A Comparative Performance Analysis of Three Model Portfolios of Value Line

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Abstract

Value Line timeliness weekly rankings puts out 4 model portfolios each containing 20 stocks. Portfolio stocks are added based on a "Timeliness" ranking and a "Financial Strength Rating" of at least B+. The Value Line Investment Survey has been the subject for many studies regarding market efficiency and Value Line's ability to debunk this theory by delivering higher abnormal returns based on public information. The results of this study indicate that mean weekly abnormal rates of return statistically exists for three of the four portfolios. In addition, although statistically insignificant, variable HML's betas for all three portfolios are negative indicating that the return movement between HML and each of the three model portfolios are in opposite direction.

I. Introduction

The Value Line Investment Survey has been the subject for many studies regarding market efficiency and Value Line's ability to debunk this theory by delivering higher abnormal returns based on public information. Many experts believe that enigma does exist, however factors such as post-announcement earnings drift, size effect and transaction costs exist to dispel the notion that investors can use this information for profit.

The Value Line timeliness rankings are issued each week. Additionally, Value Line puts out 4 model portfolios every week, where stocks are added and dropped according to their rankings. Four portfolios are created and are managed with different investment objectives. Model Portfolio 1 is designed for price appreciation, Portfolio 2 for income and for, potential price appreciation, and Portfolio 3 for long term growth. Each portfolio contains 20 stocks. An investor might infer that tracking any of these portfolios will take advantage of the Value Line enigma. Portfolio stocks are added based on a "Timeliness" ranking and a "Financial Strength Rating" of at least B+. When the timeliness ranking falls below the designated level it will be removed automatically.

Many theories exist as to why Value Line is capable of producing abnormal returns. Most notably, many experts believe the sole reason for Value Line's success in predicting short term returns is due to luck (Conover, Lancaster, & Szakmary, 2008). The reasoning behind this is simple – when so many investment advisory firms exist, and only one of them is able to produce abnormal returns, statistical analysis would indicate this to be possible without proving anything (Gregory, 1983). Another theory that exists to explain Value Line's success revolves around

Value Line's independence from client pressures. Value Line is an independent service, and is not subject to pushing client firms for incentive money. Therefore, analysts are not pressured to create misleading recommendations based on faulty information (Conover, Lancaster, & Szakmary, 2008).

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We examine and compare risk-adjusted weekly performances of three model portfolios of Value Line. The characteristics of these three model Portfolios are:

II. Portfolios Characteristics

Portfolio Model - I

1. A stock must have a Timeliness rank of 1, and
2. A Financial Strength rating of at least B+ at the time of purchase.

A stock can be sold at any time, either to buy a stock that seems to have a greater potential or to realign the portfolio diversification, any stock whose Timeliness rank falls to 3 or lower is automatically dropped. Some other characteristics of Portfolio Model I:

1. The companies have generally had above average earnings records.
2. The companies often have relatively smaller market capitalizations.
3. Few of these stocks pay a dividend and most pay no dividends at all.
4. A number of the stocks in the portfolio have Betas considerably higher than 1, which indicates that they are more volatile than the market as a whole.

Portfolio Model – II

1. Stock must have Timeliness rank of at least 3,
2. Stocks in this Portfolio must have lower beta and lower P/E than stocks on Portfolio I
3. Stocks must pay large enough dividend that yield ranks in the top half of all stocks tracked by Value Line
4. Stocks should have at least a safety rank of 3 or higher. If Timeliness or Safety drops below 3 the stock is automatically dropped from Portfolio.

Portfolio Model – III

1. Stocks with valuable long-term price appreciation potential,
2. Timeliness and Safety rank can be from 1 to 5,
3. Stocks with paying dividend or not paying dividends are included,
4. Normally high beta stocks, compared with other model Portfolios, are in this Portfolio

III. Literature Review

Recent research suggests that Value Line's information is still functional. Stickel (1985) studied the effect of rank changes on the returns of individual holdings. He contends that rank changes by Value Line affect returns, an indicator that Value Line information moves the market (Porras & Griswold, 2000). Fama (1991) analyzes the Value Line enigma. He acknowledges Value Line's ability to provide abnormal returns, but states that only small statistical evidence exists. More so, he acknowledges Value Line's ability to move the market; recognizing that information exists within the *Value Line Investment Survey* that is not priced into stocks. This conflicts with efficient market theory. Stickel (1985), confirms this theory. He finds the announcement effect to be stronger for smaller stocks. When studying announcement effects on stock prices, he found smaller stocks to have a 3-day return of 5.18% compared to larger stocks having only .7%. The reasoning behind this is the difficulty in obtaining information surrounding smaller companies. One may wonder how this has changed with the influx of public information

on the internet for small and large stocks alike. Peterson (1987) also argues Value Line information is not contained within stock prices, but the market is efficient in accounting them into the share price.

Hulbert (1990) researched Value Line information by studying the Centurion Fund, a portfolio focusing on the highest ranked stocks. From years 1984 to 1990, group 1 stocks earned 16.9% annually, the Wilshire 5000 index earned 15.2% annually, and the Centurion Fund 12.7% annually. He concluded the failure of the Centurion Fund to outperform the market may suggest that while Value Line's information is useful, it may be difficult to apply into a profitable investment.

Porras and Griswold (2001) performed an extended study of the Copeland and Mayers study, which focuses on the ability of higher ranked stocks by Value Line to produce statistically significant abnormal returns. Porras and Griswold confirm the Value Line effect to hold through 1995, with a decrease in returns from better ranks to worse ranks. However, they attribute abnormal returns to a abnormal negative performance of the worse ranked stocks. They find an average monthly excess return 1.24 percent greater for rank 1 portfolios than rank 5 portfolios. They also conclude the CAPM model unable to explain the Value Line anomaly due to Value Line's ability to weed out losers rather than pick winners. This suggests that Value Line cannot produce abnormal returns by picking stocks that will outperform in the short term, but rather they can identify poor performing firms and adjust portfolios accordingly. Porras and Griswold also test using the Fama-French three factor model and the Carhart four-factor model, both of which are unable to explain the Value Line effect.

Peterson (1995) asserts stocks highlighted by Value Line earn abnormal returns of 2.42 percent after accounting for post-announcement earnings drift. He finds no correlation between the length of time between prior earnings announcement and the Value Line publication; and attributes Value Line's abnormal returns to useful information. Choi (2000) finds Value Line to be capable of producing abnormal short term stock returns as well. He believes everyday investors can do nothing more but input Value Line stocks into a portfolio and do as well and investment professionals. However, he will debunk any profitability myths after accounting for transaction costs. He also debunks the Value Line myth by concluding "superior gross performance can be attributed to market frictions that prevent perfect correction of pricing deviations (496).” Otherwise stated, Value Line is able to use information not already priced into stocks to capitalize on short term price movements, but only significantly for smaller firms, in which market "friction" is most high due to the unavailability of information.

Peterson and Peterson (1995) conducted a study to find if professional investors use Value Line information, and results were positive. Graham (1999) conducted a similar study, and found Value Line to be regarded as the premier investment information provider as decided by other investment newsletters. Value Line information is regarded with utmost respect by professional investors, amateur investors, and other investment information providers alike.

In 1997, Benesh and Perfect determined Value Line to unable to predict long term stock returns. Most recently, Szakmary et al. (2008) did a similar study regarding Value Line's ability to forecast long-run returns and other data. If Value Line analysts are able to predict without a

bias the many ratios, returns, and growth statistics they publish, investors would be able to profit immensely. Investors could rely on Value Line for cost of capital projections, growth estimates, earnings estimates, and P/E ratio estimates all of which can are used to determine the intrinsic value of a share of stock. These inputs are difficult to predict, and inaccuracies result in wide fluctuations. Szakmary et al. (2008) determined Value Line unable to predict long term stock projections with accuracy. They attribute this to Value Line's apparent bias in predicting higher stock returns for stocks with higher profit margin projections. They contest that investors should not rely solely on Value Line's projections for stock analysis, and attribute much of Value Line's success to factors other than ability in projecting short term price movements.

Studies attempting to dispel the Value Line enigma focus on factors such as post-announcement earnings drift, size effect, and transaction costs. Affleck-Graves and Mendenhall (1992) find no significant abnormal returns after accounting for post-announcement earnings drift. Choi (2000) contends that evidence does exhibit the potential for abnormal returns from Value Line recommendations, but the ability to invest profitably is diminished by transaction costs. He states that Value Line information can provide up to 45 basis points of abnormal return per month. Size effect was dispelled by Huberman and Kandel (1987), who state "the successful record of Value Line in predicting average relative stock returns does not diminish when size is controlled for."

Studies regarding the Value Line enigma provide mixed evidence that Value Line is capable of providing abnormal market returns over short-time periods. Kaplan and Weil (1973) studied Value Line's ranking system over a six month period and determined better ranked stocks to have performed better than worse ranked stocks. Fischer Black (1973) performed a larger study. Black believes passive portfolio management to be superior to active portfolio management, and is a strong proponent of the random walk hypothesis, which relates stock price movements to be as predictable as a drunken person walking around. Black analyzed the Value Line rankings over five years and determined significant statistical evidence that Value Line rankings outperformed the market, and performance decreased from better ranks to worse. Even after accounting for transaction costs and less diversification due to unequal weighting of each stock, Black determined the results to be significant.

An extended study by Copeland and Mayers (1982) affirmed Value Line's ability to deliver abnormal excess returns. Copeland and Mayers take particular care in their performance evaluation methods. They suggest that when using past pricing information, the past benchmark period may not be accurate with future benchmark periods. More specifically, they warn about non-stationarity, or inconsistencies in statistical data over a large domain. When using past benchmark data, they find it difficult to interpret the results in order to predict future movements. They document the performance of Value Line's ranking system from 1965 thru 1978. They find evidence of abnormal performance in three separate sub-histories. Moreover, they find greater abnormal performance in earlier years compared to later years. When accounting for transaction costs, they find it difficult for an investor to profit from Value Line's information. Depending on the cost and frequency of trading strategies, Value Line information is capable of providing excess returns, but difficult to put in action.

Empirical evidence exists to both support and dispel the Value Line enigma for the public

investor. In today's technology-driven age, public investors have access to incredible amounts of investment literature and information. With so much information available, it is apparent the everyday public investor is very unlikely to deliver abnormal returns. Value Line's rankings continue to perplex market experts. Determining the success of Value Line's information will provide an indication of whether or not an investor can profit from Value Line information, and how function the information is today.

IV. Methodology and Data

The three-factor regression model (Fama and French, 1993) is used to measure the performances of the three value line Model Portfolios. The mathematical form is

$$Ri - Rf = \alpha i + \beta 1(Rm - Rf) + \beta 2(SMB) + \beta 3(HML)$$

where Ri is the weekly rate of return on the target date fund, Rf is the weekly risk free rate, Rm is the weekly market rate of return, SMB is small cap stock portfolios minus big cap stock portfolios and HML is two average returns on big and small cap value stocks minus two average returns on big and small cap growth stocks. The Fama-French three factor model is superior to the CAPM, as it accounts for the flaws in the CAPM.

Stated somewhat differently, the dependent variable is weekly rate of return for the selected stock portfolio minus the weekly risk free rate. The three independent variables are:

1. Excess return on the value weighted market portfolio (Rate of Return on the value weighted CRSP index with dividends minus the risk free proxy);
2. Difference between the returns of value weighted portfolios of small and big firm stocks; and
3. Difference in returns of value weighted portfolios of high and low book-to-market stocks;

The estimated y-intercept or alpha is the mean weekly abnormal rate of return.

Weekly rates of return for the stocks in the Value Line three Model portfolios are from CRSP (Center for Research in Stock Prices). A buy and hold strategy is used to calculate the weekly rates of return for three model portfolios. The weekly rates of return for the independent variables in the three factor model are from the French web site, http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/f-f_bench_factor.html

The weekly rates of return for a stock included in the value line three model portfolios are computed using the following equation.

$$(Rit - R\ it\text{-}1)/ R\ it\text{-}1$$

Where Rit is the stock price at the end of week t and R it-1 is the stock price at the beginning of week t-1. Equally - weighted rates of return for each of the three model portfolios are computed for the following weeks as per the data availability - September 2008, January 16 through August 28,209 and May 28 through June 25, 2010. French website did not contained date after June 25, 2010. The Appendix has ticker symbols and names of common stocks in these three model portfolios. French website did not include data after June 25th 2010.

V. Results

The following Table 1 contains the results for descriptive statistics for variables. The mean weekly rates of return minus weekly risk free rate for portfolios 1, 2 and 3 are 0.0003; -0.0044, and 0.0047 respectively. The mean of -0.0044 for portfolio 2 indicates that Stocks with Income and Potential Price Appreciation yielded weekly return less than risk free rate over the analyzed time period.

Table I: Descriptive Statistics for All Variables

Descriptive Statistics			
	Mean	Std. Deviation	N
R1_Rf	.0003	.04593	40
R2_Rf	-.0044	.03015	40
R3_Rf	.0047	.06018	40
$R_m - R_f$	.470500	3.9634322	40
SMB	.136250	1.2494341	40
HML	.124750	2.7903781	40

The following table II contains the performance results of the Value Line three Model portfolios of 1, 2, and 3for a period of 40 weeks for the Fama French three factor regression model. The mean weekly abnormal rates of return for three portfolios of 1, 2 and 3 are (0.001 with a p-value of 0.923), (-0.005 with a p-value of 0.311), (0.005 with a p-value of 0.504) respectively. Although statistically insignificant, variable HML's betas for all three portfolios are negative indicating that the return movement between HML and each of the three model portfolios are in opposite direction. Betas for market and portfolios are positive which is consistent with the criteria.

Table II: The performance results for the Fama French three - factor model.

		Un-standardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	p - value
Portfolio I: Stock with above average year ahead price potential	α 0.001				.097	.923
	$R_m - R_f$	.000	.003	.008	.028	.977
	SMB	-.002	.006	-.060	-.345	.732
	HML	-.002	.004	-.103	-.396	.694
Portfolio II: Stocks with Income and Potential Price Appreciation	α -0.005				-1.027	.311
	$R_m - R_f$	.000	.002	-.010	-.038	.970
	SMB	.006	.004	.232	1.366	.181
	HML	-.001	.003	-.104	-.408	.685
Portfolio III: Stocks with Long Term Price Potential	α 0.005				.504	.617
	$R_m - R_f$	-.001	.004	-.035	-.143	.887
	SMB	.009	.008	.196	1.223	.229
	HML	-.007	.005	-.336	-1.408	.168

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Appendix

PORTFOLIO I: STOCKS WITH ABOVE-AVERAGE YEAR-AHEAD PRICE POTENTIAL		
(primarily suitable for more aggressive investors)		
Ticker	Company	
AGN	Allergan, Inc.	Drug
AMX	America Movil	Telecom. Services
AAPL	Apple Inc.	Computers/Peripherals
BLL	Ball Corp.	Packaging & Container
CHKP	Check Point Software	E-Commerce
CTSH	Cognizant Technology	Computer Software/Svcs
CL	Colgate-Palmolive	Household Products
ESRX	Express Scripts 'A'	Pharmacy Services
GOOG	Google, Inc.	Internet
HPQ	Hewlett-Packard	Computers/Peripherals
SHOO	Madden (Steven) Ltd.	Shoe
MA	MasterCard Inc.	Financial Svcs. (Div.)
MHS	Medco Health Solutions	Pharmacy Services
NIHD	NII Holdings	Telecom. Services
RL	Polo Ralph Lauren 'A'	Apparel
RMD	ResMed Inc.	Medical Supplies
SLAB	Silicon Labs.	Semiconductor
SY	Sybase Inc.	Computer Software/Svcs
TJX	TJX Companies	Retail (Special Lines)
THS	TreeHouse Foods	Food Processing
PORTFOLIO II: STOCKS FOR INCOME AND POTENTIAL PRICE APPRECIATION		
(primarily suitable for more conservative investors)		
Ticker	Company	Industry
ABT	Abbott Labs.	Drug
AFL	Aflac Inc.	Insurance (Life)
ADP	Automatic Data Proc.	Computer Software/Svcs
CB	Chubb Corp.	Insurance (Prop/Cas.)
CLX	Clorox Co.	Household Products
KO	Coca-Cola	Beverage
CL	Colgate-Palmolive	Household Products
ITT	ITT Corp.	Diversified Co.
INTC	Intel Corp.	Semiconductor
JNJ	Johnson & Johnson	Medical Supplies
LMT	Lockheed Martin	Aerospace/Defense

MCD	McDonald's Corp.	Restaurant
MDT	Medtronic, Inc.	Medical Supplies
MCHP	Microchip Technology	Semiconductor
PAYX	Paychex, Inc.	Computer Software/Svcs
PEP	PepsiCo, Inc.	Beverage
SNY	Sanofi-Aventis	Drug
SYY	Sysco Corp.	Retail/Wholesale Food
TEF	Telefonica SA ADR	Telecom. Services
WMT	Wal-Mart Stores	Retail Store
PORTFOLIO III: STOCKS WITH LONG-TERM PRICE GROWTH POTENTIAL		
(primarily suitable for investors with a 3- to 5-year horizon)		
Ticker	**Company**	Industry
AFL	Aflac Inc.	Insurance (Life)
CVS	CVS Caremark Corp.	Pharmacy Services
CELG	Celgene Corp.	Drug
CSCO	Cisco Systems	Telecom. Equipment
DIS	Disney (Walt)	Entertainment
ESV	Ensco Int'l plc	Oilfield Svcs/Equip.
GOOG	Google, Inc.	Internet
HAL	Halliburton Co.	Oilfield Svcs/Equip.
HOG	Harley-Davidson	Recreation
HRL	Hormel Foods	Food Processing
JNJ	Johnson & Johnson	Medical Supplies
K	Kellogg	Food Processing
NOV	National Oilwell Varco	Oilfield Svcs/Equip.
NOC	Northrop Grumman	Aerospace/Defense
PEP	PepsiCo, Inc.	Beverage
DGX	Quest Diagnostics	Medical Services
HOT	Starwood Hotels	Hotel/Gaming
X	U.S. Steel Corp.	Steel (Integrated)
UNH	UnitedHealth Group	Medical Services
XLNX	Xilinx Inc.	Semiconductor