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David Nanigian

The American College

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Is the S&P 500 the Next Bubble?

by David Nanigian, Ph.D.

> Learn about the implications of investing in S&P 500 indexed funds

One of the most well-established findings in the body of scholarly research on Mutual Fund Performance is that actively managed funds have typically underperformed passively managed funds on a net-of-fees basis. Investors’ realization of this has spurred a trend toward index fund investing over the past 20 years. Currently, more mutual fund assets track the S&P 500® than any other index. Figure 1 below illustrates the trend towards index fund investing and the preponderance of the S&P 500®. The massive amount of money flowing into S&P 500® index funds begs the question: Is the money flow into these funds blowing up the values of the 500 companies in the index relative to the thousands of other publicly traded domestic companies? Indeed, numerous event studies on changes to index composition have shown that the demand curves for stocks are “downward sloping.” In other words, changes in investor demand for a stock, regardless of the factors motivating the change in demand, impact the price of the stock. Figure 2 on the opposite page provides a graphical representation of this concept. The economically significant event effects surrounding changes to the composition of indices lend credence to the belief that money flow into the S&P 500® index impacts corporate valuations.

The purpose of my joint work with Dr. Michael Finke and Dr. Eric Belasco from Texas Tech University is to examine whether money flow into S&P 500® index funds is increasing the value of S&P 500® constituents relative to the value of nonconstituents. To conduct this analysis, we run panel regressions of price-to-earnings ratio (PE) on aggregate money flow into S&P 500® index funds, controlling for various accounting variables that are commonly regarded to impact price multiple valuation ratios and also aggregate US equity fund net cash flow. Additionally, regressions involving price-to-book (PB), an alternative valuation measure, are...
run. These regressions involve two samples of stocks. The first sample consists of only constituents of the S&P 500® index. The second sample consists of only companies that are not constituents of the S&P 500® index but are of greater than median NYSE market capitalization. Following Fama and French (1996), we chose to restrict this sample to only companies of greater than median NYSE market capitalization to prevent the “size premia” (which drives the historical outperformance of small-cap stocks relative to large-cap stocks) from biasing our results.

The results obtained from regression analysis show that when evaluated at mean levels of S&P 500® index fund money flow and PE ratio, the PE ratio of S&P 500® index constituents increased by 0.9 percent due to index fund money flow, and the PE ratio of nonconstituents decreased by 0.9 percent. The t-statistics associated with the S&P 500® index fund money flow variable in regressions with PE ratio used as the dependent variable were statistically significant at the five percent confidence level.

The results obtained through the use of PB ratio show that when evaluated at mean levels, the PB ratio of constituents increased by 1.5 percent due to index fund money flow while the PB ratio of nonconstituents decreased by 0.1 percent. The t-statistic associated with the S&P 500® index fund money flow variable in the regression of PB ratio on money flow involving the sample of stocks in the index was statistically significant at the one percent level. The t-statistic associated with the S&P 500® index fund money flow variable from the PB ratio regression involving the sample of stocks outside of the index was not statistically significant. However, the negative coefficient value on the S&P 500® index fund money flow variable along with the 1.6 percent difference in the effects between the two samples indicates that S&P 500® index fund money flow renders an economically significant impact on relative valuations.

The results from our study are consistent with our hypothesis that money flow into S&P 500® index funds positively impacts the valuations of S&P 500® constituents relative to nonconstituents. Based on the empirical analysis conducted in this study, it is plausible to expect that as investors increase their allocation toward index funds, the stocks of companies in the indices will become overvalued and the stocks of companies outside of the indices will become undervalued. Deviations from equilibrium valuation may become more pronounced if the preference shift from traditional active portfolio management toward passive management among investors continues. We acknowledge the possibility that informed investors, such as hedge funds, may recognize the oversupply of capital allocated to stocks in indices and then place arbitrage trades, which counteract the effect. However, in his 2010 presidential address to the American Finance Association, Darrell Duffie showed that the speed of adjustment back to equilibrium valuations will be slow in the presence of inattentive investors. By their nature, index fund investors are inattentive to the valuation of individual stocks and arbitragers (and perhaps most importantly those who provide them with capital) are rather impatient. To elaborate, prior academic research implies that in the specific setting examined in this study the speed of adjustment will be partially determined by the preference shift itself and, as a result, arbitrage opportunities stemming from the shift will be unattractive.

In summary, we run panel regressions of price multiple valuation ratios on money flow into S&P 500® index funds. We confirmed that money flow into such funds is blowing up the value of companies inside the index relative to those outside of the index. Put simply, a bubble appears to be forming in the market for stocks in the S&P 500®. This implies that investors would be well-advised to reduce their exposure to indexed stocks and especially S&P 500® index funds. Such holdings could be replaced with either large-cap stocks that are not constituents of the S&P 500® or with actively managed domestic large-cap mutual funds that have a relatively low overlap of holdings with the index. Put simply, a bubble appears to be forming in the market for stocks in the S&P 500®. This implies that investors would be well-advised to reduce their exposure to indexed stocks and especially S&P 500® index funds. Such holdings could be replaced with either large-cap stocks that are not constituents of the S&P 500® or with actively managed domestic large-cap mutual funds that have a relatively low overlap of holdings with the index. Analyzing the degree of overlap can be done quite easily through either the use of Cremers and Petajisto’s (2009) “Active Share” measure in Morningstar Direct or through the Peer Holdings Analysis in Morningstar Advisor Workstation. Lastly, reflecting on one of Keynes’ famous quotes, “Markets can remain irrational a lot longer than you and I can remain solvent,” we refrain from making any forecast on if and when the apparent bubble will burst.