Sapping revenue: Weak residential construction markets cut profit during the recession
## About this Industry

### Industry Definition
Logging companies buy and lease log-harvesting equipment and vehicles and use them to fell trees. The trees are then transported as sawlogs to sawmills and pulp mills. The industry excludes breeding, planting or growing trees, as such companies are classified under the Timber Services industry (NAICS 11311). Companies that truck timber are categorized under Local Specialized Freight Trucking (NAICS 48422).

### Main Activities
**The primary activities of this industry are**
- Cutting timber
- Transporting timber
- Producing wood chips in the field

**The major products and services in this industry are**
- Hardwood logs and bolts
- Other roundwood products
- Pulpwood
- Softwood logs and bolts

### Similar Industries

<table>
<thead>
<tr>
<th>NAICS Code</th>
<th>Industry Description</th>
</tr>
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<tbody>
<tr>
<td>11311</td>
<td>Timber Services in the US</td>
</tr>
<tr>
<td></td>
<td>Firms in this industry operate timber tracts and sell standing timber. A timber tract is a parcel of land used for the purpose of growing timber for harvesting on a long rotation cycle.</td>
</tr>
<tr>
<td>32111</td>
<td>Sawmills &amp; Wood Production in the US</td>
</tr>
<tr>
<td></td>
<td>Establishments in this industry saw dimension lumber, boards, beams, timbers, poles, ties, shingles, shakes, siding, and wood chips from logs or bolts.</td>
</tr>
<tr>
<td>32211</td>
<td>Wood Pulp Mills in the US</td>
</tr>
<tr>
<td></td>
<td>Businesses in this industry manufacture pulp but not paper or paperboard. The pulp is made by separating cellulose fibers from impurities in wood or other materials.</td>
</tr>
<tr>
<td>42182</td>
<td>Farm, Lawn &amp; Garden Equipment Wholesaling in the US</td>
</tr>
<tr>
<td></td>
<td>This industry wholesales specialized machinery, equipment and related parts generally used in agricultural, farm, and lawn and garden activities.</td>
</tr>
</tbody>
</table>

### Additional Resources
For additional information on this industry:
- [www.afandpa.org](http://www.afandpa.org)  
  American Forest & Paper Association
- [www.bls.gov](http://www.bls.gov)  
  Bureau of Labor Statistics
- [www.fao.org](http://www.fao.org)  
  Food and Agriculture Organization of the United Nations
- [www.census.gov](http://www.census.gov)  
  US Census Bureau
Industry at a Glance
Logging in 2010

Key Statistics
Snapshot

Revenue $9.8bn
Annual Growth 05-10 -4.7%
Annual Growth 10-15 3.0%
Profit $440.4m
Exports $1.8bn
Businesses 8,491

Market Share
Weyerhaeuser Company 6.0%
Plum Creek Timber Company Inc. 5.2%

Key External Drivers
Downstream demand from sawmills and wood production
Downstream demand from paper manufacturing
Trade-weighted index
Price of sawmilled lumber

Products and services segmentation (2010)
17% Pulpwood
29.6% Hardwood logs and bolts
4.7% Other roundwood products
48.7% Softwood logs and bolts

Industry Structure
Life Cycle Stage Decline
Revenue Volatility Low
Capital Intensity Medium
Industry Assistance Medium
Concentration Level Low
Regulation Level Heavy
Technology Change Medium
Barriers to Entry Medium
Industry Globalization Low
Competition Level Medium

FOR ADDITIONAL STATISTICS AND TIME SERIES SEE THE APPENDIX ON PAGE 41
Executive Summary

Logging industry activities include felling trees and providing sawmills with sawlogs and wood pulp mills with wood chips and pulpwood. Because the majority of industry products are destined for the residential construction market, the Logging industry has faced difficult conditions since 2005. Faced with reduced demand from downstream residential construction and reduced remodeling activity, logging companies have experienced considerable revenue declines. Also, demand from paper manufacturing has been sliding. As a result of decreased demand, industry revenue has contracted between 2005 and 2010 at an average annual rate of 4.7% per year to total $9.8 billion in 2010.

Industry profit margins have decreased as well since 2005. In 2006, profit margins averaged 5.5%, but reduced sales to downstream industries, declining sawlog and wood pulp prices, and increased fuel expenses reduced the average industry operator’s profit margins to 4.5% by 2010. Faced with profit margin decreases, the number of companies exiting the industry has accelerated, and enterprises have fallen at an average annual rate of 4.1% per year to total 8,351 companies in 2010. Employment also decreased, however, some laid-off loggers were able to enter the forest service industry due to the federal stimulus package directed at wildfire prevention. Industry employment has fallen since 2005 at an average annualized rate of 2.7% to total an estimated 55,043 employees in 2010.

Although the Logging industry isn’t out of the woods yet, residential construction and remodeling activity has begun to heat up, fueled by low interest rates and increasing per capita income levels. Renewed residential construction and remodeling activity favorably impacts the industry because logging companies supply downstream industries with sawlogs, the raw material used to make the requisite planks and boards for the majority of new houses built. Logging companies also supply wood pulp mills with the primary components to make paper, and demand from this downstream industry has faced fewer declines than the residential construction market, thus stabilizing demand for industry products. Given these conditions, industry revenue is expected to rise 3.8% during 2010.

Demand conditions for the Logging industry are projected to improve through 2015. Recovery in the residential construction market is projected to strengthen, which will drive sawlog sales. Further, as a result of Russia implementing an export tax on lumber products, US exports to China and Japan are projected to increase, which will support renewed demand for industry operators. Also, with the mountain pine beetle plaguing British Columbia’s timberland tracts, the supply of Canadian lumber is projected to decline. Reduced Canadian timber supply should lessen price competition and improve revenue for domestic operators, since Canada is the United States’ main competitor for lumber sales. Between 2010 and 2015, industry revenue is forecast to rise at an average annual rate of 3.0% to total $11.3 billion.

Although slipping as well, demand from paper mills has been able to partially offset reduced construction demand.
Industry Performance

Key External Drivers

**Downstream demand from sawmills and wood production**
Sawmills are the largest purchaser of industry products. Logging companies deliver sawlogs to these mills for further processing. Sawmills produce softwood and hardwood lumber, which is normally destined for the residential housing market. When sawmills generate increased demand for wood products, revenue for logging companies is expected to rise. This driver is expected to increase over the next year, which is a potential opportunity for the industry.

**Downstream demand from paper manufacturing**
Activity in the downstream paper manufacturing industry is positively correlated with demand for the logging industry. When demand for paper products rises, demand for wood chips rises as well, bringing about improved sales for industry operators. This driver is expected to increase over the next year.

**Trade-weighted index**
When the trade-weighted index rises, the dollar is appreciating against major currencies, so US lumber exports become less competitive in the global realm while lumber imports are relatively cheaper. Conversely, when the dollar is depreciating, US lumber products face heightened demand as exports are relatively inexpensive and imports are relatively more expensive. This driver is expected to decrease over the next year.

**Price of sawmilled lumber**
When the price of lumber rises, this reflects beneficial market conditions for the forest-products industry. As such, the price of sawlogs and other wood products increases as well, raising revenue for industry operators. Due to its dependence on the strength of the housing market, the price of sawmilled lumber can be quite volatile. This driver is expected to increase over the next year, however since the price of lumber can be volatile, this is a potential threat for the industry.
Industry Performance

Current Performance

The United States is the world’s largest producer and consumer of forest products. By itself, the nation accounts for about 15% of the world trade in forest products. The Logging industry historically has been an important US industry, although production has been diminishing since the 1990s, mainly because of increased environmental legislation. Companies in the Logging industry cut trees into sawlogs and produce wood chips that are then transported to sawmills and wood pulp mills. The majority of the industry’s wood products are destined for the residential housing market, which accounts for about 45% of all lumber used in America. Home repair and remodeling projects account for about 30% of all lumber produced. As such, industry demand is tied most strongly to activity in the downstream housing market, although wood pulp mills are another source of demand for industry products. Wood pulp mills produce the pulp used for making paper, so activity in paper manufacturing industries also determines Logging industry demand. Since 2005, wood pulp sales have averaged 0.3% growth, which provided some stability for the Logging industry while residential housing slumped.

The US housing market’s downturn has decreased Logging industry revenue at an average annualized rate of 4.7% per year since 2005. Conditions have improved for industry operators during the past year, however, in response to an improved number of housing starts, renewed activity in home improvement projects and favorable trading conditions. In 2010, revenue is expected to increase 3.8% with industry sales of $9.8 billion.

Demand falls like timber

The residential construction market is the largest end market for industry products, therefore the number of new houses built and amount of home improvement activity is tied to demand for logging services. Between 2001 and 2005, demand for residential construction skyrocketed due to low interest rates and the belief that housing prices would continue to rise. Beginning in 2006, however, demand for newly constructed houses began to wane, and the number of new houses built fell at an average rate of 22.3% over the period. As a result, logging requirements fell, and logging companies’ revenue declined. Revenue declines were most severe during 2007 and 2009, when sales decreased at 10.3% and 9.9%.

Value of single-family housing construction and total home improvements*

<table>
<thead>
<tr>
<th>Year</th>
<th>Single family housing ($ billion)</th>
<th>(% change)</th>
<th>Alterations and additions ($ billion)</th>
<th>(% change)</th>
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<tbody>
<tr>
<td>2005</td>
<td>485.9</td>
<td>11.1</td>
<td>146.8</td>
<td>9.9</td>
</tr>
<tr>
<td>2006</td>
<td>451.7</td>
<td>-7.0</td>
<td>157.2</td>
<td>7.1</td>
</tr>
<tr>
<td>2007</td>
<td>322.5</td>
<td>-28.6</td>
<td>146.7</td>
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<tr>
<td>2008</td>
<td>192.7</td>
<td>-40.2</td>
<td>124.1</td>
<td>-15.4</td>
</tr>
<tr>
<td>2009</td>
<td>109.1</td>
<td>-43.4</td>
<td>118.6</td>
<td>-4.4</td>
</tr>
<tr>
<td>2010**</td>
<td>120.0</td>
<td>10.0</td>
<td>123.5</td>
<td>4.1</td>
</tr>
</tbody>
</table>

*Home improvements include work on single- and multi-unit housing; **Estimate

SOURCE: US CENSUS BUREAU
Industry Performance

Demand falls like timber continued

respectively. Private investment on home improvement projects also fell at 2.7% per year between 2005 and 2010. As weakness in the housing market spread to the financial markets, tighter lending standards and layoffs ensued, leaving homeowners with less income to pursue remodeling activities. Further, home prices had begun to fall, thus removing consumers’ incentive to pursue home improvement projects to raise their homes’ value.

The number of houses built is estimated to rise 5.9% during 2010, bringing with it renewed demand for industry products. Also, private investment on home improvement projects is expected to rise 2.9% this year. In anticipation of falling unemployment and brighter economic conditions, developers and consumers are once again investing in housing units. Such investment is expected to impact the Logging industry favorably due to increased demand for sawlogs.

A changing industry

In response to declining demand for logging products, unemployed loggers have been transferring to other forestry sectors bolstered by the federal stimulus package. The US government provided $1.15 billion toward road, bridge and trail maintenance as well as wildfire mitigation. As a result, industry employees moved into these forest support roles amid declining demand conditions for lumber. Some former loggers have been thinning federal forests to make them more resistant to wildfires and disease as well as building and maintaining roads. As a result of the workforce shift, industry employment has fallen at an average annualized rate of 2.7% since 2005 to an estimated 55,043 employees in 2010.

The average industry profit margin has been down since 2005 as well. Declining sawlog sales coupled with increased fuel prices compressed profit margins for logging companies. In 2010, profit margins are estimated to be 4.5% of revenue, but in 2006 they averaged 5.5%. Lower profit margins have forced companies to exit the industry or be acquired by larger firms. Since 2005, the number of logging companies has declined at an average rate of 4.1% per year to total 8,351 companies.

Global trading conditions

Exports as a share of industry revenue have continued to increase since 2005, and China is the main destination for US sawlogs. China consumes 36.2% of US industry exports, with Canada and Japan comprising other main markets. Exports have increased at an average annualized rate of 2.3% during the past five years, fueled by the depreciated US dollar as well as strong residential construction activity in China. The value of the US dollar depreciated for six consecutive years between 2002 and 2008, with a temporary reversal in 2009, and continued to fall in 2010.
Industry Performance

Global trading conditions continued

When the US dollar depreciates, demand for industry exports increases because US products become relatively cheaper. By contrast, imports tend to decline when the dollar is depreciating, as the price of foreign goods is comparatively more expensive. Industry imports have taken a dive during the past five years, declining at an average annualized rate of 25.1%. In addition to the dollar’s depreciation, weak domestic residential construction conditions reduced import demand. Traditionally, Canada is the main source of imports, accounting for 81.5% of the total.

Trade disputes

The lumber trade between the United States and Canada is one of the most enduring trade disputes in US history. In response to complaints that Canadian lumber was unfairly subsidized, the United States imposed duties of 27% on Canadian softwood lumber in 2002. In 2006, however, the two countries reached an agreement requiring the United States to return 80% of the more than $5 billion in duties it had collected on lumber imports. The Softwood Lumber Agreement removed tariffs on lumber but included export taxes that kick in if the price of lumber drops below $355 per thousand-foot board. The agreement is to remain in effect until 2013.

In April 2009, however, an arbitral tribunal determined that Canada had breached some of its obligations. A 10% ad valorem duty was applied on imports of softwood lumber products from Ontario, Quebec, Manitoba and Saskatchewan. The import tax was later transferred to Canada, which began collecting 10% on exports of softwood lumber from those same provinces. This agreement is to remain in effect until the amount collected is equal to $68 million.

Industry Outlook

After declining during the recession, IBISWorld projects improved conditions for the Logging industry. Sales for all of the downstream industries upon which the Logging industry depends (residential construction, home improvement and paper manufacturing) are forecast to improve during the next five years. Consequently, Logging industry revenue is projected to increase at an average annual rate of 3.0% to total $11.3 billion in 2015. Paper manufacturing is forecast to have the weakest growth of the three primary downstream industries. A continued trend toward electronic communication has reduced business and consumer paper use, with only moderate improvements anticipated during 2011 and 2012. In contrast, residential construction and private investment in home improvement are projected to have strong revenue gains. Such gains will increase demand for sawlogs, one of residential construction’s most primary materials.
Industry Performance

Residential construction builds up demand

The residential construction market provides the largest source of demand for sawlog products, and the average new home requires 14,000 feet of lumber. As such, the number of new houses built is strongly correlated with demand for sawlogs, which the industry supplies.

Recovery in the new housing construction market is anticipated to strengthen through 2015. In anticipation of falling unemployment, developers and individuals will once again be willing to invest in new units. Also, the Federal Reserve is projected to keep interest rates low, which will facilitate residential investment. Most likely, however, residential construction will fail to reach pre-recessionary levels due to changes in lending standards. The number of new privately owned housing units, however, is projected to grow at a compound rate of 20.0%. Growth is expected to peak in 2012.

Profit gains

Increased demand from residential construction is anticipated to slightly raise industry profit levels. In 2010, profit margins averaged 4.5% of industry revenue, but margins are forecast to expand to 5.3% of industry revenue by 2015. Rising sawlog prices as well as increased volumes of sawlogs required for residential construction will favorably impact industry profit.

Also, timber prices are expected to rise, partly because the mountain pine beetle outbreak in British Columbia has reduced supply from Canada. Oil prices, however, are forecast to increase through 2015 because of increased global demand, particularly from China and India. Further, the depreciated US dollar will raise the cost of imported gasoline amid proposed gasoline tax increases. Because transporting sawlogs, wood chips and pulpwood to their respective mills is a major logging company service, rising oil prices will increase operating expenses, thus compressing industry profit margins.

The number of industry companies is projected to fall at about 0.6% per year to 2015. Initially, the number of logging companies is forecast to rise after experiencing severe declines during the recession, however, merger and acquisition activity is expected to continue, which will curtail company numbers. Employment, by contrast, is forecast to grow at a moderate rate of 1.2% per year over the five-year period. Employees that transferred into forest support services during the height of the recession are anticipated to return to logging activities as renewed

Increased residential construction will raise industry demand

Along with improved housing sales, investment in home improvement is projected to increase during the next five years. First, rebounding employment will increase per capita income levels. With more money back in consumers’ pockets, a greater number of homeowners will be willing to invest in their homes. Further, rising home prices and greater sales of existing homes will support demand for renovations. Private spending is forecast to increase at an average annualized rate of 3.7% through 2015. Remodeling activity is a major component of demand for the logging industry, as projects will typically require hardwood planks for construction, flooring and furniture building.
Industry Performance

Profit gains continued

demand from residential construction fosters growth. Employment in the logging industry, however, has been on the downturn for the past decade, largely due to increased mechanization in the industry. Therefore, labor requirements are projected to continue their downward trend, resulting in employment losses beginning during the latter part of the five-year outlook.

Global trade expected to rise

The dollar is expected to continue to depreciate through 2015, albeit at a lower annual rate of 0.6%. This trend will be primarily driven by investors fleeing the relatively low interest rates to pursue greater returns in other developed countries. As a result of the depreciating US dollar, sawlog exports are forecast to increase during the five-year period at an average annual rate of 2.0%. The depreciating US dollar will make exports relatively cheaper. Also, as a result of Russia’s 25% log export tax, China and Japan will increasingly import from the United States. China is currently in the midst of a residential construction boom, and, as sawlogs are a primary component in housing construction, this trend will favorably impact industry exports.

Imports are also forecast to increase at an average annual rate of 4.5% through 2015. Although the dollar is projected to depreciate over the five-year period, increased domestic demand as the residential construction market heats up again will lead import growth. Further, given that imports have declined 25.1% on average since 2005, imports will gain partly because they are currently at exceptionally low levels. Canada is the most significant importer to the United States, accounting for 81.5% of total industry imports, however, the outbreak of the mountain pine beetle in British Columbia has challenged Canada’s timber supply. Periodic outbreaks of the insect in North America have resulted in millions of trees being lost to the pest. According to Natural Resources Canada, at the current rate of beetle growth, an estimated 80% of mature pine will be dead by 2013. Therefore, this epidemic will curtail Canada’s timber supply, resulting in reduced price-based competition from Canada.

Favorable legislation

In September 2010, the Senate proposed a bill that would require utilities to generate minimum levels of renewable power from wind, solar, hydro or biomass (wood) sources. The bill would require that utilities garner 6% of their energy from renewable sources by 2016 and 15% by 2021. Currently, bark, sawdust and other wood and paper manufacturing byproducts are the largest sources of biomass-based heat and renewable electricity. Therefore, should this legislation pass, the increased demand for pulpwood would favorably impact logging companies.
Industry Performance

Higher raw material, equipment purchasing and compliance costs in selected years
Integration by firms into downstream wood and paper product industries reduced the industry’s size
Diminishing natural resources and the time taken to grow plantations ready for harvesting

Life Cycle Stage

Key Features of a Decline Industry
Revenue grows slower than economy
Falling company numbers; large firms dominate
Little technology & process change
Declining per capita consumption of good
Stable & clearly segmented products & brands

Quantity Growth
Many new companies; minor growth in economic importance; substantial technology change

Maturity
Company consolidation; level of economic importance stable

Quality Growth
High growth in economic importance; weaker companies close down; developed technology and markets

Shake-out
Crash or Grow?
Potential Hidden Gems
Timber Services
Heavy Construction
Equipment Rental & Leasing
Sawmills & Wood Production
Wood Pulp Mills

Time Wasters
Hobby Industries

SOURCE: WWW.IBISWORLD.COM
## Industry Performance

### Industry Life Cycle

The US Logging industry is in the decline stage of its economic life cycle. Industry value added is forecast to decrease at an average annualized rate of 0.3% per year between 2005 and 2015. GDP, by contrast, is projected to rise at an average rate of 1.9% over the same period. As a result, the industry’s contribution to GDP is shrinking over time. Industry value added is decreasing as a result of falling demand for paper products. Downstream industries within the paper manufacturing sector have entered into decline due to continued substitution for electronic-based communication. Although the downstream residential housing market is expected to recover over the next five years, growth in the housing market is not expected to reach pre-recession levels. As a result, downstream demand for sawlogs and wood chips is falling.

Lower revenue for logging companies has led to a degree of consolidation within the industry as companies were forced to exit the industry. The number of companies within the industry has fallen at an average annualized rate of 4.1% per year over the five years to 2010. Furthermore, industry employment has also decreased over the same period at an average rate of 2.7% per year. Employees have been transferring into forest support roles, as demand for logging products falls due to the slowdown in the housing market. Some technological change has occurred with investment in feller-bunches which have replaced individual loggers. These vehicles are able to snip mature trees without damaging smaller trees. Additionally, mechanized skidders that are used to haul logs out of the forest are being fitted with extra-wide tracks in order to reduce damage to the forest floor. However, there hasn’t been significant technological development over the past ten years.

Revenue may be positively impacted in the future by increased international consumption and future regulation changes. China has been experiencing strong residential housing construction which has been fueling demand for US sawlogs. This trend is expected to continue over the next five years. With favorable exchange rates, exports are expected to rise, positively impacting industry operators. The Senate also proposed a bill in September 2010 that would require utilities to generate a minimum level of renewable power from wind, solar, hydro or biomass sources. Should the bill become law, by 2021 utilities would have to generate 15% of their energy from renewable sources. This legislation would favorably impact the industry as timber is a renewable resource. Companies in the industry would face renewed downstream demand for timber products destined for biomass-generated electricity.
Operators within the Logging industry are primarily engaged in cutting timber and producing sawlogs. Loggers also produce wood chips in the field. Following this, logging companies transport wood products to sawmills and wood pulp mills for further processing. The principal products produced by the industry include: Softwood logs and bolts, hardwood logs and bolts, pulpwood and other roundwood products. The value of these products shares are determined by the volume of sales, as well as their average price. Due to the downturn in the residential housing market as well as reduced...
demand from downstream paper manufacturing industries, the average price of lumber products and the volume sold have decreased over past five years.

Softwood logs and bolts
Softwood logs and bolts make up the majority of timber harvested by the industry. The product segment is estimated to account for 48.7% of industry revenue in 2010. The dominant species of softwood include: Douglas-fir, true fir, western hemlock, ponderosa and jeffrey pines, and engelmann and other spruces. Softwood tree varieties have a faster rate of growth compared to hardwood tree varieties, softwoods are used primarily for residential construction. According to the USDA, the volume of softwood lumber produced in the US is approximately 65.55 million cubic meters, which is more than twice as much hardwood produced. Softwood tree varieties are found in the Western and Southeastern region of the US. Softwood sawtimber is significantly less expensive than hardwood tree varieties, typically because their growth rate is much faster than hardwood and they are more widely available. The product’s share of revenue declined slightly over the past five years, however the decrease was mainly in line with the industry which faced substantially reduced demand from wood product and paper manufacturing. In 2006, the product’s share of revenue was approximately 49.1%

Hardwood logs and bolts
Sales of hardwood sawlogs and bolts account for an estimated 29.6% of industry revenue in 2010. Some of the primary hardwood tree varieties are: Loblolly and shortleaf pines, red oak, hard maple, soft maple, sweetgum and yellow-poplar. According to the USDA, the volume of hardwood sawtimber produced in the US is approximately 27.0 million cubic meters. The lumber produced from hardwood trees is most often used in building construction, furniture building, musical instrument production and flooring. Hardwood is generally more durable than softwood due to its greater density, however it is approximately 40% more expensive than softwood which may limit its use for larger building projects. One reason the lumber of some hardwood trees is costly is that some varieties have been over planted and over harvested which has increased their respective price. The product’s share of revenue declined during the five year period due to reduced prices for hardwood and lower harvest levels due to the slowdown in the housing market. In 2006, the product’s share of revenue was approximately 29.9%. The majority of the decline has been in line with the rest of the industry.

Pulpwood
Pulpwood sales constitute 17.0% of industry revenue in 2010. Pulpwood refers to timber that is used to make wood pulp for paper production. Pulpwood is cut and processed in the field in preparation for being made into various paper, paperboard and tissue products. Inferior trees in a timber stand are normally selected for pulpwood production while healthier trees are converted into sawlogs. Pulpwood, however, is also used as a raw material for oriented strand board and as a source of renewable energy for the bio-energy sector. The Senate recently proposed a bill that would require utilities to generate minimum levels of renewable power from wind, solar, hydro or biomass (wood) sources. Should the legislation pass, demand for this product segment is expected to increase. The segment’s share of revenue increased slightly over the past five years as demand for pulpwood suffered comparatively less than demand for sawlogs. Demand for pulpwood was
Products & Markets

Products & Services

Continued

stabilized by its use as a renewable energy source and the fact that paper manufacturing industries faced less decline than the residential housing market. In 2006, the segment’s revenue share was 16.5%.

Other

The industry also produces a range of roundwood products such as poles, posts, wood chips, stumps, sticks and fuel wood. Roundwood products are used for sign posts, building poles, animal enclosures, fencing among others. The product’s share of revenue is estimated at 4.7% of industry revenue, this is a slight increase from 2006 as the segment has experienced less decline than other products which rely on residential construction and paper manufacturing.

Demand

Determinants

Demand for US logging industry products is primarily linked to the downstream demand for paper and wood manufacturing. The main products produced from sawlogs and wood chips include: sawn timber, plywood and veneer, reconstituted boards (such as particleboard and hardboard), pulp, paper and paper products and other wood products such as poles and posts.

Domestic demand for the aforementioned products is tied to the performance of the housing market, consumer and business preferences for paper-based products and trends in international trade. Related industries, such as furniture making, printing and publishing industries also affect industry-level demand.

The housing market

The largest end market for lumber products is the residential construction market. On average, each new home built in the US contains over 14,000 feet of lumber. Therefore, trends in residential construction are tied to demand for timber products in the US.

After rampant overbuilding between 2001 and 2005, the number of new houses began to decline in 2006, due to oversupply and shoddy lending practices becoming apparent. Residential construction activity continued to fall up through 2009, only during 2010 has there been an increased number of houses built. Over the five years to 2010, the number of new houses built fell at an average annualized rate of 22.3%. The rampant slowdown in the housing market significantly reduced the demand for timber products, causing industry operators to delay selling their timber until more favorable market conditions presented themselves.

The level of remodeling activity also has a significant effect on industry demand. Similar to new housing construction, private spending on home improvement fell over the five years to 2010. When housing prices began to fall in 2006, spending on upgrades took a similar downward turn. Furthermore, with decreased per capita income levels during the recession, homeowners were less likely to pursue remodeling activities.

Environmental concerns

Concern for the environmental impact of logging efforts has played a role in the industry’s decreased harvest levels. Over the past two decades, the proportion of timber cut on public lands has declined steadily. The majority of public timberland is held in the Pacific Northwest. The Endangered Species Act has increased the number of regulations that industry operators face. As a number of species indigenous to timber holds have been listed as threatened or endangered, logging activities have been subject to restrictions. In 1990 the spotted owl was listed as endangered,
Demand Determinants continued

therefore logging was prevented within a 2000 acre radius around known spotted owl nests. This mainly took place in the Pacific Northwest area. Environmental concerns placed on logging in the 1990s reduced the amount of timber harvested from US national forests by 75%.

The electronic age
Increasingly consumers and businesses are switching to internet-based mediums for communicating, advertising, and keeping up to date on news. Due to environmental concerns as well as a generational shift, more businesses and consumers are switching to electronic communication and information storage, reducing the demand for office stationery such as envelopes, business forms and applications forms. Anti-paper movements, such as the “Paperless Office” have also become more common over the past decade, in an effort to save natural resources. Furthermore, print advertising in magazines and newspapers has been declining intermittently over the past decade, with a dramatic drop during the recession, and continued decline during 2010, compared to internet-based advertising which has maintained robust growth since 2003. Newspaper sales have been declining for many years, but the decline accelerated during the recession. Reduced newspaper sales is mainly due to competition from the internet, which many consumers consider to be both cheaper and more convenient. Lower circulation figures are also due to publishers raising prices and decreasing discounts and limiting the area covered by delivery services, in an effort to decrease operating expenses. As the demand for paper products has continued to decrease, demand from downstream pulp and paper manufacturing establishments has slowed. This trend has resulted in a reduced demand for the logging industry.

Global competition
The presence of imported lumber goods creates increased competition for domestic operators, and consequently placed downward pressure on timber prices. United States timber production has historically competed with Canadian softwood imports, which US forestry groups suggest are unfairly subsidized. The allegation stems from the fact that the Canadian government owns the majority of timberland and the price is set administratively, rather than through a competitive auction. Low cost imports from Canada placed downwards pressure on industry growth levels through the US housing boom, although demand levels rose faster than Canadian import quantities overall. The exchange rate largely determines the competitiveness of US products in the global arena, compared to imports. Overall the US dollar depreciated between 2002 and 2008, making US timber products more competitive. During 2009, the dollar appreciated as investors flocked to safe US assets further constraining domestic revenues. During 2010, the dollar is expected to depreciate which will raise the competitiveness of US timber products, positively impacting industry operators.

Major Markets

Sawmills
The majority of products generated by logging companies are sold to sawmills for further processing. IBISWorld estimates that 68.8% of logging products are sold to sawmills. After receiving logs from industry operators, sawmill companies sort the logs based on species, size and end use. Then sawmills remove the bark from the logs and cut them into...
Major Markets continued

boards, beams, poles, siding and wood chips. The majority of these wood products are then sold to lumber wholesalers who primarily supply the residential construction market.

Pulp mills
Logging companies which have woodchipping equipment produce their own wood chips in the field. These are then sold directly to pulp mills. Pulp mills use the wood chips to produce paper, tissues and similar products. Byproducts generated by sawmills supply most of the input requirements of pulp and paper manufacturers, however pulp mills also purchase wood chips and pulp wood from logging companies. As paper manufacturing industries experienced less decline than downstream residential construction markets, the share of revenue from this sector has increased over the past five years. In 2006, sales to pulp mills were approximately 9.5% in 2006. Currently, sales are estimated at 12.4%.

Exports
Exports are projected to account for an estimated 18.8% of total industry revenue during 2010. Exports have seen a sharp increase over the past five years driven by the depreciating US dollar as well as more favorable global trading conditions. The major markets are the Chinese, Japanese and Canadian paper and wood product manufacturing industries. (For more information, please refer to the International Trade section.)
The Logging industry has a medium level of international trade. Although the majority of demand for lumber products comes from the domestic market, exports make up a sizeable portion of industry revenue. The logging industry is a net exporter, within the last five years, import penetration has decreased due to reduced domestic demand caused by the downturn in the housing market and the depreciating US dollar. Trends within the international market are largely influenced by changes in the value of the dollar, measured against its major trading partners. When the US dollar is depreciating against the currencies of its major trading partners, import penetration is expected to decline since imports are relatively more expensive, furthermore, exports typically increase as they are relatively cheaper in international markets. Conversely, when the US dollar is appreciating, US exports are less competitive and import penetration typically increases.

Heightened import penetration typically causes price competition to increase among industry operators, leading to revenue declines.

**Imports**
The total value of imported industry products is forecast to decline considerably during the five years to 2010. Logging imports are forecast to decrease at an average annualized rate of 25.1%. The US dollar has been depreciating since 2003, with only a small appreciation during 2009. When the US dollar depreciates, industry imports are relatively more expensive and thus experience reduced demand. Additionally, weak domestic demand conditions further curtailed industry imports. Over the five year period, import penetration decreased from 2.8% in 2006 to a projected 0.8% in 2010. The largest source of sawlog imports are from Canada, which accounts for 81.5% of total imports to the United States. However, the outbreak of the mountain pine beetle is expected to profoundly limit Canadian lumber supply in the future. According to Natural Resources Canada, at the current beetle spread rate, an estimated 80% of mature pine will be dead by 2013. The beetle infestation has also affected timber tracts in Montana and Colorado, however the majority of the damage is expected to be concentrated in Canada. The mountain pine beetle outbreak is expected to favorably impact US logging companies. The reduced supply of Canadian timber will further decrease competition from imports leading to higher sawlog prices, increasing revenues for industry operators.

**Exports**
Industry exports have experienced substantial growth over the five year period. Between 2005 and 2010, industry exports increased at an average annualized rate of 2.3% per year. Exports have been favorably impacted by the weakening US dollar which made US sawlogs and other wood products more competitive in the global market. Exports as a whole are making up an increasing percentage of industry revenue. In 2006, exports accounted for only 12.8%, in 2010 this figure jumped to 18.8%.
Exports, as a share of industry revenue, have increased as domestic demand for paper products has begun to slacken. Therefore, industry operators are increasingly focused on global markets to maintain demand for sawlog products. China is currently the largest market for the industry’s products. In 2010, China accounted for 36.2% of industry exports. China’s residential construction sector has continued to grow, leading to increased demand for US log imports.

Log exports to China have also been favorably impacted from Russia’s log export tax. In 2008, Russia adopted a 25% tax on exported logs, resulting in increased demand for US logs. Japan is the second largest destination for US log exports, accounting for 16.6% of total exports in 2010. Similar to China, Japan has a strong residential construction market which drives demand for US imports and previously was a major importer from Russia.
Although logging companies operate throughout all regions of the United States, the majority of operators are located in the Southeast and the West. The distribution of industry operators is based on the available acres of forestland, as well as the proximity to pulp, paper and wood product manufacturers. Furthermore, logging companies are more likely to be located near private forestland rather than public forestlands, since public timber stands are more likely to be protected for environmental reasons.

**Southeast**

The majority of logging companies are centered in the Southeast region. In 2010, the region held 48.5% of industry operators. The Southeast has historically been a major lumber producer given its relatively warm winters and level terrain. As a result of the region’s warmer weather, trees are able to grow at a faster rate compared to region’s with a colder climate, making the Southeast an attractive destination for industry operators. Within the region, Alabama, Georgia, Mississippi and Arkansas are the top producers and the main species harvested is the Southern yellow pine. The Southeast has a higher proportion of forestlands that are held privately as opposed to publicly. Because the majority of the South was previously logged, there is little old-growth forest left in the region, therefore environmental efforts are not as focused on the region which facilitates logging efforts in the region. Public forests are largely protected from development by federal and state authorities. Within the Southeast, logging companies typically choose to perform operations close to downstream industries, such as pulp, paper and wood manufacturers in order to limit transportation costs. In 2006, the region’s share of industry establishments was slightly higher, estimated at 49.2%. Establishment closures were mainly in Mississippi and Arkansas.

**West**

The West is another major producer Logging industry. In 2010, 17.6% of industry operators were located in the region. Logging companies are mainly located in Oregon and Washington, which hold a respective 7.9% and 6.2% of the industry’s total establishments. The region mainly produces Douglas Fir and Western Hemlock logs. Within the region, only 35.5% of timberland is privately held, therefore the majority of timberland supply comes from federal forests. Although the West has historically been a major lumber producer, environmental concerns have caused federal authorities to decrease the amount of forestland available to logging companies. Environmental concerns have focused on preserving old-growth forests and protecting the habitat of the spotted owl. This has caused the number of logging companies operating in the West to decrease over the past two
decades. However, the West is valued for its proximity to high-value export markets for Douglas fir and hemlock logs in Japan, Korea and China. Therefore, the region is attractive for larger industry operators engaged in international trade. Over the five year period, the West experienced little change in its respective share of establishments. In 2006, the region held 17.8% of the total.

**Great Lakes**

The Great Lakes region is home to 8.3% of logging company establishments in 2010. Michigan is the top producer within the region, and currently holds 3.6% of the nation’s total industry establishments. Aspen-birch is the most predominant species harvested within the state. Logging companies partly choose to locate in the region due to its proximity to Canada, which is a major export destination for the United States. Furthermore, the majority of forestland within the region is privately-held and therefore faces fewer environmental restrictions. The region’s share of establishments has stayed constant over the five year period.

Other minor participating regions in the industry include: the Mid-Atlantic, New England, the Plains, the Rocky Mountains and the Southwest. Among them New England has the highest proportion of establishments with 6.9% of the total. These regions have fewer comparative acres of available forestland suitable for harvesting timber.

### Geographic spread of US forests

<table>
<thead>
<tr>
<th>Region</th>
<th>Share of forests (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West</td>
<td>15.2</td>
</tr>
<tr>
<td>Great Lakes</td>
<td>6.8</td>
</tr>
<tr>
<td>Mid-Atlantic</td>
<td>12.6</td>
</tr>
<tr>
<td>New England</td>
<td>12.8</td>
</tr>
<tr>
<td>Plains</td>
<td>15.2</td>
</tr>
<tr>
<td>Rocky Mountains</td>
<td>5.4</td>
</tr>
<tr>
<td>Southeast</td>
<td>24.2</td>
</tr>
<tr>
<td>Southwest</td>
<td>7.8</td>
</tr>
</tbody>
</table>

SOURCE: US DEPARTMENT OF AGRICULTURE
The Logging industry has a low level of market share concentration. In 2010, the top four companies in the industry accounted for 17.0% of industry revenue. Market share concentration increased only slightly over the past five years; in 2006, the top four contributed 16.9% of logging revenue. The logging industry is for the most part highly localized. Companies normally deliver logs and other wood products to mills within a 200 mile radius. The average company in the industry has 7 employees.

Market share concentration increased over the past five years primarily due to merger and acquisition activity and stronger than average industry performance on the part of the major players. All four of the companies exhibited higher-than-average revenue growth during the five year period. The top four companies are vertically-integrated forest products companies which gives them a competitive advantage since they have more consistent demand for lumber products and face reduced transaction costs. Furthermore, Plum Creek Timber Company and Potlatch are also structured as Real Estate Investment Trusts which allows them to enjoy a significant tax advantage compared to their competitors in the industry.

### Key Success Factors

**Downstream ownership links**
Integration into other timber-based operations will strengthen the viability of a logging operation.

**Must hold quota**
Loggers must comply with appropriate quotas and adequate timber allowances in order to ensure their licenses are renewed.

**Having a good reputation**
Since communities often oppose logging operations, maintaining a good public image will allow loggers to continue and expand their operations.

**Appropriate physical growing conditions**
Since some loggers own or manage forests, they need to select the right biophysical conditions for the species chosen for growing and harvesting.

**Understanding government policies and their implications**
Since this varies by state and even by county, management of a logging operation must be aware of these issues.

**Automation – reduces costs, particularly those associated with labor**
The degree of mechanization used in the logging process can be important to reduce labor costs.

**Ability to accommodate environmental requirements**
Meeting environmental requirements is becoming increasingly important as native forests become progressively depleted.

**Appropriate climatic conditions**
Weather conditions may constrain the amount of time for which logging is possible.
For the average company in the industry, earnings before interest and taxes as a percentage of industry revenue is estimated at 4.5% in 2010. Profit margins declined slightly over the past five years; in 2006 profit margins were estimated at 5.5%. Profit margins declined due to falling demand for lumber because of reduced downstream demand for residential construction. Furthermore, fuel costs increased over the past five years, with the most significant increase in 2008 when fuel prices rose 16%. Logging companies have been unwilling to pass these cost increases onto their customers out of concern that they will lose business, as a result, profitability has suffered. Profit margins vary significantly, depending on a company’s scale of operations. Larger companies in the industry typically have much higher profit margins due to economies of scale.

**Purchases and related costs**

Purchases are the most significant cost to industry operators and are expected to account for 54.3% of industry revenue in 2010. Typical purchases include logging trucks, chippers, stump cutters, log skidders, log splitters, delimiters, grinders and saws among others. Furthermore, a substantial cost for the industry is royalty payments to the Federal Department of the Interior and to State Governments for access to timber from both public and private land. In return for payment of royalties, loggers are permitted to cut and haul a specified quota of logs for processing within a defined area of timber stands. Overall, decreased levels of economic activity have resulted in lower purchase expenses, as suppliers charged lower prices to sell off excess stock. In 2006, purchases were estimated at 55.2% of industry revenue.

The cost of utilities has increased slightly from 1.8% in 2006 to 2.0% in 2010. Logging companies use machinery to delimb, fell and cut timber as well as company vehicles transport the sawlogs and wood chips. While fuel expenses have been volatile, reaching their peak in 2008, the price of electricity has experienced a steady upward trend, growing each consecutive year since 2004. Crude oil price eased after August 2008, which alleviated transportation costs slightly for operators.

**Labor and capital**

Wages constitute the second most important expense for logging companies. In 2010, wages are expected to account for 21.4% of industry revenue. Wages as a percentage of industry revenue rose from 2006 when they made up 17.4%. Although wages suffered an average decrease of 1.4% per year due to industry-wide employee cuts, industry revenue fell at a faster rate than wages over the five year period.

Depreciation expense is expected to fall slightly from 3.5% in 2006 to 3.0% in

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**Industry Costs and Average Sector Costs**

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Profit</strong> 4.5</td>
<td><strong>Profit</strong> 18.2</td>
</tr>
<tr>
<td><strong>Rent</strong> 3.0</td>
<td><strong>Rent</strong> 5.0</td>
</tr>
<tr>
<td><strong>Utilities</strong> 2.8</td>
<td><strong>Utilities</strong> 17.5</td>
</tr>
<tr>
<td><strong>Depreciation</strong> 2.0</td>
<td><strong>Depreciation</strong> 7.5</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td><strong>Other</strong></td>
</tr>
<tr>
<td><strong>Wages</strong></td>
<td><strong>Wages</strong></td>
</tr>
<tr>
<td><strong>Purchases</strong></td>
<td><strong>Purchases</strong></td>
</tr>
<tr>
<td><strong>Total</strong> 21.4</td>
<td><strong>Total</strong> 49.0</td>
</tr>
</tbody>
</table>

**SOURCE:** WWW.IBISWORLD.COM
### Competitive Landscape

2010. Like labor costs, capital investment has been on the downturn since 2007, due to diminishing returns to capital and poor investment opportunities during the recession. Most companies put off upgrades and expansions, resulting in a decline in capital expenditures.

Other costs include the administration, industry compliance measures, and rent for machinery, equipment and buildings. Some operators also invest in research and development. These costs are not expected to have varied significantly from 2006.

#### Basis of Competition

**Level & Trend**

Competition in this industry is **Medium** and the trend is **Steady**

There is a medium level of competition within the Logging industry. There are 8,351 firms operating within the industry, however the majority of these firms operate within a narrowly-defined geographic area since transportation costs generally limit the scope of logging activities. Competition is more intense in the Southeast region, as the vast majority of industry establishments operate within the region. Licensing requirements and considerable start-up costs act as significant barriers to entry which reduces the level of competition within the industry slightly. Large logging companies can have a cost advantage over smaller ones through the use of more efficient machinery, but logging is for the most part a very localized activity, often without significant economies of scale.

**Internal competition**

Price is the main basis of competition between companies in the industry. The price of sawlogs needs to be minimized in order to compete with imports, particularly from Canada. Sawmills, the largest buyers of industry products, want to minimize their expenses, therefore logging companies compete with one another to provide the lowest-priced products. The price of wood products can be minimized by supplying products to mills closest to the logging operation in order to minimize transportation costs.

A company’s location is another basis of competition within the industry. Proximity to downstream sawmills and paper manufacturers can make a company more competitive as their wood products are typically more attractive due to the reduced transportation expenses for moving the lumber. Therefore, locating closer to downstream customers can increase a company’s competitiveness. Furthermore, locating in a region with fewer competitors in the region can lessen price competition for industry operators.

The ability to establish supply contracts with sawmill companies is another basis of competition. Typically, contracts can extend for multiple years, therefore the ability to secure these contracts can ensure more stable demand for the company’s wood products.

Companies that sell lumber that is certified by the Forest Stewardship Council can also gain a competitive advantage. FSC-certified lumber is a desirable green building product that typically commands premium pricing. Given increasing environmental awareness among businesses and consumers, obtaining this certification can make timber products more competitive in the market.

Lastly, vertically-integrated forest products companies and companies structured as Real Estate Investment Trusts (REITs) may gain a competitive advantage. Although vertically-integrated forest products companies typically experience a higher level of taxation, these companies have a more consistent demand for timber products and face reduced transaction costs.
Competitive Landscape

Barriers to Entry

The Logging industry has medium barriers to entry, primarily given the number of regulations and policies that logging companies must comply with as well as the high level of competition within the industry. Industry regulations primarily focus on environmental factors and include: the Clean Air Act, the Clean Water Act, the Endangered Species Act, and the Toxic Substances Control Act, which regulate the use of fire, chemicals, timber extraction in timber tracts. Although there is a high level of regulation, the industry does gain from industry assistance from the US Forest Service, the Sustainable Forestry Implementation Committee, and the National Resources Conservation Service as well as some trade protection policies.

There is a medium level of competition among industry operators, however, due to decreased downstream demand because of fewer housing starts, the number of entrants to the industry has decreased over the past five years. This has mitigated the level of competition within the industry slightly. There are currently 8,351 firms in the industry, a decrease from 2006 when 9,972 companies were operating. The level of industry concentration is low; the top four companies in the industry account for only 17.0% of revenue.

Start up costs vary depending on the scale of operations as well as location differences. New entrants will need to invest in significant capital in order to begin a logging operation. Typical
Competitive Landscape

Barriers to Entry continued

Globalization within the Logging industry is relatively low since the majority of firms operate domestically and sells wood products to mills within a 200 mile radius. However, some of the larger players in the industry that are vertically-integrated do have international operations. These include Weyerhaeuser Company which has operations throughout North and South America and China; Rayonier operates timber tracts in the US and New Zealand. However, more than 70% of logging revenue for these companies stem from their domestic operations.

As operators sell wood products to downstream industries, companies are affected by price and demand changes in the global lumber trade. Increases in the supply of timber from major exporting countries such as Canada typically lead to decreased lumber prices and deferred harvesting on the part of industry operators. Conversely, standing timber prices usually rise in response to curtailed global lumber supply. Imports have fallen over the five year period, largely due to reduced domestic demand and the depreciating US dollar which made imports relatively more expensive.

International trade is a major determinant of an industry’s level of globalization. Exports offer growth opportunities for firms. However there are legal, economic and political risks associated with dealing in foreign countries. Import competition can bring a greater risk for companies as foreign producers satisfy domestic demand that local firms would otherwise supply.
Player Performance

Weyerhaeuser Company
Market share: 6.0%

Weyerhaeuser Company is a $5.5 billion forest products company. Their operations span 10 countries, although the majority of their revenues come from their US operations. The company is vertically-integrated with segments devoted to timberland management, wood products, building homes and providing a range of forest products. The company manages 6.6 million acres of forests worldwide. Weyerhaeuser Company began in 1900 when Frederick Weyerhaeuser and 15 partners bought 900,000 acres of timberland in Washington. The company has 14,200 employees in North America.

Weyerhaeuser has four operating segments: timberlands, wood products, cellulose fibers and real estate. The company’s timberland operations are centered in the United States, Canada, Uruguay and China, however, the majority of their acreage is in Canada. The company leases and licenses 15.2 million acres in Canada and owns 6.2 million acres in America. The timberlands revenue generates from the sale of logs, timberland tracts, standing timber, wood products, minerals, oil and gas. Through the wood products segment, the company manufactures and distributes softwood and engineered lumber and structural panels to the residential construction and industrial markets. The company’s cellulose fibers segment is one of the world’s largest producers of absorbent fluff, which is used in products such as diapers. The cellulose fibers segment also includes liquid packaging board and other pulp products. The company’s real estate division constructs single-family houses and develops residential lots. Revenues from log sales within the company’s timberland segment are included in the company’s respective market share.

The company has restructured their operations significantly over the five years to 2010. The company has begun focusing on their core timber business, and divesting of their paper manufacturing businesses, due to softening demand conditions for paper. The company began timberland operations in Uruguay during 2008 and now owns 341,000 acres in the country. In 2007, the company divested of its fine paper manufacturing business, selling it to the Canadian pulp and paper company Domtar. The transaction gave Weyerhaeuser $1.35 billion in cash, and the company gained long-term licenses for a further 12.2 million acres of forestland in Canada. Weyerhaeuser also sold its containerboard, packaging and recycling business in 2008.

The slowdown in the housing market forced the company to curtail its wood-product manufacturing business segment. During 2007, the company closed its sawmill at Okanagan Falls, British Columbia, and its engineered wood products mill at Claresholm, Alberta. It also ceased plywood production at its mill at Dodson, LA, and stopped veneer production at its mill at Colbert, GA. Two US mills were also sold, including a veneer plant in Elma,
Major Companies

Player Performance continued

WA, and a plywood mill at Springfield, OR. Production was also curtailed at the company’s oriented strand board (OSB) plants in Drayton Valley, Alberta, and Wawa, Ontario, and at a laminated strand lumber plant in Deerwood, MN.

As domestic sales have slowed, the company has begun focusing more on export markets. Currently, 28% of the company’s sales are made from customers outside America. This is a sharp increase from 2006 when 17% of the company’s revenues were generated through export markets. Furthermore, Weyerhaeuser entered into a joint venture with Fujian Yong’an Forestry Company in China, of which the company owns 51% in 2007. In response to softening demand conditions domestically, Weyerhaeuser has been expanding its international operations. As a result of their more international focus, the companies’ revenues were hampered by the weak Japanese housing market in 2009.

**Financial performance**
The company’s financial performance has been stronger than the rest of industry operators. Between 2005 and 2010, revenue declined at an average annualized rate of 3.2% to an estimated $589.0 million in 2010 from the company’s logging operations in its US operations. The company is expected to hold 6.0% market share in 2010.

Sales for the company were challenged by depressed demand from downstream industries as both paper manufacturing industries and new housing starts contracted over the period. Three of the company’s business segments are strongly dependent on the vagaries of the housing market; these include Timberlands, Wood Products and Real Estate. During 2009, there were 71% fewer home sales compared to 2005. Lower sawlog prices between 2007 and 2009 also hampered company revenues. Additionally, in response to declining sawlog prices, the company delayed harvesting until market conditions improve. However, the company, unlike the majority of industry operators, recorded positive growth during 2008, largely the result of strong performance in the company’s southern timberland holdings and restructuring which caused log sales previously recorded as intersegment revenue to be recorded as sales to clients.

Earnings before interest and taxes fell at an average annualized rate of 6.2%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue ($ million)</th>
<th>(% change)</th>
<th>EBIT ($ million)</th>
<th>(% change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>692.0</td>
<td>N/C</td>
<td>190.3</td>
<td>N/C</td>
</tr>
<tr>
<td>2006</td>
<td>724.0</td>
<td>4.6</td>
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<tr>
<td>2007</td>
<td>621.0</td>
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<td>2008</td>
<td>644.0</td>
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<td>2010*</td>
<td>589.0</td>
<td>24.5</td>
<td>138.1</td>
<td>8.1</td>
</tr>
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</table>

*IBISWorld estimate

SOURCE: ANNUAL REPORT AND IBISWORLD
Plum Creek Timber Company is the largest private landowner in the US. The company’s lands are an extensive 7 million acres throughout 19 states in the US. Plum Creek traces its roots from the 1930s when the company operated as D.C. Dunham Lumber Company. The company went public in 1989 and operates as a real estate investment trust (REIT) which means the company derives the majority of its income from real estate investments and enjoys a more favorable tax treatment. Plum Creek was the first company to have all of its timberland certified under the Sustainable Forestry Initiative. The company is based in Seattle, WA and has 1,252 employees.

The company manages its timberlands through two business segments: the Northern Resources Segment and the Southern Resources Segment. The company’s other business segments include: Real Estate, Manufactured Products and Other. Real Estate comprises sales of higher-use timberlands and sales of non-strategic timberlands. The company converts logs to lumber, plywood and other wood products through its Manufactured Products segment. The Other segment is responsible for natural resource extraction, such as minerals, natural gas production and communication and transportation rights on the company’s property. Plum Creek sells timber to the lumber, plywood and standboard industries, as well as various pulp and paper manufacturers. Revenues from delivered log sales from the company’s US operations are included in the company’s respective market share.

Between 2001 and 2006, Plum Creek operated as a net buyer of timberlands, however since 2007, the company has become a net seller, reducing its timberland acres from 8.2 to 7 million acres. Although the company has made a variety of dispositions over the five years to 2010, the company did acquire 194,000 acres worth of timberland in Georgia, Vermont and Oregon. The company’s dispositions have mainly focused on the Northern Resources segment.

Financial performance
Over the five years to 2010, the company’s revenues declined at an average annualized rate of 4.0% per year. This is stronger performance compared to the industry as a whole which contracted at an average annualized rate of 4.7%. The company is expected to hold a 5.2% market share in 2010. Sales declined during 2008 and 2009, due to the bursting of the housing bubble which reduced downstream demand for lumber products from timberlands. Revenues contracted most significantly during 2009 when sales fell by 27.8%. The contraction was felt industry-wide, and was mainly due to lower harvest volumes as well as a significant contraction in timber prices during the year. Sawlog prices fell consistently between 2007 and 2009, compared to the year before because of 40% fewer housing starts in 2009. The past year, Plum Creek delayed harvesting 1.6 million tons of sawlogs to wait for improved pricing and market conditions.
Major Companies

Sierra Pacific Industries

The company sold significant tracts between 2007 and 2009, particularly in the Northern segment, which contributed to the lower harvest volume during those years. The Southern Resources segment actually enjoyed an increase during 2007 as it shifted its sales from standing timber to log sales, which generate higher revenues. Although the last five years were challenging, revenue is expected to increase during 2010, due to increased downstream demand and improved timber prices.

Operating income fell significantly, contracting at an average annualized rate of 15.6% over the five years to 2010. Declining sawlog prices between 2007 and 2009, as well as lower harvest volumes coupled with fuel price increases hurt company profitability. The company undertook a series of cost-reduction methods in order to aid faltering profitability levels. Over the five year period, the company reduced its employees by 748, mainly during 2009. This measure resulted in estimated cost savings of $22 million during the year for the Timberlands segment as a whole. The company’s status as a REIT, also allows the company to pay fewer taxes which results in significant cost savings. Due to these cost savings, the company is in a position to keep prices lower, giving the company a competitive advantage in the industry.

Plum Creek Timber Company Inc. (north and south resources delivered-log sales) – financial performance

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue ($ million)</th>
<th>% change</th>
<th>Operating Income ($ million)</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>626.0</td>
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<td>N/C</td>
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<td>2006</td>
<td>666.0</td>
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<td>2007</td>
<td>682.0</td>
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<td>2008</td>
<td>654.0</td>
<td>-4.1</td>
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<td>2009</td>
<td>472.0</td>
<td>-27.8</td>
<td>67.6</td>
<td>-54.0</td>
</tr>
<tr>
<td>2010*</td>
<td>511.6</td>
<td>8.4</td>
<td>108.4</td>
<td>60.4</td>
</tr>
</tbody>
</table>

*IBISWorld estimate

Other Companies

Sierra Pacific Industries

Estimated market share: 3.1%

Sierra Pacific Industries is a third-generation family-owned forest product company based in Anderson California. The company manages an extensive 1.9 million acres of timberland in California and Washington and is the one of the largest lumber producers in the United States. The company was founded in the late 1920s by R.H. Emmerson. The company has approximately 4,400 employees as of 2009.

Through its network of sawmills the company produces millwork, lumber, wood fiber products, fencing, aluminum and wood patio door and windows. Sierra Pacific also operates cogeneration plants that recycle wood waste into electricity for its plants. The principal tree species harvested are Ponderosa, Sugar Pine, Douglas-fir, incense-cedar, California...
White Fir which are used in residential and light commercial construction, and Western Hemlock.

The company operates approximately 15 sawmills. However, over the past five years the company has been forced to close down some of its mills. In March 2009, Sierra Pacific announced the closure of two sawmills located in Sonora and Camino, CA. Additionally, the company closed a biomass-fueled electric power plant in Sonora supplying renewable energy. Sierra Pacific reopened a sawmill in Quincy, CA which it closed during May 2009 due to weak markets and the lack of availability of timber to run the mill. The company reopened the facility due to improvements in the lumber market.

Sierra Pacific is a private company, therefore no official financial data is available. The company’s market share within the Logging industry is estimated at 3.1% in 2010.

**Potlatch Corporation**

Estimated market share: 2.7%

Potlatch Corporation has 1.6 million acres of forestland in Arkansas, Idaho, Minnesota and Wisconsin. The company has operated as an REIT for the past year. The company restructured its operations in January 2006 to qualify as an REIT. The restructuring involved creating a new parent company that holds timberlands, manufacturing facilities and other non-timberland assets through separate subsidiaries. The new parent company, Potlatch Corporation was incorporated in September 2005, and is the successor of Potlatch which was founded in 1903. The company has approximately 945 employees.

Potlatch is organized in three core business segments: Resource, Real Estate and Wood Products. The company’s resource segment manages the company’s timberland, including planting, harvesting, building and maintaining roads, as well as deriving ancillary revenues from hunting and recreation leases, biomass production and mineral rights. All of the company’s timberlands and facilities are located within the US, mainly in the Northern region. During 2009, only 1% of the company’s revenues were derived from wood product sales to Canada and Mexico, the remaining percentage is from domestic sales. Real estate manages the sale of non-core timberland real estate. The Wood Products segment includes revenues from manufacturing and marketing lumber, plywood and particleboard. The company’s revenues from its resource segment, not including those revenues derived from lumber activities, are included in the company’s market share.

Potlatch Corporation (resource segment) – financial performance

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue ($ million)</th>
<th>(% change)</th>
<th>Operating Income ($ million)</th>
<th>(% change)</th>
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<td>2010*</td>
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<td>10.8</td>
<td>82.5</td>
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</tbody>
</table>

*IBISWorld estimate

SOURCE: ANNUAL REPORT
In addition to Potlatch restructuring as an REIT from a vertically-integrated company, the company has also underwent other forms of restructuring during the five year period. During 2009, Potlatch sold 24,800 acres of timberlands in Arkansas for $43.4 million to an affiliate of RMK Timberland Group. On December 16, 2008 the company completed a corporate spin-off of Clearwater Paper Corporation, which owns and operates the company’s former pulp-based manufacturing business. In May 2008, Potlatch closed its Prescott, Arkansas lumber mill due to poor market conditions. In 2007, the company discontinued its hybrid polar tree farm in Oregon for $65 million in cash, the proceeds from the transaction went to the 2007 acquisition of 76,000 acres of timberlands in Wisconsin. During September 2007, Potlatch also acquired 179,000 acres of timberland in Idaho for approximately $215 million from Western Pacific Timber.

Over the past five years, Potlatch has performed strongly, relative to its competitors in the industry. The company’s sales have declined at an average annualized rate of 1.1% per year between 2005 and 2010. As with the majority of companies in the industry, revenues declined during 2008 and 2009 due to poor market conditions as well as delayed harvesting on the part of Potlatch. Furthermore, the average price of timber dropped significantly during 2009 by 22%. Harvest levels decreased by 12% during 2009. However, during 2008 the company’s harvest volumes increased by 11% although they were offset by lower prices during the year. Operating income grew as well during the period, at an average rate of 6.0% per year. The company’s better than average performance during the five year period is mainly the result of its status as an REIT, which allows the company to benefit from a favorable tax treatment. Furthermore, prominent acquisitions during 2006 and 2007 aided revenue growth.

**Rayonier Inc.**

*Estimated market share: 1.8%*

Rayonier Inc. is an international forest product company, however it is structured as a REIT. Rayonier was founded in 1926 as Rayonier Pulp and Paper Company, the company went public eleven years later. Rayonier has offices on three continents and more than 1,800 employees worldwide. Approximately 45% of the company’s sales are generated outside the US. Rayonier owns, leases and manages approximately 2.4 million acres of timber in the US and New Zealand.

The company has three core business segments: Timber, performance fibers

### Rayonier Inc. (timber segment) – financial performance

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue ($ million)</th>
<th>(% change)</th>
<th>Operating Income ($ million)</th>
<th>(% change)</th>
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<tr>
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<td>N/C</td>
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<td>18</td>
<td>80.0</td>
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*IBISWorld estimate

**SOURCE: ANNUAL REPORT**
and real estate. All of the company’s US timber is sustainable forestry initiative certified which is a desirable “green” building product that generally commands premium pricing. Rayonier manages its timber business as a stand-alone operation, meaning its timber segment must compete with other companies for timber purchases. The company sells standing timber and logs to downstream manufacturers. The company’s 2.1 million acres of timber in the US are primarily located in the Southeast and Washington. Rayonier, unlike many companies in the industry has operated as a net buyer over the past five years. The company acquired 110,000 acres of timberland in 2008 and 6,000 acres in 2007 and sold 54,000 acres and 50,000 acres of non-strategic timberland in 2009 and 2008, respectively. The performance fibers business manufactures cellulose pulp that is used to manufacture a range of products from LCD screens to diapers to cosmetics. Rayonier’s real estate subsidiary, TerraPointe LLC, acquires blocks of timberland and maximizes the value of these properties through entitlements, infrastructure additions and joint development opportunities. Over the five years to 2010 Rayonier exhibited stronger financial performance compared to the average industry operators. Log declined by 1.3%, while revenue declined by 4.7% for the industry as a whole. Although the company was similarly negatively affected by reduced downstream demand for wood and paper products, the company was a net buyer of timberlands over the five year period which forestalled significant revenue declines. During April and May 2007, the company suffered extensive damage to approximately 64,000 acres of forest land in Southeast Georgia and Northeast Florida as a result of fire. However, a large quantity of wood was salvaged and sold as pulpwood. The company is estimated to hold 1.7% market share as a result of its logging operations.
Operating Conditions

Capital Intensity | Technology & Systems | Revenue Volatility | Regulation & Policy | Industry Assistance

Capital Intensity

Level
The level of capital intensity required is Medium.

The US Logging industry has a medium level of capital intensity. IBISWorld estimates that for every $1 spent on capital investment, the industry will require an estimated $6.21 worth of labor. Capital intensity declined over the past five years; in 2006, $4.82 worth of labor was required for every $1 spent on capital improvements. The decline in capital intensity is primarily due to delayed upgrades and downsizing among industry operators. The level of capital intensity for logging companies is in line with the rest of the US Forestry sector, which makes considerable capital investments in order to improve employee productivity and thus reduce operating expenses.

Tools of the Trade: Growth Strategies for Success

New Age Economy
Recreation, Personal Services, Health and Education. Firms benefit from personal wealth so stable macroeconomic conditions are imperative. Brand awareness and niche labor skills are key to product differentiation.

Investment Economy
Information, Communications, Mining, Finance and Real Estate. To increase revenue firms need superior debt management, a stable macroeconomic environment and a sound investment plan.

Traditional Service Economy
Wholesale and Retail. Reliant on labor rather than capital to sell goods. Functions cannot be outsourced therefore firms must use new technology or improve staff training to increase revenue growth.

Agriculture and Manufacturing. Traded goods can be produced using cheap labor abroad. To expand firms must merge or acquire others to exploit economies of scale, or specialize in niche, high-value products.

The dotted line shows a high level of capital intensity.
Operating Conditions

Capital Intensity continued

trucks, chippers, stump cutters, log skidders, log splitters, delimiters, grinders and saws among others. Capital investment declined partly due to downsizing among industry operators. Over the past five years, the number of establishments declined at an average annualized rate of 3.9%. Furthermore, during the recession companies delayed upgrading their equipment and vehicles, in an effort to cut operating expenses.

Although capital investment declined at a faster rate, industry operators also reduced labor expenses over the past five years. The number of employees in the industry fell over the period, declining at an average annualized rate of 2.3% per year. Logging companies were forced to implemented employee cut back in order to reduce operating expenses, amidst declining demand conditions. Some companies that primarily have logging operations transferred crews to forest support activities financed in part by federal stimulus funds. The primary activities include: thinning timber stands, repairing roads and maintaining trails. Capital intensity is expected to rise in coming years as operators switch increasingly to the use of contract labor rather than full-time employees. Operators could in this way increase their workforce only during the busiest times of year.

Technology & Systems

There have been a number of technological improvements within the industry over the past ten years. The selection of tree varieties has improved and new types of trees are being developed using tissue culture techniques. Biotechnology and genetic engineering are also being used, offering the possibility of tailored trees that grow faster and are more resistant to pests and disease. As a result, the quality of the logs produced has improved, making them more competitive in the global market. Organizations such as the USDA Forest Service, and universities in conjunction with industry operators, have undertaken the majority of the research. The equipment used for felling and removing trees has not changed significantly over the past decade. The power and quality of the saws used for felling trees has also improved slightly over the past ten years. Furthermore, a greater number of companies began using helicopters rather than simply transporting lumber by truck to nearby sawmills and pulp mills. Additionally, feller-bunches have increasingly replaced individual loggers in second-growth forests. These vehicles are equipped to cut mature trees and lay them down without harming trees that are not yet ready to be harvested.

Revenue Volatility

IBISWorld estimates that industry revenue experienced a medium level of volatility in the five years to 2010. Volatility is dependent on price changes as well as the volume of timber harvested in the US. Lumber prices have been volatile over the five year period. Prices rose during 2005 and 2006 and then dropped significantly between 2007 and 2009. Over the past year, lumber prices have begun to increase due to an enhanced level of downstream demand from residential construction.
Industry operators face numerous regulations at both the state and federal level. Regulations are primarily focused on the scale of logging operations within public land and environmental legislation. Some of the more important regulations are discussed in the following section.

Federal legislation
The Forest Service (FS) and the Bureau of Land Management (BLM) are two key organizations which manage federally-owned public forestland. The FS manages national forests and grasslands in the US, which accounts for 8.5% of the nation’s land. FS manages public lands through the National Forest Management Act of 1976, which regulates the amount of timber that can be harvested and stipulates which forestlands can be harvested. The BLM manages federal lands within the context of the Federal Land Policy and Management Act of 1976, and regulates the usage of public land to protect the environmental quality of the land and provide outdoor recreational use. The Department of the Interior collects royalties from the timber felled within public land.

Federally-owned public forestland is managed under the authority of the National Forest Management Act, which requires integrated land and resource management plans to be developed for forest use. This affects the permissible activities of the Logging industry, for example, recreation and conservation areas may be set aside within a particular tract of forestland in which logging is either restricted or prohibited. In 2002 and 2004, the federal government issued new rules to supersede some aspects of the National Forest Management Act of 1976. Previous legislation had required national forest managers to develop environmental impact statements for any works to be undertaken. The Healthy Forests Initiative, launched by the Bush administration in 2002, allows land managers to approve some projects without completing an environmental impact assessment. Late in 2004, the Federal Government issued new rules that overhaul guidelines for managing nation’s 155 national forests by making it easier for regional forest managers to decide whether to allow logging, drilling or off-road vehicles within their lands. These rules replaced

A higher level of revenue volatility implies greater industry risk. Volatility can negatively affect long-term strategic decisions, such as the time frame for capital investment.

When a firm makes poor investment decisions it may face underutilized capacity if demand suddenly falls, or capacity constraints if it rises quickly.
Regulation & Policy continued

The 2006 United States Harmonized Tariff Schedule states that wooden logs, fuel wood, chips or particles, scrap, rough wood and sapwood are free of import tariffs. Specific export taxes, however, are imposed on logs imported from Canada. These have been at the center of a trade dispute between the US and Canada, which began in the 1980s.

In the 1980s, the US Trade Commission ruled that Canadian lumber and Toxic Substances Control Act (1976), regulate the use of fire, chemicals and timber extraction. Some of the species protected under the Endangered Species Act include the northern spotted owl, the marbled murrelet, a number of salmon species, bull trout and steelhead trout in the Pacific Northwest and the red-cockaded woodpecker, gopher tortoise and American burying beetle in the Southeast.

State legislation
State level forest practices laws and regulations vary throughout the United States. Each state that contains an active forestry sector has enacted laws and regulations to govern forestry and logging practices. State laws and regulations address multiple forest management practices and procedures, which include reforestation, forestry practices and forest land conversion. Therefore, regulations can differ significantly between states because of regional environmental, economic and political issues. State and local governments have been retaining more control over timberlands over the last 10 years. For example, the Healthy Forests Restoration Act in 2003 transferred decision-making power, with respect to forest management, to a more local level.

Environmental legislation
Environmental legislation also significantly affects land management techniques and the activities of loggers within the industry. Laws such as the Clean Air Act (1970), Clean Water Act (1972), Endangered Species Act (1973), and the Federal Land Policy and Management Act 1976, which enables the regulation of land use between the National Forest System and tribal lands. The legislation mainly focuses on the sale and exchange of lands, therefore loggers may need to negotiate with different organizations in order to secure cutting rights on various tracts of land.

Industry Assistance
Level & Trend
The level of Industry Assistance is Medium and the trend is Increasing

Export taxes
The 2006 United States Harmonized Tariff Schedule states that wooden logs, fuel wood, chips or particles, scrap, rough wood and sapwood are free of import tariffs. Specific export taxes, however, are imposed on logs imported from Canada. These have been at the center of a trade dispute between the US and Canada, which began in the 1980s.

In the 1980s, the US Trade Commission ruled that Canadian lumber products were subsidized, and therefore sold in the US at less than fair market value. In 2002, the United States imposed duties of 27% on Canadian softwood lumber arguing that Canada unfairly subsidized its lumber products. However, in April 2006, the two countries reached an agreement requiring the United States to return 80% of the more than $5 billion in duties it had collected in lumber imports. The Softwood Lumber Agreement removes
Operating Conditions

Industry Assistance continued

tariffs on lumber, but includes export taxes that kick in if the price of lumber drops below $355 per thousand foot board. The agreement is to remain in effect until 2013.

However, in April 2009 an arbitral tribunal determined that Canada had breached some of its obligations. Therefore, a 10% ad valorem duty was applied on imports of softwood lumber products from Ontario, Quebec, Manitoba and Saskatchewan. Canada has also adopted its own measures and has begun collecting an additional 10% on exports of softwood lumber from those same provinces. This agreement is to remain in effect until the amount collected is equal to $68 million. In response, the US removed its 10% ad valorem duties on imports in September 2010. Therefore, the United States transferred to Canada the collection of a 10% customs duty.

Another example of government protection of forestry related industries is the 2008 Farm Bill, which includes a clause to restrict the importation of illegally logged wood and wood products. Such policy may remove a proportion of cheap imports competing with US wood and wood products, thereby supporting forestry revenue, and hence US logging activities.

Furthermore, as part of the federal stimulus package, the US government provided $1.15 billion towards road, bridge and trail maintenance as well as wildfire mitigation. Although the federal stimulus package does not directly support the Logging industry, the legislation has resulted in unemployed industry employees moving into these forest support roles due to the availability of federal funds. Forest support activities include thinning federal forests in order to make forests more resistant to wildfires and disease as well as building and maintaining roads.

Other assistance

Many agencies and organizations administer programs and projects aimed at improving forest conditions and usage. Many of these programs are designed to encourage private forest owners and loggers to manage forests in an environmentally-sustainable manner. Sustainable forest management entails protecting biodiversity, conserving water and soil resources and protecting the ecosystem’s environmental health.

Government agencies and initiatives that are dedicated to forestry include the: US Forest Service, the National Association of State Foresters and the National Resources Conservation Service.

The Farm Services Agency targets specific problems through programs like the Conservation Reserve and Conservation Reserve Enhancement Programs that improve water quality, soil erosion, and wildlife habitat by taking land out of agricultural production and planting trees, grasses, and other vegetation. The National Aeronautics and Space Administration deployed the Rapid Response System to provide remotely sensed data on active fires occurring within the United States and across the globe. The US Geological Survey is examining the effects of wildfires on soil and land cover, water quality, stream sedimentation, soil erosion, mobilization of contaminants, wildlife habitat, and is assessing the increased potential for floods, including debris flows and landslides. The Sustainable Forestry Implementation Committee seeks to foster more coordination nationwide and build partnerships among State agencies, to protect forests from wildfire, insect attacks, and other hazards.

Furthermore, various forest management certification programs have raised public awareness of sustainable forest management. Certification
Industry Assistance continued

programs in the United States include: the American Tree Farm System by the American Forest Foundation, Forest Stewardship Council, Green Tag by The National Forestry Association, and Sustainable Forestry Initiative by the American Forest and Paper Association. FSC-certified lumber generally enjoys premium pricing which positively impacts industry operators.
## Key Statistics

### Industry Data

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue ($m)</th>
<th>Industry Value Added ($m)</th>
<th>Establishments</th>
<th>Enterprises</th>
<th>Employment</th>
<th>Exports ($m)</th>
<th>Imports ($m)</th>
<th>Wages ($m)</th>
<th>Domestic Demand ($m)</th>
<th>Industrial Roundwood (Ml Cubic Meters)</th>
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### Annual Change

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<tr>
<th>Year</th>
<th>Revenue (%)</th>
<th>Industry Added (%)</th>
<th>Establishments (%)</th>
<th>Enterprises (%)</th>
<th>Employment (%)</th>
<th>Exports (%)</th>
<th>Imports (%)</th>
<th>Wages (%)</th>
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### Economy Rank

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### Key Ratios

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<th>Imports/Demand (%)</th>
<th>Exports/Revenue (%)</th>
<th>Revenue per Employee ($'000)</th>
<th>Wages/Revenue (%)</th>
<th>Employees per Est.</th>
<th>Average Wage ($)</th>
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Figures are inflation-adjusted 2010 dollars. Rank refers to 2010 data.

SOURCE: WWW.IBISWORLD.COM
## Jargon & Glossary

### Industry Jargon

**BOLT** A short, round section of a log.

**HARDWOOD** From broad-leaved trees, a wood often used for construction, flooring and furniture.

**ORIENTED STRAND BOARD** An engineered wood product, similar to plywood but cheaper, formed by layering strands of wood.

**PULPWOOD** Timber grown with the purpose of making pulp for paper production.

**SAWLOG** The greater-in-diameter and straighter part of a tree stem processed at a sawmill; the most financially valuable part of a tree.

**SOFTWOOD** From coniferous trees, a water-resistant wood generally used for millwork, building components and furniture.

### IBISWorld Glossary

**BARRIERS TO ENTRY** Barriers to entry can be High, Medium or Low. High means new companies struggle to enter an industry, while Low means it is easy for a firm to enter an industry.

**CAPITAL/LABOR INTENSITY** An indicator of how much capital is used in production as opposed to labor. Level is stated as High, Medium or Low. High is a ratio of less than $3 of wage costs for every $1 of depreciation; Medium is $3 – $8 of wage costs to $1 of depreciation; Low is greater than $8 of wage costs for every $1 of depreciation.

**DOMESTIC DEMAND** The use of goods and services within the US; the sum of imports and domestic production minus exports.

**EARNINGS BEFORE INTEREST AND TAX (EBIT)** IBISWorld uses EBIT as an indicator of a company’s profitability. It is calculated as revenue minus expenses, excluding tax and interest.

**EMPLOYMENT** The number of working proprietors, partners, permanent, part-time, temporary and casual employees, and managerial and executive employees.

**ENTERPRISE** A division that is separately managed and keeps management accounts. The most relevant measure of the number of firms in an industry.

**ESTABLISHMENT** The smallest type of accounting unit within an Enterprise; usually consists of one or more locations in a state or territory of the country in which it operates.

**EXPORTS** The total sales and transfers of goods produced by an industry that are exported.

**IMPORTS** The value of goods and services imported with the amount payable to non-residents.

**INDUSTRY CONCENTRATION** IBISWorld bases concentration on the top four firms. Concentration is identified as High, Medium or Low. High means the top four players account for over 70% of revenue; Medium is 40–70% of revenue; Low is less than 40%.

**INDUSTRY REVENUE** The total sales revenue of the industry, including sales (exclusive of excise and sales tax) of goods and services; plus transfers to other firms of the same business; plus subsidies on production; plus all other operating income from outside the firm (such as commission income, repair and service income, and rent, leasing and hiring income); plus capital work done by rental or lease. Receipts from interest royalties, dividends and the sale of fixed tangible assets are excluded.

**INDUSTRY VALUE ADDED** The market value of goods and services produced by an industry minus the cost of goods and services used in the production process, which leaves the gross product of the industry (also called its Value Added).

**INTERNATIONAL TRADE** The level is determined by:
- Exports/Revenue: Low is 0–5%; Medium is 5–20%; High is over 20%. Imports/Domestic Demand: Low is 0–5%; Medium is 5–35%; and High is over 35%.

**LIFE CYCLE** All industries go through periods of Growth, Maturity and Decline. An average life cycle lasts 70 years. Maturity is the longest stage at 40 years with Growth and Decline at 15 years each.

**NON-EMPLOYING ESTABLISHMENT** Businesses with no paid employment and payroll are known as non-employing establishments. These are mostly set-up by self employed individuals.

**VOLATILITY** The level of volatility is determined by the percentage change in revenue over the past five years. Volatility levels: Very High is greater than ±20%; High Volatility is between ±10% and ±20%; Moderate Volatility is between ±3% and ±10%; and Low Volatility is less than ±3%.

**WAGES** The gross total wages and salaries of all employees of the establishment.
At IBISWorld we know that industry intelligence is more than assembling facts
It is combining data with analysis to answer the questions that successful businesses ask

Identify high growth, emerging & shrinking markets
Arm yourself with the latest industry intelligence
Assess competitive threats from existing & new entrants
Benchmark your performance against the competition
Make speedy market-ready, profit-maximizing decisions

Who is IBISWorld?
We are strategists, analysts, researchers, and marketers. We provide answers to information-hungry, time-poor businesses. Our goal is to provide real world answers that matter to your business in our 700 US industry reports. When tough strategic, budget, sales and marketing decisions need to be made, our suite of Industry and Risk intelligence products give you deeply-researched answers quickly.

IBISWorld Membership
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