clearly in the increased FDI flows, and in the number and value of cross-border mergers and acquisitions (M&A). The value of FDI stock in the wood and wood products sector was over 100 billion USD in 2007. The number of cross-border acquisitions referring to M&A activity that involve an acquisition of an equity of more than 10% has also been on the rise. To illustrate this development, the number of M&As where the seller was in the forest industry was 179, with a value of 19 billion USD in

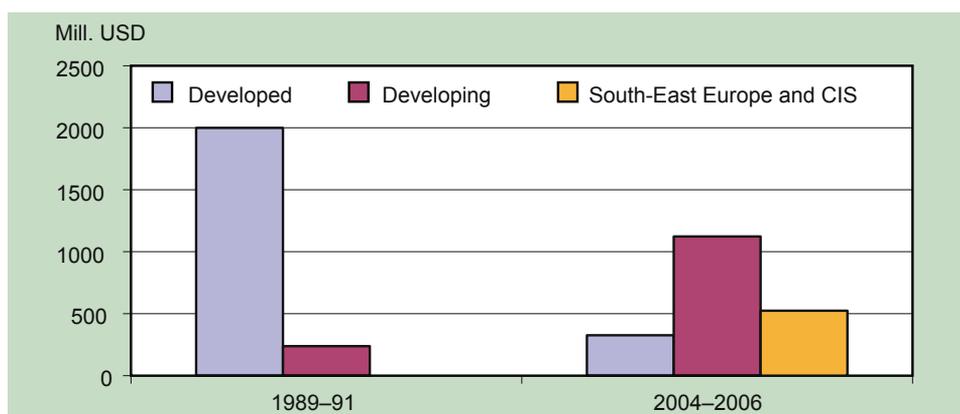


Figure 8.3 Inward FDI flows in wood products sector (including paper and paperboard), 1989-1991 and 2004-2006 (mill. USD, UNCTAD 2008b).

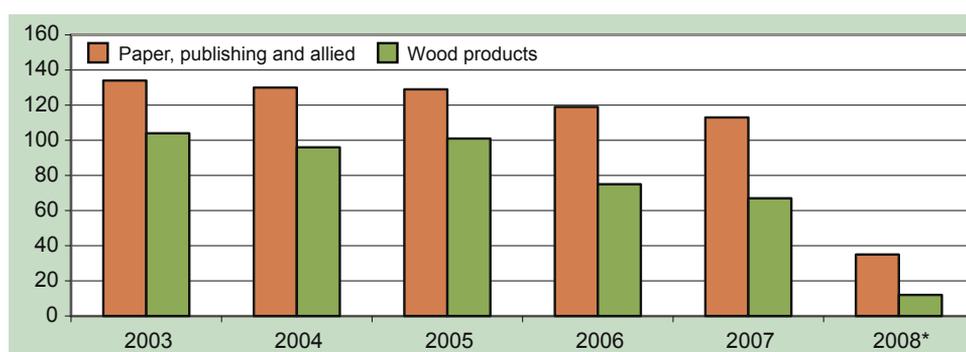


Figure 8.4 Number of greenfield FDI projects in wood and wood products sector, 2003-2008* (forecast) (UNCTAD 2008b).

2007 (UNCTAD 2008b). From the stock of global inward FDI in wood and wood products sector in 2006, 83% was directed to developed countries, 14% to developing countries, and the remaining 3% to eastern European and CIS countries.

The dominant role of developed economies in the years 1989-1991, as a host of FDI in the forest sector, was replaced by the growth in investments in developing and eastern European transition countries in the years 2004-2006 (Figure 8.3). In 1989-1991, 89% of inward FDI were directed to the developed countries, compared to the share of 16.5% in 2004-2006, when 57% of inward FDI in forest industries went to developing countries, and the remaining 26.5% to southeastern Europe and CIS countries (UNCTAD 2008b). On the country level, both Brazil and Chile have continued to attract inflow FDI, although due to the size of individual investments, there are significant year-to-year changes (Bank of Brazil 2009, Chile Foreign Direct Investment Committee 2009). The FDI position in the US forest sector has stayed stable over the past decade (BEA 2009).

During the 2000s, the number of greenfield investments has been steady, especially in the pulp

and paper sector, but the impacts of the global economic crisis and the continued state of depressed paper prices cut the volume of FDI in 2008 (Figure 8.4). A less common form of internationalisation in the forest industry is the intercontinental joint venture, such as the Veracel project in Brazil (see www.storaenso.com). However, these arrangements face risks along with benefits in geographic diversification. Stora Enso and its partner Aracruz delayed the second stage of their project by one year due to financial problems, and reduced their 2009 capital expenditure on land purchases and plantations, and faced criticism from the public on the implementation of corporate responsibility. In general, the recently increased attention paid to the environmental and social dimensions of corporate responsibility requires companies to innovate and more proactively change their business settings (see Box 8.3).

Box 8.3 The growing importance of corporate responsibility in the forest-based industry*Ning Li and Anne Toppinen*

Increasing global consciousness of environmental and social issues has intensified pressures on forest industry companies to sufficiently balance potentially conflicting stakeholder demands. Consequently, concern about corporate responsibility (CR, or corporate social responsibility CSR) has become an increasingly high profile issue from the forest industry foreign direct investment (FDI) point of view.

A recent survey by Kurucz et al. (2008) identified four general types of motivation for firms to engage in CR: (1) to reduce costs and risks in their operations, (2) to achieve a competitive advantage, (3) to improve their reputation and legitimacy, and (4) to integrate stakeholder interests to create value at multiple fronts (synergistic value creation).

Aligning with the dominant theory of the firm, the resource-based view (RBV), Branco and Rodriguez (2006) claim that investments in socially responsible activities may have both internal and external benefits by helping a firm to develop new resources and capabilities. Because the numerous benefits to be obtained by respectful and proactive social action are tied to corporate reputation, employee loyalty, and stakeholder commitment, the role of intangible resources is paramount in formulating and implementing CR strategy. This also presents for each firm a unique, dynamic positioning opportunity. So, from the theoretical perspective, aligning the RBV, enhancing the profile of the forest industry in terms of its corporate responsibility could, over a longer time span, also provide financial benefits.

The main body of research-based evidence regarding CR in forest-based industries seems to have focused on Europe and North America, and on the

largest forest industry companies. Some key trends have become evident. First, one important outcome of the CSR agenda of forest industry companies is the increasing need for individual companies to justify their existence and document their performance through the disclosure of social and environmental information. Second, the global forestry sector is moving towards a more holistic and encompassing approach to CR and sustainability initiatives (Panwar et al. 2006; Vidal and Kozak 2008a, 2008b). Third, large forest companies mainly shape their social performance strategies to fit their geographical profiles (Mikkilä and Toppinen 2008). Fourth, as societal demands are changing with respect to the world's renewable resources, the forest industry defines CR largely based on activities related to sustainable forest management (SFM) and accountability in economic, environmental, and social issues (Wang 2005, Panwar et al. 2006, Panwar and Hansen 2008, Vidal and Kozak 2008a).

Corporate legitimacy has become a highlighted issue in corporate strategic management and operation. Studies by Mikkilä (2005) and Mikkilä et al. (2005), for instance, indicate that perception of CR varies in different geographic contexts. It has been suggested (Panwar and Hansen 2007) that the adoption of a consistent external reporting standard, such as the GRI (Global Reporting Initiative) framework, could provide comprehensive guidelines and help to deal with the emerging conflicts.

While corporate responsibility has become increasingly crucial to the forest industry, it incorporates a growing recognition of mutually interactive and beneficial interdependence between business and society. This also requires forest industry companies to innovate and more proactively change their current business practices. See also Section 23.5.2 on CSR.

8.3.3 Consolidation of the Forest Industry and Its Impacts on Profitability

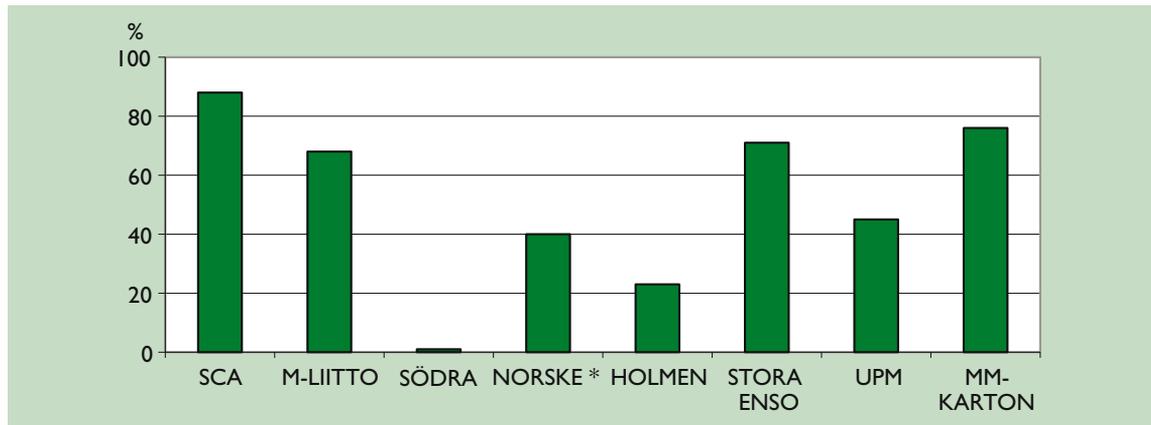
The overall consolidation of the forest industry has progressed very slowly. For example, in 1996, the net sales of the ten largest companies in the industry were greater than 40% of net sales among the 100 largest companies, whereas in 2007, the figure was 41% (PWC 1997, 2008). There are still very few genuinely global forest industry companies that have significant shares of production capacity on more than two continents. The largest European companies, for example, have a variable degree of international production as measured by their share of foreign employment; some of them, such as Swedish

SCA, can be considered as highly internationalised (Figure 8.5). Regarding the scope of internationalisation, some companies, including SCA and Stora Enso, have activities in well over 40 countries, but overall, about 80% of the pulp and paper capacity of these companies is in the home continent. On the other hand, although the capacity of a company may, after FDIs, stay in the same continent, they still may have considerable effects, such as on employment and business performance, at the country level. In regard to investments in sawnwood production in the Baltic area, Stora Enso has been the most active one of the Nordic TNCs. In all, the FDIs made by Nordic TNCs in Baltic sawmills five-folded their timber production volumes over the period 1992–2004. Simul-

Table 8.3 Main features of some of the largest companies (data for 2005, except employment change).

Company	Country of headquarters office	Number of employees	Change in home employees, 2000–2005 (%)	Net sales (mill USD)	Profitability, return on capital, ROCE %	Number of operating countries
SCA	Sweden	50 900	–2	12 896	2.0	50
Metsäliitto	Finland	29 000	–6	10 755	0.9	30
Stora Enso	Finland	46 200	–10	16 411	–0.8	40
UPM	Finland	31 500	–16	11 633	3.4	14
Holmen	Sweden	4 900	–12	2 183	5.6	19
Södra	Sweden	3 700	27	2 132	9.0	1
MM-Karton	Austria	7 300	n.a.	1 811	19.5	19
Norske Skog	Norway	9 400	n.a.	3 993	9.0	25

Source: Toppinen et al. 2008.

**Figure 8.5 Share of foreign employment in large European companies, data for 2005 (for Norske Skog estimation by 2003 data). Source: Toppinen et al. 2008.**

taneously, with the 1.4 million m³ increase in timber production capacity owned by Nordic TNCs in the Baltic area, there was a one million m³ decrease in the Finnish sawmilling capacity alone. In the Baltic countries, numerous small sawmills have been closed up at the same time, as a result of increased competition (Ollonqvist et al. 2006).

The relationship between internationalisation of forest industry companies and their economic and financial performance is not straightforward, as illustrated by the figures of leading European companies in Table 8.3. The overall tendency has been a decrease in home country employment (with the exception of the company Södra) during the period 2000–2005. The number of operating countries varies widely, as does the return on capital employed (ROCE).

What about the impact of consolidation on industry performance? In North America and Europe, several studies done over the years have indicated that there are at least moderately increasing returns to scale in the forest industry (Andrade 2000, Hailu and Veeman 2000, McQueen and Potter-Witter 2006). As pointed out earlier, however, counter evidence has

also been received about the benefits of increasing the scale of operations through consolidation among the world's largest forest industry firms (Laaksonen-Craig and Toppinen 2008). Along the same lines, findings by Petterson (2006), and a recent report by Ernst & Young (2007), indicate that the size of the company does not guarantee better profitability in the forest industry.

In general, only companies with high enough profitability and the necessary balance sheet strength can engage in FDIs, creating either a positive or a negative financial effect for the company. According to Pesendorfer (2003), there are merger waves in the paper industry, one of the active phases being in the mid-1980s. Eagerness of companies to merge occurred again a decade ago (Diesen 2007). At that time, M&As were seen as the best possible way to get global reach, whereas building new pulp and paper mills would increase regional overcapacity problems. Evidently, the wave of M&As in the forest industry during the 2000s, which increased the average size of companies, did not deliver the sustainable profitability that the companies sought (Turunen 2008). The synergies of the high level of M&As were probably

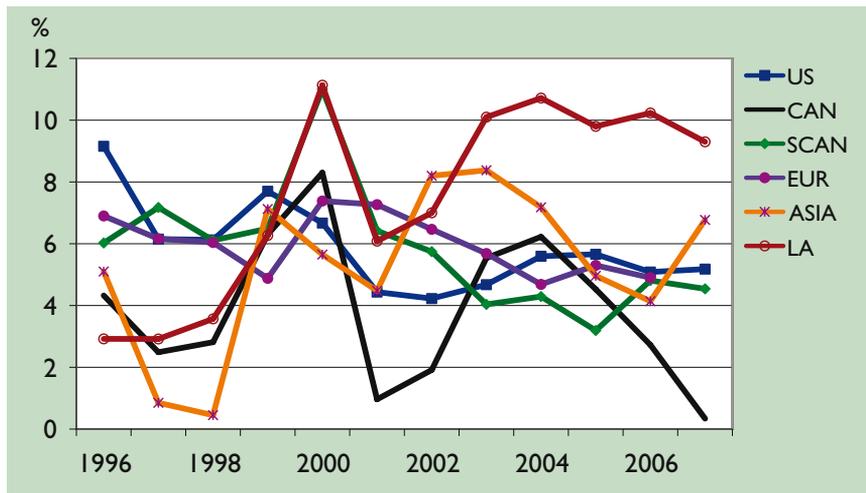


Figure 8.6 Regional average profitability of the largest forest industry companies in 1996–2007 (PWC 2008).

over-estimated and, in retrospect, the cost of acquiring aged brownfield paper capacity turned out, in many cases, to be too high. For example, costly paper mill investments of Stora Enso in North America at the beginning of the 2000s, were divested a few years later. This is consistent with behavioural theory which indicates that managers tend to be overly optimistic in determining the synergies from M&As. Also, the strategic fit between some forest industry companies that had merged was lower than expected, and the challenges of successfully integrating distinct company cultures turned out to be greater than what was originally anticipated.

The regional differences in average industry profitability in the global forest industry are shown in Figure 8.6. The average ROCE, especially for the European forest industry, continued to decrease after 2001, when the companies in other regions, with exception of Canada, seem have recovered. That could be caused by the strengthening Euro currency, which contributed to decreasing export success outside of Europe. In a regional comparison (Laaksonen-Craig and Toppinen 2008), forest industry firms in the group of emerging countries have, on average, clearly improved their performance during the 2000s, and have had superior profits compared to the other regions.

Among the external determinants of company-specific profits, the two main factors are development of real product prices and exchange rates. The excess supply in the global paper market that is causing declining real prices has been a chronic disease in the 2000s. Highly volatile forest product prices have, and will likely continue to have, a significant impact on companies' performance figures. In the last few years, competition between printed and digital media has intensified, and the main end-use sector of the paper industry is in serious structural adjustment

stress. This is well-illustrated by the fact that many established newspaper companies in North America are under severe economic pressure, and capacity closures have become common in the current economic downturn. The cyclic nature of prices is an issue the companies themselves are trying to lessen through increasing consolidation, but how they will succeed in this remains to be seen.

8.3.4 Future Changes in the FDIs and the Location of Forest Industry

Where will the new FDIs in the forest industry be directed over the next few years? According to the UNCTAD (United Nations Conference on Trade and Development) survey on the world's most attractive locations for FDIs in the years 2008–2010, the BRIC countries (Brazil, Russian Federation, India, and China) appear in the top of the list; the United States is also in third place (UNCTAD 2008a). The survey does not take into account the specific features and, most importantly, the unique resource base of the forest industry. Some general indications are likely to apply for the forest sector, based on the importance of the market-seeking motive of FDIs, especially in the paper industry, as also emphasised by Ernst & Young (2009). It is thus likely that the North-South polarisation of the industry will continue, based on the demographic factors. In the densely populated emerging markets of China, India, and southeast Asia, long-term paper demand prospects will be better than in the more mature markets of OECD countries. Whereas, in the pulp industry, Latin America will likely capture the bulk of forest industry FDIs. Despite some regional constraints (such as in Brazil) for increasing the planted forest base, there will



Dasos Capital Oy

Photo 8.1 Institutional investors are increasingly investing in timberlands. (Young *Acacia mangium* plantation in Kalimantan, Indonesia).

continue to be opportunities for forest plantations and the forest products industry utilising the fibre from plantations. These opportunities will have to be evaluated against the perceived higher financial and political risks (PWC 2007, Gonzales et al. 2008).

Consolidation, instead of FDIs, in developed countries will be the more likely mode of internationalisation, where the fibre resources are already more fully used and the markets are mature. The significant economic downturn and its impact on stock prices, combined with fluctuating exchange rates, could also steer FDI decisions in the near term. Some of the largest forest industry companies have lost almost half of their market capitalisation. Also, the relative strength between the US dollar and the Euro has been changing. The situation could create new merger and acquisition opportunities, for instance, for companies looking into expanding their domestic or internationally limited value chains into a more global value network. A report by Ernst & Young (2007), for example, indicated that the economic performance was higher in the value-chain end.

In contrast, the progress towards more efficient utilisation of the vast coniferous forests of the Russian Federation seems to continue extremely slowly, despite the recent plans to raise wood export tariffs. Based on Kok and Ersoy (2009), the determination of FDIs in the developing countries is heavily influenced by infrastructure and communication-related factors, whereas tariffs have a positive effect on FDIs only when combined with openness of the country and high economic growth. The role of political risk

and the need for establishing good governance underlines the importance of obeying the rule of law and controlling for corruption (Rios-Morales et al. 2009).

8.4 Changes in Timberland Investments

8.4.1 Introduction

Traditionally, the forest industry and farmers were the two most important non-public timberland owners in the United States, and in many other developed countries. As a result of more efficient timber markets, tax law changes, and the value of land use changes in recent decades, forest product companies began to sell their timberland properties and focus on their core operations, relying on market and/or long-term wood supply contracts with new timberland owners. International firms have invested in pulpwood plantations to secure their wood supply in new production areas, such as Asia and Latin America.

Over the past three decades, institutional investors, such as public and private pension funds, have purchased large tracts of timberlands from forest products companies, and in turn, sell logs harvested from these lands back to the producers of forest products. These investments have generally been made through private equity investments in limited partnerships, commingled funds, and insurance company

separate accounts. The traditional farmer-owned timberland has also changed in nature due to the shrinking of farm business. Family forestland owners are becoming the more common ownership and are taking a large share of timberland holdings.

Land is the most important factor for wood production. The changing face of forestry and the global market for wood products are coupled with timberland investment as a form of joint response to the changing economies, markets, land value, technologies, and public policies. Timberland investment has been receiving great attention during recent decades. It initiated in the US, but has been spreading to other countries. This trend is expected to accelerate as more forest products companies sell portions of their timberland in order to focus on their core business of forest product development and production.

8.4.2 The Evolution of Timberland as an Asset Class

Investing in timberland is not new. Timberland is viewed as special capital and an asset due to timber prices, land appreciation, and the biological growth of timber. However, timberland was not considered to be an important investment vehicle until recent decades. Farmers and other individual families traditionally owned timberland to grow and supply timber to large pulp and paper mills; timber income was their primary source of income. Farmers owned timberland for production for the timber market. The primary objective for timberland ownership by the forest industry was to produce raw materials for their own mills, rather than seeking the asset appreciation.

Compared with farm land and commercial land, timberland investment has been much less active. From a global perspective, trends seen over the past 20 years towards community empowerment, decentralised decision-making, and increased involvement of the private sector in forestland ownership and management are reflected in changes in forestland ownership and tenure in some regions. Most timberland is still owned by the state or as common resources held by communities. For example, 30 years of economic reform towards a market economy has still not opened the land market, especially timberland, in China. Moreover, differences in timberland ownership among regions are considerable. North and Central America, Europe (other than the Russian Federation), South America, and Oceania have a higher proportion of private ownership than other regions.

However, some rapid changes have taken place in recent decades. As intensively managed plantations

are replacing natural forests as the basic source of wood supply (enabled, in large part, by new technology), the markets for wood supply have been changing. The increasing populations and wealthier societies are demanding more value other than timber from forestland. The value of timberlands, other than for timber products, is increasingly reflected in other services, such as recreation, location for a second home, conservation, and the like. Consequently, the forest industry cannot capture forestland adequately and loses its advantage in holding timberland. The forest industry is getting less concerned about timber supply as the timber market is getting more competitive. At the same time, institutional investors are looking for an investment vehicle that would change their investment portfolio.

Pension funds and other institutional investors started to allocate capital to investments in timberland or timber in the US because of their relatively high return, low level of financial risk, and low correlation with other financial assets (Hotvedt and Tedder 1978, Redmond and Cabbage 1988, Thomson 1989, Washburn and Binkley 1993, Sun and Zhang 2001).

The reasons that timberlands and forests become investment vehicles are as follows:

- (1) A forest that holds mature timber will generate cash each year through the harvest and sale of timber, and these harvests can be modelled and forecasted with a reasonable degree of accuracy over many years.
- (2) Aside from private equity and fixed income, timberland is real property and can be classified as an investment in real estate, and derives an income from the periodic sale of timber.
- (3) The most compelling reason for including timberland investment in a long-term institutional portfolio is the ability to enhance the risk/return characteristics of the total portfolio. Timberland has a low correlation to other major asset classes, including stocks and bonds, and is negatively correlated to real estate. Timberland makes a good investment because its returns are equal to or better than comparable risk/return investments (Zinkham and Cabbage 2003, Walley 2008).

In order to understand a timberland investment, it is important to understand the fundamental components that make up the risks:

- (1) Economic risks include such interrelated factors as timber supply and demand, and fluctuations in log and stumpage prices. Price changes occur based on supply and demand dynamics, including cyclical and seasonal fluctuations in the economy. Demand can also be affected by other external factors, including substitution with

- materials such as metal or plastic, and imported wood as a substitute for domestic production. Supply risks include such factors as the quality of silvicultural management and increasingly stringent environmental regulations. Environmental restrictions, as well as the loss of land to development pressures, will reduce the global availability of timberland.
- (2) Physical risks include fire, weather, insects, and disease. These risks vary to a large extent across geographic regions and climates. Surprisingly, the total loss for managed forests in the United States is fairly low – less than one half of 1% per year (Mortimer 2009).
 - (3) Timberland is relatively non-liquid and isn't efficiently priced in the marketplace (increasing risk). A major concern for investors is the risk of overestimating inventory and future growth from a piece of land. Thus, the quality of the due diligence process leading up to an acquisition (decreasing risk) is extremely important.

The major players in institutional investments are TIMOs and REITs. TIMOs are managers of timberland; they buy, manage, and sell forestland and timber on behalf of various institutional investors. Generally, the TIMOs are looking for long-term investments from 10 to 20 years. REITs are entities that buy, manage, and sell real estate or real estate-related assets, such as mortgages, on behalf of various private investors. REITs own timberland. Like other corporations, REITs can be publicly traded or privately held.

Accurate estimates of timberland investment are difficult to determine. According to Browning (2005), nearly USD 30 billion worth of American forestlands were sold to institutional investors by 2005. According to a more recent report by J.P. Morgan (Mortimer 2009), currently, there are approximately 20 TIMOs in the United States, and they control roughly USD 50 billion in timberland properties. TIMOs are usually structured as public or private REITs, master limited partnerships, limited liability companies, or limited partnerships.

Over the last 20 years, timberland has emerged as a viable institutional asset class among almost 100 private pension, foundation, and endowment funds. This large investable timberland base represents continued opportunity for institutional investors, particularly as private landowners and forest products companies continue to sell off their timber holdings.

Institutional timberland investments started in North America, but the horizon is rapidly expanding. According to DANA Ltd. & HTRG Research, about 91% of the investment by institutions is in the US, 2% in South America, 5% in Australia and New Zealand, and 2% in other areas (Hagler 2006).

Institutional investment in New Zealand accounts for nearly 4% of world total, and, in fact, now exceeds forest industry holdings (Hagler 2006).

Investor profiles in tropical forestry are heterogeneous in terms of investment target, size of investment, and key determinants for the investment decision. Investments in the tropics are more focused on plantation forestry than in natural forest management. The typical size of investment ranged from 50 000 to 150 000 ha for global forest companies, and from 20 000 to 100 000 ha for TIMOs and institutional investors. With some exceptions, it is small- and medium-scale operators who are interested in investing in natural tropical forests. It is notable that, lately, global forest companies are also showing interest in smaller scale stand-alone plantation-based business opportunities (Seppänen and Haltia 2007).

While TIMOs and REITs hold and manage more timberland, families and individuals are also taking an increasing share of timberland holdings. For example, nearly two-thirds of forestland in the United States, or 157 million ha, are privately owned; two-thirds of this land, or 105 million ha, is owned by 10.3 million families and individuals (Butler and Leatherberry 2004). The number of family forest owners in the contiguous United States increased from 9.3 million in 1993 (Birch 1996) to 10.3 million in 2003 (Butler and Leatherberry 2004). Research also suggests that both the share and the total acreage in small parcels (less than 20 ha) have increased in the last 10 years (Butler and Leatherberry 2004, Zhang et al. 2009). DeCoster (1998) noted that if this trend continues, by 2010, nearly 95% of the nation's private forestlands will be owned by individuals owning fewer than 40 ha.

Figure 8.7 shows the changes of the structure from 2004 to 2007. The forest industry holding has decreased from 62% to 32%, while TIMOs have increased from 18% to 40%.

The consequences of this shift in ownership are yet to be determined. On the negative side, many TIMOs have relatively short time horizons, and the nature of timber investing is decidedly long term. It is unlikely that they will make investments in forest management that will not pay off until after they have sold the property. On the positive side, TIMO investment is bringing much needed liquidity to timberland, and with liquidity comes increased value. It is much more likely that a valuable resource will be subject to good stewardship than one that is less valuable. Another positive consequence of all the forestland transactions has been the increase in the number and size of conservation deals (Weyerhaeuser 2005). More diverse ownership of timberlands may also increase non-forest uses of forestland and, therefore, create new markets for these uses, such as carbon sequestration, recreation, spiritual purposes, and watershed protection.

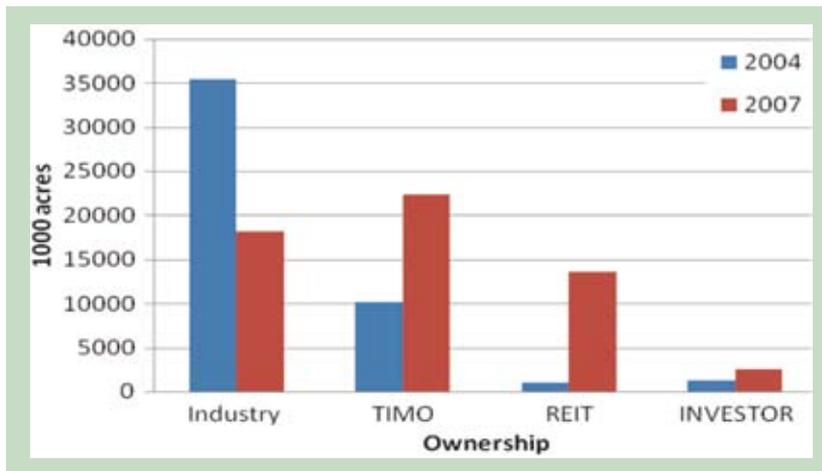


Figure 8.7 Industrial timberland ownership, 2004 and 2007 (Data Sources: Forestweb and RISI Timberland Markets).

However, there is a sense of urgency on the part of the land protection community because changes in ownership can lead to fragmentation, development, and loss of forest. Private non-profit land trusts are the fastest growing part of the environmental movement. New sources of funding from municipalities, state governments, and the federal governments, have all provided needed resources for land protection (Weyerhaeuser 2005).

8.4.3 Timberland Investment in Perspective

Despite the dramatic increase of timberland investment by TIMOs and REITs in the past two decades, investors are facing new challenges. More than 30 million ha of private forest land will be sold over the next 25 years (Eilperin 2006). Binkley (2007) pointed out three reasons that may slow down this increase:

- (1) Almost all integrated forest product companies have sold their timberland.
- (2) The amount of land held by institutional investors is going to decline in the future due to Higher and Better Use (HBU).
- (3) The investors' investment terms are expiring since many TIMOs and REITs raised and invested in timberland in the 1990s, and it is time to sell.

Although timberland investment is very active, the diversification benefits associated with forestry-related assets may have been overstated. Based on the approach to estimating mean, variance, and covariance directly from historical data, 30 years for instance, the previous conclusions are still short-run indica-

tors (Heikkinen and Kanto 2000) because decisions to harvest forest stands are typically subject to long time horizons. For example, a pine rotation may be more than 60 years for sawtimber. In addition, from a financial perspective, it is doubtful that timberland could have relatively high return with low risk in the long-run. There is no such asset like timberland that always generates higher return with lower risk because the abnormal return in the short-run will be absorbed to achieve a long-run equilibrium under the zero-profit condition.

Between 1995 and 2009, timberland prices rose steadily, even as the price of logs, lumber, and other forest products scraped multiyear lows. The disconnection between the land and product prices means there will likely be a correction soon. In 2008, when almost all investment categories declined in value and the US stock market fell about 35%, timberland prices rose 9%, on top of a 17% gain in 2007. In the first half of 2009, prices were down 0.5%, according to the National Council of Real Estate Investment Fiduciaries (NCREIF), which tracks the timber market (Bary 2009). The weak state of the housing market may also affect timber markets.

In contrast to the past two decades, the aggregate supply and demand dynamics have been unfavorable for timber investing. Compared to the outlook for key commodities, such as oil, copper, or aluminum, the outlook for some forest products isn't strong. Demand could weaken as the world goes even more digital and uses even less paper. One of timber's great selling points, its renewable nature, also means wood is less likely to ever be in tight supply. Credit Suisse analyst Chip Dillon wrote, "With many of the trees maturing in recent years remaining on the stump, we certainly do not see an immediate log-price jump when lumber markets heat up, as there will be a pent-up supply of logs for several years" (Bary 2009).

Box 8.4 Forestry investments in China*Can Liu*

China's forest industry has developed significantly since 1990, primarily driven by foreign investment and private sectors. For example, production of wood-based panels is in the top two in the world.

The share of forest resource management by the state has been continuously increasing, from 46% in 1991 to 71% in 2007. At the same time, the state's share of forest industry investment has been decreasing, from 41.96% in 1990 to 27% in 2007. The percentage of forestry investment in the government financial expenditures has been significantly increased from 0.2 to 0.4% from the period 1990–1997, to 0.3–1.3% between 1998 and 2007. However, the share of investment in the forest industry has been decreasing since 1994.

The rising investment for forest resource management since 1998 is because of the implementation and reconstruction of forest ecological restoration programs. These programs aim to establish an ecological shield, improve regional ecosystems, ensure national ecological security, enhance sustainable forest management, and contribute to local socio-economic development, production, and

people's livelihoods. At the turn of the past century, the government made a strategic realignment of the former projects and integrated them into six Priority Forest Programs (PFPs): (1) Natural Forest Protection Program, (2) Cropland Conversion to Forests Program, (3) Key Shelterbelt Development Programs for such regions as the Three North (Northwest, North, and Northeast) and Yangtze River Catchments, (4) Sand Control Program for Areas in the Vicinity of Beijing and Tianjin, (5) Wildlife Conservation and Nature Reserve Development Program, and (6) Forest Industrial Base Development Program in Key Regions with the Focus on Fast-growing and High-yield Timber Plantations.

Implementation of the six key forestry programs will facilitate refocusing from timber production to ecological improvement. The launching of the six forestry programs marked a new era in China's forestry development. Forestry investment in China has increased since 1991. The contribution of the investment in forest resource management is higher than in the forest industry. The sharp increase since 1998 was primarily due to the PFPs. The different share of state investment reflects different development strategies for different programs.

Perhaps timberland is one of those over-hyped investments whose supposed virtues don't hold up well under closer scrutiny. In the future, the timberland market could see a shift in asset toward REITs and away from TIMOs. Dillon wrote, "We do not see sufficient benefits of having a private and illiquid interest in a multiyear timber fund versus having a highly liquid investment in a diversified timber portfolio owned through shares in a publicly traded timber REIT." He thinks the TIMO model is also in trouble because endowments and other institutions increasingly prize liquidity (Bary 2009).

In response to the changing world and global economy, investors are looking for new places where institutions do not currently invest, and for new products from timberland. The new places are often the emerging markets. Unlike relatively low-risk investments in North America, country and currency risks surface when dealing in emerging markets. The investors rarely can own the land. If land ownership is possible, how secure are property rights? In addition, deal structures are complex and information collection is expensive. It is probably necessary to integrate downstream to pull through value. The number of different procedures, the time required for liaison, and related transaction costs are common components of country risk. Moreover, visa-related

issues for shareholders and ex-patriot staff, rigidity of working hours, difficulty and costs of firing workers, and non-wage labour costs are important labour issues. Certainly tax rates and possibilities to export different forest products are also important to consider (Seppänen and Haltia 2007). As a result, the investors have to consider and balance risk, return, and market changes. Considering that many environmental services are entering into the marketplaces, investment on producing such services would provide great opportunities.

Emerging markets are an opportunity (e.g., China, Mozambique). The trade-off for the risks that early players need to take in emerging markets is the opportunity to get the best locations. Emerging markets in general offer new and challenging opportunities for timberland investments, especially in Latin America and in southeast Asia. In addition, several African countries have become attractive tree-growing locations. Also in China, the timberland market is open for land use right transactions. In China public investment in forestry has changed to focus on environmental services and protection (See Box 8.4).

8.5 Conclusions

Structural change is going on in the forest products trade and investment milieu due to saturation of the traditional main markets in North America and Europe, while, simultaneously, the emerging economies of Brazil, Russia, India, and China have opened up with higher demand growth prospects. Together with lately unfavourable global economic development, as a consequence of the global financial crisis and more sustained pressure on paper demand in developed markets, global competition between individual forest industry firms has substantially increased during the 2000s. Along with the growth and consolidation of the forest industry at global and regional levels, locally and, especially in the wood products market, the small and medium sized enterprises (SMEs) continue to have the highest importance.

Trade liberalisation and the increasing role of foreign investment in the forestry sector are anticipated to significantly influence the future development of forest products markets. Climate change and rising energy prices also increase the level of environmental and social awareness, which may affect production and consumption and, over the long term, also influence the supply of wood and wood-based products, as well as forest management.

In the future, it is likely that the polarisation of the forest industry between the North and South will continue, based on the developments in demographic factors. In the densely populated emerging markets of especially China, India, and southeastern Asia, long-term paper demand prospects will be much better than in the more mature markets of OECD countries. In contrast, in the pulp industry, Latin America will be likely to capture the bulk of forest industry FDIs. Consolidation, instead of FDI, will take place in the developed countries, where the fibre resources are already more fully used and the consumer markets are mature. The significant economic downturn and its impact on stock prices, combined with fluctuating exchange rates, however, will steer FDI decisions in the near term since some of the largest forest industry companies have lost almost half of their market capitalisation. Exchange rates continue to play a role in the forest products markets, also indicated by the recent volatility of the relative strength between the US dollar and the Euro.

In the future, better understanding of the complex nature of consumer behaviour in the maturing forest products markets of developed countries – and especially during the changing economic cycles – provides catalysis for the understanding of the converging patterns of consumer behaviour globally. Until now, production and trade of certified forest products has incrementally increased, but without substantial price premiums since the demand is

largely from retailers and not from final consumers. Only a few advocates believe that price premiums achievable in more highly valued products (such as coffee) through fair trade schemes and green public procurement policies could eventually catalyse growth of market share of certified forest products towards more mainstream forest products. Despite this, explaining and segmenting consumers of specific wood products by their environmental and ethical attributes, the role and content of eco-labelling, also from competing schemes, will be the main consumer issues to focus on in the forest products markets. For the forest industry, the recently increased attention paid to the environmental and social dimensions of corporate responsibility requires companies to innovate and more proactively change their business settings. For forest industry companies, a business case for corporate responsibility will only be made by embracing ethical principles with radical changes in fundamental values, policy principles, and operational procedures through continuing organisational learning.

The changing pattern of forest products trade and increasing role of FDIs are coupled with timberland investment. For example, when wood processing mills move to other countries, timberland is sold at the home country and purchased in the new country. This trend is expected to accelerate as more forest products companies sell portions or all of their timberland in order to focus on their core business of forest product development. Many people have a growing concern about timberland investment in developed countries, and propose investments in alternative places and products. These new places are often the emerging markets. The changing value of timberland resulting from increasing importance of forest as biomass for energy use and environmental services generates new forestland investment opportunities. The question is how to weigh the risks, including political, economic, and currency risks.

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