# THE IMPACTS OF INSTITUTIONAL STOCK OWNERSHIP ON FIRM VALUATION: A STATISTICAL ANALYSIS

*Steven V. Le, Department of Finance, California State University, Long Beach, 1250 Bellflower Blvd., Long Beach, CA 90840-8505, 562-985-4569, steven.le@csulb.edu*

## ABSTRACT

Many studies indicated that corporations with high institutional ownership have higher stock prices than those with less Institutional ownership. Institutions have analysts to investigate the financial and the industry potential of the firms. As a result, the perception is that high institutional ownership indicates good value. This study investigates if the percentage of institutional ownership directly correlates with higher value of stocks. It was found that the higher percentage of Institutional ownership does not support a higher stock valuation.

**Keywords**: Finance, Investments, Valuation

## I. INTRODUCTION

An institutional investor is a company or organization that invests money on behalf of other people. Institutional investors are legal entities that participate in trading in the financial markets. Institutional investors include the following organizations: credit unions, banks, large funds such as a mutual funds, hedge funds, venture capital funds, insurance companies, endowment funds, commercial trusts, real estate investment trusts (REITs), sovereign wealth funds, charities, investment advisors, and pension funds. These funds invest substantial sums of money in the securities marketplace on behalf of its constituents (members, clients, customers, etc.). institutional investors today make up more than 90% of all stock trading activity. Institutional investors are a large and growing actor in global financial markets, with over $100 trillion of assets under management in OECD countries alone. Institutional investors account for over 80% of the S&P 500 total market capitalization, according to data from *Pensions & Investment Online*. Because most stocks in the market are owned by institutions it is perfectly normal to see 70% or more of any individual stock to be held by institutional investors. According to *Pensions and Investments*, institutional investors owned 80.3% of the S&P 500's market cap as of April 2013 (Charts 1 & 2).

Institutional investors also have the advantage of professional research, traders, and portfolio managers guiding their decisions. The buying and selling of large positions by institutional investors can create supply and demand imbalances that result in sudden price moves in stocks, bonds, or other assets. In contrast to individual investors, institutional investors have greater influence and impact on the market and the companies they invest in. Institutional investors often open and close positions suddenly based on the latest information, and this makes stocks with institutional ownership volatile. Institutional investors frequently engage in short selling strategies for both speculation and hedging simultaneously. Hedge funds are among the most active short sellers, and they often use short positions in select stocks or sectors to hedge their long positions in other stocks. Institutional investors may artificially inflate the price of a stock by spreading positive rumors or releasing misleading information. Once the stock price rises, they sell off their shares at a profit. Institutional investors are considered savvier than the average investor and are

often subject to less regulatory oversight. It is worth noting that institutional ownership can have both positive and negative impacts on stock prices. For example, if large institutional investors decide to sell a sizable portion of their holdings, it could lead to selling pressure, potentially causing stock prices to decline.

The objective of this study is to investigate if the percentage of institutional ownership directly correlates with higher valuation of large public firms. The remaining sections of this paper are organized as follows. Section II presents the statistical model, methodology and data. Section III discusses the empirical results. The conclusions are in Section IV.

## II. METHODOLOGY AND DATA

### Multi-Factors Model

The statistical model constructed for this study is based on the accepted theory of common stock valuation. This approach is based on the principle that rational investors evaluate the expected returns and risks of securities in the financial market and set a price for a particular security which adequately compensates investors for the risks. The Discounted Cash Flow valuation approach is based on the proposition that the maximum price that a rational investor will pay for a security is an amount equal to the present value of the expected dividends plus its resale price, including capital gains. Therefore, the present market price or a stock is given by the formula:

$$P_0 = \frac{D_1}{(1+K)^1} + \frac{D_2}{(1+K)^2} + \ldots + \frac{D_t}{(1+K)^t} + \frac{P_t}{(1+K)^t} \quad (1)$$

Equation (1) was simplified by Gordon (1962) as follows:

$$P_0 = \frac{D_1}{K-g} \quad (2)$$

Where g is the expected dividend growth rate. Equation (2) can be expressed as follows:

$$\frac{P_0}{B_0} = \frac{D_1/B_0}{K-g} = f(D_1/B_0, K, g) \quad (3)$$

Where $P_0 / B_0$ = market price-to-book ratio
$B_0$ = book value
$D_1 / B_0$ = book yield
$K$ = $R_f$ + risk
$R_f$ = Risk-free rate

Equation (3) attempts to quantify the impact and the relationship between stock prices and several economic, financial and risk factors associated with each company. The ratio of market price and book values of security i can be written as a function of several explanatory variables and can be expressed as follows:

$$P_i/B_i = f(RF, \text{book yield}, g, \text{risk}) \quad (4)$$

There are four types of variables which were hypothesized to affect the market price-to-book ratio of companies:

(1) Economic Variables: Interest rates and inflation should influence the market price-to-book ratio.
(2) Dividend Policy: High book yield, retention ratio, and expected earnings growth rate should have a positive effect on market price-to-book ratio.
(3) Risk Factors: CBOE Volatility Index (VIX), and low Value Line Safety Rank should have a negative impact on market price-to-book ratio.
(4) Financial Factors: High return on equity, % Retained to Common Equity, good Value Line Timeliness Rank, Earnings Predictability**,** and high total return should have a positive impact upon market price-to-book ratio.

In specifying (3), our intent is to construct a statistical model to quantify the changes in the market price-to-book ratio and to examine the relative importance of institutional holding percentage versus other economic and financial factors in the valuation of stock prices.

This empirical study is based on monthly Value Line financial and economic data from January 2015 through September 2023 of approximately 2,000 companies (98 industries). The monthly data was obtained from Value Line and Federal Reserve Statistical Release. The dependent and independent variables were defined as follows:

- **Market/book ratio ($P_0/B_0$):** The month-end market price divided by book value per share.

- **Timeliness Rank (TR)** measures probable price performance during the next 6 to 12 months, relative to all other Value Line stocks. These equities represent 94% of the trading volume on all U.S. stock exchanges. The rank of a stock's probable relative market performance in the year ahead. It is derived by a computer program using as input the long-term price and earnings history, recent price and earnings momentum, and earnings surprise. All data are known and actual. Stocks ranked 1 (Highest) and 2 (Above Average) are likely to outpace the year-ahead market. Those ranked 4 (Below Average) and 5 (Lowest) are not expected to outperform most stocks over the next 12 months.

- **Safety Rank (SR):** A measurement of potential risk associated with individual common stocks. The Safety Rank is computed by averaging two other Value Line indexes – the Price Stability Index and the financial strength Rating. Safety Ranks range from 1 (Highest) to 5 (Lowest).

- **Relative P/E Ratio (RPE)**: A stock price-earnings ratio divided by the price-earnings ratio for a market measure.

- **% Retained to Common Equity (RC):** Net profit less all common and preferred dividends divided by common equity including intangible assets, expressed as a percentage.

- **Estimated Return on Shareholders' Equity (ROE):** Indicator of profitability. Determined by dividing net income for the past 12 months by common stockholder equity (adjusted for stock splits). Result is shown as a percentage.

- **% Institutional Holding (IH):** The percentage of shares outstanding that are owned by financial institutions.

- **Total Return 1-Year (TT):** The capital gain or loss for the stock price plus the sum of dividends reinvested at year-end for the past year, expressed as a percentage.

- **Relative Strength 3 Months (RS):** The stock's price over time divided by the Value Line Composite Average over the same time span. Arising relative strength line means the stock has been outperforming the market; a declining line means just the opposite.

- **Projected Cash Flow Growth Rate (CFG)**

- **Projected 3-5 Year Relative P/E (RPE)**

- **Projected Earnings Per Share Growth Rate (PEG):** The estimated growth rate in earnings expressed as a percentage.

- **Projected Book Value Growth Rate (BVG)**

- **Earnings Predictability (EP)**

- **Dividend Declared/Book Value (BYD):** Indicated declared dividend divided by book value per share.

- **Risk-free rate (I):** The interest rate of the 10-year U. S. Treasury Bonds.

- **CBOE Volatility Index (VIX)**: The Index calculated by the Chicago Board Options Exchange

Utilizing a cross sectional time series data, this model may be expressed as follows:

$$P_{it}/B_{it} = a + b_1TR_{it} + b_2SR_{it} + b_3RPE_{it} + b_4RC_{it} + b_5ROE_{it} + b_6IH_{it} + b_7TT_{it} + b_8RS_{it} + b_9CFG_{it} + b_{10}RPE_{it} + b_{11}PEG_{it} + b_{12}BVG_{it} + b_{13}EP_{it} + b_{14}BYD_{it} + b_{15}I_{it} + b_{16}VIX_{it} + + e_{it} \quad (5)$$

Where:

| | | |
|---|---|---|
| i | = | company i |
| t | = | time t |
| a | = | the intercept |

b = regression coefficient
$e_{it}$ = the random error

## III. EMPIRICAL RESULT

As shown in Table 1, a cross-sectional regression estimates of expression (4) and (5) yield the following result:

$$
\begin{aligned}
P/B = {} & -4.298 - \underset{(-5.394)}{0.049TR} - \underset{(-12.020)}{0.153SR} + \underset{(76.582)}{1.370RPE} + \underset{(150.090)}{0.108RC} + \\
& \underset{(133.578)}{0.124ROE} - \underset{(-13.330)}{0.005IH} + \underset{(38.843)}{0.008TT} + \underset{(4.732)}{0.002RS} + \underset{(6.818)}{0.0174CFG} + \\
& \underset{(92.510)}{2.081RPE} + \underset{(20.736)}{0.031PEG} + \underset{(83.146)}{0.121BVG} + \underset{(32.011)}{0.013EP} + \underset{(107.012)}{12.947BYD} - \\
& \underset{(-49.146)}{0.44\,I} - \underset{(-31.995)}{0.039VIX} + e_{it} \qquad (6)
\end{aligned}
$$

(t-statistics in parentheses below the coefficients) ($R^2 = 0.728$)

Durbin-Watson *test* was utilized to test the hypothesis of no autoregression. As shown in Table 1, the Durbin-Watson statistic indicates that there is no autoregression and we can retain the statistical estimates without concerning a bias of the estimated standard error. The low correlation coefficients of the correlation matrix indicate little multicolinearity between the independent variables.

With a t-statistic of -13.330, the empirical results indicated that there is a negative correlation between the stock prices and Institutional Holdings. The higher percentage of Institutional ownership does not support a higher stock valuation.

In addition, the statistical results indicated that investors respond positively to the stocks with high dividend and quality earnings which is reflected in the book yield and return on equity variables. The results also suggest that expected growth in earnings, cash flow, and book value is an investment objective of stockholders. This is consistent with the discounted cash flow approach in the valuation theory of common stock.

**TABLE 1**

## Statistical Results

**Dependent Variable: P/B: Market Price/Book Value**

| Independent Variables | B | Standard Error B | t |
|---|---|---|---|
| (Constant) | -4.2979469 | 0.076 | -56.593 |
| TimelinessRank | -0.0486086 | 0.009 | -5.394 |
| SafetyRank | -0.1532904 | 0.013 | -12.020 |
| RelativePERatio | 1.3701417 | 0.018 | 76.582 |
| RetainedtoCommonEquity | 0.1077821 | 0.001 | 150.090 |
| EstReturnonShareholdersEquity | 0.1243276 | 0.001 | 133.578 |
| TotalReturn1Year | 0.0082817 | 0.000 | 38.843 |
| RelativeStrength3Months | 0.0016282 | 0.000 | 4.732 |
| ProjEPSGrowthRate | 0.0311931 | 0.002 | 20.736 |
| ProjCashFlowGrowthRate | 0.0174118 | 0.003 | 6.818 |
| ProjBookValueGrowthRate | 0.1213065 | 0.001 | 83.146 |
| Proj35YrRelativePE | 2.0812859 | 0.022 | 92.510 |
| EarningsPredictability | 0.0126482 | 0.000 | 32.011 |
| InstitutionalHoldings | -0.0049541 | 0.000 | -13.330 |
| @10yrTreasury | -0.4365484 | 0.009 | -49.146 |
| VIX | -0.0391819 | 0.001 | -31.995 |
| Div.DeclaredBookValue | 12.9467831 | 0.121 | 107.012 |

| | |
|---|---|
| R Square | .728 |
| Adjusted R Square | .728 |
| Durbin-Watson Statistic | 1.971 |

**CHART 1**

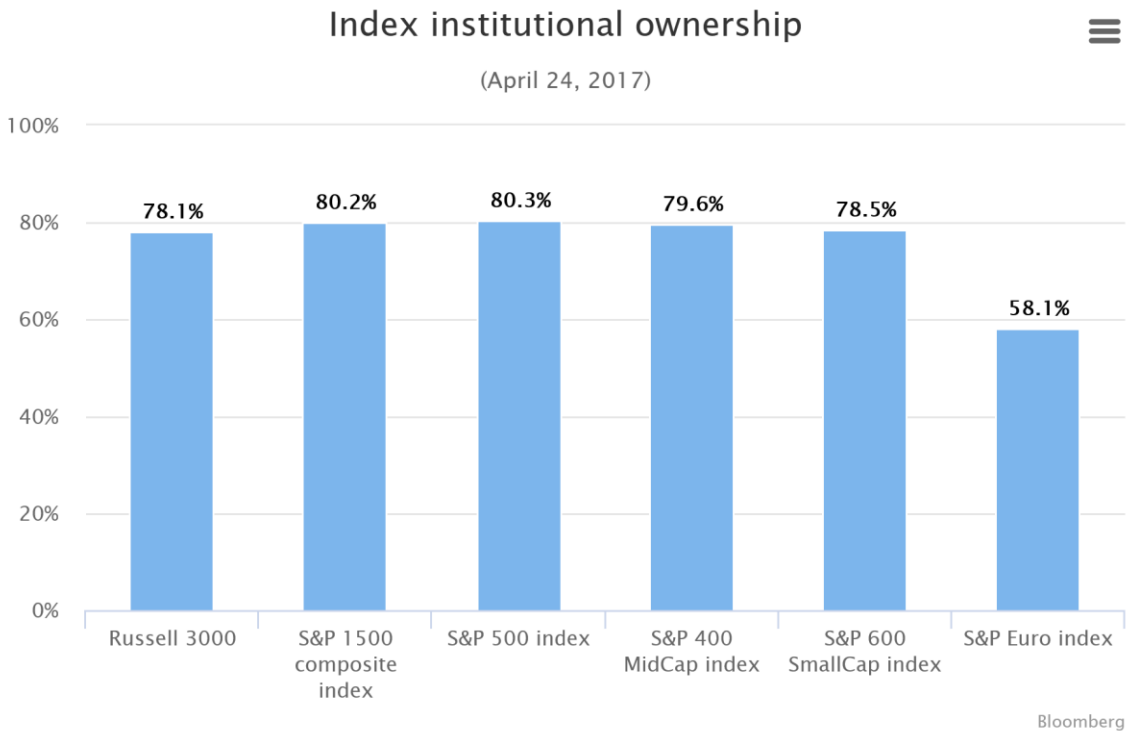


**CHART 2**

## IV. CONCLUSIONS

This study investigates if the percentage of institutional ownership directly correlates with higher value of stocks. The empirical results led to the following conclusions:

- The empirical analysis of Section III demonstrated that the higher percentage of Institutional ownership does not support a higher stock valuation.

- The empirical evidence also suggests that high projected growth in earnings, cash flow, book value, good return on equity, quality earnings and good balance sheet would have a positive impact upon the value of common stocks.

## REFERENCES


[1] Afarony, J. and I. Swaryi (1980), "Quarterly Dividend and Earnings Announcements and Stockholder's Returns: An Empirical Analysis," *Journal of Finance,* 35, 1-12.

[2] Cottle, S. and D.L. Dodd and B. Graham. "Security Analysis: Principles and Techniques," (1962). McGraw-Hill, New York.

[3] Feldstein, M. (1980), "Inflation and the Stock Market," *The American Economic Review;* 70 (5).

[4] Feldstein, M., and J. Green (1983), "Why do companies pay dividends?" *American Economic Review,* (73), 17-30.

[5] Gordon, M.J. (1962), "The Investment, Financing and Valuation of the Corporation," Homewood, Ill., Richard D. Irwin.

[6] Gordon, M.J. (1959), "Dividends, earnings and stock prices," *Review of Economics and Statistics,* 41, 99-105.

[7] Gordon, M.J. (1962), "The savings investment and valuation of a corporation," *Review of Economics and Statistics,* 44, 37-51.

[8] Hakansson, N.H. (1982), "To pay or not to pay dividends," *Journal of Finance* 37, (2), 415-428.

[9] Hong, H. (1977), "Inflections and the Market Value of the Firm: Theory and Tests," *Journal of Finance,* (32), 1031-1048.

[10] Kolbe, A. Lawrence, and Williams B. Tye (1990), "The Supreme Court's Duquesne Opinion-Practical Implication for Regulated Industries," *Public Utilities Fortnightly,* 126 (5), 19-22.

[11] Le, Steven, Ying Zhang, Jimmy Lockwood, and Wikrom Prombutr (2016), ‘‘Investor Response to Online Value Line Rank Changes: Foreign versus Local Stocks”, by Ying Zhang, Steven V. Le, Jimmy Lockwood, and Wikrom Prombutr, Global Finance Journal.

[12] Le, Steven, Ying Zhang, Hongfei Tang, and Wikrom Prombutr (2016), “Pre-Event Trading Based on Value Line’s Weekly Rank Change Announcements”, Journal of Trading.

[13] Le, Steven, Ying Zhang, and Giao X. Nguyen (2010), **“**Yes, the Value Line Enigma Is Still Alive: Evidence from Online Timeliness Rank Changes", The Financial Review, Vol. 45, No. 2, pp. 355-373.

[14] Le, Steven (1991), "Regulatory Risk and Valuation of Regulated Firm: An Implication to the Utility Companies' Fair Rate of Return in Light of the 1989 Supreme Court's Duquesne Opinion," *Mid-Atlantic Journal of Business*, Vol. 27, No. 23.