

Season's Greetings!

On behalf of the CPBIS management team and the entire body of CPBIS faculty, staff and students, I extend best wishes for this holiday season to all of our newsletter readers. We value your continued interest in the Center's work as we strive to help meet the industry's research, education, and outreach needs. During this joyous season, we hope that your travels are safe and your holidays relaxing.

*With warm regards,
Pat McCarthy, Director*

New CPBIS Project Tracks Capacity, Price and Innovation Trends

By Patrick McCarthy and Aselia Urmanbetova

In our November issue, we described a new CPBIS data set called "Company Watch List." It is a subset of a larger database called "Industry Announcements," which CPBIS is now making available to users on its web site. See (<http://www.cpbis.gatech.edu/data/fwa>) Industry Announcements is a collection of daily and weekly industry trade announcements made by pulp and paper producers -- both domestic and foreign -- that have operations in the U.S.

The data span the period from January 2010 to October 2013 and include 6,418 announcements on (1) planned and actual completed ownership transfers and status changes; (2) product price changes; (3) patents, new products and processes; (4) renewable sources of energy; (5) facility upgrades; (6) announcements on earnings and profits; (7) labor issues (e.g. strikes, injuries and fatalities, labor unions); (8) government grants, subsidies, tax breaks, and related matters; (9) major corporate restructurings, appointments, and financial analyses; (10) overseas operations; (11) environmental regulations, violations, certifications, awards, sustainability, and social responsibility; (12) facility damage from fires, floods, etc.; (13) market or weather-related mill downtime; and (14) energy efficiency.

The motivation for collecting such data and aggregating them in a statistically user-friendly format came from the work of Christensen and Caves [Christensen, L. R., and Caves, R. E., "Cheap Talk and Investment Rivalry in the Pulp and Paper Industry," *Journal of Industrial Economics*, 45, 47-73 (1997)]. These authors studied the properties of project announcements in 11 North-American pulp and paper grades during 1978-1991 and found that the announcements can become part of corporate communication strategies that firms use to compete for prime mill site locations. The findings also suggested that the U.S. pulp and paper industry operates in a sort of continual auction in a market that competes first on the level and type of capacity and then, given the levels of installed capacity, on the product price. In light of such market attributes, company announcements become part of corporate strategies that firms use to compete with each other.

To speculate on how industry/trade announcements characterize developments in the industry, we have undertaken a project that examines (1) planned capacity changes and planned and actual ownership transfers, together with product price changes, and (2) patents, new products and processes. We have analyzed 1,725 announcements made during the 2010 – 2013 period on (1) planned capacity changes and transfers, (2) actual ownership changes, and (3) product price changes. We have also looked at 695 announcements on patents, new products and new processes. The analysis has uncovered some interesting time- and grade-dependent discrepancies between planned and actual capacity changes.

Industry Announcements data were merged with Mergent’s list of publicly traded U.S. and foreign paper companies, limiting them to the three main SIC sectors -- 2611 (Pulp), 2621 (Paper) and 2531 (Paperboard). This resulted in 1,485 announcements on planned capacity changes, actual ownership transfers, and product price changes, and 234 announcements on patents, new products and processes, all subdivided by industry sector.

Figure 1 shows that the number of monthly announcements of planned capacity changes and ownership transfers is much greater than the number of announcements of actually completed changes. The announcements of planned changes have experienced an upward trend from 2010 to 2013 leading to a widening gap between planned and completed capacity and ownership changes.

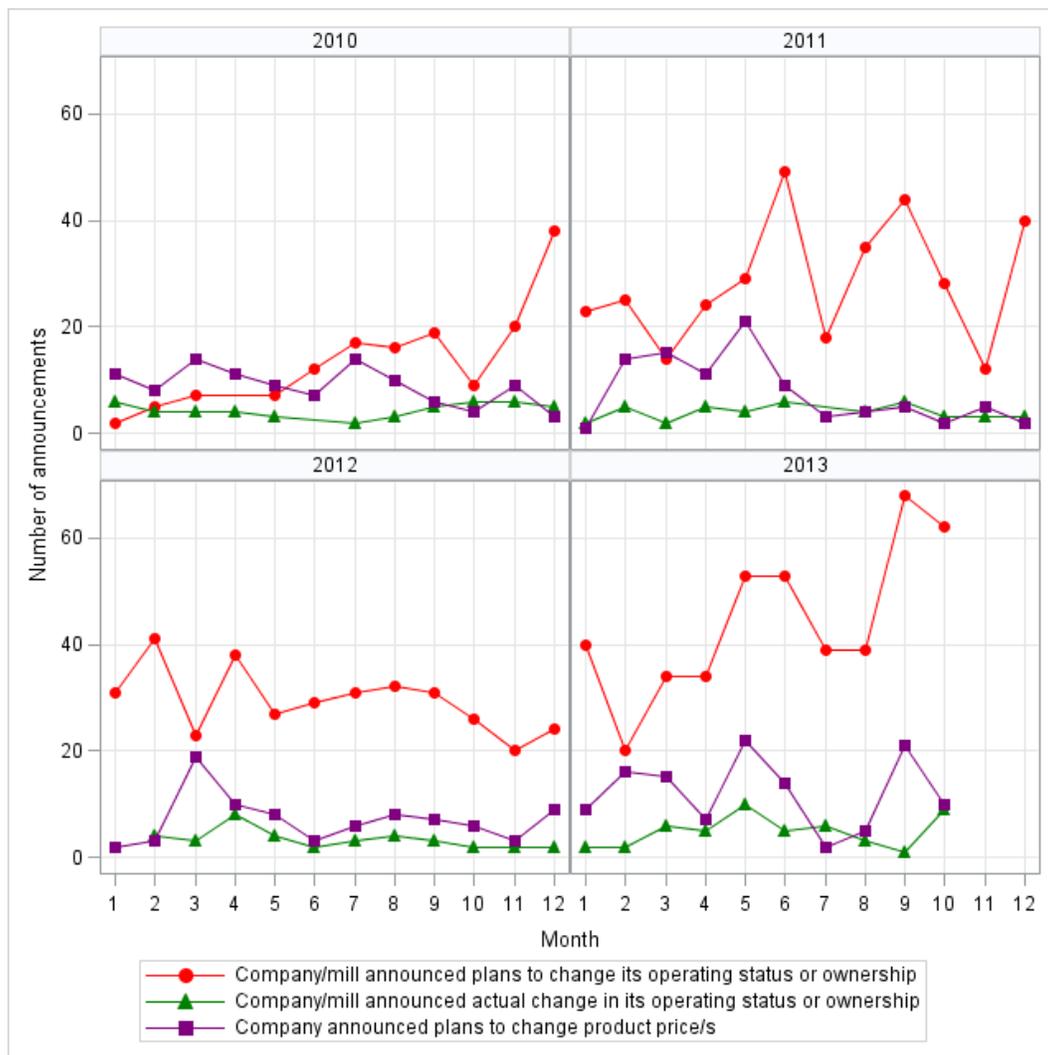


Figure 1. Announcements of planned and actual changes, 2010 – 2013

The breakdown by three main SIC sectors (Figure 2) depicts the paper segment as the most volatile in the number of announcements from month to month. The paper sector also had the biggest gap between planned and completed capacity and ownership changes. Similarly, fluctuations in the number of announcements with product price changes are most volatile in the paper sector. Interestingly, the graphs suggest a relationship between product price announcements and announcements of planned capacity and ownership changes, which is consistent with the industry’s long standing practice of managing price levels by restricting operating capacity or output (as exemplified by the recently announced shutdown of IP’s Courtland, Al mill) as well as with the theoretical market dynamics hypothesized in Christensen and Caves (1997).

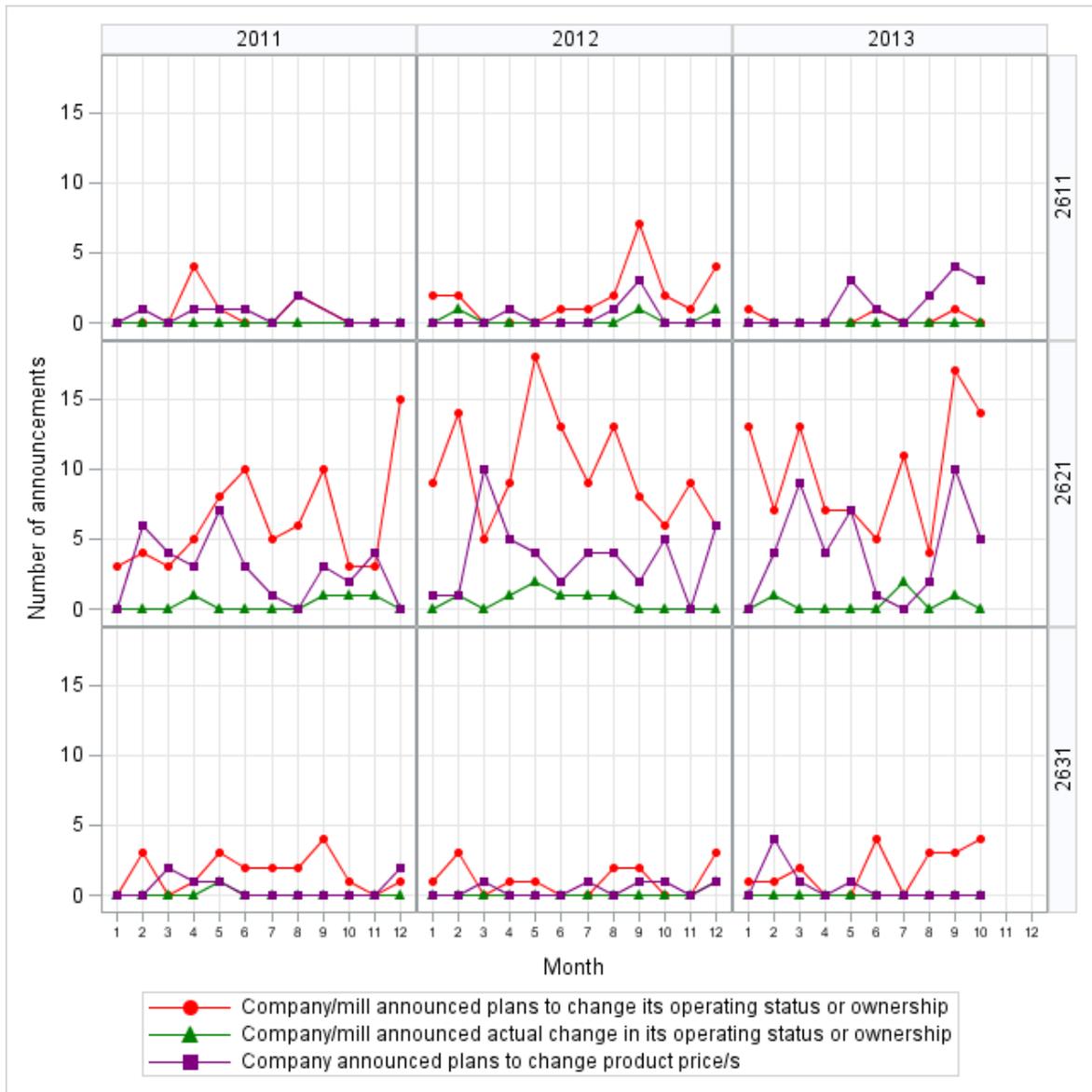


Figure 2. Announcements of planned and actual changes by sector, 2010 – 2013

Another interesting category is the announcements of new products, processes, and patents. Technological innovation in the pulp and paper industry is often characterized as incremental, being restricted to small process and product improvements, implying that the industry is not expected to make large strides in technological innovation.

Interestingly, however, the rise in new product, process and patent announcements in 2013 is sharp and likely unprecedented, as can be seen in Figures 3 and 4. Assuming that Industry Intelligence Inc. has not changed its reporting practices during the 2010-2013 period, this appears to be a significant trend. The majority of the new

product, process and patent announcements occur in the SIC 2621 (paper) segment of the industry. The sharp rise in total new product announcements is driven by patent announcements made by companies producing household and sanitary products. Table 1 lists the top ten companies in number of new product/process and patent announcements made in 2011-13.

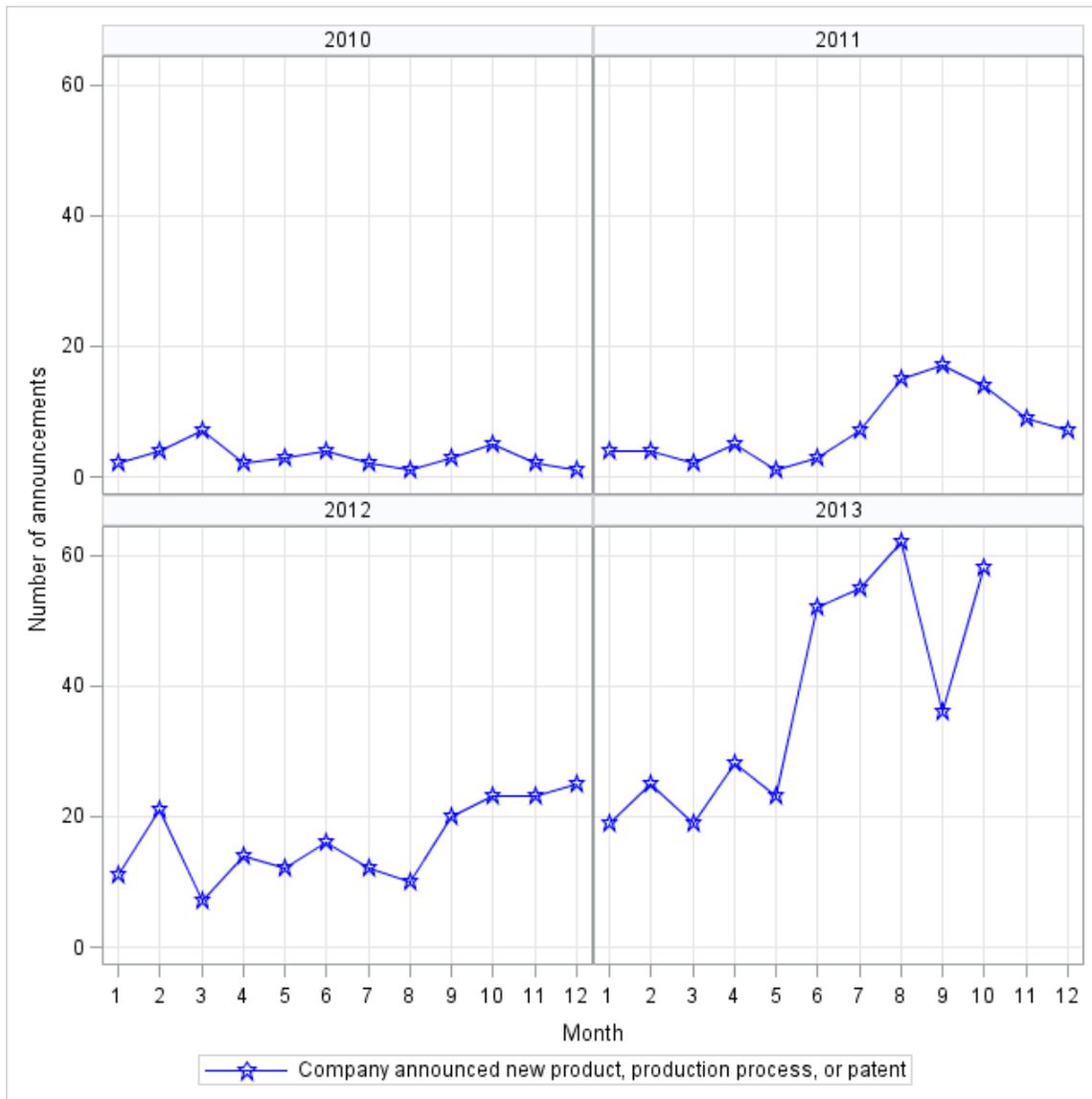


Figure 3. Announcements of process and product innovations.

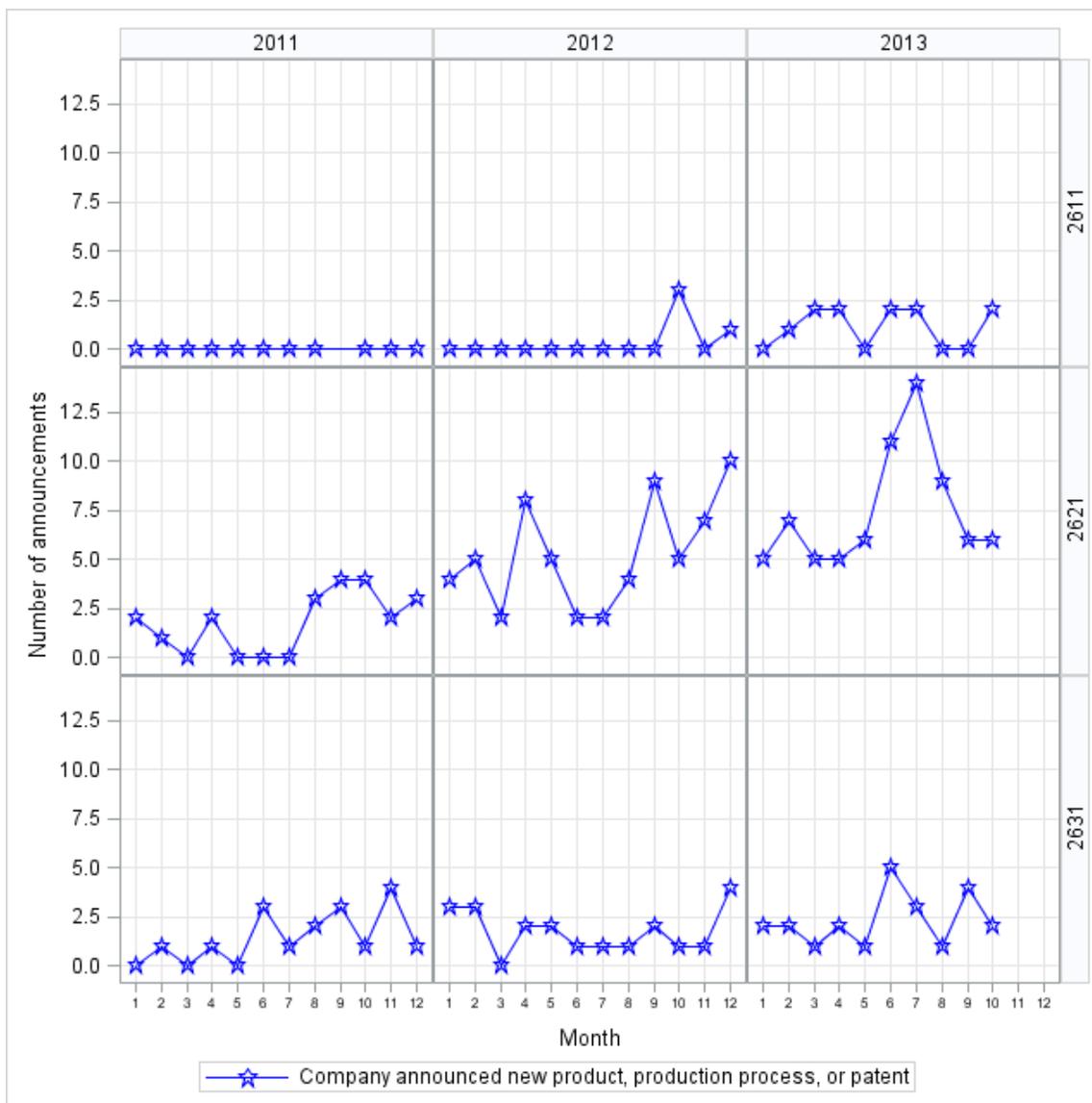


Figure 4. Announcements of process and product innovations, by sector.

These data raise a number of interesting research questions: (1) what drives the widening gap between anticipated and completed capacity changes and does an increasing gap mean that announcements on planned capacity changes are increasingly less credible? (2) What drives the increasing volatility in the number of price, output and patent announcements? (3) Do these announcements have effect on company valuation and if yes, to what extent and are they long-lasting? CPBIS will continue collecting and analyzing Industry Announcements data with a view to shedding light on some of these research topics.

Table 1. Companies Making the Most Innovation Announcements, 2011 - 2013

Company Name	Number	Percent of total
2011		
1 KIMBERLY-CLARK	14	16%
2 CASCADES	9	10%
3 STORA ENSO OYJ	7	8%
4 UPM-KYMMENE	6	7%
5 INTERNATIONAL PAPER	5	6%
6 PROCTER & GAMBLE	5	6%
7 SCA TISSUE NORTH AMERICA	5	6%
8 MEADWESTVACO	4	5%
9 TWIN RIVERS PAPER	4	5%
10 NEENAH PAPER	3	3%
2012		
1 UPM-KYMMENE	23	12%
2 KIMBERLY-CLARK	19	10%
3 MEADWESTVACO	15	8%
4 INTERNATIONAL PAPER	13	7%
5 STORA ENSO OYJ	13	7%
6 TWIN RIVERS PAPER	8	4%
7 NIPPON PAPER INDUSTRIES	7	4%
8 PROCTER & GAMBLE	7	4%
9 AHLSTROM	6	3%
10 NEWPAGE	6	3%
2013		
1 KIMBERLY-CLARK	97	26%
2 PROCTER & GAMBLE	88	23%
3 SCA TISSUE NORTH AMERICA	19	5%
4 UPM-KYMMENE	17	5%
5 INTERNATIONAL PAPER	13	3%
6 STORA ENSO OYJ	12	3%
7 MEADWESTVACO	10	3%
8 SMURFIT KAPPA	9	2%
9 CASCADES	8	2%
10 DOMTAR	8	2%

AF&PA Statistics

Since our last reporting of American Forest and Paper Association statistics releases, the Association has issued reports on paperboard, containerboard, kraft paper and printing and writing papers. Below are the key findings:

Printing and Writing

October: Total printing-writing paper shipments were down 1 percent in October compared to October 2012. Increases in year-over-year shipments of uncoated grades were offset by decreases in coated paper shipments. October coated free sheet (CFS) papers shipments decreased 4 percent compared to October 2012, with YTD shipments through October down 1 percent relative to 2012 levels. Exports of CFS in September were down 14 percent compared to September last year. Uncoated free sheet (UFS) paper shipments increased 3 percent in October to 773,400 tons, the highest level since March 2012. For the year, shipments were down 2 percent in 2013. October uncoated mechanical paper shipments were flat compared to 2012 and down 10 percent year-to-date compared to the same period in 2012. Imports of UFS through September increased 9 percent year-over-year. Coated mechanical (CM) shipments in October decreased 6 percent compared to October 2012. Shipments of CM are down 10 percent for the year in 2013. Exports of CM decreased 16 percent in September, down 21 percent year-to-date.

September: Total printing-writing paper shipments were down 0.2 percent in September compared to September 2012. Coated free sheet papers shipments were essentially flat compared to September 2012, with year-to-date shipments through September within one percent of 2012 levels. Uncoated free sheet paper shipments increased in September, the second year-over-year increase in the last three months. For the year, shipments are down 3 percent in 2013. Uncoated mechanical paper shipments increased 3 percent year-over-year in September, the first year-over-year increase since March 2011. Coated mechanical (CM) shipments in September decreased 4 percent compared to September 2012. Shipments of CM were down 10 percent for the year in 2013.

Kraft Paper

October: Total kraft paper shipments were 131.3 thousand tons, 3.6 percent higher compared to the prior month. Bleached kraft paper shipments increased year-over-year 14.3 percent, but the 4.2 percent year-over-year decline in unbleached kraft paper shipments was enough to bring overall kraft paper shipments down 1.8 percent year-over-year. Total month-end inventory decreased 24.5 percent compared to September 2013.

September: Total kraft paper shipments were 126.7 thousand tons, 6.4 percent lower compared to the prior month. Bleached kraft paper shipments increased year-over-year 13.4 percent, but the 4.6 percent year-over-year decline in unbleached kraft paper shipments was enough to bring overall kraft paper shipments down 2.2 percent year-over-year. Total month-end inventory increased 6.8 percent compared to August 2013.

Containerboard

October: Containerboard production increased 4.2 percent over September 2013, and was 1.4 percent higher than the same month last year. The month-over-month average daily production increased 0.9 percent. The containerboard operating rate for October 2013 increased 0.9 points from September 2013, from 93.8 percent to 94.7 percent.

September: Containerboard production decreased 8.9 percent over August 2013, and was essentially flat compared to the same month last year. The month-over-month average daily production decreased 5.9 percent. The containerboard operating rate for September 2013 decreased 5.9 points from August 2013, from 99.7 percent to 93.8 percent.

Paperboard

October: Total boxboard production increased by 0.3 percent compared to October 2012, but decreased 0.2 percent from last month. Unbleached kraft boxboard production decreased over the same month last year, and decreased compared to last month. Total solid bleached boxboard & liner production decreased compared to October 2012, and decreased compared to September. The production of recycled boxboard increased compared to October 2012, and increased when compared to September.

Trend Indicators from Industry Intelligence Inc.

[Industry Intelligence Inc.](http://www.industryintel.com) has provided market intelligence to more than 600 companies worldwide since it began as Forestweb in 1999. Industry Intelligence delivers a daily report featuring news of the paper and forest products industries. For your subscription visit: <http://www.industryintel.com>

Below is a selection of recent headlines chosen to mirror significant trends in and around the paper and forest products industries.

UPM-Kymmene secures €50M loan from Nordic Investment Bank to build world's first industrial biorefinery that produces wood-based renewable diesel in Lappeenranta, Finland; plant slated for completion in 2014

The loan is aimed at the construction of a biorefinery producing 100,000 tonnes of renewable diesel annually from crude tall oil. Construction of the new plant, located next to UPM's Kaukas mill, began in the summer of 2012 and will be completed in 2014.

Nigeria to change currency back to paper six years after switching lower-denomination banknotes to polymer

Nigerians found that the polymer notes faded quickly and declined significantly in quality.

Global sustainable packaging market to reach US\$244B by 2018, driven by government legislation, consumer demand and increased environmental awareness, according to report

Common trends in sustainable packaging include: enhanced waste recovery and recycling; higher use of recycled content and renewably sourced materials; reduction in packaging size and weight; and enhancement in logistical and packaging efficiency.

China's emergence as major player in world's dissolving pulp market, with its capacity climbing to 937,500 tonnes/year by 2012, coincided with global demand decline, slashing operating rate for dissolving pulp sector in China to 35.7% in 2012, says report

Dissolving pulp capacity in China rose from no more than 240,000 tons in 2010 to 937,500 tons in 2012. Bleak demand has forced producers to slash output to about 335,000 tons in 2012, with the operating rate down to 35.7%.

European pulp and paper industry cuts CO2 emissions per tonne of product by 43%, reaches world record paper recycling rate of 71.7%, creates value by sourcing 82% of its raw materials within Europe, CEPI reports in its latest sustainability update

Most of the European industry's suppliers are European companies and 23% of its products are exported to the global market.

Old Town Fuel & Fiber pulp mill in Maine developing process to convert waste wood into sugars that can be used to make biofuels, bioplastics; mill hopes to get approval from US Dept. of Energy to begin working on full scale bio-refinery in 2014

The mill, which has been producing cellulosic sugars for roughly a dozen customers, has received US\$30 million in grant money from the U.S. Dept. of Energy to develop the conversion technology.

US biomass-fueled energy capacity rises to 15.33 GW, or 1.3% of country's power-generating capacity, as of end of October; 360 MW of new biomass-generating capacity added during first 10 months of 2013, down from 519 MW a year earlier: FERC

Sixty-five new biomass power generation units with a combined capacity of 360 megawatts (MW) came online in the U.S. during the first 10 months of 2013, in comparison to 123 new biomass units with a combined capacity of 519 MW the previous year.

Global tissue paper market to grow at CAGR of 4.9% during 2012-2016 period amid increasing demand of tissue paper for personal hygiene, according to Research and Markets report

However, the increasing demand for hand-drier machines could pose a challenge to the growth of this market.

Statistics Corner: Third Quarter 2013 Financial Results

As shown in the table below, the top paper companies globally had a good third quarter overall, with only four showing a decline in net income from a year ago, and only two, both producers of publication papers, reporting losses. International Paper reported record earnings, which it attributed to higher selling prices for boxes and containerboard, operational improvements, and fewer maintenance outages during the quarter. ■

Company	Income	% change year-over- year	Sales	% change year-over- year
International Paper Co.	382.0	61.2	7,400.0	5.4
Stora Enso Oyj	113.0	3.7	3,450.0	5.1
Svenska Cellulosa Aktiebolaget	218.0	18.1	3,320.0	-0.7
UPM-Kymmene Oyj	185.7	283.3	3,330.0	-4.7
Metsa Group	27.7	28.8	1,630.0	-2.4
MeadWestvaco Corp.	80.0	56.9	1,430.0	2.8
Sappi Ltd.	-143.0	n.a.	1,530.0	-3.5
Domtar Corp.	27.0	-59.1	1,380.0	4.8
Empresas CMPC SA	43.0	4200.0	1,230.0	2.0
Resolute Forest Products Inc.	-588.0	n.a.	1,130.0	-2.0
Fibria Celulose SA	24.5	n.a.	792.1	18.3
Holmen AB	31.1	-16.9	592.5	-6.9
Suzano Papel e Celulose SA	18.6	n.a.	656.4	11.7
Norske Skogindustrier ASA	23.9	66.1	544.3	-18.5

Third Quarter 2013 Financial Results (Source: Industry Intelligence Inc.)