Provided by StarMine from Refinitiv

REFINITIV

Understanding the Equity Summary Score Methodology

The Equity Summary Score provides a consolidated view of the ratings from a number of independent research providers on Fidelity.com. Historically, the maximum number of providers has been between 10 and 12. However, some stocks are not rated by all research providers. Since the model uses a number of ratings to arrive at an Equity Summary Score, only stocks that have four or more firms rating them have an Equity Summary Score. It uses the providers' relative, historical, recommendation performance along with other factors to give you an aggregate, historical accuracy-weighted indication of the independent research firms' stock sentiment.

As discussed in detail below, this single stock score and associated sentiment is provided by StarMine from Refinitiv focused primarily on building quantitative factor models for institutional investors. It is calculated by normalizing third-party research providers' ratings distributions (making them more comparable) and weighting each provider's rating in the final score based on historical accuracy. Equity Summary Scores for the 1,500 largest stocks by market capitalization are force ranked to help ensure a consistent ratings distribution. This means that there will be a diversity of scores provided by the model, thereby assisting investors in evaluating the largest stocks (in terms of capitalization), which typically make up the majority of Fidelity's investors' portfolios. Finally, smaller cap stocks are then slotted into this distribution without a force ranking, and may not exhibit the same balanced distribution. StarMine from Refinitiv updates Equity Summary Scores daily based on the ratings provided to it by the independent research providers after the close of each trading day.

How are Equity Summary Scores calculated?

The **StarMine** model takes the multiple standardized ratings of the research providers and creates a single **Equity Summary Score/Sentiment** using the following steps:

- Normalize Look at the research providers' buy and sell ratings distributions to understand which ratings are scarce and therefore more important.
 - The distribution of ratings from each of the independent research firms are normalized to make them more comparable with each other. For example, some research providers may issue a large number of buy recommendations and few sell recommendations, or vice versa. StarMine adjusts for this by overweighting "scarce" ratings and underweighting "plentiful" ratings. By normalizing the distribution of ratings, the model can recognize the "scarcity value" of ratings that are infrequently given which adds additional information to the model.
- 2. **Weight** Look at the 24 month relative firm/sector ratings accuracy and use that information to determine which firms' ratings have the most weight in the aggregated Equity Summary Score.
 - For over five years on Fidelity.com, StarMine has run its sophisticated scoring system to facilitate a fair comparison of research provider recommendation performance across widely disparate industries and market conditions. The StarMine Relative Accuracy Score for each research provider uses the past performance of the provider's individual stock recommendations with that of its peers in each sector to calculate a statistical aggregation ranging from 1 to 100. It is calculated over a 24-month period based on the performance of a research firm within a given sector against its peer set of other firms in the market rating stocks in this sector. The calculation is analogous to a "batting average score", that is how often stocks rated "buy" outperform the market and stocks rated "sell" underperform the market as a whole. To get a score higher than 50, the industry-relative return of a firm's recommendations within a sector must, when taken together, be greater than those of the median provider. The StarMine Relative Accuracy Score is used in the Equity Summary Score model to help weight the individual provider stock recommendations in the aggregated Equity Summary Score.
- 3. **Calculate** The normalized analysts' recommendations and the accuracy weightings are combined to create a single score. For the largest 1,500 stocks by market capitalization, these scores are then forcibly ranked against all the other scores to create a standardized Equity Summary Score on a scale of 0.1 to 10.0 for the 1,500 stocks. This means that there will be a uniform distribution of scores provided by the model thereby assisting investors in evaluating the largest stocks (in terms of

capitalization), which typically make up the majority of individual investors' portfolios. Finally, smaller cap stocks are then slotted into this distribution without a force ranking, and may not exhibit the same balanced distribution.

The Equity Summary Score and associated sentiment ratings by StarMine from Refinitiv are:

0.1 to 1.0 - very bearish 1.1 to 3.0 - bearish 3.1 to 7.0 - neutral 7.1 to 9.0 - bullish 9.1 to 10.0 - very bullish

Other Important Model Factors:

- An Equity Summary Score is only provided for stocks with ratings from four or more independent research providers.
- New research providers are ramped in slowly by StarMine to avoid rapid fluctuations in Equity Summary Scores. Independent research providers that are removed from Fidelity.com will similarly be ramped out slowly to avoid rapid fluctuations.

Notes on Using the Equity Summary Score:

The Equity Summary Score and sentiment ratings are ratings of relative, not absolute forecasted performance. The StarMine model anticipates that the highest rated stocks, those labeled "Very Bullish" *as a group*, may outperform lower rated groups of stocks. In a rising market, most stocks may experience price increases, and in a declining market, most stocks may experience price declines.

- Proper diversification within a portfolio is critical to the effective use of the Equity Summary Score. Individual company performance is subject to a broad range of factors that cannot be adequately captured in any rating system.
- Larger differences in Equity Summary Scores may lead to differences in future performance. The sentiment rating labels should only be used for quick categorization. An 8.9 *Bullish* is closer to a 9.1 *Very Bullish* than a 7.1 *Bullish*.
- For a customer holding a stock with a lower Equity Summary Score, there are many important considerations (for example, taxes) that may be much more important than the Score.
- The Equity Summary Score does not predict future performance of underlying stocks. The Equity Summary Score model has
 only been in production since August 2009 and therefore no assumptions should be made about how the model will perform
 in differing market conditions.

How has the Equity Summary Score performed?

Transparency is a core value at Fidelity, and that is why StarMine from Refinitiv provides Fidelity with a view of the historical aggregate performance of the Equity Summary Score across all covered stocks each month. You can use this to obtain insight into the performance and composition of the Equity Summary Score. In addition, the individual stock price performance during each period of the Equity Summary Score sentiment can be viewed on the symbol-specific Analyst Opinions History and Performance pages.

1. Equity Summary Scorecard Summary

A Total Return by Sentiment chart shows how a theoretical portfolio of stocks in each of the five sentiments performed within the selected time period. For example, the bright green bar represents the performance of all the Very Bullish stocks. Provided for comparison is the performance of First Call Consensus Recommendation of Strong Buy, the average of all stocks with an Equity Summary Score, and the S&P 500 Total Return Index.

2. Performance by Sector and Market Cap

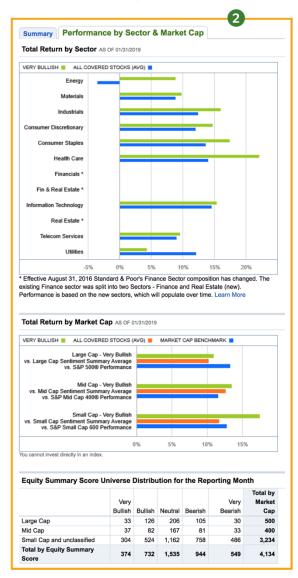
Fidelity customers have access to more in-depth analysis of the Equity Summary Score universe and performance.

The Total Return by Sector chart provides the historical performance of a theoretical portfolio of Very Bullish stocks in each sector over the time period selected. For comparison, the average performance of all stocks with an Equity Summary Score during the time period by sector is also provided.

The Total Return by Market Cap shows the historical performance by market capitalization for stocks with an Equity Summary Score of Very Bullish as compared to typical market benchmarks as well the average for the largest 500 stocks, the next smaller 400 stocks, and the next 600 smaller stocks by market capitalization.

The last table is the Equity Summary Score universe distribution for the reporting month by market capitalization and score.

Provided by Thomson Reuters StarMine Transparency is a core value at Fieldle, and that is why each month Thomson Reuters StarMine provides a view of the historical aggregate performance of the Equity Summary Score across all covered stocks for insight into the performance and composition of the Equity Summary Score. Summary Performance by Sector & Market Cap Total Return by Sentiment As of vioratority ALL COVERED STOCKS (AVG) Support Control (AVG)



For illustrative purposes only

Important Information on Monthly Performance Calculations by StarMine from Refinitiv

- The set of covered stocks and ratings are established as of the second to last trading day of a given month. For a stock to be included in the scorecard calculations, it must have an Equity Summary Score as of the second to the last trading day of the month. The positions are assumed to be entered into on the last trading day of the month, and, if necessary, exited on the last trading day of the next month.
- The Scorecard calculations use the closing price as of the last trading day of the month. The Scorecard calculations assume StarMine exits old positions and enters new ones at the same time at closing prices on the last trading day of a given month. The calculations assume 100% investment at all times.
- The 1-Year total return by Market Cap table breakpoints for the largest 500 stocks (large cap), the next 400 (mid cap), and the next 600 (small cap), are also established as of the end of trading on the second to the last trading day of a given month.
- The calculation of performance assumes an equal dollar weighted portfolio of stocks, i.e. the theoretical investment allocated to each stock is the same.
- Performance in a given month for a given stock is calculated as [starting price (starting price meaning closing price as of the last day of trading of the prior month) less the ending price, divided by the starting price.] Prices incorporate any necessary adjustments for dividends and corporate actions (e.g. splits or spinoffs).
- The performance of a given tier of rated stocks is calculated by adding up the performance of all stocks within that given tier, then dividing by the total number of stocks in a given tier.
- The process for the next month begins again by looking at Equity Summary Scores as of the second-to-last trading day of the new month, placing stocks into their given tiers, and starting the process all over again.
- It is important to note that the "theoretical" portfolio rebalancing process that StarMine performs between the end of one month and the beginning of the next month is, for the purposes of the scorecard, a cost-free process. This means that no commissions or other transaction costs (e.g. bid/ask spreads) are included in the calculations.
- If a customer attempted to track portfolios of stocks similar to those included in the scorecard, their returns would likely differ due to transaction costs as well as different purchase and sale prices received when buying or selling stocks.

AboutStarMine

StarMine is focused primarily on building quantitative factor models for institutional investors. StarMine's equity analytics and research management tools help investment firms around the globe generate alpha and process equity information more efficiently. They are one of the largest and most trusted sources of objective equity research performance scores. Their performance scoring helps investors anticipate trends in analyst sentiment, predict surprises, evaluate financial statements for measures of earnings quality, and more.



Using the Equity Summary Score

There are many ways to use the Equity Summary Score. You can use it as a screening criterion, to help identify stocks you may want to include or exclude from further analysis, in conjunction with other criteria. You can also use it to monitor the consolidated opinion of the independent research providers that are following the stocks currently in your portfolio.

The Equity Summary Score from StarMine is not:

- A Fidelity rating. As with the other content provided in the stock research section of Fidelity.com, the Equity Summary Score comes from an independent third-party, StarMine.
- Simply an average analyst rating. The Equity Summary Score is the output of a model whose inputs are the ratings of the independent research providers (IRPs).
- A buy or sell rating. It is a calculated expression of the overall "sentiment" of the IRPs who have provided a rating on a stock.
- Directly comparable to a consensus rating. A consensus rating is generally a simple "average" rating, while the Equity Summary
 Score is a model-calculated value. First Call Consensus Recommendation is provided where available along with the Equity
 Summary Score for a stock. First Call Consensus Recommendation is provided by Thomson Reuters, an independent thirdparty, using information gathered from contributors. The number of contributors for each security where there is a consensus
 recommendation is provided. Each contributor determines how their individual recommendation scale maps to the
 standardized Thomson Reuters First Call scale of 1-5.

Who are the Independent Research Providers and how does StarMine receive their ratings?

Fidelity's brokerage customers enjoy one of the broadest sets of independent research providers (IRPs) available for evaluating stocks. The Equity Summary Score provides a consolidated view of the ratings from a number of independent research providers on Fidelity.com. Historically, the maximum number of providers has been between 10 and 12. However, some stocks are not rated by all research providers. Since the model uses a number of ratings to arrive at an Equity Summary Score, only stocks that have four or more firms rating them have an Equity Summary Score. The large number of providers adds unique value across several dimensions:

- The number of IRPs yields an extensive coverage set, with over 6,000 stocks typically having at least one independent provider rating.
- With the large number of providers, Fidelity is able to provide research from firms that take very different approaches to
 valuation. The current research providers cover both technical and fundamental analysis, and have growth, value and
 momentum methodologies. Fidelity offers a tool that can help customers find the research providers that best meet their
 criteria. http://research2.fidelity.com/fidelity/research/reports/release2/ExploreResearchFirms.asp
- Transparency is a core value as well, and Fidelity is always working to ensure that customers understand the research that they
 are using. Fidelity.com provides an overview from each research provider of its methodology and access to their stock ratings
 and reports. As an additional dimension of transparency, Fidelity has for many years, made available performance insight and
 metrics on the IRPs.

For example, the customer has access to the quarterly Integrity Research Scorecard from a third-party consulting firm that specializes in analyzing and understanding the research industry. Integrity Research performs due diligence on research firms and measures research firms' recommendation performance. Its scorecard and analysis is designed to help Fidelity customers better understand the performance of the independent research providers made available through Fidelity.com.

The Investars Scorecard is a sector-based scorecard, updated daily, which represents the performance of a theoretical portfolio of each IRPs' highest rated stocks. Investars is a firm that independently manages ratings databases and analyzes the performance of research providers. They have been collecting stock ratings from Fidelity's independent research providers for many years and have created a standardized ratings language (e.g., strong buy, sector outperform, neutral) across all research providers on Fidelity.com to facilitate customer understanding and comparison.



Investars collects and standardizes recommendations from IRPs that provide ratings and stock research reports on Fidelity.com and sends them at the end of each trading day to StarMine who calculates the Equity Summary Score.

Important Notes about IRP ratings and the Equity Summary Score Calculation:

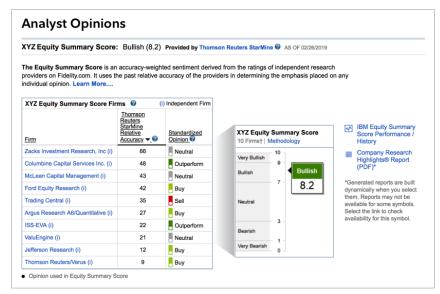
• Investars receives end of trading day IRP ratings Monday through Thursday for availability by 8 am ET the next day. For IRPs that provide weekly updates after Friday market close, their rating change may not be available until Tuesday morning due to the length of weekly processing. Also if an IRP misses the deadline for daily processing, their rating change will be included in the Equity Summary Score and available on Fidelity.com the next trading day after receipt. Date of ratings is provided with the rating as well as in the research report.

Finally, we suggest caution with any performance measurement analysis, including the Equity Summary Score and related scorecards. Performance of buy/sell recommendations is only one aspect of the research offered on Fidelity.com. Although it is useful to understand a research firm's overall track record, a research firm's performance on any given stock can diverge significantly from the overall performance. There are additional factors beyond performance that any investor should consider in evaluating a research firm, such as the insights provided and the ease with which the research can be used. Performance of recommendations, while important, should not be the only factor an investor considers in evaluating research firms.

Where can you find the Equity Summary Score on Fidelity.com?

The Equity Summary Score can be found in several places within stock research on Fidelity.com.

Symbol-specific Snapshot Page: Equity Summary Score can be found in the Analyst Opinions bricklet. In addition to the Equity
Summary Score, the distribution of underlying analyst opinions that feed into the Equity Summary Score is displayed. By
rolling over the icons that represent the different analyst opinions, you can see the details associated with the underlying
recommendations.



For illustrative purposes only



2. Symbol-specific Analyst Opinions Page.

1. Equity Summary Score Firms

This is a list of the independent research firms included in the Equity Summary Score. The standardized opinion and StarMine Relative Accuracy Score is provided for each firm. Click on the "?" icon for definitions

2. Equity Summary Score

The Equity Summary Score is the consolidated, accuracy-weighted indication of the independent research firms' sentiment for this stock. Click on "Methodology" to learn more on how StarMine calculates the score.

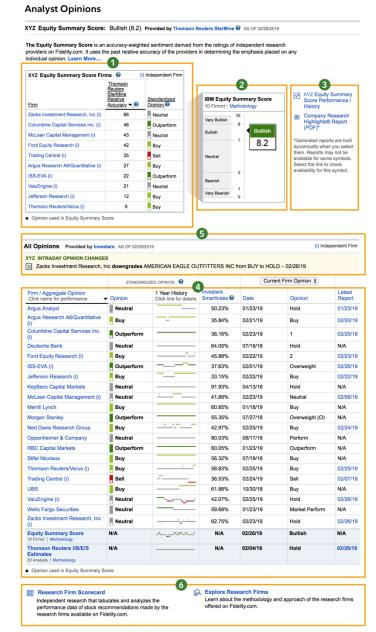
3. Equity Summary Score Performance and History

View 12 month history and associated price performance.

4. All Opinions

This is a list of all available opinions for this stock on Fidelity.com. Columns are sortable. On the list, you will find:

- The name of the firm, designated with an "(i)" when the firm is independent. You can click the firm name to view opinion history and performance.
- The firm's standardized opinion. The dot in the colored bar indicates the firm is included in the Equity Summary Score. Investars, a third-party research firm, collects and standardizes opinions using a five-point scale to make it easier for you to compare firm opinions.
- The 1 Year History line shows you if the firm's standardized opinion has changed or remained the same over the last year.
 Click for full chart and access details.
- The StarMine Relative Accuracy Score, a measure of the relative historical accuracy of the firm's opinions in the stock's sector among its peers over the last 24 months.
- The date and current firm's non-standardized opinion.
 You can change the view to see the last time the opinion changed and if it was an upgrade or downgrade.
- A link to the latest research report (in PDF format) is available from firms Fidelity may distribute.



For illustrative purposes only

Intraday Opinions

Opinions provided on this page are from the previous trading day. Opinion changes issued during the current trading day will be listed above the All Opinions table.

6. Research Firm Scorecards and Explore Research Firms

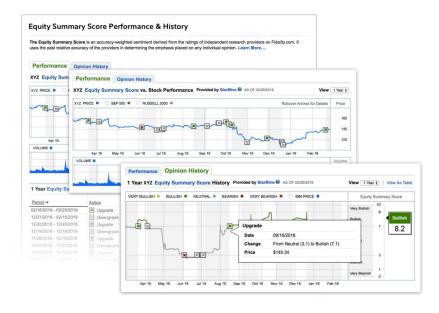
These scorecards evaluate the performance of independent research firm ratings over time, individually and in aggregate. They help you to understand and compare the historical accuracy of recommendations.

Explore Research Firms helps you understand the varying objectives, styles, and approaches of the research that Fidelity offers.



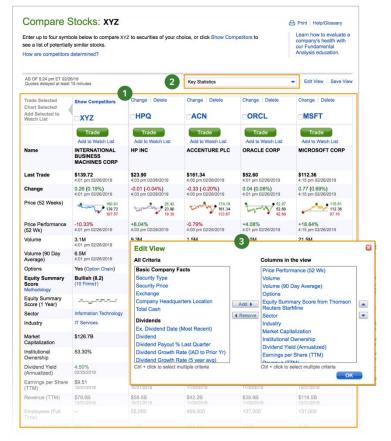
3. Symbol-specific Opinion History and Performance Page

The Opinion History and Performance pages provide detailed information on the score and sentiment history for the last 12 months where applicable, as well as the price-performance of that stock during the periods of time when the sentiment and equity score were at different levels. Clicking the box will overlay a price chart for the stock.



4. Symbol-specific Compare Page

The default, Key Statistics, view includes, where applicable, an Equity Summary Score for the primary symbol as well as competitors when "Show Competitors" is clicked. To see the individual research providers and the ratings that are included in the Equity Summary score, you can roll over the number of analysts or change the view to "Analyst Opinions." Customers may also create their own compare review that includes the Equity Summary Score.

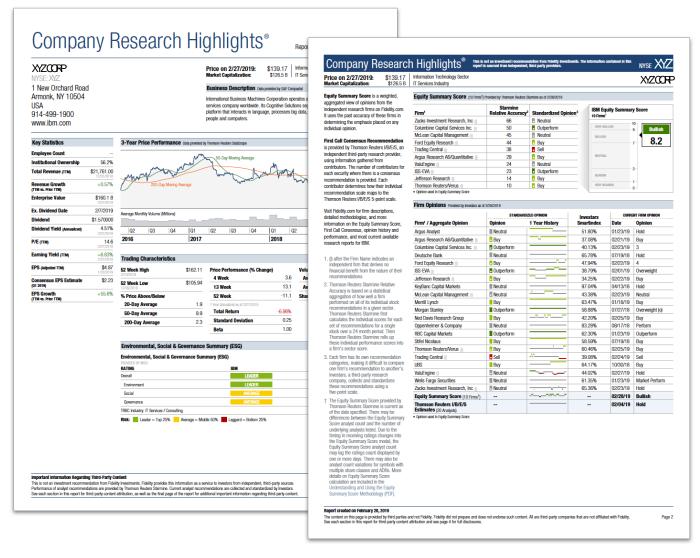


For illustrative purposes only



5. Symbol-specific Company Research Highlights Report

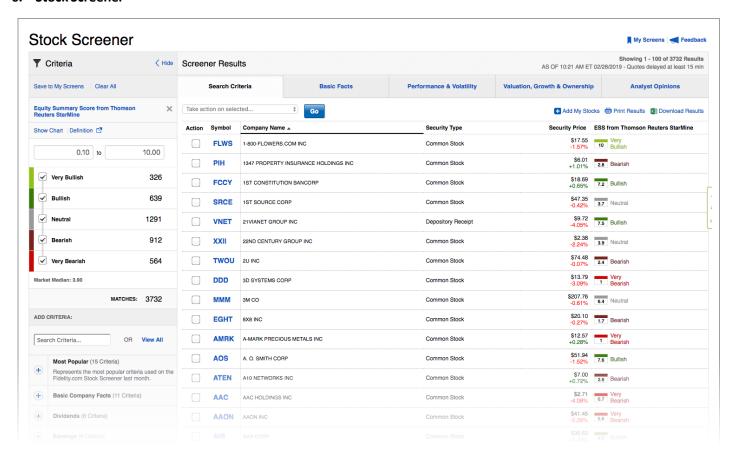
The Company Research Highlights Report is a printable aggregation of various pieces of third-party content. It includes fundamental data, dividend information, a brief company overview and key facts, as well as analyst opinions. The analyst opinions section includes the information found on the Analyst Opinions page in the stock's Snapshot.



For illustrative purposes only



6. Stock Screener



For illustrative purposes only

The Equity Summary Score is available as a criterion in the stock screener on Fidelity.com. Customers can search for stocks using the Equity Summary Scores and sentiments along with 140+ other screening criteria. This lets customers establish selection criteria such as: finding bullish stocks or use the score to narrow the range to search for stocks with an Equity Summary Score between 6.0 and 8.0. The Equity Summary Score can be used in conjunction with any of the other 140+ screening criteria covering the areas of fundamental data, company growth, company profitability, technical trading criteria, and chart patterns. In addition, the Equity Summary Score can be added to any of the existing quick screens or expert screens that are available on Fidelity.com.

Stock research mentioned herein is supplied by companies that are not affiliated with Fidelity Investments. These companies' recommendations do not constitute advice or guidance, nor are they a measure of the suitability of any particular security or trading strategy. Please determine which security, product, or service is right for you based on your investment objectives, risk tolerance, and financial situation. Be sure to review your decisions periodically to make sure they are still consistent with your goals.

Equity Summary Scores /Sentiments and Equity Summary Score Scorecards are provided for informational purposes only, and do not constitute advice or guidance, nor are they an endorsement or recommendation for any particular research provider. The Equity Summary Score/Sentiment and Equity Summary Scorecard are provided by StarMine, an independent company not affiliated with Fidelity Investments. The underlying performance data is provided by Investars.com, an independent company not affiliated with Fidelity Investments.