CFRA
powered by data from S&P Global

CFRA's Mutual Fund Ranking Methodology

April 2017

Background

In September 2009, CFRA Equity and Fund Research Services' predecessor, S&P Capital IQ Equity Research changed its Mutual Fund Ranking methodology, moving away from an approach based solely on risk-adjusted past performance towards a more holistic approach that incorporates a holdings-based analysis focused on performance analytics, risk considerations and cost factors. In doing so, we introduced the concept that understanding the fundamentals and risks of a fund's holdings is as important as, if not more important than, the relative past performance of the fund. CFRA utilizes its well-established intellectual property, such as STARS and Fair Value, along with data from S&P Global Market Intelligence, including S&P Global Market Intelligence's Quality Rank for stocks and S&P Global Credit Ratings for bonds, to determine the quality of the holdings, rather than presuming a fund with a strong track record can repeat its success. The CFRA Mutual Fund Ranking, which has been updated weekly since September 2009 to provide the freshest perspective, combines analysis of past performance with the above factors for security valuation, credit quality analysis and expense ratio benchmarking. Using a scale of one to five-star, the rankings allow advisors to compare and contrast mutual funds across seven broad asset categories to find mutual funds with positive attributes that fit with each client's investment approach.

Philosophy

It cannot be assumed that a well-managed mutual fund will remain a winner indefinitely. While the U.S. is in the midst of a multi-year bull market, the adage "past performance is no guarantee of future results" remains true. Investors favored the more defensive parts of the US equity market in the first half of 2016, including consumer staples and utilitites, but shifted to the more cyclical parts, namely financials and industrials in the second half of 2016 amid rising rates and signs of improved economic health.. Evaluating a fund's track record is important, but CFRA believes that after uncovering a fund with a strong track record, three additional dimensions should be assessed before making an investment decision:

- Independently assessing the type of securities the fund owns to decide if the investments have relatively strong fundamentals and are undervalued.
- Evaluating the level of risk the fund is taking on in order to achieve its performance, and how that risk compares to that of its peers.
- Appraising the cost implications for purchasing and owning the mutual fund.

As a result of this philosophy, the CFRA Mutual Fund ranking methodology favors funds with positive characteristics in all of the areas highlighted above.

Finally, CFRA believes that objectivity and consistency are important, and therefore employs a quantitative approach that leverages extensive CFRA intellectual property such as STARS and Fair Value, as well as S&P Global data, along with a robust peer classification system to seek to ensure an unbiased ranking process.

Source: CFRA

Holdings-Based Analysis

In assessing the overall quality of an equity fund, in addition to judging a fund's track record and cost factors, CFRA takes a detailed look at each of its holdings to evaluate if they are undervalued, have strong fundamentals and/or present a lower amount of risk relative to the securities owned by other mutual funds:

Using the latest available full holdings supplied by the fund, CFRA believes that this step-by-step process makes the CFRA Mutual Fund Ranking more helpful and valuable than an approach that relies on past performance, by providing important data and information to use as a tool in determining of a mutual fund's relative appeal. In addition, the quantitative approach seeks to ensure a consistent and objective assessment of a fund.

Detailed Classifications

By utilizing detailed and narrow classifications, the CFRA methodology gives the ability to distinguish the performance and fundamentals among portfolios that use similar investment approaches.

Each of the approximately 22,000 mutual funds that CFRA has research on is initially placed into an Category that is determined by the type of assets the fund invests in. There are a total of nine broad categories that a fund can fit into, and a fund will be compared to other funds within its category. As of March 2017 , CFRA had rankings on approximately 22,000 mutual funds.

Mutual Fund categories that CFRA ranks:

- Domestic Equity
- Global Equity
- Taxable Fixed Income
- Blended
- Tax-Exempt Fixed Income
- Blended -Fund of Funds
- International Equity

Mutual Fund categories that CFRA does not rank:

- Money Market
- Specialty/Other (includes funds that invest in convertible bonds and those that primarily take long and short positions.

Within each Category, a fund is further classified into one of 23 Styles based on the fund's fiscal-year and semiannual portfolio holdings. Styles are determined based on a variety of factors, such as the market capitalizations of its holdings, the region in which the holdings are domiciled, or the types of bonds held. Styles are designed as a tool to help identify funds that utilize a particular investment approach. CFRA tracks changes in a fund's style over time.

CFRA also analyzes the mutual fund universe using peer group classifications. A fund's peer group consists of all the funds within the same Lipper classification. Lipper uses a combination of holdings-based models and language taken from the fund's prospectus.

Peer Groups for Categories that CFRA ranks

CATEGORY	STYLE	PEER GROUP
DOMESTIC EQUITY		
	Multi Cap Core	Multi Cap Core Funds
	Multi Cap Growth	Multi Cap Growth Funds
	Multi Cap Value	Multi Cap Value Funds
	Large Cap Core	Large Cap Core Funds
	Large Cap Growth	Large Cap Growth Funds
	Large Cap Value	Large Cap Value Funds
	Mid Cap Core	Mid Cap Core Funds
	Mid Cap Growth	Mid Cap Growth Funds
	Mid Cap Value	Mid Cap Value Funds
	Small Cap Core	Small Cap Core Funds
	Small Cap Growth	Small Cap Growth Funds
	Small Cap Value	Small Cap Value Funds
	Other	Basic Materials Funds
		Commodities Funds
		Consumer Goods Funds
		Consumer Services Funds
		Diversified Leverage Funds
		Equity Income Funds
		Financial Services Funds
		Health/Biotechnology Funds
		Industrials Funds
		Natural Resources Funds
		S&P 500 Index Objective Funds
		Science & Technology Funds
		Speciality/Miscellaneous Funds
		Telecommunication Funds
		Utility Funds
GLOBAL EQUITY		
	Multi Cap Core	Global Multi Cap Core Funds
	Multi Cap Growth	Global Multi Cap Growth Funds
	Multi Cap Value	Global Multi Cap Value Funds
	Large Cap Core	Global Large Cap Core Funds
	Large Cap Growth	Global Large Cap Growth Funds
	Large Cap Value	Global Large Cap Value Funds
	Other	Global Financial Services Funds
		Global Flexible Port Funds
		Global Health/BiotechnologyvFunds
		Global Natural Resources Funds
		Global Real Estate Funds
		Global Science/Technology Funds
		Global Small-/Mid-Cap Funds
		Gold Oriented Funds
		Real Estate Funds

CATEGORY	STYLE	PEER GROUP
INTERNATIONAL EQUITY		
	Multi Cap Core	International Multi Cap Core
		International Small/Mid-Cap Core
	Multi Cap Growth	International Multi Cap Growth
		International Small/Mid-Cap Growth
	Multi Cap Value	International Multi Cap Value
		International Small/Mid-Cap Value
	Large Cap Core	International Large-Cap Core
	Large Cap Growth	International Large-Cap Growth
	Large Cap Value	International Large-Cap Value
		International Real Estate Funds
	Other	China Region Funds
		Emerging Markets Funds
		European Region Funds
		Japanese Funds
		Latin American Funds
		Pacific Ex Japen Funds
		Pacific Region Funds
TAXABLE FIXED INCOME		
	Global Fixed Income	Global Income Funds
	High Yield Debt	High Current Yield Funds
	International Fixed Income	Emerging Markets Debt Funds
		International Income Funds
	Long-Term Funds	Corporate Debt Funds A-Rated
		Corporate Debt Funds BBB-Rated
		General Bond Funds
		Multi-Sector Income Funds
	Medium-Term Funds	Intermediate Investment Grade Debt Funds
	Mortgage-Backed Securities	GNMA Funds
		U.S. Mortgage Funds
	Short-Term Funds	Short Investment Grade Debt Funds
		Short-Intmdt Investment Grade Debt Funds
		Ultra-Short Obligations Funds
	U.S. Government Securities	General US Government
		General U.S. Treasury Funds
		Intermediate U.S. Government Funds
		Short U.S. Goverment Funds
		Short U.S. Treasury Funds
		Short-Intermediate U.S. Government Funds

CATEGORY	STYLE	PEER GROUP
TAX-FREE FIXED INCOME		
	Multi-State Muni Funds	General Municipal Debt Funds
		High Yield Municipal Debt Funds
		Insured Municipal Debt Funds
		Intermediate Municipal Debt Funds
		Short Municipal Debt Funds
		Short-Intmdt Municipal Debt Funds
	Single-State Muni Funds	Arizona Municipal Debt Funds
		California Intermediate Municipal Debt Funds
		California Municipal Debt Funds
		California Sh-Intmdt Municipal Debt Funds
		Colorado Municipal Debt Funds
		Connecticut Municipal Debt Funds
		Florida Municipal Debt Funds
		Georgia Municipal Debt Funds
		Maryland Municipal Debt Funds
		Massachusetts Intermediate Muni Debt Funds
		Massachusetts Municipal Debt Funds
		Michigan Municipal Debt Funds
		Minnesota Municipal Debt Funds
		Missouri Municipal Debt Funds
		New Jersey Municipal Debt Funds
		New York Intermdt Municipal Debt Funds
		New York Municipal Debt Funds
		North Carolina Municipal Debt Funds
		Ohio Municipal Debt Funds
		Other States Intermediate Municipal Debt Funds
		Other States Municipal Debt Funds
		Other States Short-Intmdt Municipal Debt Funds
		Pennsylvania Municipal Debt Funds
		Single-State Insured Municipal Debt Funds
		Virginia Municipal Debt Funds
BLENDED		
	Other	Flexible Portfolio Funds
		Mixed-Asset Target 2010 Funds
		Mixed-Asset Target 2015 Funds
		Mixed-Asset Target 2020 Funds
		Mixed-Asset Target 2025 Funds
		Mixed-Asset Target 2030 Funds
		Mixed-Asset Target 2035 Funds
		Mixed-Asset Target 2040 Funds
		Mixed-Asset Target 2045 Funds
		Mixed-Asset Target 2050+ Funds
		Mixed-Asset Target Allocation Conservative Funds
		Mixed-Asset Target Allocation Growth Funds
		Mixed-Asset Target Moderate Funds

Peer Groups for Categories that CFRA does not rank

CATEGORY	STYLE	PEER GROUP
MONEY MARKET		
	California Tax-Exempt Money Market	California Tax-Exempt Money Market Funds
	Connecticut Tax-Exempt Money Market	Connecticut Tax-Exempt Money Market Funds
	Institutional Money Market	Institutional Money Market Funds
	Institutional Tax-Exempt Money Market	Institutional Tax-Exempt Money Market Funds
	Institutional U.S. Government Money Market	Institutional U.S. Government Money Market Funds
	Institutional U.S. Treasury Money Market	Institutional U.S. Treasury Money Market Funds
	Massachusetts Tex-Exempt Money Market	Massachusetts Tex-Exempt Money Market Funds
	Michigan Tax-Exempt Money Market	Michigan Tax-Exempt Money Market Funds
	Money Market	Money Market Funds
	New Jersey Tax-Exempt Money Market	New Jersey Tax-Exempt Money Market Funds
	New York Tax-Exempt Money Market	New York Tax-Exempt Money Market Funds
	Ohio Tax-Exempt Money Market	Ohio Tax-Exempt Money Market Funds
	Other States Tax-Exempt Money Market	Other States Tax-Exempt Money Market Funds
	Pennsylvania Tax-Exempt Money Market	Pennsylvania Tax-Exempt Money Market Funds
	Tax-Exempt Money Market	Tax-Exempt Money Market Funds
	U.S. Government Money Market	U.S. Government Money Market Funds
	U.S. Treasury	U.S. Treasury Money MarketFunds
SPECIALTY/ OTHER		
	Convertible Securities	Convertible Securities Funds
	Dedicated Short Bias	Dedicated Short Bias Funds
	Equity Market Neutral	Equity Market Neutral Funds
	Extended U.S. Large-Cap Core	Extended U.S. Large-Cap Core Funds
	Flexible Income	Flexible Income Funds
	Loan Participation	Loan Participation Funds
	Long/Short Equity	Long/Short Equity Funds
	Specialty Diversified Equity	Specialty Diversified Equity Funds
	Treasury Inflation Protected Securities	Treasury Inflation Protected Securities Funds

These narrow classifications allow for detailed peer comparisons of a fund's performance track record and key characteristics such as its standard deviation, expense ratio and turnover rate, all of which are incorporated into the CFRA's Mutual Fund Ranking and shown in detail on CFRA Mutual Fund reports.

CFRA Mutual Fund Ranking Inputs

CFRA Mutual Fund Rankings provide quantitative and holistic assessment of the performance, risk profile and relative costs of a given fund compared to other mutual funds in its category, following a normalized distribution curve.

This overall Mutual Fund Ranking is based on a weighted-average computation of three components- performance analytics, risk considerations and cost factors that evaluate, relative to its peers, a fund's underlying holdings, its historical performance and key fund-level characteristics.

Holdings-based inputs are important components of the overall Performance and Risk analyses, and as a result, CFRA has tailored its mutual fund ranking methodology for each of the covered asset categories to incorporate the holdings-based inputs that we believe are most appropriate for each fund type.

Performance Analytics

The first component of the CFRA's Mutual Fund Ranking, Performance Analytics, is a combination of a fund's 3- and 1-year track records relative to its peer group and a holdings- analysis relevant to its Category:

- Within the Domestic Equity and Global Equity Categories, this utilizes two bottom- up approaches from CFRA's Equity Research Services, STARS and Fair Value, to rank stocks based on their qualitatively- and quantitatively-driven CFRA rankings. These components are based on the holdings-weighted average ranking of all available holdings using the fund's latest available portfolio information. This is combined with a comparison of a fund's past performance relative to its peer group.

- Within the Fixed Income Categories, the ranking assesses a 30-day SEC Yield component, as income generation and capital preservation are top priorities for bond fund investors. CFRA compares a fund's yield across all of the funds within the Category and couple that with an assessment of its track record versus peers.

- For Blended Funds, which typically hold both stocks and bonds, the ranking methodology marries the approaches used for equity and fixed income funds. Blended funds that invest in individual securities are ranked using CFRA STARS, the fund's 12-month yield compared to funds within the Category, and its historical performance relative to its peer group.

- Finally, for Blended Funds that are funds of funds, CFRA assesses the quality of the underlying funds in the portfolio, ranking funds based on the holdings-weighted CFRA Performance Analytics assessment of the underlying mutual funds held in the portfolio, plus its respective yield compared to similar funds. In sum, funds with a strong track record that invest in undervalued and/or high-quality securities are favored by the CFRA methodology.

Risk Considerations

Stocks and bonds are subject to a variety of credit, earnings consistency and interest- rate risks that must be accounted for in selecting a fund. The second component, Risk Considerations, uses a combination of inputs, based on the mutual fund's holdings and track record, to judge the fund's risk. Holdings-based inputs, again, are chosen relative to the fund's category:

- For Equity funds, CFRA assesses risk using S&P Global Market Intelligence's Quality Rank and S&P Global Issuer Credit Ratings of the underlying holdings in the portfolio. The former incorporates the growth and stability of a common stock's earnings and dividends with higher ranked stocks deemed as having below average risk. The latter element uses opinions issued by S&P Global Credit Ratings, a nationally recognized statistical rating organization to provide a forward-looking opinion of an obligor's overall financial capacity (its creditworthiness) to pay its financial obligations.

- For Fixed Income funds, CFRA uses issue ratings from nationally recognized statistical rating organizations if an issue is not rated by S&P Global Ratings. The ranking methodology gives preference to S&P Global credit ratings. Changes to the credit ratings may result in a change in the component and/or overall rankings. This credit rating component is an offset of the 30-day SEC yield component used in the Performance Analytics ranking, as yield and credit quality generally have an inverse relationship. In addition, CFRA uses the calculated weighted-average effective duration for the securities in the portfolio, compared to similar funds, to measure the bond prices' responsiveness to changes in the prevailing interest rates, which we believe is a useful tool for judging the riskiness of a bond fund.

- For Blended Funds that invest in individual securities, CFRA analyzes the credit quality of the stocks and bonds in the portfolio using the blended Credit Rating metrics referenced above for the equity and fixed income methodologies.

- Meanwhile, CFRA replaces the credit rating input factor for Blended Funds that are fund of funds, instead judging the fund based on the holdings-weighted average. CFRA Risk Considerations assessment of the underlying mutual funds held in the portfolio. The rankings also include a component for debt (fund) exposure, ranking a fund with a larger percentage of assets in bonds or bond funds higher due to its inherently expected lower risk profile it has compared to a peer with large exposure to stocks. CFRA believes that this tool is especially important in assessing target date funds, many of which have high stock exposure and elevated risk despite having near-term target dates.

In addition to these holdings-based inputs, all CFRA Mutual Fund Rankings incorporate two or more risk assessments of the fund's track record: standard deviation, Sharpe Ratio and manager tenure. Standard deviation is a historical measure of the variability of a fund's returns compared to its peers; if a fund has a high standard deviation its returns have been volatile and it could be a challenge to duplicate its track record. Meanwhile, a fund's Sharpe Ratio is a measure of a fund's historical returns adjusted for risk, or volatility when compared to its peer group. The last risk element CFRA employs is a judgment of portfolio management's tenure. If the lead manager has changed within the past three calendar years, CFRA believes that there is an increased level of risk that the investment style, the holdings, and the track record are going to change- perhaps for the better, perhaps for the worse; for new share classes of existing portfolios under coverage, CFRA uses the tenure from the older fund to calculate the ranking input.

In sum, with regard to Risk Considerations, the CFRA methodology favor funds that invest in what are believed to be high-quality securities, generate consistent, risk- adjusted returns and have a stable management team.

Cost Factors

CFRA has broken cost down into three areas that are analyzed in developing the ranking: Expense ratio, Turnover and Sales Load.

Compared to its peers, a fund with a below-average net Expense Ratio, which factors in a fund's management fees and other expenses, is viewed favorably. For example, Large Cap Growth funds are compared with each other, as are Emerging Market Debt funds. Similarly, funds with a below-average turnover rate are ranked positively by CFRA due to their lower trading costs. Lastly, a fund that does not charge a front-end sales load is, in general, ranked higher compared to those funds that charge as much as 5.75% at the time of purchase. A fund's share classes (A, B, C and Institutional) are evaluated independently, as their individual expense structures produce different returns.

For a fund to rank positively for cost factors, in general it should have relatively low expenses and turnover without charging a sales load.

Component Rankings

The CFRA component rankings are represented as Positive, Neutral or Negative indications, following a normalized distribution curve:

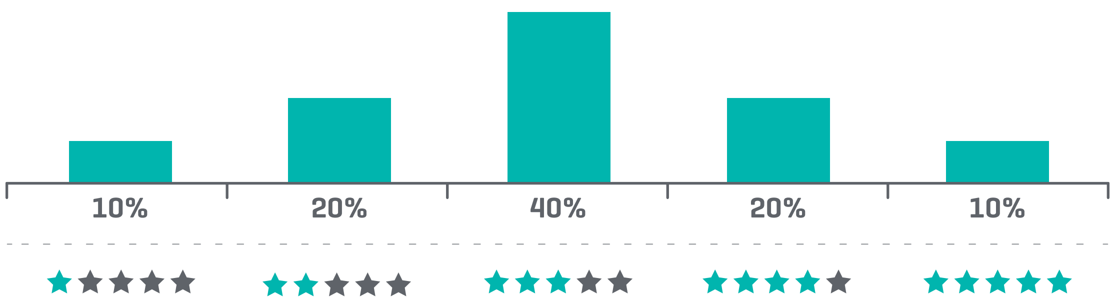
- ▲ Positive component rankings are assigned to funds whose weighted-average score is in approximately the top quartile of its asset category's universe, applying a normalized distribution curve.
- ■ Neutral component rankings are assigned to funds whose weighted-average score is in about the second or third quartiles of its asset category's universe, applying a normalized distribution curve.
- ▼ Underweight component rankings are assigned to funds whose weighted-average score is in approximately the bottom quartile of its asset category's universe, applying a normalized distribution curve.

In cases where sufficient analytical measures are not available on underlying assets, the component ranking will not be displayed.

CFRA Mutual Fund Rankings

Despite this updated ranking methodology, CFRA has retained the one through five star ranking terminology employed since 1997, as CFRA believes this simplifies fund screening and research. The CFRA Rankings range from five-star (highest) to one-star (lowest) and follow a normalized distribution curve, based upon the fund's rank in its Category. For example, the top 10% of all Domestic Equity funds or Taxable Fixed Income funds are ranked as five-star funds.

Figure 1:



The methodology is peer-group agnostic, and as such there might be several dozen five-star funds within a peer group or three, depending upon the outcome of the underlying components.

Rankings are refreshed on a weekly basis to incorporate the latest inputs from the holdings-based analysis and the latest relative performance review.

Conclusion

CFRA believes that risk-adjusted past performance should be the beginning of a search for a mutual fund -- but not the end. By conducting holdings- based analysis and factoring in various performance, risk and cost components, CFRA's Mutual Fund Ranking system provides holistic insight into how a fund is currently positioned, rather than solely looking at past performance. And by leveraging both CFRA's well-established stock and bond research and a new and more robust style classification in a quantitative application, CFRA seeks to ensure consistency and transparency in the ranking methodology.

Rather than assuming that a fund with an above average track record can continue its track record, the CFRA Ranking provides a more robust view on the attractiveness and risk profiles of the securities in the fund along with the ability to screen on key characteristics. CFRA believes that mutual fund rankings should not be the sole basis for making investment decisions and past performance is not indicative of future results.

Frequently Asked Questions about CFRA's Mutual Fund Rankings

Why could a fund's Mutual Fund Ranking improve from one week to the next?

Weekly changes, while not regular, are the result of changes in input factors. The following are some examples as to why a fund's ranking may be higher than before:

- The fund's relative performance vs. its peer group improved.
- CFRA's opinion on the stocks the fund owns improved. For example, the fund has a large stake in a stock that CFRA's Equity Research upgraded to strong buy from hold during the week.
- The credit ratings on the bonds held by the fund were upgraded. For example, if the fund has a large stake in a bond that was upgraded to AA- from A+.
- The fund's expense ratio, when compared with its peers, improved.
- The fund hit its 3-year anniversary, allowing performance and standard deviation to be compared with those of its peer group.

Why did fund 1 get a different Mutual Fund Ranking than fund 2?

- Check to see if the two funds are in the same peer group. Some of the factors used to rank a fund, such as historical performance, standard deviation, and turnover, are dependent upon how the fund compares to its peer group (such as all large cap growth funds). Other factors, such as the SEC yield, Fair Value and debt exposure, are dependent upon how the fund compares to its category. Finally, one fund might, in the view of CFRA, own more overvalued stocks, take on more risk or have higher cost factors based on CFRA's analysis.

- If the two funds under consideration are share classes of the same portfolio, the different rankings are likely due to the different load structures or inception dates. A fund with a sales load or a higher net expense ratio would likely have a less favorable cost consideration ranking.

Why did a fund not get an Mutual Fund Ranking?

There are only a couple of reasons a fund would not get a ranking.

- The fund does not supply holdings information to allow CFRA to make an assessment.
- The fund falls into one of the following categories that are not ranked by CFRA
  - √ Money Market funds
  - √ Specialty/Other funds

What makes one equity fund a five-star fund and another one a three-star fund?

CFRA assesses mutual funds using three main components in comparison to its peers: Performance Analytics, Risk Considerations, and Cost Factors. The following are characteristics of a typical five-star equity fund:

- Performance Analytics is positive due to a combination of an above-average 1- and 3-year track record and investment in stocks that CFRA views as undervalued, using a qualitative and/or quantitative approach.
- Risk Factors is positive due to a combination of investments in stocks that CFRA deems to have low risk based on their credit metrics and/or their earnings and dividend stability; to having a manager with at least a three year record at the fund; to generating risk- adjusted returns above those of its peers; to having low variability of returns compared to its peers.
- Cost factors are positive if a fund has no sales load and has below-average turnover and/or net expenses compared to its peers.

A five-star fund is a fund whose composite score for the above falls in the top 10% of the Domestic Equity, Global Equity or International Equity Categories. Most peer groups will be represented by at least one five-star fund, but CFRA does not require a certain minimum.

How does CFRA pick peer groups for the fund? How is the peer group utilized?

A fund's peer group consists of all the funds within the same Lipper classification, which uses a combination of holdings-based and prospectus language-based models. Lipper will review a fund's classification twice per year based on the fund's annual and semiannual portfolio holdings. Alternatively, the fund can also place an ad-hoc request for a classification re-evaluation. The equity peer groups include distinctions for market cap size (large-, mid-, small-, or multi-cap), types of investments (growth, core, value), and domicile (domestic, international, region or country-specific).

A fund is compared to its peer group to judge its performance track record and to gauge fund-specific characteristics such as debt exposure, Sharpe ratio and turnover.

How often are the rankings updated? What about holdings info?

A fund's ranking and pricing data will be refreshed every week, reflecting updated performance and any changes to CFRA's assessments of the individual holdings as of the close of trading on the prior Friday. Certain factors, such as SEC yield and turnover, will be refreshed monthly if new data is available. Most fund rankings will not change week-toweek, but this updated information will capitalize on changing fundamentals of the mutual fund and its individual holdings. Note that CFRA rankings are not recommendations to buy or sell a particular fund.

Mutual fund reports will use the latest available holdings information provided by the fund family. Many funds update those holdings monthly, while others deliver holdings only quarterly and occasionally there can be a lag as the data is analyzed.

What characteristics does CFRA favor for a Fixed Income fund?

CFRA believes that a top-quality bond fund has the following characteristics:

- A strong track record compared to similar peers (such as taxable high yield or short-term government) and a stable management team.
- An above-average SEC yield that is balanced by investment in securities with moderate debt ratings and moderate duration.
- Low expenses and turnover when compared to its peer group.

Appendix

STARS Performance

The hypothetical growth of $100 based on 5 STARS model performance for the period shown would have been worth $1722 at the end of October 2015 compared to $750 based on the return of the S&P 500 Index for the same time period.

Figure 2: U.S. 5-STARS Model Performance - Total Return

December 31, 1992-December 31, 2016

	GROWTH OF $100	ANNUALIZED MODEL PERFORMANCE (as of 12/31/16)				
	Hypothetical growth of $100 invested on 12/31/92	YTD	1 YEAR	5 YEARS	10 YEARS	SINCE INCEPTION
5-STARS	$ 1811	8.96%	8.96%	15.61%	7.65%	12.83%
S&P 500® TR	$ 829	11.93%	11.93%	14.65%	6.94%	9.21%

Please see page 4 for important information regarding the inherent limitations of model performance. The performance in the above charts is only the result of CFRA model portfolios ("models"). Performance of the models and S&P 500 Total Return Index ("Index") includes dividends. Indexes are unmanaged, statistical composites, and it is not possible to invest directly in an index. Model and Index returns do not include payment of any sales charges or fees an investor would pay to purchase the securities they represent. Inclusion of fees and expenses in the model or Index performance would lower performance. Past performance of the models or Index is no indication of future results. Effective February 3, 2014, S&P Capital IQ introduced a new qualitative analyst workflow process (the "Process"). Compared to the prior qualitative Process, the new Process includes an expanded set of quantitative tools, data and analytics. The new Process includes a new STARS recommendation model which suggests STARS rankings based on a quantitative methodology. The new Process is used by analysts as an analytical tool to inform their qualitative determination of STARS rankings. The STARS performance chart reports performance since January 31, 2014 to measure performance after introduction of the new Process. All other performance periods in the chart include performance for the period after introduction of the new Process. There is no assurance that the new Process had a favorableimpact on performance for the periods shown. Data ranges from December 1992 through December 2016.

The U.S. STARS model performance graph is only an illustration of CFRA research; it shows how stocks that received particular STARS rankings performed. STARS categories are models only; they are not collective investment funds. The STARS performance does not show how any actual portfolio has performed. STARS model performance does not represent the results of actual trading of investor assets. Thus, the model performance shown does not reflect the impact that material economic and market factors might have had on decision-making if actual investor money had been managed. While model performance for some or all STARS categories performed better than the S&P 500 for the period shown, the performance during any shorter period may not have, and there is no assurance that they will perform better than the S&P 500 in the future. STARS does not take into account any particular investment objective, financial situation or need and is not intended as an investment recommendation or strategy. Investments based on the STARS methodology may lose money. High returns are not necessarily the norm and there is no assurance that they can be sustained. Past model performance of STARS is no guarantee of future performance.

For model performance calculation purposes, the stocks within each STARS category at December 31, 1986 were equally weighted. Thereafter, additions to the composition of the stocks in each STARS category are made at the average value of the STARS category at the preceding month end with no rebalancing. Deletions are made at the closing price of the day that the deletion is made. Performance was calculated from inception through March 31, 2003 on a monthly basis. Thereafter, performance is calculated daily. Stocks in each STARS category will change over time, and some or all of the stocks that received STARS rankings during the time period shown may not have maintained their STARS ranking during the entire period.

The model performance does not consider taxes, reinvestment of dividends and brokerage commissions, nor does it reflect the deduction of any advisory or other fees charged by advisors or other parties that investors will incur when their accounts are managed in accordance with the model. The imposition of these fees and charges would cause actual performance to be lower than the performance shown. For example, if the model returned 10 percent on a $100,000 investment for a 12-month period (or $10,000) and an annual asset-based fee of 1.5 percent were imposed at the end of the period (or $1,650), the net return would be 8.35 percent (or $8,350) for the year. Over 3 years, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.1%, a total fee of $5,375 and a cumulative net return of 27.2% (or $27,200). Fees deducted on a frequency other than annual would result in a different cumulative net return in the preceding example.

The Standard & Poor's 500 index is the benchmark for U.S. STARS. The S&P 500 index is calculated in U.S. dollars and does not take into account the reinvestment of dividends. Indexes are unmanaged, statistical composites and their returns do not include payment of any sales charges or fees an investor would pay to purchase the securities they represent.

Such costs would lower performance. It is not possible to invest directly in an index. The S&P 500 index includes a different number of holdings and has different risk characteristics than the STARS stocks. Some of the STARS stocks may have been included in the S&P 500 index for some (but not necessarily all) of the period covered in the chart, and some such stocks may not have been included at all. The methodology for calculating the return of the S&P 500 index differs from the methodology of calculating the return for STARS. Past performance of the S&P 500 index is no guarantee of future performance.

An investment based upon the model should only be made after consulting with a financial advisor and with an understanding of the risks associated with any investment in securities, including, but not limited to, market risk, currency risk, political and credit risks, the risk of economic recession and the risk that issuers of securities or general stock market conditions may worsen, over time. Foreign investing involves certain risks, including currency fluctuations and controls, restrictions on foreign investments, less governmental supervision and regulation, less liquidity and the potential for market volatility and political instability. As with any investment, investment returns and principal value will fluctuate, so that when redeemed, an investor's shares may be worth more or less than their original cost.

Disclosures

S&P GLOBAL™ is used under license. The owner of this trademark is S&P Global Inc. or its affiliate, which are not affiliated with CFRA or the author of this content.

Stocks are ranked in accordance with the following ranking methodologies:

STARS Stock Reports:
Qualitative STARS recommendations are determined and assigned by equity analysts. For reports containing STARS recommendations refer to the Glossary section of the report for detailed methodology and the definition of STARS rankings.

Quantitative Stock Reports:
Quantitative recommendations are determined by ranking a universe of common stocks based on 5 measures or model categories: Valuation, Quality, Growth, Street Sentiment, and Price Momentum. In the U.S., a sixth sub-category for Financial Health will also be displayed. Percentile scores are used to compare each company to all other companies in the same universe for each model category. The five (six) model category scores are then weighted and rolled up into a single percentile ranking for that company. For reports containing quantitative recommendations refer to the Glossary section of the report for detailed methodology and the definition of Quantitative rankings.

STARS Stock Reports and Quantitative Stock Reports:
The methodologies used in STARS Stock Reports and Quantitative Stock Reports (collectively, the "Research Reports") reflect different criteria, assumptions and analytical methods and may have differing recommendations. The methodologies and data used to generate the different types of Research Reports are believed by the author and distributor reasonable and appropriate. Generally, CFRA does not generate reports with different ranking methodologies for the same issuer. However, in the event that different methodologies or data are used on the analysis of an issuer, the methodologies may lead to different views or recommendations on the issuer, which may at times result in contradicting assessments of an issuer. CFRA reserves the right to alter, replace or vary models, methodologies or assumptions from time to time and without notice to clients.

STARS Stock Reports:
Global STARS Distribution as of December 31, 2016

Ranking	North America	Europe	Asia	Global
Buy	38.35%	26.95%	40.00%	36.64%
Hold	52.13%	53.91%	43.43%	51.43%
Sell	9.52%	19.14%	16.57%	11.93%
Total	100%	100%	100%	100%

Analyst Certification:
STARS Stock Reports are prepared by the equity research analysts of CFRA and S&P Malaysia, under contract to CFRA. All of the views expressed in STARS Stock Reports accurately reflect the research analyst's personal views regarding any and all of the subject securities or issuers. Analysts generally update stock reports at least four times each year. No part of analyst, CFRA, or S&P Malaysia compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed in a STARS Stock Report.

About CFRA Equity Research's Distributors:
This Research Report is published and originally distributed by Accounting Research & Analytics, LLC d/b/a CFRA ("CFRA US"), with the following exceptions: In the UK/EU/EEA, it is published and originally distributed by CFRA UK Limited, an Appointed Representative of Hutchinson Lilley Investments LLP, which is regulated by the Financial Conduct Authority (No. 582181), and in Malaysia by S&P Malaysia, which is regulated by Securities Commission Malaysia, (No. CMSL/A0181/2007) under license from CFRA US. These parties and their subsidiaries maintain no responsibility for

General Disclosure

Notice to all jurisdictions:

Where Research Reports are made available in a language other than English and in the case of inconsistencies between the English and translated versions of a Research Report, the English version will control and supersede any ambiguities associated with any part or section of a Research Report that has been issued in a foreign language. Neither CFRA nor its affiliates guarantee the accuracy of the translation. The content of this report and the opinions expressed herein are those of CFRA based upon publicly-available information that CFRA believes to be reliable and the opinions are subject to change without notice. This analysis has not been submitted to, nor received approval from, the United States Securities and Exchange Commission or any other regulatory body. While CFRA exercised due care in compiling this analysis, CFRA AND ALL RELATED ENTITIES SPECIFICALLY DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, to the full extent permitted by law, regarding the accuracy, completeness, or usefulness of this information and assumes no liability with respect to the consequences of relying on this information for investment or other purposes. No content (including ratings, credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of CFRA. The Content shall not be used for any unlawful or unauthorized purposes. CFRA and any third-party providers, as well as their directors, officers, shareholders, employees or agents do not guarantee the accuracy, completeness, timeliness or availability of the Content.

Past performance is not necessarily indicative of future results.

This document may contain forward-looking statements or forecasts; such forecasts are not a reliable indicator of future performance.

This report is not intended to, and does not, constitute an offer or solicitation to buy and sell securities or engage in any investment activity. This report is for informational purposes only. Recommendations in this report are not made with respect to any particular investor or type of investor. Securities, financial instruments or strategies mentioned herein may not be suitable for all investors and this material is not intended for any specific investor and does not take into account an investor's particular investment objectives, financial situations or needs. 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.

Additional information on a subject company may be available upon request.

CFRA's financial data provider is S&P Global Market Intelligence. THIS DOCUMENT CONTAINS COPYRIGHTED AND TRADE SECRET MATERIAL DISTRIBUTED UNDER LICENSE FROM S&P GLOBAL MARKET INTELLIGENCE. FOR RECIPIENT'S INTERNAL USE ONLY.

The Global Industry Classification Standard (GICS®) was developed by and/or is the exclusive property of MSCI, Inc. and S&P Global Market Intelligence. GICS is a service mark of MSCI and S&P Global Market Intelligence and has been licensed for use by CFRA.

Other Disclaimers and Notices:

Certain information in this report is provided by S&P Global, Inc. and/or its affiliates and subsidiaries (collectively "S&P Global"). Such information is subject to the following disclaimers and notices: "Copyright © 2017, S&P Global Market Intelligence (and its affiliates as applicable). All rights reserved. Nothing contained herein is investment advice and a reference to a particular investment or security, a credit rating or any observation concerning a security or investment provided by S&P Global is not a recommendation to buy, sell or hold such investment or security or make any other investment decisions. This may contain information obtained from third parties, including ratings from credit ratings agencies. Reproduction and distribution of S&P Global's information and third party content in any form is prohibited except with the prior written permission of S&P Global or the related third party, as applicable.

Neither S&P Global nor its third party providers guarantee the accuracy, completeness, timeliness or availability of any information, including ratings, and are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, or for the results obtained from the use of such information or content. S&P GLOBAL AND ITS THIRD PARTY CONTENT PROVIDERS GIVE NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE AND ALL S&P INFORMATION IS PROVIDED ON AN AS-IS BASIS. S&P GLOBAL AND ITS THIRD PARTY CONTENT PROVIDERS SHALL NOT BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, EXEMPLARY, COMPENSATORY, PUNITIVE, SPECIAL OR CONSEQUENTIAL DAMAGES, COSTS, EXPENSES, LEGAL FEES, OR LOSSES (INCLUDING LOST INCOME OR PROFITS AND OPPORTUNITY COSTS OR LOSSES CAUSED BY NEGLIGENCE) IN CONNECTION WITH ANY USE OF THEIR INFORMATION OR CONTENT, INCLUDING RATINGS. Credit ratings are statements of opinions and are not statements of fact or recommendations to purchase, hold or sell securities. They do not address the suitability of securities or the suitability of securities for investment purposes, and should not be relied on as investment advice."

Certain information in this report may be provided by Securities Evaluations, Inc. ("SE"), a wholly owned subsidiary of Intercontinental Exchange. SE is a registered investment adviser with the United States Securities and Exchange Commission (SEC). SE's advisory services include evaluated pricing and model valuation of fixed income securities, derivative valuations and Odd-Lot Pricing that consists of bid- and ask-side evaluated prices for U.S. Municipal and U.S. Corporate Securities (together called valuation services). Such information is subject to the following disclaimers and notices: "No content (including credit-related analyses and data, valuations, model, software or other application or output therefrom) or any part thereof (Content) may be modified, reverse engineered, reproduced or distributed in any form by any means, or stored in a database or retrieval system, without the prior written permission of SE. The Content shall not be used for any unlawful or unauthorized purposes. SE and any third-party providers, as well as their directors, officers, shareholders, employees or agents (collectively SE Parties) do not guarantee the accuracy, completeness, timeliness or availability of the Content. SE Parties are not responsible for any errors or omissions (negligent or otherwise), regardless of the cause, for the results obtained from the use of the Content, or for the security or maintenance of any data input by the user. The Content is provided on an "as is" basis. SE PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall SE 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 or losses caused by negligence) in connection with any use of the Content even if advised of the possibility of such damages. Credit-related and other analyses and statements in the Content 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. SE assumes no obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. SE's opinions and analyses do not address the suitability of any security. SE does not act as a fiduciary or an investment advisor. While SE has obtained information from sources it believes to be reliable, SE does not perform an audit and undertakes no duty of due diligence or independent verification of any information it receives. Valuations services are opinions and not statements of fact or recommendations to purchase, hold or sell any security or instrument, or to make any investment decisions. The information provided as part of valuations services should not be intended as an offer, promotion or solicitation for the purchase or sale of any security or other financial instrument nor should it be considered investment advice. Valuations services do not address the suitability of any security or instrument, and securities, financial instruments or strategies mentioned by SE may not be suitable for all investors. SE does not provide legal, accounting or tax advice, and clients and potential clients of valuation services should consult with an attorney and/or a tax or accounting professional regarding any specific legal, tax or accounting provision(s) applicable to their particular situations and in the countries and jurisdictions where they do business. SE has redistribution relationships that reflect evaluated pricing, derivative valuation and/or equity pricing services of other unaffiliated firms with which SE has contracted to distribute to its client base.

For residents of the European Union/European Economic Area:

Research reports are originally distributed by CFRA UK Limited (company number 08456139 registered in England & Wales with its registered office address at 131 Edgware Road, London, W2 2AP, United Kingdom). CFRA UK Limited is an Appointed Representative of Hutchinson Lilley Investments LLP, which is regulated by the UK Financial Conduct Authority (No. 582181).

For residents of Malaysia:
Research reports are originally produced and distributed by S&P Malaysia, under license from CFRA US. S&P Malaysia is regulated by Securities Commission Malaysia (License No. CMSL/A0181/2007).

For residents of all other countries:
Research reports are originally distributed Accounting Research & Analytics, LLC d/b/a CFRA.