

Manufacturing Costs in the Global Market Pulp Sector

Inflation and depreciation of the U.S. dollar aside, long term BSKP and BHKP production costs have inched down due to improved yield, operating dynamics.

By David Pineault

Manufacturing costs play a pivotal role in both short- and long-term dynamics of the global market pulp industry. On a short-term basis, the level and shape of the industry-wide average variable cost curve determines market price for a given level of demand. In the long-term, the real (inflation-adjusted) price of pulp will be set by the lowest cost producer.

The rate at which prices go up or down is a function of the steepness of the industry-wide cost curve. The steeper (more inelastic) the curve is, the more volatile the pricing environment. A relatively flat (more elastic) cost curve is consistent with a relatively milder pricing environment. Put another way, the industry can achieve price increases at lower operating rates as the cost curve steepens.

The following analysis focuses on *regional average variable costs*. It focuses on average costs for pragmatic reasons, although technically speaking, prices are set by the marginal rather than the average mill. Also, entire regions do not shutdown, of course, when markets are poor. Rather, the highest-cost mills will shutdown regardless of the region as prices fall to their variable cost levels.

A higher percentage of mills in high cost regions and a lower percentage of mills in low cost regions will bear the brunt of the downtime in an environment of falling prices. Some mills that “should” shutdown remain open due to socioeconomic considerations and government intervention.

HISTORICAL PERSPECTIVE

Two periods in the market pulp industry’s history stand out as examples of these phenomena. The first was 1994-1996, a period characterized by one of the industry’s most volatile pricing environments. The price of benchmark NBSK went from \$390/metric ton in the fourth quarter of 1993 to \$975/metric ton in the fourth quarter of 1995, only to fall back to about \$560/metric ton by the fourth quarter of 1996. What happened?

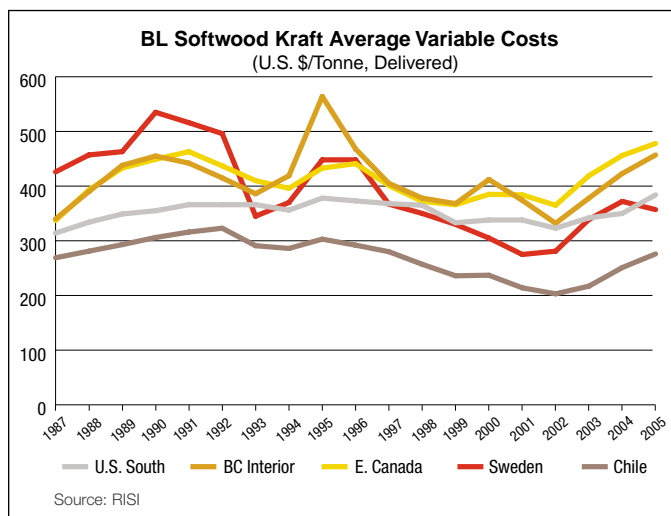
During this period, a viscous and largely unknown inventory cycle within both the pulp and paper supply chain “whip-sawed” market pulp demand while true consumption was growing much more slowly. The volatile nature of this



Bales of market pulp in storage.

price cycle was also driven by the level and slope (steepness) of the industry cost curve.

Operating rates in the pulp industry were extremely high to meet the strong demand. At the same time, lumber production in British Columbia, for example, was depressed and the province had restrictions on pulpwood harvesting and onsite whole-log chipping (which have since been eased).



This prompted some BC lumber mills to continue lumber production just for chips, despite taking a loss on the lumber.

Still, woodchip demand was too strong and, as a result, pulp producers in the region were forced to import woodchips from the U.S. Northwest, Alaska, and even Chile. By the fourth quarter of 1995, the differential between the highest cost bleached softwood kraft producing region (British Columbia) and lowest cost producing region (Chile) approached \$550/tonne.

In contrast, the market went through several mini-cycles during 2002 – 2004. This period was characterized by a relatively low and flat industry-wide cost curve driven, in part, by relatively low wood costs, low energy costs, and a strong U.S. dollar (which lowers dollar-denominated costs in non-U.S. producing regions). By the second quarter of 2002, for example, the difference between the low and high cost producing region for BSKP was just \$180/metric ton.

CURRENT SITUATION

Manufacturing costs in the global market pulp sector have been on the rise during the past three years, primarily due to depreciation of the U.S. dollar relative to the Brazilian *real*, Chilean peso, and Canadian dollar. However, local cost inflation, particularly in wood and energy, has also been a factor.

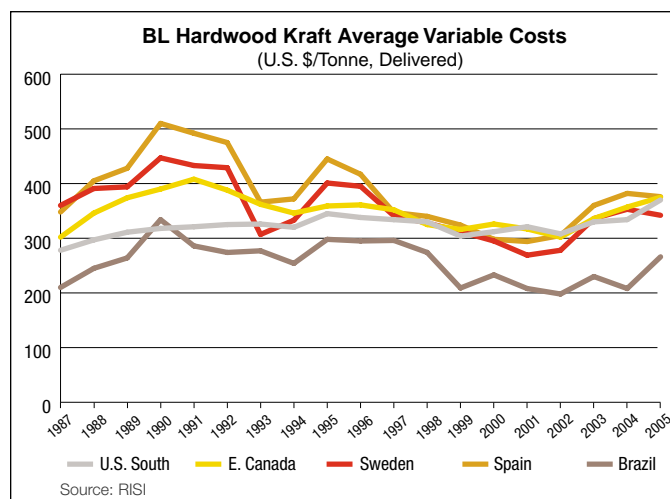
On balance, global U.S. dollar-based manufacturing costs have been fairly stable over the past several years, even though there has been some meaningful changes in relative cost competitiveness between the regions.

The industry-wide average variable cost curve in mid-2002 was generally low and flat, with the spread between the lowest and highest producing region for BSKP being only \$180/metric ton. By mid-2005, the BSKP average variable cost curve had risen and became steeper with the spread between the lowest and highest cost producing region rising to about \$250/metric ton.

The same was true for the BHKP sector. In the second quarter of 2002, the spread between the lowest cost region (Brazil) and the highest cost region (the U.S. South) was only \$100/metric ton. By mid-2005 this spread had risen to about \$170/metric ton. Interestingly, Indonesia had become the low-cost BHKP producer by this time, yet Brazil's cost advantage over the highest-cost producing region (Spain) had actually increased to \$165/metric ton.

REGIONAL FOCUS

Looking back to the second quarter of 2002, for instance, the U.S. South was in the middle of the cost curve for BSKP and was the highest-cost BHKP producing region. By the third quarter of 2005, U.S. BSKP producers were the second-lowest cost region at just \$85/metric ton higher than Chilean producers and \$250/metric ton below the highest-cost producing region, eastern Canada.



The improved competitive position of BHKP producers in the U.S. South was even more pronounced. U.S. BHKP producers were the highest cost producers in mid-2002 with an average variable cost of \$300/metric ton, \$100/tonne higher than Brazil's. By mid-2005, U.S. BHKP producers had an average variable cost that was just \$50/metric ton higher than Brazil's and \$100/metric ton lower than the highest-cost region, Spain. This improvement is partly attributable to depreciation of the U.S. dollar against major competing currencies during that time.

The evolution of eastern Canada's market pulp cost position serves as a good example of how exchange rate fluctuations can affect regional competitiveness. During 2002 - 2005, the value of the U.S. dollar fell by 35%, from an average exchange of \$0.64/C\$ in 2002 to an average of \$0.86/C\$ by December 2005. Looked at from the revenue side, the 35% increase in the U.S. dollar-based price of NBSK over this three-year period was virtually wiped out in Canadian dollar terms due to appreciation against the U.S. dollar.

BSKP producers in eastern Canada were in the middle of the cost pack in the second quarter of 2002, with an average variable cost of \$350/metric ton. By the middle of 2005, their cost position had deteriorated such that they were the highest-cost BSKP producing region with an average variable cost of \$500/metric ton. BHKP producers in eastern Canada actually saw their cost position improve slightly over the 2002 to mid-2005 period. However, that was due to the sharp increase in production costs in Iberia caused by rising wood costs and appreciation of the euro relative to the U.S. dollar.

Chile remains the lowest cost BSKP producer. In its latest cost survey, Hawkins Wright estimates Chile with an average cash cost of about \$370/metric ton. Despite being the lowest-cost producing region for BSKP, manufacturing costs in Chile have been on the rise these past two years due to appreciation of the Chilean Peso against the U.S. dollar

and also higher local currency wood costs, higher chemical costs, and rising energy costs.

In fact, according to Hawkins Wright, wood costs in the B.C. Interior and U.S. South are now cheaper than those in

Chile. Current low wood costs in B.C. are due, in part, to a pine beetle infestation that increased availability of pulpwood in the region. Chile's competitive advantage lies in mill efficiency and low labor costs that are currently about a quarter to a third lower than in North America, according to Hawkins Wright's analysis.

NORTH AMERICAN WOOD COSTS

Wood cost in the U.S. South currently favors softwood pulp production, and RISI forecasts a relatively favorable outlook for softwood fiber supply over the next five years due to maturing plantations and increased thinnings. Hardwood fiber availability, according to RISI, is expected to be somewhat more challenging due to a reduction in the available harvest. Changing ownership patterns in the southeastern U.S. could also have a profound effect on fiber supply in the ensuing years.

The decision of the Quebec provincial government to reduce its annual allowable cut (AAC) by 20% will have a direct bearing on softwood pulp costs. RISI economist, Peter Barynin, estimates that the 20% cut in AAC will result in a loss of approximately 6.2 million m3 implemented in stages over a three-year period—enough to sustain 1.4 billion board-ft of lumber production and approximately 500,000 metric tons of BSKP capacity from residual chips. According to Wood Resources International, the price of conifer chips in Quebec has risen from C\$140/o.d. metric ton in the first quarter of 2003 to C\$173/o.d. metric ton by the summer of 2005—an increase of nearly 24%. This is before the 20% cut in AAC went into effect.

The hardwood fiber supply situation in eastern Canada will not be directly affected by the 20% cut in AAC and will benefit from the higher percentage of privately owned wood in the Maritimes. Nevertheless, wood costs are expected to rise due to increased usage as more companies switch from softwood pulp production to hardwood, and to increased competition from solid wood producers.

CONCLUSIONS

Overall, long term market pulp manufacturing costs have been falling by 1.5% - 2% annually in real (inflation adjusted) terms. Key factors driving real costs down are improving wood yields, technological improvements, and economies of scale.

In addition, pulp production is rising faster in low-cost areas of the world and the grade mix is shifting from softwood to hardwood, which is cheaper to make. On average, high cost areas of the world have lower operating rates than low-cost areas. This phenomenon pulls down the industry's cost curve in real terms. ■

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