SCREENING FOR STOCK USING THE LAKONISHOK VALUE APPROACH

By Wayne A. Thorp

Josef Lakonishok carries the Benjamin Graham torch based on his academic research and success in investment management. His basic philosophy is to buy out-of-favor companies that are beginning to show signs of awakening.

Value investing consists of buying unappreciated or ignored stocks at attractive prices. Value investors seek stocks that are priced attractively relative to some measure of intrinsic worth—for instance, they look for stocks selling at temporarily low multiples of price relative to book value, cash flow, earnings, or sales. The idea is that, while these stocks may have fallen off of Wall Street's radar screen, eventually the market will realize the worth in these firms and prices will rise.

Historically, this strategy has outperformed the more glamorous growth investment approach. Perhaps more telling, this strategy also outperforms the market as a whole over the long haul.

The tenets of value investing are found in Benjamin Graham and David Dodd's book "Stock Analysis," first published in 1934. In 1949, Graham published another book, "The Intelligent Investor," in which he honed his value message for the individual investor. Graham advocated in-depth company and industry analysis in an attempt to uncover sound, growing businesses selling for 50 cents on the dollar.

Over the years, the value torch has been successfully carried by others. In the book "Investment Titans" (McGraw-Hill 2001), Jonathan Burton talks with another value investor who made a name for himself, first in the realm of academia and then in the investment management arena—Josef Lakonishok.

This professor-turned-money manager is one of the principals at Chicago-based LSV Asset Management, which manages over $6 billion in assets for both institutional and individual accounts. Other firm principals include fellow academicians Andrei Schleifer of the University of Chicago and Robert Vishny of Harvard University. The firm's philosophy is to buy out-of-favor companies that are beginning to show signs of awakening. This article focuses on Lakonishok's strategy and adapts it to AAII's *Stock Investor* fundamental stock screening application.

PATIENCE IS A VIRTUE

Value investing avoids the current stock market darlings. While others are possibly making quick profits—or at least expecting to—value investors may have to face weeks, months, or even years of lackluster performance until the market begins to take notice of the attractiveness of a given company or industry. Of course, value investors need to be aware of the risk that the situation may never turn around and, in the worst case, the company fails. For this reason, Lakonishok believes that patience is the most important tool of value investing. You have to be prepared to go against the flow. If you are looking for that "quick hit," then value investing is not for you.

Furthermore, before you invest in any "value" company, it is important to research the company to gain insight into why the market is discounting it.

INVESTOR BEHAVIOR

Lakonishok has already created a stir in the finance community through his

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research in the field of behavioral finance. He questions the notion of a completely efficient market and believes that there are inefficiencies investors can exploit in order to outperform the overall market.

He believes that these inefficiencies are based on investor behavior—people place too much emphasis on past performance when attempting to estimate future performance. In his opinion, people are too optimistic in their expectations for growth stocks and too pessimistic in their outlook for value stocks.

Value outperforms growth, according to Lakonishok, because investors don't expect much from it. When a value stock does better than expected, investors are pleasantly surprised and more apt to reward the company by bidding up the stock.

In contrast, investors tend to expect too much from growth stocks. Yet it is unrealistic to believe that any company can sustain strong growth forever. Eventually, the company will miss an earnings target or announce an earnings warning and, as recent history has shown, the market will not be merciful in its reaction.

VALUE MEASURES

To locate potential value firms, Lakonishok uses the most common measures of value—price-to-book ratio, price-to-cash-flow ratio, price-earnings ratio, and the price-to-sales ratio.

Price-to-Book Ratio

The book value of a company measures the net worth of the firm's assets—net shareholder's equity—and is equal to total assets less liabilities. Value investors such as Benjamin Graham sought the rare companies with a book value greater than the share price. In such cases, the break-up value of the firm was greater than the share price.

Price-to-Cash-Flow Ratio

A company's sales and earnings are useful measures of performance, but in order for a company to survive, it must have the cash to finance its activities. Companies that generate sufficient cash can expand during periods of economic expansion as well as cover expenses when sales decline during slowdowns.

Cash flow is calculated by taking net income and adding back depreciation and other non-cash charges, such as amortization. The price-to-cash-flow ratio is used as a measure of value to include those companies that may have negative earnings, and thus no price-earnings ratio, yet have positive cash flow.

Price-Earnings Ratio

The price-earnings ratio is probably the most commonly used measure of value. It is calculated by taking earnings per share for the last four quarters and dividing it into the share price. It measures how much a person is willing to spend for $1 of earnings.

The higher the price-earnings ratio, in theory, the more confidence people have in the future prospects of the company and, therefore, the greater the price they are willing to pay for today's earnings. Likewise, a low price-earnings ratio signals higher uncertainty concerning future earnings, or a lower expected growth in earnings.

Price-to-Sales Ratio

The price-earnings ratio is ineffective at gauging the quality of companies with erratic earnings, or no earnings at all. For this reason, the price-to-sales ratio is often used in its place. It measures how much a shareholder is willing to pay for $1 of a company's revenues.

The price-to-sales ratio is also helpful when looking for value companies that do not have price-to-book or price-to-cash flow values because of negative book value or cash flow.

THE SCREENABLE UNIVERSE

Lakonishok begins by developing the screenable universe of companies that is then viewed to find potential value plays. The first screen looks for companies with a market capitalization greater than or equal to $500 million. We used *Stock Investor Pro*, AAII's fundamental stock research and screening system, to perform our screen. Applying this piece of criterion to the database of 9,574 companies tracked by *Stock Investor* as of February 2, 2001, we are left with 2,467. Of the 20 companies that ultimately remained after running the entire screen, Johnson & Johnson was, by far, the largest—with a market capitalization of $132.19 billion. Analogic Corporation was at the opposite end of the spectrum, with a market cap of $546.0 million. Overall, the portfolio of companies had a median market cap of $1.79 billion, compared with the median for the entire *Stock Investor* database of $77.8 million.

We also applied supplemental screens to the database to further ensure the integrity of the companies we ultimately want to examine. The first of these excluded those companies traded on the over-the-counter (OTC) market. This requirement eliminates companies that do not meet requirements for company size, share availability, and/or financial strength to be listed on the New York or American Stock Exchanges or Nasdaq National Market. This brings down the number of passing companies to 2,400.

Lakonishok prefers to deal with American companies, so our next screen eliminates those companies traded as American depositary receipts, or ADRs—foreign listed companies that are traded on U.S. exchanges. This leaves us with 2,059 companies.

We then excluded companies categorized as part of the miscellaneous financial services and real estate operations industries, which usually consist of closed-end mutual funds and real-estate investment trusts. We are then left with a universe of 1,955 companies that we can examine for out-of-favor qualities.

SCREENING FOR VALUE

Lakonishok looks for potentially undervalued companies by comparing the firm's price-to-book, price-to-cash flow, price-earnings, and price-to-sales ratios against those of the firm's industry. He seeks companies with at least one of these four ratios with a value less than that of the industry.

For the price-earnings screen, we sought only those companies with a price-earnings ratio below that of the median price-earnings ratio for its industry. The same process was followed for the price-to-book screen, the price-to-sales screen, and the price-to-cash-flow screen.

The number of companies that passed the individual value screens were:

- Price-to-book value ratio: 402 companies,
- Price-to-cash-flow ratio: 479 companies,
- Price-to-earnings ratio: 503 companies,
- Price-to-sales ratio: 496 companies.

Examining the four value screens together and requiring that a company pass at least one of the value screens left us with 937 passing companies.

SIGNS OF LIFE

If you were simply to buy a portfolio of out-of-favor stocks, you might very well end up with a group of companies that will never rebound or, even worse, will die altogether. Lakonishok views the main risk in value investing as being the case where the market's recognition of value never materializes. For this reason, he looks for value companies that are beginning to show some sign of movement, either in terms of price movement or in terms of improving analyst estimates.

Relative Strength

We begin by examining how the stock has been performing versus the overall market, in this case the S&P 500. To do so, we use the relative strength measure over the last 26 weeks. In *Stock Investor*, the relative strength index measures how a stock has performed in relation to the S&P 500 in percentage terms. Company performance that is equal to that of the S&P 500 is represented by a relative strength index of 0%; companies outperforming the S&P 500 have positive relative strength

TABLE 1. COMPANIES PASSING THE LAKONISHOK SCREENS

Company (Exchange: Ticker)	Price-to-Book Ratio (X)	Price-to-Cash-Flow Ratio (X)	Price-Earnings Ratio (X)	Price-to-Sales Ratio (X)	Industry-Price-to-Sales Ratio (X)	13-Wk. Rel. Strgth (%)	26-Wk. Rel. Strgth (%)	Curr Yr. EPS Est Upward Revisns (No.)	Description
Helmerich & Payne, Inc. (N: HP)	**2.4**	**13.0**	**23.6**	3.5	2.6	59	55	9	Oil & natural gas
Electronics For Imaging (M: EFII)	**2.1**	**23.8**	**23.0**	**2.0**	2.6	48	11	5	Design & marketing of printing prods
Adelphia Comm. (M: ADLAC)	**1.4**	16.2	—	**2.1**	3.4	37	26	1	Auto, prop & casual insurance
American Financial Grp. (N: AFG)	1.1	**8.0**	29.3	**0.4**	1.0	37	14	2	Cable TV systems
Unisource Energy Corp. (N: UNS)	1.7	**3.6**	14.2	**0.6**	0.9	31	28	1	Electric utility holding co
Varian, Inc. (M: VARI)	5.0	30.5	30.5	**1.9**	2.2	31	7	1	Scientific instruments & equip
Varco International, Inc. (N: VRC)	**2.8**	93.5	97.7	**2.4**	2.6	24	24	6	Tech servs & prods for oil and gas
Blockbuster, Inc. (N: BBI)	**0.3**	**1.5**	—	**0.4**	0.8	23	12	1	Home videos, DVDs, & video games
Analogic Corp. (M: ALOG)	**1.9**	18.4	34.2	**1.7**	2.2	22	16	1	Data acquis'n, signal & imaging process
Cambrex Corp. (N: CBM)	**3.3**	22.8	**22.8**	**2.3**	**11.3**	**19**	**6**	**2**	**Specialty chemicals**
FirstEnergy Corp. (N: FE)	**1.3**	**3.9**	10.3	0.9	0.9	17	12	7	Electric utility holding co
Newhall Land & Farming (N: NHL)	5.9	7.2	8.3	1.8	0.4	17	2	1	Resid, com'l, & indus real estate
AmeriGas Partners, L.P. (N: APU)	5.3	10.0	27.1	**0.7**	2.3	16	13	2	Propane equip & supplies
ADVO, Inc. (N: AD)	—	**17.5**	16.4	**0.7**	1.7	14	3	1	Direct marketing firm
Smith International, Inc. (N: SII)	4.8	23.9	52.7	**1.4**	2.6	13	9	8	Prods and servs for oil & gas production
UIL Holdings Corp. (N: UIL)	**1.4**	**4.4**	**11.0**	0.8	**0.9**	**11**	**3**	**1**	**Electricity production and distribution**
Johnson & Johnson (N: JNJ)	**7.2**	21.8	**28.0**	4.5	**5.1**	**10**	**7**	**12**	**Health care products**
NICOR Inc. (M: GAS)	2.4	9.1	37.4	**0.7**	0.8	9	5	1	Natural gas holding co
Quest Diagnostics, Inc. (N: DGX)	4.4	**20.8**	44.2	**1.3**	11.3	9	1	9	Clinical laboratory testing co
ALLETE (N: ALE)	**1.7**	10.1	**10.2**	1.1	0.8	5	5	1	Diversified services co
Median—All Companies	**1.6**	**9.7**	**14.5**	**1.2**		**3**	**–2**	**0**	

N = New York Stock Exchange
A = American Stock Exchange
M = Nasdaq National Market

Definitions of Screens and Terms

Price-to-Book-Value Ratio: Market price per share divided by book value (total assets less all liabilities) per share. A measure of stock valuation relative to net assets. A high ratio might imply an overvalued situation; a low ratio might indicate an overlooked stock.

Price-to-Cash-Flow Ratio: Market price per share divided by cash flow per share. A measure of the market's expectations regarding a firm's future financial strength. Provides an indication of relative value, similar to the price-to-book-value ratio.

Price-Earnings Ratio (P/E): Market price per share divided by the firm's earnings per share. A measure of how the market currently values the firm's earnings growth and risk prospects. High P/E stocks carry with them high expectations as to future growth potential, while low P/E stocks are perceived to have lower future potential or greater risk.

Price-to-Sales Ratio: Market price per share divided by the latest 12-month sales per share. It's used similarly to price-earnings ratios to identify "out-of-favor" stocks.

Industry-Price-to-Sales Ratio: The median price-to-sales ratio for the company's industry. Price-to-sales ratios tend to be industry-specific; comparison to the median for the industry can add meaning to the firm's ratio.

13-Week Relative Strength: Price performance of the stock over the past 13 weeks compared to the price performance of the S&P 500 index over the same time period. Zero percent indicates price performance equal to that of the S&P 500. A measure of price trend that indicates how a stock is performing relative to other stocks.

26-Week Relative Strength: Price performance of the stock over the past 26 weeks compared to the price performance of the S&P 500 index over the same time period. Zero percent indicates price performance equal to that of the S&P 500. A measure of price trend that indicates how a stock is performing relative to other stocks.

Current Year EPS Estimate Upward Revisions: The number of analysts who revised their current company fiscal year earnings estimates for the stock upward last month. Companies with upward earnings revisions often experience positive price strength.

figures while those underperforming the S&P 500 have negative relative strength values.

Lakonishok views stock performance over the last six months as an indication of whether the stock is beginning to show signs of an upward move. Therefore, the first relative strength screen we used required that a company had outperformed the S&P the S&P 500 over the last 26 weeks. This lowered our number of passing companies to 619. The next screen required that the 13-week relative strength of a company be equal to or greater than the 26-week relative strength. Since 26 weeks is a relatively long time period, we wanted to make sure that the stock hadn't made its "move" early in the period and then entered into a decline. This criterion, therefore, requires that a company maintain its price strength relative to the overall market over the 13 weeks. Adding this requirement lowered the total number of passing companies to 168.

Analyst Earnings Estimates

Lakonishok also uses analyst sentiment as a gauge of whether company prospects are improving. One way in which to measure this sentiment is to watch the trends in analyst revisions. A revision is when an analyst changes his or her earnings forecast for a period.

For this screen, we examined analyst revisions for the current fiscal year that have taken place over the last month. We first required that there had been no downward revisions by analysts in the last month, which left us with 75 companies. Our next filter looked for those companies that had at least one upward earnings revision, which brought down the list to 27.

Our final criterion required the current average analyst estimate for the current fiscal year to be greater than the average estimate from last month. Ideally, if a company has upward earnings revisions, its overall average estimate will rise as well. This filter captures those companies. The final result: 20 potentially undervalued companies with sustained or improving relative price strength against the S&P 500 and with improving sentiment from analysts.

PASSING COMPANIES

Table 1 lists the 20 companies that passed the screening criteria based on our interpretation of Lakonishok's value investing approach using AAII's *Stock Investor Pro* database and stock screening application; it is ranked by 13-week relative strength.

Keep in mind when examining the value measures, such as price-earnings ratios, that companies were required to pass only one value screen, so you will see individual companies with values higher than their industry for some of those

value screens. For the four value measures—price to book, price to cash flow, price earnings, and price to sales—the figures that are in bold in the table indicate that they were lower than their industry median and, therefore, passed that particular value screen. The company names that are in bold passed all four of the value screens.

We included in the table the industry median for price-to-sales ratio, since this figure tends to be more industry specific. Looking at the range of values, we find a low of 0.4 for Blockbuster and American Financial Group and a high of 4.5 for Johnson & Johnson.

For the "momentum" screens, the range of values for the 26-week relative strength is a high of 55% for Helmerich & Payne and a low of 1% for Quest Diagnostics. This means that, over the last 26 weeks, Helmerich & Payne outperformed the S&P 500 by 55%.

Helmerich & Payne also has the highest 13-week relative strength, at 59%, while ALLETE has the lowest at 5%.

Lastly, we see the number of upward revisions that each of our passing companies has had for its current fiscal-year earnings estimate. They range from a low of one, which is shared by 10 of the companies, to a high of 12 for Johnson & Johnson. Keep in mind, however, that the number of revisions is also affected by the number of analysts tracking the company. Johnson & Johnson, not surprisingly, has the most analysts tracking it.

OVERLAP

All of the companies were required to pass at least one value screen, but some companies passed more than one value screen. Of all the value screens, the price-earnings ratio was the most stringent, with 45% of the 20 passing, while 55% passed both the price-to-cash-flow ratio and price-to-book ratio screens, and 80% passed the price-to-sales ratio screen. Four companies—just 20%—passed all four of the value screens.

INDUSTRY BREAKDOWN

Overall, 14 industries were represented by the 20 passing companies. The largest concentrations were found in oil well services and equipment and electric utilities—each with three. In some ways this is not surprising since both ranked near the top of the 26-week relative strength, with values of 21 and 15, respectively.

What is perhaps more telling were those companies with performances bucking the trend of their respective industries. Electronics For Imaging from the software and programming industry far outperformed its industry during the last 26 and 13 weeks. Over the last 13 weeks, it turned in a relative strength of 48, while its industry as a whole *underperformed* the S&P by 20 percentage points over the same period.

CONCLUSION

Value investing has proven to be successful over long periods of time. However, don't expect to succeed simply by buying stocks that are undervalued based on one simple value measure. Lakonishok looks for underappreciated companies that look like they may be coming in from the rain. By finding undervalued companies that are beginning to stir, you may be able to get in on the "ground floor" if and when the rest of the market catches on.

As always, however, stock screening is only a first step. You will want to do your homework to see why these companies are at their current levels. Only then will you gain insight into those that will continue to languish and those that may eventually flourish. ✥

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