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Enhancing Investment Performance of a U.S. Equity Portfolio Utilizing a Sector Rotation Strategy

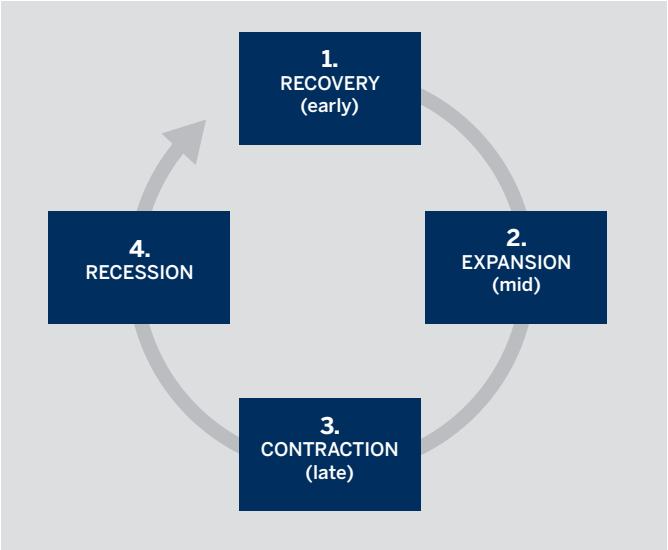
CASE STUDY: SECTOR ROTATION POST U.S. ELECTION

Background

"The business cycle, which reflects the fluctuations of activity in an economy, can be a critical determinant of equity sector performance over the intermediate term. A typical business cycle features a period of economic growth, followed by a period of slowing growth and then a contraction, or recession. The cycle then repeats itself."[1]

There are typically four phases to a business cycle: 1) Early-cycle or recovery, 2) mid-cycle, or expansion, 3) late-cycle, or contraction, then 4) recession. Each phase is characterized by differences in economic growth, credit conditions, monetary and fiscal policy influences, and inventory cycle.

According the National Bureau of Economic Research (NBER), between the years 1945-2009 the U.S. went through 11 cycles. The cycles have averaged a little less than six years in length with an average expansion period of 58.4 months and an average contraction period of 11.1 months.[2]



Different sectors of the economy respond differently to changes in the flow of the business cycle. Some sectors may either outperform or underperform others during certain phases of a cycle. One commonly accepted practice among active managers of equity portfolios is to increase allocations into sectors expected to outperform as they begin their ascent and rotate out of or decrease allocations from sectors they expect to underperform or lag versus the broader market.

Sector	Early	Mid	Late	Recession
Financials	+			
Real Estate*	++			--
Consumer Discretionary	++		--	
Info Technology	++	+	--	--
Industrials	++	+		--
Materials		--	++	-
Consumer Staples	-		+	++
Health Care	-		++	++
Energy	--		++	
Telecom	--			++
Utilities	--	-	+	++

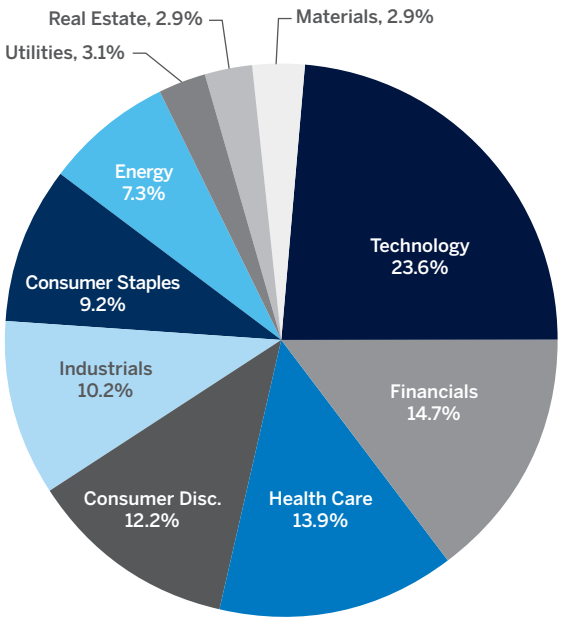
** As of Aug. 31, 2016, real estate was elevated from an industry in the U.S. financials sector to the 11th sector per the Global Industry Classification Standard. Unshaded (white) portions above suggest no clear pattern of over- or underperformance vs. broader U.S. equity market. Double +/- signs indicate that the sector is showing a consistent signal across all three metrics: full-phase average performance, median monthly difference, and cycle hit rate. A single +/- indicates a mixed or less consistent signal. Source: Fidelity Investments (AART).*

It is commonly accepted to look at sectors as defined by the Global Industry Classification Standard (GICS®) which currently assigns each index component to one of eleven Sectors, or "Level 1" GICS: financial, real estate (formerly in the financial sector), consumer discretionary, info technology, industrials, materials, consumer staples, health care, energy, telecom, and utilities. The widely referenced U.S. equity market benchmark S&P 500 Index is made up of 500 of the largest U.S. companies and represents approximately 80% of the total U.S. market capitalization. The

S&P 500 Index comports with the GICS index taxonomy and therefore each of the 500 companies in the index is assigned into one of the eleven Level 1 GICS.

While portfolio managers employ sector rotation strategies based on their views of the current and enfolding business cycle they may also utilize sector rotation strategies to take advantage of opportunities created by an unforeseen financial or geo-political event. The recent U.S. election, held November 8, 2016 was one such event and provided an environment to possibly create alpha from anticipated shifts in sector valuations. This case study will consider the effects of a short-term sector rotation trade using CME Group's E-mini S&P Select Sector futures contracts on a large S&P 500 Index benchmarked portfolio.

CME Group offers a wide range of equity index exchange traded derivatives (ETDs) including futures and options on futures on benchmark indices like the S&P 500, Dow Jones Industrial Average, NASDAQ-100, and futures on non-USD indices like the Nikkei-225, FTSE China 50, the Nifty 50 Index and others. They also list 10-Select Sector futures contracts covering the Level 1 GICS of the S&P 500 index. Notice 10-futures versus the 11-Level 1 GICS of the S&P 500 Index referred to earlier. The ten futures contracts follow the S&P Select Sector indexing methodology established and maintained by SPDJI, the index provider, where the two Level 1 GICS Information Technology and Telecommunications are combined to form the Technology Select Sector Index. The chart below shows the Select Sector futures contracts and their percentage allocation of the S&P 500 Index.



Case Study: Sector Rotation Using Select Sector Futures

For this study we assume a $5 billion total equity position benchmarked to the S&P 500 Index. We will consider the effects of a 3% adjustment out of the Utilities sector (Select Sector symbol XAU) into the Financial sector (Select Sector symbol XAF) from November 9 to December 15, 2016. Why this rotation?

With the surprise election of Donald Trump to the U.S. Presidency there could be a good case to be more heavily allocated to financials versus utilities. Financial shares should benefit from campaign promised reduction in regulation. Additionally, increased promised infrastructure spending and anticipated additional employment could drive wage inflation leading to more frequent Fed rate hikes. Rising interest rates tend to favor the financial sector. On the flip side, higher interest rates tend to have a negative effect on utility shares.

How to structure the trade? Select Sector futures are equity index products so, like other equity index products, they have an index value and a contract multiplier. To calculate the number of futures contracts necessary to affect the sector rotation we take the percentage value of the adjustment in financial (USD) terms and divide it by the financial, or notional value, of the Select Sector futures contract. Since we wish to rotate 3% of the portfolio total value from utilities into financials the adjustment value would be:

Adjustment value (AV) = 3% of total value =
$5 billion x 3% = $150 million

Review the table below.

Sector	Symbol	Index value Nov. 9	Contract Multiplier	Notional value (NV)	Adjustment amount (AV ÷ NV in contracts)
Financial	XAF	255.90	$250	$63,975	2,345
Utilities	XAU	475.80	$100	$47,580	3,153

Source: Bloomberg and CME Group

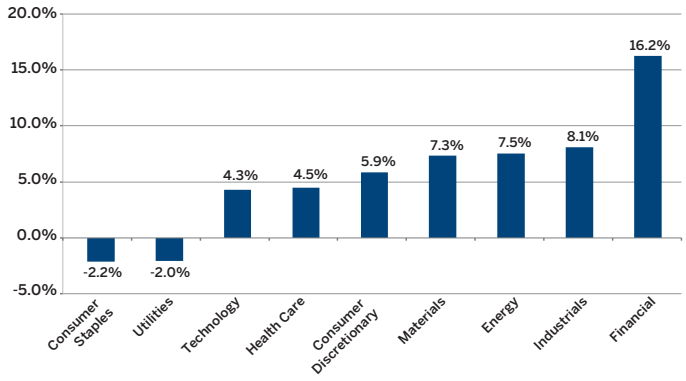
By performing the simple mathematics of multiplying each Select Sector index value times its respective contract multiplier we derive the contract's notional value. Then we divide the contract's notional value into the adjustment value to arrive at the number of futures contracts to use in the sector rotation. We want to increase the exposure to financials and decrease the exposure to utilities. Therefore, we would buy 2,345 Financial (XAF) Select Sector futures and sell 3,153 Utilities (XAU) Select Sector futures.

One of the advantages of using standardized listed futures is the capital efficiency they provide. Compared to a basket of the underlying stocks or a sector ETF which require full payment upon purchase, futures require performance bond, or margin, which is usually a fraction of the notional amount of the contract. For example, the margin required on XAF and XAU is roughly 4.7% and 3.5% respectively, of their notional value. Margins are set by CME Clearing and reflect the risk of the perceived maximum daily price change per contract. Margins are subject to change based on market conditions and volatility.

Case Study: Market Simulation

When it became clear that Mr. Trump would be the winner of the election it was the middle of the night in the United States. Cash equity and ETF markets in the U.S. were closed. But CME Group's electronic trading platform, CME Globex, was open. Equity index products, including E-mini S&P 500 and Select Sector futures were open and trading as they are every trading day beginning at 5:00PM Chicago time and closing the following day at 4:00PM. The initial reaction by E-mini S&P 500 futures (symbol ES) was a sell-off. However, somewhere around the middle of the night session (U.S. time) bullish sentiment gained strength and eventually over powered the bears pushing index futures higher. By the opening of U.S. stock markets on Wednesday 9 November index values were higher and continued to trade higher still through November and into late December. Encouraged by the prospects of lower corporate taxes and possible repatriation of capital, efforts supported by the President-Elect, the broad market moved higher. But as illustrated by the chart below this "rising tide" did not lift all of the sector "boats" equally.

Change Since November 8, 2016



Source: Bloomberg Professional (IXS1, IXR, IXT, IXY, IXD, IXC, IXP, IXI, IXA)

Using settlement prices from November 9 to establish our study's opening positions, let's track them to a closing position on December 15, 2016 and evaluate the results.

Sector	Nov 9	Dec 15	Change	% change
S&P 500 (ES)	2160.25	2263.50	+103.25	+4.8%
Financial (XAF)	255.90	290.80	+34.90	+13.6%
Utilities (XAU)	475.80	484.60	+8.80	+1.9%

Source: Bloomberg and CME Group

During the time frame considered the S&P 500, as measured by the E-mini S&P 500 futures, increased by 4.8%. The Financials Select Sectors (XAF) increased by 13.6% surpassing the benchmark by 8.8%. The Utilities Select Sectors (XAU) increased by 1.9% which was less than the increase of the broad index and significantly less compared to XAF.

Contract	Points	Multiplier	Amount	P&L
XAF	+34.90	$250	2,345	$20,460,125
XAU	-8.80	$100	3,153	($2,774,640)
			Net	**$17,685,485**

Considering these results, a 4.8% return on a $5 billion position would have created a gain of $240 million. An additional $17.7 million from the Select Sector rotation trade would have added 30.0 bps (0.30%) of alpha boosting the total return to 5.1%. How much capital would have been required? As previously mentioned futures require performance bond, also known as margin, to open and maintain a position. Some central clearing counterparties (CCPs) or clearing houses (CH) offer margin reductions, or off-sets, when highly correlated products are positioned against each other. CME Clearing offers margin offsets in the form of discounted margin for correlated products like Select Sector futures.

In our case the net initial margin would be calculated using a formula that takes the maximum amount of equally offsetting contracts and reducing their combined margin by the CH established discount factor. The balance of remaining open contracts would be margined at full margin value. For example, our trade position was long 2,345 XAF and short 3,153 XAU. So, 2,345 contracts would be considered offsetting and reduced by a discounting factor of 20%. The remaining 808 XAU contracts would be margined as individual open contracts. Therefore, if the margin on XAF is $3,000 per contract and the margin on XAU is $1,650 per contract we get the following result:

Contract	Amount	Margin*	Total
XAF	2,345	$3,000	$7,035,000
XAU	2,345	$1,650	$3,869,250
		Sub total	$10,904,250
		20%	(2,180,850)
			$8,723,400
XAU	808	$1,650	$1,333,200
		Total	**$10,056,600**

*Source: CME Group, * margins subject to change without notice*

This total margin of $10,056,600 compares favorably to the total of the individual margins combined of $12,237,450. An even more favorable comparison would be to consider the cost of capital needed to construct a similar rotation trade using ETFs, assuming you could borrow the Utilities ETF to create the short position.

Summary

Sector rotation as a risk management or tactical trading strategy is common among large actively managed equity funds. CME Group Select Sector futures are an effective tool for sector rotation strategies because of their high correlation to the sector indexes. As exchange traded derivatives they enjoy lower capital usage charges than ETFs and swaps. As liquid electronically executed instruments their market impact and transactions cost also tend to be lower than alternative products. Additionally, they are available vertically around the clock to manage event risk.

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For additional commentary see, *"Equities: Driven by Trump or Macroeconomics?"* January 17, 2017, Erik Norland, CME Group.

Endnotes

1. "An Introduction to sector rotation strategies," Fidelity Learning Center, **http://www.fidelity.com/learning-center/trading-investing/markets-sectors/intro-sectors/intro-sector-rotation-stats**
2. National Bureau of Economic Research, **http://nber.org/cycles.html**

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