
Global Forest, Paper & Packaging Industry Survey

2016 edition survey of 2015 results



Forest, Paper & Packaging
www.pwc.com/fpp

Leaders' message

Welcome to the PwC Global Forest, Paper & Packaging Industry Survey—2016 Edition. The Survey, now in its 19th year, provides insight into the industry's major companies and an overview of the issues and events shaping the industry. This year's Survey summarises the 2015 publicly available year-over-year financial information of the PwC Top 100—the 100 largest forest, paper and packaging (FPP) companies in the world, ranked by sales revenue.

PwC Top 100 companies (US \$ billions¹)

	2015	2014	2013	2012	2011
Sales revenue	317.2	333.2	355.2	352.9	353.8
Operating profit	29.3	28.5	28.1	22.7	23.7
Net income (loss)	12.1	14.3	13.7	10.5	10.7
Return on sales	9.2%	8.5%	7.9%	6.4%	6.7%
Return on capital employed	3.8%	4.2%	4.4%	4.6%	4.1%
Capital expenditures	21.2	21.7	21.3	22.2	21.9
Depreciation	17.9	17.2	19.0	20.6	22.3
EBITDA margin	14.3%	13.0%	14.0%	12.3%	13.0%

1. Throughout the Survey all currency references are in US dollars unless otherwise noted.

2. Refer to the Methodology section on page 16 for the definition of return on capital employed.

† Inclusive of paper packaging only.

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As this year's Survey results show, most key financial indicators were similar to 2014. Revenues decreased but operating profits remained consistent with 2014 primarily due to the strengthening US dollar.

The PwC Top 100 list remained relatively unchanged in 2015. Notable transactions include Weyerhaeuser's merger with Plum Creek and Verso's acquisition of New Page in January 2015. Notable divestitures include Nampak's spinoff of its South Africa paper division.

Our 29th Annual Global Forest & Paper Industry Conference took place May 4, 2016 in Vancouver, BC. With the theme, Transformation through Innovation, more than 350 CEOs, senior executives, and PwC leaders discussed how companies are capitalizing on new business opportunities and adjusting their business strategy to deal with a tumultuous economic climate.

The 30th Annual Conference will be held on May 10, 2017 in Vancouver as part of the Forest Products Leadership Summit 2017 (www.forestproductssummit.com).

With our thought leadership and depth of industry knowledge, PwC has been able to satisfy our clients' business needs and surpass their expectations by offering proactive solutions to help them identify and capitalise on trends. For more information about the services offered by PwC's Global Forest, Paper & Packaging Industry Practice, please contact one of the professionals in your region listed inside the back cover of this Survey. We hope you enjoy the 2016 edition of the PwC Global Forest, Paper & Packaging Industry Survey

Max Blocker, Global and United States Leader, Forest, Paper & Packaging Practice

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2015 in perspective

Economic context

2015 was a turbulent year. The issues highlighted as crucial in last year's survey – armed conflict, political tension, depressed oil prices and volatile exchange rates – continued to dominate in many regions of the world. In Latin America, Brazil remained embroiled in the Petrobras scandal, and impeachment proceedings against President Rousseff were started at the end of the year. In Argentina, a stagnant economy, rampant inflation and a fiscal deficit of 6.5% of GDP led to President Fernandez de Kirchner being voted out of office in November. The political and economic catastrophe in Venezuela continued with no improvement. In the Middle East, the war in Syria continued with no end in sight and threatened to suck both Russia and Turkey into the conflict. The crisis caused by the mass migration of refugees to Europe principally from Syria (but also from Afghanistan and Iraq), which started in the middle of the year, stretched the solidarity of the European Union to its limit. A more positive note for the region, however, was struck by the landmark deal on Iran's nuclear program which was reached towards the end of the year and led to sanctions against Iran being lifted early in 2016. Troublesome events in Europe included the continued turbulence in Ukraine and the inability of

the EU to find a solution to the Greek economic crisis, both of which took up much of the EU's time and attention. The general election result in the UK led to the commitment to hold a referendum by 2017 at the latest on continued membership of the EU being crystallised. Negotiations on TTIP, which started in 2013 and which much hope has been placed for an uplift in world trade, continued to progress very slowly in the light of strong criticism from trade unions, NGOs and environmentalists in Europe, with a conclusion not expected for some time. Finally, the Softwood Lumber Agreement between the US and Canada expired in October and new regulations will need to be negotiated.

Given this overall picture, it is perhaps surprising that the global economy performed as well as it did. Although overall GDP growth fell back from the 3.4% recorded in 2014 it still managed to remain just above 3%. The main features of the year were: the gradual slowdown and continued rebalancing of the Chinese economy; lower prices for energy and other commodities; and a gradual tightening of monetary policy in the US. Headline inflation moved sideways, with core inflation remaining well below target in most developed economies.



Many emerging markets suffered net capital outflows, as a result of foreign currency loan repayments. Continued low oil prices (looked at in more detail later) led to Middle East governments withdrawing money from Middle Eastern Investment Funds.

The regional picture showed that the trend noted in previous years of a slowdown in emerging markets, offset by improved performance from the mature economies, continued. Overall, emerging markets and developing economies grew by just 4.0% in the year, a sharp reduction from the 4.6% in 2014. Of the significant emerging economies, the slowdown in China (mentioned above) continued and official statistics showed that GDP growth in that country (6.9%) was for the first time outstripped by India (7.3%). Those emerging countries beset by political turbulence suffered. Venezuela has already been mentioned, and others badly hit included Brazil (contraction of 3.8%) and Ukraine (contraction of 9.9%). The continued low oil price resulted in a contraction in Russia of 3.7%.

The volatile picture given by the emerging markets and developing economies was in contrast to the much more solid – if uninspiring – performance of the advanced economies, which grew overall by 1.9% in the year (2014 – 1.8%). The US continued to perform steadily

(2.5%) and the Eurozone was able to record growth of 1.5% with stronger performances in many countries (notably Spain and France) offsetting a slightly weaker showing from Germany. On the other hand, both the UK and Canada recorded weaker growth in the year and Japan, while managing to avoid slipping into recession, nevertheless remained in the doldrums.

Oil prices, which had collapsed in 2015 did not recover. Indeed they fell further from the depressed level of just over \$50 at the beginning of the year to around \$37 at the end. The normal mid-year rally was hardly noticeable. A boost to the global economy, which some observers had hoped that lower energy prices would bring, did not materialise. Indeed the depressed prices led to concerns about the financial health of some of the producing nations, with particular attention being paid to Russia, Brazil, Venezuela, Ecuador and Nigeria.

The solid performance of the US economy and the difficulties – both political and economic – in other parts of the world led to a further strengthening of the US dollar against other leading currencies, with both the Euro and the Brazilian Real declining dramatically. In the case of the Euro, the sharp slide which started at the end of 2014 continued through the year and the year-end rate (\$1.09) was some

20% below that which had pertained two years earlier. In the case of the Real the decline was even more dramatic, with the currency losing close to one-third of its value against the dollar in the year. The gentle appreciation of the Chinese Renminbi against the dollar, which had been permitted since 2010, was halted and the currency weakened by some 4% in the year, with the decline being halted by the Chinese government at the end of the year.

All in all this was a turbulent year in the global economy and one which leaves some major challenges and open questions going into 2016. Among the most important of these are the continued instabilities in the Middle East and the impact that this will have on the direction taken by the nations involved in the Syrian conflict; the effect in Europe – and the EU in particular – of the stream of refugees coming from Syria and elsewhere; the future direction of the UK following the Brexit referendum and the impact that this will have both in Europe and elsewhere; the gradual slowdown in the developing economies; successor regulations to the Softwood Lumber Agreement; and the future direction of oil prices. Added to this will be the US presidential elections. 2016 will not be short of challenges.

The Forest, Paper and Packaging Industry

At first sight the performance of the Top 100 players in the year looks disappointing, with overall sales coming in some 5% below the equivalent 2014 number. In making any comparison however, the impact of the turbulent foreign exchange markets needs to be borne in mind. With the US dollar appreciating against most other leading currencies, and the collapse in the Euro and Real (see above), translation into US dollars has the effect of depressing the 2015 numbers. If the impact of this is put to one side, there was probably some small growth in both Europe and Canada, and somewhat stronger growth in Latin America. Emerging Asia would be seen to be broadly in line with the previous years. The remaining foreign region covered – Japan – was subjected only to minimal overall movement in its currency when measured against the dollar, and the disappointing numbers here reflect the stagnant economy of that country. The only territory not affected by translation movements into the dollar (the US) was nevertheless still affected by currency movements, in that the strengthening US dollar caused headwinds for US exporters.

After taking account of the foreign currency factor, the overall numbers for 2015, while a lot better than they might appear at first sight, are still not particularly exciting. This is in large measure due to the fact that the companies surveyed represent a wide cross-section of different activities within the overall industry, some of which experienced more difficult market conditions than others. Thus the global paper and printing market declined by some 6% in the year, but the prospects

for both tissue and corrugated papers were more positive, with strong demand being felt for e-commerce packaging. Tissue continued to perform well, buoyed by a growing need for hygienic products in both mature regions as well as in emerging markets. A further plus point for tissue is the existence of a number of high-value products with niche-market characteristics. Wood products overall performed well in the year, and in the US the continued steady – if unspectacular – recovery in the housing market was supportive. In addition, increasing activity in repairing and remodelling of existing residences was felt. Offsetting this somewhat was a drop in exports to China. Log imports by China declined significantly (13%) in the year, with the US, New Zealand and Russia feeling the impact most strongly, however lumber imports increased by 4% with Russia being the main beneficiary.

Profitability in the year was weak. Although EBITDA recovered slightly from 13% in the previous year to 14% in 2015 – with the strongest performance by far once again being recorded by Latin America – net income fell back from 4.2% to 3.8% (the level which pertained in 2013). At the EBITDA level, pressure was felt in Canada, the US and Europe, however the latter two regions managed to record unchanged levels but Canada declined. This was offset principally by sharp improvements in both Asia and Latin America. At the net income level all regions except for Europe fell back sharply, with the Europeans able to improve for the third year running.

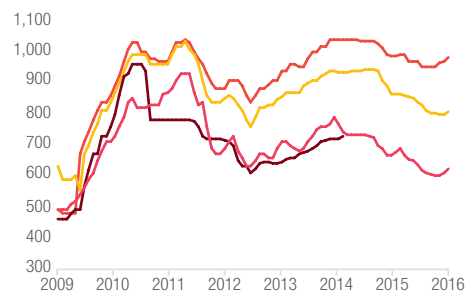
Capital expenditure remained at a low level – indeed it has remained at a more or less constant level for the last five years. Depreciation remained well below capex and was only just ahead of the 2014 level which itself was depressed. The reinvestment ratio (the relationship between capital expenditure and depreciation) fell slightly from 2014, with the sharpest reductions coming from Japan and Canada, both of which suffered significant drops in profitability in the year. Significant among the other regions was the reduction in Emerging Asia, which is probably a reflection of overcapacity in that region. Once again Latin America was the strongest investment region, although even here the reinvestment ratio fell slightly from the previous year. In the context of expenditure generally, it is worth noting that the Industry overall is expecting significant benefits from Industry 4.0 programs with CEOs anticipating expenditure of the order of 4% of revenues in total.



M&A activity picked up considerably in 2015, with 143 deals being consumed in the year (2004:125). The average deal size (\$22 million) increased substantially over the previous year; this is in large measure due to the size of the Weyerhaeuser and Plum Creek Timber merger. Deal activity was particularly strong in the last quarter of the year, which is when most deal activity traditionally occurs.

All in all, 2015 was a difficult year and a lot of challenges will be carried over into 2016. Although CEOs in the industry have reported in our annual CEO survey carried out at the end of the year their concerns about political and social instability, exchange rates and levels of government debt – all of which have given rise to considerable difficulties in the year – they also expressed increasing confidence about the prospects for the next three years. This sentiment needs to be set against the difficult trading, which has characterised the past year. 2016 will be full of challenges.

Global NBSK Pulp Prices
(US \$ per tonne)



— Canadian sources delivered to US East—spot price
 — Canadian/Nordic to Northern Europe
 — China
 — Western Europe

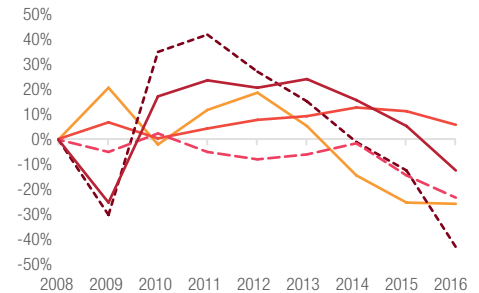
Source: RISI PPI Pulp & Paper Week

Monthly Spot Crude Oil Prices
(US \$ per barrel)



Source: US Energy Information Administration, accessed at <http://www.eia.doe.gov/emeu/international/Crude1.xls>

Appreciation of Major Currencies Against the US Dollar
(Percent)

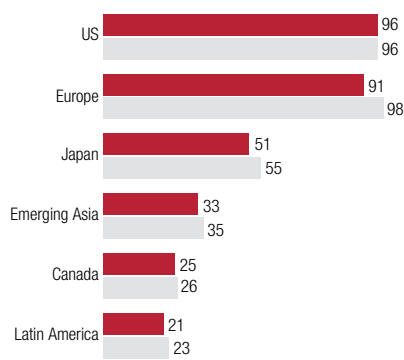


— Yen — Renminbi — Euro
 — Canadian \$ — Real
 Source: Onada.com

PwC Top 100

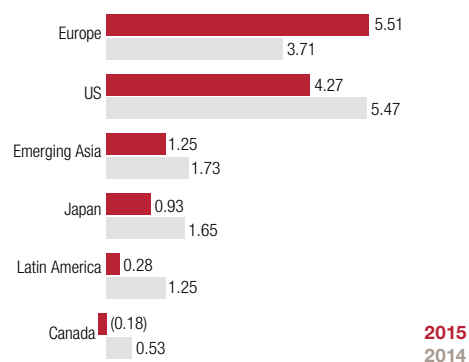
The PwC Top 100 list remained relatively unchanged in 2015.

Sales (US \$ billions)



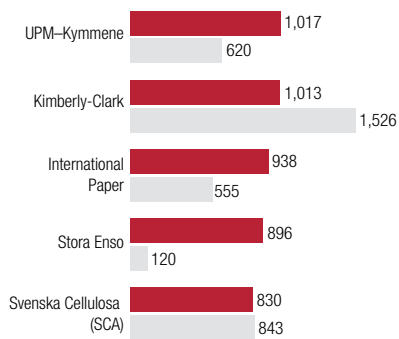
Source: PricewaterhouseCoopers LLP

Net income (Loss) (US \$ billions)



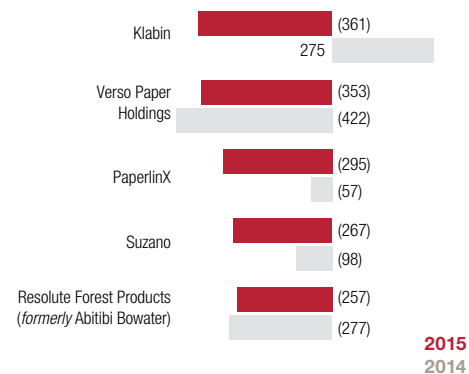
Source: PricewaterhouseCoopers LLP

Highest earnings (US \$ millions)



Source: PricewaterhouseCoopers LLP

Largest losses (US \$ billions)



Source: PricewaterhouseCoopers LLP



Sales and income

The PwC Top 100 reported total sales of \$317 billion in 2015 which is a drop of \$16 billion from 2014. The decrease in sales was primarily a result of most currencies losing ground to the US dollar. Operating profit of \$29 billion increased by 3.0% compared with the prior year.

EBITDA margins

EBITDA margins increased to 14.3% in 2015 from 12.7% in the prior year. Latin America continued to lead with an EBITDA margin of 31%, compared to the US in second place with a margin of 15%.

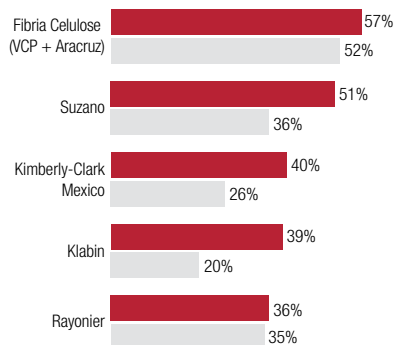
Reinvestment ratio

Reinvestment ratio, calculated as capital investment as a percentage of depreciation, measures the extent that capital investment is replacing aging assets. In broad terms, a ratio in excess of 1.0 indicates an expansion of capacity.

A ratio of less than 1.0 indicates capacity shrinkage and suggests that assets are being depreciated faster than they are being replaced.

The overall reinvestment ratio averaged 1.17 for the industry, compared to 1.34 in 2014. Latin America continued to have the highest reinvestment ratio at 1.63, down from 1.66 in 2014.

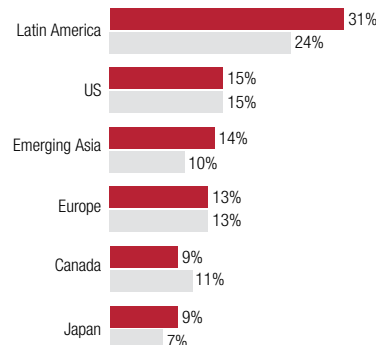
Highest EBITDA margin (%)



2015
2014

Source: PricewaterhouseCoopers LLP

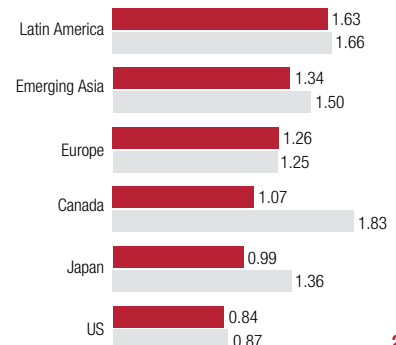
EBITDA margin by region (%)



2015
2014

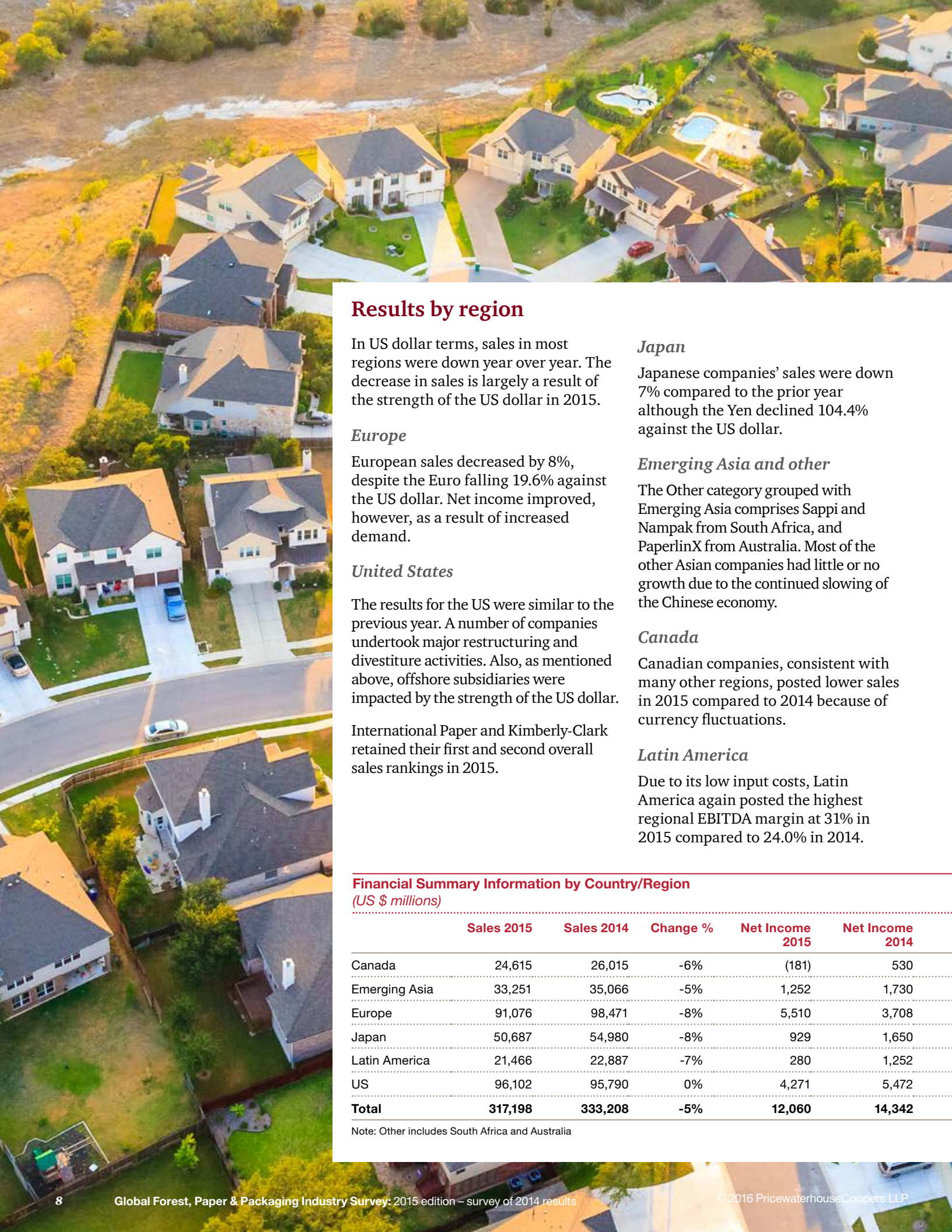
Source: PricewaterhouseCoopers LLP

Reinvestment ratio (US \$ billions)



2015
2014

Source: PricewaterhouseCoopers LLP



Results by region

In US dollar terms, sales in most regions were down year over year. The decrease in sales is largely a result of the strength of the US dollar in 2015.

Europe

European sales decreased by 8%, despite the Euro falling 19.6% against the US dollar. Net income improved, however, as a result of increased demand.

United States

The results for the US were similar to the previous year. A number of companies undertook major restructuring and divestiture activities. Also, as mentioned above, offshore subsidiaries were impacted by the strength of the US dollar.

International Paper and Kimberly-Clark retained their first and second overall sales rankings in 2015.

Japan

Japanese companies' sales were down 7% compared to the prior year although the Yen declined 104.4% against the US dollar.

Emerging Asia and other

The Other category grouped with Emerging Asia comprises Sappi and Nampak from South Africa, and PaperlinX from Australia. Most of the other Asian companies had little or no growth due to the continued slowing of the Chinese economy.

Canada

Canadian companies, consistent with many other regions, posted lower sales in 2015 compared to 2014 because of currency fluctuations.

Latin America

Due to its low input costs, Latin America again posted the highest regional EBITDA margin at 31% in 2015 compared to 24.0% in 2014.

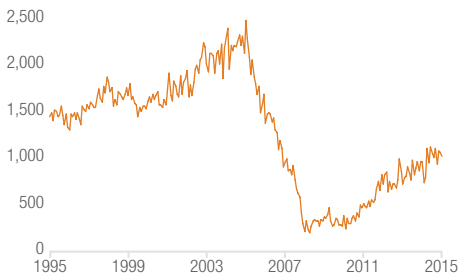
Financial Summary Information by Country/Region (US \$ millions)

	Sales 2015	Sales 2014	Change %	Net Income 2015	Net Income 2014
Canada	24,615	26,015	-6%	(181)	530
Emerging Asia	33,251	35,066	-5%	1,252	1,730
Europe	91,076	98,471	-8%	5,510	3,708
Japan	50,687	54,980	-8%	929	1,650
Latin America	21,466	22,887	-7%	280	1,252
US	96,102	95,790	0%	4,271	5,472
Total	317,198	333,208	-5%	12,060	14,342

Note: Other includes South Africa and Australia

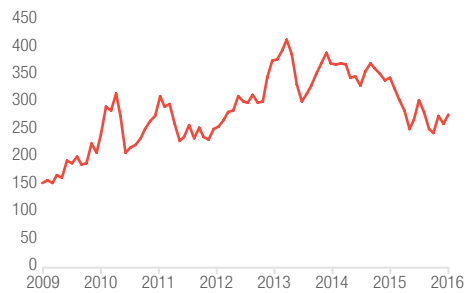


US housing starts – 20 year trend ¹
(Thousands of units)



1. Seasonally adjusted annual rate.
Source: US Census Bureau

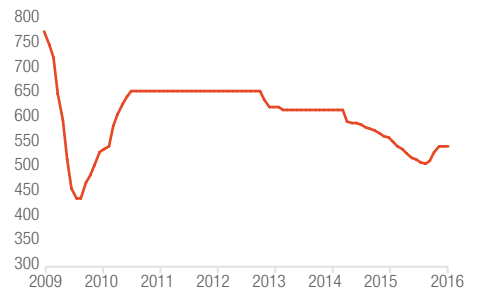
North American building materials
(US \$ per mfbm)



Lumber 2x4 #2&Btr KD Western SPF

Source: Lumber—Random Lengths Yardstick

North American newsprint prices
(Newsprint 30lb delivered to US East,
US \$ per tonne)



Source: Pulp and Newsprint – RISI PPI Pulp & Paper Week

Change %	EBITDA Margin 2015	EBITDA Margin 2014	ROCE 2015	ROCE 2014
-134%	9%	11%	1%	3%
-28%	14%	10%	2%	5%
49%	13%	13%	3%	5%
-44%	9%	7%	3%	3%
-78%	31%	24%	1%	1%
-22%	15%	15%	10%	5%
-16%	14%	13%	4%	4%

PwC Top 100

Top 100 Global Forest, Paper & Packaging Industry Companies

(US \$ millions)

Rank 2015	Rank 2014	Company name	Country	Sales		Net income (Loss)		EBITDA as a % of sales	
				2015 \$	2014 \$	2015 \$	2014 \$	2015 %	2014 %
1	1	International Paper	US	22,365	23,617	938	555	16%	16%
2	2	Kimberly-Clark	US	18,591	19,724	1,013	1,526	22%	21%
3	3	Svenska Cellulosa (SCA)	Sweden	13,653	13,299	830	843	16%	17%
4	4	Oji Paper	Japan	11,916	12,659	126	321	11%	9%
5	8	Rock-Tenn	US	11,381	10,047	507	495	16%	10%
6	6	UPM-Kymmene	Finland	11,016	11,945	1,017	620	12%	12%
7	5	Stora Enso	Finland	10,969	12,362	896	120	14%	11%
8	9	Smurfit Kappa	Ireland	8,812	9,784	444	292	14%	13%
9	10	Sumitomo Forestry	Japan	8,649	9,243	80	329	4%	7%
10	7	Nippon Paper Group	Japan	8,371	10,272	20	290	8%	4%
11	11	Mondi Group	UK	7,410	7,749	666	570	19%	17%
12	12	Weyerhaeuser	US	7,061	7,403	506	1,826	21%	23%
13	16	Unicharm	Japan	6,140	5,695	335	415	15%	16%
14	15	Packaging Corp of America	US	5,742	5,853	437	393	19%	19%
15	13	DS Smith	UK	5,640	6,277	238	265	12%	8%
16	14	Sappi	South Africa	5,390	5,939	167	141	12%	9%
17	17	Domtar	Canada	5,264	5,563	142	431	13%	14%
18	18	Arauco	Chile	5,146	5,328	367	437	22%	21%
19	19	Sonoco	US	4,964	5,015	250	239	12%	12%
20	21	CMPC	Chile	4,841	4,846	(4)	138	16%	19%
21	22	Nine Dragons Paper Holdings	China	4,633	4,821	225	236	18%	17%
22	20	Rengo	Japan	4,427	4,970	81	54	9%	9%
23	24	Graphic Packaging	US	4,160	4,241	230	90	17%	16%
24	25	Daio Paper	Japan	3,941	4,086	121	63	12%	8%
25	23	Resolute Forest Products (formerly Abitibi Bowater)	Canada	3,645	4,258	(257)	(277)	8%	9%
26	27	Boise Cascade	US	3,633	3,574	52	80	4%	5%
27	26	Sequana Capital	France	3,586	4,078	(74)	142	3%	4%
28	31	Hengan International	Hong Kong	3,155	3,073	523	505	28%	25%
29	65	Verso Paper Holdings	US	3,122	1,297	(422)	(353)	7%	4%
30	29	Shandong Chenming	China	3,116	3,080	163	81	21%	7%
31	28	West Fraser Timber	Canada	2,961	3,330	81	224	12%	15%
32	36	Universal Forest Products	US	2,887	2,660	81	58	6%	5%
33	32	Canfor	Canada	2,835	2,891	19	151	10%	15%
34	40	KapStone Paper and Packaging	US	2,789	2,301	106	172	14%	19%
35	30	Cascades	Canada	2,788	3,075	(51)	(127)	12%	9%
36	34	Billerud	Sweden	2,587	2,669	215	163	16%	16%
37	33	Suzano	Brazil	2,581	2,733	(267)	(98)	51%	36%
38	35	Fibria Celulose (VCP + Aracruz)	Brazil	2,545	2,665	99	59	57%	52%
39	38	Mayr-Melnhof Karton	Austria	2,371	2,527	157	158	13%	13%
40	42	Lee & Man Paper	China	2,273	2,205	301	246	19%	17%
41	39	Metsaliitto	Finland	2,190	2,441	152	83	11%	10%
42	41	Lenzing	Austria	2,180	2,298	136	(16)	15%	12%
43	37	Sodra	Sweden	2,178	2,542	154	190	16%	15%
44	44	Hokuetsu Paper	Japan	2,052	2,127	62	73	12%	6%
45	46	SCG Packaging (Formerly Siam Pulp and Paper)	Thailand	1,985	1,984	94	504	15%	12%
46	45	Holmen	Sweden	1,938	2,094	66	116	14%	17%
47	52	Yuen Foong Yu Paper	Taiwan	1,934	1,919	16	19	8%	7%
48	51	Louisiana-Pacific	US	1,893	1,935	(88)	(75)	3%	1%
49	48	Kimberly-Clark Mexico	Mexico	1,867	1,972	372	240	40%	26%
50	49	Mitsubishi Paper	Japan	1,798	1,971	18	12	7%	2%

Rank 2015	Rank 2014	Company name	Country	Sales		Net income (Loss)		EBITDA as a % of sales	
				2015 \$	2014 \$	2015 \$	2014 \$	2015 %	2014 %
51	53	Portucel	Portugal	1,769	1,894	219	220	25%	21%
52	50	Clearwater Paper	US	1,752	1,967	56	(2)	12%	12%
53	56	Glatfelter	US	1,667	1,810	65	69	8%	7%
54	58	Shan Dong Sun Paper	China	1,667	1,686	106	76	22%	12%
55	54	Heinzel Holding	Austria	1,610	1,869	64	70	3%	12%
56	47	The Lecta Group	UK	1,602	1,981	(46)	(88)	7%	11%
57	61	Plum Creek Timber	US	1,510	1,533	214	214	32%	33%
58	69	Norbord	Canada	1,509	1,198	(56)	26	8%	7%
59	43	PaperlinX	Australia	1,475	2,172	(295)	(57)	-2%	0%
60	62	Shandong Huatai Paper	China	1,450	1,493	10	10	16%	5%
61	77	Catalyst	Canada	1,438	958	(39)	(62)	3%	4%
62	55	Klabin	Brazil	1,436	1,841	(361)	275	39%	20%
63	57	Daiken	Japan	1,403	1,714	23	44	4%	5%
64	64	Cheng Loong	Taiwan	1,320	1,414	37	24	10%	3%
65	59	Norske Skog	Norway	1,303	1,624	(190)	(201)	7%	7%
66	63	Tomoku	Japan	1,258	1,429	30	10	7%	6%
67	66	Interfor	Canada	1,219	1,250	(24)	35	6%	10%
68	68	Ahlstrom	Finland	1,168	1,212	10	4	9%	7%
69	67	Sonae Industria	Portugal	1,124	1,239	(25)	(140)	11%	8%
70	75	Moelven	Norway	1,094	1,016	15	14	6%	8%
71	60	Masisa	Chile	1,053	1,545	11	11	10%	7%
72	70	Mercer International	Canada	1,033	1,175	76	113	23%	20%
73	71	Duratex	Brazil	1,013	1,124	53	147	21%	21%
74	81	Bio Pappel (fr. Grupo Industrial Durango)	Mexico	984	833	10	44	22%	16%
75	73	Moorim Group	Korea	984	1,079	(4)	(36)	18%	6%
76	74	Yueyang Forest & Paper Co.	China	913	1,061	(62)	2	7%	4%
77	72	Tembec	Canada	887	1,103	(117)	(47)	5%	6%
78	76	EUROPAC	Spain	877	1,003	36	33	13%	12%
79	87	Hansol Paper	Korea	783	715	(11)	(35)	12%	7%
80	79	Western Forest Products	Canada	781	895	58	59	11%	10%
81	85	Schweitzer-Mauduit	US	764	794	90	90	21%	21%
82	86	Ballarpur Industries	India	739	794	(3)	(5)	16%	17%
83	80	Arctic Paper	Poland	737	875	(19)	14	7%	7%
84	83	The Pack Corporation	Japan	732	815	34	39	9%	7%
85	78	Sveaskog	Sweden	721	910	240	247	21%	40%
86	82	ENCE	Spain	721	832	55	(171)	30%	3%
87	91	Altri	Portugal	714	657	131	45	33%	19%
88	84	Appvion Inc. (formerly Appleton Papers)	US	700	810	159	(93)	5%	-1%
89	88	Corticeira Amorim	Portugal	657	678	61	43	18%	14%
90	89	Exacompta Clairefontaine	France	621	667	12	14	8%	9%
91	94	Potlatch	US	575	607	32	90	17%	26%
92	90	Hankuk Paper	Korea	557	660	8	6	6%	4%
93	95	Rayonier	US	545	604	46	99	36%	35%
94	92	Asia Paper Manufacturing Co., Ltd.	Korea	508	615	(34)	19	5%	9%
95	93	Setra Group	Sweden	499	613	2	19	4%	8%
96	96	Reno De Medici	Italy	482	531	11	7	9%	9%
97	97	Groupe Gascogne	France	451	497	8	(7)	3%	1%
98	100	Pfleiderer	Germany	395	305	30	38	14%	28%
99	98	JK Paper Ltd.	India	372	354	11	(3)	17%	13%
100	99	Conifex Timber Inc.	Canada	255	320	(14)	4	2%	6%

Source: PricewaterhouseCoopers LLP

1. Verso acquired NewPage in January 2015, as a result Newpage is removed.
2. Nampak sold their South African paper division and it is now listed as discontinued operations. The remaining sales number is paper sales to "the rest of Africa". No longer Top 100.
3. Wausau-Mosinee was acquired by Svenska Cellulosa in October of 2015. Wausau-Mosinee Removed.

29th annual PwC Global Forest & Paper Industry Conference

Transformation through innovation

The 29th annual PwC Global Forest, Paper & Packaging Industry Conference, with the theme **Transformation through innovation—opportunities for people, products and processes** brought together several hundred CEOs, senior executives, customers, suppliers, financial analysts, government representatives and other stakeholders in Vancouver, Canada on May 4, 2016. Through a series of interconnected presentations and discussions, conference speakers and panelists looked at a role of innovation in general terms, as well as specifically in relation to forest industry, global and regional factors that influence and effect sector's financial performance, workforce related challenges and opportunities faced by the industry today, and importance and potential of the forestry sector in combating climate change. Additionally, an in depth analysis of the high-quality paper packaging provided an opportunity for a close look into this forest industry section.

Sustained innovation

Google's Global Head of Manufacturing Industry, Michael Walton, opened the conference. Mr. Walton's presentation

explored the importance of innovation and its lasting impacts on human society. His message that companies stagnate, decay and disappear if innovation is absent was highlighted through a number of different examples. Mr. Walton explored roadblocks to innovation and how to overcome it through Google's experience that aims to create positive environment for innovation, motivate people to press forward, and celebrate rather than punish failing attempts to innovate and improve.

Financial performance and market outlook

The conference **financial performance and market outlook** panel looked into the global, North American and regional factors having impact on the forest and paper industry. Kevin Peacock of Business Council of BC explored reasons of industry's underperformance at a global level. Brendan Lowney presentation similarly focused on several factors affecting the industry including currency fluctuations, specifically the weakening of Canadian dollar and Russian rouble in relation to US dollar and its impacts on US and Chinese markets. RBC's Paul Quinn offered his view of macroeconomic factors that are most significantly shaping financial performance and long term outlook of

the industry. US housing, GDP and population outlooks in US and Canada, as well as reasons for seasonality of lumber and OSB prices have been presented and analysed. At the end the panel answered a number of interesting questions including possible outcomes related to the renegotiation of the US/Canada Softwood Lumber Agreement.

Innovation opportunities for the forest industry

Innovation in the pulp and paper industry, international innovation initiatives, new technologies and material, and a role that venture capital can play in innovation were the focus of the innovation opportunities for the forest industry panel. Carlo Dal Monte, Director of Energy at Catalyst Paper explored importance of innovation for pulp and paper industry, and the role of innovation networks. Dr. Jack Saddler from the University of British Columbia focused on international innovation initiatives, lessons learned from the past, and a role of industrial clusters of innovation. Gurminder Minhas of Performance BioFilaments Inc. spoke about industry's new technologies and new products such as nanocellulose. New products made from forest fibre are already with us making significant impacts on the range of conventional

SAVE THE DATE for the 30th Annual PwC Global Forest, Paper & Packaging Industry Conference taking place in Vancouver, British Columbia, Canada on May 10, 2017.

products, from cars to high strength concrete. Dr. Alfred Lam from Chrysalix Energy Venture Capital spoke about the role of venture capital in innovation, linking different players and providing capital to unconventional projects.

Embracing workforce change

The embracing workforce change panel talked about common workforce challenges faced by an organization today, for example: technology shift, aging workforce, loss in organizational skills at the leadership level affect all companies regardless of industry they belong to, size, structure or region of operation. Jan Marston of TimberWest, Nigel Banks of Norbord and Janelle Aaker of lululemon athletica presented their own experience and problem solutions. Close cooperation with educational institutions, availability of sufficient data, and social media all play an important role in successfully managing the workforce challenge.

Trends in high-quality paper packaging

The trends in high-quality paper packaging panel presented an in depth analysis of the high-quality paper

packaging segment of the industry. The panel speakers discussed a wide range of important topics; characteristics of North American paperboard market, market trends, sustainable development goals, certification, a role of e-commerce and its impact on the industry. The panel concluded that a niche opportunity for high quality packaging in global commerce exists and will continue to grow in the future.

Executive perspectives

Closing the 2016 conference was the executive perspectives panel that included Joe Nemeth, President and CEO of Catalyst Paper, James Gorman, VP of West Fraser Timber Co., Mike Harkies, Executive VP of Tolko Industries, and Denis Fraser, President of Goodfellow Inc. The panel offered unique insight into key drivers of change for the industry such as declining fibre sources, and declining demographics. Cost competitiveness, product diversification and talent retention that offer a path forward have been discussed and analysed.



Publications

PwC's Forest, Paper & Packaging practice publications are available for download from www.pwc.com/fpp



Sustainable growth: PwC Canada Forest, Paper and Packaging Practice Capability Statement 2016

The forest, paper and packaging industry will play a key role in a sustainable future.

The forest products sector is going through a period of structural change. New trends shaping the industry by way of increased global competition have made it a challenge for companies to generate sustained revenue growth. Innovation will play a key role in helping the sector to transform its current business model. Increasing efforts to communicate the industry's environmental footprint through a strong commitment to corporate sustainability reporting, will play an integral role in engaging a wide range of stakeholders for continued support.

We at PwC are active participants in the forest and paper industry, contributing knowledge and experience gained from our long association with many of the industry's leading companies. Facing new challenges is part of the process.

This document will provide you with some examples of how companies can benefit from strategies for sustainable success.



Global Forest and Paper Industry: Net Earnings Summary — Three months ended March 31, 2016 (a quarterly publication)

This Net Earnings Summary has been prepared by PwC based on financial statements and other sources issued by the selected companies. Earnings are reported in regional currencies, as noted.

The largest Western Canadian and Eastern Canadian based forest products companies reported overall higher net earnings in the first quarter of 2016 compared to both the first and fourth quarters of 2015.

Nine of the largest US-based forest and paper companies reported net earnings of US \$1.27 billion in the first quarter of 2016, compared to earnings of US \$417.4 million in the fourth quarter of 2015 and earnings of \$1.28 billion in the first quarter of 2015.

Ten of the largest European based forest and paper companies reported net earnings of €819.6 million for the first quarter of 2016, compared to earnings of €1.06 billion in the fourth quarter of 2015 and €833.1 million reported in the first quarter of 2015.



Forest, Paper & Packaging Industry 4.0: Building the digital enterprise

PwC’s look at what senior executives in the forestry, paper and packaging sector are saying about the transformative impact of Industry 4.0 on their companies and the wider sector.

We go to the heart of company thinking on the progress of Industry 4.0. In a companion report to PwC’s 2016 Global Industry 4.0 Survey, we benchmarked the responses of senior executives in forestry, paper and packaging companies around the world.

We find that Industry 4.0 is already playing a vital role in responding to the challenges of capital intensity, sales pressure and tight margins faced by much of the forest, paper and packaging industry. Companies are embracing it a fast rate, investing in long-term innovation that they expect will unlock significant efficiency, cost reduction and revenue gains.



Forest, Paper & Packaging Deals Insights Quarterly Q2 2016

Global M&A activity in the FPP sector in Q2 2016 saw an increase in deal volume but a decrease in total deal value relative to the first quarter (Q1) of 2016. A total of 42 M&A deals were announced during Q2 2016 with a total value of US\$4.6 billion and an average (median) deal size of approximately US\$14.5 million. This compares to 22 deals in Q1 2016 with a total value of US\$2.5 billion and an average (median) deal size of approximately US\$20.3 million. In comparison to the second quarter in 2015, there was a decrease in Q2 2016 in terms of deal volume, but an increase in deal value.

Survey methodology

The PwC Global Forest, Paper & Packaging Industry Survey examines the 100 largest forest, paper and packaging products companies in the world — whether state, private, publicly owned, or a division of a larger entity — ranked by sales, provided there is sufficient public disclosure to allow meaningful analysis.

The data reported is drawn from a number of sources including annual reports, websites, press releases and the companies. Information may be unaudited. Several companies, mainly privately owned entities, of sufficient size to warrant inclusion in the PwC Top 100 have been excluded due to no, or limited, financial information being available. These companies include but are not limited to:

North America

Georgia-Pacific (part of Koch Industries), Kruger, Tolko and Menasha.

Europe

Tetrapak (Sweden), SAICA (Spain), Fritz Egger and Prinzhorn Holding (both Austria), Elopak (Norway), Papierfabrik Palm (Germany), Fedrigoni Group (Italy) and Ilim Pulp (Russia).

Asia Pacific

Asia Pulp and Paper (APP) (Indonesia and China), AsiaPacific Resources International (APRIL) (Singapore/Indonesia), and Visy Industries (Australia).

The PwC Top 100 results include only companies whose forest, paper and fibre packaging products business comprises more than 50% of total sales. Companies are grouped based on the location of their head offices. The 2015 comparative corporate data included in this Survey depends upon the data reported in the companies' 2015 annual reports. PwC takes no responsibility for the correctness of the extrapolated figures. The 2015 Japanese data is for the fiscal year ended March 31, 2015.

Return on Capital Employed (ROCE) is calculated as net income before unusual items, minority interest and interest expense, on an after-tax basis, divided by average total assets less average non-interest bearing current liabilities.

Unusual items have a significant bearing on the net income figure used for the purpose of calculating ROCE. As an example, in some cases, when reported earnings are negative, the effect of adding back unusual items results in a positive adjusted net income, and therefore a positive ROCE.

Restructuring charges, discontinued operations, exceptional tax credits, impairment charges, gain on the sale of fixed assets, and accounting changes are among the items commonly treated as unusual items and therefore excluded from the ROCE calculation.

Earnings before Interest, Taxes, Depreciation and Amortisation (EBITDA) is calculated as operating earnings plus depreciation and amortisation.

Foreign exchange fluctuations can have a significant impact on the data presented. This Survey has directly adopted the results of companies that report in US dollars; otherwise, we have translated income statement items at average rates for 2015 and balance sheet items at the spot rate as of December 31, 2015.

PwC's Global Forest, Paper & Packaging practice comprises a network of industry professionals located in over 35 countries around the world.

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