

INDUSTRY PROFILE

Commercial Printing

QUARTERLY UPDATE **2/5/2018**

SIC CODES: 2732, 2752, 2754, 2759

NAICS CODES: 3231

Industry Overview

Companies in this industry engage in printing on apparel and textile products, glass, metal, paper, and plastic; they may also provide support services such as typesetting, platemaking, and book binding. Major companies include Cenveo, Quad/Graphics, and RR Donnelley (all based in the US), as well as arvato (Germany), Cimpress (the Netherlands), Dai Nippon Printing and Toppan Printing (Japan), and Transcontinental (Canada).

The global commercial printing industry generates about \$825 billion in annual revenue and is forecast to experience annual growth of 2% through 2020, according to Smithers Pira. Rising demand in emerging economies, package printing, digital print, and value-added services are expected to drive growth.

The US commercial printing industry includes about 26,000 companies with combined annual revenue of about \$82 billion. Companies in the industry may print books or periodicals, but book, magazine, and newspaper publishing are covered in separate industry profiles.

COMPETITIVE LANDSCAPE

Amid lower overall print volumes and reduced revenue, the commercial printing industry is expected to consolidate as smaller players are less able to make the necessary investments in digital print and marketing services, and other technologies necessary to survive.

Demand is driven by advertising and product needs of business customers. The profitability of individual companies is closely linked to effective sales operations. Large companies have scale advantages in buying materials like paper and ink, serving large customers with regional or national needs, and making efficient use of expensive presses. Small companies can compete effectively by offering better local service in a specific product category.

Competitive Advantages:

Digital Services - Digital technology has changed the competitive landscape of the commercial printing market. Prices for digital color pages are falling below offset printing prices, and companies that fall behind in the shift to digital printing are at risk. Growth in the industry is expected to come from short-run, on-demand, and personalized print runs. Digital print makes these types of jobs more cost-efficient.

Marketing Services - The shift to digital media has reduced demand for commercial printing, prompting some printers to expand their offerings to include marketing services. To augment print media, companies may add full-service photo and video, creative services, media planning and placement, and advertising analytics services.

Consolidation Strategy - The printing industry is ripe for consolidation. The US commercial printing industry is fragmented: the top 50 companies account for about 35% of revenue. Companies in the US and Europe are looking both inside and outside their home markets for acquisition targets, as well as outside traditional print markets to add digital media and marketing services capabilities.

Companies to Watch:

Cimpress - Netherlands-based Cimpress offers short-run, customized printing and marketing services on a mass scale. The company has an extensive stable of brands in Europe, North and South America, China, and Japan. Its Vistaprint brand in the US has helped Cimpress gain market share in the crowded customized printing services market.

Quad/Graphics - One of the largest printers in the US, Quad/Graphics has been beefing up its offerings to move beyond just printing to offer a full range of marketing services. In addition to print, capabilities include media strategy and creative services, digital channel services, and media campaign data analytics.

RR Donnelly - A chief rival of Quad/Graphics, RR Donnelly also aims to be a one-stop shop for customer's multi-channel marketing and business communications needs. It augments its core printing offerings with communications services, marketing and brand execution, and supply chain and logistics services.

PRODUCTS, OPERATIONS & TECHNOLOGY

Commercial printers produce magazines, phone books, labels, advertising brochures, catalogs, newspaper inserts, direct mail marketing pieces, corporate reports and other financial printing, training manuals, promotional materials, and business forms. Besides paper, companies may print on apparel and textile products, glass, metal, and plastics. Most commercial printers offer four distinct services: design and other **prepress services**; actual **printing; finishing** (including folding, cutting, and binding); and **fulfillment**, which includes packing, storing, and shipping (often on a "just-in-time" basis). Other services can include packaging, database management, web design, CD services, training, and consulting.

A typical commercial printer has different presses and binding equipment available to work on various types of jobs. The main printing process used is **offset lithography**, using either individual sheets (sheet-fed presses) or continuous rolls of paper (web presses). Sheet-fed presses print front and back and are typically used for short runs of 50,000 impressions or less. Web presses handle projects requiring much larger volumes, such as mass-produced books and newspapers, and operate much faster than sheet-fed presses.

Presses usually print in one, two, four, or six colors; some presses can print eight. Digital presses are increasing in use, especially for print runs under 5,000 pieces. **Digital technology** is also becoming the norm in pre-media services and design.

Paper is the biggest individual material cost. Printing papers are often coated, and are bought in sheets or rolls from distributors. Many customers provide their own paper. Paper prices can vary significantly from year to year. Commercial printers generally don't keep large inventories of paper as requirements change from job to job; instead, they rely on regional distributors to provide the many varieties and grades. **Inks**, films, printing plates, and cleaning solvents are other major material costs. The solvents used to clean inks off the presses can be an air quality issue.

Technology

Printing technology is evolving rapidly. Virtually all prepress work is now done with computers. **Digital presses** are still expensive, but falling in price and used mainly for smaller runs. Movement to an all-digital printing environment is rapid. Small printers that delayed transforming to digital technology are beginning to do so as the price falls. Digital presses also have the benefit of added labor productivity, reducing the time required for press setup.

To compete with the rise of digital delivery of information, some commercial printers are incorporating digital technologies to make printed materials more interactive. **Quick response (QR) codes** printed on product packaging or other printed materials can be scanned with a smartphone or tablet computer to display additional data such as product info, promotional content, or "virtual stores."

Augmented reality (AR) technology uses a view of a real-world object, and augments it with computer-generated content including sound, video, graphics, or GPS data. In a typical commercial AR application, products, ads, or other materials are embedded with a "trigger" image that when scanned with an AR-enabled device (such as a smartphone or tablet) can activate a video, link to social media applications, or show images of a product without having to open its packaging. Used in this way, AR can act as a bridge between print and digital marketing.

SALES & MARKETING

The largest single market for printing services is **advertising** for newspaper inserts, magazines, and direct mail materials. Although some work may be done regularly for large customers under long-term contracts (magazines, product catalogs, and phone books), most is on a project basis, often after a bidding process. Work may be episodic and many printers keep **extra presses** to meet anticipated peak demands. Marketing is usually by a traditional sales force calling on potential customers.

Commercial printing is mainly a local business. Small printers can compete effectively because the small size and high variability of most printing jobs means that few economies are achieved by having larger presses. The high degree of **personal attention** that most print jobs require, such as client approvals of proofs and "press checks" during actual printing, means that customers generally prefer to use a local printer. Price is often a secondary consideration to quality and timeliness. Some types of printing, such as magazines and catalogs with large print runs, are more effectively handled by large printers.

FINANCE & REGULATION

Commercial printing has **seasonal variations**: printers specializing in financial printing have business peaks in spring due to corporate annual reports; revenue for consumer publication printers peaks in the second half of the year driven by demand for holiday catalog, retail insert, and book sales; and academic printing declines in summer.

The US industry's average working capital turnover ratio is about 15%. Commercial printers generally keep **low material inventories** and don't require inventory financing. Receivables average about 55 days' sales and are sometimes financed. **Equipment** is often financed or leased. Presses have become more expensive, but more versatile, because of computerized controls and enhancements.

Regulation

Commercial printers are subject to various federal and state regulations regarding workplace safety, air quality standards, and toxic waste. Ink solvents and solvent used to clean printing presses can emit pollutants. Workplace safety, administered by OSHA and state

agencies, has greatly improved.

INTERNATIONAL INSIGHTS

The global commercial printing industry generates about \$825 billion in annual revenue and is forecast to experience annual growth of 2% through 2020, according to Smithers Pira. Rising demand in emerging economies, package printing, digital print, and value-added services are expected to drive growth. Major companies based outside the US include arvalo (Germany), Cimpress (the Netherlands), Dai Nippon Printing (Japan), Toppan Printing (Japan), and Transcontinental (Canada).

China surpassed the US as the world's largest national printing market in 2017, according to the Association for Suppliers of Printing, Publishing and Converting Technologies (NPES). China's rising wages and standard of living have increased consumer spending, a primary driver of demand for printing services. Packaging accounts for nearly half of China's printing sales; publishing accounts for about 30%. Unlike in the West, where printed publications are in decline amid digital options for reading, printed readership of magazines, books, and newspapers is on the rise in China.

Because transportation costs are high relative to the value of products shipped, printers typically face little cross-border competition. Exports are about 6% of US production, and imports are about 6% of the US market. China is the primary source of printed products imported to the US, followed by Canada.

REGIONAL HIGHLIGHTS

In the US, companies in California, Illinois, Pennsylvania, and Wisconsin account for about 30% of industry revenue. Because of transportation costs, commercial printing is primarily a local business.

HUMAN RESOURCES

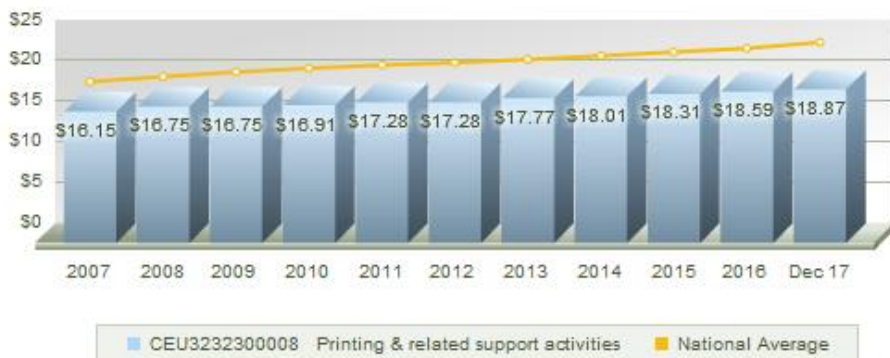
Production personnel in commercial printing plants includes employees with special skills in operating complicated machines, as well as lower-paid, relatively unskilled workers. An increasing number of jobs are in prepress design and layout and make use of computer skills. The number of employees in the US commercial printing industry has declined in the last decade, as more work is automated and as more content is published online rather than in print.

Average hourly wages in the US are slightly lower than the national average. The injury rate for the industry in the US is about 25% below the national average.

Industry Employment Growth - Bureau of Labor Statistics



Average Hourly Earnings & Annual Wage Increase - Bureau of Labor Statistics



Quarterly Industry Update

Opportunity: Revenue to Grow Slightly in 2018, Capital Investment to Increase

US commercial printing sales and capital investments are forecast to increase this year, driven by both print and ancillary services, as well as continued momentum toward digital printing. US commercial printing industry sales are expected to rise between 1.5% and 3% in 2018, after growing about 1% in 2017, according to the Idealliance "Capital Investment Report, Fall 2017" cited by *Printing Impressions*. Something other than printing, including mailing, fulfillment, database management, and marketing and web services, will provide nearly 32% of survey respondents' revenue in 2018, up from just 13% in 2012. Many companies surveyed continue to derive 75% or more of their revenue from print. Meanwhile, about 38% of printers surveyed say they plan to increase their capital investment rate in 2018, according to the Idealliance "Capital Investment Report, Fall 2017." Respondents reported investments during the year will be strongest for digital infrastructure (workstations, servers, and networks) and toner-based, cut-sheet digital presses.

Industry Impact

Printing companies will continue to offer additional print and non-print services that meet customers' comprehensive communications needs in order to drive revenue growth.

Business Challenges

CRITICAL ISSUES

Dependence on Business Activity

The volume of commercial printing is closely tied to the health of the US economy, particularly advertising and consumer spending. Advertising-related jobs are the mainstay of commercial printing, but financial printing has grown in importance. Both advertising and financial activity are sharply affected by the economy and stock market.

Fluctuating Paper, Ink Costs

Printers feel the impact of fluctuations of paper and ink prices, as paper accounts for a significant portion of raw material costs for the industry. Paper price increases don't directly affect profits for many printers because they pass paper costs to customers, but lower prices encourage customers to order in greater volume. Environmental issues in paper manufacture may raise paper prices. Ink prices are affected by fluctuations in oil and resin prices.

OTHER BUSINESS CHALLENGES

Reduced Use of Printed Material

Information distribution via electronic means, such as the internet and especially email, is reducing demand for printed materials. Company annual reports and prospectuses are now available electronically over the internet, electronic catalogs are replacing print catalogs for orders placed over the internet or via phone, and electronic versions of documents that can be stored and viewed on portable devices are becoming more popular.

Competition from In-House Printing

Laser and color printers in corporations and small businesses now produce many jobs formerly handled by commercial printers. Even smaller companies can produce many documents on their own high-volume printers. Desktop color printer use is growing. Copy shops have also taken business from traditional printers.

Competing on Speed

Customers are demanding faster and shorter runs, forcing printers to find ways to increase speed while maintaining profit margins. As cycle times shorten, incremental improvements may not by themselves shave enough time to meet ever-increasing customer demand for speed. Digital technology is best for faster and smaller runs.

Trends and Opportunities

BUSINESS TRENDS

Transition to Digital Technology

Digital presses have become the norm in commercial printing; industry growth is coming almost entirely from digital printing. The commercial printing industry is shifting to faster production of smaller order quantities with more color, the major benefit of digital printing over offset and other printing methods. While digital inkjet printers began at the small end of printers, technology is increasingly able to make digital printers with greater capacity.

Industry Consolidation

Consolidation has characterized the US commercial printing industry since the 1990s, and is ongoing due to the dramatic changes in the marketplace. Industry consolidations are driven by technology shifts and companies seeking to grow by expanding into new

geographic markets through acquisitions. Most consolidations are private companies, losing value and unable to keep up technologically, selling to another private firm. Small, family-run printers are least likely to be able to afford digital printing technology and the investment it requires.

Transition to Service Business

Commercial printing, a manufacturing industry, is evolving into a service business. Smaller printing runs, subject to customer changes, edits, and faster deadlines, are becoming the norm. Almost all industry growth comes from companies that have digital printing capabilities and are able to respond to smaller runs and changing customer needs quickly.

INDUSTRY OPPORTUNITIES

Using the Internet to Expand Markets

Increased use of digital files and low-cost courier services, and the increased ability of modern presses to accurately reproduce digitally prescribed colors, allow printers to solicit and fulfill orders from distant customers using the Internet. Online print production management solutions can save money on reworks, late fees, and obsolete materials. FedEx Office, Mimeo.com, and NowDocs have online print shops that enable customers to submit and monitor jobs online, print at the vendor's site, and get overnight delivery. New online services have transformed the printing industry, eliminating the costly and time-consuming prepress stage.

Security Printing

Printers are developing new products to meet tighter security demands for printed documents. Numerous types of inks can be used, including UV and fluorescent; infrared (IR); thermochromic; photochromic; and magnetic. Other security printing techniques include watermarking, holograms, and radio-frequency identification (RFID). Demand for security printing from makers of packaging and labels for pharmaceuticals, tobacco products, and alcoholic beverages is expected to increase as companies seek to comply with government regulations and to protect against counterfeiting. Other top security printing market segments include checks, ticketing, payment cards, and stamps.

New Inks, Equipment Technology

New ink and equipment technology can improve commercial printing operations and reduce long-term costs. Interest in single-fluid inks has increased. Single-fluid inks, which are waterless and water-washable, provide faster startups and wider temperature latitude, with no solvents required for cleanup. And a new, low-cost computer-to-plate (CTP) system targeting small commercial printers might save up to 50% in material costs by eliminating waste.

Wide-Format Growth

Wide-format printing offers much higher margins than offset printing, according to industry watchers. Point-of-sale applications, including banners, posters, backlit signage, and graphics for windows, walls, and floors, are among the easiest methods for commercial printers to enter the wide-format market. As printers become familiar with digital wide-format processes, they may move into higher-margin, fast-growing markets including vehicle graphics, exterior signage, textile printing for trade show signage, interior décor (such as wallpaper printing), and corrugated packaging printing.

Executive Insight

CHIEF EXECUTIVE OFFICER - CEO

Developing Diverse Customer Base

Demand for printing services is cyclical because it depends on economic activity. In local markets, swings in demand by customers in specific industries can be even greater. Companies can prepare for demand changes by owning equipment that can switch to other types of printing, courting different types of customers, and offering alternative services.

Expanding Digital Expertise

Rapid advances in digital technology present printers with opportunities to provide new and faster services using digital presses and composition software. Digital presses are more expensive but more versatile, and are useful for the short production runs typical for most projects. Digital technology is especially useful for providing prepress services, such as design and composition, and for communication with customers.

CHIEF FINANCIAL OFFICER - CFO

Improving Efficiency and Cost Structure

Most commercial printers have excess capacity due to peaks in demand and the varying equipment requirements of different print jobs. Companies can improve profitability by increasing capacity utilization and lowering equipment costs. Pricing incentives can be used to increase demand during non-peak periods. Companies may replace older equipment with more flexible digital printers or buy used equipment to lower costs.

Financing New Equipment

The commercial printing industry is changing rapidly due to innovation and marketplace demands. Capital improvements include adding, upgrading, or replacing existing equipment. The transition to digital equipment has increased capital investments. Companies may choose to buy or lease new equipment, depending on capital availability and expected usage volume.

CHIEF INFORMATION OFFICER - CIO

Transitioning to All-Digital Workflow

Despite higher costs, digital presses provide greater flexibility than standard offset. Because they use toners or liquid ink applied directly to paper – rather than a printing plate – digital presses are suitable for short print runs or for print jobs that must be done rapidly. Digital technology is key in the creative process, even when offset printing remains more economically feasible. Pre-media services, including desktop publishing, give greater control over the final product and are especially important to smaller customers.

Increasing Prepress Capabilities

Many printers have expanded into higher-margin design and composition work, acquiring computerized design systems and hiring graphic designers. Prepress work may include page composition, typesetting, image manipulation, graphic design, proofing, and editing. The output from such digital systems can go directly to digital presses, traditional offset plate systems, or to electronic media, allowing customers to easily view proofs before printing.

HUMAN RESOURCES - HR

Hiring and Training Design Specialists

Digital and graphic design systems require workers with different skills than those needed for traditional printing. Graphic designers are typically paid moderately more than regular printing workers. The high cost of such workers means that only printers with a steady volume of work can afford to provide high-quality prepress design services.

Improving Workplace Safety

The nature of printing work exposes employees to special types of workplace risks. Although the safety record for printers, on average, is better than for all private industry, commercial printers have a relatively high rate of repetitive motion injury and three times the rate of machinery-related injury. The use of solvents to remove ink can create toxic effects if cleaning and ventilation aren't done properly.

VP SALES/MARKETING - SALES

Improving Customer Relationships

Many printers receive a large amount of their business from repeat customers, but don't have a retention strategy. Because of the large number of printers who can provide equivalent services, customer turnover can be high. Computerized customer relationship management (CRM) systems can help printers efficiently maintain regular contact with customers.

Securing Long-Term Contracts

Most commercial printing jobs are project-based, subject to renewal based on success and customer satisfaction. Large publishers consider longer-term contracts, seeking flexible manufacturing platforms and lower costs. Companies with wider geographic reach are best able to secure longer-term contracts with publishers, catalogers, and retailers.

Call Preparation Questions

CONVERSATION STARTERS

How does the company respond to fluctuating demand?

The volume of commercial printing is closely tied to the health of the US economy, particularly advertising and consumer spending.

How does the company mitigate increases in ink and paper costs?

Printers feel the impact of fluctuations of paper and ink prices, as paper accounts for a significant portion of raw material costs for the industry.

How does increased use of digital media affect the company's production volume and sales?

Information distribution via electronic means, such as the internet and especially email, is reducing demand for printed materials.

What plans does the company have to add new computer or digital technology to improve production and services?

Increased use of digital files and low-cost courier services, and the increased ability of modern presses to accurately reproduce digitally prescribed colors, allow printers to solicit and fulfill orders from distant customers using the Internet.

What opportunities does the company see in printing security documents?

Printers are developing new products to meet tighter security demands for printed documents.

What types of technology is the company investing in?

New ink and equipment technology can improve commercial printing operations and reduce long-term costs.

QUARTERLY INDUSTRY UPDATE

What is the company's outlook for growth in 2018?

US commercial printing sales and capital investments are forecast to increase this year, driven by both print and ancillary services, as

well as continued momentum toward digital printing.

OPERATIONS, PRODUCTS, AND FACILITIES

In what types of work does the company specialize?

Some examples include magazines, phone books, labels, checks, coupons, advertising brochures and catalogs, newspaper inserts, direct mail marketing pieces, corporate reports and other financial printing, training manuals, and business forms.

What types of presses does the company have?

A company may have sheet fed, web presses, two-, four-, six-, or eight-color or digital presses. Larger, heavier-duty 40-inch presses open the door to packaging print jobs.

How does the company's print capacity usage vary from month to month?

Due to the high fixed costs for presses, capacity usage is key to profitability.

To what extent does the company use digital or film processing methods?

Most larger advertising agencies and publishers have gone to total digital processes.

How extensively does the company use computer-to-plate technology?

Computer-to-plate units can lower costs and reduce waste compared to traditional image setting machines.

How much prepress design work does the company do?

Electronic prepress is the fastest-growing segment of the industry.

From how many sources does the company buy paper?

Most printers order paper for each printing job from wholesale distributors.

What finishing and fulfillment services does the company offer?

Finishing services include folding, cutting, and binding. Fulfillment includes packing, storing, and shipping. Some companies offer selective binding to customize documents for individual customers.

CUSTOMERS, MARKETING, PRICING, COMPETITION

How many customers does the company serve? In what types of industries?

Advertising and financial printing are the largest markets for commercial printing.

To what degree does the company specialize in a particular industry?

Small printers may specialize to offer better customer service and specialized capabilities.

Who are the company's competitors?

Companies typically compete with other local printers, but the internet is allowing companies to offer their services on a wider geographic basis.

How much of the company's business involves competitive bids?

Most commercial printing work is on a project basis, often after submission of bids to the customer.

How sensitive are customers to price?

Some customers are more concerned about quality and timeliness than price.

REGULATIONS, R&D, IMPORTS AND EXPORTS

How has the company addressed ergonomics and safety?

Commercial printers have high rates of repetitive motion injury and machinery-related injury.

To what extent has the company had problems complying with environmental regulations?

Ink solvents and solvent used to clean printing presses can emit pollutants.

How often does the company experiment with new types of ink?

Interest has increased in single-fluid inks, which are waterless, and water-washable inks that provide faster startups and wider temperature latitude; their cleanup requires no solvents.

ORGANIZATION AND MANAGEMENT

Who owns the company?

Some local companies are operated semi-autonomously by consolidators.

How large a sales force does the company have?

Marketing is usually through a traditional sales force calling on potential customers. Technology has enabled many firms to branch out

geographically.

How does the printer plan to mitigate higher medical insurance costs for employees?

The largest increase in expenses is estimated to come from employee medical benefits.

What trend has the company seen in the size of its workforce?

The number of employees in commercial printing has declined in the last five years.

How many of the company's workers are represented by a union?

Large commercial printers can have a large number of unionized employees.

FINANCIAL ANALYSIS

How seasonal are revenue and cash flow?

Printers with many customers in advertising have their greatest workload in third and fourth quarters.

When does the company project it will need new presses? How does the company typically finance new presses?

Presses are the largest single investment for a printer.

How routinely does the company pass the cost of paper to customers?

Most printers put a small markup on paper. Some customers provide their own paper.

What is the company's gross margin?

Gross margins are typically about 40%.

BUSINESS AND TECHNOLOGY STRATEGIES

What computer or digital technology does the company use in equipment or processes?

Use of digital prepress design, digital presses, Internet communications, and digital image inventory is growing.

What are the company's most important opportunities for growth?

The overall outlook for printers is for low growth, so companies are looking for opportunities to expand services and markets.

What role does the Internet play in the company's current and future operations?

Some printers use Internet sites to receive digital files from customers; others use them for marketing.

How does the company differentiate itself from competitors?

Price, quality, fast service, and special services are some ways to compete.

Financial Information

COMPANY BENCHMARK TRENDS

Quick Ratio by Company Size

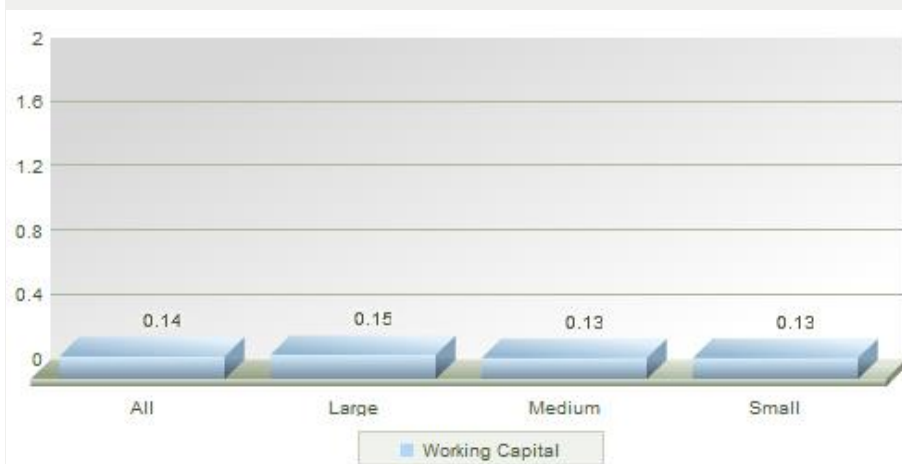
The quick ratio, also known as the acid test ratio, measures a company's ability to meet short-term obligations with liquid assets. The higher the ratio, the better; a number below 1 signals financial distress. Use the quick ratio to determine if companies in an industry are typically able to pay off their current liabilities.



Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available at www.microbilt.com.

Working Capital Turnover by Company Size

The working capital turnover ratio, also known as working capital to sales, is a measure of how efficiently a company uses its capital to generate sales. Companies should be compared to others in their industry.



Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available at www.microbilt.com.

Current Liabilities to Net Worth by Company Size

The ratio of current liabilities to net worth, also called current liabilities to equity, indicates the amount due creditors within a year as a percentage of stockholders' equity in a company. A high ratio (above 80 percent) can indicate trouble.



Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available at www.microbilt.com.

COMPANY BENCHMARK INFORMATION

NAICS: 3231

Data Period: 2016	Last Update December 2017			
Table Data Format	Mean			

Company Size	All	Large	Medium	Small
Size by Revenue		Over \$50M	\$5M - \$50M	Under \$5M
Company Count	113430	64	996	17585

Income Statement				
Net Sales	100%	100%	100%	100%
Gross Margin	37.3%	38.1%	37.8%	38.2%
Officer Compensation	2.5%	2.3%	2.7%	3.1%
Advertising & Sales	0.5%	0.6%	0.6%	0.6%
Other Operating Expenses	30.5%	31.7%	30.9%	30.7%
Operating Expenses	33.6%	34.6%	34.1%	34.3%
Operating Income	3.7%	3.5%	3.8%	3.9%
Net Income	1.5%	1.3%	1.6%	1.7%

Balance Sheet				
Cash	9.0%	9.0%	9.5%	9.6%
Accounts Receivable	27.0%	26.6%	26.6%	26.5%
Inventory	9.7%	9.7%	9.9%	9.4%
Total Current Assets	52.2%	51.6%	52.2%	51.9%
Property, Plant & Equipment	28.3%	27.5%	30.6%	31.2%
Other Non-Current Assets	19.5%	20.9%	17.2%	16.8%
Total Assets	100.0%	100.0%	100.0%	100.0%
Accounts Payable	11.8%	11.3%	12.1%	12.3%
Total Current Liabilities	27.8%	27.4%	28.9%	28.5%
Total Long Term Liabilities	32.5%	31.1%	32.7%	34.1%

Net Worth	39.7%	41.6%	38.5%	37.4%
Financial Ratios (Click on any ratio for comprehensive definitions)				
Quick Ratio	1.39	1.38	1.33	1.35
Current Ratio	1.88	1.88	1.81	1.82
Current Liabilities to Net Worth	69.9%	65.9%	75.1%	76.3%
Current Liabilities to Inventory	x2.87	x2.83	x2.91	x3.05
Total Debt to Net Worth	x1.52	x1.41	x1.60	x1.68
Fixed Assets to Net Worth	x0.71	x0.66	x0.80	x0.84
Days Accounts Receivable	55	57	53	51
Inventory Turnover	x11.71	x10.83	x11.50	x12.40
Total Assets to Sales	56.2%	60.2%	55.5%	54.0%
Working Capital to Sales	13.8%	14.6%	12.9%	12.6%
Accounts Payable to Sales	6.5%	6.7%	6.6%	6.5%
Pre-Tax Return on Sales	2.4%	2.1%	2.6%	2.7%
Pre-Tax Return on Assets	4.3%	3.5%	4.6%	5.0%
Pre-Tax Return on Net Worth	10.7%	8.5%	12.1%	13.5%
Interest Coverage	x2.29	x2.01	x2.58	x2.74
EBITDA to Sales	8.7%	8.6%	8.3%	8.3%
Capital Expenditures to Sales	5.4%	5.5%	5.0%	4.9%

Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available at www.microbilt.com.

ECONOMIC STATISTICS AND INFORMATION

Index of Industrial Production - Federal Reserve Board



VALUATION MULTIPLES

Commercial Printing

Acquisition multiples below are calculated medians using at least three US private industry transactions completed between 1/2007 and 10/2017 and are based on middle-market transactions where the market value of invested capital (the selling price) was less than \$1B. Data updated annually. Last updated: December 2017.

Valuation Multiple	MVIC/Net Sales	MVIC/Gross Profit	MVIC/EBIT	MVIC/EBITDA

Median Value	0.7	1.1	7.3	3.9
---------------------	-----	-----	-----	-----

MVIC (Market Value of Invested Capital) = Also known as the selling price, the MVIC is the total consideration paid to the seller and includes any cash, notes and/or securities that were used as a form of payment plus any interest-bearing liabilities assumed by the buyer.

Net Sales = Annual Gross Sales, net of returns and discounts allowed, if any.

Gross Profit = Net Sales - Cost of Goods Sold

EBIT = Operating Profit

EBITDA = Operating Profit + Noncash Charges

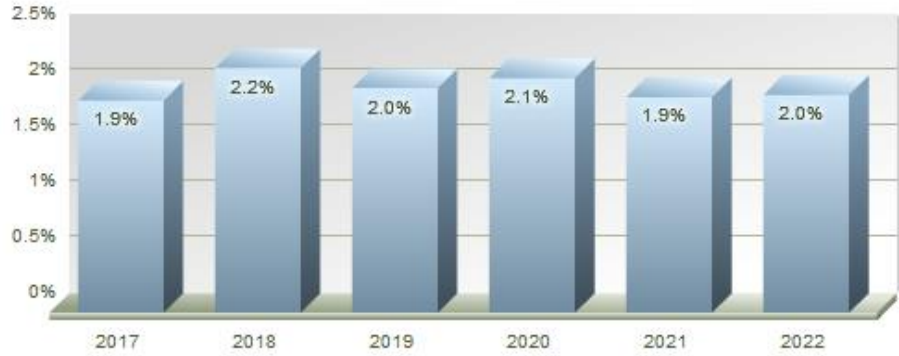


SOURCE: Pratt's Stats, 2014 (Portland, OR: Business Valuation Resources, LLC).
Used with permission. Pratt's Stats is available at <http://www.bvresources.com/prattsstats>

Industry Forecast

Revenue (in current dollars) for US printing manufacturing is forecast to grow at an annual compounded rate of 2% between 2018 and 2022. Data Published: January 2018

First Research forecasts are based on INFORUM forecasts that are licensed from the Interindustry Economic Research Fund, Inc. (IERF) in College Park, MD. INFORUM's "interindustry-macro" approach to modeling the economy captures the links between industries and the aggregate economy.



First Research Industry Growth Rating

Reflects snapshot of industry performance vs. industry risk over the next 12 to 24 months relative to other U.S. industries, along with short descriptions of vital demand and risk factors influencing the industry. Use to quickly determine the overall projected health of an industry.



- Demand: Depends on business activity
- Need effective sales
- Risk: Economic health affects business spending

Web Links

Canadian Printing Industries Association

Statistics, events, and links.

<http://www.cpia-aci.ca/>

Impressions Magazine

News, trends, awards, and events for screen printers.

<http://impressions.issshows.com/index.shtml>

Ink World

Articles on printing ink and coating industry.

<http://www.inkworldmagazine.com/>

PrintCAN (Canada)

News, events, and information.

<http://www.printcan.com/>

Printing Industries of America

Industry news.

<http://www.printing.org/>

Printing News

News

<http://www.printingnews.com/>

Printwear Magazine

News, trends, and trade shows for apparel decorators.

<https://printwearmag.com/>

Specialty Graphic Imaging Association (SGIA)

News.

<http://www.sgia.org>

The Association for Suppliers of Printing, Publishing, and Converting Technologies (NPES)

News, statistics.

<http://www.npes.org>

WhatTheyThink

News and commentary.

<http://whattheythink.com/>

Glossary of Acronyms**CAD**

computer-aided design

CRM

customer relationship management

CTP

computer-to-plate

EDI

electronic document interchange

EDSF

Electronic Document Systems Foundation

NPES

The Association for Suppliers of Printing, Publishing, and Converting Technologies

PIA

Printing Industries of America, Inc.