Sector Dispersion & Correlation

Providing Opportunity for Sector Rotation Strategies

BEN JONES, SENIOR ANALYST, NASDAQ DORSEY WRIGHT

Dorsey Wright Focus Five Index (DWAQNFF)

When describing a relative strength-based process which inevitably involves rotation over time, it is important to incorporate a discussion on the dispersion of returns and sector correlation because they are key elements to relative strength and ultimately, sector rotation. Setting an appropriate expectation is important, which means highlighting some of the pros and cons of a methodology and the success of rotational strategies depends largely upon the magnitude of performance dispersion or correlation within the market as well as the investment inventory. Over the years, sector rotation strategies using relative strength have been able to take advantage of environments with wider dispersions and lower correlations. However, in years like 2015 and 2016, they struggled because of rising correlations and narrower dispersions. Based on recent research though, it turns out that correlations among sectors have moved to some of the lowest levels in recent history and dispersions have started to pick up. If this continues, sector rotation strategies, like the Dorsey Wright Focus Five Index (DWAQNFF), should see more success in capturing sector opportunities and trends.

Dispersions and Correlation

When we refer to dispersion and correlation, we are really describing the opportunity available to rotational, tactical strategies. Relative strength-based strategies will tend to offer excess return over their benchmarks more readily when the dispersion between the best and worst is very wide or when the correlation among sectors declines. The reason for this is fairly straight-forward: the more sectors diverge (wider dispersions) or behave differently (lower correlations), the more potential value a strategy can add by being in the “good” sectors and out of the “bad” sectors. There is potential for a tactical decision to produce a meaningful result. On the other hand, such strategies will tend to suffer, or at least become muted when the dispersion is narrower or correlation is higher. Taken to an extreme, if all investment possibilities were up the same amount each month and each year, there is not much value for a tactical strategy to add through rotation.

Broad Sector Dispersion

A key driver of the success of sector rotation strategies is the performance dispersion that occurs between those sectors. In Figure 1, the broad sector performance table highlights the performance dispersion between the eleven broad US sectors since the beginning of 2007. This dispersion acts as the fuel for sector rotation strategies, as adaptive portfolios have the potential to capture the returns from stronger sectors while limiting exposure to weaker sectors, producing added returns over time. Adding "fuel" to the process can come through introducing even smaller market categories through sub-sectors or individual stock selection. The average annual dispersion of the broad has been 40.79% per year during this study period, which is the "fuel" that sector rotation strategies can benefit from over time.

Figure 1: Broad Sector Dispersion

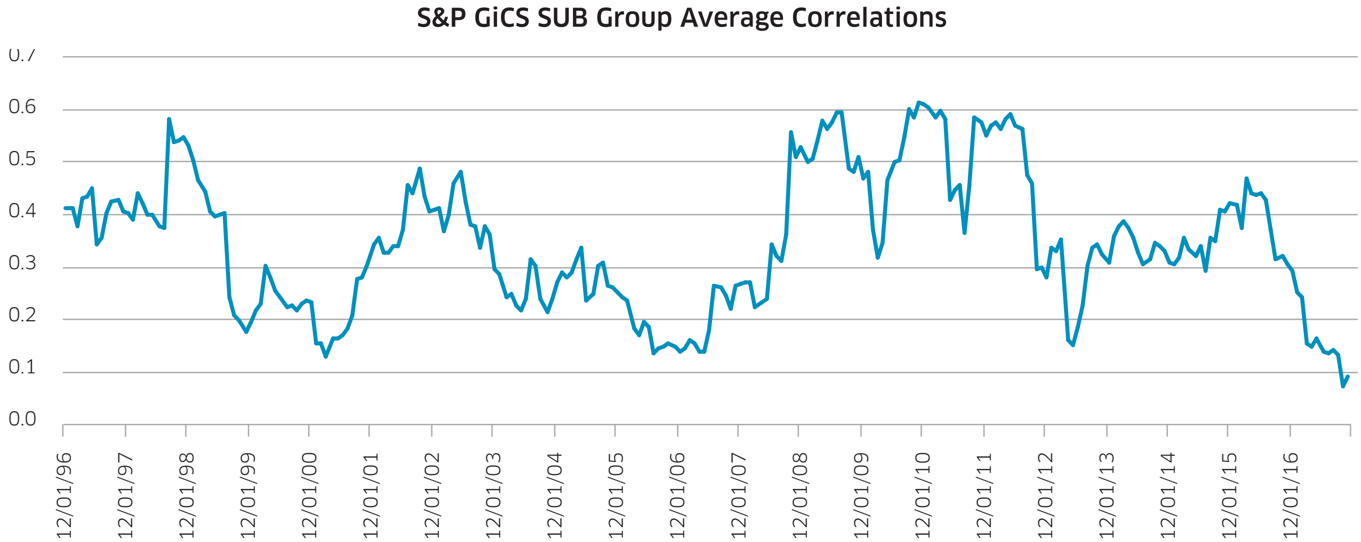
2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	OVERALL
Energy 38.23	Healthcare -22.37	Technology 94.01	Real Estate 28.47	Utilities 12.52	Real Estate 30	Financials 43.6	Real Estate 22.52	Healthcare 5.58	Basic Materials 53.39	Healthcare 29.05	Healthcare 247.2
Basic Materials 28.57	Utilities -24.71	Real Estate 72.97	Basic Materials 27.84	Consumer Non-Cyclicals 5.89	Financials 29.71	Consumer Cyclicals 42.72	Utilities 19.82	Telecommunications 0.24	Energy 38.66	Technology 26.56	Industrials 216.04
Healthcare 16.89	Consumer Non-Cyclicals -30.67	Basic Materials 68.96	Industrials 27.07	Healthcare 0.83	Industrials 17.69	Industrials 38.2	Healthcare 15.92	Real Estate -0.4	Industrials 28	Industrials 22.51	Technology 205.19
Telecommunications 15.16	Industrials -36.64	Consumer Cyclicals 65.34	Technology 26.18	Real Estate -0.32	Healthcare 16.76	Technology 34.61	Consumer Cyclicals 12.17	Technology -0.56	Utilities 23.62	Basic Materials 18.48	Consumer Non-Cyclicals 169.31
Consumer Non-Cyclicals 12.74	Consumer Cyclicals -40.82	Consumer Non-Cyclicals 45.84	Consumer Cyclicals 24	Industrials -2.69	Consumer Cyclicals 16.62	Healthcare 34.45	Technology 11.18	Financials -1.56	Technology 18.33	Consumer Cyclicals 15.05	Consumer Cyclicals 144.68
Industrials 10.26	Telecommunications -43.46	Industrials 42.51	Energy 20.83	Consumer Cyclicals -5.27	Consumer Non-Cyclicals 9.93	Consumer Non-Cyclicals 33.14	Consumer Non-Cyclicals 11.04	Consumer Cyclicals -2.16	Financials 17.28	Consumer Non-Cyclicals 13.31	Basic Materials 98.47
Utilities 10.11	Energy -44.34	Energy 41.11	Telecommunications 20.73	Technology -8.11	Technology 9.27	Energy 26.86	Financials 9.81	Consumer Non-Cyclicals -3.5	Consumer Cyclicals 15.94	Utilities 10.96	Utilities 85.41
Technology 3.37	Real Estate -44.4	Healthcare 35.09	Financials 18.34	Basic Materials -10.71	Basic Materials 4.93	Telecommunications 19.58	Industrials 5.83	Industrials -4.9	Consumer Non-Cyclicals 14.82	Financials 10.78	Real Estate 75.44
Consumer Cyclicals -12.63	Basic Materials -45.42	Financials 25.86	Healthcare 10.52	Telecommunications -12.05	Telecommunications 3.32	Utilities 12.31	Basic Materials -2.33	Utilities -6.4	Real Estate 12.74	Telecommunications 8.44	Telecommunications 7.55
Real Estate -23.53	Technology -46.11	Telecommunications 19.72	Consumer Non-Cyclicals 9.36	Energy -12.88	Energy 2.3	Basic Materials 9.55	Telecommunications -12	Basic Materials -28.13	Telecommunications 9.93	Real Estate 3.61	Financials 4.8
Financials -34.98	Financials -52.48	Utilities 9.8	Utilities 6.5	Financials -12.95	Utilities -1.6	Real Estate 0.53	Energy -21.47	Energy -28.63	Healthcare 2.5	Energy -10.19	Energy 3.51
Performance Differential:											Average Differential:
73.21	**30.11**	**84.21**	**21.97**	**25.47**	**31.6**	**43.07**	**43.99**	**34.21**	**50.89**	**39.24**	**43.45**

Past performance is not indicative of future results, Potential for profits is accompanied by possibility of loss.

Sub-Industry Correlation

Now let's turn to the concept of correlation by comparing the relationships of US GICS Sub Industry Groups. In a recent whitepaper titled, “What Do Low Correlations Mean Going Forward?” by John Lewis, Senior Portfolio Manager at Nasdaq Dorsey Wright, it was found that sector correlations are at historically low levels. In the white paper, John Lewis compared the GICS Sub Industry Groups. For each sub industry, the monthly return was calculated, then a pairwise correlation was run over the last year (12 months). All of the correlation pairs were averaged to determine how closely all of the sub industries were moving together. When the average correlation was high, it indicated that the sector industry groups were moving in the same general direction, which often mitigates the value that a sector rotation strategy brings to the table. Meanwhile, a low average correlation is an indication that sub industry are moving independent from one another, which is typically a good environment for rotation based strategies.

Figure 2: Sub-Group Correlations



Source: Dorsey Wright & FactSet. Past performance is no guarantee of future results. Potential for profits is accompanied by possibility of loss.

The Dorsey Wright Focus Five Index Methodology

One strategy that offers the potential to capture such dispersions and correlations is the Dorsey Wright First Trust Focus Five Index (DWANQFF). In order to take advantage of the opportunity depicted above, we apply relative strength to help us identify the leaders from the laggards within the universe. Our goal is to orient the Index towards the outperformers, while avoiding the areas that are underperforming within the universe. To determine the relative strength of the First Trust sector assets, the Index utilizes a Point and Figure Relative Strength Matrix. The Index seeks the strongest areas within the sector lineup, holding five sector ETFs at all times. The actual securities are identified by reviewing the universe of 19 First Trust Sector ETF's (as listed in Figure 3) each of which could potentially be placed in the Index.

Figure 3: Dorsey Wright Focus Five Index Sector Inventory

SYMBOL	ETF NAME	SYMBOL	ETF NAME
FBT	First Trust NYSE Arca Biotechnology Index Fund	FXN	First Trust Energy AlphaDEX® Fund
FDN	First Trust Dow Jones Internet Index Fund	FXR	First Trust Industrials/Producer Durables AlphaDEX® Fund
FDN	First Trust Consumer Discretionary AlphaDEX® Fund	QQXT	First Trust NASDAQ-100 Ex-Technology Sector Index Fund
FXG	First Trust Consumer Staples AlphaDEX® Fund	QTEC	First Trust NASDAQ-100-Technology Sector Index Fund
FXH	First Trust Health Care AlphaDEX® Fund	FRI	First Trust S&P REIT Index Fund
FXO	First Trust Financials AlphaDEX® Fund	FXL	First Trust Technology AlphaDEX® Fund
FXU	First Trust Utilities AlphaDEX® Fund	FXZ	First Trust Materials AlphaDEX® Fund
FTXD	First Trust Nasdaq Retail ETF	FTXG	First Trust Nasdaq Food & Beverage ETF
FTXN	First Trust Nasdaq Oil & Gas ETF	FTXR	First Trust Nasdaq Transportation
FTXO	First Trust Nasdaq Bank ETF		

The Dorsey Wright Focus Five Index (DWANQFF) is a rules-based, transparent, tactical strategy that uses relative strength to compare and rank many of the First Trust sector ETFs. The Index was launched in February 2014 and currently employs a defined universe of 19 ETFs that include exposure to both broad and sub-sectors, allowing the portfolio to capture wider dispersions present in the market. The Index inventory is reviewed and can change as new products are launched, or existing products are no longer a fit for the universe. At any given time, DWANQFF holds five ETFs from the universe of First Trust sector ETFs included that display the most powerful relative strength characteristics. The inventory is evaluated on a bi-monthly basis for changes in market leadership, and has the capability to rotate into any combination of the funds within the investable inventory.

Figure 4: Dorsey Wright Focus Five Index RS Matrix Ranking

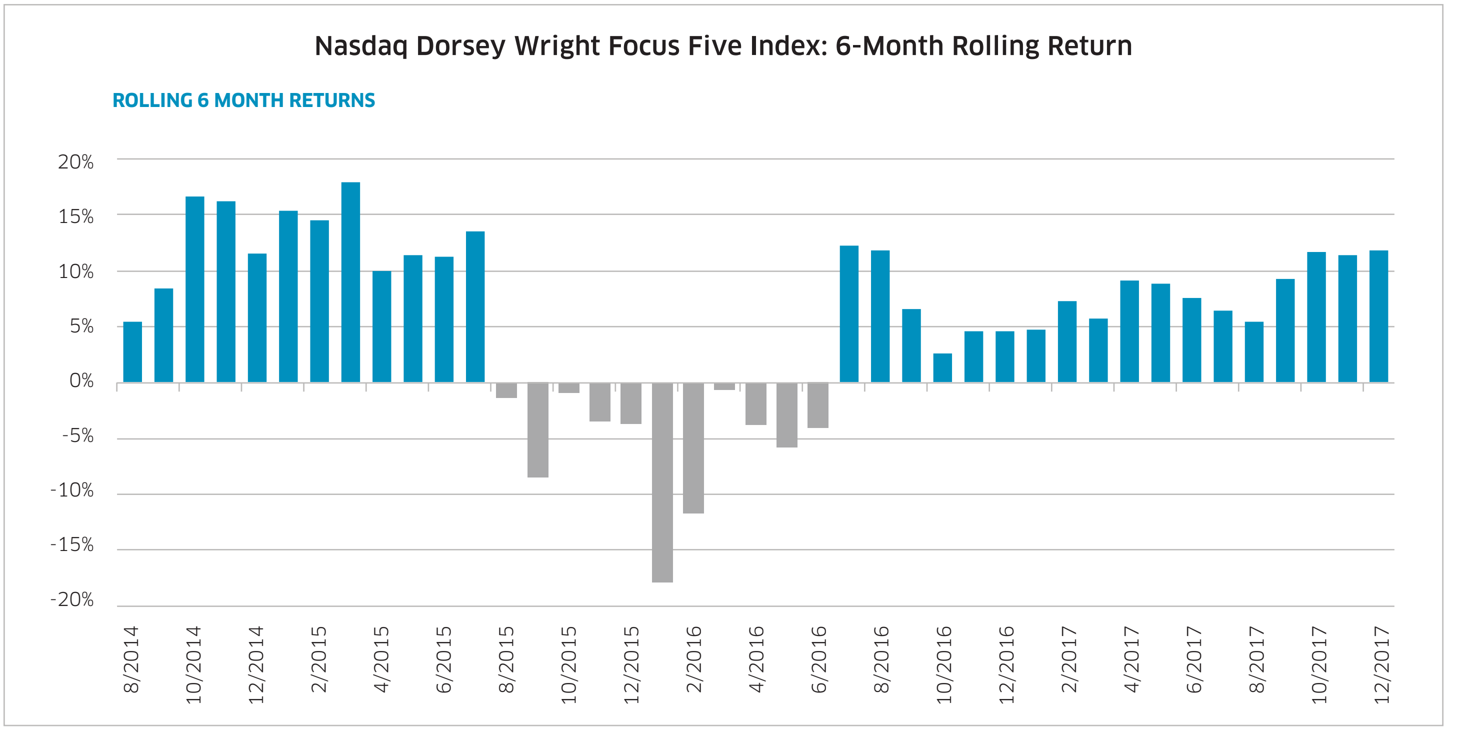
RANK	TICKER	NAME	BUYS
1	FDN	First Trust Dow Jones Internet IndexSM Fund	18
2	QTEC	First Trust NASDAQ-100-Technology Sector IndexSMFund	16
3	FXL	First Trust Technology AlphaDEX Fund	15
4	FTXN	First Trust Nasdaq Oil & Gas ETF	13
5	FBT	First Trust NYSE Arca Biotechnology Index Fund	13
6	FTXO	First Trust Nasdaq Bank ETF	13
7	FXR	First Trust Industrials/Producer Durables AlphaDEX Fund	10
8	FXO	First Trust Financials AlphaDEX Fund	9
9	FTXR	First Trust Nasdaq Transportation ETF	9
10	QQXT	First Trust NASDAQ-100 Ex-Technology Sector IndexSMFund	9
11	FTXG	First Trust Nasdaq Food & Beverage ETF	8
12	FXZ	First Trust Materials AlphaDEX Fund	7
13	FXH	First Trust Health Care AlphaDEX Fund	7
14	FXD	First Trust Consumer Discretionary AlphaDEX Fund	7
15	FXN	First Trust Energy AlphaDEX Fund	6
16	FXG	First Trust Consumer Staples AlphaDEX Fund	5
17	FXU	First Trust Utilities AlphaDEX Fund	4
18	FTXD	First Trust Nasdaq Retail ETF	4
19	FRI	First Trust S&P REIT Index Fund	0

(For Illustrative Purposes Only)

Success of the Strategy

Since inception, February 4, 2014, the Dorsey Wright Focus Five Index Total Return (DWANQFFT) has returned (through 12/30/2017) 60.54% while the Nasdaq US Large Cap 500 Index (NQUS500LCT) has returned 65.75%. While the index has trailed the US Large Cap index, sector dispersions were lower than normal. If the dispersions begin to pick up, the strategies, such as the Dorsey Wright Focus Five Index, can offer the potential to outperform. As seen in Figure 5 below, the strategy has managed to exhibit positive 6-month returns since the ccorrelations began to decline.

Figure 5: Rolling 6-Month Return of Dorsey Wright Focus Five Index Total Return (Data since inception through December 2017)



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Adapting to Changes in Sector Leadership

Since the beginning of 2016 the DWANQFF index has experienced six sector trades, or the selling one sector ETF and buying another. Often time we see change during a period of underperformance for the strategy. These two things, change (turnover) and underperformance often come together, as the most common periods of weakness for relative strength portfolios are those encompassing a great deal of rotation. That said, it is this process of rotation that drives the long-term success of such strategies. Change means the strategy is adapting to changes in market and sector leadership, and allows the strategy to capture the next, new theme of leadership.

Much of the DWANQFF's current allocation began to take shape 2016, particularly after the midway point of the year. In November 2016 the strategy rotated out of Consumer Discretionary (FXD) and Consumer Staples (FXG) and into Nasdaq-100 Technology (QTEC) and Industrials/Producer Durables (FXR). Sector rotation continued into 2017, coinciding with a fall in correlation across sectors. In March 2017 the strategy rotated out of Energy (FXN) and into Banks (FTXO). The last change in the strategy occurred in November 2017, when Utilities (FXU) rotated out and was replaced by Technology (FXL). The changes that occurred over the past year and half were in response to changes in performance trends across the US Sector landscape. Technology has been one of the persistent leaders, causing the portfolio to tactically overweight this sector at this time, as it now accounts for 60% of the sector exposure within DWANQFF. The remaining allocation is focused towards Banks and Industrials/Producer Durables. As a result of this rotation, the portfolio has also shifted itself towards the Large Cap Growth size and style box.

Figure 5: Recent Sector Changes (since inception)

	IN		OUT	
CHANGE DATE	NAME	SYMBOL	NAME	SYMBOL
02/05/16	First Trust Utilities AlphaDEX Fund	FXU	First Trust NYSE Arca Biotechnology Index Fund	FBT
03/18/16	First Trust Energy AlphaDEX Fund	FXN	First Trust Health Care AlphaDEX Fund	FXH
11/11/16	First Trust NASDAQ-100-Technology Sector Index Fund	QTEC	First Trust Consumer Discretionary AlphaDEX Fund	FXD
11/25/16	First Trust Industrials/Producer Durables AlphaDEX Fund	FXR	First Trust Consumer Staples AlphaDEX Fund	FXG
03/24/17	First Trust Nasdaq Bank ETF	FTXO	First Trust Energy AlphaDEX Fund	FXN
11/10/17	First Trust Technology AlphaDEX Fund	FXL	First Trust Utilities AlphaDEX Fund	FXU

Accessing the Indexes

The Dorsey Wright Focus Five Index (DWAQNFF) is available to investors through the First Trust Dorsey Wright Focus Five ETF (ticker: FV). The First Trust Dorsey Wright Focus Five (FV) is listed on the Nasdaq stock exchange. For more information on the ETF, visit the First Trust site here: https://www.ftportfolios.com/retail/etf/etfsummary.aspx?Ticker=FV