

EQUITY INDEXES

Sector Rotation Strategies

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Financial Research & Product Development

CME Group E-mini S&P Select Sector Stock Index futures (Select Sector futures) provide investors with a convenient and cost-effective tool with which to manage sector exposures in the U.S. equity markets.

This piece examines how Select Sector futures may be used to take advantage of anticipated changes in the relative value of various industry sectors.

Why Sectors?

The Standard & Poor's 500 (S&P 500) is the most popular benchmark measuring the overall performance of the U.S. equity marketplace. It is comprised of stocks engaged in a wide variety of enterprises and representing all industry sectors.

But while a "macro-index" like the S&P 500 provides a useful summary of the entire market, much can be overlooked in the aggregation process. *E.g.*, an advance in the S&P 500 may be driven by the release of an economic indicator – or a general shift or rotation from fixed income into equity investments.

Thus, the index may be decomposed into nine (9) Select Sector indexes with varying investment characteristics. Utilities, consumer staples and healthcare sectors tend to be rather defensive in nature. Energy, industrials, materials, consumer discretionary, and technology sectors tend to be more pro-cyclical in nature.¹

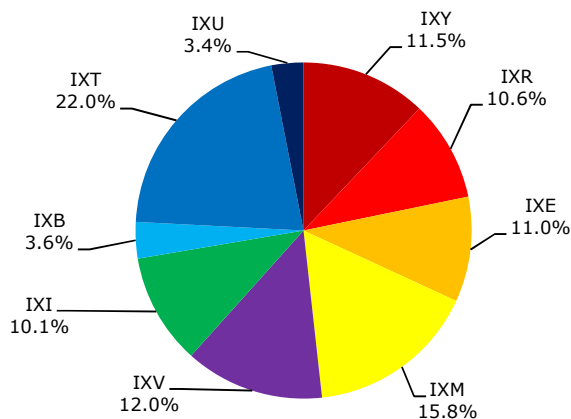
CME Group launched E-mini Select Sector Index futures in March 2011. These futures are cash-settled to a value of \$100 x Index with the exception of the Financials contract which is valued at \$250 x Index.

These contracts may be utilized for purposes of taking outright sector risk exposure or hedging sector risk exposure. Or, they may be utilized to take advantage of anticipated trends in the relative performance of two different sectors.

¹ The Information Technology and Telecomm sectors of the S&P 500 are combined to comprise the Technology Select Sector Index.

This is referred to as a "sector rotation strategy" insofar as one may shift resources from poorly performing sectors into sectors expected to exhibit superior performance.

**S&P 500 Sector Breakdown
(March 31, 2014)**



Select Sector futures may be utilized to comprise a spread transaction on the part of speculative interests. Or, they may be used by equity asset managers to allocate or rotate investments from one sector to another while leaving the core investment portfolio undisturbed.

Select Sector Performance

While all of these indexes are positively correlated to the S&P 500 Index, the betas (β) and coefficients of correlation (R^2) derived from a statistical regression of sector index returns vs. those of the S&P 500 vary widely.²

The utility index exhibits a conservative beta of 0.566 and a weak correlation of 0.261. The financial, energy and materials indexes have

² Traders frequently distinguish between historical or raw or fundamental betas versus so-called adjusted betas. The historical or "raw" β may be calculated based on historical data using an ordinary least squares (OLS) analysis. Adjusted β represents an estimate of the future β associated with a security per the hypothesis that β will gravitate toward 1.0 over time – an implicit "mean reversion" theory. Adjusted β may be calculated as follows.

$$\text{Adjusted } \beta = (0.67 \times \text{Raw } \beta) + (0.33 + 1)$$

Opinions vary regarding the recommended version of beta to reference.

aggressive betas of 1.237, 1.168 and 1.137, respectively. The industrial sector is most heavily correlated with the S&P 500 with an $R^2=0.888$, followed by consumer discretionary sector at 0.852 and the financial sector at 0.839.

Select Sector Performance vs. S&P 500
(Based on Weekly Data from April 2012 – March 2014)

Index	Symbol	Beta (β)	Adj Beta	R ²
Consumer Disc	IXY	1.082	1.055	0.852
Consumer Staples	IXR	0.714	0.809	0.598
Energy	IXE	1.168	1.112	0.775
Financial	IXM	1.237	1.158	0.839
Health Care	IXV	0.805	0.870	0.699
Industrial	IXI	1.086	1.057	0.888
Materials	IXB	1.137	1.091	0.762
Technology	IXT	0.999	0.999	0.801
Utilities	IXU	0.566	0.710	0.261

Source: Bloomberg

This suggests a simple strategy of shifting away from low beta into high beta sectors in anticipation of a bull market in equities. Or, shifting away from high beta and into low-beta sectors in anticipation of a bear market.

Summary performance data for the S&P 500 and the 9 Select Sector Indexes is provided below. Over the past 5-year time period from April 2009 through March 2014, the S&P 500 has turned in an impressive total return of +160.79% (inclusive of price fluctuations plus dividend accruals).

Total Returns
(As of 3/31/14)

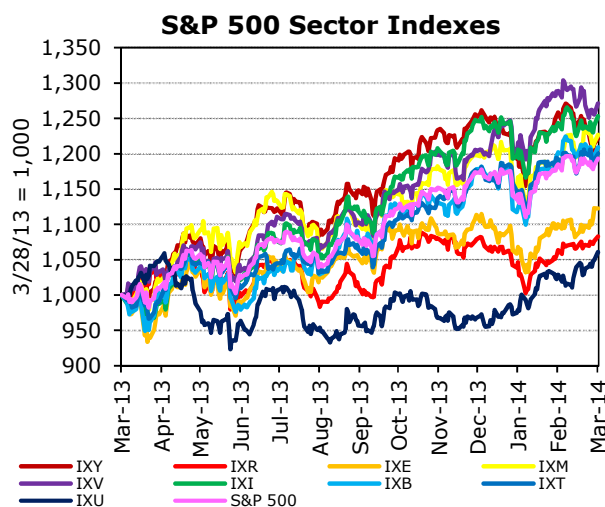
Index	Q1-14 Return	1-Yr Return	5-Yr Return
S&P 500	1.79%	21.83%	160.79%
Consumer Discretionary	-2.80%	23.99%	258.74%
Consumer Staples	0.75%	11.23%	137.65%
Energy	1.21%	14.57%	130.41%
Financial	2.59%	24.85%	174.04%
Health Care	5.85%	29.41%	167.06%
Industrial	0.63%	27.97%	217.18%
Materials	2.84%	23.64%	143.41%
Technology	2.12%	22.59%	154.64%
Utilities	10.08%	10.37%	100.06%

Source: Bloomberg

The Select Sector Indexes have generally rallied in concert with the S&P 500. The consumer discretionary sector leads the way at +258.74%. Following behind are industrials (+217.18%), financials (+174.04%), health care (+167.06%),

technology (+154.64%), materials (+143.41%), consumer staples (+137.65%), energy (+130.41%) and utilities (+100.06%).

Over the past year (April 2013 through March 2014), the market was led by the health care industry (+29.41%), followed by industrials (+27.97%), financials (+24.85%), consumer discretionary (+23.99%), materials (+23.64%), technology (+22.59%), energy (+14.57%), consumer staples (+11.23%) and utilities (+10.37%).

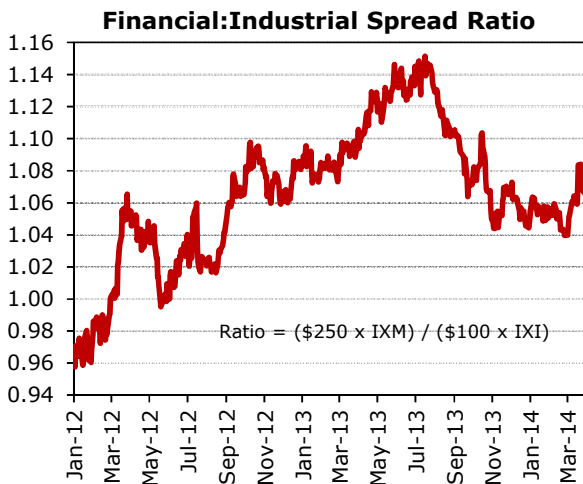


Over Q1-14, we find that utilities took the lead with a total return of +10.08%. This was followed by the health care (+5.85%), materials (+2.84%), financials (+2.59%) and technology (+2.12%) sectors. Lagging behind were the energy (+1.21%), consumer staples (+0.75%), industrial (+0.63%), and consumer discretionary (-2.80%) sectors.

Spreading Select Sector Futures

Speculators frequently utilize inter-market spreads to take advantage of anticipated differentials in the performance of one market vs. another. Select Sector futures lend themselves ideally for this purpose.

In order to place an inter-market spread, it is necessary to derive the so-called "spread ratio." The spread ratio is an indication of the ratio or number of stock index futures that must be held in the two markets to equalize the monetary value of the positions held on both legs of the spread.



If Financials expected to outperform Industrials



BUY 10 Financial & SELL 11 Industrial futures

The “spread ratio” provides an indication of the appropriate way to construct an inter-market spread. Further, it presents a convenient method for following the performance of the spread over time. Because these ratios are dynamic, one must be aware of the current spread ratio when placing a trade.

Note that this represents a “dollar-neutral” spread in the sense that we balance the notional value of the two sector investments. This approach may be differentiated from a “beta-neutral” spread where the betas of the two sector investments are balanced.⁴

Sector Rotation Investment Strategy

Equity asset managers will generally allocate their funds across stock market industry sectors and individual stocks. In many cases, they may conform the composition of the portfolio to match that of the benchmark or bogey. This strategy assures that the performance of the portfolio generally will parallel performance of the benchmark.

However, asset managers may subsequently re-allocate, or rotate, portions of the portfolio amongst these various sectors in search of enhanced value.

E.g., if one believed that the financial sector would outperform the industrial sector moving forward, an asset manager may attempt to capitalize on this view by re-allocating away from industrial stocks in favor of financial stocks.

This may be accomplished simply by liquidating industrial stocks in favor of buying financial stocks. Or, one might utilize CME Group E-mini S&P 500 Select Sector stock index futures similarly to restructure the portfolio. Specifically, one may transact a spread by selling E-mini Industrial Select

The following formula may be used for this purpose where Value₁ and Value₂ represent the monetary value of the two stock index futures contracts that are the subject of the spread.³

$$\text{Spread Ratio} = \text{Value}_1 \div \text{Value}_2$$

E.g., on February 31, 2014, the S&P Financial Select Sector index was quoted at 223.16 while the S&P Industrial Select Sector index was at 523.55. Thus, the E-mini S&P Select Sector Financial futures contract was nominally valued at \$55,790 (= \$250 x 223.16). The E-mini S&P Select Sector Industrial futures contract was nominally valued at \$52,355 (= \$100 x 523.55).

The spread ratio is calculated below at 1.066. This suggests that one might balance 10 Financial index futures with 11 Industrial index futures.

$$\begin{aligned} \text{Spread Ratio} &= \text{Value}_{\text{Financials}} \div \text{Value}_{\text{Industrials}} \\ &= \$55,790 \div \$52,355 \\ &= 1.066 \\ &= 10 \text{ Financial:}11 \text{ Industrial} \end{aligned}$$

Thus, if one believed that financials might outperform industrials, one might wish to buy 10 Financial Select Sector futures and sell 11 Industrial Select Sector futures contracts.

³ We reference spot index values and not the quoted futures price for purposes of identifying the monetary value of a stock index futures contract. This convention serves to eliminate cost of carry considerations from the calculation.

⁴ Note that one may utilize either the raw or adjusted betas for this purpose, depending upon your interpretation of the relative merits of the two betas.

Sector futures and buying E-mini Financial Select Sector futures.

E.g., assume that the manager of an equity portfolio valued at \$100 million wanted to “overweight” financials by 5% and similarly “underweight” industrials by 5%.

This would imply the purchase of 90 Financial Sector futures [= (5% x \$100 million) ÷ \$55,790] coupled with the sale of 96 Industrial Sector futures (=1.066 x 90).

**BUY 90 Financials
& SELL 96
Industrials** → **Effectively over-weights
financials by 5% &
under-weights
industrials by 5%**

Thus, the asset manager effectively may “underweight” industrials and “overweight” financials (relative to the S&P 500 vs. which performance presumably is benchmarked).

This strategy utilizing futures spreads to shift resources from one sector to the next offers the advantage of leaving undisturbed the underlying equity investments weighted according to the benchmark. Thus, this may be referred to as an “overlay” strategy.

Similarly, one may use stock index futures to rotate investment from one national stock market to another. *E.g.*, one might sell E-mini S&P 500 futures and buy Nikkei 225 futures effectively to rotate investment away from U.S. and into Japanese equity markets.

Conclusion

CME Group E-mini S&P Select Sector Stock Index futures represent an efficacious and convenient tool to pursue “sector rotation” strategies, by shifting resources or investment from market sectors expected to underperform to sectors expected to outperform the market.

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All references to options refer to options on futures.

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