

ETFG Red Diamond Risk Scores: Daily Selection (Short Portfolio)

Background: With the explosive growth of Exchange-Traded-Products (ETPs), many firms now use ETPs to execute their trading or investment strategies more than ever before. Research and analytics providers have historically coupled return and risk factors to achieve a holistic view of investment products.

We believe that a quantitative scoring system which independently gauges reward and risk provides more flexibility and precision in modeling ETPs. Although the ETFG Reward and Risk Ratings were not intended as short-term trading indicators, our analysis demonstrates that value exists via daily portfolio selection.

Note: While it may be tempting to view the discussed methodology as a stand-alone strategy, it is certainly not. This paper demonstrates the value and potential Alpha within our quantitative model and more specifically the ETFG Red Diamond Risk Ratings. Clearly, there exist many methods to apply to these underlying ratings in creating various trading and investing strategies.

Summary: ETFG maintains two quantitative models to score ETPs for Reward and Risk respectively – these scores are generated daily by the ETFG Quant model. **Since inception (July 2012), it appeared that a strong relationship may exist between the highest ranked Red Diamond ETFs and downside potential.**

- **ETFG Red Diamond Risk Ratings** employ fifteen measures within six categories to score all ETPs. The ETFG Risk Rating combines price-based risk factors with non-price based factors such as liquidity, structure and efficiency. Similar to the reward model, the various factors are weighted and combined to create a raw risk score which is then scaled from 1 to 10 with 10 being the highest risk and 1 being the lowest. The full Red Diamond Risk Ratings are available at <http://www.etfg.com/research/red-diamond-risk-rating>

Methodology: As a quantitative-based firm, we are constantly analyzing the performance of our models in various ways over a multitude of timeframes. This paper reviews the strategy of creating a short portfolio which hold ETPs with similar Risk scores. Since our models are updated daily, this creates the need to perform daily portfolio rebalancing as scores and selections change. For the purposes of this exercise, all portfolios are flat at the close (no positions are held overnight) and do not include the impact of transaction or borrowing costs, although we have estimates for both.

For the ETFG Red Diamond portfolios, a short position is assumed for each group of red diamond rated ETPs. Each day we calculate three, separate, short portfolios for the 7, 8 and 9 Red Diamond Risk Rated ETPs respectively. These daily portfolios are also equally weighted.

Calculation: The calculation for the daily, short position performance is:

$$\frac{(\text{Opening Price}-\text{Closing Price})}{\text{Opening Price}}$$

Daily performance calculates the arithmetic average of the performance of all 7, 8, 9 Red Diamonds that were traded on that day. If an ETP did not trade that day, it is excluded from the day's calculation.

Monthly returns are calculated by geometrically linking the daily returns for every trading day in the month.

$$(1+r_1)*(1+r_2)*...*(1+r_n)-1 \text{ where:}$$

r = return on "n" day
n = number of trading days in the month

Cumulative returns are then calculated geometrically using the same formula as above except substituting the monthly return for "r" instead of using the daily returns. To make the returns more comparable, annualized returns are calculated using the following formula:

$$R^{(1/(n/12))}-1 \text{ where:}$$

R = 1+ Cumulative return
n = number of monthly returns

Annualized standard deviation is calculated to enable the comparison between risk adjusted returns as raw return numbers do not always provide the complete picture and investors have different risk tolerances. To calculate the risk measure, the standard deviation of the monthly returns is multiplied by the square root of 12.

The tables below reflect summary statistics for the 3 portfolios. It is important to note that margin cost, all trading costs and borrowing availability are not included.

Conclusion: Although the ETFG models were not designed specifically for short term trading, our evaluation of the ETFG Red Diamond scoring system has demonstrated an inherent value for daily trading strategies.

Because volatility, leverage and dispersion are factors within the Red Diamond Risk scores, levered products tend to score the highest. Hence, the higher returns are not unexpected. What may be somewhat unexpected is the relatively low volatility of the Red Diamond daily portfolios. In part, this may be somewhat attributable to being both short an inverse and non-inverse product on the same underlying index thereby hedging the equity exposure while taking on an exposure to the effects of the daily reset inherent in these products.

As it relates to crafting potential trading strategies, the ETFG Red Diamond Risk Ratings can serve as a starting point in identifying a selection pool and determining the side of the market on which to reside. Effectively, the Red Diamond Risk Ratings provide a basis for a trading strategies by enabling one to achieve alpha through a variety of risk premia. Additionally, for those on the Risk Management side, a concentration in these names on the long side may cause concern.

For Research Inquiries: research@etfg.com or (412) 407-4444

ETFG Red Diamond Risk Ratings								
Period		Monthly Performance			Average Count			
Month	Year	7	8	9	7	8	9	
August 15,	2012	0.50%	0.63%	1.06%	86	68	22	
September	2012	0.39%	1.73%	-3.43%	99	65	20	
October	2012	0.17%	1.26%	6.93%	99	57	21	
November	2012	-0.56%	4.88%	3.10%	93	58	21	
December	2012	0.33%	-1.36%	0.11%	95	63	20	
January	2013	0.76%	2.47%	-3.26%	92	65	21	
February	2013	0.03%	0.47%	6.14%	96	54	83	
March	2013	1.29%	1.54%	-2.58%	89	55	18	
April	2013	0.77%	1.56%	7.99%	91	56	19	
May	2013	0.33%	1.88%	-1.71%	87	64	17	
June	2013	0.27%	2.45%	3.15%	93	60	15	
July	2013	2.05%	0.62%	3.28%	89	71	17	
August	2013	-0.15%	2.63%	-1.46%	98	70	18	
September	2013	0.45%	-0.65%	-5.58%	103	63	16	
October	2013	1.17%	-0.44%	2.34%	92	63	16	
November	2013	2.55%	1.62%	7.03%	101	66	17	
December	2013	0.58%	-0.22%	1.07%	107	76	19	
January	2014	2.04%	1.24%	7.56%	118	89	30	
February	2014	0.44%	-0.38%	1.70%	111	85	27	
March	2014	1.53%	1.51%	3.57%	123	88	21	
April	2014	1.27%	0.97%	0.02%	115	78	12	
May	2014	0.61%	2.45%	0.70%	122	79	14	
June	2014	0.71%	-0.02%	-11.24%	121	78	12	
July	2014	0.09%	0.18%	1.89%	126	87	14	
August	2014	0.55%	0.20%	-1.05%	112	75	12	
September	2014	0.77%	0.67%	19.66%	135	79	12	
October	2014	0.42%	1.38%	13.38%	124	77	12	
November	2014	0.90%	1.74%	-0.97%	136	80	14	
December	2014	1.87%	1.96%	13.76%	160	84	16	

ETFG Red Diamond Risk Ratings - Continued								
Period		Monthly Performance			Average Count			
Month	Year	7	8	9	7	8	9	
January	2015	2.32%	1.95%	0.32%	141	81	19	
February	2015	-0.88%	-0.25%	-9.05%	125	74	12	
March	2015	1.84%	0.63%	5.90%	135	72	12	
April	2015	0.39%	0.92%	-7.72%	146	82	15	
May	2015	0.52%	1.38%	6.50%	135	83	16	
June	2015	1.31%	0.59%	3.96%	138	88	15	
July	2015	1.64%	1.26%	8.26%	132	93	15	
August	2015	0.86%	-0.25%	-2.97%	185	105	17	
September	2015	2.73%	2.29%	8.22%	166	104	22	
October	2015	0.40%	0.46%	1.16%	173	123	24	
November	2015	1.01%	0.71%	-0.52%	175	109	23	
December	2015	1.06%	-0.52%	7.10%	168	83	14	
January	2016	0.85%	6.43%	23.82%	190	83	12	
February	2016	-0.70%	-1.90%	2.50%	194	109	30	
March	2016	-0.55%	-0.26%	-4.24%	181	108	23	
April	2016	7.74%	8.99%	8.11%	70	22	5	
May	2016	1.02%	1.83%	15.86%	194	85	11	
June	2016	-0.08%	0.33%	-5.91%	190	103	15	
July	2016	0.00%	0.82%	-3.77%	171	90	17	
August	2016	1.04%	1.64%	2.46%	181	93	23	
September	2016	0.39%	-0.44%	-3.70%	159	85	18	
October	2016	0.65%	0.38%	7.01%	156	81	14	
November	2016	0.30%	-0.14%	7.95%	170	89	16	
December	2016	0.36%	2.07%	0.77%	163	92	18	
January	2017	-0.16%	0.00%	-2.47%	175	84	14	
February	2017	0.25%	0.61%	-4.03%	153	61	6	
March	2017	0.95%	1.33%	1.21%	165	89	16	
April	2017	1.65%	1.07%	4.06%	175	85	16	
May	2017	1.19%	0.97%	3.02%	172	90	18	
June	2017	-0.40%	1.02%	-0.85%	168	86	15	
July	2017	0.30%	0.21%	-3.53%	164	79	14	
August	2017	0.37%	0.23%	2.93%	171	86	16	
September	2017	1.07%	0.83%	-0.09%	153	75	14	
October	2017	1.17%	0.62%	-1.92%	158	86	14	
November	2017	-0.46%	0.26%	0.27%	171	75	12	
December	2017	0.82%	1.12%	0.93%	157	81	14	

ETFG Red Diamond Risk Ratings - Continued								
Period		Monthly Performance			Average Count			
Month	Year	7	8	9	7	8	9	
January	2018	0.38%	-1.04%	-1.81%	138	82	15	
February	2018	0.58%	-0.99%	15.65%	144	64	14	
March	2018	2.12%	1.13%	1.55%	165	77	18	

Red Diamond Risk Ratings				Correlation				R ²			
Red Diamond Rating	7	8	9	Rating	7	8	9	Rating	7	8	9
Total Performance*	69.52%	99.55%	266.10%	Correlation (ACWI)	-0.15	0.18	0.48	R ² (ACWI)	0.02	0.03	0.23
Standard Deviation (Monthly)	1.15%	1.62%	6.33%	Correlation (AGG)	0.12	-0.06	-0.02	R ² (AGG)	0.01	0.00	0.00
Annualized Return*	10.23%	13.60%	27.07%	Correlation (DJP)	-0.10	0.13	0.26	R ² (DJP)	0.01	0.02	0.07
Annualized Standard Deviation*	3.97%	5.61%	21.94%	Correlation (GLD)	0.02	0.14	0.27	R ² (GLD)	0.00	0.02	0.07
Return/Risk*	2.58	2.43	1.23	Correlation (SPY)	-0.18	0.20	0.45	R ² (SPY)	0.03	0.04	0.20

*Reflects no borrowing or transactions costs and spans inception (8/15/12) through current date

Disclaimer

Assumptions, opinions and estimates constitute our judgment as of the date of this material and are subject to change without notice. ETF Global LLC ("ETFG") and its affiliates and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively ETFG Parties) do not guarantee the accuracy, completeness, adequacy or timeliness of any information, including ratings and rankings and are not responsible for errors and omissions or for the results obtained from the use of such information and ETFG Parties shall have no liability for any errors, omissions, or interruptions therein, regardless of the cause, or for the results obtained from the use of such information. ETFG PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, SUITABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE. In no event shall ETFG Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the information contained in this document even if advised of the possibility of such damages.

ETFG ratings and rankings are statements of opinion as of the date they are expressed and not statements of fact or recommendations to purchase, hold, or sell any securities or to make any investment decisions. ETFG ratings and rankings should not be relied on when making any investment or other business decision. ETFG's opinions and analyses do not address the suitability of any security. ETFG does not act as a fiduciary or an investment advisor. While ETFG has obtained information from sources they believe to be reliable, ETFG does not perform an audit or undertake any duty of due diligence or independent verification of any information it receives

ETFG keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of ETFG may have information that is not available to other ETFG business units. ETFG has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process. ETFG may receive compensation for its ratings and certain analyses. ETFG reserves the right to disseminate its opinions and analyses. At times, ETFG's public ratings and analyses are made available on its Websites, www.etfg.com (free of charge) and may be distributed through other means, including via ETFG publications and third party redistributors.

This material is not intended as an offer or solicitation for the purchase or sale of any security or other financial instrument. Securities, financial instruments or strategies mentioned herein may not be suitable for all investors. Any opinions expressed herein are given in good faith, are subject to change without notice, and are only correct as of the stated date of their issue. Prices, values, or income from any securities or investments mentioned in this report may fall against the interests of the investor and the investor may get back less than the amount invested. Where an investment is described as being likely to yield income, please note that the amount of income that the investor will receive from such an investment may fluctuate. Where an investment or security is denominated in a different currency to the investor's currency of reference, changes in rates of exchange may have an adverse effect on the value, price or income of or from that investment to the investor.

The information contained in this report does not constitute advice on the tax consequences of making any particular investment decision. This material does not take into account your particular investment objectives, financial situations or needs and is not intended as a recommendation of particular securities, financial instruments or strategies to you nor is it considered to be investment advice. Before acting on any recommendation in this material, you should consider whether it is suitable for your particular circumstances and, if necessary, seek professional advice.