



Financial Benchmarks, Ratios, and Actionable Thoughts

Insights from the March 2023 PIPI Study

Providing regional printing
association members a printing
industry outlook view and
actionable knowledge



MARCH 2023

***Financial Benchmarks, Ratios, and Actionable Thoughts
from the March 2023 PIPI Survey***

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About five years ago, three weeks into a semester, my department chair shared that our business college needed someone to pick up our Entrepreneurial Financial Management course. That course is about small business leaders using financial data to assess and improve performance. Without hesitation, I said, "I'll teach that course." Given the challenge of picking up a new course in the middle of a semester, my department chair was shocked that I wanted to teach the class. But given how much financial benchmarking and ratio analysis played in the success of the three printing companies I led, I was very interested in that course.

You will find industry financial benchmarks and ratios helpful in assessing your firm's performance! Our data can open your eyes to a path for improving your firm's performance! That's why we are committed to annually providing regional printing association members with financial benchmarking and ratio knowledge.

Although comparing your firm's financial numbers to the data below may point to areas you need to sharpen, this assessment is about more than "budgeting." From the financial data we pulled from the March 2023 PIPI survey, you may discover

areas in your firm that need more or less resources applied. This reflects one strategic benefit of financial benchmarking and ratio analysis. Strategic planning includes deciding in what areas we need to invest more and in what areas we need to invest less; this is planning as opposed to reactive resource allocation – planning how much we need to spend where. With our benchmarks and ratios, we provide actionable thoughts you might consider.

We sought to provide this knowledge for specific industry segments, such as different types of commercial printing companies, label companies, and others. We also sought to provide averages for all firms and high performers in printing industry segments. We do provide some findings categorized in that manner. However, as our survey responses are limited, we do not offer the scope of industry segments we desire, nor do we provide numbers for high performers in all industry segments. However, our report includes helpful numbers.

Hopefully, this report will motivate more survey participation when we conduct the PIPI-Financial Benchmarking study again next spring.

Our report contains four sections.

- Income statement and cost categories as a percentage of revenue. (p.2)
- Balance sheets and related ratios. (p.19)
- Cash management indicators. (p.24)
- Summary with some key takeaways. (p.24)

Income Statement and Cost Categories as a Percentage of Revenue

We provide eight income statement tables below. Table 1 represents all firms represented in our survey. Tables 2, 3, and 4 represent general commercial printing firms (of different revenue categories) that combine digital, web offset, sheetfed offset, and wide format (web offset firms are represented only in Tables 1 and 2). By “general commercial printing firms,” we refer to companies that produce various products, such as magazines, newsletters, brochures, posters, banners, business cards, stationery, business cards, and direct mail. Table 5 represents general commercial printing firms that apply digital and wide format (very little, if any, sheetfed offset). Table 6 represents label printing firms primarily applying sheetfed offset to produce paper board packaging or other

forms of labels, and Table 7 represents specialty label printing firms primarily applying flexography. Table 8 compares general commercial printing firms that provide a significant number of related services to firms that do not.

We were careful not to present invalid numbers from a sample that was too small, so we did not provide high performers' statistics for three industry segments.

Every printing firm's income statement is formatted differently. We wrestled with what income statement format to apply in our tables. Hopefully, we used a format that is comparable to your income statement. We welcome any suggestions.

We provide a percentage of total revenue for each cost category. The bottom two rows provide "income before taxes" and "EBITDA" as a percentage of revenue. Taxes vary by state and by the firm organization (S-corp, C-corp, LLC, etc.), so financial benchmarking is best applied without tax consideration. EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) is an excellent financial benchmarking tool. EBITDA eliminates differences between firms based on their financing, depreciation approaches, and tax environment – providing a solid operational performance comparison tool.

In four of the seven tables, we provide cost percentages for all firms and high performers. In determining high performers, we did not apply a fixed amount, such as the top 25%. To identify high performers, we ranked the respondents by EBITDA as a percentage of revenue from highest to lowest. We then looked for the most significant drop in EBITDA percentage between respondents. The firms above that drop indicated high performers that would produce credible results.

In the last column, we provide the percentage difference between all firms and high performers for each cost category. We opted for this approach to better illustrate significant differences. As a hypothetical example, if all firms spent 6% of their revenue on sales/marketing, and high performers spent 7% on sales/marketing, that's a one "percentage point" difference. However, when a percentage difference is applied, high performers would appear to spend 16.67% more in marketing/sales.

You should compare your financials to the table that best reflects your firm and examine the details. You might include your management team in this process. We encourage you to apply critical thinking in this analysis, rather than a superficial look. Consider multiple options for improving your firm's performance, then decide what is best. For instance, if our benchmarks suggest that your firm should reduce administrative costs, consider multiple ways to achieve that objective. Don't assume the first idea is THE best idea. Weigh the costs and benefits of each idea, and then choose the best path forward. You may decide to apply multiple ideas. Also, you should objectively consider if reducing administrative costs is the best strategic direction. You may decide to maintain current administrative costs but emphasize the need to increase revenue.

We discuss potentially relevant thoughts below from a "big picture" view of the tables. We cannot perfectly explain why high performers apply more or less to different cost categories. For instance, for the cost items where high performers are spending less on a cost item, that may result from more efficient use. But lower cost as a percentage of revenue may also result from high markups – a firm provides a targeted customer group with a value in their product or service that is economically inelastic (high prices have little effect on demand). Conversely, we see cost items where high performers spend more. We merely share thoughts from our industry view.

Materials and Outside Services

Each of the four industry categories for which we have high-performing firms data shows a smaller percentage of revenue spent on paper. And the percentage differences are significant, ranging from -7.37% to -15.90%. This reinforces the need to do as much as possible with less paper – strive to get leaner in your paper use... waste less paper.

Other factors may affect the lower percentage of revenue spent on paper in high-performing printing firms. High-performing printing firms may have the cash to purchase high volumes of paper resulting in discounts and lower paper costs. Providing related services, such as fulfillment or marketing consulting (discussed with Table 8 below), could reduce the proportion of revenue generated by printing and reduce paper's percentage of total revenue, which includes revenue generated by printing and revenue generated by related services.

A few other factors may have triggered the differences in paper percentage of revenue between all firms and high performers. We have heard of firms who bought excess paper, but they did not add that cost to balance sheet inventory. They merely recorded those paper expenses as costs in their income statement, even though it was inventory. It's possible that some firms purchased paper at higher prices that were chargeable to their customers – they could not pass on the increased costs.

We were surprised to see high paper costs as a percentage of revenue for label printing firms compared to general commercial printers. See Table 6 (label printing firms that primarily apply sheetfed offset to produce paper board packaging or other forms of labels) and Table 7 (specialty packaging label printing firms that primarily apply flexographic printing). Label printers may add less value to paper than general commercial printers using folding, binding, and other processes. Label printers may find substrates such as weighted board or pressure-sensitive material more expensive than conventional paper. Also, as label printers' customers are often manufacturers, those printing firms may experience more pricing pressure.

It's interesting that in some industry categories, high-performers spend more on "outside chargeable materials" and "outside chargeable services," and in some industry categories, high-performers spend less. However, in every industry category with high-performers data, high-performing firms spend less on "total materials and outside services." When this happens, more revenue is applied to "in-house" costs and moves to the bottom line (profit). This connects with strategic thinking and a mission – what value do you provide customers, and what do you do inside to provide that value?

Factory Costs

In three industry categories, high performers spent less on "factory payroll taxes and benefits" and "total factory costs." Sure, this may result from pushing for lower factory costs. However, this might also result from "economies of scale" – producing more with less. We've seen companies who strive to operate multiple shifts instead of adding more equipment. As another approach, some companies budget for 40 work hours per week, reflecting a conservative revenue outlook that covers fixed costs, and then they work overtime in most weeks. In this

condition, fixed costs are covered in 40 hours, and overtime hours generate more gross profit because of those covered fixed costs.

In each of the four industry categories, the high performers incurred more depreciation as a percentage of revenue. As in all these points, we cannot say for sure what causes this. However, high performers may invest more in equipment or own their buildings. The higher depreciation may be indicative of new equipment that still has depreciable life versus older equipment that has been fully depreciated. It is possible that high performers are deploying capital and seeing revenue gains.

Administrative Costs

Administrative “payroll including taxes and benefits” and “total administrative costs” were lower for high performers in all four industry categories. High performers spent less on “other administrative costs” in three industry categories. But the differences in “total administrative costs” are striking – high-performers spent 27.31% less on administrative in one industry category. It appears that high performers are doing more with less administrative resources, which could reflect staff members taking on multiple roles, outsourcing some administrative functions, increasing revenue without increasing administrative staff, benefiting from technology to replace manual tasks, or other approaches.

Sales and Marketing Costs

In three categories, high performers spent more on “total sales and marketing costs.” Their investment in sales and marketing appears to generate a return. Data from a previous PIFI study (*Marketing Planning, Sales Team Management & Social Media Usage Insights from the April 2022 PIFI Study*) indicated that having a strategic plan mediates the relationship between effective sales management and firm performance. In other words, effective sales management will not affect firm performance without a solid strategic plan (who are our target customers, and what value do we provide them). Related to this study, we propose that high performers generating a return for high investment in sales and marketing costs have a solid strategic plan. Also, from the PIFI study mentioned above, high performers regularly assess sales performance and hold their sales force accountable to producing results.

Income Before Taxes and EBITDA

The “income before taxes” and “EBITDA” differences between high-performers and all firms are striking - almost double the averages for all firms in their categories. Two thoughts surface from these findings. First, more efficient and more effective applications of various cost categories add up nicely to improve income before taxes and EBITDA. Second, there are winners in our industry.

Number of Employees per \$1,000,000 in Revenue

In previous PIFI studies, we’ve seen less employees per \$1 million in revenue. In Tables 2, 3, and 4, our findings don’t show that. However, we still stand firm with our position that growing revenue without expanding staff is effective – as you grow, don’t automatically add employees.

Interestingly, the number employees per \$1 million in revenue was significantly less in label printing firms than in general commercial printing firms.

In three of the four tables, stronger firms appear to have fewer employees per \$1,000,000 in revenue – they do more with fewer employees. Several factors may contribute to generating more revenue with fewer employees, such as the following:

- An organizational structure (who reports to whom) that is efficient and complements the firm’s strategy.
- Strong motivating leadership.
- A clear strategy and mission (who are our target customers, what value we provide them, and what you do inside to provide that value) that is transparent to all and puts everyone on the same game plan.
- A lean and efficient approach in all departments, not only production.
- Continuing employee development, guiding them to produce more.
- An effective application of new technology.

Providing Related Services

Table 8 compares general commercial printing firms that provide a significant number of related services to firms that do not. By “related services,” we refer to non-print services that complement and expand the value firms provide to

customers. Those services might include, but are not limited to, the following: fulfillment, marketing, creative design, data management, photography, etc. As one would expect, firms providing related services spend a lower percentage of their revenue on paper and substrates and total factory costs. However, firms providing related services apply a higher percentage of their revenue to total administrative and total sales/marketing costs, which may reflect their investment in marketing, selling, and managing related services. Interestingly, firms providing related services appear to have more employees per \$1,000,000 in revenue than firms that do not. Nevertheless, firms that provide related services generate substantially more income before taxes and EBITDA than firms that do not. This finding is consistent with what we've seen in previous PIFI studies.

So, the easy takeaway from this is to start providing a bunch of related services. It's not that easy. Throwing a plethora of related services at the market is not the right approach. Printing firm leaders must strategically consider what related services complement the value their firm provides to targeted customer groups. Apply critical thinking – put as many ideas on the whiteboard as possible, then decide what's best. Printing firm leaders should also consider what resources and capabilities are needed to provide those services and whether the existing sales force is capable of selling the new services. This is not a one-time event; it's an ongoing process. Strive to consider this once a year.

Regional Findings

A printing company leader emailed and asked us to look at numbers on a regional basis. The table below shows our findings based on respondents who identified their state location. Although the sample numbers are not huge, the dip in income before taxes and EBITDA in the Northeast surprised us a bit.

Prompted by these averages, we contacted printing industry leaders and sought their thoughts. Multiple industry leaders were not shocked by the Northeast's lower profit numbers. We heard this common theme: "The Northeast is so much more densely populated and competitive." One Northeast industry leader shared that, "Expenses in the Northeast are significantly higher than other areas." Another industry leader mentioned the harsh winter weather may affect printing firm profitability in the Northeast. As an anecdotal test of these regional numbers,

we averaged CNBC’s competitive rankings for states¹ in each region and found the Northeast most competitive. Are there highly competitive metropolitan areas in other regions...sure. But, compared to the Northeast, higher proportions of less dense metropolitan areas might offset that. Bottom line – we don’t know what to take from these regional findings. Given the small Northeast sample size, our numbers may not be “real”. We share these regional numbers transparently and will examine them again in future PIFI studies.

Region	Number of Firms	Average Revenue	Average Income before Taxes as a % of Revenue	Average EBITDA as a % of Revenue
Northcentral: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, South Dakota, Wisconsin	28	\$ 15,924,290	6.90%	12.09%
Northeast: Connecticut, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island	10	\$ 24,073,372	3.78%	7.62%
South Central: Arkansas, Kentucky, Louisiana, Oklahoma, Texas	14	\$ 11,272,449	6.93%	10.35%
Southeast: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia	13	\$ 16,286,630	7.08%	11.63%
West: Arizona, California, Colorado, Nevada, Oregon, Utah, Washington	27	\$ 20,814,068	7.59%	11.75%

¹ <https://www.cnbc.com/2022/07/13/americas-top-states-for-business-2022-the-full-rankings.html>

Some Interesting Owner Compensation Findings

Here's a finding you might find interesting. In small business academic research, scholars often question using financial data to gauge small business performance. Their reasoning is based on the possibility that when small business owners draw above-market compensation, the profit of a successful firm is reduced. That could make a successful firm look less fruitful from a performance standpoint than it is. Our survey asked if the firm's owners were compensated higher than comparable firms. Eighty-two participants answered that question: 13 said their owner's compensation was above that of comparable firms, and 68 said their owner's compensation was similar to that of comparable firms. In the table below, the profit percentages for firms with higher owner compensation are slightly higher than those with normal owner compensation. This challenges small business researchers' predisposition. But it also indicates that there are highly compensated owners in our industry who are "earning their keep."

	Number of Firms	Average Revenue	Average Income before Taxes as a % of Revenue	Average EBITDA as a % of Revenue
Owner's compensation is above that of other comparable firms.	13	\$ 17,409,215	7.96%	12.16%
Owner's compensation is similar to that of other comparable firms.	68	\$ 17,336,231	6.86%	11.27%

After the eight income statement tables below, we discuss balance sheets and related ratios.

Table 1

All Printing Firms Included in our Survey			
	All Firms	High-Performers	Percentage Differences
Number of firms	104	35	
Total Revenue	100.00%	100.00%	
Materials and Outside Services			
Paper and substrates	23.08%	21.38%	-7.37%
Other chargeable materials	6.99%	6.80%	-2.72%
Outside chargeable services	8.44%	8.50%	0.71%
Total Materials and Outside Services	38.51%	36.68%	-4.75%
Factory Costs			
Payroll including taxes and benefits	19.61%	18.61%	-5.10%
Other factory costs excluding depreciation	11.34%	8.85%	-21.96%
Depreciation	4.03%	5.21%	29.28%
Total Factory Costs	34.98%	32.67%	-6.60%
Cost of Goods Sold	73.49%	69.35%	-5.63%
Gross Profit	26.51%	30.65%	15.62%
Administrative Costs			
Payroll including taxes and benefits	7.23%	5.42%	-25.03%
Other administrative costs	4.08%	3.43%	-15.93%
Total Administrative Costs	11.31%	8.85%	-21.75%
Sales and Marketing Costs			
Payroll including taxes and benefits	6.72%	6.82%	1.49%
Other sales and marketing costs	1.14%	1.23%	7.89%
Total Sales and Marketing Costs	7.86%	8.05%	2.42%
Interest	0.78%	0.71%	-8.97%
Income Before Taxes	6.56%	13.04%	98.78%
EBITDA	11.37%	18.96%	66.75%
Employees per \$1mm in revenue	4.89	4.79	

Table 2

General commercial printing firms - digital, sheetfed offset, and wide format (Some web offset firms). With revenues exceeding \$19,000,000			
	All Firms	High-Performers	Percentage Differences
Number of firms	30	12	
Total Revenue	100%	100%	
Materials and Outside Services			
Paper and substrates	24.39%	21.22%	-13.00%
Other chargeable materials	8.33%	9.04%	8.52%
Outside chargeable services	8.41%	8.24%	-2.02%
Total Materials and Outside Services	41.13%	38.50%	-6.39%
Factory Costs			
Factory payroll including taxes and benefits	19.03%	18.69%	-1.79%
Other factory costs excluding depreciation	10.23%	7.99%	-21.90%
Depreciation	4.00%	4.32%	8.00%
Total Factory Costs	33.26%	31.00%	-6.79%
Cost of Goods Sold	74.39%	69.50%	-6.57%
Gross Profit	25.61%	30.50%	19.09%
Administrative Costs			
Payroll including taxes and benefits	5.01%	4.24%	-15.37%
Other administrative costs	3.41%	2.95%	-13.49%
Total Administrative Costs	8.42%	7.19%	-14.61%
Sales and Marketing Costs			
Payroll, including taxes and benefits	7.65%	8.05%	5.23%
Other sales and marketing costs	0.92%	1.27%	38.04%
Total Sales and Marketing Costs	8.57%	9.32%	8.75%
Interest	0.71%	0.61%	-14.08%
Income Before Taxes	7.91%	13.38%	69.15%
EBITDA	12.62%	18.31%	45.09%
Employees per \$1mm in revenue	4.39	4.15	

Table 3

General commercial printing firms - digital, sheetfed offset, and wide format. With revenues from \$5,000,000 to \$19,000,000			
	All Firms	High-Performers	Percentage Differences
Number of firms	40	13	
Total Revenue	100%	100%	
Materials and Outside Services			
Paper and substrates	24.79%	22.06%	-11.01%
Other chargeable materials	7.42%	7.02%	-5.39%
Outside chargeable services	5.91%	6.63%	12.18%
Total Materials and Outside Services	38.12%	35.71%	-6.32%
Factory Costs			
Factory payroll including taxes and benefits	20.69%	23.75%	14.79%
Other factory costs excluding depreciation	11.06%	7.14%	-35.44%
Depreciation	4.29%	6.73%	56.88%
Total Factory Costs	36.04%	37.62%	4.38%
Cost of Goods Sold	74.16%	73.33%	-1.12%
Gross Profit	25.84%	26.67%	3.21%
Administrative Costs			
Payroll including taxes and benefits	7.44%	4.96%	-33.33%
Other administrative costs	4.02%	3.37%	-16.17%
Total Administrative Costs	11.46%	8.33%	-27.31%
Sales and Marketing Costs			
Payroll including taxes and benefits	6.21%	4.68%	-24.64%
Other sales and marketing costs	1.59%	1.15%	-27.67%
Total Sales and Marketing Costs	7.80%	5.83%	-25.26%
Interest	0.63%	0.76%	20.63%
Income Before Taxes	5.95%	11.75%	97.48%
EBITDA	10.87%	19.24%	77.00%
Employees per \$1mm in revenue	5.16	5.52	

Table 4

General commercial printing firms - digital, sheetfed offset, and wide format.			
With revenues below \$5,000,000			
	All Firms	High-Performers	Percentage Differences
Number of firms	20	8	
Total Revenue	100%	100%	
Materials and Outside Services			
Paper and substrates	21.51%	18.09%	-15.90%
Other chargeable materials	5.18%	7.05%	36.10%
Outside chargeable services	10.89%	8.02%	-26.35%
Total Materials and Outside Services	37.58%	33.16%	-11.76%
Factory Costs			
Factory payroll including taxes and benefits	19.49%	16.68%	-14.42%
Other factory costs excluding depreciation	13.16%	12.09%	-8.13%
Depreciation	3.62%	5.15%	42.27%
Total Factory Costs	36.27%	33.92%	-6.48%
Cost of Goods Sold	73.85%	67.08%	
Gross Profit	26.15%	32.92%	25.89%
Administrative Costs			
Payroll including taxes and benefits	9.09%	7.13%	-21.56%
Other administrative costs	4.26%	4.70%	10.33%
Total Administrative Costs	13.35%	11.83%	-11.39%
Sales and Marketing Costs			
Payroll including taxes and benefits	5.70%	6.45%	13.16%
Other sales and marketing costs	0.87%	1.10%	26.44%
Total Sales and Marketing Costs	6.57%	7.55%	14.92%
Interest	0.68%	0.49%	-27.94%
Income Before Taxes	5.55%	13.05%	135.14%
EBITDA	9.85%	18.69%	89.75%
Employees per \$1mm in revenue	5.51	4.71	

Table 5

General commercial printing firms - digital and wide format.			
With revenues from just under \$2,000,000 to \$12,000,000			
	All Firms	Not enough surveys to identify high-performers	Percentage Differences
Number of firms	6		
Total Revenue	100%		
Materials and Outside Services			
Paper and substrates	16.86%		
Other chargeable materials	8.94%		
Outside chargeable services	9.64%		
Total Materials and Outside Services	35.44%		
Factory Costs			
Factory payroll including taxes and benefits	19.81%		
Other factory costs excluding depreciation	10.94%		
Depreciation	2.99%		
Total Factory Costs	33.74%		
Cost of Goods Sold	69.18%		
Gross Profit	30.82%		
Administrative Costs			
Payroll including taxes and benefits	7.42%		
Other administrative costs	4.27%		
Total Administrative Costs	11.69%		
Sales and Marketing Costs			
Payroll including taxes and benefits	8.80%		
Other sales and marketing costs	1.37%		
Total Sales and Marketing Costs	10.17%		
Interest	0.79%		
Income Before Taxes	8.17%		
EBITDA	11.95%		
Employees per \$1mm in revenue	6.5		

Table 6

Label printing firms that apply sheetfed offset to produce paper board packaging or other forms of labels. With revenues from \$8,000,000 to \$22,000,000			
	All Firms	Not enough surveys to identify higher-performers	Percentage Differences
Number of firms	5		
Total Revenue	100%		
Materials and Outside Services			
Paper and substrates	33.05%		
Other chargeable materials	3.29%		
Outside chargeable services	10.70%		
Total Materials and Outside Services	47.04%		
Factory Costs			
Payroll including taxes and benefits	14.72%		
Other factory costs excluding depreciation	8.18%		
Depreciation	3.01%		
Total Factory Costs	25.91%		
Cost of Goods Sold	72.95%		
Gross Profit	27.05%		
Administrative Costs			
Payroll including taxes and benefits	7.89%		
Other administrative costs	0.63%		
Total Administrative Costs	8.52%		
Sales and Marketing Costs			
Payroll including taxes and benefits	11.24%		
Other sales and marketing costs	0.16%		
Total Sales and Marketing Costs	11.40%		
Interest	0.49%		
Income Before Taxes	6.64%		
EBITDA	10.14%		
Employees per \$1mm in revenue	3.38		

Table 7

Specialty packaging label printing firms that primarily apply flexographic printing. With revenues from \$4,500,000 to \$20,000,000			
	All Firms	Not enough surveys to identify higher-performers	Percentage Differences
Number of firms	3		
Total Revenue	100%		
Materials and Outside Services			
Paper and substrates	34.03%		
Other chargeable materials	9.12%		
Outside chargeable services	1.03%		
Total Materials and Outside Services	44.18%		
Factory Costs			
Payroll including taxes and benefits	12.71%		
Other factory costs excluding depreciation	9.35%		
Depreciation	4.75%		
Total Factory Costs	26.81%		
Cost of Goods Sold	70.99%		
Gross Profit	29.01%		
Administrative Costs			
Payroll including taxes and benefits	12.26%		
Other administrative costs	4.27%		
Total Administrative Costs	16.53%		
Sales and Marketing Costs			
Payroll including taxes and benefits	5.30%		
Other sales and marketing costs	0.68%		
Total Sales and Marketing Costs	5.98%		
Interest	0.55%		
Income Before Taxes	5.95%		
EBITDA	11.25%		
Employees per \$1mm in revenue	3.63		

Table 8

General commercial printing firms - firms applying a combination of digital, sheetfed offset, and wide format, with some firms focused primarily on digital.			
	All Firm	Significant Revenue from Related Services	Percentage Differences
Number of firms	96	23	
Total Revenue	100%	100%	
Materials and Outside Services			
Paper and substrates	23.33%	18.33%	-21.43%
Other chargeable materials	6.88%	7.00%	1.74%
Outside chargeable services	8.50%	8.74%	2.82%
Total Materials and Outside Services	38.71%	34.07%	-11.99%
Factory Costs			
Factory payroll including taxes and benefits	19.75%	19.41%	-1.72%
Other factory costs excluding depreciation	11.50%	9.78%	-14.96%
Depreciation	3.56%	3.46%	-2.81%
Total Factory Costs	34.81%	32.65%	-6.21%
Cost of Goods Sold	73.52%	66.72%	-9.25%
Gross Profit	26.48%	33.28%	25.68%
Administrative Costs			
Payroll including taxes and benefits	7.07%	8.47%	19.80%
Other administrative costs	4.12%	4.88%	18.45%
Total Administrative Costs	11.19%	13.35%	19.30%
Sales and Marketing Costs			
Payroll including taxes and benefits	7.03%	8.57%	21.91%
Other sales and marketing costs	1.05%	1.51%	43.81%
Total Sales and Marketing Costs	8.08%	10.08%	24.75%
Interest	0.68%	0.34%	-50.00%
Income Before Taxes	6.53%	9.51%	45.64%
EBITDA	10.77%	13.31%	23.58%
Employees per \$1mm in revenue	5.05	5.42	

Balance Sheets and Related Ratios

After completing our income statement analysis, we removed responses without a balance sheet, balance sheets with errors, and big anomalies. Table 9 below provides balance sheet item percentages for all firms in our study that provided workable balance sheets. In our “all firms” income statement above (Table 1), you will see that those results include 104 firms with 35 high-performers. In contrast, our balance sheet “all firms” table below (Table 9) includes 56 firms with 11 high performers.

That reduction of usable responses prevented us from providing balance sheets, related ratios, and cash management numbers for various industry segments. However, from what we did see in different industry segments, the “all firms” balance sheet and ratio data appear generally applicable to most industry segments. Therefore, we encourage you to calculate the percentages in your balance sheet and compare them to those in Table 9. Regardless of the differences or similarities between Table 9 and your balance sheet, that comparison process may open the door to constructive thinking.

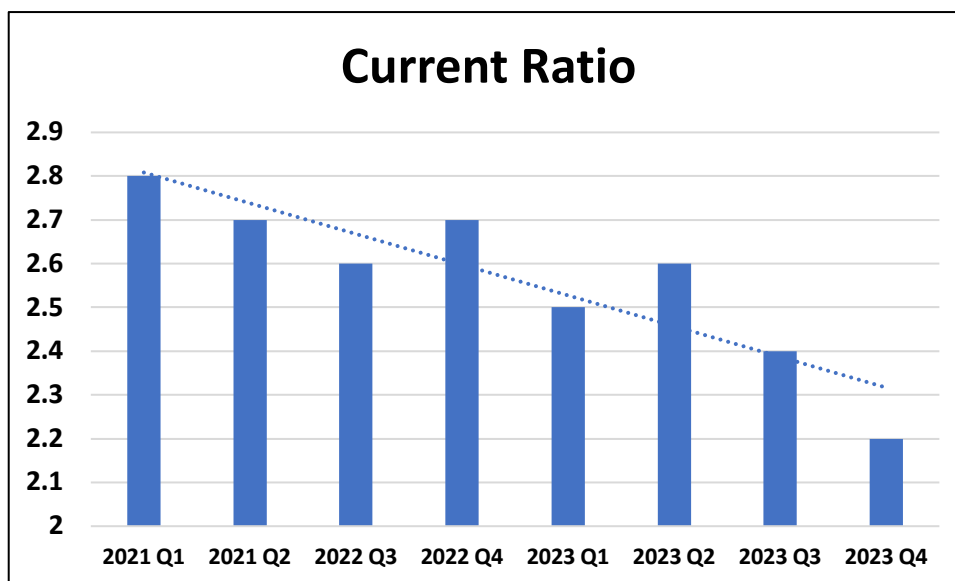
The most significant differences between all firms and high performers were in “other long-term assets,” “other assets,” and “other liabilities.” We included these “broad” balance sheet sub-sections to enable printing firm leaders to enter their balance sheet into our survey. These big differences *pretty much* offset when “total long-term assets” and “total long-term debt and other liabilities” are compared. However, high performers show 6.49% more in long-term assets, which is consistent with the higher depreciation shown in high performers’ income statements above. Again, does this indicate that high performers invest more in equipment or own their buildings? We can’t say. But we will explore this more in future PIPI studies.

High performers holding over 40% more cash caught our attention. This deeper “bathtub of cash” may result from more robust performance (more revenue with less expenses), better cash management (which we see among high performers in next section), less profits distributed as dividends, or a combination of all. Regardless of the cause, more cash prepares a company to endure coming challenges, such as a pending recession, losing a major client, or more competition surfacing.

Table 10 below provides balance sheet ratios for all firms and high performers. We provide the formula for each ratio below, explain the ratio, and discuss our findings.

Current Ratio = Total Current Assets / Total Current Liabilities. It means, “We have this many dollars in current assets for every dollar of current liabilities.” As current ratios indicate the ability to pay our bills, this is an important ratio.

Current ratios are dynamic; they can change dramatically when unplanned repairs surface or a customer does not pay their bills as quickly as usual. Therefore, consider exploring current ratio trends. Consider the hypothetical example in the graph below. The firm has a “good” current ratio – they can pay their bills. However, the trendline indicates that their current ratio is going down. It is better to see this trend before it bites your firm.



We see 2.0 as a good printing company current ratio. So, from our view, the current ratios shown in Table 10 are very strong! One would wonder if increased paper inventories drove the high current ratios in our findings. This leads us to quick ratios.

Quick Ratio = (Current Assets – Inventory) / Current Liabilities. It means, “We have this many dollars in liquid assets (current assets without inventory) for every dollar in current liabilities.” As inventory is considered less liquid than other

current assets, quick ratios may provide a better picture of the ability to pay bills. And as the paper supply chain changes, printing firm leaders may find quick ratios more relevant than before. The quick ratios shown in Table 10 are strong.

It is not surprising that high performers have more robust current and quick ratio averages than those of all firms. This may reflect the resources generated by high performance, or it may reflect better management of current assets and current liabilities by high performers... or both.

Revenue-to-Total Assets Ratio = Total Revenue / Total Assets. It means, “We generate this much in revenue for every dollar we have invested in total assets.” The averages for all firms and high performers are a little under \$2.00 in revenue for every dollar in total assets, with the high performers producing a bit more revenue per dollar in assets.

This ratio helps determine a performance improvement path. For instance, if your EBITDA percentage is low, but your revenue-to-total assets are significantly higher than our findings, you might focus on lowering costs. On the other hand, if your revenue-to-total assets are considerably lower than our findings, you might focus on increasing revenue.

Total Debt-to-Total Assets = Total Liabilities / Total Assets. This means, “This percentage of each dollar of our assets is financed with liabilities.” It appears high performers use fewer liabilities to finance with total assets. This might reflect high performers accumulating retained earnings through years of strong profits.

We also explored this ratio: *Long-term Debt-to-Total Long-Term Assets = Long-term Debt / Total Long-Term Assets.* This means, “This percentage of each dollar of our long-term assets is financed with long-term debt.” It was interesting how close this ratio was between all firms and high performers. On average, a printing firm’s long-term assets are financed with about 43.5% debt. One might wonder how changes in interest rates might affect the proportion of long-term assets financed with long-term debt. We will monitor this in our future PIFI studies.

We explored two commonly used return ratios. *Return on Total Assets (ROA) = Income before Taxes / Total Assets.* This means, “Every dollar we have invested in total assets produces this percentage return. And *Return on Equity (ROE) = Income before Taxes / Total Equity.* This means, “Every dollar we have in equity

(investment in the business and retained earnings) produces this percentage return.

I consider stock mutual funds when thinking about return ratios. The average annual mutual fund return over the last ten years is about 8.5%.² If one invests in small business assets or equity, given small business risk compared to diversified stock mutual funds, one should expect returns far more significant than 8.5%. Indeed, I (Ralph) propose that printing company owners should seek twice the mutual fund average for a ROA and three times the mutual fund average in ROE (merely my thoughts). We see returns close to that for all firms and returns beyond that for high performers.

We encourage printing firm leaders to objectively explore their firm's ROA and ROE at least annually. Also, when considering a significant asset investment, firm leaders might budget the expected profit change and projected ROA and ROE to weigh the potential benefit of that investment.

² <https://www.thebalancemoney.com/what-is-the-average-mutual-fund-return-4773782>

Table 9

All Printing Firms Included in our Survey			
	All Firms	High-Performers	Percentage Differences
Number of firms	56	11	
Current Assets			
Cash	16.80%	24.14%	43.69%
Accounts receivable	23.77%	19.77%	-16.83%
Inventories	14.23%	9.98%	-29.87%
Other current assets	3.31%	1.50%	-54.68%
Total Current Assets	58.11%	55.39%	-4.68%
Long-Term Assets			
Fixed assets net of depreciation	32.96%	34.35%	4.22%
Other long-term assets	4.06%	9.62%	136.95%
Other assets	4.87%	0.64%	-86.86%
Total Long-Term Assets	41.89%	44.61%	6.49%
Total Assets	100.00%	100.00%	
Current Liabilities			
Accounts payable	9.98%	7.93%	-20.54%
Short-term debt	6.29%	5.12%	-18.60%
Other current liabilities	8.28%	7.69%	-7.13%
Total Current Liabilities	24.55%	20.74%	-15.52%
Long-Term Debt and Other Liabilities			
Long-term debt	18.85%	21.60%	14.59%
Other liabilities	3.37%	0.08%	-97.63%
Total Long-Term Debt and Other Liabilities	22.22%	21.68%	-2.43%
Total liabilities	46.77%	42.42%	-9.30%
Total Equity			
Total Equity	53.23%	57.58%	8.17%
Total Liabilities and Equity	100.00%	100.00%	

Table 10

All Printing Firms Included in our Study			
	All Firms	High-Performers	Percentage Differences
Number of firms	56	11	
Current Ratio	3.31	3.59	8.46%
Quick Ratio	2.41	2.92	21.16%
Revenue-to-Total Assets Ratio	1.90	1.97	3.68%
Total Debt to-Total Assets	46.77%	42.38%	-9.39%
Long-term Debt-to-Long-Term Assets	43.43%	43.48%	0.12%
Return on Total Assets (ROA)	13.14%	34.49%	162.48%
Return on Equity (ROE)	24.47%	56.84%	132.28%

Cash Management Indicators

Cash is the blood of a business! Profitable businesses fail if they run out of cash. Managing cash problems, when they arise unexpectedly, soaks up valuable time needed for leading, generating revenue, managing operations, and addressing H.R. issues. Therefore, continuously monitoring cash management through the four ratios in Table 11 is helpful.

Days in Inventory = Inventories / ((Paper and Substrates + Other Chargeable Materials)/365)). This means, “On average, inventory stays on our floor for these many days.”

The second section of the formula includes tangible products your firm purchases that are part of its final product and calculates the average per day. We applied “Paper and Substrates + Other Chargeable Materials” from our income statement format. Some folks include “Cost of Goods Sold (COGS)” in that part of the formula. However, our income statement includes “factory costs” in COGS, which is not a tangible product component. In calculating an annual Days in Inventory ratio, we divided “Paper and Substrates + Other Chargeable Materials” by 365. If you are calculating Days in Inventory monthly, you will apply the number of days in that month, and if you are calculating it quarterly, you will use the number of days in that quarter. The guidelines in the paragraph apply to Days in Accounts Payable discussed below.

Paper is “currently” (it’s very dynamic) not a commodity as it was in the past. As a result, printing companies are holding more inventory. In today’s environment, “days in inventory” is a good metric for continually assessing how well your firm manages its paper supply chain.

From the Days in Inventory numbers shown in Table 11 below, high performing firms appear to managing their inventory better. This runs against the premise that high performing firms may use their cash to beef up inventory and better meet customer needs. Having enough inventory to meet customer needs and avoid production stalls is vital. However, view inventory as “cash sitting on the floor.” Monitoring the Days in Inventory ratio will help stimulate that view. For specific thoughts related to managing inventory, you might review our October 2022 PIPI report – *“How Paper is Affecting Printing Companies and Approaches to Consider”*.

Days in Accounts Receivable = Accounts Receivable / (Revenue/365). This means, “On average, it takes this many days for our customers to pay bills we send them.” From the numbers in Table 11, it appears high performing firms are managing their accounts receivable better. From what we see in printing firms, better accounts receivable management reflects a proactive rather than a reactive approach. For instance, we see firms who reactively investigate receivable when cash becomes a problem or when they become aware that one of their customers is far behind in paying bills.

In contrast, a proactive approach involves regularly exploring the accounts receivable list (we suggest weekly) and identifying customers needing a “reminder” call. Consider our Days in Accounts Receivable as a benchmark, strive to do better. Indeed, in one of my businesses, we paid our office manager an incentive for each day our Days in Accounts Receivable were below the industry average. One other point – some customers may provide good revenue at high margins for your company, but they pay slowly. It’s important to consider the pluses and minuses of certain customer accounts and understand what you may have to live with.

Days in Accounts Payable = Accounts Payable / ((Paper and Substrates + Other Chargeable Materials)/365)).³ This means, “On average, it takes this many days

³ Points included in the Days in Inventory section above apply to the second section of this formula.

for us to pay bills our vendors send us.” One can argue that longer Days in Accounts Payable are better from a cash management standpoint. “Every dollar you owe your vendor is another dollar you keep in your checking account or is one less dollar to borrow.” “Once cash is paid to a vendor, it’s gone... not available for emergencies.” However, it is interesting that in Table 11, high performers appear to pay their vendors quicker. This makes strategic sense. Whom will vendors take better care of... slower payers or faster payers? When considering how fast to pay vendor bills, think strategically and act ethically. Consider setting goals for each vendor related to when you will pay the invoices they send you. When a situation surfaces that will cause more time needed to pay an invoice (for instance, you are buying paper for a project that will take a month to complete and two months for your customer to pay for it), discuss that situation in advance with your vendor. It’s better to have that chat early instead of when your vendor’s invoice comes due. It’s also possible that high performers take advantage of short payment terms and related discounts.

Our last ratio is *Cash Conversion Cycle = Days in Inventory + Days in Accounts Receivable – Days in Accounts Payable*. This reflects, “How many days it takes us to convert inventory into cash.” A shorter Cash Conversion Cycle is better. This number shows a big cash management picture of the changes in the three other cash management ratios. From our findings, high performers appear to have a shorter Cash Conversion Cycle; they manage cash better.

The three ratios that make up the Cash Conversion Cycle are related. Considering the tactic of asking customers for deposits when starting a large project purchasing needed materials as the project progresses. Together, these tactics could have a substantial impact on a firm’s Cash Conversion Cycle.

We encourage printing firm leaders to calculate these four cash management ratios, compare their numbers to our averages, and continue to monitor their firm’s cash management ratios. Again, it’s better to seek a problem coming than to have it wake you up.

Table 11

All Printing Firms Included in our Study			
	All Firms	High-Performers	Percentage Differences
Number of firms	56	11	
Days in Inventory	102.28	85.80	-16.11%
Days in Accounts Receivable	47.43	38.87	-18.05%
Day in Accounts Payable	71.56	61.29	-14.35%
Cash Conversion Cycle	78.15	63.38	-18.90%

Summary with Key Takeaways

We sincerely hope printing company leaders find value in this PIPI study and report. Our goal was to provide actionable thoughts related to financial benchmarking. Here are some key takeaways:

- High performers spend a smaller percentage of revenue on paper and substrates. Possible reasons include higher markups, less waste, the ability to buy paper at lower prices, and providing a significant number of related services.
- High-performing firms spend less on “total materials and outside services.” When this happens, more revenue is applied to “in-house” costs and moves to the bottom line (profit). This connects with strategic thinking and a mission – what value do you provide customers, and what do you do inside to provide that value?
- High performers spend less on total factory costs. This may result from pushing for lower factory costs or from “economies of scale” – producing more with multiple shifts or overtime when fixed costs are covered by non-overtime hours.
- High performers incur less administrative costs - doing more with less administrative resources, which could reflect staff members taking on multiple roles, outsourcing some administrative functions, increasing revenue without increasing administrative staff, benefiting from technology to replace manual tasks, or other approaches.

- High performers spent more on total sales and marketing costs. But we propose this investment will not affect firm performance without a solid strategic plan (who are our target customers, and what value do we provide them).
- Higher performers have fewer employees per \$1,000,000 in revenue, which is a product of management and leadership.
- Providing related services enhances performance. Strategically consider what related services complement the value your firm provides to targeted customer groups.
- High performers appear to invest more in long-term assets, which may reflect owning their building or ongoing technology investments.
- Higher performers have more cash, which prepares them to endure and address future challenges.
- It appears that higher performers manage cash better– days in inventory, days in accounts receivable, days in accounts payable.
- A significant proportion of printing firms in our survey are performing well, generating solid income before Taxes, EBITDA, ROA, and ROE. There are winners in our industry!
- Compare your financial numbers to the ones we present. Consider differences. Then apply critical thinking: Should we address this? What are multiple ways we can address this? What is the best way to address this? Make your firm a winner!

As stated above, every printing firm's financial statements are different. We diligently worked to make this year's survey workable. Multiple printing firm leaders provided suggestions on how to improve our survey. Thank you! We hope this report prompts more printing association member participation in next year's study so that we can break out other industry segments.

Please email Ralph Williams (ralph.williams@mtsu.edu) with questions, comments, or suggestions about this report or any PIPI studies.

Participating Regional Printing Associations

FGA – Florida Graphic Alliance

GLGA – Great Lakes Graphics Association

GMA – Graphic Media Alliance

PGAMA – Printing and Graphics Association Mid-Atlantic

PGCA – Print and Graphic Communications Association.

PIAMA – Printing and Imaging Association MidAmerica

PIAS – Printing Industry Association of the South

PIA – Printing Industry Association (California and other Western states)

PIASD – Printing Industry Association of San Diego

PICA – Printing Industry of the Carolinas

PIMW – Printing Industry MidWest

PINE – Printing Industries of New England

PMA – Print Media Association

VMA – Visual Media Alliance