

Price-sales ratios: A new tool for measuring stock popularity

Price-earnings ratios are frequently used as a "popularity" gauge. But is this the best measure? One analyst argues that earnings are distorted by such things as accounting assumptions. His answer: Use sales instead.

By Kenneth L. Fisher

Price-sales ratio analysis is a new concept, and yet so fundamentally simple and powerful that many, when first encountering it, wonder why they haven't heard about it before.

The formula is like that of price-earnings ratio, except it uses sales instead of earnings. To calculate a stock's price-sales ratio, you simply divide its price by its sales per share.

For example, a company with \$100 million in annual sales that sells for \$15 per share and has 5 million shares of stock outstanding has a price-earnings ratio of 0.75. If its earnings are 5% per year, its price-earnings ratio is 15.

Price-sales ratios measure the popularity of the stock. This is helpful for a number of investment theories. A long-held standard of such legendary investors as Warren Buffet, Philip Fisher, Ben Graham, John Templeton

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and others is to buy unpopular stocks of good companies. But first, you must know if a stock is popular or not.

It is becoming common to view low price-earnings stocks as synonymous with low popularity. I have nothing against the low P/E school, and view low P/Es as a viable way to seek above-average reward at below-average risk. But low P/Es are not a strong measure of popularity. They are too elastic.

Too much attention is focused on current earnings. Earnings are a result—not a cause. At best, they result from a lot of accounting assumptions trickling their way through an operating company's books. The basic factors affecting the value of a stock tie more closely into the income statement's top half—a company's product position and cost structure allowing it to do a certain amount of business. Employing the price-sales ratio as another tool of analysis helps put stocks in their proper perspective.

The popularity measure

High price-sales ratio stocks are popular; low price-sales ratio stocks are unpopular. Let's see what this means. Price-sales ratios range from numbers below

Table 1. The Popularity Monitor

If companies are: . . . their stocks are:

	very unpopular, with P/Ss less than	accepted, with P/Ss over	very popular, with P/Ss over
Small, growth-oriented or technology:	0.75	1.5	3.0
Multi-billion dollar sales sized, or without growth attributes:	0.20	0.4	0.8
Inherently thin-margin, such as supermarkets:	0.03	0.06	0.12

0.02 (2% of sales) to beyond 30 (30 times sales). Industrials in Chapter 11 bankruptcy, for instance, often sell at price-sales ratios in the 0.02 to 0.05 range. At the other extreme, some of the high-tech wonder companies sell at price-sales ratios ranging from three to 30.

Table 1, "The Popularity Monitor," shows various levels of popularity associated with different levels of price-sales ratios. The table breaks stocks into three categories. First are small technology/growth oriented companies. Then, there are big, multi-billion dollar companies grouped with companies in industries with-

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out growth attributes. Finally, we have companies with very thin operating margins—ones whose basic product lines are inherently low-profit margin activities, such as supermarkets or distributors.

These numbers were empirically derived. It is interesting that in each case there is a price-sales ratio doubling between steps of popularity. The absolute scale of price-sales ratio/popularity seems consistent—two doublings as stocks rise from obscurity to high regard. I have no explanation for this, and report it merely as an interesting observation.

An explanation

High price-sales ratio stocks don't perform because they are too popular and discount much of the future. Stocks, industries, and the economy as a whole swing in long, sweeping cycles of profitability. As a company slowly improves profit margins over the years, inves-

tors often confuse growth with margin improvement.

As a company increases its net after-tax margins from 2% one year to 3% the next, absolute profits have risen 50%. The next year it increases margins to 4%, and then the next 5%, and on and on until perhaps eventually it earns 10, 12, or even 15% net after-tax margins.

Toward the later stages of this process, glowing brokerage firm reports will appear describing how ABC has grown in earnings per share by an annual average of 35% (or some other large number) over the last five (or some other large number) years. They have confused growth with margin improvement. Few companies can sustain significantly above-average profit margins for long.

Even fewer analysts can tell which companies will maintain profitability. A number of studies have shown few analysts are accurate with their specific earnings per share forecasts. One study analyzed consensus estimates of brokerage firm analysts from 1977 through 1981, and found the average annual error was over 31%, clearly more than enough to move a stock.

MCI Communications went through this cycle in the 1970s and early 1980s. In 1978 it sold for 80% of sales (price-sales ratio = 0.80). By 1983, as a much larger company, it sold for seven times sales. But in 1983, investors seemed placated by MCI's exceptional profit margins.

Forecasts of growth abounded, with investors confused between growth in volume and MCI's double-digit profit margins. Brokerage reports estimated MCI at 30 times trailing earnings and only 18 times the next year's earnings—which they assumed would prop up the stock. Unfortunately when MCI's margins finally crumbled, the stock did too.

Low price-sales ratio stocks can perform because they are unpopular, and virtually any good news translates

directly into higher stock prices. Consider the case of Verbatim, which is a small company in a rapid growth area. In 1981 they were less than \$50 million in sales, losing money, poorly regarded, virtually without following on Wall Street and rumored upon occasion as a bankruptcy candidate (in spite of a quite strong balance sheet).

At a price-sales ratio of 0.50, Verbatim was only 10 times future earnings if they could earn 5% margins in the future, or, five times earnings if they could earn 10% margins. As Verbatim retained its 35% market share in floppy disks, it isn't hard to see the economics of a stock price increase as the personal computer revolution fueled an explosion in the floppy disk market.

Research

Do many good companies sell at such low levels?

Hambrecht and Quist is a leading specialty boutique in the field of technology investing. We calculated price-sales ratios for their stocks from 1978 through 1983. In 1978, at the start of the bull market in technology stocks, the highest price-sales ratio in their universe was 2.5. The unweighted average was 0.79. By early 1983 the average was over 4.0 and a significant part of their data universe had price-sales ratios over 10.0. Some were as high as 20 and 30.

As we tracked the universe on a quarter-to-quarter

basis the low price-sales ratio quartile of stocks outperformed the high price-sales ratio quartile in every single quarter for five years.

In another study, we looked at the January, 1984 issue of "Forbes," which ran a piece in their statistical spotlight entitled "Who's where in the stock market." From it we analyzed the top 20 performing industrial stocks with 1979 sales over \$50 million during the five years from 1979 through 1983. Taking a five-year time

*In one test, low price-sales ratio
stocks outperformed the low P/E
stocks by a wide margin.*

frame clearly allows long-term value to prevail over short-term fancy. Some of these companies were losing money in 1979. Others made good margins. We calculated price-sales ratios as of January, 1979. The results are presented in Table 2.

Note that eleven of these twenty best-performing stocks started 1979 with price-sales ratios of 0.20 or less. Another four started with price-sales ratios between 0.20 and 0.35. Only two started with price-sales ratios greater than 0.75. The other three spread be-

Table 2. Top 20 industrial stocks (1979 through 1983)

Stock	Five-year stock gain (%)	1/79 P/S	12/83 P/S	Third quarter 1978 sales (\$ million)
Pulte Home	2,885%	0.079	0.829	\$271
Subaru of America	1,637	0.058	0.536	441
Toys R Us	1,522	0.303	1.981	394
MCI Communications	1,433	0.601	3.044	120
Wal-Mart Stores	1,386	0.292	0.466	1161
Limited	1,307	0.466	1.715	212
Coleco Industries	1,236	0.167	0.499	129
Zayre	993	0.033	0.373	1511
Anixter Bros.	881	0.136	0.845	215
Chicago & North Western	830	0.094	0.945	723
Wang Labs	838	1.562	2.910	229
Bergen Brunswig	821	0.045	0.243	456
Rose's Stores	800	0.048	0.352	491
Oxford Industries	796	0.112	0.482	238
Stop & Shop Cos.	740	0.035	0.243	1850
Bershire Hathaway	729	0.663	5.786	245
G. Heilman Brewing	728	0.200	0.746	500
Varian Assoc.	726	0.247	1.546	401
Electronic Data Systems	724	1.090	3.405	224
VF Corp.	697	0.315	1.048	530

tween ratios of 0.35 and 0.75.

Eight of these 20, including the top two, had price-sales ratio multiple expansions of 700% or more. Pulte Home's price-sales ratio multiple, for example, increased more than ten-fold (1050%), from 0.079 to 0.829.

Twelve of the 20, including the top four, had price-sales ratio multiple expansions of 500% or more. Some, like Zayre, had price-sales ratio multiple expansions greater than their stock price increases. This is because the price-sales ratio reflects market capitalization, fully adjusting for dilution from any new shares issued.

Obviously, if a stock's price-sales ratio multiple is to expand 500 to 1,000% it has to start quite low or end up quite high. All but two had price-sales ratio multiple expansions of 300% or more. One of the two firms was Wang Labs, which started with the list's highest price-sales ratio.

P/Es versus P/Ss

Table 3 lists the results of another study, where we looked at the 1983 percentage gains of the Dow Jones Industrial stocks. That is to say, International Harvester stock rose 177% between January 1 and December 31, 1983; at the same time Goodyear Tire fell 14%. Also listed are their price-earnings ratios for January, 1983 as taken from "Standard and Poor's Stock Guide." The sales numbers used in calculating the price-sales ratios were taken from quarterly data from Value Line—again, using then-reported last 12 month's results. Percents are rounded to the nearest whole.

We decided to compare the lowest 25% price-sales ratio stocks in the list versus the lowest 25% P/E stocks. Unfortunately there were too many with P/Es of eight to restrict the low P/E list to exactly seven stocks. So, we could either compare the low quartile price-sales ratio group of seven stocks to nine low P/Es or the nine lowest P/Es to the nine lowest price-sales ratios. We did both. The asterisks indicate the seven lowest price-sales ratio stocks and the nine lowest P/E stocks.

The results:

- The seven lowest price-sales ratio stocks averaged gains of +63.57%.
- The nine lowest price-sales ratio stocks averaged gains of +56.11%.
- The nine lowest price-earnings ratio

stocks averaged gains of +28.67%.

At the same time, the DJIA averaged a gain of 20.3%.

The low price-sales ratio stocks outperformed the low P/E stocks—by a wide margin. The low P/E stocks did outperform the DJIA as a whole.

To get an idea of price-sales ratio measures for the market as a whole, we used the Value Line Composite to construct price-sales ratios for the major peaks and bottoms of the last 10 years. This is presented in Table 4. (I am skeptical of attempts to time the overall market. I don't believe you can time the market based on price-sales ratios. If you go further back, over the prior 40 years you get some sharp exceptions to the last decade's tight repeating pattern.)

Since 1974 the "Value Line" composite peaked at

Table 3. 1983 Percentage Gains, P/Ss, and P/Es of the Dow Industrials

	1983 gains (%)	1/1/83 P/S	1/1/83 P/E
International Harvester	177%	0.03*	deficit
Allied Corp.	72	0.17*	5*
American Can	52	0.13*	25
Bethlehem Steel	47	0.14*	deficit
U.S. Steel	45	0.12*	deficit
DuPont (E.I.)	45	0.25	9
Aluminum Co. of America	45	0.52	deficit
Westinghouse	41	0.35	8*
Woolworth	36	0.14*	10
Owens-Illinois	32	0.21	8*
General Foods	30	0.24	8*
American Brands	29	0.39	7*
United Technologies	28	0.23	9
IBM	27	1.79	13
Exxon	26	0.25	6*
Inco	26	0.76	deficit
General Electric	24	0.81	12
Sears Roebuck	23	0.36	13
International Paper	22	0.59	16
General Motors	19	0.31	18
Union Carbide	19	0.40	12
Texaco	16	0.15*	7*
Minnesota Mining & Manufacturing	10	1.33	14
Merck	9	2.07	15
SOCAL	9	0.29	8*
AT&T	3	0.81	7*
American Express	1	0.79	11
Procter & Gamble	-4	0.81	12
Eastman Kodak	-11	1.39	12
Goodyear Tire	-14	0.29	11
Average	20	0.54	N/A

*7 lowest P/S stocks and 9 lowest P/E stocks

price-sales ratios of between 0.50 and 0.55. It bottomed out at price-sales ratios between 0.29 and 0.36. This provides some insight into the debate today over whether the market bottomed in early March. If the last decade is any guide, it did not: If the composite as a whole is to reach price-sales ratios in the 0.29 to 0.36 range, many of the individual ratios must be far lower.

What does this mean?

All of this indicates that it is important to consider a stock's price-sales ratio when entertaining its purchase or sale.

At the same time, it is important to keep in mind some hard and fast rules when using price-sales ratio analysis:

- Employ traditional fundamental analysis to identify quality among low price-sales ratio stocks. This means

One hard and fast rule: Employ traditional fundamental analysis to identify quality among low price-sales ratio stocks.

the kinds of criteria discussed in books such as "The Intelligent Investor" by Ben Graham or "Common Stocks and Uncommon Profits" by Philip Fisher.

Price-sales ratios don't apply to stocks of companies such as banks, REITs, or other firms where ongoing sales are not the driving force. They do apply to industrial producers, including most of the stocks you can think of—even retailers, and, to my own surprise, insurance companies, based on premium revenue.

- Most stocks offering significantly above-average

Table 4. Value Line peaks and troughs: Market P/S

Peak/trough	Date	Level of composite	P/S
Trough	1974	13.2	0.36
Peak	1976	24.5	0.55
Trough	1978	18.7	0.36
Trough	1980	22.5	0.33
Peak	1980	37.0	0.50
Trough	1982	23.1	0.29
Peak	1983	42.0	0.53
First quarter 1984	1984	35.6	0.42

intermediate—to long-term results come from the ranks of low or medium price-sales ratio stocks. Almost no high price-sales ratio stocks ever offer above average long-term performance.

- To achieve above-average intermediate—to long-term results, don't buy stocks with price-sales ratios higher than the "very unpopular" rankings in "The Popularity Monitor," above.
- Sell any stock if its price-sales ratio should rise into the ranks of the "very popular" as indicated by the "The Popularity Monitor."
- Huge companies sell at lower price-sales ratios than small companies in the same field with similar basic prospects. Few companies with more than \$1 billion in sales have stock that will sell for long at price-sales ratios of over 1.0.
- Price-sales ratios are often not particularly helpful in analyzing extremely small, rapid-growth companies, such as those that are development size and under \$5 million in sales.