



PortfolioWise™

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# Chaikin Power Gauge™ ETF Ratings

Enhancing the ETF Selection Process

WHITE PAPER – Digested Version

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## Introduction

Exchange-Traded Funds (ETFs) represent a diverse set of asset classes and investment strategies and are an efficient way to implement a wide range of portfolio construction goals. They greatly benefit the investment community by offering investors exposure to asset classes in which they may find it otherwise difficult to invest as well as tax efficiency, broad diversification, efficient trading execution, and cost-efficient trading. But choosing among the many ETFs offered for each investment goal can be difficult. Details regarding the construction of indexes that are tracked by the ETF portfolios are skimpy at best and such information that is provided tends to be dulled by legalistic language that makes large groups of ETFs seem virtually indistinguishable from one another. Hence most ETF analysis has primarily focused on relative performance, fees, and assets under management – all important metrics, to be sure. Reliable predictive models, however, are less common.

At the heart of an ETF is its portfolio, and holdings (constituents) are disclosed, so it would seem reasonable to assume that one could conduct a forward-looking analysis of an ETF by analyzing its constituents. But given the massive quantity of information that would have to be sorted, aggregated, analyzed, and rolled up, “analysis” of ETF portfolios tends to be limited to visual presentations showing percentage allocations among sectors or geographies, or weighted-averages for a few select data-points. Such presentations can make for interesting viewing, but they do not shed light on the ETF’s future performance prospects.

Chaikin Analytics has applied its expertise in multi-factor analysis to create *Chaikin Power Gauge™ ETF Ratings* based on both fundamental and technical analysis, which and have been shown to empower investors to successfully differentiate among ETFs on the basis of probable relative future performance. Stock ratings for each of an ETF’s holdings are aggregated up, not to depict past performance, but rather to predict a stock’s potential performance 3 to 6 months into the future. The final piece of the rating is a technical factor which can capture market phenomenon such as momentum and oversold conditions.

## Chaikin Power Gauge™ Stock Ratings

Chaikin has advocated a multi-factor approach to stock analysis. In 2011, the company launched Chaikin Power Gauge™ Stock Ratings, combining **Value**, **Growth**, **Technical**, and **Sentiment**



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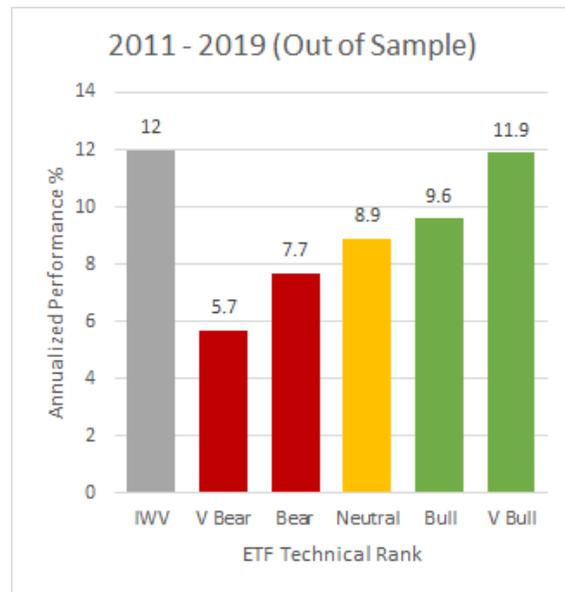
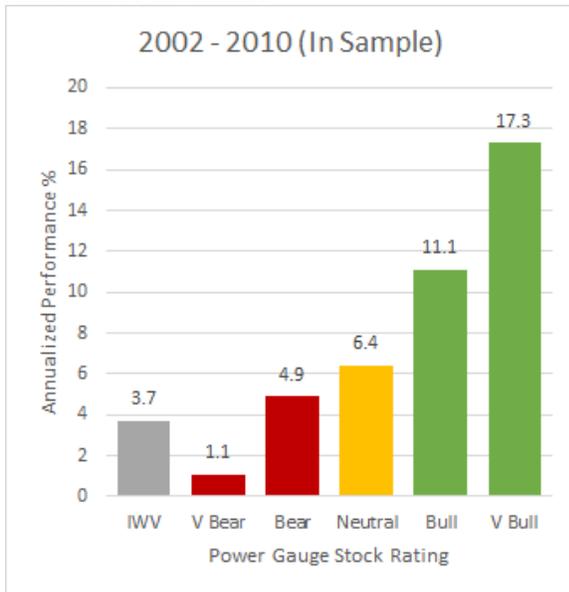
factors, which successfully identified potential outperformance over a long backtest period<sup>1</sup>, and in real-world lifetime performance through 2019.

For ETFs holding US equities, this approach can be “rolled up” to the ETF level and added to technical metrics of the ETF’s performance to achieve a similar result.

## Chaikin Power Gauge Stock Rating - Model Factors

Value	Growth	Technicals	Sentiment
LT Debt to Equity	Earnings Growth	Rel Strength vs Market	Estimate Trend
Price to Book	Earnings Surprise	Chaikin Money Flow	Short Interest
Return on Equity	Earnings Trend	Price Strength	Insider Activity
Price to Sales	Projected P/E	Price Strength ROC	Analyst Rating Trend
Free Cash Flow	Earnings Consistency	Volume Trend	Industry Strength

## Annualized Performance



<sup>1</sup> [Evaluation of the Chaikin Power Gauge Stock Rating System](#). White Paper. Marc Gerstein, 2013.



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## The ETF Model

The overall ETF model combines ETF-level technical information with constituent stock rating inputs. For ETFs holding US equities with valid Power Gauge Ratings, the model includes:

1. 60% - ETF Technical Rank
2. 40% - Constituent Power Gauge Rating inputs:
  - a. 20% - Constituent Bull/Bear Ratio
  - b. 20% - Cap-Weighted Average Power Gauge Rating

For rated ETFs that do not holding US Equities, the Technical Rank comprises 100 percent of the score.

### ETF Technical Rank



The ETF Technical Rank model assesses the technical strength of all ETFs in our ranking universes. It weights and combines the following:

1. Long-term price strength and relative performance indicators
2. Medium-term momentum oscillators
3. Short-term overbought/oversold indicators.



### Cap-Weighted Average Power Gauge Rating

The second factor in the composite ETF model looks at the average Power Gauge™ Rating of stocks held by this ETF, weighted by ETF constituent weighting. This factor is ignored for ETFs which do not hold US equities.

### Constituent Bull/Bear Ratio



The final factor in the composite model looks at the Power Gauge™ Ratings of the ETF's US equity holdings, specifically the ratio of Bullish and Very Bullish stocks to Bearish and Very Bearish stocks held by the ETF. (Chaikin refers to this as an ETF's "Power Bar Ratio"). This provides a measure of the strength of the rating-based opinion regarding the portfolio. This factor is ignored for ETFs which do not hold US equities.



## Rating “Bucketing”

The composite score is converted from a 0-100 value to a Rating using a fractile bucketing scheme, similar to that used for the Power Gauge™ Stock Rating:

	Fractile	Rating
	1-3	Very Bullish
	4-6	Bullish
	7-10	Neutral
	11-12	Bearish
	13-14	Very Bearish

## Final Refinements

A technical overlay may be applied to the ETF Rating itself, if actual price performance and model factors diverge. A Bullish or Very Bullish ETF Rating will be converted to Neutral+ if:

- Price drops rapidly to below a threshold level
- Price reaches a second, lower threshold (regardless of steepness of decline).

The converse is applied for Bearish or Very Bearish ETF Ratings. Continuity

As a final step, a Continuity function is applied to contribute to greater smoothness of Rating changes in real-world conditions. Continuity conditions require that a Rating cannot change directly from Green to Red (or vice versa); it must go through Neutral for at least one Rating period.

A Rating period is one week.

## Tracking the Efficacy of our ETF Ranks

Rather than engage in an ultimately futile attempt to present academia-oriented data showing theoretical results of a large statistically random sample, we aim to depict results that could have been obtained through a realistic investor work process; such as that of an investor who seeks to implement a particular strategy by moving into and out of assumed better or lesser ETFs from a manageable-sized menu of choices.



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A set of work-flow-based rank performance results will be based on the following approach:

- Start with a limited collection of ETFs that together comprise a realistic menu of potential choices for an investor seeking to implement a particular strategy (choose a large-cap value ETF, choose a cap-agnostic growth ETF, choose a Technology ETF, etc.)
- Five hypothetical portfolios are constructed for each goal, one comprising ETFs in the group with Very Bullish rating, another consisting of ETFs ranked Bullish, etc. through Neutral, Bearish, or Very Bearish.
- Each portfolio will be assigned an index value of 100 as of 9/30/18, shortly after ETF PGR went live. This is the starting value for the index, and changes in this number signify increases and decreases in the value of the index.
- It is assumed all ETFs in a mini portfolio will be held in equal dollar amounts.
- The total return of each portfolio is measured over the course of the upcoming calendar quarter. (If no ETFs are available for a mini-portfolio (e.g., in the quarter ending 6/30/19, there are no Bullish ranked Energy ETFs), it is assumed that the return on that portfolio for that quarter is zero.) The mini-portfolios are then reconstituted at the beginning of the next quarter.
- Performance tracking ends 12/31/19. So rather than measuring long-term performance, we're measuring results over a very limited five-quarter period. (As time passes, we will, of course, be able to lengthen our measurement periods.)
- Trading costs are not considered.
- All numbers presented are based on data from S&P Global Market Intelligence via Xpressfeed as processed on ClariFi

## US Equity ETFs

First, we'll look at an updated view of the ranking system's ability to make bullish or bearish calls on the 11 S&P SPDR sector ETFs:

**S&P SECTORS AND SPY**

As of	ETFs Ranked	
	Very Bullish	Very Bearish
9/30/18	100	100
12/31/18	86.27	84.53
3/31/19	96.15	98.22
6/30/19	100.44	95.50
9/30/19	104.80	89.55
12/31/19	104.80	89.55



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The above chart suggests it would still be constructive to use the ETF ranks to guide an S&P sector rotation strategy.

The next chart indicates the potential for a more finely tuned strategy that rotates among 22 sub-sectors.

### S&P SUB-SECTORS

As of	ETFs Ranked	
	Very Bullish	Very Bearish
9/30/18	100	100
12/31/18	80.67	76.35
3/31/19	95.46	86.77
6/30/19	97.73	84.87
9/30/19	100.16	75.94
12/31/19	101.23	94.72

Both of the above tables cover clean collections in which each ETF is genuinely different from all others in the group. Below, we combine 188 sector ETFs into a single collection which is less clean, in that there is likely to be an erratic degree to which multiple and possibly similar ETFs are present in a sector. We see, however, that here, too, the ratings effectively guided investors during the brief post-launch period.

### ALL SECTORS

As of	ETFs Ranked	
	Very Bullish	Very Bearish
9/30/18	100	100
12/31/18	82.37	85.22
3/31/19	95.15	94.64
6/30/19	97.22	93.31
9/30/19	99.91	11.00
12/31/19	104.63	96.12



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It would be desirable, but not credible, if we were to claim that the ETF Ranks effectively discriminated among all ETFs within any given sector. The table below shows the 12/31/19 index-portfolio valuations for all the sectors under different rank approaches.

	ETFs Ranked		ETFs Ranked	
	Very Bullish	Very Bearish	Bullish or Very Bullish	Bearish or Very Bearish
<b>Consumer Discretionary</b>	87.64	98.91	97.86	103.65
<b>Consumer Staples</b>	98.47	108.25	105.87	108.12
<b>Energy</b>	79.87	61.96	77.50	76.53
<b>Financials</b>	118.95	103.42	118.12	102.73
<b>Healthcare</b>	84.62	105.19	88.77	103.18
<b>Industrials</b>	85.41	114.27	93.87	117.54
<b>Materials</b>	80.88	102.37	95.42	99.82
<b>Real Estate</b>	127.68	98.83	121.22	99.76
<b>Technology</b>	115.92	111.09	114.04	108.77
<b>Utilities</b>	106.83	102.45	107.09	101.22

Many investors do not focus on sectors but prefer to select ETFs on the basis of style. Adapting this to what we experienced, both in-sample and out-of-sample with the sector bellwethers, we created a similar collection containing representative bellwether ETFs, one for each major investing style. The 19 ETFs included in this collection are:

Analogous to what we experienced with the sector bellwether collection we can get worthwhile insights from the ranks of the ETFs included in the style bellwether collection:

**REPRESENTATIVE STYLES**

As of	ETFs Ranked	
	Very Bullish	Very Bearish
9/30/18	100	100
12/31/18	84.01	81.30
3/31/19	94.65	92.81
6/30/19	98.91	93.74
9/30/19	100.97	93.74
12/31/19	100.97	93.74

The next Table shows 12/31/19 Index levels (9/30/18 = 100) for the five-quarter portfolios comprised of more focused style-based ETFs. (Note: 12/31/19 values of 100.00 mean there were no



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ETFs in the category during that five-quarter interval that had the ranks indicated in the column headers.)

	ETFs Ranked		ETFs Ranked	
	Very Bullish	Very Bearish	Bullish or Very Bullish	Bearish or Very Bearish
<b>All-Cap Blend</b>	105.40	99.42	105.85	99.42
<b>All-Cap Growth</b>	83.49	108.80	87.57	117.89
<b>All-Cap Value</b>	120.34	102.08	117.47	101.79
<b>Large-Cap Blend</b>	108.64	105.65	110.57	106.49
<b>Large-Cap Growth</b>	102.37	100.00	107.66	100.00
<b>Large-Cap Value</b>	101.27	93.90	106.37	105.35
<b>Mid-Cap Blend</b>	112.39	101.99	109.41	98.76
<b>Mid-Cap Growth</b>	85.06	100.00	86.31	101.15
<b>Mid-Cap Value</b>	100.00	112.48	103.17	104.70
<b>Small-Cap Blend</b>	90.80	96.89	96.17	93.94
<b>Small-Cap Growth</b>	79.23	127.93	88.58	126.16
<b>Small-Cap Value</b>	100.00	99.97	106.04	95.24
<b>Large-Cap ETFs</b>	109.87	105.13	111.07	105.97
<b>Mid-Cap ETFs</b>	90.90	100.12	98.16	102.86
<b>Small-Cap ETFs</b>	89.88	101.84	93.74	100.57
<b>All Blend ETFs</b>	106.89	101.38	107.86	101.50
<b>All Growth ETFs</b>	97.58	107.26	102.67	103.28
<b>All Value ETFs</b>	117.57	102.43	115.22	101.33
<b>All-Cap ETFs</b>	104.60	100.65	105.68	100.38

Many investors crave income, which is very hard to find without exorbitant risks in today's continuing very-low-rate environment. Since the initial launch, the ETF ranks have shown solid potential to help income seekers make choices from the ETFs available to them.



This table shows the efficacy of using ETF ranks to select among ETFs generally classified as Dividend Income:

**DIVIDEND YIELD ETFS**

As of	ETFs Ranked	
	Very Bullish	Very Bearish
9/30/18	100	100
12/31/18	90.68	87.30
3/31/19	101.07	97.79
6/30/19	104.22	98.92
9/30/19	108.42	100.05
12/31/19	122.78	105.58

Recall too that the ETF ranks have shown their ability to differentiate within sector-specialty ETFs that are often pursued by yield-seeking investors: Real Estate and Utilities. The third table combines Real Estate, Utility and General Equity Income ETFs.

**REAL ESTATE**

As of	ETFs Ranked	
	Very Bullish	Very Bearish
9/30/18	100	100
12/31/18	100.00	93.39
3/31/19	116.52	93.39
6/30/19	119.91	95.49
9/30/19	128.84	98.83
12/31/19	127.68	98.83

**UTILITIES**

As of	ETFs Ranked	
	Very Bullish	Very Bearish
9/30/18	100	100
12/31/18	85.58	100.00
3/31/19	94.96	100.00
6/30/19	98.06	100.00
9/30/19	106.65	102.45
12/31/19	106.83	102.45



## DIV. YLD ETFs + REAL ESTATE & UTILITIES

As of	ETFs Ranked	
	Very Bullish	Very Bearish
9/30/18	100	100
12/31/18	86.57	90.11
3/31/19	99.40	97.14
6/30/19	102.91	96.42
9/30/19	106.79	96.24
12/31/19	116.18	101.33

In addition to the long-familiar styles referred to thus far, in recent years the ETF market has seen an explosion of stylistic creativity.

- ETFs that invest in companies believed to be socially conscious in terms of the nature of their business, corporate governance, employment practices, sensitivity to environmental concerns and so forth – some expressly bearing the initials ESG (Environmental, Social, Governance) in the indexes they aim to track.
- Another emerging category of ETFs consists of those that track indexes whose constituents are compiled using some sort of quantitative model. These include indexes that forego conventional market capitalization protocols, and choose instead “smart beta” (where weights are based on one or more factors that do not vary with share price movements) or some other approach (e.g., value weighting, volatility weighting) and/or funds tracking indexes that weight positions conventionally but use section models to determine what stocks should be added to the index or replaced (bought or sold).
- Yet another group of ETFs defy categorization under any label other than “Special Themes.” Indexes/ETFs aimed at such themes may build portfolios that emphasize companies with track records for innovation, companies that supposedly benefit from societal trends such as the aging of the population, Millennial lifestyles, business disruption (e.g., as in retail), increased health consciousness, etc.

The extremely heterogeneous nature of these groups and the ongoing additions of new funds continue to pose challenges when trying to make apples-to-apples comparisons among similarly



classified ETFs. Nevertheless, as time passes, we're already starting to see indications that as investors assess these ETFs, they may do well to more carefully scrutinize those rated Bearish or Very Bearish.

## SOCIAL-ESG

As of	ETFs Ranked	
	Neutral or Better	Bearish-Very Bearish
9/30/18	100.00	100.00
12/31/18	85.66	92.64
3/31/19	98.19	99.08
6/30/19	102.38	101.95
9/30/19	103.62	102.76
12/31/19	112.40	107.30

## QUANT

As of	ETFs Ranked	
	Neutral or Better	Bearish-Very Bearish
9/30/18	100.00	100.00
12/31/18	84.79	83.99
3/31/19	96.13	95.53
6/30/19	99.47	96.47
9/30/19	100.44	95.79
12/31/19	106.75	106.01

## SPECIAL THEMES

As of	ETFs Ranked	
	Neutral or Better	Bearish-Very Bearish
9/30/18	100.00	100.00
12/31/18	85.87	85.02
3/31/19	97.73	98.42
6/30/19	101.57	100.77
9/30/19	101.30	98.23
12/31/19	109.89	107.06



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## US Fixed Income ETFs

Fixed Income ETFs raise issues far beyond the legalistic differences between stocks and debt instruments (the presence/absence of contractual obligations, the most prominent of which address payments of interest and principal), and textbook recitations of risk-reward differences (fixed income being widely seen as being lower in both respects). The analytic and selection decision processes are completely different for fixed income ETFs.

With equities, there are countless decision points even among stocks ostensibly considered to be stylistically related. (How, for example, is Value to be defined? Which ratio(s)? What levels of the chosen ratios are to be deemed too high or too low? How to risk and growth expectations impact such determinations and how are risk and growth expectations to be articulated?)

Except in extreme (“edge”) cases, fixed income presents far fewer decision points and in this regard, and as a result can seem simpler than equity analysis: Will the borrower be able to pay its interest and principal obligations (for many ETFs, those that invest in obligations of the United States, this issue is not on the table at all)? Will interest rates rise or fall in the future (this question, the one that impacts potential capital gains or losses for those who don’t hold securities to maturity and possibly opportunity losses for those who do, tends to dominate much fixed-income analysis)? The downside, so to speak, of having fewer questions to answer is the urgency of getting answers that are as close as possible to being 100% accurate. This small amount of room for even modest errors is what causes seemingly simple fixed income investing to be quite challenging.

Our ratings for Fixed Income ETFs are based entirely on Technical Analysis, and within the realm of technical work, our model is primarily trend-oriented in nature.<sup>2</sup>

Because of this, we can readily assume that our ETF ratings will work best (successfully distinguish among Fixed Income ETFs that are more or less likely to outperform others) when interest rates and/or creditworthiness trends remain more or less persistent. As of this writing, however, trend persistence is absent. Consider the below depiction of long-term trends in the 10-Year US Treasury.

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<sup>2</sup> Trending models assume securities will, in the future, move as they have in the past and differ in terms of how they measure trends — typically, the computations involve far more than naïve calculations of percent change over a particular period — and, in many cases, in the way they allow for in-trend reversals to accommodate the tendency of price movements to be jagged rather than straight line. Oscillating models, on the other hand assume ebb and flow based on movements away from a central level followed by backtracking, sometimes referred to as “reversion to the mean.”



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We see a very lengthy uptrend from the beginning of the measurement period, which began 1/1/1962, through the September 1981 peak. The rate experienced something of a roller coaster ride until a second, lower peak in May 1984. Then, rates trended broadly and persistently lower for about 35 years. Considering where we are today, rates cannot repeat anything like the significant downtrend of the last 35 years. Something must change. Rates must embark on a new uptrend, or they may zig and zag along a sideways pattern. The chart below, which covers the 9/30/18-12/31/19 out-of-sample period for our ETF Ratings, viewed in context of the previous chart, suggests a degree of fixed-income market uncertainty going forward.



Rates trended downward for much of the out-of-sample interval. So, it's natural that our trend-oriented model, which favors the longer trends and doesn't flip quickly when counter moves occur, tends to put bullish ratings on Fixed Income ETFs aimed at benefitting from declining rates. But note the reversal toward the end of the period. It's natural to assume it would have punished the performance of those fixed-income ETFs that were most oriented toward rate declines.

Given observed movements in interest rates, coupled with the absence of any events that prompted widespread reassessment of credit risk (leaving interest rate movements as the dominant decision point), the performance of our US Fixed Income ETF ranks is as to be expected once we also factor in the tendency of financial markets to discount expectations, rather than the past or present.



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We measured this using a collection of domestic bellwether fixed-income ETFs:<sup>3</sup>

## US FIXED INCOME BELLWETHERS

As of	ETFs Ranked	
	Very Bullish	Very Bearish
9/30/18	100	100
12/31/18	95.59	104.59
3/31/19	97.86	112.52
6/30/19	102.54	113.28
9/30/19	105.92	113.28
12/31/19	108.00	113.75

Early on in the period, the trend-oriented nature of the ETF Ranks, which necessarily extrapolated recent rate declines, could not be supported in the marketplace, which had to adjust to the inevitability of a change in trend due to the close proximity of the 10-year rate to zero. Later in the period, as the market recalibrated expectations to accommodate the direction rates took toward the end, the Very Bullishly ranked Fixed Income ETFs substantially outperformed the Very Bearish rated funds and by the end of 2019, and closed a good deal of what had earlier in the period been a much wider disadvantage in terms of index value.

Separately, we have seen some ability of the ranks for effectively differentiate among ETFs within the same broad maturity categories.

<sup>3</sup> ETFs in the Fixed Income bellwether collection are:

- iShares Short-Term Treasury ETF (SHIV)
- iShares 1-3 Yr Treasury Bd ETF (SHY)
- iShares 3-7 Yr Treasury ETF (IEI)
- iShares 7-10 Yr Treasury ETF(IEF)
- iShares 20 Plus Yr Treasury ETF (TLT)
- Vanguard Short-Term Bond ETF (BSV)
- iShares Intermediate-Term Corporates ETF (IGIB)
- iShares Iboxx Investment Grade Corporates ETF (LQD)
- iShares Core US Aggregate Bond ETF (AGG)
- iShares Iboxx High Yield Corporates ETF (HYG)
- iShares National Municipal Bond ETF (MUB)
- Vaneck Vectors High Yield Municipals ETF (HYD)
- Vanguard Total Bond Market (BND)



## SHORT-TERM FIXED INCOME

As of	ETFs Ranked	
	Neutral or Better	Bearish-Very Bearish
9/30/18	100.00	100.00
12/31/18	100.59	98.06
3/31/19	102.08	100.46
6/30/19	103.23	102.83
9/30/19	104.06	103.55
12/31/19	105.25	103.37

## INTERMEIDATE-TERM FIXED INCOME

As of	ETFs Ranked	
	Neutral or Better	Bearish-Very Bearish
9/30/18	100.00	100.00
12/31/18	100.17	100.53
3/31/19	103.65	103.96
6/30/19	106.98	106.07
9/30/19	108.65	107.34
12/31/19	109.61	108.32

## LONG-TERM FIXED INCOME

As of	ETFs Ranked	
	Neutral or Better	Bearish-Very Bearish
9/30/18	100.00	100.00
12/31/18	100.34	100.39
3/31/19	103.50	103.47
6/30/19	107.03	105.79
9/30/19	109.56	106.71
12/31/19	109.59	107.07

Given the nature of ETF price movements, the nature of technical analysis, and that ETFs within each category, while broadly similar to one another, are not by any means identical, we can assume that rating differentials reflect collective investment community assessment of the exact differences in portfolio maturity, duration and credit quality among ETFs within the category.



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Putting all of this together, we can infer that over prolonged time periods, when interest rates are expected to trend one way or another, the ETF ranks will have the potential to point fixed income investors toward those funds that are best positioned in light of expected conditions and, hence, which enjoy greater probabilities of outperforming peers. This can be considered akin to instant one-datapoint holdings analysis.

Obviously, though, there will be episodes of trend re-assessment and reversal during which time it will be especially challenging for the ETF ranking system to successfully choose among different kinds of ETFs, whether in a bellwether basket such as the one created here, a comparative one created by user, or even a full less- or non-curated collection of all Fixed Income ETFs. Tests relating to the term-based ETFs suggest, however, that once an investor has formulated their own view of potential interest rate developments, and, presumably, made a decision to focus attention on ETFs classified such as to suggest appropriateness under the investor's expected scenario, the ETF Ranks can assist the investor in choosing which among the similarly situated funds to favor. For example, one who assumes rates will rise will, in all likelihood have already decided to limit consideration to ETFs whose portfolios (i.e. the indexes they track) focus on the shorter end of the maturity spectrum. If rates ultimately fall or move sideways, lackluster performance relative to fixed income as a whole is to be expected. But even in this scenario, use of the ETF Ranks to choose among the more favorably rated short-term Fixed Income ETFs has the potential to leave the investor better positioned than would be the case had the Ranks not been consulted.

To this point, data relating to High-Yield and Municipal Fixed Income ETFs remains skimpy and inconclusive.

## **Non-US ETFs**

Ranks for Non-U.S. Equity and Non-U.S. Fixed Income ETFs are also based entirely on our trend-oriented Technical model. Accordingly, many of the considerations discussed above for U.S. Fixed Income apply here as well. The main differences are in the nature of the decision points that drive security analysis.

For Non-U.S. Fixed Income ETFs, the credit risk and interest rate decision points are present. In addition, it is important with this asset class to understand whether the ETF invests in “Yankee Bonds” (which refer to debt issued by a foreign entity that is denominated in U.S. Dollars), in securities denominated in a foreign currency through a portfolio that is hedged at least some degree to mitigate the risk of the foreign currency relative to the U.S. Dollar, or an unhedged local-currency portfolio. Depending on the answer to the latter question, currency risk may or may not have to be added to credit and interest-rate risks.

Interpretation of performance data for Non-U.S. Fixed Income is impacted by the greater degree of variety within the asset class but our limited view, while inconclusive for the asset class as a whole, suggests some promise in the more focused areas of Emerging Markets Fixed Income and Non-U.S. High Yield.



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## NON-US FIXED INCOME

As of	ETFs Ranked	
	Very Bullish	All Others
9/30/18	100	100
12/31/18	98.80	98.99
3/31/19	100.71	103.54
6/30/19	104.56	106.66
9/30/19	106.06	108.39
12/31/19	108.33	108.86

## EMERGING FIXED INCOME

As of	ETFs Ranked	
	Very Bullish	All Others
9/30/18	100	100
12/31/18	100.00	99.98
3/31/19	106.58	103.34
6/30/19	111.40	105.22
9/30/19	112.40	105.17
12/31/19	115.32	108.83

## NON-US HIGH YIELD

As of	ETFs Ranked	
	Very Bullish	All Others
9/30/18	100	100
12/31/18	100.00	99.67
3/31/19	103.72	103.06
6/30/19	107.02	104.27
9/30/19	110.04	103.75
12/31/19	111.88	106.62



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Meanwhile, Non-U.S. Equities present more challenges than both of the Fixed Income groups given the widely diverse geographic representation as well as the large number of equity-related analytic decision points. Given that, and the limited length of the out-of-sample period, we cannot draw conclusions regarding the post-launch performance of these ranks without further study, which is ongoing.

## **Conclusions**

Performance tracking shows that even over the course of their limited out-of-sample (post launch) period, the Chaikin Power Gauge™ ETF Rating can be an important and effective tool to help investors navigate many typical work-process challenges involving ETF selection. This is especially so for U.S. Equity ETFs, which are calculated on the basis of Power Gauge™ stock ratings in addition to our Technical model. We believe even greater benefits can be attained by using the ratings in conjunction with other important metrics such as fees & expenses, trading liquidity, volatility and dividend yield to determine the suitability of any given ETF for investment purposes.



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