The Myth of the Most Efficient Market

BY PATRICK O'SHAUGHNESSY, CFA: DECEMBER 2013

OSAM RESEARCH TEAM

Jim O'Shaughnessy
Chris Meredith, CFA
Scott Bartone
Travis Fairchild, CFA
Patrick O'Shaughnessy, CFA
Ashvin Viswanathan, CFA

CONTENTS

LONG-TERM OPPORTUNITY
SHORT-TERM OPPORTUNITY
Sidebar: Global Yield Market
CONCLUSION

The U.S. large cap market is the most competitive in the world, and arguably the most difficult market in which to gain an edge and outperform. As a result, passive index mutual funds have been gaining market share for decades. As of the end of 2012, 17.4 percent of equity mutual fund assets (representing $1.3 trillion invested) were in passive index funds, up from 8.7 percent in 1998 (representing $265 billion). A huge chunk of that $1.3 trillion (more than $430 billion) is invested in funds that track the S&P 500.[1] It's been increasingly popular to index one's allocation to the U.S. large cap market in their portfolio because it is arguably the most *efficient* space in the global stock market. Companies in the S&P 500 are more scrutinized than any other companies, with an average of 23 analysts covering each stock. Apple alone has 64 analysts watching its every move. With so many sets of eyes, it's easy to argue that stock prices for S&P 500 companies reflect any new information *very* quickly, so the opportunities for outperformance seem scarce. Active managers have had a hard time beating the S&P 500, in part because they tend to be inconsistent in their investment approach and also because they charge considerably higher average fees. Indeed, over the past five years, 79.5 percent of all large cap mutual funds have underperformed the S&P 500. Nearly half of U.S. large cap mutual funds (45 percent) shifted from an initial investment category (*e.g.*, large growth) five years ago to a different category today.[2] Compounding the problem, active managers earned an average (asset-weighted) fee of 92 bps—well above the 13 bps charged by equity index funds.[1] Higher fees charged for funds that deliver inferior performance have driven investors to passive strategies.

This recent performance record, which is consistent with longer-term results, may appear damning to active management in the U.S. large cap market. But this evidence camouflages significant opportunities to outperform in this space. The purpose of this paper is to demonstrate that the U.S. large cap market is far less efficient than it seems.

Proponents of index investing are quick to point out that the average manager (and a large percentage of managers overall) loses to the index in virtually all long-term periods. The "average" manager will continue to lose to the index, because the average performance across all managers is roughly the market's overall performance less fees and trading costs. Since index funds charge much less than active managers—and trade much less frequently—they have a permanent cost advantage that active managers must overcome. If anything, the fact that index funds have continued to grow market share in the large cap space means that the large cap market will become decreasingly efficient. The dollars in index products rely on the non-indexed dollars to set market prices, which in turn determine each stock's weight in the market index. When a smaller percentage of the market is setting the price, there should be more opportunities to outperform. Let's explore how to build a more efficient U.S. large cap strategy that outperforms market indexes. The resulting strategy represents both a long-term and also an immediate opportunity.

LONG-TERM OPPORTUNITY

The key weakness of the passive index approach to investing is that the stock selection and weighting criteria for the index are based on one factor: market cap. But size alone is an inferior way to select and weight

[1] Investment Company Institute, "2013 Investment Company Fact Book: A Review of Trends and Activities in the U.S. Investment Company Industry" www.ici.org/pdf/2013_factbook.pdf

[2] S&P Dow Jones Indices, McGraw Hill Financial "S&P Indices Versus Active Funds (SPIVA®) Scorecard: Mid-Year 2013" www.spindices.com/documents/spiva/spiva-us-mid-year-2013.pdf

Figure 1: Key Themes

Core Investment Tenets *Factors utilized to identify stocks to select*	
Value	Stocks whose prices—relative to underlying fundamentals—are cheaper than their peers.
Yield	Stocks with strong dividend yields and corporate buybacks.

Quality Overlay *Factors utilized to identify stocks to avoid*	
Financial Strength	The direction and overall level of a company's debt, as well as the company's capability to pay it off.
Earnings Quality	Ratios within the financial statements can gauge the likelihood that a company is manipulating or overstating its earnings.
Earnings Growth	Weak or unexpected decrease in a company's earnings.

stocks. To replace market cap in the selection and weighting process, we've isolated the stock selection themes that are the most predictive of strong future excess return among U.S.-listed large cap stocks. Our research shows that we should *favor* companies with attractive **valuations** and strong **shareholder yields** and *avoid* companies with highly bloated and **unsustainable balance sheets**, poor **earnings quality**, and poor recent **earnings growth** trends. Each of these five themes can be measured objectively using data from financial statements and applied with the same discipline that characterizes the passive index investment process.

Figure 1 shows how we measure these key themes, using combinations of proven factors. Our evaluation of earnings focuses on both **profitability** (*e.g.,* earnings growth, return on equity) and also **quality** (*e.g.,* strong cash flows, low accruals, conservative accounting choices). Our evaluation of balance sheets focuses on the magnitude of, and recent trend in, the use of leverage. We want to *avoid* companies that are highly levered, are borrowing at a rapid pace, and have insufficient operating cash flows to service the interest on their debt. We measure valuation in several different ways, because we know that the more ways a company looks cheap, the stronger its future returns. We compare sales, earnings, EBITDA and free cash flow to price or enterprise value. "Shareholder yield" combines dividend yield with the rate of share repurchases (buyback yield) over the past 12 months.

Ultimately it is the combination of all these themes that allows us to build a strategy that outperforms the U.S. large cap market by significant margins. The O'Shaughnessy Market Leaders Value℠ strategy (Figure 2) combines valuation, earnings quality, earnings growth, and financial strength in order to isolate a universe of attractively priced, high-quality companies. Finally, shareholder yield is used to select the stocks that are returning significant amounts of cash to shareholders through dividend and share repurchase programs.

When we backtest our model for Market Leaders Value to 1963, it outperforms the market by 5.0 percent per year (annualized), and it delivers positive excess returns in 95 percent of 3-year periods. The livetime composite track record for the Market Leaders Value strategy has seen remarkably similar results. Since inception (12/1/01), the strategy has outperformed the Russell 1000® Value by 5.5 percent (annualized), and has delivered excess return in 96 percent of rolling 3-year periods. We regard this livetime performance as real world validation of our research, which shows that the large cap market remains inefficient.

Of course, we are not the only ones who believe that investors can improve on cap-weighted indexes. Newly-minted Nobel Laureate

Figure 2: Portfolio Construction

Results:	Excess Return (annualized)	3-Year Base Rate
BACKTESTED (1963–2012)	5.0%	95%
LIVETIME (12/1/01–9/30/13)	5.5%	96%

Investable Universe (approx. 3,500 stocks)

- Market Cap > Universe average (excluding Utilities)
- *qualification process*: Financial Strength, Earnings Quality, Earnings Growth, Value
- Shareholder Yield
- Market Leaders Value℠ portfolio

Past performance is no guarantee of future results. Please see important information at the end of this presentation.

Eugene Fama, with research partner Ken French, long ago identified two factors (*market cap*, favoring smaller cap stocks, and *book value to market value*, favoring cheaper stocks) that were indicative of strong future returns and allowed investors to outperform market cap-weighted indexes. Many believe markets remain mostly efficient and any excess return earned over the benchmark can be attributed to a portfolio's exposure to these size and value factors. In recent years, the momentum factor has also been proven to predict excess returns and has since been added to the Fama-French model to create a model known as the Carhart four-factor model. True outperformance would then be the excess return that remains *after* adjusting for exposures to the four factors in the Carhart model. Since inception, the Market Leaders Value strategy has earned annualized alpha of 6.5 percent over the S&P 500,[3] but it has also earned annualized alpha of 4.9 percent *after* adjusting for the Carhart four-factor model.

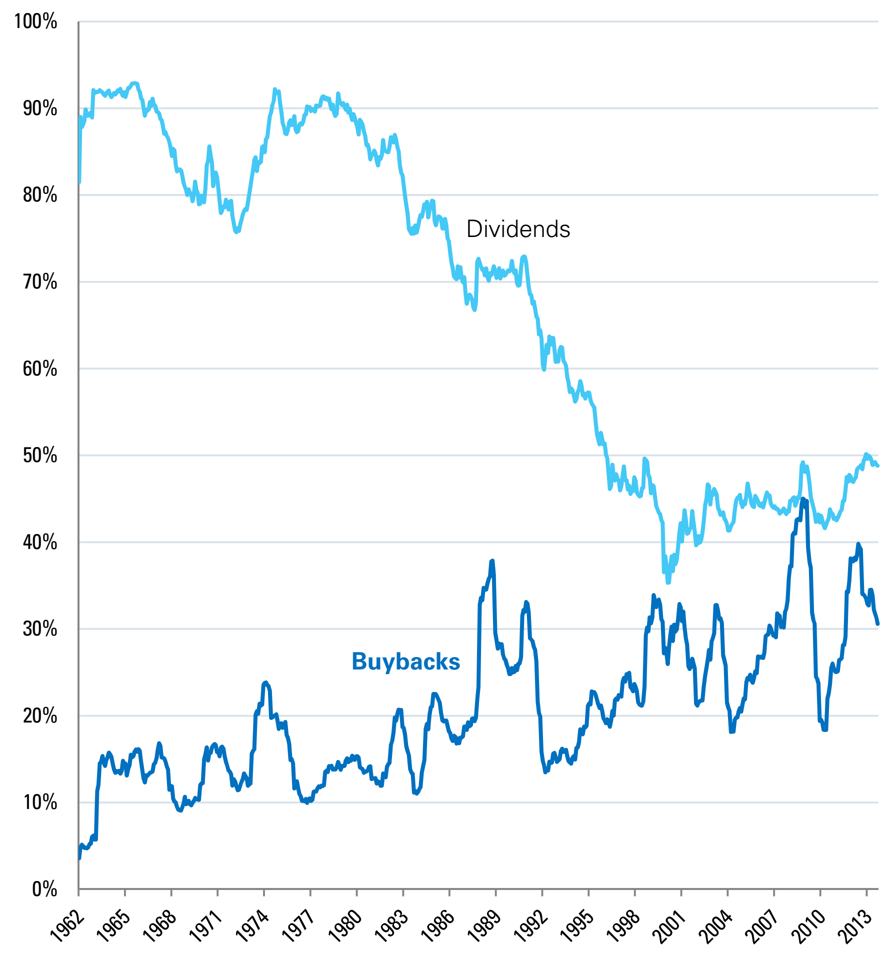
The U.S. large cap market is often a crucial piece of an investor's portfolio, so excess return of this magnitude can have a big impact on long-term returns. Since the Market Leaders Value strategy incepted in 2001, it has grown by a cumulative 286.5 percent, which is 199.6 percent more than the S&P 500's cumulative return (86.9 percent over the same period). Given how popular it has become to index assets in the U.S. large cap market, we believe investors are missing out on significant opportunities to earn higher returns.

SHORT-TERM OPPORTUNITY

Because of this long-term evidence, and because of the success of the strategy in the real world, we believe that a strategy like Market Leaders Value is a significantly better way of owning U.S. large cap stocks in general. But, we also believe because of recent market trends and current market conditions that the Market Leaders Value strategy represents a very attractive opportunity in the short term.

Over the past several years, as interest rates have remained near all-time lows, investors have been clamoring for alternative ways of generating income in their portfolios. As a result, high-yielding U.S. stocks—which have traditionally traded at deep discounts to the market—have become expensive. This is extremely rare in market history, but makes sense given the current need for income. Unfortunately, though U.S. dividend payers have become so popular, the percentage of U.S. companies paying a dividend has nearly been cut in half since the 1980s (see Figure 3). In 1980, U.S. stocks paying a dividend to shareholders was at 88 percent, but that number has since dropped to 49 percent (as of 9/30/13). So at a time when income is scarcer than ever, U.S. investors are chasing yield available from a smaller group of stocks.

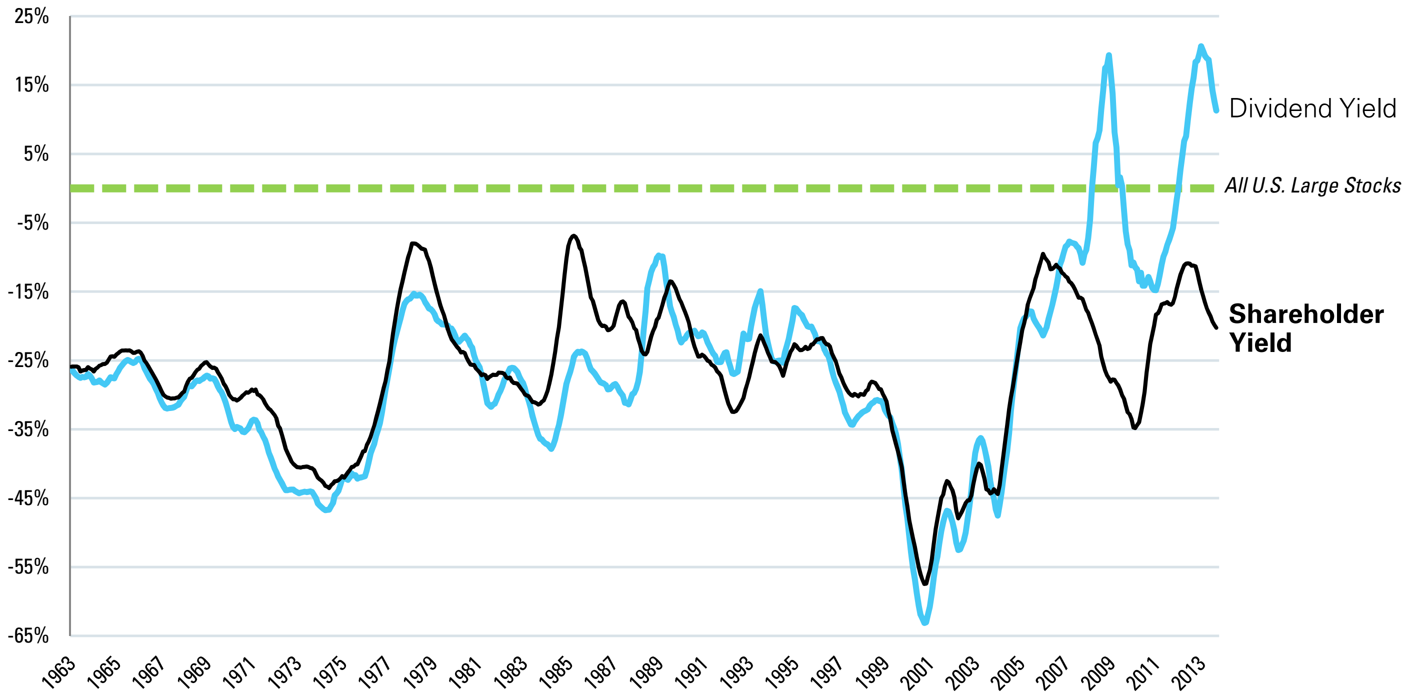
Fig. 3: Percentage of U.S. Companies Paying Dividends & Repurchasing Shares



Source: Compustat & OSAM calculations

[3] CAPM (capital asset pricing model) alpha

Figure 4: Valuation Discount (Price-to-Earnings)—U.S. Large Stocks vs. Top Quintile Yield



Source: Compustat & OSAM calculations

While fewer companies are paying regular dividends, more and more are returning cash to shareholders through share repurchase programs. Prior to 1982, 14 percent of companies were actively buying back shares, on average—but since 1982, the average has jumped to 25 percent. Currently, 31 percent of companies in the U.S. had repurchased shares over the past 12 months (as of 9/30/13). Obviously, buyback programs have become an important tool for cash management and shareholder reward. Because shareholder yield combines share repurchases and dividends, we believe it provides a much better indicator of future excess returns when investing in U.S. stocks (our research indicates dividend yield is equally effective in *global* markets). While stocks with the highest dividend yields have grown expensive, stocks with the highest shareholder yield have remained cheaper. As shown in Figure 4, stocks with high dividends and stocks with high shareholder yields typically trade at a discount to the overall market. Since 1964, the average price-to-earnings discount for high dividend yielders and high shareholder yielders was 26 percent and 27 percent respectively.[4] But more recently, the discount advantage for stocks with high dividend yields has evaporated. High dividend yield stocks now trade at a significant premium to the market (11 percent premium) while high shareholder yield stocks remain discounted (20 percent discount).

This is happening because sectors that are traditionally cheaper than the market are expensive all of a sudden. The Utility sector is a perfect example. If we were to isolate our universe to just the top 20 percent of U.S. dividend payers, then Utilities make up roughly 30 percent of the opportunity set—more than any other sector. Much like the high dividend payers above, Utilities have traded at a discount to the market 85 percent of the time since 1963, with an average discount to the market of 25 percent. But because of their attractive current dividend yields, that trend has reversed and they've been bid up to a 34 percent *premium*. While yield is attractive in general, one of the most important lessons we've learned in the large cap market is that it becomes unattractive when expensive. Table 1 (see next page) shows the effect of splitting a universe of high yielders into five groups (quintiles) based on their valuations, from least to most expensive. Clearly, if a company has a high yield but is also cheap, then it has outperformed the market by 3.29 percent, on average. But when a stock has a high yield and is trading at expensive

[4] Discount is based on best quintile of dividend yield and best quintile of shareholder yield versus U.S. large stocks. Price-to-earnings is calculated using earnings from the last 12 months.

Table 1: Annual Excess Returns (1963–2012)

	Cheap*				Expensive*
High Dividend Yielders vs. U.S. Large Stocks	+3.29%	+1.51%	-0.29%	-1.44%	-2.06%

* Valuation is measured using sales/price, earnings/price, EBITDA/EV, free cash flow/EV, and shareholder yield.
Source: Compustat & OSAM calculations

multiples of earnings, sales, EBITDA, and free cash flow, it's lost to the market by an average of 2.06 percent per year.

Not only have high dividend yield stocks become expensive in the U.S., they may also face headwinds should we enter a rising rate environment. Since 1927, there have been 16 periods where rates rose more than one percent over a period of at least 12 months (see Table 2). During those periods, high dividend yield stocks have a spotty track record. They did outperform the market 50 percent of the time (8 out of the 16 observations), but the average return for high yielders was 2.6 percent (annualized) worse than the market. Stocks with high shareholder yield fared considerably better. They outperformed the market in 12 of the 16 rising rate periods, by an average of 1.5 percent (annualized). While we only have data back to 1970 on global dividends as a factor, our research indicates it delivers excess performance in rising rate environments—likely because global correlations with U.S. interest rates are lower than U.S. correlations.

Table 2: Yield in Rising Rate Environments

(1927–2012, returns are annualized)

Start	End	Duration (Months)	Rate Change 10-Year UST	U.S. Equity Market Return	Excess Return by Top Decile: Dividend Yield (U.S.)	Excess Return by Top Decile: Shareholder Yield (U.S.)
1/1/2009	12/31/2009	12	+1.60	40.9%	3.7%	2.2%
7/1/2005	6/30/2006	12	+1.21	15.8%	-2.7%	-2.9%
5/1/2003	5/31/2004	12	+1.29	32.2%	-5.2%	-2.3%
10/1/1998	1/31/2000	16	+2.24	35.8%	-31.2%	-21.5%
1/1/1996	3/31/1997	15	+1.34	10.6%	-1.3%	6.9%
4/1/1993	11/30/1994	20	+1.88	4.7%	-3.8%	2.4%
7/1/1989	8/31/1990	13	+1.04	-11.7%	5.7%	3.9%
9/1/1986	9/30/1987	13	+2.68	21.8%	-16.3%	3.3%
5/1/1983	6/30/1984	14	+3.57	1.6%	6.4%	14.2%
9/1/1977	9/30/1981	49	+8.56	19.1%	-5.9%	1.8%
11/1/1971	9/30/1975	47	+2.61	-3.7%	7.9%	7.2%
2/1/1965	5/31/1970	64	+3.76	5.0%	2.0%	4.7%
6/1/1958	1/31/1960	20	+1.80	23.3%	2.3%	5.2%
5/1/1954	10/31/1957	42	+1.68	13.2%	0.9%	1.7%
1/1/1950	6/30/1953	42	+1.21	15.7%	2.4%	1.8%
12/1/1930	1/31/1932	14	+1.07	-45.9%	-6.7%	-4.2%
	Median	16	+1.74	14.4%	-0.2%	2.3%
	Average	25	+2.35	11.1%	-2.6%	1.5%

Source: CRSP, Global Financial Data, OSAM Calculations
(see also "The Case for Global Dividends: Valuations and the Impact of Rising Rates" www.osam.com/research.aspx)

CONCLUSION

The U.S. large cap market represents a significant percentage of the overall global market, and therefore an important part of most equity portfolios. Index funds, which thrive on a simple, consistent strategy offered at very low fees, have continued to gain market share. Active managers have mostly failed to beat simple market cap-weighted indexes over the past five years, leading more and more investors to index their U.S. large cap exposure. But our research shows that, with the right strategy and the right

The Global Yield Market

While high-dividend-yielding stocks here in the U.S. have become expensive, global high yielders remain attractively valued. Investors have bid up U.S. stocks, but haven't yet taken advantage of key opportunities for generating income in foreign markets. Dividend yield is a dominant factor in the international marketplace where the percentage of companies issuing dividends has remained more consistent over time, and the total returns and risk-adjusted returns tend to be higher on the factor than in the U.S. Many stocks offer attractive yields, particularly in the Telecom and Energy sectors. To wit, the O'Shaughnessy Enhanced Dividend® strategy, which has an 80 percent allocation to international markets, is trading at a P/E multiple of 11.6× (as of 9/30/13)—a massive discount to the U.S. large cap market, which is trading at 17.7× trailing earnings. And yet, despite the huge valuation advantage, the Enhanced Dividend portfolio has a dividend yield of 5.3 percent. The abnormal surge into dividend payers has largely been a U.S. phenomenon.

discipline, the U.S. large cap market remains very inefficient and—by selecting stocks using historically proven themes—investors can outperform it by significant margins.

Within the U.S.-based large cap market, stocks with the highest dividend yields have become extremely popular, but we believe that shareholder yield is a much more important factor for U.S. stocks, since buyback programs have become more popular whereas dividend programs have become less popular.

Because large U.S. stocks with high dividend yields have become expensive—and because rising rates may act as a drag on the returns of U.S. high-yielding stocks—we believe that investors should avoid chasing dividend yield in the U.S. and should instead focus on companies with strong shareholder yield. Conveniently, this short-term advantage syncs with the longer-term opportunity to outperform passive indexes by focusing on high-shareholder-yielding stocks with great valuations, high-quality earnings, and strong balance sheets.

As the O'Shaughnessy Market Leaders Value strategy has demonstrated, the power of compounding excess returns can lead to significant differences in returns over the long term, and we believe investors who index their large cap investments should instead consider an allocation to proven *active* strategies.

Please note Investors cannot invest directly in an index. The Russell 1000® Value measures the performance of those Russell 1000® companies with lower price-to-book ratios and lower forecasted growth values. The S&P 500 Index includes a representative sample of 500 leading companies in leading industries of the U.S. economy. Although the S&P 500 Index focuses on the large-cap segment of the market, with over 80% coverage of U.S. equities, it is generally considered a proxy for the total market.

For the compliant composite performance presentation of the O'Shaughnessy Market Leaders Value strategy, please see www.osam.com/pdf/osam_factsheet_mlv.pdf

International investing involves a greater degree of risk and increased volatility. Changes in currency exchange rates and differences in accounting and taxation policies outside the U.S. can raise or lower returns. Also, some overseas markets may not be as politically and economically stable as the United States and other nations. Investments in emerging markets can be more volatile.

General Legal Disclosure/Disclaimer and Backtested Results

The material contained herein is intended as a general market commentary. Opinions expressed herein are solely those of O'Shaughnessy Asset Management, LLC and may differ from those of your broker or investment firm.

Please remember that past performance is no guarantee of future results. Different types of investments involve varying degrees of risk, and there can be no assurance that the future performance of any specific investment, investment strategy, or product made reference to directly or indirectly in this presentation, will be profitable, equal any corresponding indicated historical performance level(s), or be suitable for any portfolio. Gross of fee performance computations are reflected prior to OSAM's investment advisory fee (as described in OSAM's written disclosure statement), the application of which will have the effect of decreasing the composite performance results (for example: an advisory fee of 1% compounded over a 10-year period would reduce a 10% return to an 8.9% annual return). Due to various factors, including changing market conditions, the content may no longer be reflective of current opinions or positions. Moreover, you should not assume that any discussion or information contained in this presentation serves as the receipt of, or as a substitute for, individualized investment advice from OSAM. Historical performance results for investment indices and/or categories have been provided for general comparison purposes only, and generally do not reflect the deduction of transaction and/or custodial charges, the deduction of an investment management fee, nor the impact of taxes, the incurrence of which would have the effect of decreasing historical performance results. It should not be assumed that any account holdings would correspond directly to any comparative indices. Account information has been compiled solely by OSAM, has not been independently verified, and does not reflect the impact of taxes on non-qualified accounts. In preparing this presentation, OSAM has relied upon information provided by the account custodian and/or other third party service providers. OSAM is a Registered Investment Adviser with the SEC and a copy of our current written disclosure statement discussing our advisory services and fees remains available for your review upon request.

The dividend yield is a gross indicated yield. There is no guarantee that the rate of dividend payment will continue and the income derived is subject to taxes and expenses which will impact the actual yield experience of each investor.

Hypothetical performance results shown on the preceding pages are backtested and do not represent the performance of any account managed by OSAM, but were achieved by means of the retroactive application of each of the previously referenced models, certain aspects of which may have been designed with the benefit of hindsight.

The hypothetical backtested performance does not represent the results of actual trading using client assets nor decision-making during the period and does not and is not intended to indicate the past performance or future performance of any account or investment strategy managed by OSAM. If actual accounts had been managed throughout the period, ongoing research might have resulted in changes to the strategy which might have altered returns. The performance of any account or investment strategy managed by OSAM will differ from the hypothetical backtested performance results for each factor shown herein for a number of reasons, including without limitation the following:

- Although OSAM may consider from time to time one or more of the factors noted herein in managing any account, it may not consider all or any of such factors. OSAM may (and will) from time to time consider factors in addition to those noted herein in managing any account.
- OSAM may rebalance an account more frequently or less frequently than annually and at times other than presented herein.
- OSAM may from time to time manage an account by using non-quantitative, subjective investment management methodologies in conjunction with the application of factors.
- The hypothetical backtested performance results assume full investment, whereas an account managed by OSAM may have a positive cash position upon rebalance. Had the hypothetical backtested performance results included a positive cash position, the results would have been different and generally would have been lower.
- The hypothetical backtested performance results for each factor do not reflect any transaction costs of buying and selling securities, investment management fees (including without limitation management fees and performance fees), custody and other costs, or taxes – all of which would be incurred by an investor in any account managed by OSAM. If such costs and fees were reflected, the hypothetical backtested performance results would be lower.
- The hypothetical performance does not reflect the reinvestment of dividends and distributions therefrom, interest, capital gains and withholding taxes.
- Accounts managed by OSAM are subject to additions and redemptions of assets under management, which may positively or negatively affect performance depending generally upon the timing of such events in relation to the market's direction.
- Simulated returns may be dependent on the market and economic conditions that existed during the period. Future market or economic conditions can adversely affect the returns.