

VALUE LINE INVESTMENT EDUCATION



The Most Trusted Name In Investment Research®

FROM OUR DIRECTOR OF RESEARCH

Investors need to have independent, unbiased research. That is something Value Line subscribers have known for more than 90 years. Unlike typical Wall Street brokerage firms, Value Line does not have any investment banking business with any other company and, therefore, has no vested interest in whether these subscribers buy, sell, or hold a specific equity. Members of our staff of professional analysts are not permitted to own shares of any company they have been assigned to cover. Our subscribers receive only high-quality, independent research.

If you are looking for unbiased, independent, and objective investment research and ideas, look no further than Value Line — we answer only to you.

Very truly yours,

Andre J. Costanza

A handwritten signature in black ink that reads "Andre J. Costanza". The signature is written in a cursive, flowing style.

Director, Value Line Research

The Value Line Ranking System

The Value Line Investment Survey® includes our time-tested Ranking System, which ranks the stocks we follow relative to each other for both expected price performance during the next six to 12 months, and for overall risk. Stocks are ranked from 1 to 5, with 1 being the Highest rank.

Note: *Any one Value Line stock Rank is always relative to the Ranks of all other stocks in the The Value Line Investment Survey universe, the stocks of which account for more than 90% of the dollar volume of trading on U.S. stock exchanges.*

Timeliness

TIMELINESS	3	Lowered 2/23/24
SAFETY	1	New 7/27/90
TECHNICAL	4	Raised 9/27/24
BETA	.75	(1.00 = Market)

Sample Ranks Box

The Value Line Timeliness rank measures predicted relative price performance of the stocks we follow during the next six to 12 months on an easy-to-

understand scale from 1 (Highest) to 5 (Lowest). Components of the Timeliness rank include historical stock-price performance, financial results, and earnings surprises. Our proprietary algorithm combines all elements into a forecast of the price change of each stock, relative to all of the stocks in the Value Line universe, for the next six to 12 months. The Value Line universe accounts for approximately 90% of the market capitalization and trading volume (in dollars) of all stocks traded on the U.S. exchanges. Since the system attempts to predict short-term movements.

Rank 1 (Highest)/Rank 2 (Above Average): These stocks, as a group, are expected to outperform the Value Line universe during the next six to 12 months (100 stocks are Rank 1; 300 are Rank 2).

Since many stocks “stop in” at Rank 2 before moving up to 1, many investors’ strategy is to select equities from among Rank 2 and Rank 1, or even the lower ranks, depending on their preference for yield, Safety, etc.

Rank 3 (Average): These stocks, as a group, are expected to have relative price performance in line with the Value Line universe. They — and even stocks ranked lower — may be considered if purchased for long-term appreciation potential and/or income.

Rank 4 (Below Average)/ Rank 5 (Lowest): Rank 4 stocks, as a group, are expected to have below-average relative price performance. Rank 5 stocks, as a group, are out of favor in regard to the Timeliness System (100 stocks).

Changes in the Timeliness ranks can be caused by:

1. New earnings reports or company announcements
2. Changes in the price movement of one stock relative to all other stocks in the publication
3. Shifts in the relative positions of other stocks

Safety

A second and crucial investment criterion is the Safety rank assigned by Value Line to each stock in the publication. The Value Line Safety Rank measures the total risk of a stock relative to all others. It takes into account a stock’s Price Stability rank and the Financial Strength rating of a company. Safety ranks are also given on a scale from 1 (Safest) to 5 (Riskiest) as follows:

Rank 1 (Highest): These stocks, as a group, are the most stable, and least risky investments relative to the Value Line universe.

Rank 2 (Above Average): These stocks, as a group, are less risky than most.

Rank 3 (Average): These stocks, as a group, have about average risk.

Rank 4 (Below Average): These stocks, as a group, are riskier than most.

Rank 5 (Lowest): These stocks, as a group, are the riskiest.

Stocks with high Safety ranks are often associated with large, financially sound companies, many of which regularly pay cash dividends; these same companies also often have somewhat more moderate growth prospects because their primary markets tend to be mature. Stocks with low Safety ranks are often associated with companies that are smaller and/or have weaker-than-average finances; on the other hand, these smaller companies sometimes have above-average growth prospects because they start with a lower revenue and earnings base.

Safety becomes particularly important in periods of stock market downswings, when many investors want to try to limit their losses. When you study the data (shown in the table on page 5), you will find that stocks with high Safety ranks generally fall less than the market as a whole when stock prices drop. The table shows how the Safety ranks worked out in all major market declines between 1972 and the present.

The lesson is clear. If you think the market may be headed lower, but prefer to maintain a fully invested position in stocks, concentrate on stocks ranked 1 or 2 for Safety. We suggest you also take into account your usual length of time holding a stock, or time horizon. For the shortest horizon, the Technical rank may be the best guide. Longer time frames call for the Timeliness rank, 18-month price target, and 3- to-5 year projections. For more explanation, please refer to your VLIS Sample Page and *How to Read a Value Line Report* guide. Meanwhile, to help mitigate risk, we would suggest stocks with a Safety rank of 3, or better, and average (B+) or above Financial Strength be emphasized.

Penalties and Rewards of Risk

A risky stock is one which has low Price Stability and whose price fluctuates widely around its own long-term trend. It may also be a stock of a company with a low Financial Strength grade. One may reasonably assume that the price of a risky stock will go up more than that of a safe stock in a generally strong market. Yet, if in the interim it went down more sharply and you had to sell at an inopportune time, you could suffer a heavier penalty for having bought the high-risk stock instead of the safer issue.

Technical

The Value Line Technical rank uses a proprietary formula to predict short-term (three to six month) future price returns relative to the Value Line universe. It is the result of an analysis that relates price trends of different durations for a stock during the past year to the relative price changes of the same stock over the succeeding three to six months. The Technical rank is mostly for subscribers disposed to trade frequently, as it changes often. As with the other ranks, the Technical rank goes from 1 (Highest) to 5 (Lowest).

Industry

Value Line also publishes Industry Ranks, based on the Timeliness system, along with a detailed report by a senior analyst. The ranks are updated weekly and published on the front and inside pages of the *Summary & Index*. They also appear at the top of each Industry Report.

ADDITIONAL INVESTMENT CONSIDERATIONS

Value Line is very proud of its Ranking System, and its long history of quality performance. However, before taking a position in any stock, we strongly recommend that subscribers evaluate the many other aspects of the Value Line stock report, including the analyst commentary, estimates and projections, growth rates, and other proprietary ratings. For more information regarding the many elements of our reports, we encourage reviewing *The Value Line Investment Survey Product Guide*, as well

as *How to Read a Value Line Report*. Both of these documents can be found in the Investment Education section of www.valueline.com.

VALUE LINE INDEXES

We have maintained and published the Value Line Composite Index for more than six decades. This widely recognized benchmark assumes equally weighted positions in every stock covered in *The Value Line Investment Survey*, excluding the closed-end funds. That is, it is assumed that an equal dollar amount is invested in each and every stock. The returns from the portfolio are averaged geometrically every day across all these stocks and, consequently, this index is frequently referred to as the Value Line (Geometric) Average (VALUG). It was intended to provide a rough approximation of how the median stock in the Value Line universe performed.

On February 1, 1988, Value Line began publishing the Value Line (Arithmetic) Average (VALUA) to fill a need

that had been conveyed to us by subscribers and investors. Like the VALUG, the VALUA is equally weighted. The difference is the mathematical technique used to calculate the daily change.

The VALUA provides an estimate of how an equal-dollar weighted portfolio of stocks will perform. Or, put another way, it tracks the performance of the average, rather than the median, stock in our universe. It can be shown mathematically, for all practical purposes, that the daily percentage price change of the VALUA will always be equal to or higher than the VALUG. The systematic understatement of returns of VALUG is a major reason that the VALUA was developed. Moreover, although the differences between daily price changes may seem small, the magnitude of the annual differential between the two averages can be quite large. The greater the market volatility, the larger the spread between the geometric and arithmetic averages becomes.

Results of Safety Ranks in Major Market Declines

Start Date	End Date	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	S&P 500	Russell 1000	Russell 2000
4/14/1972	9/11/1974	-40.50%	-39.90%	-47.20%	-53.30%	-70.00%	-37.60%	N/A	N/A
6/17/1981	8/11/1982	-10.50%	-16.20%	-25.20%	-33.60%	-31.40%	-23.00%	-24.20%	-28.20%
8/26/1987	12/4/1987	-24.70%	-28.70%	-36.00%	-40.70%	-46.90%	-33.10%	-32.90%	-38.90%
7/16/1990	10/11/1990	-9.00%	-16.20%	-23.70%	-31.30%	-27.70%	-19.90%	-20.50%	-29.40%
10/7/1997	10/27/1997	-6.90%	-6.30%	-8.70%	-10.00%	-11.60%	-10.80%	-10.30%	-9.40%
7/17/1998	8/31/1998	-11.30%	-14.90%	-23.60%	-31.20%	-32.30%	-19.30%	-19.90%	-26.90%
9/23/1998	10/8/1998	-1.40%	-5.70%	-12.90%	-19.30%	-18.70%	-10.00%	-10.70%	-17.50%
7/16/1999	10/15/1999	-9.40%	-11.60%	-13.70%	-11.50%	-10.60%	-12.10%	-12.20%	-10.90%
3/24/2000	4/14/2000	3.30%	1.10%	-4.00%	-18.00%	-16.40%	-11.20%	-12.10%	-21.00%
9/1/2000	10/9/2002	-4.00%	-6.00%	-8.80%	-40.40%	-28.10%	-48.90%	-49.60%	-39.70%
11/27/2002	3/11/2003	-10.40%	-9.60%	-15.10%	-21.30%	-21.60%	-14.70%	-14.30%	-15.40%
10/9/2007	3/9/2009	-46.80%	-54.90%	-54.30%	-63.30%	-62.40%	-56.80%	-56.90%	-59.40%
4/23/2010	7/2/2010	-12.10%	-12.20%	-17.20%	-23.70%	-31.30%	-16.00%	-16.30%	-19.30%
4/29/2011	10/3/2011	-12.90%	-17.20%	-25.80%	-34.70%	-47.70%	-19.40%	-20.30%	-29.60%
5/21/2015	8/25/2015	-9.20%	-8.80%	-14.90%	-20.00%	-23.30%	-12.40%	-12.30%	-12.20%
11/3/2015	2/11/2016	-6.60%	-7.50%	-18.70%	-25.90%	-33.40%	-13.30%	-14.10%	-20.00%
1/26/2018	2/8/2018	-9.10%	-8.30%	-9.40%	-9.60%	-12.90%	-10.20%	-10.10%	-9.00%
9/20/2018	12/24/2018	-13.40%	-15.30%	-23.80%	-28.90%	-39.70%	-19.80%	-20.10%	-26.40%
2/19/2020	3/23/2020	-33.40%	-35.40%	-42.70%	-45.40%	-51.90%	-33.90%	-34.70%	-40.80%
1/3/2022	10/12/2022	-14.30%	-19.60%	-22.40%	-27.30%	-20.30%	-25.40%	-26.00%	-25.70%

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