# Looking Back 25 Years

## CFRA Fundamental Research Performance

**Paul Beland, CFA**
Global Head of Research
Wealth Management

## Key Takeaways

- Over the past 25 years, CFRA has consistently demonstrated its ability to provide clients with alpha-generating and risk-mitigation insights. Recent acquisitions and methodological enhancements have bolstered this case and our recent performance.
- Global annualized alpha since 1999 for CFRA's STARS universe (currently 1,652 companies) is positive for all categories: (Strong Buy, 4.4%), (Buy, 4.5%), (Hold, 3.9%), (Sell, 1.3%), and (Strong Sell, 7.3%).
- Our track record demonstrates a commitment to delivering value and fostering long-term client investment success by helping investors capitalize on growth trends, mitigate risks, and achieve strong returns.
- Our research-driven approach has three key competitive advantages: (1) our fundamental research methodology, (2) tactical sector allocations, and (3) unmatched high-tenured, multidisciplined analyst collaboration ("OneCFRA").

**Global Annualized Alpha Since 1999**


*Note: Performance calculations are based on equal weight daily rebalance methodology. Past performance is not a reliable indicator of future results.*

## Fundamental Context

### Performance Transparency

At CFRA, we pride ourselves on transparency in our equity research methodology and the resulting STARS ratings performance. Since 1999, CFRA has produced detailed performance statistics for each of our STARS rating categories in each geographic region. Over the past 25 years, our firm has consistently delivered superior stock ratings, generating significant alpha for clients. Through an unmatched multidisciplinary approach to investment research, including expert lenses on fundamental, forensic accounting, policy, legal, and technical research, CFRA stock ratings have outperformed benchmark indices across various market cycles. The cumulative outperformance has resulted in significant wealth creation for clients, compounding at a superior rate compared to passive index investing.

**Figure 1: CFRA's STARS Annualized Performance**

### North America STARS Annualized Performance

| | 2024 | | 2023 | | 5-Year | | 10-Year | | Since 1999 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Return | *Alpha* | Return | *Alpha* | Return | *Alpha* | Return | *Alpha* | Return | *Alpha* |
| Strong Buy | 18.3% | *3.1%* | 31.0% | *12.8%* | 12.7% | *2.7%* | 9.5% | *-0.1%* | 12.1% | *3.7%* |
| Buy | 13.8% | *-1.3%* | 19.1% | *0.9%* | 11.9% | *1.8%* | 10.2% | *0.6%* | 13.4% | *4.9%* |
| Hold | 8.0% | *-7.2%* | 17.4% | *-0.9%* | 10.8% | *0.8%* | 10.4% | *0.9%* | 13.0% | *4.5%* |
| Sell | 4.7% | *10.4%* | 17.1% | *1.2%* | 14.7% | *-4.7%* | 10.0% | *-0.4%* | 5.1% | *3.3%* |
| Strong Sell | 1.8% | *13.3%* | -14.9% | *33.1%* | -4.2% | *14.3%* | 2.7% | *6.9%* | 1.1% | *7.4%* |
| MSCI US EW | 15.2% | | 18.2% | | 10.0% | | 9.6% | | 8.5% | |
| *Weighted Average Alpha* | | *-2.7%* | | *1.1%* | | *0.9%* | | *0.7%* | | *4.5%* |

### Europe STARS Annualized Performance

| | 2024 | | 2023 | | 5-Year | | 10-Year | | Since 2002 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Return | *Alpha* | Return | *Alpha* | Return | *Alpha* | Return | *Alpha* | Return | *Alpha* |
| Strong Buy | 20.6% | *15.5%* | 19.3% | *3.2%* | 7.9% | *3.2%* | 10.6% | *4.4%* | 10.4% | *4.7%* |
| Buy | 8.5% | *3.4%* | 18.1% | *2.0%* | 7.5% | *2.9%* | 8.2% | *2.0%* | 7.7% | *2.0%* |
| Hold | 4.5% | *-0.6%* | 18.9% | *2.8%* | 5.1% | *0.4%* | 6.7% | *0.6%* | 7.4% | *1.7%* |
| Sell | 11.3% | *-6.2%* | 20.3% | *-4.2%* | 12.3% | *-7.6%* | 10.9% | *-4.8%* | 10.1% | *-4.5%* |
| Strong Sell | 7.3% | *-2.2%* | -15.0% | *31.1%* | -6.1% | *10.7%* | -0.2% | *6.3%* | 2.9% | *2.8%* |
| MSCI Europe EW | 5.1% | | 16.1% | | 4.7% | | 6.1% | | 5.7% | |
| *Weighted Average Alpha* | | *0.8%* | | *2.4%* | | *0.8%* | | *0.8%* | | *1.4%* |

### Asia STARS Annualized Performance

| | 2024 | | 2023 | | 5-Year | | 10-Year | | Since 2002 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Return | *Alpha* | Return | *Alpha* | Return | *Alpha* | Return | *Alpha* | Return | *Alpha* |
| Strong Buy | 27.9% | *28.3%* | 3.9% | *7.3%* | 9.3% | *9.9%* | 5.8% | *3.9%* | 13.2% | *7.2%* |
| Buy | 16.6% | *17.1%* | 4.8% | *8.2%* | 7.1% | *7.7%* | 6.3% | *4.4%* | 10.7% | *4.7%* |
| Hold | 17.7% | *18.2%* | 5.8% | *9.2%* | 8.2% | *8.8%* | 7.5% | *5.6%* | 9.0% | *3.1%* |
| Sell | 17.9% | *-18.3%* | 5.0% | *-8.4%* | 6.2% | *-6.8%* | 4.2% | *-2.3%* | 8.3% | *-2.4%* |
| Strong Sell | -1.0% | *0.5%* | -11.9% | *8.4%* | -4.8% | *4.2%* | -8.2% | *10.1%* | -5.7% | *11.7%* |
| MSCI Asia Pac. Ex-Jap. EW | -0.4% | | -3.5% | | -0.6% | | 1.9% | | 6.0% | |
| *Weighted Average Alpha* | | *16.2%* | | *7.7%* | | *7.5%* | | *4.6%* | | *3.7%* |

Notes: The performance in the above charts is the result of the total return of CFRA Equity Research STARS models and benchmarks. In calculating model performance, dividends are assumed to be reinvested in the model or Index at equal weight. The figures presented above refer to the past. Past performance of the models or Index is not a reliable indicator of future results. Data ranges from January 1, 1999, through December 31, 2024.

## Global Alpha Trends

Since inception in 1999, CFRA's global STARS performance has generated positive annualized alpha for all STARS categories. Global annualized alpha for 5-STARS (Strong Buy), 4-STARS (Buy), 3-STARS (Hold), 2-STARS (Sell), and 1-STAR (Strong Sell) are **4.4%**, **4.5%**, **3.9%**, **1.3%**, and **7.3%**, respectively. We calculate these global alpha trends by using the regional data in Figure 1, factoring in the percentage of STARS in each region. As North America is and has always been our largest region from a STARS universe perspective, it will be the biggest driver of the overall global alpha trends. Currently, North America makes up 58% of the equities in CFRA's STARS universe, followed by Asia at 22% and Europe at 20%.

**CFRA STARS Universe**

| | |
|---|---|
| **Global** | **1,652** |
| **North America** | **958** |
| **Europe** | **329** |
| **Asia** | **365** |

## North America Alpha Trends

**North America STARS Annualized Performance**

| | 2024 | | 2023 | | 5-Year | | 10-Year | | Since 1999 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Return** | ***Alpha*** | **Return** | ***Alpha*** | **Return** | ***Alpha*** | **Return** | ***Alpha*** | **Return** | ***Alpha*** |
| **Strong Buy** | 18.3% | *3.1%* | 31.0% | *12.8%* | 12.7% | *2.7%* | 9.5% | *-0.1%* | 12.1% | *3.7%* |
| **Buy** | 13.8% | *-1.3%* | 19.1% | *0.9%* | 11.9% | *1.8%* | 10.2% | *0.6%* | 13.4% | *4.9%* |
| **Hold** | 8.0% | *-7.2%* | 17.4% | *-0.9%* | 10.8% | *0.8%* | 10.4% | *0.9%* | 13.0% | *4.5%* |
| **Sell** | 4.7% | *10.4%* | 17.1% | *1.2%* | 14.7% | *-4.7%* | 10.0% | *-0.4%* | 5.1% | *3.3%* |
| **Strong Sell** | 1.8% | *13.3%* | -14.9% | *33.1%* | -4.2% | *14.3%* | 2.7% | *6.9%* | 1.1% | *7.4%* |
| **MSCI US EW** | 15.2% | | 18.2% | | 10.0% | | 9.6% | | 8.5% | |
| ***Weighted Average Alpha*** | | *-2.7%* | | *1.1%* | | *0.9%* | | *0.7%* | | *4.5%* |

Notes: The performance in the above charts is only the result of the total return of CFRA Equity Research STARS models and the MSCI US Equal Weight Index (Index). In calculating model performance, dividends are assumed to be reinvested in the model or Index at equal weight. The figures presented above refer to the past. Past performance of the models or Index is not a reliable indicator of future results. Data ranges from January 1, 1999, through December 31, 2024.

Since inception, North American STARS has generated positive annualized alpha for all STARS categories. North American annualized alpha for 5-STARS (Strong Buy), 4-STARS (Buy), 3-STARS (Hold), 2-STARS (Sell), and 1-STAR (Strong Sell) are **3.7%**, **4.9%**, **4.5%**, **3.3%**, and **7.4%**, respectively. More recently, weighted-average annual alpha for regions has hovered around 1%, and slipped to negative in 2024. The negative alpha in 2024 was driven largely by underperforming Hold-rated companies. We've recently launched a global initiative related to Hold ratings to improve this category's performance and limit its proportion to ensure we are providing clients with more actionable ratings. Nevertheless, helping offset this negative alpha in 2024 was excellent alpha generation in the Strong Buy, Sell, and Strong Sell categories.

At CFRA, we have two categories of sell ratings – Sell and Strong Sell. Sell ratings are expected to underperform the benchmark, while Strong Sells are also expected to decline on an absolute basis. This is not surprising given CFRA's forensic accounting roots and collaboration with fundamental analysts. As such, Strong Sells have been particularly profitable in all regions. CFRA's proprietary and proven forensic accounting methodology uncovers risks of hidden deterioration in an underlying business, future accounting restatements, and/or weaknesses in corporate governance, which often portend a relative and absolute decline in share price.

## Europe Alpha Trends

### Europe STARS Annualized Performance

| | 2024 | | 2023 | | 5-Year | | 10-Year | | Since 2002 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Return** | ***Alpha*** | **Return** | ***Alpha*** | **Return** | ***Alpha*** | **Return** | ***Alpha*** | **Return** | ***Alpha*** |
| **Strong Buy** | 20.6% | *15.5%* | 19.3% | *3.2%* | 7.9% | *3.2%* | 10.6% | *4.4%* | 10.4% | *4.7%* |
| **Buy** | 8.5% | *3.4%* | 18.1% | *2.0%* | 7.5% | *2.9%* | 8.2% | *2.0%* | 7.7% | *2.0%* |
| **Hold** | 4.5% | *-0.6%* | 18.9% | *2.8%* | 5.1% | *0.4%* | 6.7% | *0.6%* | 7.4% | *1.7%* |
| **Sell** | 11.3% | *-6.2%* | 20.3% | *-4.2%* | 12.3% | *-7.6%* | 10.9% | *-4.8%* | 10.1% | *-4.5%* |
| **Strong Sell** | 7.3% | *-2.2%* | -15.0% | *31.1%* | -6.1% | *10.7%* | -0.2% | *6.3%* | 2.9% | *2.8%* |
| **MSCI Europe EW** | 5.1% | | 16.1% | | 4.7% | | 6.1% | | 5.7% | |
| ***Weighted Average Alpha*** | | *0.8%* | | *2.4%* | | *0.8%* | | *0.8%* | | *1.4%* |

Notes: The performance in the above charts is only the result of the total return of CFRA Equity Research STARS models and the MSCI Europe Equal Weight Index (Index). In calculating model performance, dividends are assumed to be reinvested in the model or Index at equal weight. The figures presented above refer to the past. Past performance of the models or Index is not a reliable indicator of future results. Data ranges from January 1, 2002, through December 31, 2024.

Since inception, Europe STARS has generated positive annualized alpha for nearly all STARS categories. Europe annualized alpha for 5-STARS (Strong Buy), 4-STARS (Buy), 3-STARS (Hold), 2-STARS (Sell), and 1-STAR (Strong Sell) are **4.7%**, **2.0%**, **1.7%**, **-4.5%**, and **2.8%**, respectively. Despite the challenged Sell-rated performance, Europe STARS have consistently generated positive weighted-average alpha for all periods driven by solid Strong Buy, Buy, and Strong Sell performance.

## Asia Alpha Trends

### Asia STARS Annualized Performance

| | 2024 | | 2023 | | 5-Year | | 10-Year | | Since 2002 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Return** | ***Alpha*** | **Return** | ***Alpha*** | **Return** | ***Alpha*** | **Return** | ***Alpha*** | **Return** | ***Alpha*** |
| **Strong Buy** | 27.9% | *28.3%* | 3.9% | *7.3%* | 9.3% | *9.9%* | 5.8% | *3.9%* | 13.2% | *7.2%* |
| **Buy** | 16.6% | *17.1%* | 4.8% | *8.2%* | 7.1% | *7.7%* | 6.3% | *4.4%* | 10.7% | *4.7%* |
| **Hold** | 17.7% | *18.2%* | 5.8% | *9.2%* | 8.2% | *8.8%* | 7.5% | *5.6%* | 9.0% | *3.1%* |
| **Sell** | 17.9% | *-18.3%* | 5.0% | *-8.4%* | 6.2% | *-6.8%* | 4.2% | *-2.3%* | 8.3% | *-2.4%* |
| **Strong Sell** | -1.0% | *0.5%* | -11.9% | *8.4%* | -4.8% | *4.2%* | -8.2% | *10.1%* | -5.7% | *11.7%* |
| **MSCI Asia Pac. Ex-Jap. EW** | -0.4% | | -3.5% | | -0.6% | | 1.9% | | 6.0% | |
| ***Weighted Average Alpha*** | | *16.2%* | | *7.7%* | | *7.5%* | | *4.6%* | | *3.7%* |

Notes: The performance in the above charts is only the result of the total return of CFRA Equity Research STARS models and the MSCI Asia Pac. Ex-Jap. Equal Weight Index (Index). In calculating model performance, dividends are assumed to be reinvested in the model or Index at equal weight. The figures presented above refer to the past. Past performance of the models or Index is not a reliable indicator of future results. Data ranges from January 1 2002, through December 31, 2024.

Since inception, Asia STARS has generated significantly positive annualized alpha for nearly all STARS categories. Asia annualized alpha for 5-STARS (Strong Buy), 4-STARS (Buy), 3-STARS (Hold), 2-STARS (Sell), and 1-STAR (Strong Sell) are **7.2%**, **4.7%**, **3.1%**, **-2.4%**, and **11.7%**, respectively. Asia STARS have delivered the highest weighted-average annual alpha for all periods for any region, driven by significantly positive Strong Buy, Buy, and Strong Sell rating alpha since inception in 2002. With a blowout alpha performance in 2024 and more recent trends of high-single-digit weighted-average alpha, our Asia team's stock picking has been tremendous. We also continue to grow coverage in this very important investment region. We've initiated coverage of 60 new companies in Asia over the past two years and continue to add seasoned analysts to the region.

## Clients First

Clients first is one of CFRA's core values. Clients following our stock recommendations have benefited from a robust alternative to passive investing, reinforcing our value proposition as a trusted advisor in wealth creation. For 25 years, our firm has consistently demonstrated its ability to generate significant alpha through disciplined stock selection and a well-structured investment strategy. Our research-driven approach, combined with tactical sector allocations and risk management, has delivered superior returns across market cycles. We continue to refine our methodologies and adapt to evolving market dynamics. Our commitment remains steadfast in providing clients with high-quality investment opportunities that drive long-term value.

## Key Drivers of Alpha Generation

As a firm, we cover close to 1,700 companies globally. Generating consistent positive alpha is nothing short of a herculean task, but CFRA has three key competitive advantages we continue to invest in and refine: fundamental research methodology, tactical sector allocations, and unmatched analyst collaboration (OneCFRA, with many shared expert lenses).

### 1. Fundamental Research Methodology

CFRA strives to identify attractive returns through our fundamental equity research ratings. Particularly, we aim for returns that exceed the appropriate benchmark; in other words, we seek to provide "excess returns" (simply referred to as "alpha" in this report). We believe all excess returns must come from having a variant perception versus "the market" or all other market participants as a group. More specifically, we believe our job is to find where company fundamentals differ from market expectations about those fundamentals. To this end, our firm employs a rigorous bottom-up research process, focusing on undervalued equities with strong earnings potential, robust balance sheets, and competitive advantages.

At the company level, we build detailed discounted cash flow statement ("DCF") analyses and bring this analysis back to embedded expectations. We focus on the key value drivers specific to the sector, sub-industry, and company to assess whether longer-term profit expectations are aligned with current valuations. In estimating the valuation of an asset and its price target, CFRA does not follow a one-size-fits-all approach. Our analysts look to apply the most relevant valuation tools to the specific company or industry, using multiple methods to help triangulate what we believe to be a reasonable valuation for a company, including both intrinsic and relative valuation. As a result, many of our price targets will be determined by relevant value-driver multiples, but supported by a DCF analysis to ensure we factor long-term embedded profit expectations into our ratings. What's key here is this valuation framework is agnostic to a "value" or "growth" style, as well as to a specific company size (small cap versus large cap) or industry.

### 2. Tactical Sector Selection

A key factor in our ability to provide actionable investment ratings that generate alpha for clients is making sure our macro and sector outlooks are aligned with our STARS ratings. CFRA conducts a formal and highly collaborative sector outlook process with all analysts globally. During our quarterly sector outlook meetings, we analyze our proprietary sector dashboards, which include economic indicators, key valuation metrics, momentum indicators, and consensus expectations analysis. As part of these meetings, we also leverage CFRA's forensic diagnostic scores, Lowry's technical sector power rankings, and regulatory or legal risk views on the sectors from our public policy and legal research teams. These exercises help inform analysts' opinions on company-specific drivers from a top-down and outside perspective, rather than confining the analysis to a bottom-up and inside view.

Our active sector rotation strategy has allowed us to capitalize on macroeconomic trends and market inefficiencies. As an example, following the 2022 bear market, CFRA correctly recommended that investors rotate "from first to worst," or move out of the defensive sectors that held up so well during 2022's market decline and into the worst performing groups that had the best chance of rebounding during the ensuing market recovery. As a result, our overweight positioning in Information Technology, Communication Services, and Consumer Discretionary during 2023 and into 2024 helped drive STARS outperformance. The Sector Outlook model was up 38% in 2023 (**23.6%** alpha), and all of our 2023 Buy-rated STARS categories generated positive alpha in all regions. During 2023, our highest cap-weighted STARS sectors throughout the year were Information Technology, Communications Services, and Consumer Discretionary, meaning we had a greater percentage of Buy-rated stocks in these sectors relative to others. Again, this shows the symbiotic relationship between our Sector Outlooks and individual equity ratings.

Also helping our recent STARS performance is favorable STARS ratings on the critical mega-cap growth names, including the "Magnificent 7." As we enter 2025, our overweight sectors recommendations are Information Technology (overweight since December 2021), Communication Services (overweight since June 2023), and Financials (overweight since January 2024).

CFRA also has a model portfolio that tracks our overweight sector recommendations with a 30-year trading history. Since its inception in 1995, the sector outlook model portfolio has had a 63% hit rate and has outperformed the S&P 500 Index by 4.4 percentage points on average per year.

## CFRA's Sector Outlook Model Portfolio

| | Portfolio | S&P 500 EW | *Alpha* |
|---|---|---|---|
| **2024** | **23.9%** | **15.8%** | *8.1%* |
| **2023** | **38.0%** | **14.4%** | *23.6%* |
| **2022** | **-9.5%** | **-12.0%** | *2.5%* |
| **2021** | **10.4%** | **29.0%** | *-18.6%* |
| **2020** | **11.2%** | **12.1%** | *-1.0%* |
| **2019** | **33.8%** | **28.4%** | *5.3%* |
| **2018** | **-13.8%** | **-8.2%** | *-5.6%* |
| **2017** | **22.1%** | **17.7%** | *4.5%* |
| **2016** | **5.4%** | **14.8%** | *-9.4%* |
| **2015** | **1.3%** | **-2.2%** | *3.5%* |
| **2014** | **11.2%** | **14.5%** | *-3.3%* |
| **2013** | **40.3%** | **36.1%** | *4.1%* |
| **2012** | **35.6%** | **17.6%** | *18.0%* |
| **2011** | **30.9%** | **-0.1%** | *31.1%* |
| **2010** | **45.4%** | **22.0%** | *23.5%* |
| **2009** | **49.6%** | **48.4%** | *1.2%* |
| **2008** | **-45.2%** | **-40.5%** | *-4.6%* |
| **2007** | **17.9%** | **0.6%** | *17.3%* |
| **2006** | **16.0%** | **14.9%** | *1.2%* |
| **2005** | **10.3%** | **7.3%** | *3.0%* |
| **2004** | **22.0%** | **16.2%** | *5.8%* |
| **2003** | **32.5%** | **40.1%** | *-7.6%* |
| **2002** | **-21.5%** | **-18.6%** | *-2.8%* |
| **2001** | **6.0%** | **-0.9%** | *6.9%* |
| **2000** | **1.7%** | **9.0%** | *-7.3%* |
| **1999** | **38.9%** | **11.8%** | *27.1%* |
| **1998** | **14.6%** | **12.1%** | *2.4%* |
| **1997** | **27.0%** | **29.1%** | *-2.1%* |
| **1996** | **27.6%** | **18.8%** | *8.8%* |
| **1995** | **4.7%** | **7.3%** | *-2.6%* |
| **Average Alpha** | | | *4.4%* |
| **Annual Hit Rate** | | | **63.3%** |

*Incorporated insights from CFRA's Lowry & Washington Analysis acquistions of 2021 into formalized Sector Outlook processes.*

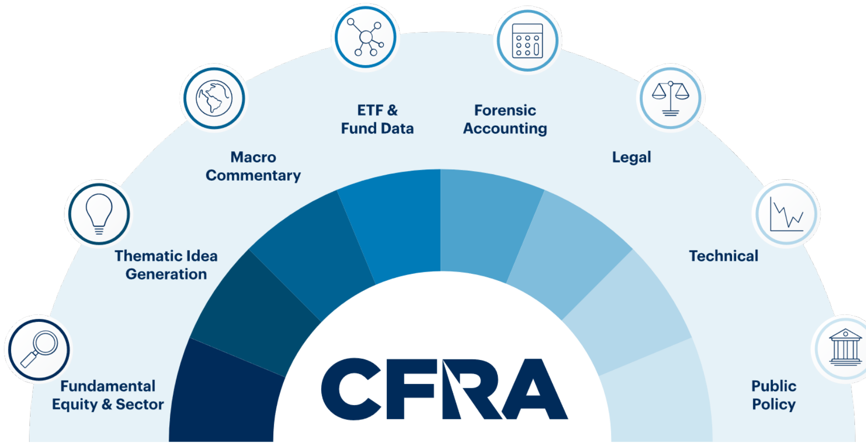
### Sector Outlooks

| | CFRA Rating |
|---|---|
| Communication Services | Overweight |
| Consumer Discretionary | Marketweight |
| Consumer Staples | Underweight |
| Energy | Underweight |
| Financials | Overweight |
| Health Care | Marketweight |
| Industrials | Marketweight |
| Information Technology | Overweight |
| Materials | Underweight |
| Real Estate | Marketweight |
| Utilities | Marketweight |

Notes: Model Portfolio is titled "Investment Ideas" on MarketScope Advisor. All performance calculations are based on equal weight daily rebalance methodology. Past performance of the models or Index is not a reliable indicator of future results.

## 3. OneCFRA Collaboration

Most equity research teams are siloed by industry into analyst-led microcosms (the classic sell-side model) or reliant on a one-size-fits-all quant-driven valuation model. At CFRA, we are all about the collective view in what we call "OneCFRA."




CFRA has nearly 100 full-time research analysts who produce research across a range of disciplines, including fundamental equity, forensic accounting, technical, policy/legal, and fund research. Our global team of analysts have MBAs, CFAs, CPAs, JDs, and PhDs from top universities with 15 years of experience on average in said disciplines. Since 2016, CFRA has brought together best-in-class independent financial research teams and data products to create unique and powerful insights into financial markets that we live and breathe every day.

The fundamental sector teams meet regularly with their CFRA counterparts on the forensic accounting, policy/legal, and technical research teams to collaborate on research and share insights. Through daily discussions, weekly strategy sessions, and in-depth sector reviews, our analysts work closely together to refine perspectives and adapt to evolving market conditions. By fostering a culture of unmatched teamwork and disciplined research skillsets, OneCFRA provides valuable, data-driven perspectives that support high-quality investment strategies for our clients.

To learn more about CFRA's most recent views on sectors, stocks, and other fundamental equity topics, visit https://www.cfraresearch.com/fundamental-equity-research/.

# Contact CFRA

**977 Seminole Trail, PMB 230**
**Charlottesville, VA 22901-2824**
**USA**
**P: +1-800-220-0502**
**cservices@cfraresearch.com**
**www.cfraresearch.com**
-----------------------

**Disclosures**

Stocks are ranked in accordance with the following ranking methodologies:

**STARS Stock Reports**

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

**Quantitative Stock Reports**

Quantitative rankings 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 rankings 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 rankings. 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 rankings 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.

**Analyst Certification**

STARS Stock Reports are prepared by the equity research analysts of CFRA and its affiliates and subsidiaries. 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 its affiliates or subsidiaries compensation was, is, or will be directly or indirectly related to the specific rankings or views expressed in a STARS Stock Report.

**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. Rankings 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.

CFRA may license certain intellectual property or provide services to, or otherwise have a business relationship with, certain issuers of securities that are the subject of CFRA research reports, including exchange-traded investments whose investment objective is to substantially replicate the returns of a proprietary index of CFRA. In cases where CFRA is paid fees that are tied to the amount of assets invested in a fund or the volume of trading activity in a fund, investment in the fund may result in CFRA receiving compensation in addition to the subscription fees or other compensation for services rendered by CFRA, however, no part of CFRA's compensation for services is tied to any recommendation or rating. 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 Notice**

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 © 2023, 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."

**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 New Derwent House, 69-73 Theobalds Road, London, WC1X 8TA). CFRA UK Limited is regulated by the UK Financial Conduct Authority (No. 775151).

**For residents of Malaysia**

Research reports are originally produced and distributed by CFRA MY Sdn Bhd (Company No. 683377-A).

**For Residents of Singapore**

This Research Report is distributed by CFRA UK Limited to its clients in Singapore who hold a financial advisers licence or is a person exempt from holding such licence ("SG Intermediary"). Recipients of this Research Report in Singapore should contact the SG Intermediary in respect to any matters arising from, or in connection with, the analysis in this report, including without limitation, whether the Research Report is suitable based on said recipients' profile and objectives. Where the recipient is not an accredited, expert or institutional investor as defined by the Securities and Futures Act, the SG Intermediary accepts legal responsibility for the contents of this Research Report in accordance with applicable law. This Research Report is intended for general circulation and no advice or recommendation is made herein or by CFRA to any particular person. CFRA does not assume any responsibility to advise on whether any particular product is suitable for any person, and the analysis herein does not take into account the specific investment objectives, financial situation or particular needs of any particular person, and should not be relied upon for any investment decision.

**For residents of all other countries**

Research reports are originally distributed by Accounting Research & Analytics, LLC d/b/a CFRA.