



Industry Trend Report for Corrugated and Solid Fiber Boxes Mfg. (NAICS 322211)

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Table 1: Tracking Recent Changes in Industry Prices, Manufacturing Costs and Overhead Costs

	Percent Change in February 2006						Are price/cost trends rising or falling and, from Jan. to Feb., are they moving at a faster or slower pace? ("Turning point" indicates a change in trend direction.)
	1 Month Ago	3 Months Ago	6 Months Ago	Same Month Year Ago	Rolling Quarter-over-Quarter	Rolling Year-over-Year	
Average Industry Product Price	1.00	2.72	2.12	0.67	2.31	2.26	rising / slower
Total Costs	0.80	1.23	2.57	2.97	1.01	3.47	rising / slower
Manufacturing Costs	0.97	1.25	2.76	2.55	1.05	3.37	rising / slower
Bill of Material Costs	1.70	2.11	4.19	2.95	1.89	3.55	rising / slower
U.S. Made Raw Materials	1.84	2.14	4.64	3.27	2.05	3.68	rising / slower
Imported Raw Materials	0.84	1.93	1.43	0.90	0.92	2.77	rising / slower
Processing Costs	-1.95	-2.18	-2.80	0.95	-2.25	2.63	rising / slower
Production Labor Wages	-2.32	-2.96	-5.79	-4.46	-2.78	-1.83	falling / faster
Energy	-3.09	-0.71	3.39	22.52	-3.19	20.99	rising / faster
Fuels	-5.17	-4.14	3.35	30.65	-7.39	33.50	rising / faster
Electricity	-0.28	4.05	3.44	13.49	3.00	7.74	rising / faster
Inbound Freight	-0.17	-0.97	1.99	5.10	-0.15	6.34	rising / slower
Overhead Costs	0.32	1.17	2.05	4.20	0.92	3.76	rising / faster
Labor (excl. production wages)	0.57	1.26	1.73	3.61	0.80	3.72	rising / slower
Non-Production Wages & Salaries	0.23	0.64	1.27	2.66	0.60	2.38	rising / faster
Benefits	1.04	2.10	2.35	4.89	1.07	5.56	rising / slower
Non-Production Materials	0.01	3.76	3.29	12.08	2.69	7.10	rising / faster
U.S. Made Materials	0.01	3.80	3.31	12.15	2.72	7.12	rising / faster
Imported Materials	0.00	0.53	0.53	0.80	0.18	0.34	rising / faster
Inbound Freight	0.02	-1.23	1.92	5.40	-0.42	5.71	rising / faster
Purchased Services	0.17	1.21	2.21	3.69	1.02	2.81	rising / faster
Communication & Non-Energy Utilities	-0.31	-0.41	-1.22	-1.11	-0.44	-1.64	falling / slower
Business Services	0.15	1.27	2.33	3.70	1.08	2.77	rising / faster
Other Services	0.44	1.01	1.94	4.52	0.80	3.95	rising / faster
Distribution & Outbound Transportation	-0.11	-0.48	2.32	5.48	0.29	6.12	rising / faster
Warehousing	0.19	2.07	2.07	2.48	1.32	1.21	rising / faster
Outbound Transportation	-0.12	-0.57	2.33	5.59	0.26	6.31	rising / slower
Surface Transportation	-0.17	-0.61	2.19	5.17	0.09	6.25	rising / slower
Air Transportation	0.22	-0.28	3.36	8.57	1.43	6.68	rising / faster
Special Indexes							
MRO Costs	0.85	2.38	4.28	6.24	2.45	6.02	rising / slower
Capital Equipment Costs	0.22	1.37	3.03	5.63	0.88	5.46	rising / faster

Hot Spot

Guidance

How closely do prices follow costs? In industries with stable margins, changes in product prices and manufacturing costs tend to be similar in both magnitude and timing. For example, if product prices rise 1% and manufacturing costs also rise 1% over a given time period, then producers will see no change in the return they earn on manufacturing-related spending. If prices rise faster than costs, then inflation-adjusted margins grow. But during deflationary times, if prices fall faster than costs, then margins shrink. Refer to Table 5 for another view of how inflation trends shape industry profitability.

Are there pockets of cost structure volatility that may act as a distraction to suppliers? To identify cost structure issues, look for the largest percent change values in the table above. Spending areas with large increases could be causing cost control problems for suppliers. Spending areas with sharp declines may be the keys to a buyer's ability to negotiate a price discount. Refer to Table 2 for a look at the inflation figures that have been adjusted for budget importance.



Table 2: Assessing the Importance of Recent Changes in Manufacturing Costs and Overhead Costs

	Percent Change in February 2006 -- Adjusted for Relative Budget Importance						Share of Total Costs (LMIQ benchmark period)
	1 Month Ago	3 Months Ago	6 Months Ago	Same Month Year Ago	Rolling Quarter-Over-Quarter	Rolling Year-Over-Year	
Total Costs	0.80	1.23	2.57	2.97	1.01	3.47	100.000%
Manufacturing Costs	0.72	0.93	2.05	1.91	0.78	2.51	75.788%
Bill of Material Costs	1.01	1.25	2.47	1.77	1.12	2.11	61.415%
U.S. Made Raw Materials	0.94	1.10	2.36	1.69	1.05	1.88	52.767%
Imported Raw Materials	0.07	0.15	0.12	0.07	0.07	0.23	8.648%
Processing Costs	-0.29	-0.33	-0.43	0.14	-0.34	0.40	14.373%
Production Labor Wages	-0.21	-0.28	-0.57	-0.43	-0.26	-0.18	9.640%
Energy	-0.07	-0.02	0.07	0.40	-0.07	0.37	1.581%
Fuels	-0.07	-0.05	0.04	0.29	-0.10	0.31	0.706%
Electricity	0.00	0.04	0.03	0.11	0.03	0.07	0.874%
Inbound Freight	-0.01	-0.03	0.07	0.17	-0.01	0.21	3.152%
Overhead Costs	0.08	0.30	0.53	1.06	0.24	0.96	24.212%
Labor (excl. production wages)	0.07	0.15	0.21	0.43	0.10	0.44	10.868%
Non-Production Wages & Salaries	0.02	0.04	0.09	0.18	0.04	0.16	6.666%
Benefits	0.05	0.11	0.12	0.25	0.05	0.28	4.202%
Non-Production Materials	0.00	0.04	0.04	0.13	0.03	0.08	1.125%
U.S. Made Materials	0.00	0.04	0.04	0.13	0.03	0.08	1.115%
Imported Materials	0.00	0.00	0.00	0.00	0.00	0.00	0.002%
Inbound Freight	0.00	0.00	0.00	0.00	0.00	0.00	0.009%
Purchased Services	0.02	0.12	0.22	0.36	0.10	0.28	9.676%
Communication & Non-Energy Utilities	0.00	0.00	0.00	0.00	0.00	0.00	0.204%
Business Services	0.01	0.11	0.20	0.31	0.09	0.24	8.378%
Other Services	0.00	0.01	0.02	0.05	0.01	0.04	1.093%
Distribution & Outbound Transportation	0.00	-0.01	0.06	0.14	0.01	0.16	2.543%
Warehousing	0.00	0.00	0.00	0.00	0.00	0.00	0.098%
Outbound Transportation	0.00	-0.02	0.06	0.14	0.01	0.16	2.445%
Surface Transportation	0.00	-0.01	0.05	0.11	0.00	0.14	2.125%
Air Transportation	0.00	0.00	0.01	0.03	0.00	0.02	0.321%

Guidance

Determining how much of a price increase fairly recompenses suppliers when costs are rising is an age-old problem. For example, when spending on wages goes up, then suppliers will attempt to recoup at least a portion of the increased spending by raising product prices. The question becomes: what is a fair price increase? In Purchasing 101, buyers learn that a 5% increase in wage rates does not translate into an excuse for raising product prices 5%. Labor is just one component of costs. Often declines in materials costs or energy costs will mitigate the bottom-line damage caused by higher labor rates. The fair price hike associated with a given wage increase reflects not only the rate of wage inflation, but also the relative importance of wages in the supplier's budget.

The table above takes raw escalation rates for given budget categories and adjusts the rates for relative importance. This handy adjustment allows you to look up any spending area to determine how cost changes translate directly into upward pressure on industry prices (or into enhanced discounting ability when costs are falling).

Note: the last column "Share of Total Costs" shows the normalized weight for each budget category in the LMIQ model. Cost concepts (first column) of equal importance are indented by the same amount. The weights for Manufacturing Costs and Overhead Costs equal 100 and the weighted sum of their two escalation rates equals the total cost escalation rate in the top line of the table.



Table 3: Tracking Recent Changes in Per-Unit Costs for Key Raw Materials

		Cost Changes Per Unit of Output--February 2006							
		All Direct Expenditures				Domestic		Imported	
		Raw Percent Change in Per-unit Costs		Percent Change Adjusted for Share of Materials Budget		Percent Change Adjusted for Share of Materials Budget		Percent Change Adjusted for Share of Materials Budget	
		1 Month Ago	Same Month Year Ago	1 Month Ago	Same Month Year Ago	1 Month Ago	Same Month Year Ago	1 Month Ago	Same Month Year Ago
Hot Spot	Paper and paperboard mills (not itemized)	1.853	2.873	1.608	2.498	1.506	2.338	0.101	0.160
	Printing ink manufacturing (not itemized)	0.432	4.194	0.007	0.069	0.007	0.068	0.000	0.000
	Adhesive manufacturing (not itemized)	0.484	9.423	0.007	0.122	0.007	0.116	0.000	0.006
Hot Spot	Plastics plumbing fixtures and all other plastics products (not itemized)	1.403	4.876	0.017	0.057	0.017	0.056	0.000	0.000
	Paperboard container manufacturing (not itemized)	0.945	1.262	0.010	0.013	0.009	0.012	0.001	0.001
	Pulp mills (not itemized)	1.534	2.629	0.016	0.028	0.013	0.026	0.003	0.002
	All other electronic component manufacturing (not itemized)	0.235	1.193	0.002	0.010	0.001	0.007	0.001	0.003
	Semiconductors and related device manufacturing (not itemized)	-0.087	-7.367	-0.001	-0.053	-0.001	-0.002	0.000	-0.051
	Paint and coating manufacturing	0.885	7.235	0.007	0.054	0.007	0.054	0.000	0.001
	Machine shops	0.072	1.023	0.000	0.005	0.000	0.005		
	All other forging and stamping (not itemized)	0.152	0.754	0.001	0.004	0.001	0.004	0.000	0.000
	Surface-coated paperboard manufacturing	0.031	2.011	0.000	0.006	0.000	0.006	0.000	0.000

Guidance

The table above shows inflation rates for the most important raw materials used by the industry. This table will help (1) buyers to develop a better sense of the major inflation factors shaping industry prices and (2) suppliers to identify potential cost control problems.

Often the difference between raw inflation rates and rates adjusted for budget importance can be substantial. Suppliers may distract buyers by the raw magnitude of changes in key materials costs. For buyers, these distractions often lead to over-compensating price hikes, i.e., price hikes that cover rising costs and also add to the supplier's margins. Understanding how materials inflation fits in the overall budget/margin scheme is important for buyers and suppliers to fairly manage any proposed price change.

Note: materials are listed in descending order of importance. The first two data columns show the raw inflation rates for each material. The remaining columns show the inflation rates after adjusting for a given material's relative budget importance. Hot spots indicate those materials that deserve extra attention.

Note: due to data limitations, some key materials costs are identified by their supplying industry rather than by a specific name.



Table 4: Tracking Recent Changes in General Manufacturing Wage Rates for Key Producing States

	Percent Change in February 2006			
	Share of Industry Payroll	Rolling Quarter-over-Quarter	Same Quarter Year Ago	Rolling Year-over-Year
California	12.87%	0.81	1.60	2.09
Illinois	7.90	0.54	1.56	1.40
Ohio	6.22	-0.52	0.24	2.19
Texas	5.54	1.46	1.99	0.90
Pennsylvania	5.33	1.10	1.68	0.94
New Jersey	4.24	-0.50	2.96	3.83
Michigan	4.19	0.93	0.39	-0.05
Georgia	4.09	-0.26	1.56	0.52
Wisconsin	4.08	3.11	2.75	1.09
North Carolina	3.91	0.95	2.01	0.99
New York	3.67	-0.06	0.36	2.11
Indiana	3.62	1.91	3.73	1.88
Tennessee	3.04	-0.75	1.17	1.39
Minnesota	2.61	0.63	5.23	3.87
Florida	2.49	0.11	5.16	2.23
Massachusetts	2.48	-0.46	1.58	3.84
Missouri	2.37	0.34	-0.63	-2.00
Virginia	2.32	0.77	1.97	1.78
Washington	2.12	5.74	4.24	3.12
South Carolina	1.98	-1.86	-2.98	1.99
Arkansas	1.87	0.42	0.77	1.52
Mississippi	1.83	0.01	1.93	2.77
Kentucky	1.76	0.45	2.67	1.37
Connecticut	1.45	0.05	2.15	2.86
Iowa	1.30	1.77	1.96	0.68
Alabama	1.29	-1.29	2.58	3.15
Kansas	1.15	-0.49	2.84	3.38
Colorado	1.12	2.57	1.54	-2.17
Louisiana	1.05	2.43	7.70	6.09
Oregon	0.89	1.68	2.14	1.33
Arizona	0.72	1.43	0.61	2.29
Nebraska	0.29	-1.94	0.03	1.66
Rhode Island	0.20	1.21	2.71	1.18

Guidance

The table above shows all the states that have establishments in this industry. The states are ranked in descending order of payroll levels, i.e., the first state listed in the table above spends the most money on production workers in the given industry. Regional variations in wage escalation rates may cause one supplier to raise prices and another to hold prices steady. For insights into comparative wage volatility, look at the last column in the table. States with consistently volatile wages may create long-run supply chain management problems.

Note: the escalation rates in this table are for wages paid to ALL manufacturing workers and are included in this report to provide a general sense of how inflation environments might vary on a regional basis. Although these wage data are not industry-specific, buyers often find the state-specific manufacturing wage trends to be helpful in understanding labor cost trends among suppliers.



Table 5: Assessing the "Invoice" Impact of Recent Changes in Product Prices, Costs, Productivity and Other Economic Conditions

	Estimated Supplier Cost and Margin Breakdown for Each \$100 of Product Appearing on a Buyer's Invoice					
	February-06	Change from January-06	Change from February-05	Rolling Quarter-to-Quarter Change	3-Year Spending Average	5-Year Spending Average
Total Spending	\$96.95	-\$0.48	+\$0.84	-\$1.29	\$97.39	\$97.02
Manufacturing Spending	\$71.98	-\$0.26	+\$0.32	-\$0.89	\$72.33	\$72.39
Bill of Material Spending	\$58.76	+\$0.34	+\$0.56	-\$0.45	\$58.27	\$58.34
U.S. Made Raw Materials	\$50.82	+\$0.36	+\$0.65	-\$0.31	\$50.19	\$50.20
Imported Raw Materials	\$7.94	-\$0.02	-\$0.08	-\$0.14	\$8.08	\$8.14
Processing Spending	\$13.22	-\$0.60	-\$0.25	-\$0.45	\$14.05	\$14.05
Production Labor Wages	\$7.85	-\$0.47	-\$0.70	-\$0.22	\$9.00	\$9.19
Energy	\$2.09	-\$0.09	+\$0.35	-\$0.13	\$1.82	\$1.68
Fuels	\$1.17	-\$0.08	+\$0.26	-\$0.13	\$0.95	\$0.82
Electricity	\$0.92	-\$0.01	+\$0.09	+\$0.00	\$0.87	\$0.86
Inbound Freight	\$3.28	-\$0.04	+\$0.10	-\$0.09	\$3.23	\$3.18
Overhead Spending	\$24.97	-\$0.22	+\$0.52	-\$0.40	\$25.07	\$24.63
Labor (excl. production wages)	\$11.68	-\$0.06	+\$0.19	-\$0.22	\$11.69	\$11.35
Non-Production Wages & Salaries	\$6.66	-\$0.06	+\$0.05	-\$0.14	\$6.82	\$6.74
Benefits	\$5.03	-\$0.00	+\$0.14	-\$0.08	\$4.88	\$4.60
Non-Production Materials	\$1.18	-\$0.01	+\$0.11	+\$0.00	\$1.13	\$1.12
U.S. Made Materials	\$1.17	-\$0.01	+\$0.11	+\$0.00	\$1.12	\$1.11
Imported Materials	\$0.00	-\$0.00	-\$0.00	-\$0.00	\$0.00	\$0.00
Inbound Freight	\$0.01	-\$0.00	+\$0.00	-\$0.00	\$0.01	\$0.01
Purchased Services	\$9.51	-\$0.11	+\$0.15	-\$0.13	\$9.67	\$9.63
Communication & Non-Energy Utilities	\$0.19	-\$0.00	-\$0.01	-\$0.01	\$0.20	\$0.20
Business Services	\$8.22	-\$0.09	+\$0.13	-\$0.10	\$8.36	\$8.33
Other Services	\$1.10	-\$0.01	+\$0.03	-\$0.02	\$1.11	\$1.10
Distribution & Outbound Transportation	\$2.60	-\$0.04	+\$0.08	-\$0.05	\$2.57	\$2.54
Warehousing	\$0.09	-\$0.00	+\$0.00	-\$0.00	\$0.09	\$0.10
Outbound Transportation	\$2.51	-\$0.04	+\$0.08	-\$0.05	\$2.48	\$2.44
Surface Transportation	\$2.19	-\$0.03	+\$0.06	-\$0.05	\$2.16	\$2.13
Air Transportation	\$0.32	-\$0.00	+\$0.02	-\$0.00	\$0.31	\$0.31
INVOICE SURPLUS BEFORE OVERHEAD SPENDING IS TAKEN INTO ACCOUNT	\$28.02	+\$0.26	-\$0.32	+\$0.89	\$27.67	\$27.61
INVOICE SURPLUS	\$3.05	+\$0.48	-\$0.84	+\$1.29	\$2.61	\$2.98

Guidance

The above table shows the LMIQ model's estimates for (1) how a typical supplier in this industry spends its money, (2) how inflation, productivity and other economic factors are changing spending habits, and (3) how a typical supplier's ability to earn a fair return on costs is changing. Pay close attention to the last two rows of this table. Comparisons between current margins and historical average margin levels can provide important clues to future industry pricing behavior. When margins sink to low levels, then suppliers are under increasing pressure to raise prices. When margins are above average, then suppliers may be more willing to discount. We closely track "Invoice Surplus Before Overhead Spending" because economic theory suggests pricing behavior can be quickly influenced by changes in returns earned on manufacturing-related spending.

**Table 6:** Tracking Recent Changes in U.S. End Market Growth

	Percent Change in February 2006		Benchmark Year-Over-Year Rates of Change (1990-2006)			Share of U.S. Demand in LMIQ Benchmark Year	On a scale of 0 (weak) to 10 (strong), how should buyers rate year-over-year end-market growth?
	Same Month Year Ago	Rolling Year-over-Year	Record High	Record Low	Average		
Hot Spot All U.S. End Markets	4.27	3.79	4.39	-2.11	2.16		9
<u>Key End Markets</u>							
Retail trade	-0.72	0.95	4.38	-3.08	1.08	0.04	5
Wholesale trade	3.21	2.81	4.37	-3.94	0.50	0.04	8
Plastics plumbing fixtures and all other plastics products	4.48	2.85	10.42	-5.30	3.69	0.03	5
Frozen food manufacturing	5.01	1.22	5.82	-4.31	1.29	0.03	5
Pharmaceutical and medicine manufacturing	-2.69	0.13	8.81	-1.29	4.12	0.03	1
Fruit and vegetable canning and drying	5.01	1.22	5.82	-4.31	1.29	0.02	5
Food services and drinking places	1.90	2.92	4.90	-2.07	2.30	0.02	6
Motor vehicle parts manufacturing	0.58	3.11	17.02	-11.03	5.62	0.02	4
Soap and other detergent manufacturing	8.85	7.48	12.01	-7.49	2.02	0.02	8
Breweries	-6.32	0.57	6.22	-10.22	0.23	0.02	5

Guidance

Demand conditions can play a key role in crafting negotiation positions. Buyers, for example, may want to consider how important or unimportant their business is in the eyes of suppliers. By understanding all end markets, buyers may be better equipped to deflect proposed price hikes toward healthier segments of the suppliers' customer base.

Suppliers and buyers will find that rolling year-over-year growth rates provide a fundamental understanding of demand conditions. Looking at growth on a same-month-year-ago basis, meanwhile, could provide an early warning of changes in demand conditions. For buyers, this may serve as a barometer for judging the mood in a supplier's industry.

The LMIQ model also benchmarks year-over-year rates of end-market growth against average growth rates. The rating code in the last column (0 indicates weakest and 10, strongest) is your quick guide.

**Table 7:** Tracking General Trends in Capacity Utilization Rates

	Capacity Utilization Rates					
	February-06	% Change from January-06	% Change from February-05	Rolling 5-Year Average	Record High	Record Low
Broad Sector-Level Capacity Utilization Rate	87.47	0.39	1.81	83.20	91.45	79.55
Upstream Capacity Utilization Rate	86.47	0.47	1.53	82.40	90.69	78.87

Guidance

Both sector-level utilization rates and upstream rates are useful in anticipating supply bottlenecks. Comparing current utilization rates to average and record-high rates is a good way to gauge an industry's bottleneck potential.

The broad sector-level capacity utilization rates in the table above are data published by the Federal Reserve Board. These figures represent the percent of total domestic sustainable practical capacity in use during a given month. Our use of the term "sector level" should remind users that the rate appearing in the above table does not directly correspond to the 6-digit NAICS industry covered in this report. Instead, the rate represents the more general 3-digit (or sometimes 4-digit) industry in which the given 6-digit industry belongs.

Upstream capacity utilization is a concept unique to the LMIQ model. This is the weighted average of sector-level capacity utilization rates for suppliers of the industry covered in this report. The weights used to construct this data concept are derived from detailed spending data of domestic materials used in production.