ANALYTICS INVESTMENT ADVISORS, LLC

Exchange Traded Funds and Tactical Asset Allocation

"ETF alchemy – the active overlay involving the combination of different ETFs to enhance returns is the wave of the future in the world of money management"[1]

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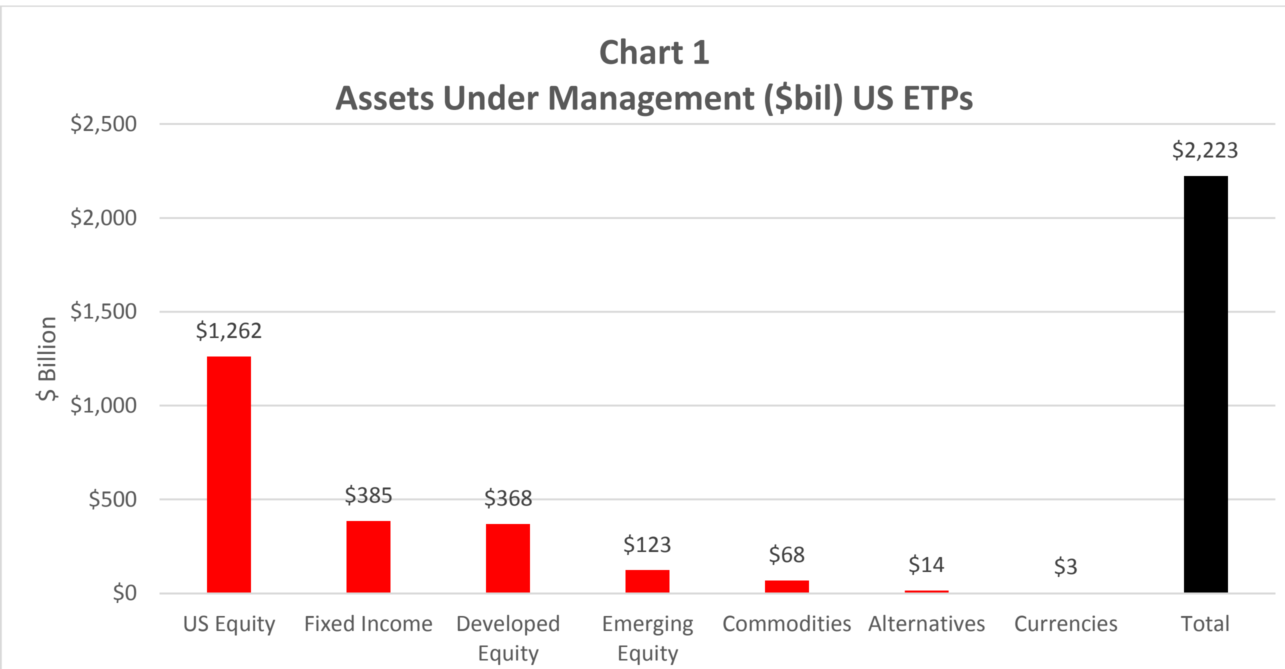
What?

- Tactical Asset Allocation (TAA) is a flexible and dynamic strategy designed to provide potential diversification and downside market and portfolio protection.
- While TAA originated in the 1970's, increased volatility the last 15 years has caused investors to become more aware of market risk and strategies that can protect capital in turbulent markets.
- Moreover, the historical exposure to bonds to reduce risk and offer diversification is generally less efficacious in the current historically low interest rate environment.
- These considerations have resulted in new and numerous TAA strategies, the primary goals of which are to provide downside protection while maximizing upside potential in a cost effective manner through the exclusive and/or blended utilization of Exchange Traded Funds (ETFs).
- Since the first ETF, SPDR S&P 500 Index (SPY), was introduce in 1993, the total number of ETFs now approximates 1,900, with a total of $2.2 trillion assets under management (Chart 1).
- ETFs: 1) are a way to combine the potentially high returns of additional stock trading with the benefits of mutual fund diversification; 2) are a basket of stocks that trade on an exchange with the simplicity and liquidity of an individual stock; 3) add flexibility and safety through diversification and access to varied markets; 4) are low cost and tax efficient; 5) trade under the jurisdiction of the Security and Exchange Commission, offering protection and liquidity for orderly and continuous trading; and, 6) allow the ability to effectively monitor performance and effectuate sound risk management strategies.

[1] Dorsey, Tom, President and founder of Dorsey Wright and Associates, May 17, 2013. http://www.etf.com/sections/features/18738-tom-dorsey-etf-alchemy.html.

- TAA strategies in conjunction with ETFs have the flexibility of allocating among different asset classes without constraint as long as they conform to investors' objectives and risk tolerance.
- The increase in demand for investment solutions specific to individual investor requirements has resulted in TAA ETF strategies gaining popularity since the 2008 financial crisis, with the number of tactical ETF strategies[2] tracked by Morningstar as of December 2015 ballooning to 271 (Chart 2).
- Post 2008 TAA strategies place more emphasis on downside protection for outcome-oriented solutions designed to protect principal as the main priority, while secondarily maximizing upside potential.
- Many TAA strategies employ a trend following or momentum approach[3], while models emphasis return forecasting and asset class valuation. These two concepts, however, are not mutually exclusive since sound fundamental economic analysis in conjunction with trend modelling is generally recommended and can be efficacious.



Source: Blackrock, April 2016. Exchange Traded Products (ETPs) includes ETFs and Exchange Traded Notes (ETNs).

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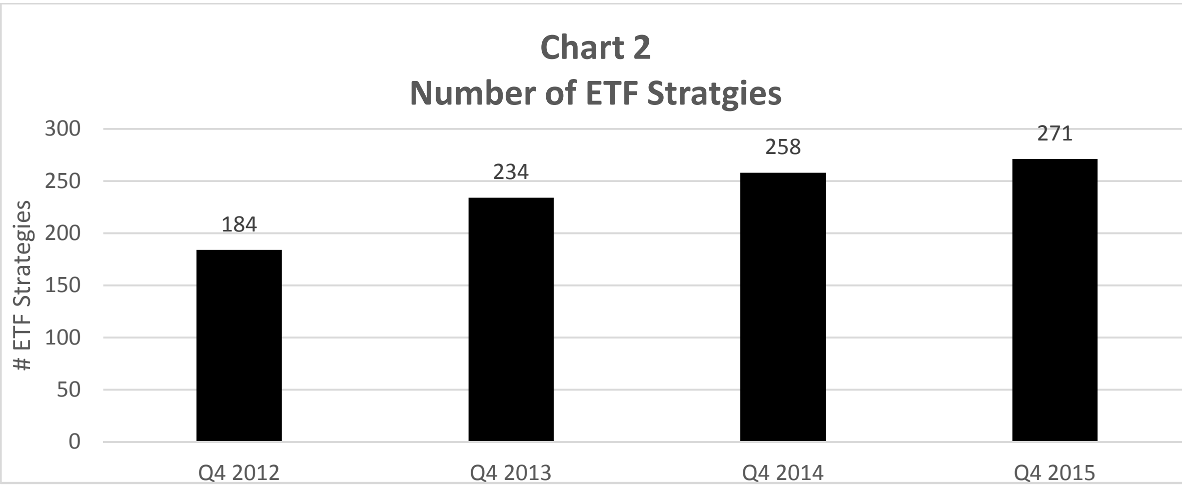
[2] For example: core holding, asset allocation, diversification, hedging, stop and limit orders, cash management, tax loss harvesting, completion strategies, portfolio transition.

[3] Recent research and modelling by Analytics Investment Advisors. LLC established a statistically significant positive relationship between return and relative strength (momentum) for 596 observation between 1/7/2013 and 6/30/2014. See Commentary January 3, 2015 "Keep it Simple" www.analyticsllc.net.

- TAA ETF strategies offer the ability to efficiently gain the desired exposure to numerous market segments. In contrast to using derivatives, investment funds, and individual securities, TAA managers generally consider ETFs to be a more efficient tool to implement schemes consistent with asset class, industries, sectors and geography (Chart 1).
- Recent technological advances allow low cost turnkey asset management platforms to investment advisors in the form of separately managed account (SMAs) in contrast to managed futures and global macro funds which are expensive and historically have been the strict domain of high net worth individuals.



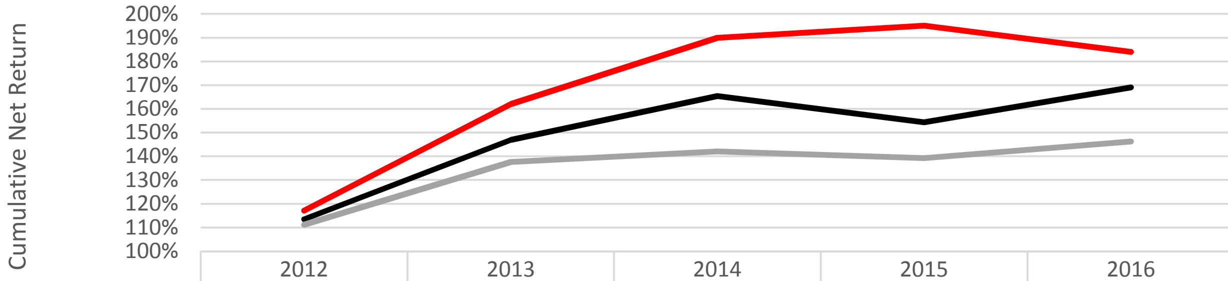
Source: Morningstar.

Why?

- Tactical ETF stratagems are creative and appealing because they: a) offer downside protection while maximizing upside potential; b) can be both quantitative (momentum, trend driven) and qualitative (fundamentally subjective); c) are transparent, low cost; and, d) often have had a history of outperforming designated benchmarks.
- The degree to which TAA ETF strategies have been successful depends on the magnitude and duration of trends in the business cycle, the temporal nature of which is frequently identifiable; given that, a) the economy and monetary policies move in cycles, b) investors tend to overreact during the late stage of the business cycle thereby extending a given trend beyond what fundamentals warrant, and c) markets, not being perfectly efficient, take time to adjust to new information.
- However, periods of uncertain markets and externalities such as political and economic events create trendless circumstances, as was the case for most of 2016, making trend following methodologies more difficult.

- Chart 3 presents a comparison of Cumulative Net Returns for Analytics Investment Advisors Assertive 1 Strategy, to both the S&P 500 Index and MSCI World Index for the five year period between 2012 and 2016.

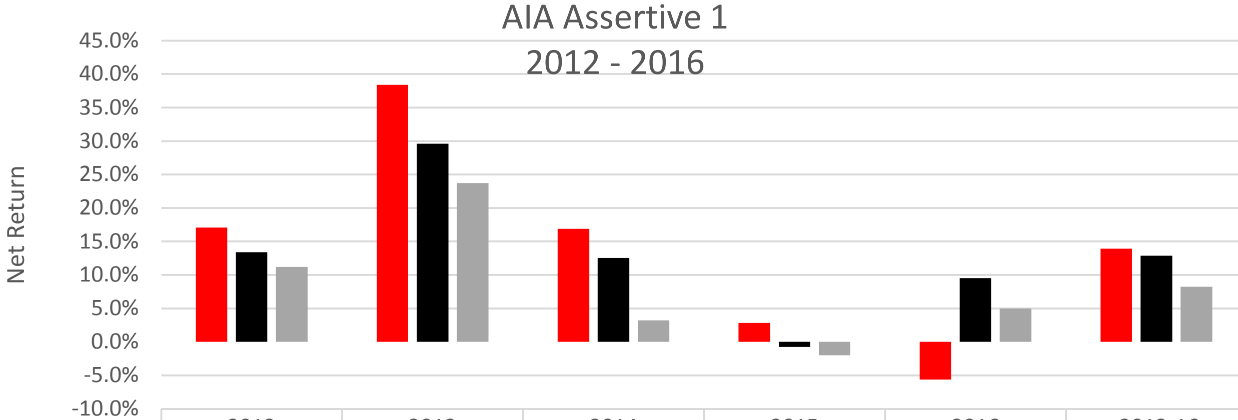
Chart 3
Cumulative Net Return
AIA Assertive 1
2012 - 2016



	2012	2013	2014	2015	2016
Assertive 1	117%	162%	190%	195%	184%
S&P500	113%	147%	165%	154%	169%
MSCI World	111%	138%	142%	139%	146%

- Chart 4 depicts a bar chart for the same three time series in Chart 3, which together demonstrate the upside return potential achieved by employing TAA in an exclusive ETF environment.[4]

Chart 4
Yearly and Average Net Return
AIA Assertive 1
2012 - 2016



	2012	2013	2014	2015	2016	2012-16
Assertive 1	17.1%	38.4%	16.9%	2.9%	-5.6%	13.9%
S&P 500	13.4%	29.6%	12.6%	-0.7%	9.5%	12.9%
MSCI World	11.20%	23.70%	3.20%	-2.00%	5.00%	8.2%

[4] See Ma, Henry, Tactical Asset Allocation in the Age of ETFs, Julex Capital Management, Boston, MA. Figures 4, 5 & 6 for illustrations of relative performance during an entire business cycle.

How?

- The following captions are partial indications that the U.S. economy is improving:
    1. 3Q2016 GDP was revised up to 3.5% from 3.2%;
    2. Postelection rally continues in retail apparel, and U.S light-vehicle sales hit a second annual high aided by fourth-quarter surge in demand;
    3. Labor participation rate for ages 25-54 turned upward in December;
    4. Renewed optimism and more efficient tax treatment proposed by Republicans is likely to re-incentivize capital investment and improve productivity in 2017; and,
    5. Emerging-Market exodus due to developing countries lowest stock and bond slump since financial crisis will favor U.S. securities markets.

  Accordingly, the following ETF's represent sectors and industries that are likely to outperform the market in 2017 and provide the basic rationale for Analytics Investment Advisors' current TAA.

- **FXG (First Trust Consumer Staples)** Satellite ETF; Replicate Consumer Staples Alpha DEX index; Even weighted; Top 10 holdings equal 44% of ETF; Consists of mature firms (37) whose products consumers buy regardless of economic climate; Somewhat defensive.
- **IBB (iShares Biotechnology)** Satellite ETF; Replicates Nasdaq Biotechnology Index; Healthcare well positioned; Earnings outlook favorable; Sector near historical lows with P/E 12.3 times forward earnings; Expected to recoup much of value lost in summer 2015, Top 10 holdings represent 59% of ETF.
- **PJP (PowerShares Dynamic Pharmaceuticals)** Satellite ETF; Alternative to and highly correlated with IBB; Rationale for potential growth similar to IBB and healthcare in general; Top ten holdings are 51%.
- **QLD (PowerShares QQQ)** Satellite ETF; 2X Nasdaq 100 Index; Used only in client portfolios with high risk tolerance where capital gain is primary consideration.
- **QQQ (PowerShares QQQ)** Satellite ETF; Replicates the Nasdaq 100; Top ten technology holdings accounting for 47% of ETF.
- **RXL (Proshares Ultra Health Care)** Satellite ETF; 2X Dow Jones U.S. Health Care Index; Used only in client portfolios with high risk tolerance where capital gain is primary consideration.
- **SPY (SPDR S&P 500)** Core ETF; Replicates S&P 500; Most often cited proxy for U.S. equity market; Most heavily traded world ETF; Well positioned to continue its long record of producing superior risk-adjusted returns relative to category peers over the long run.

- **UYG (Proshares Ultra Financial)** Satellite ETF; Replicates 2X Dow Jones US Financial Index; Used only in client portfolios with high risk tolerance where capital gain is primary consideration.
- **XHB (SPDR S&P Homebuilders)** Satellite ETF; Replicates S&P Homebuilders Select Industry Index; Even weighted index; Housing starts rose 25.5% in October (all areas), 1.323 million annual rate, fastest pace since 2007; Largest gain any month since early 1980's.
- **XLF (Financial Select Sector)**, Satellite ETF; Provides broad exposure to U.S. financial services sector; Replicates commercial banks, diversified financial firms, capital-market firms, insures, mortgage REITS, and consumer finance companies; Improving economy and higher interest rate will most likely benefit large banks.

Performance Summary

Cautious Strategy: Cautious investors seeking better than nominal returns, but with low risk and emphasis on preservation of wealth (Risk Score: 111-200).

Moderate Strategy: Prudent investors desiring a portfolio designed to accomplish medium to long term financial goals and an investment strategy which accounts for taxes and inflation. Calculated risk is acceptable to achieve good returns (Risk Score: 201-290).

Assertive Strategies 1 & 2: Assertive investors with sufficient income to invest mostly for capital growth. Higher volatility, moderate risk, and more aggressive investments are acceptable to accumulate wealth over time (Risk Score: 291-390).

Aggressive Strategy: Aggressive investors intending to compromise portfolio balance in pursuit of higher long term returns. Security of capital is secondary to potential wealth accumulation (Risk Score: 391-450).

	5 Year Average* 2012 - 2016	YTD* 12/31/2016	%AUM	Alpha**	Beta**	R2**	SD**
S&P 500	12.90%	9.54%					
Barclay US TR	2.23%	2.65%					
Cautious	8.30%	-2.05%	< 1%	-1.89	1.24	0.52	5.07
Moderate	11.29%	-2.85%	30%	1.04	1.21	0.70	4.60
Assertive 1	13.92%	-5.63%	32%	1.65	1.13	0.45	5.65
Assertive 2	17.68%	-2.52%	26%	2.18	1.50	0.73	6.41
Aggressive	17.56%	-11.79%	11%	2.44	2.58	.57	10.48

* Net Size Weighted Returns, PortfolioCenter, Schwab Portfolio Technologies. Returns are net of fees, which are negotiable and range between 50 and 125 basis points.

**Risk Return Statistics, Analytics Investment Advisors, LLC; most recent 24 months.