A FINANCIAL ANALYSIS OF NORTH AMERICAN PULP, PAPER AND PACKAGING FIRMS*

DOROTHY A. PAUN, OLIVIER TRENDEL, JEFFREY MATHEWS, MARK MEAD, YIHAI LIU, KYLE H. CUNNINGHAM, JULIE NELSON, MARK SWANSON, KEVIN HODGSON, AND EDWARD B. KELLEY

A REVIEW OF THE 1997 MARKET AND RESULTS

THIS STUDY ANALYZES FINANCIAL AS WELL AS non-financial dimensions of all publicly owned U. S. and Canadian pulp, paper, and packaging firms, using data provided by 1997 annual reports. Three previous analyses were conducted by the authors in 1994, 1995, and 1996. The study objectives remain unchanged so that readers can compare this information annually (*1, 2, 3*). Several measures of performance are examined, including annual sales, return on equity, and earnings per share. To investigate liquidity, debt to equity ratios are reported. Lastly, capital expenditures and international activities are discussed. A ranking of firms in 1997 is provided and a comparison made between 1997 and 1996. The 1996 financial information used in this study reflects any data restated in the 1997 annual reports.

The *1998 Lockwood Post's Directory of the Pulp and Paper Industry* was used to identify publicly owned North American pulp, paper, and packaging firms. Firms were included in the sample if their primary product or output comprises a pulp or paper product. Three mergers and acquisitions occurred in 1997, namely James River and Fort Howard (Fort James), Wausau Paper and Mosinee Paper (Wausau-Mosinee), and Abitibi Price and Stone Consolidated (Abitibi-Consolidated). In total, 40 U.S. and 19 Canadian pulp and paper firms qualified.

For ease of comparison, all Canadian dollars reported in the annual reports are converted to U.S. dollars using the Bank of Canada 1997 average exchange rate, CAD 1 equals US$ 0.7223, while in 1996 CAD 1 equaled US$ 0.7334 (*4*). ALL DOLLAR AMOUNTS IN THIS ARTICLE ARE STATED IN U.S. DOLLARS.

Keep in mind that the simple method of calculating percent change [1996 amount – 1997 amount/1996 amount] leads to a disproportionate percent change the closer the initial amount (i.e., 1996) is to zero (either +% or –%). For example, a firm that increased return on equity from 1% to 2% (i.e., 100%) did not necessarily do better than a firm that increased from 10% to 15% (i.e., 50%).

INDUSTRY OVERVIEW

In 1997, the United States produced 59 million tons of pulp at 193 mills; almost 2% more than the previous year. This accounts for 33% of world production (*5*) and 45% of world sales (*6*). More than 86 million tons of paper and paperboard were produced at 533 mills, an increase of more than 5% from the previous year, representing 29% of world production (*5*). This increase is more than twice the 2.5% average annual growth rate seen in the previous 10 years. U.S. consumption of paper and paperboard was 90 million tons, an increase of almost 6% (*5*).

Average production operating rates for pulp and paper mills strengthened in 1997, to 94% for paper and 95% for paperboard, compared with 91% and 93% for the previous year (*7*). U.S. paper and paperboard firms limited production capacity increases to 1.9% in 1997, as compared to a 3.5% increase the year before.

U.S. exports exceeded 11% of paper and paperboard production (almost 10 million tons) in 1997, representing an increase of 8% from the previous year. The industry has sustained a 10% average annual increase since 1990 (*8, 9*). Growth in exports of paper and paperboard were due to an increase in sales of corrugating materials (14%), wrapping papers (28%), and paperboard (7%) and to strong shipments to Europe of containerboard for packaging. Exports of printing and writing papers remained about the same, while newsprint exports decreased 5%. Exports of market pulp were 9%, or 5.3 million tons, representing a decrease of 2% (*8*).

*This is a condensed version of the financial analysis. For the full text and complete tables, see TAPPI's Web site at www.tappi.org

Firm	1997 Sales			1996 Sales		
	Pulp and paper annual sales	Total annual sales	Pulp and paper sales as a % of total sales[a]	Pulp and paper annual sales	Total annual sales	Pulp and paper sales as a % of total sales[a]
International Paper	$13,950	$20,096	69	$14,060	$20,143	70
Kimberly-Clark	12,547	12,547	100	13,149	13,149	100
Procter & Gamble	10,113	35,764	28	10,166	35,284	29
Fort James	7259	7259	100	7709	7709	100
Georgia-Pacific	5556	13,094	42	5609	13,024	43
Stone Container	4849	4849	100	5142	5142	100
Champion	4767	5736	83	4962	5880	84
Weyerhaeuser	4609	11,210	41	4648	11,114	42
Tenneco	3995	7220	55	3602	6572	55
Union Camp	3333	4477	74	2716	4013	68
Mean	**2609**	**4233**	**69**	**2624**	**4202**	**69**
Median	**1215**	**1624**	**69**	**1312**	**1605**	**69**

a Column statistics calculated less pulp and paper sales not reported separately from total annual sales

I. Annual sales (millions of $) of the top 10 U.S. pulp and paper firms

Firm	1997 Sales			1996 Sales		
	Pulp and paper annual sales	Total annual sales	Pulp and paper sales as a % of total sales[b]	Pulp and paper annual sales	Total annual sales	Pulp and paper sales as a % of total sales[b]
Abitibi-Consolidated	$2584	$2706	95	$2898	$2994	97
Domtar[a]	1400	1400	100	1450	1450	100
Cascades	1386	1595	87	1527	1541	99
Avenor	1159	1439	81	1215	1512	80
MacMillan-Bloedel	1159	3266	35	1143	3129	37
Fletcher Challenge	975	975	100	1343	1343	100
Noranda Forest	925	1641	56	949	1684	56
Donohue	872	1260	69	875	1201	73
Tembec[a]	851	851	100	631	631	100
Weston	683	10,055	7	656	9321	7
Mean	**767**	**1633**	**58**	**774**	**1567**	**59**
Median	**683**	**1260**	**62**	**631**	**1204**	**59**

a Pulp and paper sales not reported separately from total annual sales
b Column statistics calculated less [a] firms
c 1997 exchange rate C$ 1 = US$ 0.7223
d 1996 exchange rate C$ 1 = US$ 0.7334

II. Annual sales (millions of US$) of the top 10 Canadian pulp and paper firms

Canada, the second largest producer of pulp, had 49 mills manufacturing 25 million tons of pulp, a 2% increase from 1996 (*5*). It was also the world's fourth largest producer of paper and paperboard, with 102 mills producing 19 million tons, a 3% increase (*5*). Canada's consumption of less than 7 million tons of paper and paperboard, almost a 3% decrease, made it one of the few countries whose domestic consumption decreased. The pulp and paper industry in Canada is much less diversified than that of the United States. It mainly manufactures commodities such as pulp and newsprint (*10*). It remains a large net exporter of pulp (41% of production), paper products (77%), and especially newsprint (90%). Overall production operating rates averaged 92%, up from 88% in 1996, despite a production loss of 2% due to employee strikes at many mills. Canadian firms generate about 45% of world sales (*6*).

STUDY FINDINGS

Annual Sales

Net sales (total annual sales minus discounts, returns, and allowances) are presented, followed by pulp and paper sales if reported in the annual report separately from overall sales. Analyzing pulp and paper annual sales, independent of total sales, provides a more accurate picture of firm productivity and position within the industry. Mean pulp and paper sales for both U.S. and Canadian firms declined 1%, while mean total sales increased 1% for U.S. firms and 4% for Canadian firms.

United States. 1997 mean total (i.e., pulp, paper, wood, and non-wood) net annual sales increased 1%, to $4.22 billion from $4.20 billion in 1996 (**Table I**). The median of total annual sales is $1.6 billion, suggesting a relatively high proportion of market share is held by large firms such as International Paper and Kimberly-Clark. Total annual sales range from a low of $70 million (Badger Paper) to a high of $20 billion (International Paper). In this year of slightly decreasing prices, mean pulp and paper 1997 sales decreased 1%, to $2.63 billion from $2.60 billion the year before. The median of pulp and paper sales was $1.2 billion, with a range from $70 million (Badger Paper) to a high of $14 billion (International Paper).

Pulp and paper sales for the largest paper firm in the world, International Paper, were $14 billion, followed by Kimberly-Clark ($12.5 billion), Procter & Gamble ($10.1 billion), the newly formed Fort James ($7.3 billion), and Georgia-Pacific ($5.6 billion). Seventeen firms (42%) earned an increase in pulp and paper sales. The four firms with the largest increases in sales each acquired additional capacity during 1997: FiberMark acquired Custom Papers Group and Arcon Coating; Rock-Tenn acquired four paperboard and corrugating facilities; Union Camp acquired one paper and two packaging facilities; Buckeye Cellulose acquired Merfin International.

A majority of U.S. firms (23 firms or 58%) report a decline in pulp and paper sales, an improvement over 1996, when 28 firms (65%) had declining sales. Prices declined in 1997, and the industry as a whole continued to suffer from overcapacity. Firms with the largest decline in pulp and paper sales are Louisiana-Pacific (–27%), Gaylord Container (–18%), Bowater (–16%), Boise Cascade (–16%), and Badger Paper (–8%).

Canada. 1997 mean total (i.e., pulp, paper, and other products) net annual sales increased 4%, to $1.6 billion from $1.5 billion, with a median of $1.3 billion (**Table II**). The range in total annual sales is $164 million (Harmac Pacific) to $10 billion (Weston). A factor contributing to the greater increase in sales, compared with U.S. firms, is the depreciation of the Canadian dollar. In 1997, mean pulp and paper sales declined 1%, to $767 million from $774 million. Median pulp and paper sales is $683 million, with a range from $82 million (Slocan) to $2.6 billion (Abitibi-Consolidated). Sales by Abitibi-Consolidated, Canada's largest pulp and paper firm, earned $2.6 billion in paper sales, followed by Domtar at $1.4 billion, Cascades ($1.4 billion), Avenor ($1.2 billion), and MacMillan-Bloedel ($1.2 billion). Eleven firms (58%) report an increase in pulp and paper sales, with Alliance and St. Laurent realizing the largest increases at 115% and 91%. Tembec (35%) and Doman (14%) experienced fairly large increases, primarily due to increased capacity from acquisitions and expansions. Alliance's acquired Coosa Pines facilities in Alabama, St. Laurent bought Chesapeake's facilities in West Point, VA, and Tembec acquired Spruce Falls and Pine Falls Paper facilities.

Eight firms (42%) report a decrease in pulp and paper sales, compared with 1996 when only five firms had declining sales. The five largest decreases are reported by Fletcher Challenge (–27%), Abitibi-Consolidated (–11%), Cascades (–9%), Slocan (–7%), and Avenor (–5%).

Return on Equity

Return on equity (ROE) is net income divided by average shareholders' equity and is the ratio of income earned per dollar of owner investment. The mean ROE for U.S. firms decreased 60% while Canadian mean ROE declined a stunning 149%.

United States. Mean ROE for U.S. firms decreased 40% in 1997, to 3.5% from 8.7% (**Table III**). These means do not include the same number of firms in 1997 and 1996 due to merger and divestiture activity. Three firms, Wausau-Mosinee, Sealed Air, and Fort James, resulted from mergers, and Schweitzer-Mauduit, formerly a wholly incorporated subsidiary of Kimberly-Clark, is now independently owned by shareholders. Thus, 1996 data for those firms are not available for the computation of the rate of change in ROE. Mean ROE would be 8.9% if the two firms with the lowest ROEs, Gaylord Container (–110%) and Stone Container (–77.9%) are removed from the mean. Median ROE is 6.1% in 1997, compared with 10% the year before, a decrease of 39%. Return on equity ranges from a high of almost 40% (Buckeye Cellulose) to a low of –110% (Gaylord Container).

Thirty (75%) firms have a positive ROE, led by Buckeye Cellulose with a ROE of 39.6%. Its exceptional results may be explained by a combination of high value-added product mix (specialty cellulose and absorbent products), a strong presence outside of the United States, a culture of employee ownership (45% of the firm's stock), and performance-based compensation. Procter & Gamble had the second largest ROE (28.7%). It attributed part of its good results to cost reduction via global simplification and standardization. The Republic Group had the third best ROE (28%), followed by Schweitzer-Mauduit

(27%) and Caraustar Industries (26.6%).

Rayonier had the largest percent increase in ROE (198%) reaching 13.9%. This is due to the balance between its business segments (specialty pulps, timber, and wood products) and its strong global position. The remaining four firms with the largest percent increase in ROE are Pope & Talbot (164%), Chesapeake (70%), Louisiana-Pacific (42%), and Republic Group (6%).

Gaylord Container and Stone Container, makers of paperboard and paper packaging, reported the poorest results in 1997, with ROE of –110% and –77.9%. This was attributed to lower product prices from significant excess containerboard capacity relative to demand, and the high price of recycled fibers. Other poor ROE performers were Champion International (–15.7%), Badger Paper (–13.8%), and Louisiana-Pacific (–7.5%).

Firms with the largest decrease in ROE were Gaylord Container (–1556%), Champion (–513%), Stone Container (–456%), Boise Cascade (–444%), and International Paper (–147%).

Firm	1997%	1996%	%Change
Buckeye Cellulose	39.6	38.2	4
Procter & Gamble	28.7	27.3	5
Republic Group	28.0	26.3	6
Schweitzer-Mauduit	27.0	NA[a]	NA[a]
Caraustar	26.6	37.4	-29
Kimberly-Clark	20.9	34.5	-39
Lydall	19.0	22.5	-16
Bemis	17.8	18.7	-5
Wausau-Mosinee	15.8	NA[b]	NA[b]
Rayonier	13.9	–14.1	198
Mean	**3.5**	**8.7**	**–60**
Median	**6.1**	**10.0**	**–39**

a NA = not applicable; no previous record
b NA = not applicable due to merger

III. Return on equity of top 10 U.S. pulp and paper firms

Firm	1997%	1996%	% Change
Weston	14.5	15.3	–5
Donohue	14.0	22.2	–37
Cascades	10.9	17.5	–38
West Fraser	8.0	11.8	–32
Fletcher Challenge	6.1	8.1	–25
Alliance	4.1	17.3	–76
Domtar	1.9	7.8	–75
Noranda Forest	1.4	1.9	–26
Slocan Forest	0.9	9.8	–90
Doman	–0.6	–12.1	95
Mean	**–2.0**	**4.1**	**–149**
Median	**0.2**	**2.6**	**–94**

IV. Return on equity of top 10 Canadian pulp and paper firms

Canada. While U.S. firms report convertible debentures in the liability section of the balance sheet, Canadian firms report it in both the liability and shareholders' equity sections. For an accurate comparison of ROE for U.S. and Canadian firms, debentures reported in the Canadian equity section are subtracted from average shareholders' equity in the computation of ROE.

Mean ROE was –2%, compared with 4.1% the year before, and represents a 149% decline (**Table IV**). The median declined 94%, to 0.2% in 1997 from 2.6%. ROE ranges from a high of 14.5% (Weston) to a low of –33.7% (Crestbrook).

Nine (47%) pulp and paper firms report a positive ROE. Canadian pulp and paper firms report poorer returns than their U.S. counterparts. This is perhaps due to the manufacturing emphasis on commodities, such as pulp and newsprint, which tend to be more affected by low prices. The best performer was Weston, with a ROE of 14.5%. Donohue had the second largest ROE (14%). It attributed its strong performance to integrated operations, a complementary product mix, modern facilities, low production costs, and long term supply agreements with many customers. Cascades, West Fraser and Fletcher Challenge complete the top five group, with ROEs of 10.9%, 8.0% and 6.1%. Only three firms experienced an increase in percent change of ROE: Doman (95%), Harmac Pacific (48%), and Canfor (37%).

The poorest performer in 1997, as in 1996, was Crestbrook (–33.7%), a manufacturer of pulp, lumber, and value-added wood products. It attributed substandard results to financial obligations and deteriorating pulp markets. MacMillan-Bloedel (–21.8%) explains poor results as due to restructuring costs, unusual charges, and, to a lesser extent, weak markets and lower prices for containerboard, paper and building materials. The third poorest performer is Avenor (–19%). Avenor manufactures primarily newsprint and pulp and was affected by low prices along with the rest of the Canadian pulp and paper industry.

Firms with the most dramatic downturns in ROE since 1996 are St. Laurent (–2827%), Avenor (–2137%), MacMillan-Bloedel (–930%), Crestbrook (–108%), and Slocan (–90%).

Earnings Per Share

Many analysts use earnings per share (EPS) to evaluate performance. As of December 1997, U.S. firms must report basic EPS instead of the previously used primary EPS, and show both basic and diluted EPS. Basic EPS is computed by dividing net income by the weighted-average number of common shares outstanding for the period; diluted EPS reflects the potential dilution of per-shareholder earnings that would occur if contracts to issue common stock were exercised.

United States. Mean diluted EPS in 1997 and 1996 are $0.55 and $1.21, reflecting a decrease of 66% (**Table V**). The decline in the EPS median is 24%, to $1.13 in 1997

Firm	1997	1996	% Change
Rayonier	$2.97	$–3.28	191
Buckeye Cellulose	2.79	2.04	37
Schweitzer-Mauduit	2.77	2.38	16
Consolidated Papers	2.62	4.00	–35
Procter & Gamble	2.28	2.01	13
Chesapeake	2.08	1.27	64
Caraustar Industries	2.03	2.28	–11
Bemis	2.00	1.90	5
Sealed Air	1.88	1.63	15
Tenneco	1.84	2.34	–21
Mean	**0.55**	**1.21**	**–66**
Median	**1.13**	**1.48**	**–24**

V. Earnings per share of top 10 United States pulp and paper firms

Firm	1997[a]	1996[b]	% Change
Weston	$3.94	$3.81	3
West Fraser	1.66	2.28	–27
Donohue	1.26	1.66	–25
Fletcher Challenge	0.69	0.91	–24
Cascades	0.61	1.00	–39
Alliance	0.57	2.35	–76
Repap Enterprises	0.12	2.93	–96
Doman	0.12	1.12	–90
Domtar	0.11	0.46	–77
Noranda Forest	0.04	0.07	–41
Mean	**–0.02**	**0.77**	**–284**
Median	**0.04**	**0.46**	**–76**

a 1997 exchange rate C$1 = US$0.7223
b 1996 exchange rate C$1 = US$0.7334

VI. Earnings per share (US$) of top 10 Canadian pulp and paper firms

from $1.48. Earnings per share ranges from a low of -$5.72 to a high of $2.97. In 1997, the depressed pulp and paper markets and low prices resulted in more firms reporting negative EPS values than in the previous year. In comparison, the 1996 EPS range was from a low of -$3.28 to a high of $4.55.

Twenty-eight firms (70%) earned a positive EPS. Rayonier reported the largest EPS at $2.97, attributing it to a non-operating gain of $8 million related to the sale of New Zealand timber assets. Rayonier's apparent success also reflects the absence of losses from a closed pulp mill and lower minority interest, interest expense, and tax rate. Buckeye Cellulose had the second largest EPS at $2.79, primarily due to an increase in sales and a more value-added product mix.

Rayonier had the largest EPS increase (191%). A relatively strong performance in 1997, plus a low EPS the year (from a charge of $125 million associated with the closure of a pulp mill) contributed to this positive trend.

Champion has the lowest EPS of -$5.72, due to a special restructuring charge and weak pulp and paper markets. The remaining four firms with weak EPS include Stone Container (-$4.29), Crown Vantage (-$3.61), Georgia-Pacific (-$1.60), and Gaylord Container (-$1.55).

Canada. There is a major difference between the U.S. and Canadian accounting principles concerning the calculation of EPS, so a direct comparison between the performance of firms in the two countries is not particularly meaningful. Mean EPS in 1997 and 1996 are -$0.02 and $0.77, a decrease of 284% (**Table VI**). The median for EPS experienced a decline to $0.04 in 1997 from $0.46, a decrease of 76%. Across firms, EPS ranges from a high of $3.94 (Weston) to a low of -$2.77 (Crestbrook).

Eleven firms (58%) earned a positive EPS. Weston had the largest EPS ($3.94). It does business in food processing and distribution as well as forest products. The diversified nature of the firm may have decreased the negative influence of the weak pulp and paper markets, and it is one of only three firms to experience an increase (3%) in 1997 EPS over 1996. West Fraser ($1.66), Donohue ($1.26), Fletcher Challenge ($0.69), and Cascades ($0.61) complete the top five list for EPS, but, unfortunately, all experienced a decline in EPS this year.

As mentioned, only three firms increased EPS in 1997. Despite net losses in 1996 and 1997, Harmac Pacific experienced the largest percent increase in EPS with a gain of 46%. The net loss is offset in part by reduced raw material costs, leading to a decrease in net loss from 1996 to 1997. Canfor and Weston report EPS increase of 43% and 3%.

Firms with the lowest EPS were Crestbrook (-$2.77), Avenor (-$2.40), MacMillan-Bloedel (-$2.16), St. Laurent (-$0.71), and Harmac Pacific (-$0.53). The poor results are attributable to the continuing weak markets and low prices. MacMillan-Bloedel also has restructuring costs and unusual charges that contributed to a low EPS.

Debt to Equity

The debt to equity ratio measures indebtedness and compares total liabilities to total shareholders' equity. Firms with debt to equity ratios greater than one are generally considered to assume more than average risk. In capital-intense industries such as pulp and paper, the mean debt to equity ratio will exceed 1.0 and may climb as high as 2.0 or 3.0. It is assumed that a firm with a high debt to equity ratio should exhibit strong net earnings in order to pay rapidly accumulating interest. Conversely, firms with a debt to equity ratio lower than the industry mean might investigate capital expansion through borrowing. Firms with low earnings and high debt to equity ratios–and there are several–face a challenging future.

United States. The mean debt to equity ratio was 3.0 in 1997 as compared with 1.9 the year before (**Table VII**), representing a 55% increase; most of the change was attributable to changes in shareholders' equity at Fort James, Stone Container, and Gaylord Container. The mean debt to equity ratio is 3.0 for all firms but only 1.5 when firms with a ratio greater than 10 or a negative ratio are excluded from analysis. When compared with the year before,that represents an 8% increase and indicating a trend toward controlled increases in borrowing. Similarly, the median presents a better representation of industry leverage, increasing marginally (0.1%) to 1.5 in 1997 from 1.4 the year before.

Debt to equity ranged from a low of 0.2 (Sealed Air) to a high of 25.9 (Gaylord). The five firms with the lowest debt to equity ratios used different strategies to control debt, ranging from repayment of long term debt to reinvestment of earnings to increase shareholders' equity

Firms with the largest debt to equity ratios included Georgia-Pacific (2.7) and Buckeye Cellulose (4.7). Fort James' debt to equity rose to 12.2 in 1997 from 8.6 due to combined debt with the merger of Fort James and Fort Howard. The extraordinary costs of $132 million will be refinanced through the issuance of $1.3 billion in debt securities. Stone Container had the second largest debt to equity ratio of 20. Gaylord Container, was the most leveraged firm at almost 26. It increased debt from $634 million to $716 million to retire loans.

Firm	1997	1996	Change
Sealed Air	0.2	0.2	–6
Republic Group	0.3	0.7	–58
Greif Bros.	0.4	0.3	34
Lydall	0.4	0.5	–24
Wausau-Mosinee	1.0	0.9	5
Louisiana-Pacific	1.0	0.8	20
Temple-Inland	1.1	1.1	–5
Bemis	1.1	1.1	6
Westvaco	1.1	1.0	14
Chesapeake	1.2	1.8	–34
Mean	**3.0**	**1.9**	**55**
Mean*	**1.5**	**1.4**	**8**
Median	**1.5**	**1.4**	**0.1**
Median*	**1.5**	**1.4**	**0.1**

* (excluding firms >10)

VII. Debt to equity ratios of top 10 United States pulp and paper firms

Firm	1997	1996	% Change
Fletcher Challenge	0.3	0.5	–36
Harmac Pacific	0.5	0.5	4
Alliance	0.8	0.6	39
St. Laurent	0.8	0.8	2
Abitibi-Consolidated	1.0	0.9	12
Noranda Forest	1.0	1.0	7
Donohue	1.2	1.5	–22
Domtar	1.3	1.1	20
West Fraser	1.3	1.4	–3
Avenor	1.6	1.6	–4
Mean	**1.7**	**1.7**	**1**
Median	**1.5**	**1.5**	**0**

VIII. Debt to equity ratios of top 10 Canadian pulp and paper firms

Canada. The mean and median debt to equity ratios did not change between 1997 and 1996 at 1.7 and 1.5, respectively (**Table VIII**). The percent change from 1996 to 1997 showed no dramatic fluctuations with a range from 49% to –36% (excluding the –203% change for Repap Enterprises).

Debt to equity ranged from a low of 0.3 (Fletcher Challenge) to a high of 5.5 (Crestbrook). Significant debt refinancing and consolidation characterized the five firms with the lowest debt to equity ratios. Fletcher Challenge had the lowest debt to equity ratio of 0.3, a 36% decrease from the year previous. Fletcher Challenge sold West Forest Limited to fund refinancing and restructuring which reduced overall operations by $30 million. The second lowest 1997 debt to equity ratio of 0.5 for Harmac Pacific is little changed from 1996. Harmac Pacific decided to only invest in projects with high rates of return or projects contributing directly to cost reductions and plant efficiencies. Alliance is third lowest with a debt to equity ratio of 0.8, a 39% increase. Alliance issued $552 million of stock to finance the purchase of the Coosa Pines facilities.

Firms with relatively high debt to equity ratios (ranging from 2.1 to 5.5) include Weston, with a modest decrease in debt to equity ratio to 2.3 in 1997, from 2.4 the year before, due to debt restructuring and gains in equity. Cascades' increase in the debt to equity ratio, to 3.1 in 1997 from 2.6, was fueled by an increase in long term debt through refinancing due to repayment of mature debt. At the bottom of the list, Repap's–81.8 debt to equity ratio is due to a 142% decrease in shareholders' equity.

CAPITAL EXPENDITURES

Capital expenditures are additions of property, plant, and equipment; technological improvements; and regulatory upgrades. Capital expenditures correlate directly with the size of annual sales. Removing firm size effect is achieved through reporting also the capital intensity ratio (pulp and paper capital expenditures divided by pulp and paper sales). Pulp and paper capital expenditures, acquisitions, and sales are separated for this analysis from those of other business segments; however, about one quarter of all firms did not report pulp and paper capital expenditures or sales on a segmented basis, so total capital expenditures and sales are used to calculate capital intensity.

United States. Mean capital expenditures in 1997 decreased 21% to $170 million, from $214 million the year before (**Table IX**). The median remained essentially the same at $126 million over the past two years. Cautious spending may be due to continued weak prices and global overcapacity. All major production increases came from acquiring existing capacity. Pulp and paper expenditures range in 1997 from a high of $944 million (Kimberly-Clark) to a low of $4 million (Louisiana-Pacific).

Firm	1997 pulp/paper expenditures and acquisitions	1996 pulp/paper expenditures	Change in pulp/paper expenditures[a] %	1997 Capital intensity[ab] %	1996 Capital intensity[ab] %
Kimberly-Clark	$944/$82	$884	7	8	7
Procter & Gamble	855/1850	804	6	8	8
International Paper	676	792	-15	5	6
Westvaco	512	438	17	19	16
Georgia-Pacific	440	433	2	8	8
Willamette Industries	439	342	28	20	15
Mead	404	396	2	12	14
Tenneco	335/380	341	-2	8	9
Weyerhaeuser	327/13	415	-21	7	9
Champion	247	339	-27	5	7
Mean	**170**	**214**	**-21**	**9**	**11**
Median	**126**	**126**	**0**	**7**	**9**

a Acquisitions not included in calculation
b Capital intensity represents pulp and paper capital expenditures/pulp and paper sales

IX. Capital expenditures (millions) of top 10 U.S. pulp and paper firms

Kimberly-Clark and Procter & Gamble lead in the amount of pulp and paper capital expenditures at $944 million and $855 million, followed by International Paper ($676 million), Westvaco ($512 million), and Georgia-Pacific ($440 million). The most substantial change in position for the top five firms this year results from Boise Cascades' 64% reduction in capital expenditures, dropping in rank of fourth to fourteenth. The most reported reasons for pulp and paper capital expenditures are to improve productivity and modernize facilities. Only eighteen firms (45%) increased capital spending in 1997. Those firms with the largest decreases in pulp and paper expenditures include Louisiana-Pacific (–89%), Boise Cascade (–64%), Chesapeake (–60%), Greif Bros. (–51%), and Stone Container (–46%).

Mean capital intensity declined to 8% in 1997 from 10%. Firms with the largest capital intensity are Longview Fibre (24%), Rock-Tenn (22%), Westvaco (19%), Rayonier (19%), and Consolidated Papers (14%).

No firms from the U.S. or Canada report construction of greenfield production facilities in 1997, so it appears that production increases come from acquiring existing capacity. Noteworthy acquisitions during 1997 include Tambrands by Procter & Gamble ($1.9 million), packaging facilities from KNP by Tenneco ($380 million), four paperboard and converting facilities by Rock-Tenn ($301 million), Repap Enterprises USA by Consolidated Paper ($258 million), and Merfin International by Buckeye Cellulose ($151 million).

Additional insights on capital effectiveness are found by computing the return on capital employed. Return on capital employed is calculated by dividing net earnings plus after tax interest expense by total assets less non-interest bearing current liabilities. Of the 100 largest publicly owned forest and paper products firms worldwide, 35 firms are located in the U.S. The mean return was 3.1% in 1997, down from 5.7% in 1996, a 46% decline. Only two firms (Louisiana-Pacific and Rayonier) in this group showed a negative return on capital employed in 1996, –8.5% and –4.1% respectively. However, in 1997 there were five firms with a negative return on capital employed, Champion International (–4.8%), Stone Container (–2.6%), Temple-Inland (–0.4%), Louisiana-Pacific (–3.7%), and Gaylord (–4.1%) (*6*)

Canada. Mean capital expenditures decreased 31%, to $68 million in 1997 from $68 million the previous year (**Table X**). The median declined 7%, to $45 million from $48 million. In 1997, pulp and paper expenditures range from a high of $316 million (Abitibi-Consolidated) to a low of $3 million (Crestbrook).

Canadian firms spending the most for pulp and paper capital expenditures are Abitibi-Consolidated ($316 million), Alliance ($124 million), MacMillan-Bloedel ($122 million), Weston ($103), and Cascades ($100). Six firms (32%) increased capital expenditures in 1997. Firms reporting the largest increase in pulp and paper improvements are Crestbrook (76%), Weston (68%), Canfor (27%), Harmac Pacific (25%), and Alliance (23%). Common explanations for increasing expenditures are machine and equipment upgrades, new equipment for environmental compliance, and maintaining existing assets. Firms with the largest decreases in capital expenditures are Slocan (–80%), Avenor (–65%), Domtar (–63%), Noranda Forest (–43%), and Abitibi-Consolidated (–36%).

Mean capital intensity decreased to 10% in 1997 from 13%. The firm with the largest capital intensity was Cascades (39%), arising from equipment upgrades and major capacity and productivity improvements. Alliance increased capital intensity 30% because of an expensive paper machine conversion. Weston (15%) invested in an upgrade of the Vancouver operation.

Firm	1997 pulp/paper expenditures[b] and acquisitions[b]	1996 pulp/paper expenditures[c]	Change in pulp/paper expenditures[d] %	1997 Capital intensity[de] %	1996 Capital intensity[e] %
Abitibi-Consolidated[a]	$316	$491	–36	12	16
Alliance	124/604	101	23	30	53
MacMillan-Bloedel	122	142	–14	11	12
Weston	103	62	68	15	9
Cascades	100/48	107	–7	39	7
Domtar[a]	95	260	–63	7	18
Noranda Forest	89	157	–43	10	17
Fletcher Challenge	83	115	–28	9	9
Avenor	66	191	–65	6	16
Donohue	45	47	–6	5	5
Mean	**68**	**98**	**–31%**	**10**	**13**
Median	**45**	**48**	**–7%**	**7**	**11**

a Pulp and paper sales not reported separately from total annual sales
b 1997 exchange rate C$ 1 = US$ 0. 7223
c 1996 exchange rate C$ 1 to US$ 0.7334
d Acquisitions not included in calculation
e Capital intensity is annual pulp and paper capital expenditures/pulp and paper sales

X. Capital expenditures (millions of US$) of top 10 Canadian pulp and paper firms

Major Canadian acquisitions include a $604 million acquisition by Alliance of Coosa Pines pulp, paper, and woodlands facilities. St. Laurent acquired converting facilities from Chesapeake for $362 million. Tembec, as discussed earlier, acquired Spruce Falls production facilities for $142 million.

Of the 100 largest firms worldwide, 17 firms are from Canada. Mean return on capital employed was 0.7% in 1997, down from 4.2% in 1996, a 83% decline. Four firms (Canfor, St. Laurent, International Forest Products, and Doman) showed a negative return on capital employed in 1996, –1.3%, -0.3%, -3.0% and -1.8% respectively. However, in 1997 there were 5 firms that showed a negative return on capital employed, MacMillan-Bloedel (–8.0%), Abitibi-Consolidated (–1.0%), Avenor (–5.8%), Canfor (–0.1%), and St. Laurent (–1.4%) (*6*)

International Business Activities

Having both foreign and domestic sales helps cushion firms from cyclical market downturns. Most U.S. pulp and paper firms (43 or 85%) and all 19 Canadian firms sell globally. Average 1997 foreign net annual sales for U.S. pulp and paper firms decreased 1%, to $1.51 billion from $1.53 billion in 1996. The median foreign net annual sales was $394 million, representing a 36% increase over 1996 mean sales of $290 million. On average, 22% of annual sales were from abroad while 78% were domestic.

The top five firms in foreign sales were Procter & Gamble ($17.5 billion), International Paper ($5.8 billion), Kimberly-Clark ($5.3 billion), Weyerhaeuser ($2.9 billion), and Tenneco ($2.4 billion). Each had extensive product lines and distribution systems. Procter & Gamble continued to dominate the top five firms, accounting for 51% of the top five foreign sales and did not experience any noticeable change in the level of foreign sales. International Paper, Kimberly-Clark, and Weyerhaeuser, showed a decrease in foreign activity of –4%, –3%, –7%, respectively. Tenneco, the only firm in the top five to expand sales, reported a 19% increase through a series of mergers with overseas producers.

A series of mergers by smaller firms produced the largest increases in foreign sales capacity. Most notably, Buckeye Cellulose (440%) merged with specialty cellulose firms in Germany and Canada. Likewise, Boise Cascade, through internal growth and mergers, achieved a 75% increase in foreign sales. FiberMark merged with Gessner in Germany for a 58% increase in foreign sales.

Canada. Canadian firms depend on foreign sales because of relatively low domestic demand in comparison to production capacity. Average 1997 foreign net annual sales for Canadian pulp and paper firms decreased 2%, to $656 million from $667 million in 1996. Median foreign net annual sales was $683 million, a 7% increase over the 1996 median sales of $637 million. On average, 40% of annual sales were from abroad. Overall, Canadian firms focused on recovering from negative effects of the Asian financial crisis.

Abitibi-Consolidated led Canadian firms in foreign sales ($1.9 billion), representing a 14% increase. This is the result of a merger with Stone Container, creating the largest newsprint producer in the world. MacMillan-Bloedel fell from first place to second with a slight decrease (–2%) in foreign sales to $1.3 billion. MacMillan-Bloedel suffered greatly from the downturn in the Asian market. It was divesting its groundwood paper production facilities and planned to focus more on solid wood products. Weston ($1.1 billion) advanced to third, despite a 29% loss of foreign sales. Canfor ($1 billion) and Donohue ($990 million) fill out the top five, both having a 4% increase in foreign sales.

St. Laurent had the most dramatic increase in foreign sales (159%) with the corresponding facility acquisitions from Chesapeake. Harmac Pacific worked its way to a 16% increase through reorganization and aggressive expansion of its foreign customer base. Other firms having a large increase in foreign sales included Doman (15%) and Abitibi-Consolidated (14%).

DISCUSSION

The financial future of the North American pulp and paper industry will be affected by factors at work since the early 1990s. These factors include the continued growth of Asian and Latin American firms as serious competitors, continued consolidation through mergers and acquisitions and corporate restructuring, and a somewhat more restrictive domestic business climate.

Asia, Latin America, and other foreign competitors

Between 1990 and 1995, paper and paperboard consumption in Asia and Latin America increased a total of 27% and 17%, while North American consumption grew by only 6.5% (*11*). These differences are projected to at least continue, if not widen, in the next deacde.

During this same time, Asia and Latin America have become major producers of paper products, with state-of-the-art mills. Meanwhile there are many smaller, aging North American mills (particularly in the Pacific Northwest and New England regions) in need of modernization to remain economically viable. This means the competition to garner the increased consumption offshore will be fierce due to the erosion of North America's prior advantages of superior technology and economy of scale. Therefore, North American producers must offer unique, value-added products, which requires aggressive product development practices and creative thinking.

Mergers and Acquisitions

The consolidation of the pulp and paper industry through strategic mergers and acquisitions will in all likelihood continue, as seen in the recent buyout of Union Camp by International Paper. Industry consolidation is driven by the necessity of North American producers to continue to drive production costs down and maintain or increase market share relative to overseas competitors. These objectives are often easier to achieve with the financial and personnel resources of a large firm.

Firms not participating in mergers and acquisitions will still face the need to restructure. Decisions to close outdated or inefficient mills will need to made in the next few years, with resulting personnel layoffs.

Business Climate

To succeed in the next millenium, major changes are needed in the way the North American pulp and paper industry operates. Agenda 2020, a joint government-industry-academia program, is a shared technological vision of where U.S. industry needs to be in the year 2020 to remain competitive internationally. The American Forest & Paper Association and U.S.Department of Energy are carrying it forward through substantial research funding to academic, industrial, national laboratory cooperatives. The success of these research ventures will greatly influence the future health of the industry. However, technological change by itself will probably not be enough. A different style of management that responds to market conditions and demands at a much more rapid pace will also be required (*12*). **TJ**

Paun is associate professor of Forest Products Marketing, University of Washington, Seattle, WA; Trendel, Mathews, Mead, Liu, Cunningham, Nelson, Swanson and Hodgson are students at the University of Washington; and Kelley is Director, PricewaterhouseCoopers LLP.

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