CLS's WEEKLY 3

What You Need To Know About the Markets

MARCH 13, 2018

1. How are bus stops and market cycles similar?
2. What has history shown about international smart beta strategies?
3. How should investors think about advances in technology and applying them to investment management?

CLS INVESTMENTS

Market Performance

Equities	LAST WEEK	QTD	YTD '18
Total U.S. Market[1]	+3.63%	+4.52%	+4.52%
Domestic Large-Cap Equity[2]	+3.59%	+4.63%	+4.63%
Domestic Small-Cap Equity[3]	+4.20%	+4.21%	+4.21%
International Equity[4]	+1.94%	+0.61%	+0.61%
Developed International Equity[5]	+1.86%	-0.15%	-0.15%
Emerging Market Equity[6]	+2.17%	+4.43%	+4.43%
Fixed Income	**LAST WEEK**	**QTD**	**YTD '18**
U.S. Investment Grade Bonds[7]	-0.12%	-2.22%	-2.22%
Cash Equivalent[8]	+0.02%	+0.24%	+0.24%
Commodities	**LAST WEEK**	**QTD**	**YTD '18**
Commodity[9]	-0.19%	+0.05%	+0.05%

[1]Russell 3000 [2]S&P 500 Index [3]Russell 2000 Index [4]MSCI ACWI ex-U.S. Index [5]MSCI EAFE Index [6]MSCI Emerging Markets Index [7]Bloomberg Barclays Capital U.S. Aggregate Bond Index [8]Bloomberg Barclays Capital 1-3 Month U.S. Treasury Bill Index [9]Bloomberg Commodity Index

As of 3/9/2018

Week in Review

Stocks had a bumpy week, but finished modestly stronger Friday on better-than-expected job gains in the U.S. The Russell 3000 Index was up almost 4% with small-caps outperforming large-caps by 0.6%. Overseas, international developed markets were up about 2%, and emerging markets jumped a little over 2%. Globally, momentum stocks were the best performing smart beta strategy, advancing close to 4%, while minimum volatility advanced by only 2%. Bonds also sold off during the week as the 10-year U.S. Treasury moved higher by 4 basis points to yield about 2.9%.

What Bus Stops and Market Cycles Have in Common

Market cycles sometimes feel like waiting to catch a bus. If you show up at the stop just in time to see the bus pull away, you expect the next bus to arrive in about 10 minutes, right? But, the odds of it arriving in 10 minutes or less are actually just 63%, and the odds of it arriving in 13 minutes or less only improve to 73%. An unexpected delay can be nerve-wracking — much like the market's unexpected swings.

The Q1 2018 CLS Reference Guide (specifically page 28) illustrates the market's tendency to buck expectations set by historical averages and patterns. According to the study cited, the typical cycle of outperformance by U.S. stocks over international lasts on average about 66 months, and the most recent stretch lasted for more than 112 months. The study also shows that the average cycle of outperformance by international stocks over U.S. stocks is about 45 months, and the most recent cycle, so far, has lasted 10 months as of the end of 2017.

Cycles of International Outperformance			
Start Date	End Date	# of Months	Performance
1971	1973	31	71%
1976	1978	24	85%
1983	1989	68	292%
1993	1994	17	39%
2000	2007	86	57%
2017	Current	10	5%
	Average	**45**	**109%**

Cycles of U.S. Outperformance			
Start Date	End Date	# of Months	Performance
1973	1976	40	39%
1978	1983	57	98%
1989	1993	47	91%
1994	2000	74	215%
2007	2017	112	91%
	Average	**66**	**107%**

Source: Morningstar Direct data from 01/01/1970 to 12/31/2017

The most significant takeaway from the study is that neither market has perfectly followed its historical average cycle lengths over time. Sometimes these cycles of outperformance have been shorter or longer than history suggests should be the case.

Investors should keep in mind market cycles don't always fall perfectly in line with what is expected on average. More importantly, the odds of a given event, such as a change in a market cycle, are often a bit lower than the typical gut feeling may suggest.

We talk a lot about the case for international investing as highlighted in our "Why International" white paper. We also talk a lot about our portfolios in terms of our use of smart beta ETFs. They are a key pillar in our thinking about risk and returns, alongside our Risk Budgeting framework.

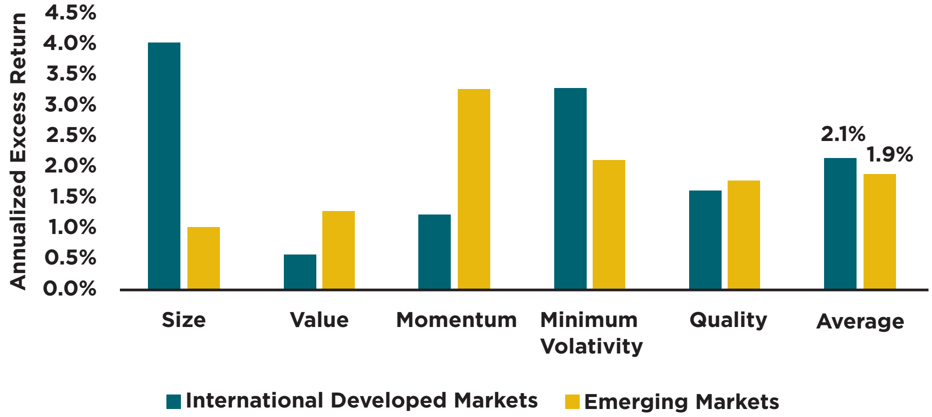
Although much of the available literature tends to illustrate the effectiveness of smart beta ETFs for U.S. stocks, there is a clear investment case for them internationally, too. We believe this is important for our investors as we continue to maintain an overweight to international stocks using several international smart beta ETFs, as shown on page two of our most recent Monthly Perspectives.

The historical experience for international smart beta strategies presents a darn good case based on the numbers. Since 2002, each strategy has added value above its respective market over time. That has translated, on average, to about 2.1% in excess returns for international developed smart beta strategies and 1.9% in excess returns for emerging market smart beta strategies.

International smart beta strategies also deliver meaningful benefits by being less-correlated sources of excess returns in portfolios. This means investors can rely on each smart beta strategy to be complementary and deliver tangible diversification benefits as international markets react.

We are proud to be avid users of smart beta, and international smart beta ETFs are no different. Investors should note these strategies have a long-term place in Risk Budgeted portfolios.

Annualized Excess Returns for International Smart Beta Strategies



Sources: MSCI, Morningstar Direct. Based on monthly Returns for the MSCI World ex USA and MSCI Emerging Markets Net Return Factor Indices relative to their parent Net Return indices. Data from 12/31/2001 through 2/28/2018.

Excess Return Correlations for International Smart Beta Strategies

	Intl. Developed Size	Intl. Developed Value	Intl. Developed Momentum	Intl. Developed Minimum Volatility	Intl. Developed Quality
Intl. Developed Size	1.00				
Intl. Developed Value	0.09	1.00			
Intl. Developed Momentum	0.23	**-0.54**	1.00		
Intl. Developed Minimum Volatility	0.01	**-0.50**	0.39	1.00	
Intl. Developed Quality	**-0.10**	**-0.72**	0.45	0.45	1.00

	Emerging Mkts Size	Emerging Mkts Value	Emerging Mkts Momentum	Emerging Mkts Minimum Volatility	Emerging Mkts Quality
Emerging Mkts Size	1.00				
Emerging Mkts Value	0.02	1.00			
Emerging Mkts Momentum	0.01	**-0.43**	1.00		
Emerging Mkts Minimum Volatility	0.12	**-0.40**	0.20	1.00	
Emerging Mkts Quality	**-0.02**	**-0.57**	0.29	0.50	1.00

Sources: MSCI, Morningstar Direct. Based on monthly returns for the MSCI World ex USA and MSCI Emerging Markets Net Return Factor Indices relative to their parent Net Return indices. Data from December 31, 2001 through February 28, 2018.

Data + Machine Learning + AI = Edge

Increases in computing power are driving the future of the investment management world. Data science, machine learning, artificial intelligence (AI) are all buzz words starting to find their way into discussions around investing. These ideas are associated with a simple concept investors should be well acquainted with: gaining an edge over the competition.

How should investors think about these advances in technology and applying them to investment management? Let's start with the basics of how each is being applied today.

Data science: Data science is the business of taking large amounts of data to tease out insights. Insights can be anything from better identifying historical trends to determining the factors likely to drive the risk or behavior associated with an investment.

Machine learning: Machine learning is the process of generating predictions based on a set of data previously evaluated for a set of initial insights. Advances in machine learning are redefining the way investors anticipate future events or future performance of individual assets and money managers.

Artificial intelligence: AI often refers to algorithms designed to take action based on a set of data and established logic. AI is reshaping everything from the way short-term trading occurs to the way managers select securities for a specific investment strategy being pursued.

Advances in these areas are already impacting the way investors think about deploying their money. For example, Morningstar recently announced the release of its Morningstar Quantitative Ratings system for funds, which uses machine learning models to generate fund rankings based on similar factors used by its internal research analysts. This clearly marks a departure from relying on human judgement and intuition to make informed decisions.

Technology is paving a new path for investors — presenting another opportunity to gain an edge.

Joseph Smith, CFA

Senior Market Strategist

Joe Smith specializes in quantitative research, risk management, and ETF due diligence. He serves as Senior Market Strategist for the CLS AdvisorOne International Equity Fund, CLS 's Thematic Growth Strategy, and CLS's Core Plus ETF Strategy.

Prior to joining CLS in 2015, Mr. Smith worked at Russell Investments where he served as an Analyst responsible for asset allocation research, portfolio construction, optimization design, and risk management research. He later joined Russell ETFs as Manager of ETF Product Development and Research, a role in which he developed quantitative indexing strategies implemented as ETFs. Mr. Smith also worked for Charles Schwab Investment Management as a Senior Product Specialist supporting product management activities for the Schwab ETFs fund family. In addition, he worked for CLS during the summer of 2014 as an Investment Analyst.

Mr. Smith received his Bachelor of Science degree in Economics from the University of Washington. He later received his Master of Business Administration from the Tepper School of Business at Carnegie Mellon University.

Mr. Smith holds the Chartered Financial Analyst (CFA) designation and is a member of the CFA Society of San Francisco, Pittsburgh, and Nebraska. He is also a member of the Society of Quantitative Analysts and the Quantitative Work Alliance for Applied Finance, Education and Wisdom.

Did you know? In grad school, Joe spent 40 days in nine countries.

The Russell 3000 Index is an unmanaged index considered representative of the U.S. stock market. The index is composed of the 3,000 largest U.S. stocks. The S&P 500 Index is an unmanaged index of 500-large capitalization companies. This index is widely used by professional investors as a performance benchmark for large-cap stocks. The Russell 2000 Index is an index comprised of the 2,000 smallest companies on the Russell 3000 Index and offers investors a benchmark for small-cap stocks. The MSCI ACWI ex U.S. Index (MSCI All-Countries World Index, excluding U.S.) is an index considered representative of stock markets of developed and emerging markets, excluding those of the U.S. The MSCI EAFE Index is an index which tracks performance of international equity securities in developed countries in Europe, Australia, Asia, and the Far East, excluding the U.S. and Canada. The MSCI Emerging Markets Index is an index which tracks performance of large and mid-cap firms across countries classified as emerging market countries. The Bloomberg Barclays Capital U.S. Aggregate Bond Index measures performance of the U.S. investment-grade bond market. The Bloomberg Barclays Capital 1-3 Month U.S. Treasury Bill Index includes all publicly issued zero-coupon U.S. Treasury Bills that have a remaining maturity of less than 3 months and more than 1 month, are rated investment grade, and have $250 million or more of outstanding face value. The Bloomberg Commodity Index is made up of exchange-traded futures on physical commodities and represents commodities that are weighted to account for economic significant and market liquidity. An index is an unmanaged group of stocks considered to be representative of different segments of the stock market in general. You cannot invest directly in an index.

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