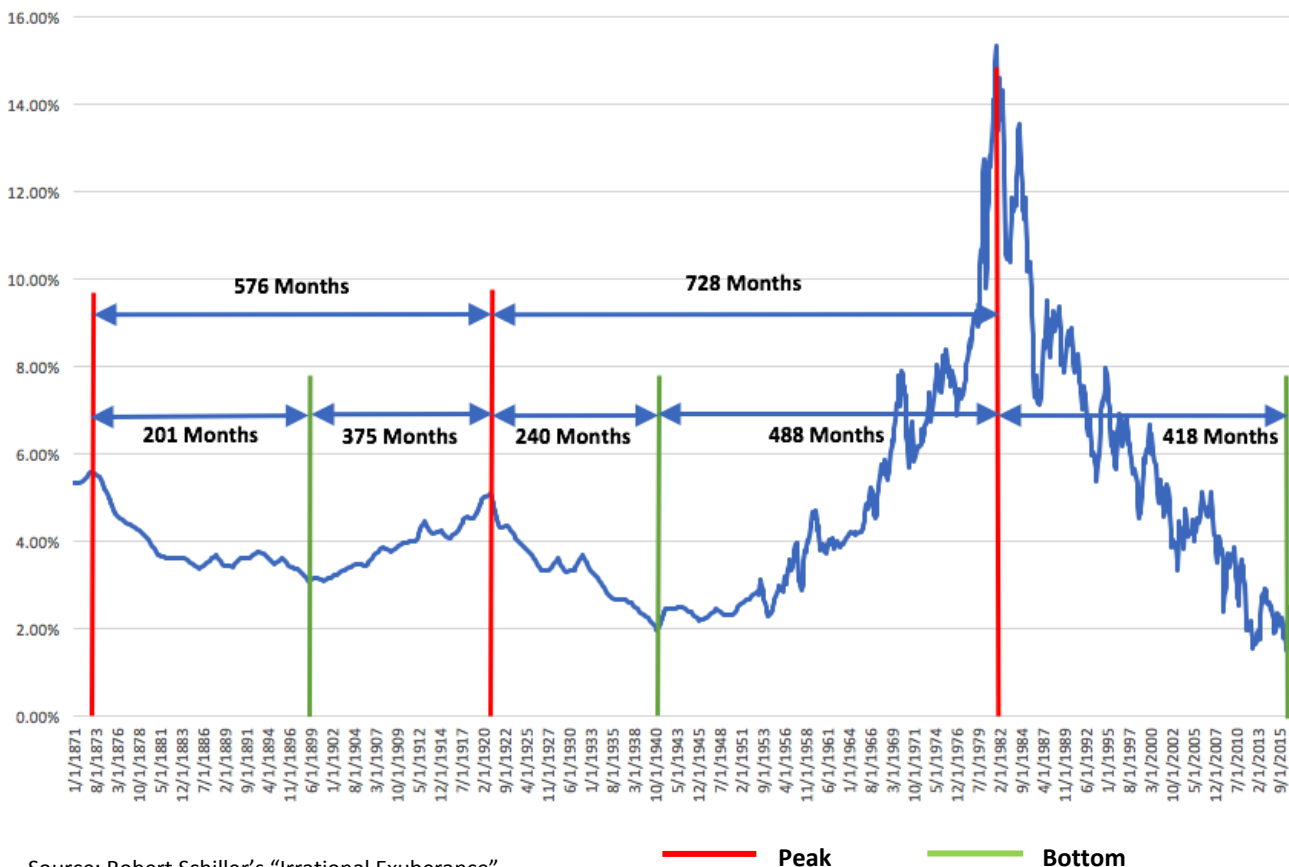


## Do You Have Protection from Rising Rates?

After almost 35 years of declining interest rates, it appears as though the tide has finally turned to a prolonged upward trend. While the bottoming-out process has taken some time, current thinking suggests that rates will continue to rise and at a faster pace. The impact on investors could be severe, and steps should be taken to protect portfolios that hold interest sensitive investments.

Based on historical monthly average interest rates from January 1, 1871, to December 31, 2016, cyclical phases tend to be long in duration, averaging 344 months. The average duration of interest rate declines, peak-to-trough, is 286 months, while the average duration of trough-to-peak increases is 431 months (see Exhibit A below). During this period, the average upward or downward change in interest rates was 6.95%. However, there is a wide variance between the average of the first three cycle phases of 2.52% (1873 – 1941) and the last two phases of 13.59% (1941 – 2016). As a result, it will be difficult to determine the extent of rate increases that may occur in this current upward phase of the cycle. Using the average change of 6.95%, we could see a 10 year U.S. Treasury rate of 8.45% (6.95% + 1.50%) or, at the lower end, it could be 4.02% (2.52% + 1.50%). It's anybody's guess, but either way, rate increases will negatively impact the prices of fixed income investments in the months and years to come.

**Exhibit A. U.S. Treasury 10 year monthly average borrowing yield (1871 – 2016)**



Source: Robert Schiller's "Irrational Exuberance"

— Peak      — Bottom

**Many people believe that we witnessed the bottom in rates in July of 2016, 418 months from the prior top.** July's monthly average rate bottomed at 1.50%. Rates have already risen 0.95% since the July 2016 monthly low to 2.45% (1.50%+0.95%). If rates have bottomed, then investors need to consider their income strategy during a potentially long period of rising rates. Given the dramatic number of people in or entering retirement, the demand for income-oriented products should be strong and could temper the effect of any rate increases. *While strong demand for fixed income investments from retirees and pre-retirees may temper rate increases, volatility could be significant as the Fed unwinds its multi trillion-dollar portfolio and severely tests the discipline of investors.*

Retirees or investors near retirement need income or some form of cash flow in their non-earning years. This may be achieved through interest, dividend income, or selling off securities. What type of strategies may investors employ for the income portion of their asset allocation? QID performed a correlation study of various types of fixed income and/or cash flow sectors. We were looking to identify income asset class sectors that had a low or negative correlation to the aggregate U.S. fixed income index. At the same time, we also wanted to identify sectors that do not have a high correlation to U.S. equities either, in order to maintain the diversification between the two asset classes. Exhibit B lists the potential sectors that we considered. Those sectors that indicate low or negative correlations relative to more traditional fixed income sectors are added to the portfolio when appropriate. (Exhibit C shows the correlation matrix of the sectors listed in Exhibit B.)

As noted, the correlations appear attractive across the majority of the various options. The sectors that have higher correlations relative to one another appear to be where there is common exposure to corporate bonds/stocks. In Appendix 1, we have included the complete correlation matrix of QID's existing fixed income sectors as well as the potentials listed below. As expected, the typical fixed-income sectors such as U.S. Treasuries, mortgages and municipals, TIPS and investment grade corporate bonds have very high correlations to the U.S. aggregate bond index, as well as each other. Therefore, if we have a high probability of rising rates, then sectors that have low or negative correlations to the current sectors may provide more benefit going forward.

**Exhibit B. Income oriented ETFs that show low or negative correlations relative to U.S. Aggregate Bond ETF ("AGG")**

| Ticker | Security Description                              | Sector                              |
|--------|---|-------------------------------------|
| AGG    | iShares Core US Aggregate Bond                    | High Yield Corporate Bond           |
| HYG    | iShares iBoxx \$ High Yield Corporate Bond        | High Yield Corporate Bond           |
| FLOT   | iShares Floating Rate Bond                        | Floating Rate Bond                  |
| VIG    | Vanguard Dividend Appreciation                    | Dividend Paying Stocks              |
| CWB    | SPDR Bloomberg Barclays Convertible Securities    | Convertible Bonds                   |
| TFLO   | iShares Treasury Floating Rate Bond               | Floating Rate Treasury Bond         |
| EMLC   | VanEck Vectors J.P. Morgan EM Local Currency Bond | Emerging Market Local Currency Bond |
| AMPLP  | Alerian MLP ETF                                   | Energy MLPs                         |

Source: Morningstar Direct

**Exhibit C. Correlation matrix of various potential income / dividend / cash-flow alternatives**

|       | AGG    | HYG    | FLOT   | VIG    | CWB    | TFLO   | EMCB   | AMPLP  | SPY    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| AGG   | +1.000 |        |        |        |        |        |        |        |        |
| HYG   | +0.245 | +1.000 |        |        |        |        |        |        |        |
| FLOT  | -0.126 | +0.134 | +1.000 |        |        |        |        |        |        |
| VIG   | +0.067 | +0.253 | +0.251 | +1.000 |        |        |        |        |        |
| CWB   | +0.075 | +0.312 | +0.445 | +0.789 | +1.000 |        |        |        |        |
| TFLO  | -0.138 | -0.058 | +0.104 | +0.015 | +0.173 | +1.000 |        |        |        |
| EMLC  | +0.220 | +0.760 | +0.529 | +0.549 | +0.560 | +0.132 | +1.000 |        |        |
| AMPLP | -0.003 | +0.237 | +0.582 | +0.568 | +0.697 | +0.168 | +0.367 | +1.000 |        |
| SPY   | -0.048 | +0.680 | +0.320 | +0.952 | +0.866 | +0.093 | +0.404 | +0.659 | +1.000 |

Source: Morningstar Direct    High Correlation    Moderate Correlation    Low Correlation    Negative Correlation

Note: The SPY ETF is shown for comparison purposes.

**Quantitative Investment Decisions**

**QID's Tactical Fixed Income Strategy** provides investors the diversification they need, with the downside protection they desire. QID portfolios give investors the discipline that is necessary to weather the volatility of the markets. A unique attribute of all QID strategies is a built-in downside loss protection mechanism. This mechanism signals to build a "defensive" position during periods it identifies as having a high probability of substantial market loss. The Tactical Fixed Income model will also determine whether the "defensive" position should consist of an intermediate Treasury or cash equivalent ETF. **The Tactical Fixed Income Strategy turned the then current 75% defensive position of the portfolio to cash on October 14, 2016, when the 10 Year U.S. Treasury rate was still only 1.805%. (As this piece is being written [2-14-17], the 10 Year U.S. Treasury rate stands at 2.49% or an approximate 38% increase!)**

QID's default fixed income model includes corporate, mortgage, municipal, and Treasury Inflation Protected Securities (TIPs). Opportunistically, the model may use international, global and/or emerging market fixed income ETFs, although limited to a total maximum 10% weighting. The introduction of global and international debt sectors provides additional flexibility to provide income while maintaining downside risk controls. The 100% quantitative model determines whether each fixed income sector should be "on or off" ("buy or sell"). The corporate bond asset class may use an investment grade or a high-yield ETF. If the fixed income strategy is not fully invested, the proceeds will be placed into a "defensive" position. The base allocation for the Tactical Fixed Income portfolio is 50% corporate, 16.3% mortgage, 16.3% municipal and 16.3% TIPs.

**QID strategies tend to provide a more asymmetric risk profile with reduced downside risk, a feature absent from most buy and hold portfolios.**

**For more information contact us at 239-631-8912 or [info@qidllc.com](mailto:info@qidllc.com).**

**Appendix A. Income asset class correlations**

|      | AGG   | IEF   | TFLO  | MBB   | MUB   | TIP   | LQD   | HYG   | FLOT  | VIG   | CWB   | AMLP  | PFF   | BWX   | EMLC  | SPY   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| AGG  | +1.00 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| IEF  | +0.95 | +1.00 |       |       |       |       |       |       |       |       |       |       |       |       |       |       |
| TFLO | -0.14 | -0.24 | +1.00 |       |       |       |       |       |       |       |       |       |       |       |       |       |
| MBB  | +0.90 | +0.87 | -0.26 | +1.00 |       |       |       |       |       |       |       |       |       |       |       |       |
| MUB  | +0.81 | +0.75 | +0.04 | +0.71 | +1.00 |       |       |       |       |       |       |       |       |       |       |       |
| TIP  | +0.83 | +0.77 | +0.23 | +0.71 | +0.55 | +1.00 |       |       |       |       |       |       |       |       |       |       |
| LQD  | +0.90 | +0.76 | -0.06 | +0.70 | +0.72 | +0.82 | +1.00 |       |       |       |       |       |       |       |       |       |
| HYG  | +0.25 | +0.03 | +0.04 | +0.19 | +0.09 | +0.41 | +0.44 | +1.00 |       |       |       |       |       |       |       |       |
| FLOT | -0.13 | -0.29 | +0.10 | -0.23 | -0.05 | +0.06 | +0.13 | +0.42 | +1.00 |       |       |       |       |       |       |       |
| VIG  | +0.07 | -0.15 | +0.02 | +0.07 | -0.05 | +0.13 | +0.25 | +0.66 | +0.25 | +1.00 |       |       |       |       |       |       |
| CWB  | +0.08 | -0.15 | +0.17 | +0.06 | -0.04 | +0.24 | +0.31 | +0.79 | +0.45 | +0.80 | +1.00 |       |       |       |       |       |
| AMLP | -0.01 | -0.21 | +0.19 | -0.10 | -0.06 | +0.17 | +0.24 | +0.78 | +0.58 | +0.57 | +0.70 | +1.00 |       |       |       |       |
| PFF  | +0.58 | +0.39 | +0.01 | +0.50 | +0.60 | +0.52 | +0.67 | +0.53 | +0.24 | +0.55 | +0.59 | +0.45 | +1.00 |       |       |       |
| BWX  | +0.58 | +0.43 | +0.17 | +0.47 | +0.49 | +0.62 | +0.61 | +0.45 | +0.78 | +0.27 | +0.36 | +0.31 | +0.52 | +1.00 |       |       |
| EMLC | +0.22 | 0.081 | +0.01 | +0.13 | +0.25 | +0.37 | +0.54 | +0.76 | +0.53 | +0.40 | +0.56 | +0.37 | +0.22 | +0.13 | +1.00 |       |
| SPY  | -0.50 | -0.27 | +0.09 | -0.05 | -0.12 | +0.08 | +0.19 | +0.68 | +0.32 | +0.95 | +0.89 | +0.66 | +0.53 | +0.18 | +0.40 | +1.00 |

Source: Morningstar Direct    High Correlation    Moderate Correlation    Low Correlation    Negative Correlation

Note: The SPY ETF is shown for comparison purposes.

**ETF List:**

- AGG            iShares® Core U.S. Aggregate Bond ETF
- IEF            iShares® iBoxx \$ High Yield Corporate Bond ETF
- TFLO          iShares® Treasury Floating Rate Bond ETF
- MBB           iShares® Mortgage Backed Securities (MBS) ETF
- MUB           iShares® National Muni Bond ETF
- TIP            iShares® TIPS Bond ETF
- LQD           iShares® iBoxx \$ Investment Grade Corporate Bond ETF
- HYG           iShares® iBoxx \$ High Yield Corporate Bond ETF
- FLOT          iShares® Floating Rate Bond ETF
- VIG            Vanguard Dividend Appreciation ETF
- CWB           SPDR® Bloomberg Barclays Convertible Securities ETF
- AMLP          Alerian MLP ETF
- PFF            iShares® U.S. Preferred Stock ETF
- BWX           SPDR® Bloomberg Barclays International Treasury Bond ETF
- EMLC          VanEck Vectors J.P. Morgan EM Local Currency Bond ETF
- SPY            SPDR® S&P 500 ETF

## Disclosures

**Quantitative Investment Decisions, LLC (“QID”) claims compliance with the Global Investment Performance Standards (GIPS®).**

### Firm Definition

Quantitative Investment Decisions, LLC (“QID” or the “Advisor”) is registered investment advisor in the state of Florida organized as a Limited Liability Company (“LLC”) under the laws of the State of Delaware, whose principle place of business is in Naples, FL. The entire investment team and critical operations staff became affiliated with QID on January 2, 2015.

QID reviews a total firm AUM report broken out by account on a quarterly basis to ensure that only actual assets managed, or sub-advised, by QID are included. All accounts deemed to be advisory only, hypothetical, or model in nature are excluded from total firm AUM. Total firm assets are all discretionary (whether fee-paying or not) for which QID has investment management responsibility, including assets managed by sub-advisors that QID has authority to select.

### Obtaining a Compliant Presentation and the Firm’s List of Composite Descriptions

A compliant presentation, including the performance data for the composite, may be obtained by contacting QID at 239.631.8912 or by emailing [info@qidllc.com](mailto:info@qidllc.com).

The Quantitative Investment Decisions’ (QID) Tactical U.S. Equity Strategy, Tactical International Equity Strategy, Tactical U.S. Fixed Income Strategy, and the Tactical Alternative Investments Strategy are long-term growth portfolios that invests in Exchange Traded Funds (ETF) as markets are rising and scales to cash as markets weaken using a trading algorithm. Their objective is capital appreciation. The portfolios represent United States markets, international markets, United States fixed-income markets and a blend of commodities and REITs that constitute the alternative investments strategy. The charts above show the total return, including reinvestment of all dividends. Returns are shown net (NR) of management fees and transaction fees for the composite account of the portfolios. The U.S. dollar is the currency used to express performance. QID claims compliance with the Global Investment Performance Standards (GIPS®). QID has been independently verified and its composites receive a quarterly performance examination by Ashland Partners & Company, LLP. **From April 30, 2012 through December 31, 2015 the performance shown is that of a composite of client accounts according to the dictates of the Program.** The quantitative engine providing strategy signals was enhanced effective April 1, 2014. The portfolio weighting scheme was also enhanced effective September 1, 2014.

Benchmarks are used for comparison purposes to correlate to each portfolio. The returns for the indexes shown include dividend reinvestment. Individual client accounts may have experienced investment results during the corresponding time periods that were materially different from those of the composite returns. **Performance data shown is past performance. Past performance is no guarantee of future results. Investments are subject to risk, and any of QID’s investment strategies may lose money. QID’s actively managed portfolios may underperform in bull or bear markets. The investment strategy presented is not appropriate for every investor and individual clients should review the terms, conditions and risk involved with specific products or services. The portfolio is constructed with Exchange Traded Funds that seek investment results that, before expenses, generally correspond to the price and yield of a particular index. There is no guarantee that the price and yield performance of the index can be fully matched. ETFs are subject to risks similar to those of stocks.**

### Risks

No investment strategy or risk management technique can guarantee returns or eliminate risk in any market environment. Asset allocation, nor diversification, does not guarantee a profit or protect against loss. Investment returns may fluctuate and are subject to market volatility, so that an investor’s shares, when redeemed or sold, may be worth more or less than their original cost. **All investments include a risk of loss that clients should be prepared to endure. Quantitative Investment Decision’s actively managed portfolio may underperform in bull or bear markets.**