

New Diversified Entrants Among U.S. Wood-Based Companies: A Study of Economic Structure and Corporate Strategy

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New Diversified Entrants Among U.S. Wood-Based Companies: A Study of Economic Structure and Corporate Strategy*

Introduction

The "new diversified entrants" to the wood-based industry are an important, but poorly understood, component of the economic structure of the industry. Previous research has acknowledged the presence of these firms, but studies in this area have not yet defined the extent of this particular merger-related phenomenon. Nor have they addressed the implications of a conglomerate merger into the wood-based sector from an unrelated business base. The two objectives of this study are to:

- Define the extent of entry into the wood-based industry by large diversified companies.
- Evaluate strategic planning by new diversified entrants and its influence on decisions regarding strategically important timber resources.

The first objective was addressed by examining structure, conduct, and performance dimensions of the wood-based industry. To satisfy the second objective, a sample of wood-based companies was surveyed, and their corporate strategies for land-use were examined.

Dimensions of the Wood-Based Industry

Perceptions of the structure of the wood-based industry¹ vary greatly. One view is that of an industry dominated by a few large firms; another is that segments of the industry, especially lumber, are among the most competitive of American industries. The reality of the situation lies somewhere between. Where that point is in relation to other industries depends on what measurement is used and how it is applied.

Economists have attempted to come to grips with the problems related to how an industry is organized, or structured, by developing a specialty called industrial organization. The major efforts of industrial organization economists have been to attempt to establish that the way an industry is structured affects the conduct of the firms in the industry, and thus the performance of the industry. The basic industrial organization structure-conduct-performance concepts will be used as the analytical framework for what is to follow.

TOP 90 WOOD-BASED COMPANIES BY SALES

Structure

The volume of sales revenue and the extent of timber-

land ownership by company are key parameters for developing an understanding of the wood-based industry's structure.² Total annual sales figures for large U.S. corporations are readily available from many sources. Not so easily determined are sales in a particular business unit or subsidiary of a large corporation. The more diversified the company, the more difficult it is to determine such figures and, consequently, the more difficult it is to assess the performance of a company's wood-based subsidiaries.³

Almost half (\$50 billion) of all wood-based sales for 1978, are accounted for by the industry's top 90 firms (Table 1).⁴ The wood-based leaders for 1978 were Georgia-Pacific, International Paper, Weyerhaeuser, and Champion International. There was a very small difference (4 percent) between these companies in their wood-based sales. The fifth largest company, St. Regis Paper, had only half the wood-based sales of the fourth largest, Champion International. Thus, there are four competitors for industry leadership. The tenth leading wood-based firm is a subsidiary of a larger corporate organization — Mobil's Container Corporation of America. The 12 such "new diversified entrants" that have entered the industry since 1949 are among the top 40 companies; seven are among the remaining 50 wood-based firms (Table 1).

The top 40 wood-based U.S. companies accounted for 40 percent of all wood-based sales in 1978. The top four firms alone accounted for almost 15 percent of all 1978 wood-based sales by U.S. companies. The top nine firms accounted for more than a fifth of 1978 sales in the industry. These companies are all integrated wood-users, dependent on their wood-based operations for the majority of their sales (Table 1).

In sharp contrast to the industry leaders are the "new diversified entrants." Of the dozen diversified firms in the top 40, eight are based in four different non-wood-based industries; the other four are multi-product, multi-market (conglomerate) operations. These firms are much less dependent on wood-based sales, with a range of from 4 to 28 percent of their revenues generated from wood-based products. In general, the non-conglomerates have their wood-based operations integrated into their overall corporate operations, in either horizontal (*e.g.* packaging) or vertical (*e.g.* consumer products, publishing) directions.

²Timberland ownership is discussed as a separate section of this study. See "Land Control by Large Corporations."

³*Forbes*, *Fortune*, Moody's Industrial Manual, and corporate annual reports all disclose corporate sales volumes. Product line revenue information varies widely, usually depending on how it is treated in the company's annual report.

⁴According to the 1977 Census of Manufactures, total aggregate 1977 wood-based industry shipments were \$99,983,900,000 (U.S. Department of Commerce 1979). Adjusting this figure with the Consumer Price Index change of 7.6 percent from 1977 to 1978 infers that 1978 total wood-based industry shipments were approximately \$107,582,700,000.

*This research was supported by the National Timber and Wood Requirements Work Unit, Forest Products Laboratory, USDA Forest Service, Madison, Wisconsin; and the College of Forestry and the Agricultural Experiment Station, University of Minnesota, St. Paul, Minnesota.

¹This and other terms are defined in the Glossary.

Table 1. Structure dimensions of U.S. wood-based industry: sales revenues, product mix, entry date, and basic business for the top 90 wood-based sales-ranked U.S. companies, 1978.

Sales Rank 1978		Company ⁵	Estimated 1978 wood-based sales ^{1,2,3} (\$ million)	Total 1978 sales ^{1,2,4} (\$ million)
Wood-based ^{1,2,3}	Fortune ⁴			
1	53	Georgia-Pacific	3,787	4,403
2	62	International Paper	3,778	4,150
3	69	Weyerhaeuser	3,689	3,799
4	74	Champion International	3,632	3,632
5	128	St. Regis Paper	1,893	2,300
6	148	Kimberly-Clark	1,893	1,910
7	111	Boise Cascade	1,801 est	2,573
8	115	Crown Zellerbach	1,737	2,456
9	168	Scott Paper	1,585	1,725
10	4	Mobil (Container Corporation)	1,284	34,736
11	20	Procter & Gamble (Buckeye, others)	1,213	8,100
12	225	Union Camp	1,066	1,192
13	251	Louisiana-Pacific	1,042	1,042
14	238	Westvaco	1,024	1,139
15	127	Mead	1,017	2,322
16	263	Great Northern Nekoosa	925	960
17	67	Continental Group	883	3,944
18	11	ITT (Rayonier)	872	15,261
19	273	Hammermill Paper	852	912
20	300	Potlatch	787	787
21	305	Willamette Industries	772	772
22	243	Diamond International	758	1,108
23	93	Owens-Illinois	578	3,112
24	19	Tenneco (Packaging Corporation)	533	8,762
25	336	Southwest Forest Industries	508	591
26	174	Time (Temple-Eastex)	471	1,689
27	403	Masonite	452	529
28	448	Olinkraft	447	447
29	75	Bendix (American Forest Products)	429	3,625
30		Inland Container	397	397
31	58	Gulf + Western (Brown Company)	384	4,312
32	66	American Can	369	3,981
33	464	Federal Paper Board	368	430
34	341	Bemis	325	676
35	183	Koppers	314	1,582
36	201	Times Mirror (Publishers Paper)	311	1,411
37	46	Philip Morris (Plainwell, Nicolet, others)	310	4,969
38	495	Consolidated Papers	304	387
39	182	Johns-Manville	291	1,649
40	580	Fort Howard Paper	290	296
Total Top 40			43,193	
41	589	Stone Container	278	287
42	169	Jim Walter (Celotex, others)	253 est	1,719
43	639	Georgia-Kraft	251	251
44		Simpson Timber	250 est	250+
45	620	Alton Box Board	240	261
46	595	Longview Fibre	235	284
47		Edward Hines Lumber	231 est	289
48	378	Saxon Industries (Standard Packaging)	212	577
49		Roseburg Lumber	201 est	201 est
50	186	Olin	195	1,560
51		Fibreboard	195	228
52		St. Joe Paper	188	188
53	192	SCM (Allied Paper)	185	1,509

Estimated 1978 wood-based industry share ⁶ (percent)	Total Product Mix		Wood-Product Mix Estimates				Wood-based Industry entry (exit) date ¹¹	Basic Business
	Wood-based sales as percent of total company sales, 1978 ⁷	Sales Ratio Paper: Solid Wood ⁸	Paper Industry Sales Rank ⁹	Solid Wood Industry Sales Rank ¹⁰	Wood-based Industry entry (exit) date ¹¹			
3.5	86	26 : 74	13	1	1927	WI		
3.5	91	86 : 14	1	5	1898	WI		
3.4	97	54 : 46	2	3	1900	WI		
3.4	100	45 : 55	5	2	1929	WI		
1.8	82	91 : 9	4	26	1899	WI		
1.8	99	93 : 7	3	35	1907	WI		
1.5	70 est	75 : 25	8	7	1931	WI		
1.6	71	77 : 23	9	10	1870	WI		
1.5	92	98 : 2	6	51	1879	WI		
1.2	4	100 : 0	10	na	1974	29		
1.1	15	100 : 0	12	na	1951	CP		
1.0	90	88 : 12	17	43	1874	WI		
1.0	100	10 : 90	59	4	1972	WI		
1.0	90	99 : 1	15	61	1888	WI		
0.9	44	91 : 9	11	37	1846	WI		
0.9	96	95 : 5	19	50	1898	WI		
0.8	22	90 : 10	22	44	1955	PK		
0.8	6	82 : 18	23	31	1968	MM		
0.8	93	100 : 0	20	na	1898	26		
0.7	100	64 : 36	28	16	1931	WI		
0.7	100	53 : 47	30	12	1905	WI		
0.7	68	74 : 26	25	21	1880	WI		
0.5	18	95 : 5	26	58	1956	PK		
0.5	6	95 : 5	27	59	1965	MM		
0.5	86	40 : 60	48	14	1935	WI		
0.4	28	92 : 8	18	46	1956	27		
0.4	85	0 : 100	na	6	1925	WI		
0.4	100	80 : 20	with Johns-Manville		1967 (1979)	WI		
0.4	12	0 : 100	na	8	1969 (1980)	MM		
0.4	100	100 : 0	with Time	na	(1978)	26		
0.4	9	90 : 10	with James River		1968 (1980)	MM		
0.3	9	90 : 10	35	54	1957	PK		
0.3	86	100 : 0	33	na	1916	26		
0.3	48	100 : 0	36	na	1858	PK		
0.3	20	0 : 100	na	13	pre-1944	MM		
0.3	22	37 : 63	62	23	1961	27		
0.3	6	100 : 0	37	na	1970	CP		
0.3	79	100 : 0	38	na	1894	26		
0.3	17	48 : 52	34	11	1939	BC		
0.3	98	100 : 0	39	na	1919	26		
40.2%		72 : 28						
0.3	97	100 : 0	41	na		PK		
0.2	15 est	90 : 10	45	60	1964	BC		
0.2	100	80 : 20	with Mead and Time			WI		
0.2	99 est	90 : 10	69	20		WI		
0.2	92	100 : 0	43	na		PK		
0.2	83	100 : 0	44	na		PK		
0.2	80 est	0 : 100	na	19		24		
0.2	37	100 : 0	47	na	1924	PK		
0.2	100	0 : 100	na	22		24		
0.2	13	85 : 15	52	57	1949	MM		
0.2	85	0 : 100	with Louisiana-Pacific		(1978)	26		
0.2	100	100 : 0	49	na		26		
0.2	12	100 : 0	50	na	1967	MM		

(Continued)

Table 1. (Continued)

Sales Rank 1978		Company ⁵	Estimated 1978 wood-based sales ^{1,2,3} (\$ million)	Total 1978 sales ^{1,2,4} (\$ million)
Wood-based ^{1,2,3}	Fortune ⁴			
54		Hudson Pulp & Paper	178	198
55	785	Chesapeake Corporation of Virginia	175	175
56	202	U.S. Gypsum	170	1,398
57	810	Brunswick Pulp & Paper	167	167
58	711	Pacific Lumber	166 est	208
59		Bird & Son	166 est	277
60	801	Tampax	164	164
61	826	Pope & Talbot	160	160
62		Menasha	157	157
63	113	Singer	153 est	2,469
64	862	Bohemia	146	146
65	865	Lane	146	146
66	80	Johnson & Johnson	135 est	3,497
67	904	Pentair	129	135
68	933	Medford	128	128
69		Gilman Paper	124 est	124 est
70	964	P.H. Glatfelter	121	121
71	230	Evans Products	120 est	1,169
72	524	Sonoco Products	119	344
73		Santa Fe Industries	119	2,099
74	318	Flintkote	110 est	730
75	249	GAF	109 est	1,089
76		Burlington Northern (Plum Creek Lumber)	104	2,109
77	994	Clevepak	103	112
78	275	National Gypsum	91 est	906
79		Consolidated Packaging	81	81
80		Wickes	79	1,488
81	771	James River	78	182
82	746	Ludlow	63 est	191
83	142	Kerr-McGee	63 est	2,072
84	481	Dennison Manufacturing (Dunn Paper)	56	409
85	72	Litton Industries (Fitchburg, Versoix)	50 est	3,651
86	601	Cleveland-Cliffs Iron	50	278
87		Brooks-Scanlon	47 est	47
88	472	Arcata	38	417
89	155	Owens-Corning Fiberglass	37 est	1,853
90		Southern Pacific	31	2,278
Total Top 90			50,249	

¹ Corporate annual report to stockholders. 1978.

² Moody's Industrial Manual. 1979.

³ Paper Trade Journal. 1979. Paper's top 50 companies (June 30) 163(12): 47-64.

⁴ Fortune. 1979a. The Fortune directory of the 1,000 largest U.S. industrial corporations. (May 7) 99(9): 269-295; (June 18) 99(12): 157-184.

⁵ Wood-based subsidiary appears in ().

⁶ Wood-based sales/wood-based industry sales. U.S. Department of Commerce Bureau of the Census, Census of Manufacturers. 1977. Industry series preliminary reports MC77-1-24, 25, 26 (various 1979 issues).

⁷ Wood-based sales/total 1978 sales.

⁸ Forest Industries. 1980. The top 100 lumber producers U.S. and Canada 1979. (May 30) 107 (6):7.

⁹ The following Canadian and foreign paper producers (and their North American Industry rank) have been omitted from the listing, but their rank is preserved on Table 1 by omission: Bowater (7), Abitibi (14), Consolidated-Bathurst (16), Domtar (21), MacMillan Bloedel (24), Price (29), British Columbia Forest Products (31), Reed (32), Great Lakes Paper (42), Fraser (46), Rolland (56), Canadian Cellulose (58). Other candidates for the list are Ontario Paper Co. Ltd., Appleton Papers Division of BAT Ltd., Parsons & Whittemore Inc., Kruger Pulp & Paper Ltd., Garden State Paper Co. Inc., Nova Scotia Forest Industries, Gulf State Paper Corp., Green Bay Packaging Inc., McLaren Power & Paper Co., Eddy Paper Co. Ltd., Bergstrom Paper Co., Boise Southern Corp., Irving Pulp & Paper Co.

Estimated 1978 wood-based industry share ⁶ (percent)	Total Product Mix		Wood-Product Mix Estimates				Wood-based Industry entry (exit) date ¹¹	Basic Business
	Wood-based sales as percent of total company sales, 1978 ⁷	Sales Ratio Paper: Solid Wood ⁸	Paper Industry Sales Rank ⁹	Solid Wood Industry Sales Rank ¹⁰				
0.2	90	100 : 0	with Georgia-Pacific		(1968)	26		
0.2	100	100 : 0	51	na		26		
0.2	12	0 : 100	na	27	1930	BC		
0.2	100	0 : 10	with Mead and Scott Paper			WI		
0.2	80 est	0 : 100	na	28		24		
0.2	60 est	0 : 100	na	29		BC		
0.2	100	100 : 0	53	na		CP		
0.1	100	0 : 100	na	30		24		
0.1	100	100 : 0	54	na		26		
0.1	6	0 : 100	na	32		MM		
0.1	100	0 : 100	na	33		24		
0.1	100	0 : 100	na	34		25		
0.1	4 est	100 : 0	55	na	1970	CP		
0.1	96	100 : 0	57	na		26		
0.1	100	0 : 100	na	36		24		
0.1	100 est	65 : 35	65	52		26		
0.1	100	100 : 0	60	na		26		
0.1	10 est	0 : 100	na	38	1923	BC		
0.1	35	100 : 0	61	na		PK		
0.1	6	0 : 100	na	39		40		
0.1	15 est	0 : 100	na	40	1901 (1979)	BC		
0.1	10 est	0 : 100	na	41		BC		
0.1	5	0 : 100	na	42		40		
0.1	92	100 : 0	63	na		PK		
0.1	10 est	0 : 100	na	45	1937	BC		
0.1	100	100 : 0	64	na		PK		
0.1	5	0 : 100	na	47		MM		
0.1	43	100 : 0	40	na		26		
0.1	33	100 : 0	66	na		PK		
0.1	3 est	0 : 100	na	48		29		
0.1	14	100 : 0	67	na	1965	27		
>0.05	1	100 : 0	68	na	1964	MM		
>0.05	18	0 : 100	na	49		40		
>0.05	100 est	0 : 100	with Diamond International		(1980)	24		
>0.05	9	0 : 100	na	53	1939	27		
>0.05	2 est	0 : 100	na	55		BC		
>0.05	1	0 : 100	na	56		40		
47.0%								

¹⁰ For this ranking, building paper products are included as solid wood products. The following Canadian lumber and plywood producers (and their estimated North American industry rank) have been omitted from the listing, but their rank is preserved on Table 1 by omission: MacMillan Bloedel (9), British Columbia Forest Products (15), Canadian Forest Products Ltd. (17), Weldwood of Canada Ltd. (18), West Fraser Timber Co. (24), Northwood Mills Ltd. (25). Other candidates for the list (and their 1979 lumber rank) (18), Whonnock Industries (19), Normick-Perron Inc. (25), Canadian Cellulose Co. (27), Abitibi-Price Lumber Ltd. (34), Doman Industries Ltd. (37), Coastal Lumber Co. (40).

¹¹ Corporate annual report to stockholders (1978) and Table 2 in text.

Notes:

na = not applicable	WI = wood integrated	MM = conglomerate	26 = paper	25 = furniture
est = estimate	CP = consumer products	BC = building construction	27 = publishing	40 = transportation
basic business codes:	PK = packaging	29 = oil	24 = lumber	

Table 2. Conduct dimensions of U.S. wood-based industry: recent merger activity, antitrust penalties, and capital spending plans among the top 90 wood-based U.S. companies, 1978.

1978 Sales Rank		Company ⁵	Total Antitrust Fines Paid, 1970's ^{6,7,44} (\$)	Capital Spending Plans ^{8,9} (\$ millions)	
Wood-based ^{1,2,3}	Fortune ⁴			1979-81	1978-81
1	53	* Georgia-Pacific ¹⁰	500,000	215	105
2	62	* International Paper ¹¹	41,977,750	805	231
3	69	* Weyerhaeuser	54,177,000	1,274	283
4	74	* Champion International	46,529,000	1,265	499
5	128	* St. Regis Paper	11,145,000	566	46
6	148	Kimberly-Clark		359	22
7	111	Boise Cascade ¹²	25,850,000	499	497
8	115	* Crown Zellerbach ¹³		448	164
9	168	Scott Paper ¹⁴		161	48
10	4	Mobil (Container Corporation)	57,950,000	282	252
11	20	Proctor & Gamble ¹⁵		200	200
12	225	Union Camp	9,400,000	308	281
13	251	* Louisiana-Pacific ¹⁶			
14	238	Westvaco		142	130
15	127	* Mead ⁷	14,040,000	361	117
16	263	Great Northern Nekoosa		320	210
17	67	Continental Group	31,750,000	191	291
18	11	* ITT (Rayonier) ¹⁸			
19	273	* Hammermill Paper ¹⁹		154	33
20	300	* Potlatch	9,850,000	167	173
21	305	* Willamette Industries	11,300,000		
22	243	Diamond International ²⁰	11,277,500		
23	93	Owens-Illinois	33,131,000		
24	19	Tenneco (Packaging Corporation)	10,600,000		
25	336	Southwest Forest Industries ²¹			
26	174	Time (Temple-Eastex) ²²	3,100,000		
27	403	Masonite ²³			
28	448	Olinkraft ²⁴	7,467,125		
29	75	Bendix (American Forest Products) ²⁵			
30		Inland Container ²⁶	50,000		
31	58	Gulf + Western (Brown Company) ²⁶	7,500,000		
32	66	American Can	15,300,000	101	42
33	464	Federal Paper Board	16,355,000	255	203
34	341	Bemis			
35	183	Koppers			
36	201	Times Mirror (Publishers Paper)		167	171
37	46	Philip Morris ²⁸	1,000,000 ⁴⁵		
38	495	Consolidated Papers			
39	182	Johns-Manville ²⁹			
40	580	Fort Howard Paper		125	185
41	589	Stone Container ³⁰	14,550,000		
42	169	Jim Walter ³¹			
43	639	Georgia-Kraft ³²			
44		Simpson Timber ³³			
45	620	Alton Box Board ³⁴	3,500,000		
46	595	Longview Fibre	6,500,000		
47		Edward Hines Lumber			
48	378	Saxon Industries (Standard Packaging)			
49		Roseburg Lumber			
50	186	Olin ³⁵			

Table 2. (Continued)

1978 Sales Rank		Company ⁵	Total Antitrust Fines Paid, 1970's ^{6,7,44} (\$)	Capital Spending Plans ^{8,9} (\$ millions)	
Wood- based ^{1,2,3}	Fortune ⁴			1979-81	1978-81
51		Fibreboard ³⁶	9,560,000		
52		St. Joe Paper	50,000		
53	192	SCM (Allied Paper) ³⁷			
54		Hudson Pulp & Paper ³⁸			
55	785	Chesapeake Corporation of Virginia	3,000,000		
56	202	U.S. Gypsum			
57	810	Brunswick Pulp & Paper ³⁹			
58	711	Pacific Lumber			
59		Bird & Son			
60	801	Tampax			
61	826	Pope & Talbot			
62		*Menasha			
63	113	Singer			
64	862	Bohemia			
65	865	Lane			
66	80	Johnson & Johnson			
67	904	Pentair			
68	933	Medford			
69		Gilman Paper			
70	964	P.H. Glatfelter			
71	230	Evans Products			
72	524	Sonoco Products			
73		Santa Fe Industries (Kirby For. Ind.)			
74	318	Flintkote ⁴⁰			
75	249	GAF			
76		Burlington Northern (Plum Creek Lumber)			
77	994	Cleopak			
78	275	National Gypsum			
79		Consolidated Packaging	466,750		
80		Wickes			
81	771	James River ⁴¹			
82	746	Ludlow			
83	142	Kerr-McGee			
84	481	Dennison Manufacturing (Dunn Paper)			
85	72	Litton Industries ⁴²			
86	601	*Cleveland-Cliffs Iron			
87		Brooks-Scanlon ⁴³			
88	472	Arcata			
89	155	Owens-Corning Fiberglass			
90		*Southern Pacific			
Total Top 80 Companies listed			457,876,125	8,001	
Other companies			79,944,495		Pulp & Paper \$5.6 billion
Individuals			513,700		(1980 only)
Grand Total			538,334,320		Solid wood \$1.0 billion (1979-1982+)

¹ Corporate annual report to stockholders. 1978.

² Moody's Industrial Manual. 1979.

³ Paper Trade Journal. 1979. Paper's top 50 companies (June 30) 163(12): 47-64

⁴ Fortune. 1979a. The Fortune directory of the 1,000 largest U.S. industrial corporations. (May 7) 99(9): 269-295; (June 18) 99(12):157-184.

⁵ Wood-based subsidiary appears in ().

⁶ Briggs, J.A. 1979. For whom does the bell toll? Three segments of paper industry pay for price-fixing. Forbes (June 25) 123(13): 33-36.

⁷ Michaels, B. 1979. Price without price — an industry gets tagged with price fixing label. Pulp and Paper (March) 53(3): 122-125.

⁸ Pulp and Paper, January, 1980.

⁹ Forest Industries, January, 1980.

¹⁰ Georgia-Pacific merged Hudson Pulp & Paper (54) in 1978.

¹¹ International Paper consummated the largest merger in the industry to date (\$805 million in mid-1979) for the closely-held Bodcaw and its prime Louisiana timberlands. A bidding war between IP, Weyerhaeuser with Mobil as an ally, Tenneco, Mobil acting alone, and the Hunt family's Placid Oil, saw this property, appraised at \$475 million, go for \$805 million (Paper Trade Journal, September 15, 1979).

(Continued)

Table 2. (Continued)

- ¹² Boise Cascade (7) made a tender offer for Stone Container (41) in January, 1979, which the latter management rejected (see footnote 30).
- ¹³ Crown Zellerbach stock was suspended from trading on the NYSE in May 1979 when rumors of a takeover by Phillips Petroleum caused the stock price to jump 4 points (over 10 percent) in two days.
- ¹⁴ Scott Paper is a likely takeover candidate (Financial World August 1, 1979).
- ¹⁵ Proctor & Gamble's wood-based subsidiaries are Paper Products Co., Buckeye Cellulose, Proctor & Gamble Cellulose Co.
- ¹⁶ Louisiana-Pacific merged Fibreboard (51) in 1978 and unsuccessfully attempted to merge Flintkote (74) in 1979. Louisiana-Pacific was spun-off (divested) from Georgia-Pacific (1) in 1972 to satisfy an alleged antitrust violation.
- ¹⁷ Mead successfully fought off a takeover by Occidental Petroleum in late 1978.
- ¹⁸ International Telephone and Telegraph's wood-based subsidiary is ITT Rayonier.
- ¹⁹ Hammermill Paper was the target of a takeover attempt in 1980. New York financier Carl C. Icahn acquired 10% of Hammermill in early 1980 and is its largest stockholder. He and three associates sought election to Hammermill's board of directors for the "Principal purpose" of "motivating" other directors to "seek an acquirer for the company." (Wall Street Journal, April 15, 1980). Hammermill would consider a merger, but objected to Icahn's tactics (Paper Trade Journal, September 30, 1980).
- ²⁰ Diamond International was the target of a takeover attempt in 1980. Sir James Goldsmith's Generale Occidentale, S. A., Cavenham Group made a tender offer for Diamond International, attempting to block its merger with Brooks-Scanlon (87). In June 1980, a "standstill agreement" was reached. Among other provisions, there will be no takeover attempt for the next five years. The tender offer netted Goldsmith less than 20% of Diamond stock. (Wall Street Journal, May & June 1980).
- ²¹ Southwest Forest Industries acquired a Florida pulp and paper operation from International Paper (2) on March 1, 1979, for \$220 million. Included were 425,000 acres of timberland (Annual Report for 1978). E.F. Hutton owns 10% of the company, Hearst Corp. owns 20% of it (Paper Trade Journal, September 30, 1980).
- ²² Time merged Inland Container (30) in late 1978, which will move them from 26 to 19 in sales.
- ²³ Masonite is a likely takeover candidate (Financial World, October 1, 1979).
- ²⁴ Johns-Manville (39) merged Olinkraft in 1979, which will move them from 39 to 23 in sales. Olinkraft was spun-off from Olin in 1967 as an apparently voluntary divestiture.
- ²⁵ Bendix has sold its Bendix Forest Products subsidiary to a New York investment firm (Wall Street Journal September 29, 1980).
- ²⁶ Time (26) merged Inland Container in late 1978, which will move them from 26 to 19 in sales.
- ²⁷ Gulf + Western Industries owns 80% of the Brown Company. After failing to acquire the remaining 20%, Gulf + Western (Brown) has been negotiating with James River (81) for a sale of its Brown subsidiary.
- ²⁸ Philip Morris' wood-based subsidiaries are Plainwell Paper Co., Wisconsin Tissue Mills, Nicolet Paper Co.
- ²⁹ Johns-Manville merged Olinkraft (28) in 1979, which will move them from 39 to 23 in sales.
- ³⁰ Stone Container rejected Boise Cascade's (7) January 1979 tender offer of \$26 a share for stock priced at \$11 only three weeks before. Stone is now a takeover candidate and holding out for \$38 a share, a price which may make them an old maid (Business Week, May 5, 1980).
- ³¹ Jim Walter Corporation's wood-based subsidiaries are Celotex, Jim Walter Paper Co.
- ³² Georgia-Kraft is a joint venture between Mead (15) and Inland Container (30), the latter firm now a subsidiary of Time (26).
- ³³ Simpson-Timber — whose sales may be as high as \$600 million, up from the \$250 million estimate for 1978 — purchased 9% of Diamond International's (22) stock on June 12, 1980, for "investment purposes only." At the same time foreign interests (see footnote 20) were bidding for control of Diamond through a tender offer designed to discourage Diamond's merger with Brooks-Scanlon (87), an Oregon forest products company with 242,000 acres of timberland (Wall Street Journal June 20, 1980).
- ³⁴ Alton Box Board was acquired by Jefferson Smurfit Group Ltd., an Irish packaging concern, in 1979.
- ³⁵ Olin was almost merged into Celanese in 1978.
- ³⁶ Louisiana-Pacific (13) merged Fibreboard in 1978.
- ³⁷ SCM braved stockholders' suits attempting to break up the company in late 1979 and again in 1981.
- ³⁸ Georgia-Pacific (1) merged Hudson Pulp & Paper in 1978.
- ³⁹ Brunswick Pulp & Paper is a joint venture between Mead (15) and Scott Paper (9).
- ⁴⁰ Louisiana-Pacific (13) unsuccessfully attempted to merge Flintkote in 1979. Flintkote is now a subsidiary of a Canadian corporation.
- ⁴¹ James River acquired Gulf + Western's (31) 80% share in Brown Company. James River's total sales of \$182 million are less than 1/2 of Brown's \$384 million.
- ⁴² Litton Industries' wood-based subsidiaries are Fitchburg Paper and Versoix.
- ⁴³ Diamond International (22) merged Brooks-Scanlon in 1980.
- ⁴⁴ Paper Trade Journal, 1979. 24 carton makers pay \$200 million to settle price fixing. (October 15) 163(19):17.
- ⁴⁵ Pulp and Paper. 1981. Fines, prison terms for price fixing. (March) 55(3):21.

NOTE: * = a corporate member of the National Forest Products Association.

The conglomerates and Mobil have not integrated their wood-based business with other corporate enterprises.⁵

In addition to the industry's top 90 sales-ranked firms, there are 23 *Fortune* 1,000 companies who have wood-based operations, but are organized in such a manner that determining and reporting their wood-based sales is either impractical or impossible. In general, these companies operate in the following wood-based industries: mobile homes (e.g. AMF, Pepsico), paper coating (e.g. Borden, 3M), wood furniture (e.g. Burlington Industries, Congoleum), and foreign operations in the primary wood-using pulp mill industry (e.g. Celanese and Koehring, both operating in Canada).⁶

In sum, 90 companies account for almost half of all wood-based sales, with four giant firms dominating the industry with 15 percent of sales. In addition to the companies dependent on wood products for their existence, there are a number of large firms (19) based in other industries who may be considered to be leading wood-based revenue producers. These companies are the "new diversified entrants" to the industry.

Conduct

An important element of inter-firm conduct is merger activity, an element which directly causes structural changes within and across industry boundaries. Mergers are the vehicles that allow companies to grow externally. Since the top 90 firms were ranked by sales for 1978, a number of recent merger developments have affected the structure of the wood-based industry (Table 2). A look at the extent of merger activity within the industry since the 1978 sales ranking indicates, if nothing else, that the structure of the industry is changing constantly and rather dynamically.

Divestitures of wood-based operations are an important merger-related consideration. Someone's acquisition is someone else's divestiture. Divestitures of wood-based subsidiaries by companies based in other industries are as follows:

Divestiture of large wood-based subsidiaries

Fortune rank	Company (subsidiary)	Year acquired	Year divested
166	AMAX (AMAX Forest Products)	1976	1979
75	Bendix (American Forest Products)	1969	1980
200	Ethyl (Albermarle Paper; Oxford Paper)	1962	1976
58	Gulf + Western (Brown Company)	1968	1980
104	NCR (Appleton Papers)	196?	1977
186	Olin (Olinkraft)	1949	1967 (partial)

⁵To illustrate the difference between horizontal and vertical integration, suppose a firm that manufactured and marketed metal and glass packaging containers (cans and bottles) acquired a plant that made fiber containers (boxes). If the company put their cans and bottles into boxes for the box plant, it would be vertical integration. If the boxes were for other uses and were sold to the same buyers that purchased cans and bottles, then it would be horizontal integration.

⁶A listing of these firms and the industries in which they operate is included in Appendix A as the "unranked" category of wood-based companies. Appendix A consists of two tables which display the Standard Industrial Classification (SIC) coded industries that *Fortune* 500 wood-based companies operate in.

Because recent divestitures by diversified firms seem to be a more significant development than actual acquisitions of wood-based subsidiaries, there seems to be little justification for fear that a large wood-based company will be acquired by a non-wood-using company, such as the Phillips Petroleum/Crown Zellerbach rumor of 1979 or the failed 1979 Occidental Petroleum/Mead takeover. Failed takeovers of Hammermill Paper and Diamond International in 1980 also quash such fears. Add to this Mobil's dissatisfaction with their Marcor (Container Corp.) subsidiary⁷ (*Business Week* 1980b), and it appears that the trend to more diversified entrants in the industry is over. In spite of these divestitures, Shanklin (1979) points out that while great diversity was the theme of the 1960s, compatibility was the theme of the late 1970s. Divestitures of noncompatible subsidiaries are the quickest way to get rid of them. However, there remain enough new diversified entrants with wood-based subsidiaries to consider this group of firms a significant factor in the industry.

Regulatory antitrust actions are also an important element which reflects industry conduct. In the 1970s, forest industry firms were assessed a half billion dollars in antitrust settlements for price fixing (Table 2). Container Corporation of America suffered the most monetary damage, paying price fixing penalties approaching \$58 million. The actions in question occurred prior to the 1974 merger with Mobil. Next, Weyerhaeuser paid \$54 million, followed by Champion International at \$46 million and International Paper at \$42 million. Then came two new diversified entrants — Owens-Illinois at \$33 million and Continental Group at \$32 million. Boise Cascade was next at \$25 million. Nine other firms each paid between \$7 million and \$17 million in penalties (Table 2). Missing data indicate that the firms were not impacted by these antitrust allegations.

Another significant antitrust action that affected the structure of the industry was the creation of Louisiana-Pacific in 1972. Georgia-Pacific spun off 20 percent of its assets to comply with a Federal Trade Commission consent decree, which alleged that Georgia-Pacific was monopolizing the southern plywood industry. There may be future antitrust actions in the wood-based industry. According to Michaels (1979), a grand jury probe is underway to investigate the manufacture and sale of all paper in the U.S. More than 2 million pages of documents have been subpoenaed, and the biggest price fixing case of all may be forthcoming.

Near-term capital spending plans for many of the top 40 wood-based companies present another view of industry conduct (Table 2). Capital spending plans reflect the commitment that a company has toward the industry,

⁷Container Corporation of America, one of the top 10 North American pulp, paper, and paperboard companies, merged with the retailing firm of Montgomery Ward in 1968 to form Marcor, Inc. Mobil Oil merged with the holding company Marcor in 1974, forming the Mobil Corporation, a holding company operating Mobil Oil, Montgomery Ward, and Container Corporation. Container Corporation provided about 4 percent of Mobil sales in 1978. Mobil loaned Wards \$200 million in 1980, and an additional \$100 million in early 1981. The loans were to prop up Ward's sagging bond ratings, caused by poor earnings — Wards lost \$82 million in the first half of 1980. During 1979, Mobil earned a pathetic 5 percent on its 1974 investment of \$1.7 billion. It is unlikely that such a diversification would be made today. According to *Business Week* (1980b) "Marcor was an aberration. . . . The Marcor deal: bad timing, bad business."

and how it views prospects for the future of the industry. Missing date in Table 2, however, indicate only that the sources used do not list plans for the company.

Performance

There is a wealth of financial performance data available for large U.S. companies, particularly in *Forbes* magazine's "Annual Report on American Industry" (*Forbes* 1980a). Unfortunately, it is most difficult, if not impossible, to determine the contributions that each division or subsidiary of the large firm makes toward its overall performance. Thus, only overall corporate performance can be considered.

It is also difficult to deal with any performance criteria other than financial. Since the focus of this study was on land-use by the large corporation, acceptable and easily measurable criteria for timberland resource stewardship would seem appropriate. However, the heterogeneity of forest lands make the development of such criteria unfeasible. The regional timber supply situation from other private and public timber tracts would also make such judgments rather useless when comparing different companies. So instead of resource stewardship performance measures, overall financial performance measures for each company must suffice. This is the most relevant information for investors in any event, so it also may be the most relevant performance measure from the social perspective as well.

Six financial performance measures were considered by the study (Table 3). Three of these are measures of profitability — return on equity, return on total capital, and net profit margin⁸ — and three are measures of growth — sales growth, earnings per share growth, and stock price growth. The only performance measure that is not a five-year average is the net profit margin, which in this case reflects conditions in 1979. Net profit margin represents the percent of each dollar of sales revenues that is available for two purposes: 1) distribution to stockholders through dividends and 2) retained earnings to be reinvested in the company. This margin ranges from a deficit (Singer) to 17.4 percent (Fort Howard Paper). The median net profit margin for large wood-based companies is 5.8 percent. The five-year profitability measures have the following medians: return on equity (14.4 percent) and return on capital (9.6 percent). Growth measures have the following medians: sales (12.1 percent), earnings per share (14.0 percent) and stock price change (105 percent compared to a change in the Consumer Price Index of 45 percent).

The solid wood products industry, dependent as it is on building construction, is among the most cyclical of industries. Despite a flagging economy in 1979, return on equity was a healthy 19 percent — the highest level since 1974. Much of this strength reflected the success of paper operations, which profited from high prices and short supplies, pushing paper-produced earnings to record levels in 1979. Wood producers benefited from low inventories and strong exports, plus vigorous housing starts for most of 1979 (*Forbes* 1980a). Consequently, the financial per-

formance figures used in the study (Table 3) recapitulate what was, on balance, a good year for forest industry companies.

The only clear finding regarding financial performance in the wood-based industry is that Fort Howard Paper, ranked 40 in sales, appears to be the best performer for the period analyzed. This company is also one of the best performers among all the *Forbes* companies. Perhaps this has something to do with Fort Howard Paper's policy of being almost entirely dependent on recycled fiber as its raw material source, or perhaps it is due to the peculiarities of the markets this company serves, or perhaps it is the excellence of the management team. Most likely, Fort Howard Paper's outstanding performance is attributable to a combination of these and other factors.

LAND CONTROL BY LARGE CORPORATIONS

If such a thing as the "Great American Dream" exists, land surely plays a central role in it. The security offered by ownership of one's environment — either for living or for earning a living — is an important feature not only in our culture, but in virtually all others as well. Control of land, the physical space dimension as well as the bundle of legal rights implicit in the concept, is power. In the words of Wunderlich, a USDA land economist, "Land is a means for distributing and exercising power" (Meyer 1979, p. 48).

Land economics is the field of study dealing with man's economic relationships with others respecting land; and like economics in general, is concerned with both the allocation and use of scarce resources. Land economics involves diverse economic relationships, but is always concerned with problems and situations in which land, its use or control, is regarded as a factor of strategic or limiting importance. Throughout much of the Western world, especially in the United States and Canada, the major land problem is not providing people with basic sustenance, but rather of marshaling land resources so that they might be used more effectively to provide people with higher levels of living (Barlowe 1978). A study such as this one on the factors influencing corporate land-use decisions, which are strategic decisions, is essentially an inquiry in land economics.

There are certain key industries which are dependent on land: agriculture, mining, and forestry. The institutional arrangements that provide for the production of goods and services from land resources help to determine where a country stands in relation to others in the global economic perspective; in short, how they use and manage these resources. In our economic system that values individual freedom and rewards individual initiative, it should not be surprising that substantial portions of the vast land-based resources of the U.S. are owned by private individuals, either people or corporations. As Davis (1976) points out, 74 percent of the land area in the 48 contiguous United States is privately owned. Twenty-one percent of the 48 United States are owned by the federal government. States (4 percent), counties, and municipalities comprise the remaining 5 percent ownership category. When Alaska is considered, the federal ownership share jumps

⁸Profitability performance measures are defined in the Glossary.

Table 3. Performance dimensions of U.S. wood-based industry: 1975 to 1979 profitability and growth of the top 90 wood-based U.S. companies, 1978.

Sales Rank 1978	Woodbased ^{1,2,3}	Fortune ²	Company ¹	Profitability ^a						Growth ^b				Stock Price Change	
				Return on equity (ROE)		Return on Total Capital (ROTC)		Net Profit Margin (1979)		Sales Growth		Earnings per Share Growth		Rank	Percent ^c
				Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent ^c
1	53		Georgia-Pacific	12	18.7	22	11.1	21	6.6	12	15.9	26	15.2	43	59.3
2	62		International Paper	22	16.7	11	11.2	3	13.0	39	10.9	14	18.2	59	1.4
3	69		Weyerhaeuser	14	17.6	16	12.2	5	12.4	21	13.1	37	11.5	57	5.5
4	74		Champion International	26	15.0	43	8.6	19	6.8	43	10.3	39	11.2	30	116.7
5	128		St. Regis Paper	40	12.3	40	8.9	24	6.4	24	12.7	43	10.6	47	41.6
6	148		Kimberly-Clark	8	19.3	8	14.2	2	14.7	44	10.2	6	26.1	41	63.5
7	111		Boise Cascade	37	12.4	35	9.2	26	6.2	53	8.3	unranked		13	211.9
8	115		Crown Zellerbach	35	12.7	36	9.2	32	5.4	22	12.9	47	9.0	45	56.5
9	168		Scott Paper	47	11.0	44	8.2	18	7.4	30	12.1	42	10.6	51	30.7
10	4		Mobil (Container Corporation)	27	14.5	23	14.0	46	4.1	1	22.1	46	9.4	16	186.8
11	20		Procter & Gamble (Buckeye, others)	11	18.9	7	14.9	28	6.1	14	15.3	40	11.2	60	-13.2
12	225		Union Camp	6	19.5	10	13.6	7	10.9	38	11.0	17	17.6	40	65.0
13	251		Louisiana-Pacific	24	16.3	26	10.7	11	8.5	2	21.8	44	10.5	20	162.3
14	238		Westvaco	31	14.0	32	9.5	25	6.4	26	12.4	24	15.7	26	126.5
15	127		Mead	7	19.5	18	11.4	31	5.5	47	9.5	8	25.6	18	178.4
16	263		Great Northern Nekoosa	29	14.4	29	10.1	15	7.9	16	14.3	27	14.9	25	127.7
17	67		Continental Group	41	12.2	39	9.1	50	3.5	49	9.1	35	12.0	58	3.9
18	11		ITT (Rayonier)	41	10.1	49	7.8	55	2.4	48	9.3	55	1.9	38	70.3
19	273		Hammermill Paper	52	9.6	53	6.7	51	3.1	27	12.4	49	8.1	44	58.3
20	300		Potlatch	18	17.0	15	12.3	9	10.0	35	11.5	9	23.3	22	156.4
21	305		Willamette Industries	9	19.3	12	13.3	17	7.6	5	19.5	23	15.8	21	161.6
22	243		Diamond International	33	13.3	19	11.3	33	5.3	46	9.7	52	5.4	39	69.5
23	93		Owens-Illinois	45	11.2	50	7.6	49	3.8	40	10.7	41	10.8	54	17.8
24	19		Tenneco (Packaging Corporation)	20	17.0	37	9.2	34	5.2	7	17.1	45	10.3	42	63.3
25	336		Southwest Forest Industries	49	10.2	52	6.7	47	4.0	28	12.4	50	6.5	8	251.5
26	174		Time (Temple-Eastex)	16	17.1	13	13.0	29	5.9	8	16.9	18	17.5	10	235.7
27	403		Masonite	36	12.7	24	11.0	10	9.5	36	11.2	53	4.0	46	47.5
28	448		Olinkraft (Merged with Johns-Manville)												
29	75		Bendix (American Forest Products)	26	14.8	17	11.9	45	4.2	34	11.5	22	16.2	24	136.4
30			Inland Container (Merged with Time)												
31	58		Gulf + Western (Brown Company)	3	20.3	34	9.3	42	4.3	11	16.2	10	22.3	35	83.3
32	66		American Can	38	12.4	41	8.8	52	2.9	37	11.0	16	17.6	55	17.2
33	464		Federal Paper Board	50	10.2	51	6.8	56	2.0	41	10.5	54	3.5	7	251.6
34	341		Bemis	46	11.1	46	8.1	41	4.5	56	6.4	33	12.9	29	117.7
35	183		Koppers	15	17.6	14	12.7	36	5.1	13	15.6	12	20.2	23	149.3
36	201		Times Mirror (Publishers Paper)	4	19.9	4	17.6	8	10.1	18	14.0	15	17.9	9	239.8
37	46		Philip Morris (Plainwell, Nicolet, others)	2	22.7	11	13.5	27	6.2	4	20.1	13	18.9	49	41.2
38	495		Consolidated Papers	13	18.4	5	16.1	4	12.5	15	15.1	7	26.0	5	287.8
39	182		Johns-Manville	42	11.9	42	8.6	30	5.8	20	13.4	48	8.9	53	19.9
40	580		Fort Howard Paper	1	28.2	1	25.5	1	17.4	6	19.3	5	27.7	17	183.0
41	589		Stone Container	28	14.5	33	9.4	43	4.3	19	13.5	31	13.9	11	227.5
42	169		Jim Walter (Celotex, others)	19	17.0	25	11.0	35	5.2	42	10.4	30	14.0	52	29.4
43	639		Georgia-Kraft (Joint Venture - Mead & Time)												
44			Simpson Timber (Privately held)												
45	620		Alton Box Board												
46	595		Longview Fibre	17	17.1	6	15.7	6	11.4	33	11.6	38	11.3	6	253.8
47			Edward Hines Lumber	54	8.6	47	6.3	57	1.6	23	12.7	51	6.0	37	72.1
48	378		Saxon Industries (Standard Packaging)	56	5.3	56	4.2	58	1.2	50	8.9	56	-0.7	12	216.7
49			Roseburg Lumber (Privately held)												
50	186		Olin	43	11.7	38	9.1	48	4.0	45	9.8	1	85.7	27	125.6
51			Fibreboard (Merged with Louisiana-Pacific)												
52			St. Joe Paper (Privately held)												
53	192		SCM (Allied Paper)	44	11.3	45	8.2	53	2.9	51	8.7	4	31.6	19	178.1
54			Hudson Pulp & Paper (Merged with Georgia-Pacific)												
55	785		Chesapeake Corporation of Virginia												
56	202		U.S. Gypsum	30	14.4	27	10.7	13	8.4	29	12.2	28	14.8	28	120.5
57	810		Brunswick Pulp & Paper (Joint Venture - Mead & Scott)												
58	711		Pacific Lumber												
59			Bird & Son	5	19.6	3	18.0	40	4.6	10	16.3	21	16.5	36	77.8
60	801		Tampak												
61	826		Pope & Talbot												
62			Menasha												
63	113		Singer	59	deficit	59	deficit	59	deficit	59	-0.1	58	deficit	63	-30.4
64	862		Bohemia												
65	865		Lane												
66	80		Johnson & Johnson	10	19.0	2	18.4	12	8.5	9	16.8	29	14.7	61	-14.7
67	904		Pentair												
68	933		Medford												
69			Gilman Paper (Privately held)												
70	964		P.H. Glatfelter												
71	230		Evans Products	21	16.9	28	10.3	44	4.3	58	2.7	3	36.7	2	690.9
72	524		Sonoco Products	23	16.6	9	14.1	22	6.6	31	11.9	19	17.2	14	202.5
73			Santa Fe Industries (Kirby For. Ind.)	53	9.0	54	7.4	14	8.4	32	11.8	32	13.6	34	83.6
74	318		Flintkote	48	10.9	48	7.8	20	6.7	54	7.4	36	11.8	3	402.1
75	249		GAF	58	4.0	58	3.8	54	2.7	57	6.2	57	-10.9	50	31.0

(Continued)

Table 3. (Continued)

Sales Rank 1978	Woodbased ^{1,2,3}	Fortune ⁴	Company ⁵	Profitability ⁶						Growth ⁷					
				Return on equity (ROE)		Return on Total Capital (ROTC)		Net Profit Margin (1979)		Sales Growth		Earnings per Share Growth		Stock Price Change	
				Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank	Percent ⁷
76			Burlington Northern (Plum Creek Lumber)	55	5.4	57	4.1	38	4.8	25	12.5	11	21.2	48	41.6
77		994	Clevepak												
78		275	National Gypsum	39	12.4	30	9.6	16	7.9	52	8.6	34	12.3	31	111.6
79			Consolidated Packaging												
80			Wickes											32	98.0
81		771	James River												
82		746	Ludlow												
83		142	Kerr-McGee	25	15.2	20	12.0	23	6.5	3	20.7	25	15.2	62	-16.1
84		481	Dennison Manufacturing (Dunn Paper)											4	294.6
85		72	Litton Industries (Fitchburg, Versoix)	57	5.2	55	4.9	39	4.6	55	6.9	20	16.8	1	1192.8
86		601	Cleveland-Cliffs Iron												
87			Brooks-Scanlon												
88		472	Arcata	32	13.6	31	9.6	37	5.1	17	14.3	2	52.9	15	198.3
89		155	Owens-Corning Fiberglass											33	96.1

¹ Corporate annual report to stockholders. 1978.

² Moody's Industrial Manual. 1979.

³ Paper Trade Journal. 1979. Paper's top 50 companies (June 30) 163(12): 47-64.

⁴ Fortune. 1979a. The Fortune directory of the 1,000 largest U.S. industrial corporations. (May 7) 99(9): 269-295; (June 18) 99(12): 157-184.

⁵ Wood-based subsidiary appears in ().

⁶ Forbes, January 7, 1980.

⁷ For comparison, 1975-1979 Consumer Price Index change was 45 percent.

to a third of all U.S. land, as the private share drops to three-fifths. Obviously, because of its vastness and federal monopoly (93 percent of 375 million acres) on land control, Alaska needs to be considered separately in any land accounting.

In an environment that features the rights of private citizens, the forest-based economy and wood-based industry is unusual in one important way. Although private landowners own three-fourths of the total U.S. land base and a like amount of the U.S. commercial forest land base,⁹ the government holds a majority of the softwood inventories that are so critical to both the lumber and paper sectors (Thorn 1979). This can mean several things, among them that the government holds the best, most productive land or that the private sector owners, in concert with government, have historically mined the rich timber endowment on their lands. Few would argue that the latter is not the case. Sawyer (1979, p. 165) outlines the situation:

Rapid early development of the U.S. forest industries contributed greatly to national growth, but little thought was given to the transition from the heavy harvests of virgin forests to a sustained yield that could be obtained on a continuing basis. The painful transition from "slash and burn" to the beginning of constructive forest management is well known. Accompanying it was the transition from lumber companies with a superior ability to harvest virgin stands to forest management companies

that have slowly shifted to tree farming to maximize the yield of their forests.

Through this evolution the lumber companies have been under continuing attack. Initially, individual companies could hardly have turned their efforts to sustained-yield forest management when industry economics were based on plentiful virgin stands; however, a minimum effort toward conservation and fire protection could have greatly reduced the damage and increased the lumber supply and profits in the next generation. It has been suggested that both the national interest and industry self-interest would have been well served by a slightly more long-range view. Had the lumber industry provided the genesis of forest conservation practices rather than adhering to a policy of determined opposition, both it and the public might have fared better. If we look at this case from the perspective of the present, we can see that industry management did not truly succeed in maximizing profits through its failure to act in its own self-interest.

There exists, then, a strong historical basis for Samuelson's (1976, p. 467) immutable observation that, "Everybody loves a tree and hates a businessman."

Outright ownership of land is only one of three major categories of land and timber resource control — long-term lease or long-term cutting rights are the other two — but it is the most significant form of control in the United States. Davis (1976) points out that the best way to control land is to hold an unencumbered title to the land. However, as Worrell (1970) reminds us:

The owner of a forest possesses exclusive rights to use that forest in the way he sees fit. In

⁹Sixty percent of the entire U.S. commercial forest land base of almost 500 million acres is held by non-industrial owners; farmers hold almost half of this acreage. Forest industry owns 14 percent of all U.S. timberlands; the remaining 26 percent is government-owned, with 18 percent of all commercial forest land under U.S. Forest Service control (USDA Forest Service 1973).

the U.S., we have a long tradition of permitting and recognizing private property rights in forest resources. Such private ownership can only exist, however, where there is a sovereign power that sanctions and protects the property rights that are vested in individuals or groups. No private owner in our society has absolute property rights in forest resources.

Determining landownership and its value can be a most difficult and frustrating task as evidenced by a recent attempt by *Forbes* (1980b) to appraise the value of corporate holdings:

There's something missing from the tables: companies with substantial land holdings. We tried. We really did. In the end we had to give up because there were so many different companies owning so many different kinds of land that appraisals would be meaningless. Anyhow, no two pieces of land are alike. It's different with other resources: coal, oil, gold, silver, and timber are far more fungible than land.

The commodities, such as oil, minerals, and timber, are easier to value, but the problem in attempting to do this is the lack of information. That situation has been remedied for forest lands to a great extent by the work of Enk (1975) and Clephane (1978a, b) among others, but lack of information on land ownership in general is surprising. As Meyer (1979, p. 47) puts it, "Almost everything about American land is known except who owns it." It is incredible that the scores of public decisions regarding land-use during the 1970s were made without considering land ownership patterns; more incredible, because \$1.2 trillion, or 15 percent of the national wealth, is bound up in land holdings (Meyer 1979). The federal government has made some recent attempts to fill the void regarding land holdings (Wunderlich 1978, USDA ESCS 1979). Unfortunately, they fail to identify the land holdings of major corporations.

Relying on the meager information that is available, it is obvious that large oil companies are the dominate corporate landowners (Table 4). Wood-based companies control large amounts of land. Railroad operators also hold significant parcels of land. The North American acreage that Meyer (1979) claims is controlled by Champion International seems excessive in relation to the other wood-based firms (Table 4), but it is conceivable that their Canadian leases might approach the 17 million acres indicated. By comparison, Champion International's U.S. ownership is approximately 3 million acres.

A clear understanding of the industrial ownership of forest land as a component of the economic structure of the wood-based industry is needed before corporate land-use strategies can be explored. Three parameters are most important to this explanation: acreage held in fee ownership, which is important because the company has the most management flexibility with this means of land control; timberland market values, which indicate the relative quality of the land; and the company's wood raw material self-sufficiency percent, which indicates how dependent

Table 4. Control of North American land by selected corporations, 1979.

Corporation	Total acreage controlled ¹	Timberland owned
Exxon	40,249,000	
Standard Oil of Indiana	27,546,000	
Champion International	17,702,000 ²	3,024,000
Gulf Oil	12,511,000	
Shell Oil	9,550,000	
Standard Oil of California	9,001,000	
Burlington Northern	8,600,000	1,500,000
International Paper	8,503,000	8,503,000
Union Pacific	7,900,000	
Boise Cascade	6,000,000	2,608,000
Weyerhaeuser	5,865,000	5,865,000
Southern Pacific	5,200,000	450,000
General Crude Oil	4,800,000	
Georgia-Pacific	3,900,000	3,900,000
St. Regis Paper	3,524,000	3,151,000
Crown Zellerbach	2,081,000	1,702,000
Diamond Shamrock	1,779,000	
Union Camp	1,680,000	1,680,000
Tenneco	1,666,000	363,000
Continental Group	1,468,000	1,468,000

Source: Meyer (1979, p. 47) except timberland owned (Table 5).

¹ Some oil and gas holdings include offshore acreage. Note that Mobil is not on the list.

² Champion International's total control may be grossly overstated (see Table 5).

the company is on its own land base for its timber supplies. These timber resource dimensions for the top 90 wood-based companies in 1978 are shown in Table 5.

The total acreage owned by the top 90 companies in the wood-based industry represents 91 percent of all U.S. timberland owned by forest industry companies.¹⁰ In addition to this 62 million acres of U.S. lands, 3 million Canadian acres are owned by seven of the top nine companies, most of it held by International Paper and Scott Paper (Table 5). Foreign companies are thought to own almost 5 million acres of American land,¹¹ with 600,000 acres having been acquired between 1977 and 1979 (Meyer 1979). The top 40 wood-based sales-ranked U.S. companies account for 40 percent of U.S. wood-based sales and 80 percent of all U.S. timberlands owned in fee by forest industry companies. Again, as with sales and performance, significant gaps in the knowledge of timberland ownership by the new diversified entrants exist (Table 5).

Timberland market values for U.S. companies changed between 1978 and 1980 estimates (Table 5). These variances may be interpreted as either an increase in value, in both real and current value terms; or as a discrepancy in the points of view of the two different analysts who calculated the information. The largest variance in valuation estimates occurs in valuing the largest acreage holding — International Paper. One analyst pegs their

¹⁰ Forest industry owns 68 million acres of U.S. commercial forest land (American Forest Institute 1979).

¹¹ Two million acres of U.S. land are owned by foreign wood-based companies — primarily Canadian, (e.g. MacMillan Bloedel) and British companies (e.g. Bowater) serving U.S. markets (Irland 1976b).

Table 5. Timber resource dimensions of U.S. wood-based industry: fee-ownership, market valuation, and self-sufficiency for the top 90 wood-based U.S. companies, 1978.

Sales Rank 1978	Fortune ⁴	Company ^{4,5}	U.S. Acres Owned in fee 1977 ⁶ (thousand)	Timberland Market Valuations (\$ Millions)		
				1978 ⁶	1980 ⁷	1980 ⁸
1	53	Georgia-Pacific	3,550 [3,900] ¹⁶	3,170	3,404	3,815
2	62	International Paper	7,203 [8,503] ¹⁶	3,265	3,857	5,830 ²⁶
3	69	Weyerhaeuser	5,865	8,985	9,534	11,145
4	74	Champion International	3,024 [3,083] ¹⁶	1,670	2,120	2,150
5	128	St. Regis Paper	3,151	1,225	1,571	1,920
6	148	Kimberly-Clark	900 [1,004] ¹⁶	550	439 ²²	400
7	111	Boise Cascade	2,608 [2,632] ¹⁶	1,650	1,703	1,775
8	115	Crown Zellerbach	1,702 [1,879] ¹⁶	2,610	2,910	3,050
9	168	Scott Paper	1,848 [2,958] ¹⁶	1,080	1,222	1,295
10	4	Mobil (Container Corporation)	726			
11	20	Procter & Gamble (Buckeye, others)	xxx ¹	(book: 58) ¹		
12	225	Union Camp	1,680	670	940	1,230
13	251	Louisiana-Pacific	696 [900] ¹⁷	1,165	1,319	1,460
14	238	Westvaco	1,175	455	522	710
15	127	Mead	1,366	350	669	675
16	263	Great Northern Nekoosa	2,705	370	614	595
17	67	Continental Group	1,468	585		955
18	11	ITT (Rayonier)	1,100	1,235		
19	273	Hammermill Paper	401	95	168	
20	300	Potlatch	1,297	880	1,210	1,190
21	305	Willamette Industries	469	570	994	685
22	243	Diamond International	1,434	560		570
23	93	Owens-Illinois	950	290		
24	19	Tenneco (Packaging Corporation)	363	145		
25	336	Southwest Forest Industries	33 [458] ¹⁸			
26	174	Time (Temple-Eastex)	1,047	420		
27	403	Masonite	500	415	600 ²³	
28	448	Olinkraft	585	330		
29	75	Bendix (American Forest Products)	167	215		
30		Inland Container	475	190		
31	58	Gulf + Western (Brown Company)	xxx ¹³			
32	66	American Can	500	115		
33	464	Federal Paper Board	361		190	
34	341	Bemis	0			
35	183	Koppers	xxx ¹³			
36	201	Times Mirror (Publishers Paper)	xxx ¹³			
37	46	Philip Morris (Plainwell, Nicolet, others)	0 ¹²			
38	495	Consolidated Papers	291			
39	182	Johns-Manville				
40	580	Fort Howard Paper Company	0			
41	589	Stone Container	0			
42	159	Jim Walter (Celotex, others)	xxx ¹³			
43	639	Georgia-Kraft	949			
44		Simpson Timber	xxx ¹³			
45	620	Alton Box Board				
46	595	Longview Fibre	360 ¹⁹		914	124 (400,000 acres)
47		Edward Hines Lumber	0			
48	378	Saxon Industries (Standard Packaging)	175 ¹⁹			
49		Roseburg Lumber	xxx ¹³			
50	186	Olin	540			

Wood Raw Material Self-Sufficiency (percent)											
1977 ⁶	1978 ⁹	1978 ¹	1979 ¹⁰	1979 ¹¹	Regional fee-ownership of U.S. timberland (thousand acres) ^{6,12,13}					Total acres under control ¹⁴	
					Northwest	Intermountain	South	Central	Northeast	United States ⁶	Foreign ¹⁵
55	50		44	53	1,000		2,100		450	3,550	3,072
45	40-45		57	44	500		5,003		1,750	7,203	16,485
88	90+	100	89	112	2,825		3,040			5,865	9,077
39	50-55		49	44	458	681	1,451	434		3,024	3,985
34	39	41	46	44	289	200	1,418		1,244	3,151	4,371
38			30	18		324	552	24		900	10,104
38	50	61	39	38	287	1,200	441	326	354	2,608	4,229
43	57		50	70	850		852			1,702	1,127
43			43	47	245		743		860	1,848	1,110
							584			726	
							xxx			960 ¹⁹	
40	34	34	55	30			1,600			1,700 ¹²	
32	39	39	16	15	208	333	115	40		900 ¹⁷	
19	35	40	34	33			1,175			1,175	60
17			25	21			475	605		4,560 ¹⁹	
29	30		30	34			296	258	2,159	2,799 ¹²	
		25					1,468			1,468	
					350		750			1,100	1,410
16			17	14			225	176		401	
54	55	40+	38	40		512	539	246		1,297	762
21		54	36	32	214		179	76		469	
						401		148	885	1,434	
		50					695	270		1,123 ¹²	
							363			1,666 ²⁶	
							450	40		590 ¹²	
							1,100			1,100 ¹²	
52					108(53 Cal.)		365		40	553 ¹²	40 ¹² (So. Afr.)
							585			585 ¹²	
		33			171 (Cal.)					171 ¹²	
22							475			1,002 ¹²	
									xxx	4,500 ¹⁹	
							265	267		567 ¹²	2,529
			39	19			249			365 ¹²	
										0	
						x	xxx		xxx	xxx ¹³	
					xxx					xxx ¹³	
										0 ¹²	
		21						291		291	374
										0	
										xxx ¹³	
							949			949	
					xxx					xxx ¹³	
			53	49	360					360	
										0	
										175	
					xxx					xxx ¹³	
										540	

(Continued)

Table 5. (Continued)

Sales Rank 1978	Wood-based ^{1,2,3}	Fortune ⁴	Company ^{4,5}	U.S. Acres Owned in fee 1977 ⁶ (thousand)	Timberland Market Valuations (\$ Millions)		
					1978 ⁶	1980 ⁷	1980 ⁸
51			Fibreboard	140	155		
52			St. Joe Paper	1,000 ²⁰			
53		192	SCM (Allied Paper)				
54			Hudson Pulp & Paper	xxx ¹³			
55		785	Chesapeake Corporation of Virginia	347	135	227	
56		202	U.S. Gypsum				
57		810	Brunswick Pulp & Paper				
58		711	Pacific Lumber	165	1,015		
59			Bird & Son				
60		801	Tampax				
61		826	Pope & Talbot	126	280		
62			Mensha				
63		113	Singer				
64		862	Bohemia	60	140		
65		865	Lane				
66		80	Johnson & Johnson				
67		904	Pentair				
68		933	Medford	87	140		
69			Gilman Paper	xxx ¹³			
70		964	P.H. Glatfelter				
71		230	Evans Products		(book: 21) ¹		
72		524	Sonoco Products				
73			Santa Fe Industries (Kirby For. Ind.)	630 ¹	250		
74		318	Flintkote	14			
75		249	GAF				
76			Burlington Northern (Plum Creek Lumber)	1,500	1,450	1,460	
77		994	Clevepack				
78		275	National Gypsum				
79			Consolidated Packaging				
80			Wickes				
81		771	James River				
82		746	Ludlow				
83		142	Kerr-McGee	243 ¹			
84		481	Dennison Manufacturing (Dunn Paper)	xxx ¹³			
85		72	Litton Industries (Fitchburg Versoix)				
86		601	Cleveland-Cliffs Iron	xxx ¹³			
87			Brooks-Scanlon	242 ²⁶			
88		472	Arcata	43	200		
89		155	Owens-Corning Fiberglass				
90			Southern Pacific	450 ¹			
Total Top 90				62,000 ²⁷			

¹ Corporate annual report to stockholders. 1978.² Moody's Industrial Manual. 1979.³ Paper Trade Journal. 1979. Paper's top 50 companies (June 30) 16:3(12): 47-64.⁴ Fortune. 1979a. The Fortune directory of the 1,000 largest U.S. industrial corporations. (May 7) 99(9): 269-295; (June 18) 99(12): 157-184.⁵ Wood-based subsidiary in ().⁶ Clephane, T.P. 1978a. Timber becoming more important in paper company profitability. Pulp and Paper (June) 52(6):62-64. And

Clephane, T.P. 1978b. Ownership of timber: a critical component of industrial success. Forest Industries (August) 105(9): 30-32.

⁷ Clephane, T.P. 1980. Timberland investment increasing as means of improving profitability. Pulp and Paper (November) 54(11): 72-73. Note:

Values over one billion dollars are discounted 25%.

⁸ Adapted from Forbes. 1980b. Appraised value: the stuff of dreams. (May 12) 125(10) 145-154. Data furnished Forbes by W.M. Wigder, limited partner, First Manhattan Company.⁹ Wiegner, K.M. 1979. America's green gold: forest resources. Forbes (December 24) 124(13): 40-46.

Wood Raw Material Self-Sufficiency (percent)										
1977 ⁶	1978 ⁹	Unde- fined ^{6,9,2}	Growth/ Consump- tion ¹⁰	Harvest/ Consump- tion ¹¹	Regional fee-ownership of U.S. timberland (thousand acres) ^{6,12,13}				Total acres under control ¹⁴	
		1978 ¹	1979 ¹⁰	1979 ¹¹	Northwest	Intermountain	South Central	Northeast	United States ⁶	Foreign ¹⁵
						140			140	
							1,000		1,000 ²⁰	
			36	26			xxx	xxx	xxx ¹³	
							347		347	
						165			165	
						126			126	
						60			60	
						87			87	
							xxx		xxx ¹³	
							630		630	
									14	
						200	1,300		8,600 ²⁶	
								243	243	
								xxx	xxx ¹³	
						242		xxx	xxx ¹³	
						43			43	
						450			5,200 ²⁶	

¹⁰ Growth to consumption ratio, from Clephane 1980.

¹¹ Harvest to consumption ratio, from Clephane 1980.

¹² O'Laughlin, J. 1980. Strategic planning and land-use decision making by the new diversified entrants in the wood-based industry. PhD. dissertation. St. Paul: College of Forestry, University of Minnesota.

¹³ Stanford Research Institute. 1974. Timber supply opportunities for "Company XYZ." Client private report. Total for eleven firms (xxx) is 6.7 percent of all forest industries-owned timberlands.

¹⁴ Includes fee-simple ownership, long-term lease, or long-term cutting rights.

¹⁵ Enk, G.A. 1975. A description and analysis of strategic and land use decision making by large corporations in the forest products industry. PhD. dissertation. New Haven: Yale University. 161 p.

¹⁶ North American fee owned lands, includes Canadian ownership.

¹⁷ Paper Trade Journal. July 15, 1980.

(Continued)

Table 5. (Continued)

- ¹⁸ Southwest Forest Industries owned 33,000 acres of timberland in 1977 (Clephane 1978). With the acquisition of a Florida pulp and paper operation from International Paper for \$220 million in March, 1979, were included 425,000 acres of timberland.
- ¹⁹ Katz, R.L. 1970. Cases and concepts in corporate strategy. Englewood Cliffs, New Jersey: Prentice-Hall. 820 p. Extensive wood industry case example.
- ²⁰ Pulp & Paper, March, 1980.
- ²¹ Wall Street Journal, June 20, 1980.
- ²² Kimberly-Clark sold its northern California redwood holdings to Roseburg Lumber in 1979.
- ²³ Financial World, October 15, 1979.
- ²⁴ International Paper's large gain is at least partly attributable to the 1979 acquisition of privately-held Bodcaw and its 330,000 acres of prime Louisiana timber, the largest wood-based merger — \$805 million (Fortune, September 10, 1979, p. 23-24).
- ²⁵ Forbes, January 7, 1980.
- ²⁶ Meyer, p. 1979. Land rush: a survey of America's land. Who owns it — who controls it, how much is left? Harper's (January) 258(1544):45-60.
- ²⁷ Total acreage of 62,000 owned by top 90 companies is 91 percent of all U.S. timberland owned by forest industry firms.
- Note: xxx = propriety information.

timberland holdings at almost \$4 billion (Clephane 1980), while estimates based on another analyst's valuation approach \$6 billion (adapted from Forbes 1980b). The variance of \$2 billion indicates that these market valuations are not very precise. In the case of International Paper, the \$805 million Bodcaw acquisition in 1979 appears to have been undervalued by Clephane (1980) and overvalued by the calculations based on Forbes' (1980b) information.

Self-sufficiency timber resource percentages can vary considerably depending on the source (Table 5). For example, Westvaco in their 1978 annual report claims 40 percent self-sufficiency, whereas Clephane (1978a) credits them with only half of this percentage. Wiegner's (1979) estimate of 35 percent for Westvaco more closely matches corporate claims. Potlatch conservatively understates its self-sufficiency in its 1978 annual report at 40+ percent; the analysts both agree that 55 percent is about right. More recent work by Clephane (1980) explains the discrepancy — there are two basic self-sufficiency measures: growth to consumption ratio and harvest to consumption ratio.

International Paper owns the most timberland — better than 8.5 million acres. However, Weyerhaeuser's timberland holdings of almost 5.9 million acres are of a much higher quality, because their timberland market value is comparable to that of the next three highest taken together — International Paper, Georgia-Pacific, and Crown Zellerbach (Table 5).

Fee ownership valuation and self-sufficiency are not the only factors pertinent to an understanding of corporate land control. Other factors include regional patterns of land ownership, control methods other than fee ownership, and foreign land control by U.S. corporations (Table 5). Without exception, the top 20 wood-based sales-ranked companies have significant land ownership stakes in the southern U.S. The top 10, with one exception (Kimberly-Clark), all have large ownership parcels in the northwest as well. Many companies own land in Canada and Latin America.

Timberland ownership by forest industry companies may best be summarized by listing the top corporate timberland owners and a description of their assets. Table 6 does this, and is titled "Billion dollar wood giants"

because 1980 estimates (Clephane and Carroll 1981) of the value of each of these holdings exceeds one billion dollars. Also included are the timber inventories for these 16 rather unique companies. Three of the companies are new diversified entrants (ITT Rayonier, Continental Group, and Time). Two companies on the list are not among the top 40 wood-based companies: Burlington Northern, the transportation and natural resources giant that has amassed a large timber empire, and Pacific Lumber, with its relatively small acreage of redwood that has a high "value-to-volume" ratio. Louisiana-Pacific is a similar case (Table 6).

In total, the billion dollar wood giants own almost 40 million acres of U.S. timberland, which represents 58 percent of all industry-owned acreage and 8 percent of all U.S. commercial forest land. To put this in perspective, if the holdings of these 16 companies could be combined, they would represent an area that would qualify as the 21st largest state, in between Washington and Georgia in size. Either International Paper or Weyerhaeuser could qualify as the 42nd largest state, equivalent in size to Maryland.

NEW DIVERSIFIED ENTRANTS

Since 1949 the activities of large business firms have expanded in diverse directions. Mergers give the large firm an opportunity to acquire existing businesses. Such external growth has many advantages over slower internal growth. Firms seeking to diversify via the merger route have not overlooked the wood-based industry. Twelve of the top 40 wood-based companies have recently entered the industry by acquiring existing wood-based operations through merger. These 12 firms are different than the other firms in the industry in two main respects: they entered the industry after 1949 by merging with an existing company, and they are diversified to the extent that their wood-based operations in no case exceed a third of total corporate revenues (Table 1). The 12 new diversified entrants in the top 40 captured 7 percent of all U.S. wood-based sales in 1978. These companies are listed on Table 7, along with seven other new entrants from the second 40 companies. These 19 companies together have 8 percent of all wood-based sales and own at least 14 percent of all U.S. timberlands owned by forest industry companies.

Table 6. Billion dollar wood giants: summary of corporate timber resource ownership, 1979-80.

Company	Estimated timberland valuation, 1980 (\$ millions)	U.S. acres owned in fee (thousands)	Timber inventory (millions of cubic feet)	Wood raw material self-sufficiency (percentage range)
Weyerhaeuser	9,534	5,923	11,500	88 - 100+
International Paper	3,857	7,110	9,001	40 - 57
Georgia-Pacific	3,404	4,130	6,046	44 - 53
Crown Zellerback	2,910	1,739	3,944	50 - 70
Champion International	2,120	3,007	3,788	44 - 55
ITT Rayonier	1,969	1,072	2,248	
Boise Cascade	1,703	2,640	3,024	38 - 61
St. Regis Paper	1,571	3,179	3,639	39 - 46
Louisiana-Pacific	1,319	880	1,964	15 - 39
Burlington Northern	1,294	1,492	2,264	
Pacific Lumber	1,268	165	1,320	
Scott Paper	1,222	1,838	3,493	43 - 47
Potlatch	1,210	1,311	2,340	38 - 55
Time	1,198	1,530	1,913	
Continental Group	1,055	1,472	1,597	25
Willamette Industries	944	548	996	32 - 54
Union Camp	940	1,722	1,722	30 - 55
Total	\$37.6 billion	39,758,000 acres		

Source: Clephane (1980, 1981). Additional self-sufficiency ratios from Corporate Annual Reports (1978) and Wiegner (1979).

Table 7. Summary structure information on the "new diversified entrants" to the wood-based industry since 1949.

1978 Sales rank		Company (wood-based subsidiary)	1978 Wood-based sales (\$ million)	1978 Total sales (\$ million)	1978 Wood-based sales		U.S. acres owned in fee, 1977 (thousand)	1980 Timberland market value (\$ million)
Wood-based	Fortune "500"				As % of total sales	Estimated industry share %		
10	4	Mobil (Container Corp.)	1,284	34,736	4	1.2	726	
11	20	Proctor & Gamble (various)	1,213	8,100	15	1.1	1	(1978 Book: 58)
17	67	Continental Group	883	3,944	22	0.8	1,468	1,055
18	11	ITT (Rayonier)	872	15,261	6	0.8	1,200	1,969
23	93	Owens-Illinois	578	3,112	18	0.5	950	604
24	19	Tenneco (Packaging Corp.)	533	8,762	6	0.5	363	246
26	174	Time (Temple-Eastex)	471	1,689	28	0.4	1,047	1,198
29	75	Bendix (Amer. For. Prod.)	429	3,625	12	0.4	167	419
31	58	Gulf + Western (Brown)	384	4,312	9	0.4	671 ¹	
32	66	American Can	369	3,981	9	0.3	500	212
36	201	Times Mirror (Publ. Paper)	311	1,411	22	0.3	1	
37	46	Philip Morris (various)	310	4,969	6	0.3	0	
42	169	Jim Walter (various)	253 est.	1,719	15 est.	0.2	1	
50	186	Olin	195	1,560	13	0.2	540	
53	192	SCM (Allied Paper)	185	1,509	12	0.2		
65	80	Johnson & Johnson	135 est.	3,497	4 est.	0.1		
79	142	Kerr-McGee	62 est.	2,072	3 est.	0.1	243	
81	481	Dennison Mfg. (Dunn Paper)	56	409	14	0.1	1	
85	72	Litton Industries	50 est.	3,651	1	0.05		
Totals			8,573			8.0%	9,400²	

Sources: See Tables 1, 5.

¹ These five firms own 3.3 percent of forest industry-owned timberlands. Each owns at least 1,000 acres.

² These 19 firms own 14 percent of forest industry-owned timberlands.

STRATEGIC GROUPS IN THE WOOD-BASED INDUSTRY

Conglomerate companies have entered the wood-based industry strictly as a diversification move to expand their portfolios of investments represented by the range of activities of their subsidiary operations. Other types of new entrants have entered the industry to take advantage of the efficiencies available through expanding their operations in either horizontal directions (packaging companies with captive packaging markets for packaging products new to their line) or vertical directions (publishers requiring a large paper supply and construction companies needing solid wood products). Producers of consumer products, especially Procter & Gamble, probably qualify in both integrational directions. Mobil is the one exception, having made a diversification move from energy to the wood-based and retail sectors at one time in 1974 by acquiring Marcor, the Container Corporation of America/Montgomery Ward holding company. Neither of these new business lines complement Mobil's basic energy business, yet Mobil seems undeserving of the "conglomerate" title, having as it does such a huge stake in energy.

BASIC BUSINESSES OF WOOD-BASED COMPANIES

The basic businesses of wood-based companies provide further insight to the dimensions of the industry. Perhaps not surprisingly, large integrated paper and solid wood products producers dominate the industry, 15 companies having an estimated 24 percent of all U.S. wood-based sales (Table 8). There are 10 paper producers, some having integrated partially to solid wood products, among the top 40, with an estimated 8.3 percent sales share. There are four true conglomerate firms among the top 40, with 2.1 percent of the total market for wood-based products in the U.S. for 1978. The remaining 11 top 40 companies represent wood-based subsidiaries of diversified packaging, consumer products, oil, publishing, and building construction companies. The top 40 as a group represent 40.2 percent of all wood-based sales (Table 8).

Groups of firms with similar strategies (strategic groups) are a stable structural element, and are significant because strategy affects the preference system used by corporate decision makers selecting their operating policies. Even more important, strategic groups in a market may be identified by an outside observer. The key is the relationship of the industry at hand and the diverse activities the companies are engaged in outside that industry. Strategic choice by the corporation affects product technology, degree of product differentiation, vertical integration and diversification, and formal organization and control systems (Newman 1978). These items, in turn, will affect land-use decisions. The strategic group concept is an important link between industrial organization economics and corporate management.

Ackerman (1970) studied how two vertically integrated pulp and paper companies and two diversified companies with pulp and paper subsidiaries manage their three-phased quantum investment processes; in other words, how these two *strategic groups* of companies in the wood-based industry allocate resources for major capital investments. There were two significant findings. First, the diversified corporations displayed greater decentralization of decision making. Second, regardless of the organizational structure, hypothesized financial models were not as significant in the investment process as were the following factors: phase one (definition) was an outgrowth of product-market strategy; phase two (impetus) was guided by measures of organizational performance; and phase three (authorization) was a function of the availability of funds and political power in the organization.

Ackerman's (1970) findings regarding strategic groups of wood-based companies are interesting for illustrating the importance of corporate strategies and organizational structures on corporate decision making. They

Table 8. Summary of basic businesses of the top 40 wood-based sales-ranked U.S. companies, 1978.

Basic business	Number of top 40 companies	Estimated industry share (percent)	Relationship of wood-based products to basic business	Date of entry to wood-based industry
Wood (integrated paper & solid wood)	15	24.0	Basic business	pre-1949
Paper	10	8.3	Basic business	pre-1949
Multiproduct multimarket (conglomerate)	4	2.1	Portfolio investment	post-1949 ¹
Packaging (containers)	3	1.6	Horizontal integration	post-1949 ¹
Consumer products (food, toiletries, etc.)	2	1.4	Vertical integration	post-1949 ¹
Oil	1	1.2	Portfolio investment	post-1949 ¹
Publishing	2	0.7	Vertical integration	post-1949 ¹
Building (construction and materials)	2	0.6	Vertical integration	pre-1949
Packaging	1	0.3	Basic business	pre-1949
Total	40	40.2%		

Source: See Table 1.

¹ New diversified entrants. 7 percent of wood-based industry sales.

are not entirely applicable, however, to timberland investments because the carefully defined criteria for "quantum" investments do not include timberlands. Although acquisition of timberlands is unquestionably an expenditure for a capital asset, there are few such tracts left to be acquired. Thus the decision to acquire timberlands is overshadowed by nonpostponability. Investments in timber management, on the other hand, are incremental in nature; they do not add discrete additions to a company's operations as a major or quantum capital investment would.

Firms that share the same basic business may be placed in the same strategic group (Newman 1978). Although the new diversified entrants to the wood-based industry display a wide variety of basic businesses (Table 8), they are considered a strategic group because they all have wood-based subsidiaries that in no case exceed a third of total corporate revenues, yet are major factors in the wood-based industry (Table 7).

Thus, one strategic group of the top 40 wood-based companies are the 12 new diversified entrants that came into the industry from another industry. Another obvious group of firms are the top nine wood-based companies, whose major business is wood. Three of the remaining 19 firms among the top 40 in the industry are traditional wood-users whose main business is not wood-based (Bemis, Koppers, Johns-Manville). From the remaining 16 companies one may then select 12 traditional wood-users similar in size of sales volume to the new diversified entrants. The selection process is made easier by the fact that since 1978 Olinkraft and Inland Container have been merged into Johns-Manville and Time, respectively; and that Louisiana-Pacific was spun-off Georgia-Pacific in 1972 to satisfy a Federal Trade Commission antitrust allegation. The top 40 wood-based firms for 1978 have thus been classified in four different categories (Table 9).

Comparative Analysis of Structure

Not surprisingly, the traditional top 10 firms — actually the top nine plus Louisiana-Pacific — had 23 percent of all estimated 1978 wood-based sales revenues and 46 percent of all the U.S. timberlands owned by forest industry companies (Table 10). They also paid a third of all the antitrust penalties assessed against certain segments of the paper industry in the 1970s. The top 10 are not highly diversified, having an average of 88 percent of their sales revenues from wood-based products. The top 10 firms in the wood industry have a product mix of paper to solid wood products of 62:38, more heavily weighted to solid wood products than the top 40 average of 72:28.

The traditional sample group of 12 companies is quite similar in many respects to the wood-based subsidiaries of the 12 new diversified entrants among the top 40. Their sales and timberland ownership shares are quite similar, respectively 8.2 vs. 7.0 and 18.0 vs. 13.0, as are the product mix ratios — weighted heavily toward paper at better than 80:20 for each group. The new diversified entrants paid more than twice the antitrust penalties of the traditional sample group. The only structural parameter displayed on Table 10 where these two groups differ sig-

nificantly is the diversification measure of wood-based sales as a percent of total corporate sales; the traditionals are strongly wedded to wood at an average of almost 80 percent, while the new diversified depend on wood-based sales for an average of only 8 percent of their revenues.

Comparative Analysis of Financial Performance

In assessing the performance of different strategic groups of firms populating an industry, an analysis of financial performance is about all that can be offered because it is the only consistent information available. The purpose of this inquiry would, of course, be greatly facilitated by some measure of timberland management performance. But there is no such thing, and because of the large site-specific variance in the quality of timberlands, there may never be. Levels of investment and scope of activities are only a proxy for corporate performance. So, too, is financial performance only a proxy for corporate performance. But it is the one that serves the needs of decision makers in capital markets, and it could be argued that financial performance is most important in a capitalist economy.

An additional factor which limits assessments of the financial performance of strategic groups is that performance for the wood-based subsidiary of the large diversified firm is not available. Thus it is not possible to compare the traditional wood-based company to the similarly-sized wood-based subsidiary that has been captured, by merger, into a larger organizational structure. Procter & Gamble's 1978 annual report to its shareholders addressed this point directly and succinctly:

The company's operations are characterized by interrelated raw materials and manufacturing facilities and centralized research and administrative staff functions, making any separate profit determination by product category dependent upon necessarily arbitrary assumptions as to allocation of common costs. Different assumptions or physical or organizational arrangements would produce different results.

With the above limitations in mind, certain observations can be made about the performance of strategic groups in the wood-based industry. The most obvious one is that each of the four strategic groups of firms in the top 40 is a leader in at least one measurement of financial performance (Table 11). A discussion of each of the groups and a comparison of the new diversified entrants to the similarly-sized traditionals follows.

The strategic group composed of the top 10 earned the highest net profit margin during 1979; at 8.7 percent, substantially above the top 40 average of 6.9 percent. The top 10 also led in 1979 earnings per share; at \$6.18, more than a dollar ahead of the top 40 average. In general, 1979 was a good year for the industry. The only area where the top 10 average was well below the top 40 average was the average stock price change from 1975 to 1979. The top 10 stock price grew 75 percent against 110 percent for the top 40; and to compare these figures against inflation, the Consumer Price Index was up 45 percent during the same five-year period ended in 1979.

Table 9. Strategic groups of the top 40 U.S. wood-based companies, 1978.

1978 sales rank		Company (wood-based subsidiary)	Strategic group ¹			
			I Traditional top N=10	II Traditional sample group N=12	III New diversified entrant N=12	IV Other traditionals N=4
1	53	Georgia-Pacific	x			
2	62	International Paper	x			
3	69	Weyerhaeuser	x			
4	74	Champion International	x			
5	128	St. Regis Paper	x			
6	148	Kimberly-Clark	x			
7	115	Crown Zellerbach	x			
8	111	Boise Cascade	x			
9	168	Scott Paper	x			
10	4	Mobil (Container Corporation of America)			x	
11	20	Procter & Gamble (Buckeye, others)			x	
12	225	Union Camp		x		
13	251	Louisiana-Pacific	x			
14	238	Westvaco		x		
15	127	Mead		x		
16	263	Great Northern Nekoosa		x		
17	67	Continental Group			x	
18	11	ITT (Rayonier)			x	
19	273	Hammermill Paper		x		
20	300	Potlatch		x		
21	305	Willamette Industries		x		
22	243	Diamond International		x		
23	93	Owens-Illinois			x	
24	19	Tenneco (Packaging Corporation of America)			x	
25	336	Southwest Forest Industries		x		
26	174	Time (Temple-Eastex)			x	
27	403	Masonite		x		
28	448	Olinkraft			**2	
29	75	Bendix (American Forest Products)			x	
30		Inland Container		**2		
31	58	Gulf + Western (Brown Company)			x	
32	66	American Can			x	
33	464	Federal Paper Board		x		
34	341	Bemis				x
35	183	Koppers				x
36	201	Times Mirror (Publishers Paper)			x	
37	46	Philip Morris (Plainwell, Nicolet, others)			x	
38	495	Consolidated Papers		x		
39	182	Johns-Manville				x
40	500	Fort Howard Paper				x

Source: Table 1.

¹ Traditional firms were in the wood-based industry prior to 1949.

² Olinkraft and Inland Container merged into Johns-Manville (No. 39, in 1979 and Time (No. 26, in late 1978).

Table 10. Wood-based industry shares and timberland ownership: Comparative analysis of strategic groups of the top 40 wood-based sales-ranked U.S. companies, 1978.

	Strategic groups ¹				Total top 40 ²
	Traditional top 10	Traditional sample group	New diversified entrant	Other traditionals ²	
Top 40 sales rank range	1-13	12-38	10-37	34-39	1-39
Number of firms	10	12	12	5	39
Industry shares (%)					
Wood-based sales, 1978	23.0	8.2	7.0	1.8	40%
Timberland ownership, 1978	45.6	18.0	13.0	2.0	79%
Antitrust penalties, 1970-79	33.7	13.5	30.0	2.7	80%
Other strategic group dimensions					
Average wood-based sales ratio, paper : solid wood	62:38	80:20	86:14	60:40	72:28
Average wood-based sales as % of total sales	88%	79%	8%	33%	

Source: See Tables 1, 2, 5.

¹ A traditional company was in the wood-based industry prior to 1949. A new entrant has entered the industry since 1949.

² Since the 1978 sales ranking, two top 40 companies (Olinkraft and Inland Container) have been merged by larger companies (Johns-Manville and Time respectively). Stone Container would then move to the 39th spot. The 40th ranked firm is thus open for 1979 and for this analysis. Likely candidates are Jim Walter Corp., Georgia-Kraft, Simpson Timber.

Table 11. Financial performance: Comparative analysis of strategic groups of the top 40 wood-based sales-ranked U.S. companies, 1978.

	Strategic groups ¹				Total top 40 ²
	Traditional top 10	Traditional sample group	New diversified entrant	Other traditionals ²	
Top 40 sales rank range	1-13	12-38	10-37	34-39	1-39
Number of firms	10	12	12	5	39
Performance measures					
Profit (1975-79 5-yr. avg.)					
Avg. return on equity	15.2	14.8	15.9	16.7*	15.5%
Avg. return on total capital	10.4	10.7	11.4	12.9*	11.1%
Avg. net profit margin (1979)	8.7*	7.1	4.9	7.4	6.9%
Growth (1975-79 5-yr. avg.)					
Avg. sales (annual % change)	12.8	12.5	14.4*	13.6	13.3%
Avg. earnings per share (annual % change)	13.7	13.9	13.8	16.7*	14.2%
Avg. stock price (5-yr. % change) ³	74.9	148.5*	90.2	139.5	110.5%
Stock market (1979 only)					
Avg. earnings per share	\$ 6.18*	\$ 4.89	\$ 5.34	\$ 4.32	\$ 5.11
Avg. price/earnings ratio ⁴	5.4	6.0	6.8*	6.6	6.0
Avg. current yield %	5.5	5.3	6.1*	5.1	5.6%

Source: Table 3.

* Indicates the top performing group for each performance measure.

¹ A traditional company was in the wood-based industry prior to 1949. A new entrant has entered the industry since 1949.

² Since the 1978 sales ranking, two top 40 companies (Olinkraft and Inland Container) have been merged by larger companies (Johns-Manville and Time, respectively). Stone Container would then move to the 39th spot. The 40th ranked firm is thus open for 1979 and for this analysis. Likely candidates are Jim Walter Corp., Georgia-Kraft, Simpson Timber.

³ For comparison to stock price changes, the 1975-1979 5-year change in the Consumer Price Index was 45 percent.

⁴ Federal Paper Board Co. with a 1979 P/E = 29 has been removed from the group, because of depressed 1979 earnings-per-share of ninety cents (\$0.90).

The sample of 12 traditional wood-using companies which will be compared with the 12 new diversified entrants led the four groups of top 40 firms only in its five-year stock price change. Other than this measure, this group of firms was outperformed by another of the four groups. However, this group performed at or near the top 40 average on all eight of the remaining performance measures.

The 12 new diversified entrants among the top 40 led the four groups in three of the nine measures, compared to one for the 12 traditional companies discussed in the preceding paragraph. The new diversified entrants led in five-year average annual sales growth, growing at 14.4 percent vs. 13.3 for the top 40. The other measures in which this was the leading group were 1979 stock market measures; specifically price/earnings ratio and current yield percent, neither spectacularly different than the top 40 average. The interesting thing is that during the peak of their growth curve in the late 1960s, the conglomerates in this group (ITT, Gulf + Western, and Tenneco), were called "go-go" companies, meaning grow first, the rest comes later. In 1979, only Gulf + Western (4.4 percent), Philip Morris (3.7 percent), and Procter & Gamble (4.8 percent) were among the 12 new diversified entrants that paid out annual dividends yielding below the top 40 average of 5.6 percent (*Forbes* 1980a). The point is that most of the old "go-go" companies now pay good dividends. Not everything is plowed back into growth.

The five "other traditionals," taken as a strategic group, lead the other three groups in three performance measures — in spite of being dominated in terms of sales and timberland ownership (Table 10). These five firms led in return on equity, at 16.7 percent well above the top 40 average 15.5 percent return to stockholders; and return on total capital, at 12.9 compared to the top 40 average 11.1 percent return on equity and debt financing (Table 11). These five also led in five-year average earnings-per-share growth at 16.7 percent, well above the top 40 average of 14.2 percent earnings-per-share growth. This group of five firms — Bemis, Koppers, Consolidated Papers, Fort Howard Paper, and Stone Container — were the consistently "best" performing group during the 1975-1979 period, exceeding the top 40 average in all nine measures during the period. The message is plain: big is not necessarily better. And, if the company selects its product markets strategically, timberland ownership needn't be a barrier to successful financial performance. Why? As *Forbes* (1980a, p. 200) indicates, it may be that relying on reclaimed and recycled wood fiber is indeed profitable. Supply of reclaimable fiber, though, can be a problem as significant as timber supply. Raw material security is thus an important consideration for wood-based operations using either virgin or reclaimed wood fiber in their production processes. Those capital-intensive mills have to be kept running if they are to produce profits as well as products.

What conclusions can be drawn from this analysis? The new diversified entrants are, on balance, no better or worse financial performers than the traditional wood-based firms that are most similar in size of revenues produced and timberlands owned by the wood-based subsidiaries of the new diversified entrants. If nothing else, the analysis

supports Scherer's (1980, p. 23) statement that "One can, if one looks hard enough, find cases that support any hypothesis about mergers." This analysis is just such a case.

Corporate Strategies for Land-Use

CORPORATE STRATEGIES AND STRATEGIC PLANNING

Strategy is the major source of organizational direction and cohesiveness. According to Bourgeois (1980) the main value of the concept of strategy, in both profit-seeking and nonprofit organizations, is in determining how an organization defines its relationship to its environment in the pursuit of its objectives. Although there is an extensive body of literature dealing with business policy, each author seems to use his own definition of strategy. A review of these definitions by Bracker (1980) reveals that business strategy has the following characteristics: an *environmental* or *situational* analysis is used to determine a firm's posture in its field, and then the firm's *resources* are utilized in an appropriate manner to attain its major *goals*. Strategy should, according to Andrews (1971), answer the question — what business is this company in, or what kind of company is it?

The management aspects of corporate strategy are a key concept in general management and a key word in today's managers' vocabulary. The concept of strategy, as it relates policy to both operations and company goals, may be in design the business of the senior executive, but in execution it is also of crucial importance to managers of the parts of a business. A coherent strategy can lend direction to specialists and middle managers by shaping their tumultuous improvisations and divergent responses to competition and circumstance. To the extent that strategy performs this function, general management tasks become increasingly manageable (Andrews 1980). The significance of strategic management is that it gives organizations a framework for developing abilities for anticipating and coping with change. It also helps to develop the ability to deal with uncertain futures by defining a procedure for accomplishing goals (Bracker 1980). From the narrower perspective of strategic corporate planning, a suggested systems approach (Nadler 1978) needs to consider: corporate mission or purpose, financial measures of effectiveness in achieving corporate purposes, methods of Board of Directors' audit and control of corporate plans, products and costs, technological capability, sales growth and share of market (and impact on gross margins), distribution strategies, acquisitions and divestitures, organization structure, productivity improvement, environmental scanning, human resources, compensation, manufacturing facilities and policies, and pollution and environmental impact.

The concept of strategic planning has been widely and rapidly adopted by corporations. Two major reasons explain why this is so. First, strategic planning promises that management can control the destinies of their organizations and achieve corporate stability no matter what may

happen in the external environment. Second, businessmen and academicians generally agree on what the concept is and how it should be implemented (Paul and others 1978).

Steiner (1969) defines strategic planning as the process by which an organization, acting in a certain environment, sets its major objectives; then collects and allocates its resources to achieve those objectives. Menke (1979) prefers to define planning as the network of *decisions* that directs the intent, guides the preparation for change, and programs action designed to produce specified results. This particular definition led to the development of the decision hierarchy framework on which land-use strategies are analyzed in subsequent portions of this study. Hofer (1976) reviewed more than 100 research efforts on strategic planning, and deduced that it is concerned with the development of a viable match between an organization's capabilities and the opportunities and risks present in its environment. Holloway and King (1979) shed the most light on what strategic planning is. First of all, the name "strategic planning" is preferred over its many competitors: long range planning, corporate planning, total planning, overall planning, or comprehensive planning. They continue:

Strategic planning is, simply put, the process of positioning an organization so that it can prosper in the future. There are several implications that flow from this definition. First, it is about decision making. As Drucker (1974) has said, it does not deal with future decisions, but with the futurity of present decisions. Next, there are long range connotations. Third, strategic planning deals with important topics. Next, it has to do with the inevitable obsolescence of existing products or processes and the provision for new ones to take their place. Finally, it deals with choices related to the organization itself as opposed to personal choices.

Strategic planning as a managerial process can be summarized in these interrelated steps: setting objectives, studying the environment, appraising strengths and weaknesses, and formulating the strategies (Fleming 1979a). The widely accepted theory of strategic planning by corporations is simple: using a time horizon of several years, top management reassesses its current strategy by looking for opportunities and threats in the environment and by analyzing the company's resources to identify its strengths and weaknesses (Vancil and Lorange 1975). The greatest application of strategy, once the present situation is understood, is in planning the *future* activities of the enterprise in order to increase its control over its own destiny (Katz 1970). The strategy is a group of decision rules used to select product-markets so the firm can realize its goals. The fixing of goals and choice of strategy together form the company's strategic policy. The setting of strategic policy is the most important task of top management (Krijnen 1977).

The need for strategic planning is put into four categories by Carlson (1978): 1) the time span of present day

decisions; 2) the sunk costs involved in decisions; 3) the impossibility of maintaining a one-man management style; and 4) the complexity of our management decisions. Carlson also mentions the significant gains from adopting strategic planning: the sights of managers, who often suffer from myopic vision, can be raised; they begin to take a much broader view of their own role and discover that strategic planning is a vital part of their job. Communications between top and line management are improved and credibility gaps lessened or neutralized. The amount of known expectations is increased and the hidden agendas decreased. Strategic planning is basic to the continued effectiveness of any organization. The larger the organization, the more true this is (Carlson 1978).

There are two fundamental problems with the current practice of strategic planning that severely limit the likelihood of good decisions. The first problem is that strategic planning requires reasonably accurate long-term forecasts, but such forecasts are almost always impossible to produce. The second problem is that most strategic plans are, in practice, not much more than financial hopes filled with "nice" numbers. These hopes quickly become inexorable demands that operating management feels compelled to attain at any cost (Paul and others 1978).

To address the first problem with strategic planning, one source of long-term forecasting information that is becoming more and more promising is the area of futures research. Holloway (1978) discusses the role of futures research in corporate planning, and lists approximately 150 sources of futures-oriented information. He suggests that futures research is an indispensable initial step in the strategic planning process. Fleming (1979a,b) has used the Delphi technique to suggest the possible future of U.S. government-corporate relations. The major finding: there will be more government involvement in the private sector. The implications are that corporate planning needs to consider the changing roles of the private and public sector, and their relationship to each other. Another researcher (Ward 1976) has used the Delphi method to assess diversification strategies and the relative difficulty of entry to an industry, albeit rather unsuccessfully as conceptual, experimental, and statistical problems were encountered.

The second problem in strategic planning is often referred to as the "strategic gap." Strategic planning requires a company to decide "what it wants to be." This decision is determined by some combination of quantitative and qualitative measures. In practice, the quantitative measures have become the focal point of a typical business plan, since the qualitative ones cannot be communicated unambiguously to all managers involved in the planning process. Thus management's concept of the future of the company is thought of in financial terms. Usually, top management's expectations exceed those of middle management. The disparity is often called the "strategic gap" and represents what strategic planning is supposed to contribute to the attainment of corporate goals and objectives. To close the gap, the company needs to analyze the future in terms of alternative options that can be taken, and the odds are heavily in favor of the diversification alternative (Paul and others 1978).

There are other problems with strategic planning, as evidenced by the literature (Ang and Chua 1979; Henry 1977; Kudla 1978; Berg 1965; Holloway and Kind 1979; Kudla 1980; Schleh 1979; Taylor 1979; and Peters 1980). Perhaps the most interesting observation or criticism of strategic planning comes from Peters' (1980) discussion of the "planning fetish." Many managers construct infinitely complex computer-aided schemes to segment markets and shift portfolios. Increasingly, reality becomes lost in the shuffle. Peters contends that the most effective top executives give rather short shrift to planning, instead spending much of their time on two other activities. First, they play with lofty ideas, searching for an enduring theme or metaphor to guide their businesses. Second, as they home in on the theme, they concentrate on mundane actions that will instill and reinforce their chosen metaphor in the furthest nooks and crannies of their organization. Cited as examples are Carlson of United Air Lines, Sloan of General Motors, Watson of IBM, and Clausen of Bank of America. The main point offered by Peters is not that these organizations don't have sophisticated planning systems — indeed they do — but in well-run organizations, the plan never becomes the be-all and end-all. The danger is that the detail of a plan frequently obscures rather than highlights the overriding metaphor meant to guide corporate direction. As Peters (1980) puts it:

Perceptive executives know that dedication only comes from finding and patiently instilling a business belief that can penetrate the organization and can move tens of thousands of people to care about their work and their contribution to their colleagues and customers.

In sum, the strategic plan is important for guiding the future direction and success of the firm in the increasingly complex environment in which it operates. Evaluating any one company's strategic plan or planning process is difficult because each plan is individually tailored to the needs of each company. A significant thing to look for in the plan is the metaphor (strategy or mission) that directs the firm and provides organizational cohesiveness. In the wood-based industry, almost all of the top 40 firms own sizable parcels of timberlands. Where this resource fits into the strategic plan of the company may to a great extent determine where the company will be in the future.

CORPORATE STRATEGIES IN THE WOOD-BASED INDUSTRY

Two general approaches have been used to study the wood-based industry. One is industrial organization economics, which is generally concerned with matters of public policy. Studies using this analytical approach have been done by Zaremba (1963), Mead (1964, 1966), LeMaster (1974, 1977), Irland (1976a), and Buford and others (1977). Katz (1970) and Enk (1975) used a combination of industrial organization economics or structure with the other approach — corporate strategy. Studies of corporate strategy are concerned with matters of business policy. The importance of combining economics with strategy is best expressed by Porter (1979), who said that the essence of strategy formulation is coping with compe-

tion, and competition in an industry is rooted in its underlying economics. Competitive forces extend beyond established firms in an industry, with customers, suppliers, potential new entrants, and substitute products playing significant roles in defining the competitive structure of an industry (Porter 1979).

The following case example will illustrate the importance of corporate strategy in the competitive environment of the wood-based industry. The forest products or wood-based industry is described by Hamermesh and others (1978) as being highly fragmented and extremely competitive. More than 3,000 companies have major product lines. In the mid-1970s the industry was in a highly volatile situation, plagued with overcapacity, depressed prices, pollution control problems, and high construction costs. One of the most successful companies during this period was Union Camp, which outperformed the larger firms of Weyerhaeuser, Mead, International Paper, and Boise Cascade for the 1972-1976 period. Union Camp prospered not because of a strong timber base, but because it used the keys to success for low market share businesses. Union Camp used their limited research and development budget to contribute to processing efficiency, and had consistently lower operating costs than its larger rivals (Hamermesh and others, 1978).

Strategic Planning

Most authors today agree that a *long range plan* is not necessarily a *strategic plan* (Horovitz 1979). The former deals with predicting the consequences of decisions taken today on current operations, the latter deals with defining the basic orientations of the firm, its key moves, and its key areas of competence for the future. Rich (1974a) defines strategic planning as the deployment of company resources to achieve objectives and goals, and also includes the establishment of policies and programs that determine the whole character or direction of a company. Long-range planning may do this also, but more commonly a long range plan is a projection of costs and revenues which are expected to result from strategic decisions already made.¹²

The difference between long range planning and strategic planning is crucial for forestry. In an anthology on forestry and long range planning (Convery and Ralston 1977), the word strategy is seldom mentioned. Indeed, the thrust of this anthology is on long range planning, which seems to be aimed at producing the most wood possible for the future, and thus considers only supply aspects of forestry. The strategic planning perspective would also consider elements of demand, then require charting a course and plan of action to meet expected demands.

Since strategic planning has been widely adopted by companies in general, it is interesting to see how strategic planning has been taken on by wood-based companies, and where timberlands fit into the process. Gilligan (1972) said:

The formulation of a plan for future pulp

¹²Rich has written about strategy in the wood-based industry since the early 1970s. See (1973), (1974a,b,c), (1975), (1976a,b,c), (1977a,b,c), (1978a,b), (1979a,b,c,d), (1980a,b).

and paper production is important to resolving the question of timberland ownership. Then similar long-term plans must be prepared for other wood-based products such as lumber and plywood. Even a generalized plan for future output of wood products and their markets will provide some basis for judging present and future needs of the company.

Emphasis on sophisticated strategic planning by Potlatch led to impressive increases in earnings and return on equity (*Business Week* 1975). Record earnings for Bendix were due partially to the company's planning activities (*Industry Week* 1976). A Westvaco executive feels that perhaps the most significant reason to practice strategic planning is intangible, and is the sense of well-being or motivation stemming from the knowledge that each individual's efforts are being directed toward an overall design (Funderburke 1977).

In discussing the previously mentioned retreat from the marketing concept, Rich (1980a) says:

Those companies that started to make a serious effort at strategic planning took careful stock of their strengths and weaknesses and drew back from businesses that had taken them too far afield from their timber resources.

In a 1974 article on collective approaches to long range planning in forest industry, Muench has the following to say (1977, p 107):

While the forest products industry is still made up of many relatively small firms, there is a trend toward an increasing average size and toward diversification of companies into more product lines. With this trend has come a broadening of company viewpoints, improved timber utilization and extended production and marketing areas. The importance of long range planning has therefore become more critical for both the company and the industry. These larger company units cannot afford to face the risks of business the same way the peckerwood mill has always done, like a cork being tossed on the sea. The stakes are too high. Companies will expand their capability to conduct long range planning and will increasingly join together with other companies to collectively plan the actions they all need to take to assure their survival and enhance their growth opportunities.

Gregory (1974), Weyerhaeuser's former director of research and development, suggested that the strategic planning process is a valuable management tool that can:

- strengthen communication
- sort out key opportunities
- determine direction and emphasis for R & D
- provide a basis for allocating resources over time:
 - staffing and skills
 - funding
 - facilities
 - outside resources

From strategic planning activities, Weyerhaeuser learned that resources should be allocated over a longer time frame and in bigger lumps. This is funding strategies, then, instead of funding projects. Wommack (1979), Mead's vice chairman, also emphasizes that as well as helping management's chief executive officer select strategic directions, the board of directors should be involved in funding strategies, not projects.

Recent articles featuring International Paper (*Business Week* 1980a) and St. Regis Paper (Briggs 1980) have emphasized the importance of strategy and strategic planning to these companies as they strive to improve their slipping competitive positions in the wood-based industry.

In summary, strategic planning is becoming indispensable for the future success of a wood-based company in today's increasingly complex world; as it guides critical decisions in at least the key areas of timberland ownership and management, diversification, product markets and product mix, collective action, and research and development. Discussions of the first two of these six key areas make up the remainder of this report.

Diversification Strategies and Mergers

"The basic motive for growth in sales and profits is that a firm, like a tree, must either grow or die." (Ansoff and Weston 1962, p. 49). Growth may be a more significant corporate objective than are profits, because growth, as well as profit, is a source of prestige and, therefore, influence, allowing corporate managers to ultimately expand their power (Galbraith 1973).

Corporate mergers are economic events that have played a major role in shaping industry on national and international scales. The significance of a merger is that it is an attractive and relatively quick means for achieving corporate growth. Mergers for growth have altered the structure of U.S. industry since the turn of the century. However, diversification by a firm into product lines unrelated to its main business as a merger strategy to achieve growth has been a relatively new phenomenon, the implications of which have yet to be fully assessed.¹³ This holds true for the wood-based industry as well as most any other industry that today's multi-industry corporate giants have moved into.

Even though the number of large mergers — those in excess of \$10 million — was not as great in the late 1970s as it was in the late 1960s, the considerably higher average size of late 1970s' mergers indicate that the total value of merger transactions then rivaled that of the late 1960s. The predicted value of merger transactions in 1979 was expected to equal the \$43 billion (*Paper Trade Journal* 1979b) level of 1968, the historic peak. Yet the number of firms acquired will no doubt be less than half of the 2,400 gobbled up in 1968.

For business in general, the advantages of diversification — primarily to be gained through risk reduction benefits — pose difficult policy questions from the standpoint of top corporate management. These questions for the

¹³Leontiades (1979) concluded that large diversified conglomerate firms are neither superior nor inferior to other forms of business organizations, but are merely different.

new diversified enterprise include diversification strategies, location of activities, interdivisional transactions, and performance measurement (Pitts 1976). These general questions pertain whether or not a company diversifies into the wood-based industry.

Corporations seeking growth via the diversification route have not overlooked the wood-based industry. During the 1950s, packaging and canning enterprises, looking to the advantages of having captive sources of fiber and fiber-processing facilities, began diversifying into the industry. Examples include American Can, Continental Can (now Continental Group), and Owens-Illinois. The conglomerate merger boom of the late 1960s saw a number of diversified firms enter the industry. Some of these new entrants — International Telephone & Telegraph (ITT), Tenneco, Gulf + Western — deserve the “conglomerate” title. Others do not, since they still have an identifiable major line of business or industry that they can be associated with, for example Mobil (oil), Procter & Gamble (consumer products), and Time, Inc. (publishing).

By 1978, 12 of the nation's 40 largest wood-based firms were diversified firms new to the industry (Table 7). Four of these new entrants — Mobil, Procter & Gamble, Continental Group, and ITT — are among the wood-based industry's 20 largest firms, as ranked by 1978 wood-based sales. 1979 figures indicate Time, Inc., entered the top 20 — displacing Potlatch — as a result of their acquisition of Inland Container in late 1978. As might be expected, these 12 diversified entrants account for a relatively large portion of the wood industry's estimated \$107 billion in 1978 wood-based sales, roughly \$8 billion or 7 percent. In terms of resources these same 12 firms hold in fee ownership over 8.5 million acres of U.S. timberlands, or roughly 13 percent of all forest industry-owned timberlands.

Traditional wood-based companies have also diversified outside their former wood-based product-market spheres of operation. These diversifications were accomplished by merger as well as internal growth. LeMaster (1977) documented 1950 to 1970 merger activity by the 12 largest forest products firms. Some of the new diversified entrants were mentioned, but only by acknowledging their presence in the industry (LeMaster 1974). Nolop and Williamson (1980) updated LeMaster's earlier documentation of mergers, but focused on the fundamentals of financing large timber acquisitions. Large merger activity by the leading wood-based companies was documented for the active period of 1973 to 1979, in which 34 mergers involved an exchange of more than \$4 billion of assets. In total, 5.5 million acres of U.S. fee-owned timberlands were exchanged, a figure representing 8 percent of all industry-owned timberland, or 1.5 percent of all U.S. timberlands. Half of the value of these huge asset exchanges were direct payments of cash — more than \$2 billion during 8 years. Only one of these transactions involved a new diversified entrant — Time's 1978 acquisition of Inland Container for \$270 million, 45 percent in cash (Nolop and Williamson 1980).

As *Business Week* reported, “Since early 1977, forest product and paper companies have been falling like

Douglas firs into the arms of merger partners.” (Santry 1978). Assured raw material supply is likely the most important merger motive. This explains the reasons for horizontal and vertical mergers to a great extent. But what about conglomerate mergers?

Why would a corporation want to enter the wood-based industry? The simple answer may be to acquire timberlands, an undervalued asset and an excellent inflation hedge. This is perhaps best documented by a senior vice-president for corporate development at the multinational megaconglomerate International Telephone & Telegraph (ITT), who said, “We want assets in the ground in the U.S.” in reference to ITT's acquisition of the coal company, Carbon Industries (*Business Week* 1977, p. 182). Direct references to timberland acquisition because it is an undervalued asset and inflation hedge abound.¹⁴ The effects of new entrants to the industry have not been explored in any detail. The redistribution, if any, of timberland ownership is an important consideration, and a result of structural change in the industry.

Another explanation for acquisition of a wood-based subsidiary by conglomerate merger may simply be that the company wanted to diversify, and the acquisition of a wood-based company was the best of all available companies in the estimation of the merging firm. Undervalued timberland assets also play a role in this alternative motivation.

Diversification by large U.S. corporations is widespread and has affected the structure of the wood-based industry. Twelve of the top 40 wood-based companies in 1978 were new to the industry, not having been in it long enough for a forest crop rotation in southern pine (30 years). The basic motive of diversification mergers is growth, but in truth, any merger has many motives (Steiner 1975) and at least as many effects. New types of companies have entered the wood industry. The economic welfare and relative efficiency effects of diversifying mergers in general have been widely studied, but there is no conclusive evidence to be offered either for or against them. Corporate management has had to adapt to significant changes resulting from diversification. The most important changes have occurred in corporate strategies and structures.

Diversification can be accomplished by internal development and innovation, or by external acquisitions. Galbraith and Nathanson (1978, p. 115) have presented a summary model of corporate growth stages, which illustrates how growth strategies lead to new corporate structures. The model traces the dominant growth paths of U.S. firms as they employ diversification strategies to move from simple organizational structures to centralized functional to multidivisional to multinational enterprises.

What does widespread diversification through merger mean? Preston (1973, p. 46) concludes:

Whether the overall results of the merger move (1954-1968) and associated (later) developments have led to an overwhelming and

¹⁴See Gilligan (1972), Pleasonton (1974), Samuelson (1976), Clawson (1977), Brown (1978), Clephane (1978a,b), Rogers (1979), Wiegner (1979), *Forest Industries* (1979), Nolop and Williamson (1980), *Forbes* (1980b), Trestrail (1980), Clephane (1980, 1981).

non-reversible change in the organization of the industrial sector of the U.S. economy remains an issue for further analysis — and even argument.

Scherer (1980) believes that from a broad perspective, growth by merger is an illusion. He reminds us that the real growth upon which prosperity depends comes only from making real investments. This is an area where the United States has lagged compared to other industrial nations such as Japan and West Germany. Scherer wonders where would the cash used to finance so-called growth through takeovers have gone if massive mergers had been prohibited? He balks at furnishing an answer, but raises a legitimate cause for concern — despite tens of millions of dollars funnelled through federal agencies for economic research, no one seems to have devoted much attention to this question.

The third great merger wave appears to be subsiding. During the first half of 1980, a 14-year low in industrial mergers was recorded. In spite of this, paper industry mergers were up from the previous year (*Paper Trade Journal* 1980). It is apparent that wood-based companies continue to view mergers favorably, and will use them as growth vehicles and, more importantly, as a means of expanding their timberland base for raw materials. Clephane (1981) points out that timber ownership will be an important factor in a wood-based company's future success, and that acquisitions, even for large premiums over stock prices, are the least expensive way to increase timber and plant assets. Furthermore, in 17 wood-based acquisitions since 1976, timber was a major factor, and in seven of these it was the dominant factor.

Wood-based corporate strategy concerning diversification is elusive and difficult to define. In general, diversification away from forest products is not as widespread as is diversification into the industry. One notable exception is the Mead Corporation.

As Figure 1 illustrates, Mead is highly diversified; in 1977 the company derived only half its revenues from manufacturing wood-based products. Other major traditional wood-based companies have not diversified away from wood-based products to as great an extent as has Mead (Table 1). Most of the diversification away from wood-based products, including Mead's, has involved establishing marketing outlets for the products.¹⁵

Rich (1978b, 1979a,b,c,d) studied and reported on how the top 20 U.S. forest products companies have employed the strategy of diversification. Prominent among the findings are that the product portfolio concept is being implemented as a business investment portfolio concept¹⁶ to achieve these objectives: maintaining or expanding market shares; securing and utilizing a strong timberland base; and diversification. Changing attitudes of antitrusters have led to selected diversification into chemicals in favor of horizontal product extensions.

¹⁵Appendix B presents two tables which display the industries that 76 *Fortune* 500 companies with wood-based operations are entered in. Either of these tables may be thought of as a matrix of diversification, with one (Table A.1) indicating diversity within the wood-based industry and the other (Table A.2) indicating diversity throughout the industrial spectrum.

¹⁶See Hedley (1977) and Lofthouse (1978) for two descriptions and opposing viewpoints of the business portfolio concept.

The difficulties of diversifying away from forest products have been noted by Union Camp's vice chairman (*Dun's Review* 1975, p. 43):

You must have someone in the parent organization who really understands the (new) business before it gets heavy. Other paper companies have had troubles along these lines. They had these MBAs who, I am sure, were intelligent. But once they failed, there wasn't a damn thing anyone could do back at headquarters. They didn't know the business, and they were completely out on a limb.

Rich (1979d) makes the same point regarding diversification strategy — there must be someone at the top management level who really understands the new businesses in the corporate investment portfolio. Failure to appreciate this led to losses of millions of dollars by several major forest products companies when they ventured into land development and on-site housing during the late 1960s and early 1970s.

A case example will serve to further emphasize the importance of the necessity of having top level managers who understand the businesses of the company. The case is so remarkable that, as Loomis (1979, p. 55) says, "Nothing is likely to erase this affair from the hit parade of corporate disasters." International Telephone & Telegraph (ITT) made large amounts of capital available to its ITT Rayonier subsidiary — termed cross-subsidization — for a high risk venture in Canada in the early 1970s. The Port Cartier mill in Quebec was eventually closed in 1979, for an after-tax loss to ITT of \$475 million. A few highlights from *Fortune's* reporting of the disaster (Loomis 1979) indicate the need for an effective strategic planning process designed by the top level corporate decision maker, usually called the chief executive officer:

Overall, the pretax damage to ITT can be thought of as about \$600 million. Even after taxes, the bill comes to \$475 million, enough to make an ITT stockholder suspect that he himself has been reduced to pulp.

The [chemical cellulose or dissolving pulp] mill has been a total loser and absolute disaster — in brief, the latest corporate Edsel. The reasons for the disaster have a diversity . . . plagued by labor problems . . . lacks an economical supply of wood, and its engineering is deplorable.

The fundamental causes of their [former chairman Harold S. Geneen and others] downfall, however, was an obsession with an immense stand of [black spruce] timber, so seductive in size that ITT and Rayonier were driven to put on their rose-colored glasses and undertake a project that entailed an awesome collection of risks . . . large mill with unproved technology . . . foreign-speaking land [Quebec] in a physically hostile and unfamiliar climate. . . . And, finally, the market for the mill's product, chemical cellulose, was uncertain.

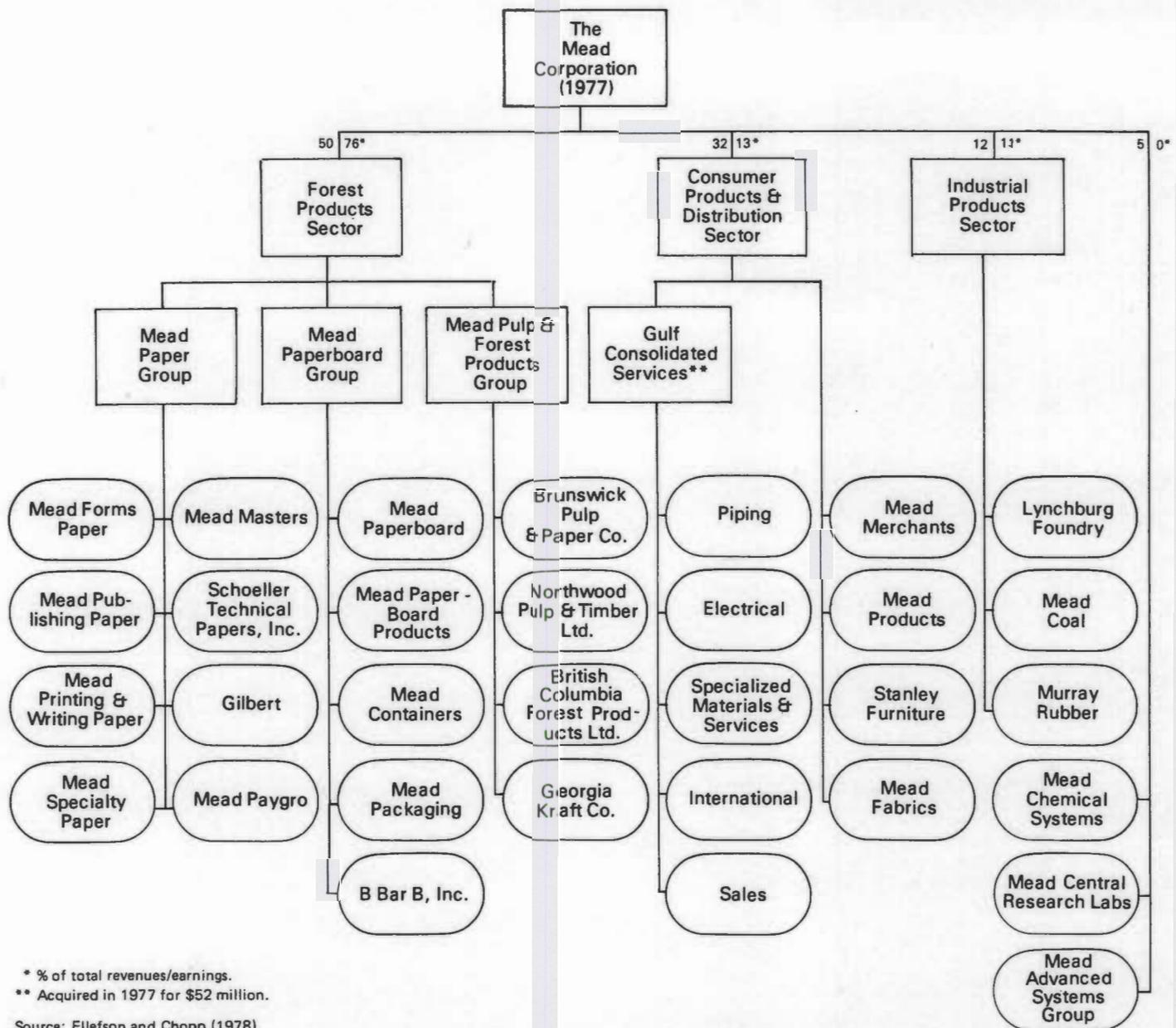


Figure 1. Mead Corporation organizational structure, 1977.

Today, it is not easy to find Rayonier or ITT executives, past or present, who will admit to having been wholeheartedly thrilled about Port Cartier's prospects. When the time came, in the fall of 1969, for Rayonier to present its annual business plan to Geneen and other ITT executives, it [a new Georgia mill — "Jesup C"] was an \$85 million project that dominated the discussion and got a go-ahead. Quebec was not even on the formal agenda. But after the Jesup plans were settled, Geneen leaned back and said — as several people remember the gist of his words — "Great!" Pregnant pause. "What else have you got?"

Some Rayonier executives were taken

aback at this casual reaction to the demands of Jesup. But the unmistakable message was "think big." [A Rayonier executive] drew out the findings of his trip, focusing on Quebec. Only one line he delivered seems to have really counted: a description of the provincial woodlands available there as "about the shape and size of Tennessee." Eyes bugged. One man present says Geneen "went gaga." Another: "The juices began to flow." The formal meeting was adjourned, and Geneen huddled with a small group to talk more about Quebec. "I remember thinking," says one man there, "this project is all but approved."

It is clear from the accounts of many in-

volved that Geneen was indeed an enthusiast — and at ITT, that's just about all the enthusiasm anyone ever needed.

Profit projections were a tough hurdle. Several people who saw the numbers say the analysis indicated only a moderate return on equity — 10 to 13 percent, one man recalls. Many financial experts would argue that to undertake a project promising so little in the presence of large risks is to invite serious trouble. But the planners clearly envisioned returns beyond those put on paper. Says one: "The feeling was that the timber's value was so great that ultimately we would have to make out."

[Rayonier's head], now retired, says he himself believed in the timber, but retained doubts, as the feasibility studies wore on, about the ability of Rayonier to handle Jesup C and a Quebec mill all at once. He did not, however, press these opinions on his boss, of whom he says: "There's no point in saying no to Mr. Geneen" (Loomis 1979).

The ITT Rayonier Port Cartier case indicates several things. One of them is that in the final analysis, the head of a corporation makes the ultimate decision. That is why his vision of the corporation's mission, expressed as a strategy and embodied in a strategic planning process, dominates decision making. The actions of one huge corporation, then, are as individualistic as the actions of the personalities that make decisions for the firm. Another point from the case is that the cross-subsidization in the large firm is not necessarily good. ITT stockholders would certainly agree to this based on their half-billion dollar Port Cartier losses. Perhaps the most important thing to be learned, though, is the necessity of having someone at the very top decision making level who understands the business that subsidiaries are engaged in. In this case, had that been true the Port Cartier project might never have gotten off the drawing board.

Land-Use Decisions and Corporate Strategy

Since the concern of this study is land-use decision making, why not evaluate decision making instead of strategic planning? Because strategic planning is decision making. Decision making is only one facet of strategic planning, but it is a critical one; witness the definition of strategic planning offered by the Stanford Research Institute (Menke 1979): "The network of *decisions* that directs the intent, guides the preparation for change, and programs action designed to produce specified results." Analyzing decisions is a difficult task, because, as Davis (1976) says, three key concepts underlie the processes of decision making: power, authority, and influence. To really understand the decision making process would require analysis of these three concepts and their interrelations. Outside the realm of theory, it is difficult to get an accurate fix on the magnitude and flow of these critical factors. Final actions, then, have to serve as the measure of a decision making process. These actions and their results in performance dimensions are guided not

only by decisions, but also by the strategic planning process of the firm.

To begin to understand corporate land-use decisions you need to ask two questions: (1) why do you own the land, and (2) what do you do with the land? Both of these questions are of strategic importance. There are significant general answers and explanations as to why a wood-based company would want to own land and grow timber on it, rather than purchase all of its raw material requirements on the open market. Before one can address what is to be done with corporate land, it is important to develop an appreciation of why a corporation would want to own the land in the first place.

Land Ownership Strategy

Katz (1970, p. 289) said, "One of the most important factors affecting corporate strategy within the forest products industry is timber ownership." Why own timberland? One reason is timber ownership will be an important determinant of a company's future success in the paper industry (Clephane 1978, 1981). Furthermore, a veteran paper market analyst (Michaud 1977) says only 36 paper companies can afford future growth and expansion. It is the structural nature of the wood pulp-based industry that 99 percent of domestic output is produced by the 50 largest companies. Coincidentally, the 50 largest wood-based firms own more than 85 percent of the industry's woodlands (Table 5). These same 50 companies account for half of all U.S. wood-based sales by U.S. companies (Table 2). The top 36 domestic companies in the paper industry own two-thirds of the domestic capacity (Michaud 1977). The remaining reasons to own timberlands, which will become evident in the discussion to follow, serve to illustrate why timberlands are the key to future success in the wood-based industry.

The most important reason for owning timberlands is to provide an assured physical supply of raw materials for highly capital intensive production facilities. The necessity is dictated by economies of continuous operation at full capacity which are especially great for a pulpwood and paper mill. Shut down and start up costs are too great to allow short run flexibility in output. So at all costs, wood must be available to keep the paper mill operating until it is economic to shut it down for a considerable length of time (Clawson 1977). If one is willing to assume that the 20 largest forest products companies are and will continue to be the most successful in the industry, then their weighted self-sufficiency ratio of 43 percent means that you need that much assured long-term timber supply to compete for large shares of wood-based markets (Clephane 1978a,b).

Another reason why a company would seek timberland investments is that the increasing value of timber assets and the low-cost U.S. position in world markets make timberland ownership appealing for corporate investors both within and outside of the existing industry. Because of this, a number of diversified companies have established positions in the industry. Nine of the group of 12 new diversified entrants that are the focus of this study were mentioned in an earlier study (Clephane 1978b).

Most forest products stocks are significantly undervalued based on the market values of their timber and lands (Clephane 1978a,b). But, as Wiegner (1979) warns, this is only one factor in deciding the value of a company. Others are efficiency in converting wood to products, product mix, management, and the state of the economy. The point is, though, that timberlands are an attractive investment for both individual and institutional investors, including diversified corporations. Clephane (1978b) also points out how timberlands favorably affect corporate financial statements, primarily the income statement by reducing cost of goods sold, because timber represents 50 to 80 percent of total wood products costs to the manufacturer. Only those companies with a dominant low-cost timber base have grown faster than the industry average.

Why grow timber? The answer to this question also addresses the question: why own timberlands? Implicit in the ownership decision is that the lands will be used for timber production as either a physical or economic assurance of raw material supply. If this was a good decision once, and evidence offered by successful companies in the industry indicates that it was, then it will in all likelihood be a good decision again. The point is that this attitude, if it exists, requires investments not only for the tract of timberland, but also for timber management — meaning replenishment or renewal of the forest resource. In the 1969 words of one wood-based company president, “. . . the major change (in strategy) grew from recognition that the company’s essential physical asset was not its trees, but rather its land and the quality of its soils.” (Enk 1975, p. 40).

George Weyerhaeuser believes that when in doubt, you should grow wood, but carefully (Weyerhaeuser 1971). The Weyerhaeuser Company’s past director of forestry research says (Staebler 1976):

Because wood fills an essential human need, the private forest owner has the responsibility for exploiting the renewability and productivity of the forest. Private industry also should invest as much as it profitably can in bringing renewed forests to maximum production.

A recent study on how large timber acquisitions have been financed in the 1970s talked about the strategic benefits of the acquisition of timberlands (Nolop and Williamson 1980, p. 1):

Acquiring timber properties has become increasingly attractive in recent years due to the economic benefits to be derived from the active management of forest land and the strategic benefits to forest products companies from controlling the sources of supply for their basic raw materials.

Clawson (1977) lists three economic advantages for a forest industry firm in growing, rather than buying, timber: (1) economies due to a close integration of raw material supply and processing plant, (2) less vulnerability to short-run fluctuations in stumpage prices, and (3) forest land and timber are not readily available in desired quantities, especially in the short-run.

How much of an investment in timberlands is needed for a firm to become a factor in the wood-based industry? Timberlands are a very important consideration as a barrier to the entry of new firms into the wood-based industry. An early 1979 estimate placed the pulp and paper entry barrier on timberland alone at more than \$400 million.¹⁷ In the mid-1970’s, timberlands posed a \$15 million barrier to new competition in the southern pine lumber industry (Buford and others 1975).

Duerr and others (1979) discuss the multiple advantages of forest land acquisition, including the following:

1. The timberland acquisition is readily reversible on short notice, with high probability of gain. In other words, timberland is a low-risk investment.
2. If it comes to a choice between investing in land now and postponing the decision, it’s better to move now, because land acquisition is becoming continuously more difficult.
3. Timberland ownership carries federal income tax advantages.
4. Timberland is an insurance policy for the corporation, providing a hedge against high raw material prices and safeguarding the wood supply.

The dilemma posed to corporate management by the bifurcated question of why own land and grow timber is well illustrated by Gilligan’s (1972) hypothetical discourse between corporate managers. The answer to the problem posed lies in strategic planning:

The *controller* wants to know how the woodlands department can justify holding on to land that shows a 2 or 3 percent return on its current market value, let alone further investments in that land or purchases of additional land that show the same poor return.

The *woodlands manager* replies that all the wood that has been cut off the land has been very low cost, and that today’s land price is much greater than what was paid for the land. He believes that timberland suffers by an unjust comparison with other assets brought about by one of its virtues — that it increases in value almost every year.

The *planning vice president* points out the fallacy of the preceding arguments, saying low-cost wood is a competitive factor not to be denied, and that wood costs are heading up; but that if you bring appreciating land prices into profitability calculations you’re only kidding yourself, because the appreciation does no good unless the land is sold. He thinks that one of the most important things to be decided is the direction and future growth of the com-

¹⁷Rogers (1979) estimates that for a new entrant to the paper industry to meet the minimum 2.4 million tons of annual capacity required to pay back heavy capital investments and to “guarantee” itself about 20 percent self-sufficiency in fiber on new expansion plans (the normal industry assumption, it seems), it would need 800,000 acres yielding 1 cord/acre/year, which would cost at least \$500/acre. This study confirms Rogers’ acreage estimate. The top 31 paper industry companies’ average ownership is 1.75 million acres; none of them own less than 360 thousand acres (Table 5).

pany: will they expand in pulp and paper, or emphasize other areas?

The *president* of the company says, "I wish you people would get together on this. We're a factor in the pulp and paper business now and we will be 25 years from now. Perhaps some day we'll get over the idea that we should always be increasing our market share in the products we're in; we might well decrease our share and get rid of some lines that are real losers. We'll probably expand more in other lines of business, but pulp and paper will still be important to us. Now one of my problems is to decide for whom I'm running this company — for our present shareholders, their children or grandchildren. I can sell off the assets now and boost our earning per share. But is this going to look smart 25 years from now? My gut feeling is that it's good to own land. Perhaps we should own more, perhaps we should own slightly less. But I think we should get the facts and develop a real *strategy* in this area."

The answer to the question posed by the company president in Gilligan's discourse is, of course, that he is operating the company for not only current shareholders, but the next two generations. It should become evident that only a forward looking concept such as strategy can be effective in assuring future success for the company. The role of land in that strategy is important in the wood-based industry.

To summarize, the following points are the major advantages of corporate timberland ownership; or, in other words, growing timber instead of buying it. Timberlands are important to the wood-based corporation because:

- Timberland provides an insurance policy on capital-intensive mills
 - physical (shortage of raw material)
 - economic (short-run price fluctuations)
- Timberland is a low risk investment
 - asset liquidity (decision is reversible)
 - inflation hedge aspects
- Timberland acquisition is increasingly difficult
- Timberland affords capital gains taxation advantages

In addition to these advantages of corporate timberland ownership, there are additional reasons that are not mutually exclusive from the above reasons, but may more properly be called strategic factors that explain why timberland ownership will help to insure the future success of the company.

- Strategic factors in timberland ownership include:
 - integration with processing and marketing facilities
 - low cost wood raw material supply
 - proximity of production facilities
 - other sources of raw material supply
 - competitive position, national and regional

A case example will illustrate the strategic importance of large timberland acquisitions these days. To date, the largest merger in the wood-based industry (\$805 million) resulted from the 1979 bidding war between International Paper (IP) and Weyerhaeuser — as well as others such as Mobil and the Getty family's Placid Oil — for the closely held Bodcaw Company of Louisiana. As *Fortune* (1979b) points out, there were strategic reasons why IP wanted Bodcaw so badly that it bid 40 percent over the appraised value of the Bodcaw holdings, which included 330,000 acres of prime southern pine sawtimber. IP's strong suit is pulp and paper, which is the least lucrative segment of the wood-based industry. IP was eager to build up its share of the more profitable lumber and plywood business. Furthermore, Bodcaw's timberlands and automated low cost mill are in the heart of IP's home turf. And above all else, IP wanted to keep Weyerhaeuser from intruding into its domain. IP leads Weyerhaeuser in sales, but lags in profits. IP's 1978 sales were \$4.2 billion, compared to Weyerhaeuser's \$3.8 billion. Yet Weyerhaeuser profits for 1978 were \$371 million, IP's were \$234 million.

Why does Weyerhaeuser perform so much better than IP? The former company's vast timberland holdings, although exceeded in acreage by IP's holdings, contain huge volumes of high value old-growth timber. Because of these holdings and the capital gains taxation advantages it affords them, Weyerhaeuser is able to outpace its three competitors for industry leadership in the earnings race. Wiegner (1978) illustrates the point. Georgia-Pacific is challenging Weyerhaeuser for the leadership position. Georgia-Pacific had higher pre-tax earnings than Weyerhaeuser in 1977, but Weyerhaeuser's timberland ownership advantage allowed them to pay only 30 percent of its sales in income tax compared to Georgia-Pacific's 40 percent, which gave Weyerhaeuser the after-tax edge in the earnings race. Thus, timberland ownership is an important strategic consideration with many attendant advantages. But once the decision is made to acquire timberlands, how does the corporation decide what to do with them?

Hierarchy of Corporate Timberland Decisions

Enk (1975) concluded that timberland decisions were influenced by three levels of strategy: overall corporate strategy (*i.e.* mission of the corporation), land-use strategy, and the role of land in overall corporate strategy. A more detailed understanding of these timberland decisions is possible using the analytical framework suggested in Figure 2. This hierarchical format is used by the Stanford Research Institute to help clarify and demarcate decision problems (Menke 1979).

The overall corporate strategy or mission that defines the purpose of the company appears at the top of the hierarchical pyramid of decisions. The land-use strategy answers the questions, "How to use land?" It is at a lower level of decision that the mission, especially in the "new diversified entrants" to the wood-based industry that operate their wood-based product division as a subsidiary of a large diverse corporate organization structure. The role of land in corporate strategy is the link between the land-

use strategy and overall corporate strategy, and serves to answer the question, "Why own land?" It is hypothesized that the role of land will be of central importance to the "traditional" wood-based companies, and not be of central importance to the "new diversified entrants." In other words, land ownership may be more important to the continued existence of "traditional" firms with their dependence on wood-based products than to the "new diversified entrants" with their highly diversified product portfolios.

The second tier in the timberland decision hierarchy (Figure 2) illustrates that timberland investments compete with alternative corporate-wide investment opportunities. Here capital budgeting techniques become strategically critical. But in the final analysis, investments will presumably be made to maintain the forest resource owned by the company more for strategic reasons than financial; the continued successful existence of the firm is more important than a calculated rate of return. Because of the long time periods involved in forest management, forestry investments will likely appear to be less profitable than alternative corporate-wide investments, yet they are critical for future success. The point is that woodlands managers must convince higher level decision makers in the firm that such is the case. This is hard to do if the manager is unaware of the long-term nature of forestry and is more concerned with short-term financial returns. Once the woodlands operation has been able to secure its share of corporate capital, it must then decide how to use it.

From the third tier down in Figure 2, capital budgeting techniques become more appropriate. Therefore, individual woodland system development strategies should be ranked and prioritized, using such financial criteria as internal rate of return and net present value of discounted future cash flows to evaluate individual projects (Webster

1965). These lower level corporate timberland decisions may be termed timberland investment strategies, and will be discussed in more detail after the higher levels of timberland decisions in Figure 2 have been treated. These levels, again, are overall corporate strategy, land-use strategy, and the role of land in corporate strategy.

Overall Corporate Strategy. Overall corporate strategies influencing land-use decisions have been documented by several authors. Enk (1975), for example, classified overall corporate strategies of 20 forest products companies into five groups as follows:¹⁸

- two focused on profit or financial performance
- eleven stressed a traditional forest products industry product orientation — lumber, paper, or packaging
- three focused on changing to an identifiable or broad range of products
- two stressed growth
- two were actively involved in attempting to develop a corporate strategy

Rich (1980a,b) offers quite a different classification of corporate strategies used by the "top 20" forest products companies in 1978. The difference is no doubt due to the continuing evolution of corporate strategy. Rich classified the top 20 into three different overall strategies as follows:

- eleven emphasized raw materials (timber resources) as their primary concern
- seven emphasized raw materials (timber resources) and production capabilities about equally
- two emphasized a strong marketing orientation

Rich's major point (1980a) is that many companies have changed their strategic emphasis from marketing to one



Source: adapted from Menke, M.M. 1979. Strategic planning in an age of uncertainty. *Long Range Planning* (August) (12(4)):27-34.

Figure 2. Hierarchy of timberland decisions

¹⁸Enk's (1975) sample group of 20 respondents of 30 selected large forest products companies in 1969 was made up of the following firms, classified by their strategic group as used in this study:

Traditional top 10	Traditional 12	New diversified entrants
Georgia-Pacific	Westvaco*	Owens-Illinois**
International Paper	Mead*	[American Can]**
Weyerhaeuser	Great Northern Nekoosa**	[Mobil/Container Corp.]*
Champion Int'l.	Hammermill Paper*	[Continental Group]*
St. Regis Paper	Potlatch*	[ITT Rayonier]*
Crown Zellerbach	[Diamond Int'l.]*	[Olin Corp.]
Boise Cascade	[Union Camp]**	[Procter & Gamble]*
Scott Paper	(Willamette Ind.)*	(Tenneco)*
[Kimberly-Clark]	(Southwest Forest Ind.)**	(Time)**
(Louisiana-Pacific)	(Masonite)**	(Bendix)**
	(Federal Paper Board)**	(Gulf + Western Ind.)*
	(Consolidated Papers)*	(Times Mirror)*
		(Philip Morris)*
Others		
Evans Products		
Riegel Paper#		
Fibreboard Corp. #		
Inland Container#		
Hoerner-Waldorf#		
Ethyl Corp +		
[Flintkote] +		
[Standard Pkg.] +		

* declined to participate in this study

** participants in this study

merged into another firm since 1969

+ exited industry by divestiture in 1976

[] declined to participate in Enk's study

() not considered for Enk's study

that brings them closer to their timber resources, and strategic planning was the process that brought them to this realization. In fact, Delombre and Bruzelius (1977) state that:

The *marketing concept* in favor during the 60s, based on a relationship existing between the firm and its market, must be replaced by a *strategy concept* based on a triangular relationship between the firm, its market, and its competitors.

Land-use Strategy. The strategy for corporate land-use is the answer to the question, "What does the company do with its land?" Enk (1975) classified the land-use strategies of 20 companies as follows:

- five maximized overall *productive capability* of land
- six maximized *revenues* from the use of land
- five met *production unit requirements*
- two developed long-term highest dollar *value* of land
- two had strategy changing or undefined

These condensed statements do not fully capture the range of strategies expressed by corporate managers. For example, one executive stated: "we are the stewards of the land under a public franchise;" while another stated: "we own the land and do with it what we want" (Enk 1975, p. 94). Different land-use strategies suggest that timber management policies will also differ. Enk noted that there is a close correlation between a company's land-use strategy and its timber management practices, with the former guiding the latter. Of Enk's 20 sample companies in the late 1960s, nine operated nurseries, 13 practiced site preparation, 16 had planting programs, 11 were engaged in timber stand improvement, 12 in commercial thinning, and 11 in fertilization. However, four of Enk's 20 firms owned more than a million acres but practiced no timber management at all. Enk believes that the levels of investment in timber management activities were certainly less than might be expected from these 20 companies that together owned almost 40 million acres of U.S. timberland in 1969. Yet on the average, forest industry firms practice more intensive forestry for wood production than do other owners of timberlands, and as a result grow more timber per acre annually and grow more timber in relation to productive capacity (Clawson 1975).

A more recent study of forest industry companies' timberland management practices attempted to identify the relationship between company size and intensity of timber management (DeBell and others 1977). This survey of 166 firms attempted to assess the use of intensive forest management practices¹⁹ by all industrial owners holding 50,000 or more acres. Of the 109 respondents, 52 owned in excess of 250,000 acres, 39 owned between 50,000 and 250,000 acres, and 18 owned less than 50,000 acres. The study found that the largest owners utilize the more commonly accepted practices more than the smaller

ownerships, including precommercial and commercial thinning, timber stand improvement, fertilization, site preparation, and genetic improvement. Regarding other practices, large ownerships do not appear to employ them more than smaller ownerships. However, this study had a major weakness in that very large ownerships — those 20 companies that own more than one million acres — were not reported as a separate category.

Role of Land in Corporate Strategy. The role of land in corporate strategy provides an answer to the question, "Why does the company own land?" Enk (1975) identified six distinct roles among 20 companies:

- six companies said land was strictly the source of raw material used in the productive process
- four said land was of secondary importance
- three said the role of land was broadening
- two said the role of land was to provide security
- one said land and the productivity of land was central — the core of corporate strategy
- two said the importance of land in the corporate strategy was declining
- two said the role of land was undefined

Rich's (1980a,b) analysis of overall corporate strategies among the top 20 forest products companies in 1978 indicated that seven of these firms emphasized timber resources as their primary concern, and 11 emphasized the importance of timber resources as about equal to the importance of production facilities. For the seven emphasizing timber resources, the role of land in corporate strategy is clearly one of central or core importance. This is a dramatic change from Enk's (1975) 1969 survey sample of 20 forest products companies, although the change may be more one of interpretation or semantics rather than an evolutionary change in strategy.

Timberland Investment Strategy. Industrial forestry firms invest in timberlands and forest management primarily to offset raw material uncertainties (Nelson 1960). A company will limit these investments to an amount it believes is adequate to protect future supplies of wood. Because of conditions near processing facilities or individual financial limitations, many companies cannot acquire what they consider to be adequate acreage. Company wide investment policy is, of course, constrained by limited amounts of capital, and thus a priority system is needed. Typical capital budgeting priorities are as follows (Nelson 1960):

1. Projects which are essential to the continued operation of the business. This includes needed equipment replacements, projects which have to be undertaken for safety or welfare of employees, and projects which are required in order to keep the business competitive.
2. Projects which have very good payouts.
3. Projects which are desirable but not essential (regardless of time of payout).
4. Projects of a contingent nature which might have to

¹⁹Including precommercial thinning, timber stand improvement, commercial thinning, site preparation, weed control, species conversion, use of genetically improved stock, fertilization, drainage, irrigation, short rotation forestry, and intensified protection.

be undertaken as a result of possible changes in the conditions under which the business operates.

Significant for a forest industry company is the tacit recognition that it is not possible to see far enough ahead to determine exact payouts on all courses of action, and that some very important ventures in research, new product development, and other areas are undertaken primarily on management's judgement that they are important for the future well-being of the business (Nelson 1960).

Are investment rules such as those noted above still applicable? A management and accounting study of capital budgeting practices in the forest products industry (Bailes and others 1978) reviewed the nature of capital budgeting, project evaluation techniques, and methods of risk adjustment by surveying more than 200 forest products companies. One hundred eight returned the questionnaire, including 27 firms with 1975 sales in excess of \$500 million. Most companies were found to have a formal capital budgeting process, and most used the preferred discounted cash flow method to some extent. Sophistication in the use of these techniques was directly related to company size, and was more evident in the wood-based industry than in other industries. Risk adjustment quantitative techniques were not widely used. Recommendations from the study included more use of internal rate of return evaluations and development of priority rankings for projects.

In the late 1960s and early 1970s, the ownership of timberland by corporations was under attack because of an emphasis on asset management, a process which required timberland investments to provide a rate of return comparable to alternative corporate investments (Gilligan 1972). It must be recognized that this view is not strategic in that it emphasizes short-term operational considerations, not the long-term perspective strategic thinking requires. As Gilligan (1973) says, the fallacy in asset management is that it assumes liquidation of the asset; and further, a company that puts off its timberland investments until the rate of return improves significantly will, at a later date, no doubt have to face the same decisions again, and future review would probably indicate that the return on timberland is no more attractive than it was before. Furthermore, as Nelson (1960) points out, ordinary capital budgeting procedures, usually used for replacement of a machine or rebuilding a mill, which can be postponed for several years depending on corporate wide needs, are *not a valid consideration* when contemplating land acquisition either through direct purchase or by corporate merger. These opportunities usually occur relatively infrequently and no postponement of decision is possible.

Comparable to asset management is the investor's "asset play." *Forbes* (1980b) describes it well:

The asset play, essentially, is an inflation hedge, it takes center stage when investors are scared about rising prices. To protect purchasing power, investors look for companies that possess large natural resources. In more confident times, investors care more about earnings; in inflationary times they think in terms of assets. The flaw in the asset play is that it as-

sumes liquidating. What does it avail a company to own valuable forest lands if it turns the trees into cardboard boxes on which it can't make money?

However, when inflation rears its ugly head, investors seek refuge in assets. Sometimes their faith in assets is justified, especially in the takeover or buyout merger ploys. In this sense, the asset-play is a variation of the takeover-prospect game (*Forbes* 1980b). And this game will continue to be played as long as big old companies have substantial amounts of "windfall" cash and other large firms find themselves with excessive amounts of cash.

Investment planning, or asset management, as a substitute for corporate planning, is inevitably destined to falter. In describing "the fallacy of asset management," Drucker (1974) explains why:

Asset management as it relates to nonfinancial businesses is a function of and not the definition of the business. . . . The asset managers who acquired operating businesses (in the 1960s) performed a useful function when they closed down or sold off parts that were tying down large chunks of assets without producing returns. But once they had done this, they did not know how to manage a business — and the boom of asset management ended in predictable failure.

The relevant question today is not one of asset management in the sense of producing a good rate of return on investment, but more one of positioning the company for future success. This is the essence of strategy and strategic planning. Timberlands are critical to large wood-based companies. Thus, the strategies for the management of this significant asset are of major concern.

Westvaco Corporation made the following 1974 statement on long range planning for timber resources (Fun-derburke 1977):

Westvaco is practicing *asset management*, and in the case of timber, we are simply growing more, growing it faster, growing a higher quality product for our use, growing it in the most favorable locations possible, and using more of, if not all of, the above-ground portions of every tree. And we're doing it, we believe, with minimal adverse impact upon the quality of life for both present and future populations, as environmental considerations are significant elements in our planning.

Although this statement indicates that Westvaco practices asset management (even though it recognizes the weakness of assuming asset liquidation rather than replenishment), Westvaco does emphasize their efforts in intensive forest management. Their 1978 annual report indicates that Westvaco's strategy, which is designed to capitalize on a sound supply-demand relationship in the U.S. paper industry, focuses on the following:

- Grow with customers by adding papermaking capacity at about twice the rate planned by industry

- Expand our chemicals business with new products and new facilities
- Improve our productivity by about 20 percent
- Increase our potential for raw material self-sufficiency
- Make our energy resources more secure in cost and supply
- Make further progress in improving the environment of each of our plant communities
- Increase our use of recycled and reclaimed raw materials

On balance it seems fair to say that Westvaco's stated 1978 strategy places an equal emphasis on timber and production facilities, with a minor emphasis on marketing. To understand the influence of corporate strategy on timberland decisions, careful review of a firm's strategy is necessary. The concept of strategy has become so central to corporate management that strategy statements are now often highlighted in annual reports to shareholders.

CORPORATE STRATEGIES OF SURVEYED COMPANIES

Sample Group of Companies

Corporate strategies and the resulting land-use activities of 24 wood-based companies were a central focus of this study. Overall corporate strategies were obtained from corporate annual reports; land-use strategies and the role of land in corporate strategy had to be obtained by a survey of individual companies. Twelve "new diversified entrants" to the wood-based industry were selected for the survey as were 12 "traditional" wood-based companies having wood-based operations similar in size to the new diversified entrants (Table 9).

In order to gain the cooperation and assistance of the 24 wood-based companies selected for study, a letter was sent to corporate chief executive officers asking their cooperation and assistance in the study.²⁰ Enclosed with this letter were the researcher's resume and a reply postcard. Sixteen of the 24 companies responded within 30 days. The eight companies²¹ that did not respond to the initial request were sent follow-up letters.

All 24 companies responded to either the initial or follow-up request. Fifteen companies expressed a desire to participate in the study — eight new diversified entrants and seven traditional. The responding corporate executives were contacted about the mode of participation. Almost all of them preferred a questionnaire, which was somewhat surprising based on the interview preferences experienced by Enk (1975) and Hungerford (1969). However, two interviews were conducted, one each with a new diversified entrant (Owens-Illinois) and a traditional wood-based company (Masonite). The purpose of the two

interviews was to test the questionnaire, which had to serve as the primary information gathering device. Both companies reacted favorably to the questionnaire, which was then distributed to the 15 companies who had indicated a desire to participate. Unfortunately, six companies withdrew from the study after receiving the questionnaire.²² This left nine participants — four new diversified entrants and five traditional. They were:

New diversified entrants:

Owens-Illinois
Time
Bendix
American Can

Traditional:

Union Camp
Great Northern Nekoosa
Southwest Forest Industries
Masonite
Federal Paper Board

Overall Corporate Strategy

The study group of 12 traditional wood-based companies had the following distribution of overall corporate strategies expressed in their 1978 corporate annual reports to stockholders:

- Four emphasized timber resources as their primary concern.
- Five emphasized timber resources and production capabilities about equally.
- Two emphasized a strong marketing orientation.
- One emphasized production capabilities and marketing about equally.

The 12 new diversified entrants had the following distribution of overall corporate strategies expressed in their 1978 corporate annual reports to stockholders:

- None emphasized timber resources.
- One emphasized timber resources and production facilities about equally.

²²Some companies failed to provide a rationale for not participating in the study, although all were requested to do so. Summarized below are reasons provided by companies for not participating; some gave more than one:

New diversified entrants

- Three firms indicated that the amount of time or human resources they would have to invest to provide meaningful responses would be extravagant.
- Three firms indicated that despite efforts to maintain confidentiality, a number of questions might potentially damage the firm's competitive position.
- One firm indicated that any information they would receive as a result of the study would not be useful to them.
- One firm indicated that its planning directions were changing, and that answers to questions could not accurately reflect their soon-to-be restructured planning process.
- One firm was in the process of being divested from its parent company, and could not adequately address such questions.

Traditional wood-based companies

- Three firms indicated that the amount of time or human resources they would have to invest to provide meaningful responses would be extravagant.
- Two firms indicated that despite efforts to maintain confidentiality, a number of questions might damage the firm's competitive position.
- One firm indicated that any information they would receive as a result of the study would not be useful to them.

²⁰From the beginning of this study in early 1979, to its completion in late 1980, six of the 24 study group firms installed new chief executive officers (CEO): ITT, Mead, Continental Group, Time, Union Camp, and American Can. In addition, Mobil's Container Corporation of America subsidiary installed a new CEO.

²¹Continental Group, ITT, Tenneco, Time, American Can, Mead, Southwest Forest Industries, and Federal Paper Board.

- Two emphasized a strong marketing orientation.
- Eight emphasized diversification.
- One emphasized profitability.

The preceding comparison shows that the traditional sample group emphasizes timber resources in its overall strategy to a much greater extent than do the new diversified entrants. This is certainly consistent with the traditional group's heavy dependence on wood-based products and the relative unimportance of wood-based products to the new diversified entrants.²³

Questionnaire Results

The strategies and structures that the final sample group of nine wood-based companies use to guide their land-use decisions are summarized here. Key points have been extracted from responses to the questionnaire (Appendix B).

The first question asked was what the company's overall strategy or mission was. In a few cases, the strategy statement matched that in the company's annual report. However, in most cases it did not. This may indicate that the mission of the company as seen by its top strategy-making management is viewed otherwise by lower level managers who completed the questionnaire. In the case of two new diversified entrants, the strategy for the wood-based subsidiary was given as the corporation's overall strategy. This finding points out that it is difficult for the subsidiary to answer for the entire corporation, and that point should be remembered throughout the remaining discussion.

All nine responding companies believed that there was something different about the wood-based industry as compared to other business enterprises. Longer time horizons were mentioned by several companies. Also mentioned were the investment or inflation-hedge aspect of timberlands, which were perceived by several companies as being a unique feature of the industry. Surprisingly, one new diversified entrant believed that the industry is dominated by a few large landowning firms. One traditional company mentioned that a unique aspect was that "government owned" renewable resources were used to produce commodity products.

Two critical questions about short-term/long-term tradeoffs were asked: (1) is attainment of short-term profit goals at the expense of long-term goals viewed as a problem by the company, and (2) do control mechanisms used by top management adequately consider such tradeoffs? Most of the respondents recognized this important issue, and believed that the control mechanisms used by top-level management adequately considered the crucial tradeoffs. However, one new diversified entrant thought performance measures overemphasized short-term considerations, and two new diversified entrants believed that

lower level managers were not knowledgeable about long-term corporate goals and how they contributed to them. None of the traditional wood-based companies indicated these problems. These questions indicate the important relationship between strategies and the organizational structures for implementing and controlling them.

Land-Use Strategy

All nine respondents indicate that they had a land-use strategy, and except for one firm whose lands were all in the same region, geographical areas were stressed, especially the southern United States. Land-use emphasis — how the land was managed — was on providing raw material supplies for nearby production facilities. Three new diversified entrants and two traditional wood-based companies maximized the overall productive capability of their land as their primary land-use strategy. One new diversified entrant and three traditional wood-users emphasized that meeting production unit requirements was their land-use strategy. Maximizing revenues or land values were only mentioned as secondary land-use strategies.

In general, land-use activities were planned at lower levels than where the decisions regarding these activities were made, with no clear distinction between the two groups of firms. Decision criteria for land-use activities showed no patterns of difference, except that four of the traditional firms used the internal rate of return criterion recommended by Bailes and others (1978); none of the new diversified entrants used it. Land-use activities were, in general, about the same for each of the two groups. The four new diversified entrants spent an average of \$2.47 per acre of timberlands for commercial timber growing activities in 1979. The three responding traditional wood-based companies averaged \$2.24 per acre in 1979. The responses received to a question on the levels of land-use activity indicated that the new diversified entrants either had better records of timber management activities, were more willing to reveal them, or practiced more timber management than did the traditional wood-users. The four new diversified entrants had treated 1,886,659 acres, or 68 percent of all their owned timberlands, compared to 767,396 acres treated (22 percent of their holdings), for the three responding traditional wood-based companies. The new diversified entrants treated 6 percent of their acreage in 1979, compared to 2 percent for the traditionals. It must be recognized that these percentages undoubtedly double count certain acreage; for example, it is likely that planted acreage has also received site preparation. Nonetheless, the comparison reveals that one group of respondents treated more land than did another.

If one were to hypothesize that traditional wood-based companies engage in more land-use activities and at higher levels of investment than new diversified entrants, one would have to reject the hypothesis on the basis of the evidence gathered by this study. In fact, the reverse may be true. However, extending the meager evidence presented here to make such a claim is climbing out on a fragile limb.

²³For comparison, which is summarized on Table 12, Rich (1980a,b) identified three groups of overall corporate strategies among the top 20 forest products firms from their 1978 corporate annual reports to stockholders:

- Eleven emphasized raw materials (timber resources) as their primary concern.
- Seven emphasized raw materials (timber resources) and production capabilities about equally.
- Two emphasized a strong marketing orientation.

Role of Land in Corporate Strategy

The key to corporate attitudes about land resources is perhaps the role of land in overall corporate strategy, which helps answer the question: why own land? Two new diversified entrants indicated that the role of land was of primary importance, and two indicated it was of secondary importance. Four traditional wood-based companies indicated that it was of primary increasing importance; only one indicated that it was secondary. All but two traditionals indicated land was important as a source of raw material. The two exceptions indicated that future raw material security was more important than a current source.

The new diversified entrants showed a greater tendency to quantify timberland goals in their strategies, with three of the four stating either an acreage figure or a yield in wood volumes from company timberlands — usually termed raw material self-sufficiency. Only one traditional company had set a goal for self-sufficiency. All self-sufficiency goals were in the 30 to 50 percent range. Six of the nine companies were presently self-sufficient at the 30 to 35 percent range, including all of the new diversified entrants. One traditional was almost 50 percent self-sufficient, another only 12 percent; the fifth abstained.²⁴ The five traditional wood-based companies consume almost all their own wood internally, one new diversified entrant sells a fourth of its own wood in markets outside the firm, and two sell from 3 to 10 percent of their produced wood on the open market.

Land ownership and control acreages were verified by questioning the firms. The only significant variance is that a third of Federal Paper Board's reportedly owned acreage is in fact under long-term (66 to 99 year) lease. Also, it was revealed that Masonite owns land in South Africa. In general, the traditional wood-based companies anticipated increasing their fee-owned lands and leases to a greater extent than did the new diversified entrants.

The most prominent historical reason for owning timberlands was to provide a secure wood supply or support for mills. This reason was expressed by six of the nine companies, including all four new diversified entrants. Interestingly, two traditional firms owned lands because they came to the company as part of an acquisition package, along with additional mill capacity.

What are the bases used for evaluating whether or not a particular tract of forest land should be purchased? The responses to this question were rich, with several companies prioritizing their evaluation criteria. Five companies mentioned economic returns, and five mentioned factors related to timber stand volume. Four firms mentioned site productivity. Three mentioned location. Price was mentioned by two. Two traditional wood-based companies mentioned that strategic or competitive factors played a role in making the decision to buy a tract of timberland.

If one were to hypothesize that land is more important

in the strategies of the traditional wood-based firm than it is to the new diversified entrants, the evidence gathered by this study would cause one to reject that hypothesis. But remember, the subsidiary cannot very well represent the view of top level corporate management.

Organizational Structure

All nine firms are set up on either the strategic business unit or profit center concept. Seven of the nine firms had eliminated unprofitable profit centers. Five firms had their timberland division set up as a profit center, three of these firms were new diversified entrants. No special considerations were given to timberland profit centers in competition with other profit centers in the firm.

All nine firms are basically organized along product division lines. Many of the firms also displayed geographic, functional, and matrix organizational elements. Reorganizations were not as frequent as one might suspect, as the majority of the companies had not reorganized in more than 10 years. The product division organization seems to serve the strategic needs of all the companies very well. Specifically mentioned advantages were a concentration of expertise and decentralized decision making, which led to faster response times and more incentives for better performance. Disadvantages mentioned were reduced communications and less understanding of total company operations.

Perhaps the one question that gets to the root of this study's purpose is: has (or would) the organizational structure superimposed over the company's wood-based business because of a merger affected the operation of its wood-based business? If so, how? The nine companies split evenly on their response to this question (one company answered "who knows?"). Affirmative responses ranged from premature liquidation of timber to boost sagging profits, to slower decision making. It was mentioned that any effect would depend on the character of the merging firm and the organizational structure to be imposed. One of the responses to this key question was that it takes a knowledgeable individual at the top level of management to properly manage a wood-based business. Rich (1979d) has also mentioned this as a critical consideration for a diversified company with wood-based operations. All companies except two new diversified entrants believed that there was a top level manager who really understands the wood-based business and forestry. This may hold true for the two new diversified entrant exceptions as well.

Seven of the woodlands organizations within the nine corporations stated their primary objective was providing timber or wood supply for their mills. This is consistent with the findings on land-use strategy. It might be said that the four new diversified entrants were more oriented toward financial goals, because operating as a profit center was the primary objective for one firm's woodlands organization, and the secondary objective for the other three. No traditional firm mentioned financial return as its primary or secondary objective, except for one whose main objective was to maximize the economic productivity of its timberlands. All responding firms used functional organization structures in the woodlands

²⁴Timber self-sufficiencies of Rich's top 20 forest products companies were as follows: four companies, 10 to 25 percent; 12 companies, 25 to 30 percent; three companies, 50 to 75 percent; and one company, more than 75 percent. All companies more than 50 percent emphasized timber resources as their primary strategic concern (Rich 1980b). See Table 4 to identify individual firm timber self-sufficiency percentages.

organization; numbers of woodlands personnel varied from 25 to 800. Major recent structural changes in the woodlands organizations were that three new diversified entrants had combined forest management and wood procurement activities. Three firms, including one new diversified entrant, had recently been made profit centers.

Woodlands organization budget breakdowns revealed that traditional wood-based companies spent more than three-fourths of the woodlands budget for management and operational activities, as compared to 35 to 60 percent for the new diversified entrants. The latter group spent more on capital improvements than did the traditional respondents. It seems that the new diversified entrants spent more on research and development.

Strategic Planning

All of the nine responding firms practiced strategic planning. Six of them, three from each group, had set up a special centralized group for strategic planning. The three that did not indicated that top level management committees considered the directions for corporate strategies. Ang and Chua (1979) found that 55 percent of 119 large firms responding to a survey had a centralized planning function with a separate staff. Two of the new diversified entrants and one of the traditional have had a centralized planning staff since the 1960s; the other three firms with them started in the 1970s.

One of the ways to cut down on short-term/long-term trade-offs advocated by Banks and Wheelwright (1979) is to involve line management in the development of strategic and operating plans. All of the nine responding firms did this.

The firms were asked if they made a distinction between long-range planning and strategic planning. Four firms, three of them new diversified entrants, said that they did. Only two distinctions were clear: 1) a long-range plan is more financially oriented, and 2) strategic plans are usually made for five years — longer range planning concepts, *i.e.* forest management, are planned and modified at longer time intervals. Most firms believed that a long-range planning horizon was at least five years; and many firms planned beyond the strategic threshold of five years for forest management, some firms reaching out 30 to 50 years. In general, the new diversified entrants articulated longer actual planning horizons than did the traditional wood-based companies.

Most of the firms considered a multitude of decision areas in their strategic planning, as did the 323 large companies in a recent survey by Kudla (1978). All nine firms considered capital spending, expansion, sales forecasts, cash requirements, supply/demand projections, diversifications, and raw material supplies. All of the new diversified entrants considered organizational structures in the planning process; only one traditional firm did. This might indicate that the new diversified entrants are better prepared to make the leap from strategic planning to strategic management, or it might indicate that the more complex structures of the highly diversified companies require more attention than firms committed to only one basic business. Questioning revealed that the new diversified

entrants are more likely to quantify objectives, and more of them, in their strategic plans. Only one firm, a new diversified entrant, allows the strategic plan to gather dust for more than one year before it is reviewed. Several firms indicated that they review the plan more often than the usual yearly interval.

All nine firms considered competitive environmental factors in their strategic plans. Other important environmental factors that received seven or eight votes were population trends, technological developments, and regulatory developments. Social climate and political developments received less attention as environmental factors for strategic planning. The most widely perceived *benefits* of the strategic planning process were: better quality decision making (nine responses); ability to explore more alternatives, and management's development of a broader view (eight responses); better understanding of the business process, and improved communications (seven responses). The most widely experienced *difficulties* with strategic planning were in obtaining useful forecasting input data, expressed by seven firms, and the credibility of the planning output, expressed by five firms. All nine of the firms subscribed to a national economic forecasting service as input to the planning process.

Eight key planning issues pervade the strategic planning literature (Holloway and King 1979). The role of the chief executive — should he be a "decider" or a facilitator and motivator of planning and strategic decision making — was the only one of the eight issues that the sample companies felt was overwhelmingly important, indicating that there may be significant problems with the strategic planning process if the chief executive does not take an active interest in it.

Although it is open to question whether or not forest resource management planning may be defined as strategic planning or long-range planning, six of the nine firms used computerized forest regulation models in planning. Two new diversified entrants and three traditional wood-based companies used models for harvest scheduling based on timber inventory and growth projections. One new diversified entrant, who appeared to have the most sophisticated model of the nine, combined economic maximization with mill fiber balance requirements in its modeling. The other new diversified entrant was developing a model with the corporate operations research staff that was to be on line by the end of 1981. Two traditional companies had no model, and mentioned no plans for one.

On balance, it seems that both the four new diversified entrants and the five traditional wood-based companies practice relatively sophisticated strategic planning, with the new diversified entrants appearing to be a bit more sophisticated with their efforts. This is most likely due to the nature of their large diversified enterprise. Based on the questionnaire findings and the fact that a new diversified entrant withdrew from this study because it was changing the direction of its planning efforts under the edict of the subsidiary's corporate headquarters, it seems safe to say that the large diversified organizations' strategic planning efforts include the wood-based subsidiary operations.

Summary

To understand what motivates the modern corporation, it is important to grasp the concept of strategy. It is, essentially, the glue that binds the parts of the whole corporation together. Just as it is possible to identify the kind of company one is dealing with by examining its strategy, it is possible to determine what values the company holds by looking at its strategies. Land-use strategies, then, would reveal the corporate attitude toward its land. There are three levels of strategy in the firm that will affect land-use decisions. These levels were depicted in an hierarchical format in Figure 2, and are summarized in Table 12 according to the findings of three studies that addressed corporate timberland ownership.

The summary of strategies for land by wood-based companies (Table 12) indicates that although the new diversified entrants may not explicitly state that land is an integral part of their overall corporate strategy or mission, that is more a function of organizational problems inher-

ent in managing a large diversified enterprise than it is a manifestation of what could be interpreted as a different attitude about land. Of necessity, the large diversified organization must impose another layer of management and decision-making — usually a division — between its land resources and top level corporate policy makers. Companies in 1978 emphasized the strategic importance of their timber resources more than they did in 1969. Following from this, it seems that financial considerations regarding timberland management decisions are less important than they once were. It is increasingly more important to meet production unit needs and increase the productive capability of land than it is to maximize revenue and the value of land (Table 12). In general, the findings of this study based on the responses of the sample companies indicate that the large diversified firm with a wood-based subsidiary manages its lands no differently than does the traditional wood-based company.

Table 12. Strategies for land by wood-based companies, by study.

Overall strategy emphasis	1978			1969
	Rich's "top 20"	"Traditionals" N = 12	"New Diversifieds" N = 12	Enk's 20 of 30
Timber resources primarily	11	4		()
Timber resources/production	7	5	1	() } 11
Marketing	2	2	2	3
Diversification			8	
Growth				2
Profit			1	2
Undefined		1		2
	<u>20</u>	<u>12</u>	<u>12</u>	<u>20</u>
Land-use strategy (how to use land)		"Traditionals" N = 5	"New Diversifieds" N = 4	N = 20
Maximize productive capability		2	3	5
Meet production unit needs		3	1 (1)*	5
Maximize revenue		(1)*		6
Maximize long-term value		(1)*		2
Undefined or changing				2
		<u>5</u>	<u>4</u>	<u>20</u>
Role of land in strategy (why own land?)		"Traditionals" N = 5	"New Diversifieds" N = 4	N = 20
Primary importance		4	2	1
Secondary importance		1	2	4
Increasing importance		4	2	3
Unchanging importance		1	2	2
Source of raw material		3	4	6
Future security		2 (1)*	(1)*	2
Undefined				2
		<u>5</u>	<u>4</u>	<u>20</u>

Source: Rich (1980a, b), Enk (1975), O'Laughlin (1980).

*() = secondary strategy or role.

Appendix A

LARGE U.S. COMPANIES WITH WOOD-BASED OPERATIONS AND THE SIC INDUSTRIES IN WHICH THEY OPERATE

Understanding the role of land in a large wood-based company's operations requires an understanding of the range of the company's operations, *i.e.* the diversity of the firm's activities. This appendix is an attempt to portray such a range for a number of companies in the wood-based industry.

The appendix consists of two tables that display SIC coded industries that 76 *Fortune* 500 companies operate in. The tables are based on information obtained from Dun and Bradstreet's *Million Dollar Directory*, Standard and Poor's *Register of Corporations*, Ellefson and Chopp, 1978, and the questionnaire portion of this study. The 76 *Fortune* 500 firms have been separated into five categories which correspond to a strategic group classification (Table 9). Table A.1 displays the wood-based SIC four-digit industries that each company operates in, while Table A.2 displays all the SIC two-digit industries that each company operates in — including a summary of the four-digit industries. When a company operates in more than one four-digit industry within the two-digit grouping in Table A.2, the number of such industries is given instead of a dot. The latter represents only one industry within the industry group description.

Information presented in Tables A.1 and A.2 is not always complete. For example, Boise Cascade (the seventh ranked wood-based sales leader in 1978 and 168 of the *Fortune* 500) is said to operate in 17 different industries, 16 of which are wood-based. These 16 wood industries represent an estimated 70 percent of Boise Cas-

cade's 1978 sales revenues. If such information were assumed to be complete and accurate, 30 percent of Boise Cascade's 1978 sales would have originated with the company's one non-wood-based industry, which is listed as real estate. This is simply not the case. Boise Cascade has large distribution operations for its wood-based products which are not listed in the sources used. The company also operates in at least one segment of the chemical industry. Another example of incomplete information concerns International Paper, which is listed as participating in nine wood-based industries. In reality, the company has the broadest line of paper products of all companies in the industry, manufacturing virtually everything except tissue (*Business Week* 1980a). Further problems in developing tables such as Table A.1 and A.2 are best exemplified by the presumably accurate information received from companies that responded to the questionnaire used in this study. As Tables A.1 and A.2 indicate, the industries that the four responding companies say they operate in is quite different from those identified by Dun & Bradstreet and Standard & Poor's. For example, in Table A.1, Owens-Illinois is said to produce hardwood veneer and plywood (SIC 2435), and is also said to operate a paper mill (SIC 2621). When responding to the study's questionnaire, Owens-Illinois indicated it does not operate a paper mill, while it does produce softwood veneer and plywood (SIC 2436) — not hardwood. Furthermore, they operate in five additional wood-based industries that were not listed in the aforementioned readily available sources. Regardless of the information problems unique to Tables A.1 and A.2, the tables do provide the forestry community with an appreciation of the diverse nature of firms comprising the wood-based industry. They exemplify the difficulties inherent in attempting to describe a very complex portion of the U.S. economy.

Appendix Table A.1. Wood-based industries (4-digit SIC) entered by large U.S. wood-based companies (in strategic groups).

Strategic Group Classification		Total Wood-based Sales Rank, 1978 ^{1,2,3}		Fortune "Sales 500" Rank, 1978 ⁴		Wood-based Sales as Portion of Company Total Sales, 1978 (Percent) ^{1,2,3,4}		Notes: * = estimate n.e.c. = not elsewhere classified ● = industry entered by company according to Dun and Bradstreet, 1979. ○ = industry entered by company according to Ellefson and Chopp, 1978. ○ = industry entered by company according to O'Laughlin, 1980. x = industry entered by company according to Forest Industries, 1980. (●) = industry not entered by company according to O'Laughlin, 1980, however, Dun and Bradstreet 1979 cite company as having entered industry.		Number of Wood-based Industries Operated in by Company ^{6,7,8,9}		Number of All Industries Operated in by Company ^{6,7,8,9}		SIC Wood-based Industries																												
														Primary									Secondary																			
														Lumber					Paper				Lumber					Paper					Wood Furniture									
														2411	2421	2426	2429	2435	2436	2492	2611	2621	2631	2661	2431	2434	2439	2448	2449	2451	2452	2491	2499	2641	2642	2643	2645	2646	2647	2648	2649	2651
Traditional Top 10	1	53	86	Georgia-Pacific	17	22	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	2	62	91	International Paper	9	9	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	3	69	97	Weyerhaeuser	13	19	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	4	74	100	Champion International	10	10	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	5	128	82	St. Regis Paper	17	29	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	6	148	99	Kimberly-Clark	8	9	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	7	111	70*	Boise Cascade	16	17	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	8	115	71	Crown Zellerbach	11	13	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	9	168	94	Scott Paper	9	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
13	251	100	Louisiana-Pacific	8	10	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Traditional	12	255	90	Union Camp	14	33	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	14	238	90	Westvaco	8	11	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	15	127	44	Mead	10	20	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	16	263	96	Great Northern Nekeoosa	7	8	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	19	273	93	Hammermill Paper	6	7	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	20	300	100	Potlatch	12	12	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	21	305	100	Willamette Industries	9	9	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	22	242	68	Diamond International	9	18	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	25	373	86	Southwest Forest Industries	14	20	○	●	○	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	27	403	85	Masonite	6	7	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
33	464	86	Federal Paper Board	5	6	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
38	495	79	Consolidated Papers	7	7	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
New Diversified Entrants	10	4	4	Mobil (Container Corp. of America)	5	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	11	20	15	Procter & Gamble (Buckeye, others)	5	16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	17	16	22	Continental Group	9	14	x	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	18	11	6	ITT (Rayonier)	5	43	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	23	93	18	Owens-Illinois	13	24	○	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	24	19	6	Tenneco (Packaging Corp. of America)	8	24	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	26	174	28	Time (Temple-Eastex; Inland Cont.)	11	25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	29	75	12	Bendix (American Forest Prod.)	7	18	○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	31	58	9	Gulf + Western Ind. (Brown Co.)	5	17	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	32	66	9	American Can	7	13	x	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
36	201	22	Times Mirror (Publishers Paper)	7	14	x	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
37	46	6	Philip Morris (Plainwell, Nicolet)	3	19	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Appendix Table A.2. All industries (2-digit SIC) entered by large U.S. wood-based companies (in strategic groups).

Strategic Group Classification				SIC Industry Group Description																																															
Notes:				Wood-based				Non-Mfg.		Manufacturing Industry Groups Non-Wood-Based													Non-Mfg.			Trade			Services																						
* = estimate n.c.e. = not elsewhere classified ● = industry entered by company according to Dun and Bradstreet, 1979. ○ = industry entered by company according to Ellefson and Chopp, 1978. ⊙ = industry entered by company according to O'Laughlin, 1980. (●) = industry not entered by company according to O'Laughlin, 1980, however, Dun and Bradstreet, 1979 cite company as having entered industry. 2 = multiple 4-digit industries entered in the 2-digit SIC group according to Dun and Bradstreet, 1979. 2 = multiple 4-digit industries entered in the 2-digit SIC group according to O'Laughlin, 1980.				Number of Wood-based Industries Operated in by Company ^{6,7,8,9}				Non-Mfg.		Manufacturing Industry Groups Non-Wood-Based													Non-Mfg.			Trade			Services																						
Total Wood-based Sales Rank, 1978 ^{1,2} Fortune "Sales 500" Rank, 1978 ⁴ Wood-based Sales as Portion of Company Total Sales, 1978 (Percent) ^{3,5} Company ⁵				Number of All Industries Operated in by Company ^{6,7,8,9}				Non-Mfg.		Manufacturing Industry Groups Non-Wood-Based													Non-Mfg.			Trade			Services																						
				24	26	24, 25	26	10 to 14	15 to 17	20	21	22	23	25	27	28	29	30	3079	31	322	324	33	34	35	36	37	38	39	40 to 47	48	49	50	5031	51	511	52 to 59	5211	61	63	65	6711	70 to 80								
				Primary Lumber	Primary Paper	Secondary Lumber	Secondary Paper	Mining	Construction	Food and Kindred Products	Tobacco Products	Textile Mill Products	Apparel and Other Textile Products	Furniture, except Wood	Printing and Publishing	Chemicals and Allied Products	Petroleum and Coal Products	Rubber Products	Miscellaneous Plastic Products	Leather and Leather Products	Glass Products	Stones, Clay, Concrete Products	Primary Metal Industries	Fabricated Metal Products	Machinery, except Electrical	Electrical Machinery and Equipment	Transportation Equipment	Instruments	Miscellaneous Manufacturing Industry	Transportation	Communications	Utilities	Wholesale durables, except 5031	Wholesale Lumber, Plywood Mills	Wholesale Non-Durables, except 511	Wholesale Paper	Retail, except 5211	Retail Lumber and Building Materials	Credit Agencies, non-Bank	Insurance	Real Estate	Finance, holding Offices									
Traditional Top 10	1	53	86	Georgia-Pacific	17	22	5	4	4	4																																									
	2	62	91	International Paper	9	9	3	4	1	1																																									
	3	69	97	Weyerhaeuser	13	19	7	3	2	1																																									
	4	74	100	Champion International	10	10	4	4	2	2																																									
	5	128	82	St. Regis Paper	17	29	3	3	2	9																																									
	6	148	99	Kimberly-Clark	8	9	2	2	1	3																																									
	7	111	70*	Boise Cascade	16	17	4	4	4	4																																									
	8	115	71	Crown Zellerbach	11	13	4	3	4	4																																									
	9	168	94	Scott Paper	9	16	2	2	2	5																																									
13	251	100	Louisiana-Pacific	8	10	4	3	1																																											
Traditional	12	225	90	Union Camp	14	33	6	3	5	2																																									
	14	238	90	Westvaco	8	11	1	3	4																																										
	15	127	44	Mead	10	20	1	3	6																																										
	16	263	96	Great Northern Nekoosa	7	8	3	3	1																																										
	19	273	93	Hammermill Paper	6	7	2	4																																											
	20	300	100	Potlatch	12	12	6	3	3																																										
	21	305	100	Willamette Industries	9	9	4	3	2	2																																									
	22	243	68	Diamond International	9	18	3	2	2	2																																									
	25	373	86	Southwest Forest Industries	14	20	5	3	4	2																																									
	27	403	85	Masonite	6	7	2	1	5																																										
33	464	86	Federal Paper Board	5	6	2	1	2																																											
38	495	79	Consolidated Papers	7	7	3	3	4																																											
New Diversified Entrants	10	4	4	Mobil (Container Corp. of America)	5	16	2	3																																											
	11	20	15	Procter & Gamble (Buckeye, others)	5	16	2	3																																											
	17	16	22	Continental Group	9	14	1	3	5																																										
	18	11	6	ITT (Rayonier)	5	43	1	2	2																																										
	23	93	18	Owens-Illinois	13	24	4	3	6																																										
	24	19	6	Tenneco (Packaging Corp. of America)	8	24	3	2	3	2																																									
	26	174	28	Time (Temple-Eastex; Inland Cont.)	11	25	4	4	2	1																																									
	29	75	12	Bendix (American For. Prod.)	7	18	5	2																																											
	31	58	9	Gulf + Western Ind. (Brown Co.)	5	17	3	2																																											
	32	66	9	American Can	7	13	1	2	4																																										

36 37	201 46	22 6	Times Mirror (Publishers Paper) Philip Morris (Plainwell, Nicolet)	7 3	14 19	4 1	2 2	1 2	3	5 3	5	2												
28 34	448 341	100 48	Olinkraft Bemis	14 6	14 32	6 1	3 1	1 5		10	3	4	2	• •	5									
35 39	183 182	20 17	Koppers Johns-Manville	3 2	23 13	1	2	2	•	•	6	2	•	•	3	6	•							
42 48	169 378	15* 37	Jim Walter (Celotex, others) Saxon Industries (Std. Pkg.)	10 3	47 11	2	3	3	•	2	2	•	•	2	•	5	2	7	5	•	2	3		
50 53	186 192	13 12	Olin SCM (Allied Paper)	4 5	21 23	1	2	1	•	•	7	•	•	•	•	2	2	•	•	•	•	•	•	
56 63	202 113	12 6	U.S. Gypsum Singer	2 6	13 41	1	1	1	•	•	2	•	•	•	5	•	2	•	3	13	6	•	2	2
66 71	80 230	4* 10*	Johnson & Johnson Evans Products	2 5	8 13			2		•	•	3	•	•	•	•	•	•	•	•	•	•	•	•
73 74	6 318	6 15*	Santa Fe Ind. (Kirby For. Ind.) Flintkote	7 1	16 14	5	2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	2
75 76	249 5	10* 5	GAF Burlington Northern (Plum Creek)	2 3	13 7	2	3	•	•	•	3	3	•	•	•	•	•	•	•	•	•	•	•	•
78 80	275 5	10* 5	National Gypsum Wickes	3 7	9 22	2	2	1	•	•	•	3	•	•	•	•	•	•	•	•	•	•	•	2
83 84	142 481	3* 14	Kerr-McGee Dennison Mfg. (Dunn Paper)	1 5	13 10		1	4	3	•	•	6	2	•	•	•	•	•	•	•	•	•	•	•
85 88	72 472	1* 9	Litton Industries (Fitchburg, Versoix) Arcata	3 3	28 15	2	1	2	•	•	2	2	•	•	•	5	6	•	•	•	•	•	•	•
89	155	2*	Owens-Corning Fiberglass	1	5	1				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
214 285			AMF Akzona	1 1	15 18		1	1	•	•	2	•	9	•	•	•	•	•	•	•	•	•	•	•
431 68			Avery International Borden	2 1	6 24	2	6	2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
119 107			Burlington Industries Celanese	1 1	11 15	1	1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	2
276 386			CertainTeed Congoleum	2 1	11 10	1	1	1	•	•	2	2	•	•	•	3	•	•	•	•	•	•	•	•
220 185			Corning Glass Works Grumman	1 1	13 10		1	1	•	•	•	•	•	•	•	2	•	•	•	•	•	•	•	•
423 473			Hoover Universal Koehring	3 1	14 13		3	1	•	•	•	•	•	•	•	•	5	•	•	•	•	•	•	•
50 418			Minnesota Mining & Manufacturing Nashua	1 1	20 9		1	1	•	•	•	3	3	•	•	2	•	•	•	•	•	•	•	•
60 416			Pepsico Simmons	1 1	10 7		1	1	4	•	•	2	4	•	•	•	•	•	•	•	•	•	•	2
73 206			Sperry Rand U.S. Industries	2 5	27 56		2	6	•	•	3	6	3	•	•	•	•	•	•	•	•	•	•	•
59			W.R. Grace	1	20		1	2	3	•	•	7	•	•	•	•	•	•	•	•	•	•	•	•

¹ Corporate annual report to stockholders. 1978.
² Moody's Industrial Manual. 1979.
³ Paper Trade Journal. 1979. Paper's top 50 companies (June 30) 163(12): 47-64.
⁴ Fortune. 1979a. The Fortune directory of the 1,000 largest U.S. industrial corporations. (May 7) 99(9): 269-295; (June 18) 99(12): 157-184.
⁵ Wood-based subsidiary appears in ().
⁶ Forest Industries. 1980. The top 100 lumber producers U.S. and Canada, 1979. (May 30) 107(6):7.
⁷ O'Laughlin, J. 1980. Strategic planning and land-use decision making by the new diversified entrants in the wood-based industry. PhD. dissertation. St. Paul: College of Forestry, University of Minnesota. 333 p. Survey questionnaire answered by 9 companies.
⁸ Dun and Bradstreet. 1979. Million dollar directory. New York: Dun and Bradstreet, Inc. 5164 p. And, Standard and Poor's. 1979. Register of corporations, executives and directors. New York: Standard and Poor's Corp.
⁹ Ellefson, P.V. and M.C. Chopp. 1978. Systematic analysis of the economic structure of the wood-based industry. Staff Paper Series No. 3. St. Paul: College of Forestry, University of Minnesota 335 p.

Appendix B

QUESTIONNAIRE AND SUMMARIZED RESPONSES

This appendix presents key portions of the questionnaire that was completed by the nine companies agreeing to participate in the study. Recall that the original sample companies totaled 24, 15 of which initially agreed to participate.

The responses to the questionnaire are summarized following each question and are divided into two categories, *i.e.* new diversified entrants (N) and traditional wood-based companies (T). The questionnaire is divided into five major units: corporate strategy, strategic planning, corporate structure, woodlands organization, land ownership and land-use.

Corporate Strategy

Name _____

Position _____

1. What is the corporation's overall strategy or mission; that is, what type of company is it trying to be?

In most cases, the mission statement was not as well defined as it appears in the corporate annual report. An analysis of the strategy statements for all 24 study group firms is included in the body of this report and summarized on Table 12.

2. Is there something about the wood-based industry that makes it different than other business enterprises? Yes ____ No. _____. If so, please explain, How is this difference considered in your firm?

All nine firms (N4,T5) responded yes. The responses are summarized as follows:*

New diversified entrants:

- *The industry appears highly diversified because of the many firms involved, but a "very few large concerns with big land holdings dominate the market."*
- *The necessity of the renewable forest resource, which because of its high capital base and requirements make it an attractive part of the company.*
- *Longer time horizon, which means that an acceptable discounted cash flow analytical technique doesn't exist. This is a primary tool for deciding on alternative investment opportunities.*

Traditional wood-based companies:

- *Major raw material (wood) is, in the long run, self-renewing or renewable, but resource planning must involve long time intervals.*
- *Long time span for the timber harvesting cycle; we use very long planning periods and spend large amounts of capital without formal forecasts of acceptable reliability on returns.*
- *Timberland ownership: growing trees is a long-term game. Current profits from this asset are not high in relation to market value.*
- *Solid wood product-markets are susceptible to housing market cycles. We reduce this impact through product development and seeking new markets.*
- *Use of "government owned" renewable resources to produce commodity products.*
- *"With the phenomenon of continuing inflation as a constant on the economic environment, the wood-based industry, with tree growing a significant factor, gives a continuing inflation hedge to an investment in this industry. This concept is further enhanced by continuing physical volume growth of the natural resource — trees."*

*Read: (four new diversified entrants, and five traditional wood-based companies) gave this response.

3. Is there a strategy plan for land-use by the corporation? Yes ____ No _____. If so, is the plan divided by geographical location? Yes ____ No _____. If so, is any particular geographical area or land-use being stressed? How?

All nine firms (N4,T5) responded yes to the first question. The second question was answered affirmatively by eight companies, the exception being one firm (N1) whose ownership was confined to one area. The emphasis was on providing raw material supply or fiber to nearby production or conversion facilities.

4. What is the land-use strategy? Check the statement that best describes your firm's land-use strategy.

- () maximize overall productive capability of land (N3,T2)
- () maximize revenue from use of land [T1]*
- () meet production unit requirements (N1,T3) [N1]
- () long-term highest dollar volume of land [T1]

*[] = secondary land-use strategy.

5. What is the role of land in the overall strategy? Check the example from each set of statements that best describes the role of land in your company's mission.

- Set 1: () Central core of corporate strategy
 () Primary importance (N2,T4)
 () Secondary importance (N2,T1)
 () Not important

- Set 2: () Source of raw material (N4,T3)
 () Future raw material security (T2) [N1,T1]*
 () Raw material less important than other roles

- Set 3: () Increasing importance (N2,T4)
 () Decreasing importance
 () Importance not changing (N2,T1)

*[] = secondary role

6. Is the company set up on a strategic business unit (SBU) or profit center concept? Yes ____ No _____. If so, what are the centers of profit? Strategic business units?

All nine firms (N4,T5) responded yes. Descriptions of the profit centers or SBU's were highly variable.

7. If the company is organized on a profit center or SBU basis, has the company ever eliminated a center because of low profit? Yes ____ No _____. If so, please describe.

Most firms had eliminated a center due to low profit (N3,T4). Two firms (N1,T1) had not. One firm mentioned that the low profit center didn't fit long-range strategic goals.

8. Is the land or timberland division set up as a profit center or SBU? Yes ____ No _____. If so, does it receive any special consideration as related to other centers (special profit requirements)?

Five firms (N3,T2) answered yes. No special considerations were given to the timberland profit centers.

9. What percent of 1978 corporate sales may be attributed to the:

- Timber and Wood (N4) range: 1-12%
- Products Group ____% (T5) range: 2-95%
- Pulp and Paper (N4) range: 0-17%
- Group ____% (T5) range: 0-98%

Have these percentages changed significantly since 1978? Yes ____ No _____. If so, what are they now?

Three firms responded yes (N2,T1); and two of these (N1,T1) were significant product mix changes, one due to an acquisition, another to poor 1980 market conditions.

Does your strategy define what these percentages should be? Yes ____ No ____.

Two firms (N2) responded yes, the others no.

10. What goal has your firm established relative to one or more of the following:

- a. Timberland controlled? ____ (acres) (N2)
- b. Yield in wood volume for mill needs from company timberlands? ____% (N3,T1) range: 30-50%
- c. Not formalized ____ (x) (N1,T4)

11. Pressure for short-term profits can seriously impede the achievement of long-range goals. * Is the necessity for short-term/long-term trade-offs recognized as a major problem at the company? Yes ____ No _____. If not, is it a) because executives are unaware of the occurrence of such trade-offs, or b) because they already have sufficient controls on them?

Six firms (N3,T3) responded yes. Of the three no responses (N1,T2) both T's believed sufficient controls on these trade-offs existed.

*Banks, R.L. and S.C. Wheelwright. 1979. Operations vs. strategy: trading tomorrow for today. *Harvard Business Review* (May-June, 1979) 57(3):112-120.

12. Do the control mechanisms used by top-level management adequately consider short-term/long-term trade-offs? E.g., [(T1) non-response]

- Are goals realistic? Yes ____ No _____. Yes: (N4,T4)
- Do performance measures consider long-range strategic considerations? Yes ____ No _____. Yes: (N3,T4); No: (N1)
- Are lower-level managers knowledgeable about long-term corporate goals and how they contribute to the achievement of those goals? Yes ____ No _____. Yes: (N3,T4); No: (N2)
- Are plans reviewed frequently enough? Yes ____ No _____. Yes: (N4,T4)
- Are organization and staffing changes implemented when required by strategic considerations? Yes ____ No _____. Yes: (N4,T4)

13. Please list all industries that the firm operates in by Standard Industrial Classification (SIC) 4-digit code. (Note: This information will be used to verify and expand on publicly available information, thus will not be treated confidentially.)

Five firms (N2,T3) furnished useable responses to

this question. Information was used to check against the tables in Appendix B.

Strategic Planning

Name _____

Position _____

14. How is the company set up for planning? Is there any special centralized planning or strategy group which is charged with responsibility of deciding upon and defining corporate strategy? Yes ____ No _____. If so, please describe the group. *E.g.* number of personnel, their functions, and responsibilities.

Six of the firms (N3,T3) had special strategic planning groups. The three that did not (N1,T2) indicated that top level management committees considered corporate strategies.

15. If a special group for strategy planning exists, when was it formed?

(N3): 1960, 1965, 1973

(T3): 1960, 1975, relatively new

16. Are strategic plans generated by

line management (N2,T3)

planning staff

(N2,T2) indicated both worked as a team to generate strategic plans

Are operating plans generated by

line management (N4,T5)

planning staff

17. Does your firm make a distinction between long-range planning and strategic planning? Yes ____ No _____. If so, how?

*Four firms (N3,T1) answered yes.**

- *Long-range plan is more financially oriented.*
- *Strategic plans are made for five years, and are prepared and updated regularly. Longer range planning concepts, i.e. forest management, are modified at longer intervals.*

**(T1) did not answer question numbers 17, 18, 19, 20.*

18. What is your definition of a long-range planning horizon? *I.e.* at what point in time does a plan change from either an operational, short-term, or mid-term perspective to a long-range consideration?

*(N2,T2): Beyond 5 years.**

(N1): 3 to 30 years, depending on the business segment.

(N1): Operational planning is annual, strategic planning covers five years. A two-year capital plan is developed to go from annual operating to the strategic plan.

(T1): Three to 15 years.

(T1): More than one year.

**(T1) did not answer question numbers 17, 18, 19, 20.*

19. What is the actual time horizon used by your firm in formulating long-range plans?

*(N1,T1): Five years.**

(N1): 10 years.

(N1): Most groups conceptualize out 10 to 12 years. Forest management is specific on strategies to 20 years and actually plans 35+ years ahead.

(N1): Formal corporate plans three years; division plans at least 5 years, and up to 50 years for woodlands.

(T1): Five years general strategic, 35+ years for timberlands.

(T1): Two to 5 years.

(T1): Three to 5 years.

**(T1) did not answer question numbers 17, 18, 19, 20.*

20. What is the shortest amount of time that would meet your definition of a long-range planning horizon?

*(N2,T1): Five years.**

(N1): Three to 30 years.

(N1): 10 years.

(T2): Three years.

(T1): Two years.

**(T1) did not answer question numbers 17, 18, 19, 20.*

21. Which of the following objectives are quantified in long-range or strategic plans?

Sales (N4,T3).

Profit margin (N4,T3).

Return on investment (N4,T3).

Market share (N4,T2).

Others?*

(N2,T2): Capital spending.

(N1,T1): Cash flow.

(N2): Asset turns or changes.

(N2): Return on sales.

**In addition to those listed, the following were quantified by at least one firm in strategic plans: operating expenses, financing sources, programs, investment base, and products.*

22. How often are strategic or long-range plans reviewed or revised?

(N2,T3): Annually.

(N1): Annually for corporate plan, more often at division level.

(N1): Every two years.

(T1): Semi-annually.

(T1): Unspecified, new process recently installed.

23. Which of the following decision areas are considered in long-range or strategic plans?

Capital spending (N4,T5)

Expansion (N4,T5)

Sales forecasting (N4,T5)

Cash requirements (N4,T5)

Policy formulations (N3,T4)

Investment planning (N3,T4)

Supply/demand projections (N4,T5)

Diversifications (N4,T5)

- Management personnel needs (N4, T3)
 - Research and development (N3, T2)
 - Distribution and expenses, including sales promotion (N3, T3)
 - Production planning (N4, T3)
 - Technological forecasting (N3, T3)
 - Product life cycles (N3, T3)
 - Raw material supply & procurement (N4, T5)
 - Land-use (N4, T3)
 - Implementation of strategic plans (N4, T3)
 - New product development (N4, T3)
 - Organizational structure (N4, T1)
24. Which of the following areas does your firm perceive as benefits to be derived from long-range or strategic planning?
- Able to explore more alternatives (N3, T5)
 - More efficient planning (N3, T3)
 - Better quality decision making (N4, T5)
 - Faster decision making (N2, T1)
 - More timely information (N2, T2)
 - Better understanding of the business process (N3, T4)
 - More accurate forecasts (N1, T1)
 - Cost savings (N2, T1)
 - Management development (broadened view) (N4, T4)
 - Improved communications (N4, T5)
 - Others?
 - Motivator (N1)
25. In which of the following areas has your firm experienced difficulties with its long-range or strategic planning efforts?
- Difficulties in obtaining useful forecasting input data (N1, T5) [N1]*
 - Communications between top management and lower levels (N1, T2)
 - Credibility of output (N3, T2)
 - Staffing (T1)
 - Top management's interest (N1, T1)
 - Coordination of planning efforts (N1, T2)
 - Plan tends to be used as an operating document (N1, T1)
 - No problem (N1)
 - Changing objectives and goals (N1)
- *This firm indicated no problem, but thought lack of useful forecasting input was worth mentioning.*
26. Which of the following environmental factors are contained in long-range or strategic plans?
- Social climate (N2, T1)
 - Political developments (N1, T1)
 - Competitive factors (N4, T5)
 - Population trends (N4, T3)
 - Technological developments (N3, T4)
 - Regulatory developments (N3, T5)
27. Does your firm subscribe to a national econometric forecasting service? Yes ____ No _____. If so, are the forecasts used as input to the planning process?
- All nine firms (N4, T5) responded yes. Two firms (N2) said that this type of information was modified by corporate judgments before being used in the planning process.*

28. Please indicate the relative importance to your firm's planning efforts of the following planning issues by checking one of the four indicated degrees of "important" in the provided space to the right of each of eight key planning issues.

Issue	Description of issue	Most important	Very important	Important	Not important*
Analysis and information	The value of formalized data bases and statistical analyses versus the importance of creativity and the evils of stereotyped planning reports.	()	() [N2,T1]	() [N1,T1]	() [T1]
Assessing strengths and weaknesses	Importance of building on current strengths versus opportunity to be creative and innovative.	()	() [N2]	() [N1,T4]	()
Non-financial objectives	Focus on financial performance measures versus emphasis on other intrinsic objectives such as social responsibility.	()	()	() [N2,T2]	() [N1,T2]
Role of chief executive	Chief executive as a 'decider' or as a facilitator and motivator of planning and strategic decision making.	() [N2,T2]	() [N1]	() [T1]	() [T1]
The time dimension	The 'proper' time span for plans and the planning process — e.g. annual vs continuous.	()	() [N1,T1]	() [N1,T2]	() [N1,T1]
Creativity	The degree to which the fostering of creativity is a part of planning.	()	() [N3]	() [T4]	()
Role of planning staff	Staff as 'recommenders' of strategy or as managers of the planning process.	() [N1]	() [N1]	() [N1,T3]	() [T1]
Constraints and unsolved problems	The degree to which a planning approach may be inappropriate for a particular firm because of special needs, unresolved problems, etc.	()	() [N1]	() [N1]	() [N1,T3]

*(N1) did not respond, as the subsidiary did not want to respond for the corporation. (T1) did not respond; new planning process, and response would vary by division.

*(T1) did not answer question numbers 17, 18, 19, 20.

Corporate Structure

Name _____

Position _____

29. How is the company set up to handle decision making and operations? Check the structure that best describes your firm.

- () Product division (N2,T5)
- () Geographical division [N1,T1]*
- () Functional division (N2)**
- () Matrix [N2]*
- () Other? Please describe.

*Portions of the business organized along these lines.

**Wood-based subsidiaries only. The implication is that all nine firms are organized on product divisions, with subsidiaries often functionally organized.

30. How long has the corporate structure had this form? How was the corporation structured prior to this set up?

- (N2): Fairly recent.
- (N2): More than 10 years.
- (T2): 10 years.
- (T1): More than 25 years.
- (T1): Three years.
- (T1): Decentralized six years ago.

31. How has this structure been functioning?

- (N2,T1): Very well.
- (T3): Well.
- (N1,T1): Ok, good.
- (N1): Not as well as it might (matrix).

What are the advantages?

New diversified entrants with product divisions, some with geographical, functional, and matrix attributes:

- *Functional managers are experts, and can fully use their experience in their operations.*
- *Expertise is concentrated in specific areas.*
- *International division knows the ins and outs of operating in foreign countries.*
- *Allows focus on different issues and reduces duplication.*

Traditional wood-based companies, all with product divisions:

- *Decentralization results in faster response time to changing situations and more responsibility at lower levels.*
- *Profit and asset management responsibility and accountability are most clearly defined.*
- *Entrepreneur-type motivation for profit center managers.*
- *Decentralized motivation to achieve improved results.*
- *Product division managers are visible and aware of their units in the overall context of company affairs.*
- *Product divisions parallel market patterns.*

What are the disadvantages?

New diversified entrants with product divisions, some with geographical, functional, and matrix attributes:

- *Some confusion.*
- *Sometimes a tendency to have a limited perspective of the total company and a limited understanding of the other functions and how they interrelate.*
- *Doesn't allow full interchange of information and understanding among the managers below the group level.*
- *Paper and wood products are world-wide commodities and need to be managed as such. International division lacks in-depth knowledge of the paper business.*

Traditional wood-based companies, all with product divisions:

- *Slight non-coherency between operating companies.*
- *Minor difficulty in applying best professional staff skills to problems and opportunities.*
- *Inter-group communications.*
- *High visibility of product division managers tends to produce short-term decision focus.*
- *Some problems in applying corporate staff efforts to jealous profit center manager's operations.*
- *Product (as opposed to geographic) divisions stretch manager's span-of-control to some extent.*

32. Has (or would) the organizational structure superimposed over the company's wood-based business by its capture into a larger firm by merger affect the operation of its wood-based business? Yes _____ No _____
If so, how?

One firm (T1), responded: Who knows? The remainder were split evenly, with four yes responses (N2,T2).

New diversified entrants:

- *It would depend on the organizational structure imposed, its rigidity, and how it would be put into operation.*
- *There are possible advantages and disadvantages. An advantage might be that the merging firm has captive markets for its other products, and complementary wood-based products put into these existing markets might mean that mills could be operated at higher rates (horizontal integration). A disadvantage might be that the company might not be dedicated to forest products, which is a capital intensive business and would mean fewer dollars for the merged operation.*

Traditional wood-based companies:

- *It might possibly be more difficult to make quick decisions on large-capital land or timber acquisitions.*
- *The large merging firm might want to liquidate timber more rapidly.*
- *Any effect would depend on the character of the larger firm. Successful utilization of the wood-based resource is highly dependent on an in-depth understanding of the nature of the wood/forest products business by top policy setting management.*

33. Is there an individual at the top corporate management level who really understands:

- a) the wood-based business (processing and marketing)?

*Yes: (N2,T5) No: (N1)**

What is this individual's position?

(N1,T1): Executive vice president.

(N1,T1): Chairman; president.

(T1): Chief executive officer, president, and others.

(T1): Chief executive officer.

(T1): Unspecified.

- b) The business of forestry (input to wood-based processes and markets)?

*Yes: (N2,T5) No: (N1)***

What is the individual's position?

(N1): Chairman and chief executive officer.

(N1): Chairman; president.

(T1): Chairman and president.

(T1): Chief executive officer.

(T1): President; chief executive officer, and others.

(T1): Executive vice president.

(T1): Unspecified.

*One new diversified entrant's response was strictly within the subsidiary's viewpoint and is not tallied. However, this company's chief executive was a top level executive with one of the major wood-based companies and presumably would know the wood business and forestry.

**This firm indicated that several of the top level executives that review strategies have had extensive visits and on-the-ground orientations.

Woodlands Organization

Name _____

Position _____

34. What are the objectives of your woodlands organization?

a. Primary objective?

(N3,T4): Provide timber or wood supply for mills.

(N1): Operate as profit center.

(T1): Maximize timberlands' economic productivity.

b. Secondary objective?

(N3): Provide or optimize financial returns.

(N1): Provide fiber for mills.

(T4): Optimize land productivity.

(T1): Future wood supply.

35. What is the organizational structure of your woodlands organization? How many personnel? _____ What are their functions and responsibilities? (Please furnish organization chart if one is available.)

(N2): Furnished charts, were functionally organized. Personnel: 25;300.

(N1): Personnel: 100.

(N1): Geographical and functional organization. Personnel: not given.

(T2): Geographical and functional. Personnel: 621;800.

(T2): Functional. Personnel: 80 salaried; 204 (furnished chart).

(T1): No response.

36. What major changes have occurred in your woodlands organizational structure during the past ten years?

(N3): Combined forest management and wood procurement activities.

(N1,T2): Established as a profit center.

(T1): Decentralized from headquarters to regional control.

(T1): Expanded due to mill expansion and need for more wood; and increased competition for wood.

(T1): None.

37. What percent of your firm's total mill wood requirement is presently being met from company timberlands? _____%

(N4,T2): 30 to 35 percent (T1): 46 percent

(T1): 12 percent (T1): no response

What percent of your firm's total mill wood requirement could be met from company timberlands? _____%

All answers were from 50 to 100 percent.

What is your percent of timber self-sufficiency from:

Fee-owned lands _____%. Most all.

All lands under control _____%. None of the firms rely heavily on leases.

38. What percent of the wood cut on company timberlands is marketed outside the company? Sawlog _____% Pulpwood _____%

(N2): 3 to 10 percent (N1,T4): negligible

(N1): 27 percent (T1): no response

39. In forest resource management planning does the firm use a computerized forest regulation model? E.g. Timber RAM, ForPlan, etc. Please describe the objectives and parameters of the model.

(N2,T3): Harvest scheduling based on timber inventory and growth.

(N1): Economic maximization and mill fiber balance model.

(N1): One under development with corporate operations research department.

(T2): None.

How far into the future do plans based on this model extend?

How many years? _____

(N2,T2): 35 to 40 years.

(N1): 40 to 50 years on economics, no limit on fiber projections.

How many rotation ages (____) of (____) species with a single rotation age of (____) years?

(N1,T1): Southern pine, one rotation of 35 years.

(N1): Southern pine, two rotations of 35 years.

(N1): 10 periods, limited only by growth projection formulas; developing own yield tables.

(T1): 40 years.

40. What percent of your woodlands organization budget is allocated to the following?

	At Present	10 years ago
Management & Operational Activities	_____ %	_____ %
Capital Improvements	_____	_____
Public Relations	_____	_____
Research and/or Development	_____	_____
Administrative Expenses & Salaries	_____	_____
Other	_____	_____
	100%	100%

Note: If this budget breakdown does not accommodate your accounting format, please feel free to substitute headings.

(N4,T2): gave good responses. Only (N1,T2) gave "10 years ago" information. Only change was (T1) increased capital improvements from 5 to 15 percent. (T1): Didn't give any numbers, but said capital improvements now received more emphasis.

Highlights:

Management and operational activities: (N2): 35-40 percent; (N2): 55-60 percent; (T2): 75-80 percent.

Capital improvements: (N1,T2): 15 percent; (N1): 25 percent; (N2): 45-55 percent.

Public relations: (N1,T2): 1 percent.

Research and/or development: (N1,T1): 1 percent;

(N2): 3-5 percent; (T1): 5 percent.
 Administrative expenses and salaries: (N1): 24 percent; (N2): 10 percent; (T2): 2-5 percent.
 Other: (N1): 20 percent.

Land Ownership and Land-Use

Name _____

Position _____

41. What is the total acreage of land currently owned and leased in the land currently owned and leased in the United States?

	Acreage owned	Acrease leased
Northeast	_____	_____
Southeast	_____	_____
Lake States	_____	_____
Northwest	_____	_____
Other	_____	_____

Note: This information will be used to verify and expand on publicly available information, thus will not be treated confidentially.

Responses agreed with what is available from other sources, with one minor exception noted in the body of this report.

42. What is the total acreage of land currently owned and leased in Canada and other foreign countries?

	Canada	Other	(name)
Acreage owned	_____	_____	()
Acreage leased	_____	_____	()

Note: This information will be used to verify and expand on publicly available information, thus will not be treated confidentially.

Responses agreed with what is available from other sources, and are incorporated into Table 5.

43. Indicate with a check mark what change, if any, your firm anticipates in timberland owned or leased.

Owned	Next year	Next 10 years
Increase	(N2,T5)	(N2,T5)
Decrease		
No change	(N1)	(N1)
Leased	Next year	Next 10 years
Increase	(T3)	(T3)
Decrease		(T1)
No change	(N1,T1)	(N1)

44. What were the historical reasons for your firm becoming involved in the ownership of timberlands?

(N4,T2): Secure wood supply or support for mills.
 (T2): Came with acquisition of mill.
 (T1): "To play the paper game in the big leagues, one needs a reasonable timberland base."

45. What are the bases used for evaluating whether or not a particular tract of forest land should be purchased?

(N1): Discounted cash flow rate; long term fiber

balance to mills; other values (mineral, high value land).

(N1): Discounted cash flow of internal rate of return and net present value.

(N1): Present timber volume and future growth potential; estimated future timber value.

(N1): Prioritized as follows: 1) timber stand and type, 2) site productivity, 3) location, 4) price.

(T1): Prioritized as follows: 1) timber cruise and site index evaluations with current market values appraised, 2) proximity to mill and to nearby owned or managed tracts, 3) age and maturity of timber stand, relative to planning model needs, 4) evaluation of the impact of a competitor's acquiring the tract, over the long-term wood supply picture.

(T1): Economic return, location, stocking (gap), productivity.

(T1): Location, stocking, site, cost.

(T1): Strategic importance; return on investment.

(T1): "We need wood today, and will need more wood tomorrow."

46. What is the acreage, year initiated, and amount invested in forestland management activities?

New diversified entrants (N4): In 1979, the four responding companies spent an average of \$2.47 per acre for commercial timber growing.

Traditional wood-based companies (T3): In 1979, the three responding companies spent an average of \$2.24 per acre for commercial timber growing.

(Additional detailed responses to this question may be found in O'Laughlin, 1980.)

47. Where are the land-use activities listed in question 46 planned?

(N1,T3): Woodland operations level.

(N2): Land and timber division or forestry field office.

(N1): Forest division.

(T1): Regional headquarters.

(T1): No response.

48. Where are decisions regarding the land-use activities listed in question 46 made?

(N2,T1): Woodlands operations level.

(N1,T1): Forest division level.

(N1,T1): Division level, senior management or corporate headquarters for more important [more capital] decisions.

(T1): Corporate headquarters.

49. What specific criteria are used to decide on the land-use activities listed in question 46?

() Return on capital _____% (N2,T2)*

() Internal rate of return _____% (T4)**

() Total dollars to be invested (N1,T1)

() Net present value of discounted future cash flows (N2,T2)

() Others?

() Present and future requirements (T1)

(T1): "We sell off or develop the extremely high

value land, and grow trees on the rest — it's just that simple.'

*(N1) said rate of return is not totally restrictive, however, because wood fiber is a necessity to supply manufacturing operations. They take advantage of the opportunity to add value to the basic raw material.

(T1) Specified rate of 15 percent.

(T1) Specified rate of 25 percent, before interest and taxes.

** (T1) Specified rate of 10 percent.

(T1) Specified rate of 15 percent.

(T1) Specified rate of 25 percent, before interest and taxes.

Glossary

Acquisition. The purchase of one **company** by another, whereby the purchased company is swallowed up into the purchasing company. Will be used synonymously with **merger**.¹

Affiliate. A **company** related to another by virtue of ownership, usually less than a 50 percent ownership. Contrast with **subsidiary**, where ownership exceeds 50 percent. See also **joint venture**.

Affiliated company. Davidson (1974, p. 7): "Said of a **company** controlling or controlled by another company."

Authority. **Power** is invested from some source and is exercised through individuals, groups, or organizations (Davis 1976, p. 159).

Charter. Davidson (1974, p. 13): "Document issued by a state government authorizing the creation of a **corporation**."

Collusion. Cooperative action that affects prices (Dewey 1979, p. 588).

Commercial forest land. Land both available and suitable for growing continuous crops of sawlogs or other industrial timber products (USDA Forest Service 1973, p. 8).

Company. A number of persons united or incorporated for joint action, especially business. Used synonymously with **firm**.

Competition. Competition in an industry is rooted in five basic forces: customers, suppliers, potential entrants, substitute products, and established **firms** in the industry (Porter 1979).

Conglomerate (verb). To bring together into a cohering mass; to collect or cluster together.

Conglomerate firm (company or corporation). A firm that has achieved substantial growth by **conglomerate merger**, enough so that it no longer has any readily identifiable major line of business it is associated with. To be distinguished from the **diversified firm**.

Conglomerate merger. See **merger classifications**.

Consolidation. A special **merger** where both **companies** form a single entity and both lose their former identities (Enk 1975, p. 28).

Corporation. Davidson (1974, p. 16): "A legal entity authorized by a state to operate under the rules of the entity's **charter**." Used synonymously with **firm** and **company**.

Diversified firm (company or corporation). A firm that has achieved substantial growth by **conglomerate merger**, but not enough to lose its identity as associated with its major line of business. To be distinguished from the **conglomerate firm**.

Diversification. Koch (1974, p. 207): "Diversification is the combination or **merger** of one **firm** with one or more other firms that are either at different stages in the same productive process or in totally different productive processes."

Division (of a corporation). An organizational subunit, usually delineated by like product classifications in the modern **diversified firm**.

Financial performance measurements. *Forbes* (1980a):

Return on stockholder's equity. Companies obtain their capital from two sources: stockholders and creditors. Return on stockholders' equity is the percentage return on the stockholders' portion of the capital.

Return on total capital. This figure is a "basic" measure of an enterprise's profitability. It is the percentage return on a combination of stockholders' equity (both common and preferred) plus capital from long-term debt. The profit figure used in this computation is the sum of net income; in other words, income before charges (which means, primarily, interest payments on long-term debt) relating to the nonequity portion of the capital.

Net profit margin. This measure gives a view of profits different from either of the preceding two. Calculated by dividing net profits for the latest 12 months by net sales, it reveals what percentage of each dollar of revenue is available for payment of dividends and reinvestment in the business.

Firm. Synonymous with **company**.

Goal. A specific, time-based point of measurement that the organization intends to meet in the pursuit of its **objectives** (Holloway and King 1979).

Growth performance measurements. *Forbes* (1980a):

Sales growth. To even out short-run distortions caused by very poor or very good years, we reach back over ten years to measure five-year sales growth. We compare average sales for the company's most recent five years against the average for the preceding five years and express the change in terms of a five-year compound annual growth rate.

Earnings-per-share growth. As with sales growth, we go back ten years to calculate the five-year rate of earnings-per-share growth.

Holding company. Davidson (1974, p. 27): "A company that confines its activities to owning stock in, and supervising management of other companies. Usually

¹Bold type indicates another term defined in the Glossary.

owns a controlling interest in the company whose stock it holds.”

Horizontal merger. See **merger classifications**.

Influence. The capacity or **power** of persons or things to produce effects on others by intangible or indirect means (Davis 1976, p. 159).

Joint venture. Synonymous with **affiliate**. Usually two **companies**, each with 50 percent ownership in an enterprise.

Large merger. **Merger** involving an exchange of assets in excess of \$10 million. Defined by the Federal Trade Commission.

Market. Where and when the buyers and sellers of a commodity set the terms of the sale or exchange of assets.

Market structure. The economically significant features of a **market** which affect the behavior of **firms** in the industry supplying the market. Main elements are: seller concentration, product differentiation, barriers to the entry of new firms, buyer concentration, height of fixed costs, growth rate of market demand (Caves 1977). See also **structure, industry**.

Merger. The act of combining two or more **companies** into a single entity.

Merger classifications. The Federal Trade Commission classifies mergers in the following groups (Blumberg 1975, p. 73; Mueller 1970, p. 79):

- (1) Horizontal: combination of **companies** making the same or closely related products in the same **market**; *e.g.* two pulp mills in Green Bay, Wisconsin.
- (2) Vertical: a combination of **companies** with a buyer-seller relationship; *e.g.* a pulp mill and a paper maker.
- (3) Conglomerate: a residual classification further subdivided into:
 - a) Conglomerate market-extension: a combination of **companies** making the same or closely related products for sale in different (vertical) geographical **markets**; *e.g.* a fine paper distributor in Chicago and a fine paper distributor in Minneapolis.
 - b) Conglomerate product extension: a combination of **companies** making products which do not compete, but which are related in production or distribution; *e.g.* a fine paper manufacturer and a newsprint manufacturer.
 - c) Other conglomerate: where the **companies** lack any buyer-seller relationships and their products are not functionally related; *e.g.* a paper mill and a manufacturer of gasoline additives.

Mission. A statement of what an organization is, why it exists, and the unique contribution it can make (Holloway and King 1979).

New diversified entrant to the wood-based industry. A **company** entering the **wood-based industry** after

1949, and whose wood-based sales revenues are less than half of its total revenues.

Objectives. A desired or needed result to be achieved in the long-run future (Holloway and King 1979).

Policy. A slippery concept which sometimes means **strategy, objectives, or mission** and sometimes means all three (Holloway and King 1979).

Profit Center. Davidson (1974, p. 39): “A segment of a business responsible for its own revenues and expenses.”

Profitability measurements. See **financial performance measurements**.

Return on stockholders' equity, total capital. See **financial performance measurements**.

Strategic Business Unit (SBU). An SBU is subject to definition by a top management group in the **company** that must continually define the SBU's boundaries. An SBU is to be a relatively independent business **mission** (*i.e.* independent of other SBU's) with a clearly defined set of competitors and the capacity to measure profit and loss. The criteria are fuzzy and require continual updating of the SBU's **charter** (Galbraith and Nathanson 1978, p. 132). An SBU is a **profit center**, but a **profit center** isn't necessarily an SBU; an SBU may have many **profit centers**.

Strategic group. A group of **companies** populating an industry that have highly symmetrical corporate **strategies** (Newman 1978).

Strategic planning. The process of positioning an organization so that it can prosper in the future (Holloway and King 1979).

Strategy. A set of decision rules and guidelines to assist orderly progression toward an organization's **objectives** (Holloway and King 1979).

Structure, industry. A set of fundamental economic and technical characteristics that gives rise to the forces that shape **competition** in an industry (Porter 1979, p. 138).

Structure, organization. The design of the organization through which the enterprise is administered (Chandler 1962).

Subsidiary. Davidson (1974, p. 48): “Said of a **company** more than 50 percent of whose voting stock is owned by another.” Contrast with **affiliate**, whose ownership is less than 50 percent.

Timberland. See **commercial forest land**.

Traditional wood-based company. A **company** in the **wood-based industry** prior to 1949.

Vertical merger. See **merger classifications**.

Wood-based industry. An aggregate of U.S. Dept. of Commerce, Bureau of Census' Standard Industrial Classification for Lumber and Lumber Products Industry (SIC code group 24), Paper and Pulp Products Industry (SIC code group 26), and wood-based portions of the Furniture Industry (SIC code group 25).

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