

# MONTHLY

VOLUME 9, ISSUE 5      MAY 2012

## LOOKING UNDER THE HOOD OF ETFs

### Introduction

At Stairway Partners, we understand the importance of implementation in achieving outstanding investment results. This goes back to our days at Brinson Partners, where one of the firm’s guiding principals was that, *“Execution supersedes intention.”*

Based on our analysis of transparency, liquidity, and cost effectiveness, we have chosen Mutual Funds and Exchange Traded Funds (ETFs) to provide our clients with what we believe is the most efficient access to market exposure.

In this *Monthly* we examine the characteristics of ETFs and traditional mutual funds to show how they can be used to efficiently construct portfolios. We also illustrate the need for due diligence by examining two specific ETFs which have produced unexpected results for investors.

### Mutual Funds versus ETFs

Although collective investments have existed since the middle of the eighteenth

century, mutual funds as we know them began to emerge in the 1920’s. Today’s investors can choose between thousands of mutual funds that have a collective market value of over \$12 trillion.

A mutual fund is nothing more than a pool of investments, which is collectively owned by the fund’s shareholders. Investors can buy or sell shares of a mutual fund at the fund’s net asset value (NAV), which is based on the total market value of the assets in the fund at the end of each day. If there are more purchases than sales on a given day, then new shares are created and the mutual fund manager invests the additional cash based on the fund’s investment strategy. If sales outweigh purchases, then the fund manager will sell assets to make cash available to fund the net redemptions. Since buyers’ and sellers’ trades are executed at the same price, there are effectively no transaction costs beyond brokerage fees. This efficiency is the primary reason why we use mutual funds for all of our bond exposure. The ability to buy and sell a diversified portfo-

lio of bonds with no bid/offer spread gives bond mutual funds a significant advantage over other implementation strategies. A further analysis of this topic is available in our September 2010 *Monthly* – Laddered Bond Portfolio Returns.

ETFs, which have been around for more than twenty years, have more recently gained considerable popularity and have grown to over \$1.2 trillion in market value. ETFs have much in common with traditional mutual funds, because at their core, ETFs are mutual funds. The main difference

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### CURRENT TOPIC

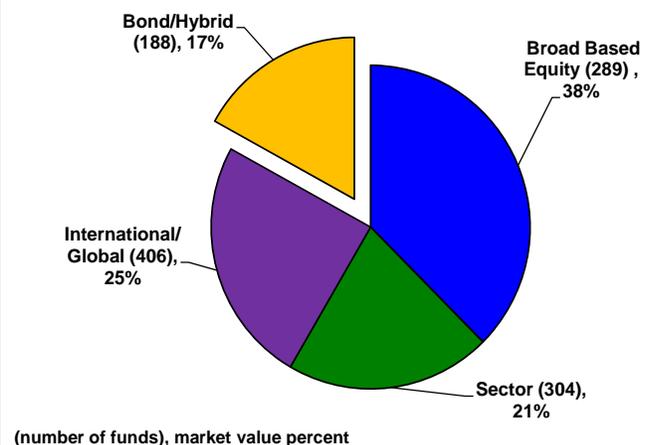
#### Looking Under the Hood of ETFs

- Introduction
- Mutual Funds versus ETFs
- Index ETFs and Price Efficiency
- Foreign ETFs and End of Day Pricing
- Leveraged ETFs
- Conclusion

#### Strategy

- We reduced our overweight to US equities during the month of April.
- Portfolios remain overweight global equity and high yield bond exposure and underweight investment-grade bond exposure.

**Figure 1 - ETF Market Composition**



## LOOKING UNDER THE HOOD OF ETFs - CONT'D

between ETFs and traditional mutual funds is the way in which investors buy and sell shares. Instead of transacting shares directly with the fund based on the NAV, ETF investors buy and sell shares on an exchange. Shares of an ETF are created or redeemed throughout the day by authorized participants, who are market makers with the ability to exchange securities for ETF shares based on pre-defined rules. Since ETFs can be bought and sold throughout the day, investors have the ability to act on intraday price movements. ETF investors can also use a broader range of transactions, like short sales, and limit or stop orders. The cost of this added flexibility is that intraday market movements subject ETF investors to bid/offer spreads and the potential for market prices to deviate from the underlying value of the fund's securities. We closely monitor these factors and believe that the benefits

of increased trading flexibility outweigh the small incremental trading costs for the ETFs that we use to invest in global equity markets.

### Index ETFs and Price Efficiency

Over 99% of the assets that are currently invested in ETFs are in securities that track a well-defined market index, whose price movement can be observed throughout the day. Figure 1 shows that equity-based ETFs, which include the ones used in our portfolios, account for over 80% of the assets currently invested in ETFs.

Index ETFs seek to minimize the deviations between their returns and the returns of their stated index. These deviations are known as "tracking error". All mutual funds and ETFs have some tracking error due to fees, transaction costs and the timing of investments. It is important to remember that

indices provide valuable benchmarks of market performance, but they are not directly investable. Market returns don't come for free.

The mechanism that keeps ETF market prices in line with their NAV is the ability of authorized participants to create or redeem shares versus a basket of tradable securities. If prices of the ETF and the aggregate price of the securities deviate materially, it creates an arbitrage opportunity, which authorized participants and traders will exploit to bring the two markets back into line.

The ability of market arbitrage to keep ETF prices efficient can be observed by comparing the returns of SPY, an ETF designed to track the stocks in the S&P 500 versus the returns of its index. In the five year period between December of 2006 and December of 2011, SPY produced an annualized return of -0.32%, which was

extremely close to the S&P 500's return of -0.25%. Figure 2 further illustrates how well SPY tracked the S&P 500, by plotting the weekly differences in returns for the 521 weeks in our five year period. **The average weekly deviation was 0.0%, and in over 90% of the one week periods the return on SPY was within 0.5% of the return on the S&P 500.** This pricing efficiency is another important reason why we use equity index ETFs in our portfolios.

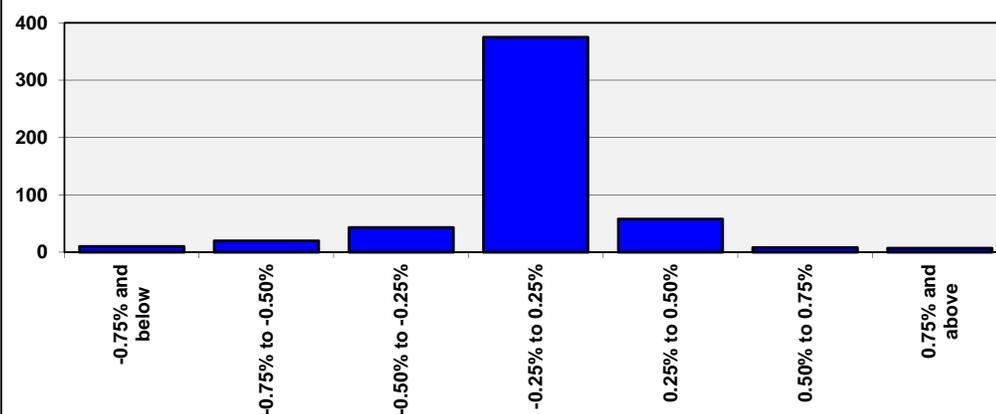
### Foreign ETFs and End of Day Pricing

As figure 2 illustrated, the tracking error for US equity ETFs like SPY are quite small.

Stairway Partners' clients know from reading our monthly performance commentaries that Non-US ETFs can experience temporary deviations caused by differences in the timing of security and index pricing. Market indices, like those provided by MSCI for global equities are priced at the close of local markets. ETFs used by US investors are priced at the close of US markets. Since news continues to flow and markets never sleep, the prices of ETFs with European and Asian exposure continue to move after the underlying markets are closed, which can lead to a

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Figure 2 - Difference In Weekly Returns Between SPY & S&P 500



Sources: Bloomberg, Stairway Partners

## About Stairway Partners, LLC

Stairway Partners was formed to provide our clients (starting with ourselves) with an effective and comprehensive solution for managing their wealth. Our disciplined and rigorous approach comes from our collective knowledge in serving large institutional clients over many years.

Our core investment belief is that asset allocation is the single most important determinant of success in any investment plan. The dominant amount of risk and return comes not from your choice of individual investments but from your asset class mix. Stairway Partners focuses our resources on risk management and asset allocation. This includes building your custom blueprint (investment policy and benchmark) and aligning your portfolio with our investment strategy utilizing the global capital markets.

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mismatch in reported performance. Over time these differences wash out because index prices adjust to underlying securities when markets reopen. In the same five year period that we used to look at the performance of SPY, the ETF that we use for non-US developed markets (EFA) produced a -4.8% annualized return, which is very close to the -4.2% annualized return produced by its index (MSCI EAFE).

### Leveraged ETFs

The ETF market is diverse and includes leveraged ETFs, which seek to deliver some

positive or negative multiple of a market's daily performance. This relatively small subset of the ETF market has received media attention in the past by delivering performance that spectacularly fails to live up to investor expectations.

We do not use leveraged ETFs in any of our portfolios. One important reason is that the amplified daily returns that these ETFs seek to deliver can deviate materially from the longer-term market returns.

This characteristic can be illustrated by comparing the returns of one ETF designed to deliver two times the return of the S&P 500 and an-

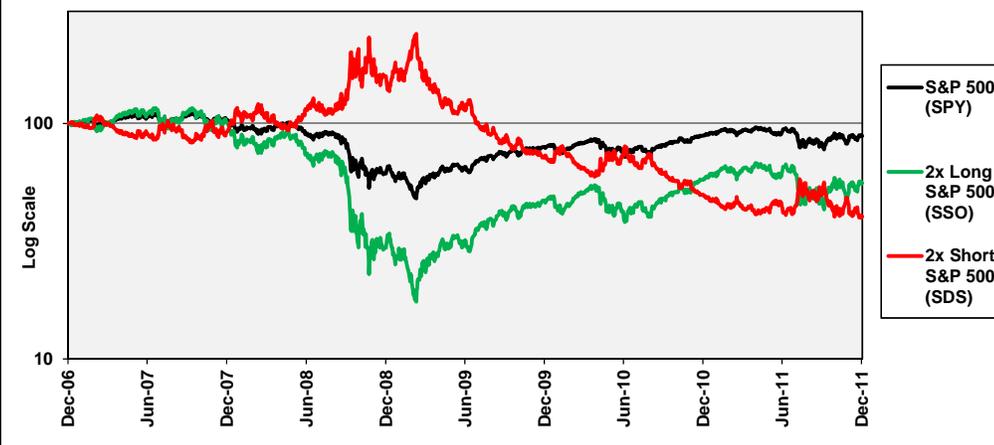
other designed to deliver the opposite of two times the return of the S&P 500. In the five year period from the end of 2006 through the end of 2011, both the long and the short leveraged ETFs produced negative returns which were substantially worse than the return of the S&P 500 ETF. **While the unleveraged ETF (SPY) produced a cumulative return of -1.6%, the double-long ETF (SSO) produced a cumulative return of -41.2% and the double-short ETF (SDS) produced a cumulative return of -58.1%.** Figure 3 illustrates that the price movements of the leveraged ETFs can be inconsistent over

time, making them a questionable investment for any long-term investor.

### Conclusion

Unleveraged index-based ETFs and traditional mutual funds can serve investors well by providing efficient access to market returns. Their low tracking error, low fees, minimal transaction costs, and tax-efficiency allow investors to keep more of the market's return. We believe that it is important to understand the characteristics of the broad fund categories as well as the nuances of the individual securities to achieve the best results and to avoid unintended consequences.

Figure 3 - US Equity ETF Price Performance



**“BOTH THE LONG AND THE SHORT LEVERAGED ETFs PRODUCED NEGATIVE RETURNS WHICH WERE SUBSTANTIALLY WORSE THAN THE RETURN OF THE S&P 500 ETF”**

**3 Year Annualized Return Estimates for Global Markets**

5/1/2012	<u>Total Returns</u>			<u>After-Tax Total Returns</u>		
	Expected	Hurdle	Excess	Expected	Hurdle	Excess
<b>Equities</b>						
<b>United States</b>	<b>8.9%</b>	<b>4.1%</b>	<b>4.8%</b>	<b>7.6%</b>	<b>3.9%</b>	<b>3.7%</b>
<b>Non-US Developed Markets</b>	<b>18.0%</b>	<b>4.6%</b>	<b>13.4%</b>	<b>15.3%</b>	<b>4.4%</b>	<b>10.9%</b>
EMU	26.1%	5.0%	21.1%	22.2%	4.8%	17.5%
UK	23.3%	4.9%	18.4%	19.7%	4.7%	15.0%
Japan	9.9%	5.0%	4.9%	8.4%	4.8%	3.6%
Canada	-4.3%	4.4%	-8.6%	-3.6%	4.2%	-7.8%
<b>Emerging Markets</b>	<b>17.0%</b>	<b>5.9%</b>	<b>11.2%</b>	<b>13.8%</b>	<b>5.7%</b>	<b>8.2%</b>
<b>Fixed Income</b>						
<b>US Aggregate</b>	<b>-1.3%</b>	<b>2.1%</b>	<b>-3.4%</b>	<b>-1.6%</b>	<b>1.9%</b>	<b>-3.6%</b>
<b>US Treasuries</b>						
2 Year	-0.2%	0.9%	-1.1%	-0.5%	0.7%	-1.2%
5 Year	-2.8%	1.4%	-4.2%	-2.8%	1.2%	-4.0%
10 Year	-5.5%	1.9%	-7.4%	-5.1%	1.7%	-6.8%
30 Year	-7.8%	2.1%	-9.9%	-7.1%	1.9%	-9.0%
<b>TIPS</b>						
5 Year	-2.3%	1.5%	-3.7%	-2.4%	1.3%	-3.6%
10 Year	-5.7%	2.0%	-7.7%	-5.3%	1.8%	-7.1%
30 Year	-13.1%	2.4%	-15.5%	-11.3%	2.2%	-13.5%
<b>Municipal</b>						
2 Year	0.1%	0.8%	-0.8%	0.3%	0.6%	-0.3%
5 Year	-1.5%	1.2%	-2.7%	-1.0%	1.0%	-1.9%
10 Year	-1.8%	1.6%	-3.4%	-1.0%	1.4%	-2.4%
20 Year	1.1%	1.8%	-0.7%	1.5%	1.6%	-0.1%
<b>High Yield</b>						
High Quality High Yield	2.4%	2.2%	0.2%	0.8%	2.0%	-1.2%
<b>Emerging Market (\$ demonimnated)</b>	<b>-0.6%</b>	<b>3.3%</b>	<b>-3.9%</b>	<b>-1.6%</b>	<b>3.1%</b>	<b>-4.7%</b>
<b>Foreign Aggregate</b>						
Foreign Aggregate (hedged)	-3.0%	1.8%	-4.8%	-3.4%	1.6%	-5.1%
<b>Foreign Treasury</b>						
Foreign Treasury (hedged)	-3.4%	1.4%	-4.8%	-3.6%	1.2%	-4.8%
<b>Cash</b>	<b>0.6%</b>	<b>0.6%</b>	<b>0.0%</b>	<b>0.4%</b>	<b>0.4%</b>	<b>0.0%</b>
<b>Currency</b>						
Euro	-4.2%	2.3%	-6.5%			
British Pound	-1.3%	2.2%	-3.5%			
Japanese Yen	-0.4%	2.4%	-2.8%			
Canadian Dollar	-2.1%	1.4%	-3.5%			

**Notes**

1. Foreign market returns assume US dollar as the base currency and are unhedged unless otherwise indicated.
2. All hurdle returns are based on long-term asset volatility. Equity and fixed income hurdle rates include expected cash returns.
3. After-tax total returns assume that all gains and losses are long-term and can be realized within the investment horizon.
4. After-tax total returns only take into account Federal taxes based on the following tax rates:
  - 35.0% Ordinary Income, 15.0% Qualified Income, 0.0% Exempt Income, and 15.0% Capital Gains/(Losses)

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