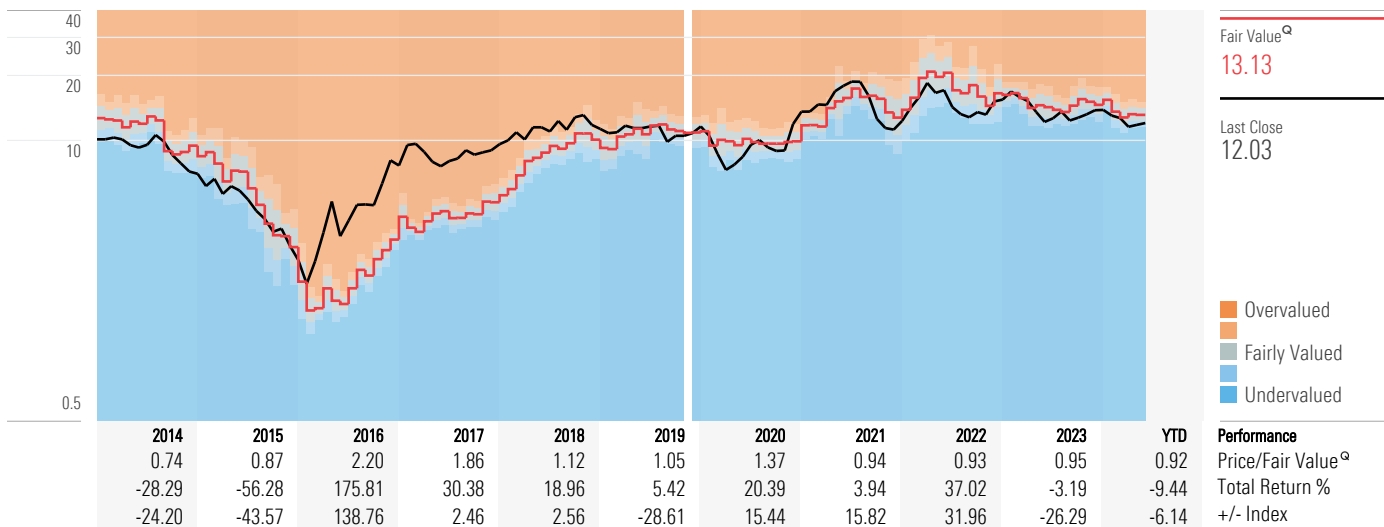


# Vale SA XVALO ★★★★★ Q 9 May 2024, 22:34 UTC

<b>Economic Moat</b> <sup>Q</sup>	<b>Uncertainty</b> <sup>Q</sup>	<b>Price/Fair Value</b> <sup>Q</sup>	<b>ESG Risk Rating Assessment</b> <sup>1</sup>	<b>Trailing Dividend Yield %</b>	<b>Market Cap</b>	<b>Investment Style</b>	<b>Sector</b>	<b>Industry</b>
None	Medium	0.9	1 May 2024 05:00, UTC	10.74	50.1919 Bil	Large Value	Basic Materials	Other Industrial Metals & Mining



As of 9 May 2024 | Index: Morningstar Brazil GR BRL. Fair Value data as of 9 May 2024, 22:34 UTC.

<sup>1</sup>The ESG Risk Rating Assessment is a representation of Sustainalytics' ESG Risk Rating. Lee Davidson, Chief Analytics Officer for Morningstar, Inc, oversees the methodology that supports Quantitative Fair Value Estimates and Quantitative Star Ratings. Mr. Davidson is guided by the Morningstar, Inc. Code of Ethics in carrying out his responsibilities. For information regarding Conflicts of Interests, visit <http://global.morningstar.com/equitydisclosures>.

## Key Metrics as of 3 May 2024

Metrics		Percentile in Sector
Earnings Yield (%)	14.4	95.0
Sales Yield (%)	76.6	69.0
Book Value Yield (%)	69.5	48.0
Return on Assets (%)*	8.7	90.0
Revenue(Bil)*	41.8	99.0
Market Value (Bil)	52.6	99.0
Enterprise Value (Bil)	66.1	99.0
EV/MV Ratio	1.3	76.0
Volatility TTM (%)	24.6	19.0
Drawdown TTM (%)	23.9	23.0
Volume (Mil)	23.0	98.0

\*31 Mar 2024

## Business Description

Vale is a large global miner and the world's largest producer of iron ore and pellets. In recent years the company has sold noncore assets such as its fertilizer, coal, and steel operations to concentrate on iron ore, nickel, and copper. Earnings are dominated by the bulk materials division, primarily iron ore and iron ore pellets. The base metals division is much smaller, consisting of nickel mines and smelters along with copper mines producing copper in concentrate. Vale has agreed to sell a minority 13% stake in energy transition metals, its base metals business, which is expected to become effective in 2024, and which is likely the first step in separating base metals and iron ore.

## Valuation <sup>Q</sup> as of 9 May 2024

Morningstar maintains a 4-star quantitative star rating for Vale, derived from the firm's valuation and uncertainty scores.

The company's shares last closed at 12.05, below our quantitative fair value estimate of 13.43. These shares have traded between a 25.16% discount and 0.57% premium to their fair value estimate over the past year. In Morningstar's equity coverage universe for this methodology, the company's valuation rating lands at the 74th percentile; in the basic materials sector, the firm's score lies at the 85th percentile (meaning the shares are more undervalued than 85% of stocks in the sector).

Furthermore, Vale maintains a quantitative valuation uncertainty rating of High.

The company has held this star rating since the previous rating of 3, which was last assigned on 03/14/2024. The uncertainty rating for Vale has remained High since the previous rating of Medium, which was last assigned on 05/07/2024.

The key factors behind these ratings are the company's earnings yield and volume. The earnings

yield is 14.42%, and its maximum trailing 12-month average volume (primary share) is 31,756,432 shares. These both fall above the 95th percentile in the basic materials sector. Over the past year, the company's earnings yield has ranged between 24.41% and 8.42%; its volume has ranged between 31,756,432 shares and 21,469,998 shares.

## Economic Moat <sup>Q</sup> as of 9 May 2024

With a Morningstar quantitative moat rating of None, the quantitative moat score for Vale falls below the 5th percentile in both the basic materials sector and equity coverage universe. The company has maintained its None quantitative moat rating since after 11/23/2023, when it was downgraded from Narrow.

We also assign a Moderate quantitative financial health rating to Vale. The company's raw score on this metric, termed Distance to Default, ranks at the 50th percentile overall and 64th in the basic materials sector. Furthermore, this financial health rating has stayed Moderate over the last year.

Supporting these ratings are the company's book value yield and enterprise value-to-market value ratio. The book value yield of 69.78%, ranks at the 57th percentile in the covered equity universe and at the 49th percentile among its peers. Meanwhile, its enterprise value-to-market value ratio of 1.25, falls at the 67th percentile in the universe and the 76th percentile in the basic materials sector.

## Fundamentals as of 9 May 2024

Vale maintains earnings per share of 1.81. The company further earns a return on invested capital of 16.2%. The shares offer a dividend yield of 10.95%. These values are calculated over a trailing 12-month period.

As of last market close, Vale has a price-to-earn-

# Vale SA XVALO ★★★★★

Q 9 May 2024, 22:34 UTC

<b>Economic Moat</b> <sup>Q</sup>	<b>Uncertainty</b> <sup>Q</sup>	<b>Price/Fair Value</b> <sup>Q</sup>	<b>ESG Risk Rating Assessment</b> <sup>1</sup>	<b>Trailing Dividend Yield %</b>	<b>Market Cap</b>	<b>Investment Style</b>	<b>Sector</b>	<b>Industry</b>
None	Medium	0.9	1 May 2024 05:00, UTC	10.74	50.1919 Bil	Large Value	Basic Materials	Other Industrial Metals & Mining

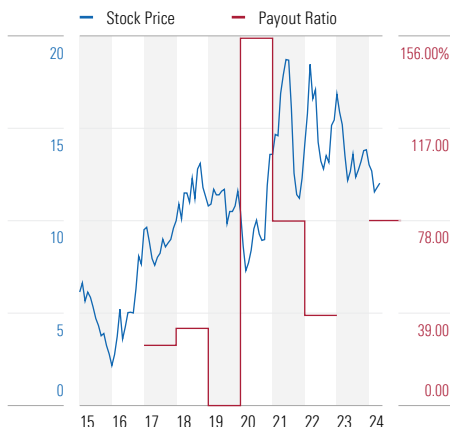
## Earnings as of 3 May 2024

Earnings	%	Percentile in Sector
Dividend Yield*	11.0	96.0
Payout Ratio*	78.1	78.0
Price to Earnings	7.2	14.0
Price to Cash Flow	8.1	28.0
ROIC**	16.2	94.0

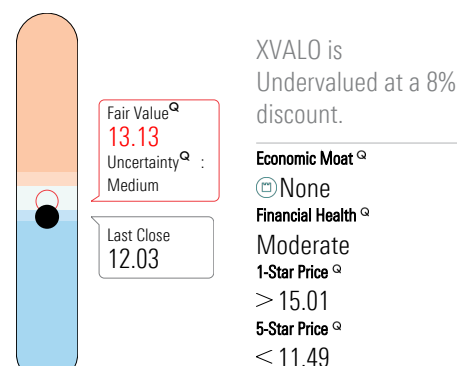
\*30 Apr 2024

\*\*31 Mar 2024

## Dividends as of 9 May 2024



## Valuation <sup>Q</sup> as of 9 May 2024



ings ratio of 7.17, falling below the 15th percentile in its sector (where a lower percentile means a lower ratio) and ranging between 4.22 and 7.64 over the past year. The company's price-to-free cash flow ratio is 8.08, falling at the 28th percentile in its sector and ranging between 7.38 and 14.97 over the past year.

## Contact

Praia de Botafogo, 186, Rio de Janeiro, RJ 22250-145  
+55 2134853900

<https://www.vale.com>

## Financials as of 9 May 2024 (Fiscal Year End 31 Dec 2024)

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD	Fiscal
35.12	23.38	27.49	33.97	36.58	36.55	39.55	54.50	43.84	41.78	8.46	Revenue (Bil)
8.99	2.54	8.43	11.41	13.07	15.02	19.59	30.84	17.79	15.86	2.61	Operating Income (Bil)
25.61	10.88	30.66	33.59	35.74	41.08	49.54	56.59	40.57	37.95	30.81	Operating Margin (%)
0.66	-12.13	3.98	5.51	6.86	-1.68	4.88	22.45	18.79	7.98	1.68	Net Income (Bil)
0.13	-2.33	0.77	1.05	1.32	-0.33	0.95	4.47	4.05	1.83	0.39	Diluted Earnings/Share
13.10	3.93	6.40	12.45	12.90	12.11	14.32	25.68	11.49	13.17	3.58	Operating Cash Flow (Bil)
-11.78	-8.11	-4.95	-3.83	-3.78	-3.46	-4.23	-5.03	-5.45	-5.92	-1.40	Capital Spending (Bil)
1.33	-4.18	1.45	8.62	9.12	8.65	10.10	20.65	6.04	7.25	2.18	Free Cash Flow (Bil)
5,153	5,197	5,197	5,197	5,178	5,128	5,133	5,017	4,642	4,370	4,290	Avg Shares Outstand(Mil)

## Valuation as of 9 May 2024

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Current	Calendar
0.74	0.87	2.20	1.86	1.12	1.05	1.37	0.94	0.93	0.95	0.92	Price/Fair Value <sup>Q</sup>
1.05	0.55	1.63	1.73	1.87	1.80	2.42	1.25	1.73	1.67	1.34	Price/Sales
—	—	—	8.75	15.21	18.30	33.42	3.99	4.24	7.29	7.14	Price/Earnings
3.30	3.62	7.74	5.19	5.06	5.37	7.96	2.34	6.79	6.59	4.26	Price/Cash Flow
1.12	0.82	1.05	1.32	1.62	1.59	2.48	2.03	2.22	1.73	1.48	Price/Book

## Operating Performance as of 9 May 2024 (Fiscal Year End 31 Dec 2024)

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Q3	Fiscal (%)
0.55	-11.83	4.25	5.56	7.32	-1.87	5.31	24.74	21.31	8.82	1.81	Return on Assets
1.81	-57.03	30.11	18.54	15.69	-4.0	12.88	63.93	53.42	21.2	4.36	Return on Equity
2.37	-23.57	11.42	12.29	12.19	0.53	11.61	44.01	36.88	16.65	3.15	Rtn on Invested Capital

## Dividends as of 9 May 2024

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Current	Calendar (%)
1.89	0.98	0.17	1.33	0.49	1.41	2.41	14.65	7.58	6.08	1.62	Dividend Per Share
8.81	9.71	0.62	3.81	1.99	1.92	2.68	18.84	4.78	—	10.74	Trailing Dividend Yield
—	—	—	—	—	0.75	—	7.15	7.36	—	4.1	Buyback Yield

# Appendix

**Economic Moat** <sup>®</sup>History as of 9 May 2024 (No Moat: 0.00-0.70, Narrow Moat: 0.70-0.99, Wide Moat: 0.99-1.00)

Year	January	February	March	April	May	June	July	August	September	October	November	December
2024	0.06	0.01	0.02	0.03	0.03	—	—	—	—	—	—	—
2023	0.07	0.14	0.16	0.22	0.08	0.15	0.12	0.04	0.11	0.12	0.09	0.16
2022	0.06	0.04	0.06	0.07	0.06	0.08	0.05	0.04	0.03	0.01	0.08	0.11
2021	0.11	0.06	0.04	0.06	0.85	0.26	0.12	0.10	0.04	0.07	0.04	0.08
2020	0.03	0.04	0.06	0.09	0.11	0.14	0.15	0.07	0.08	0.17	0.06	0.07
2019	0.04	0.03	0.02	0.05	0.04	0.15	0.12	0.05	0.04	0.04	0.03	0.03

# Quantitative Equity Report Overview

The quantitative report on equities consists of data, statistics and quantitative equity ratings on equity securities. Morningstar, Inc.'s quantitative equity ratings are forward looking and are generated by a statistical model that is based on Morningstar Inc.'s analyst-driven equity ratings and quantitative statistics. Given the nature of the quantitative report and the quantitative ratings, there is no one analyst in which a given report is attributed to; however, Mr. Lee Davidson, Head of Quantitative Research for Morningstar, Inc., is responsible for overseeing the methodology that supports the quantitative equity ratings used in this report. As an employee of Morningstar, Inc., Mr. Davidson is guided by Morningstar, Inc.'s Code of Ethics and Personal Securities Trading Policy in carrying out his responsibilities.

## Quantitative Equity Ratings

Morningstar's quantitative equity ratings consist of: (i) Quantitative Fair Value Estimate, (ii) Quantitative Star Rating, (iii) Quantitative Uncertainty, (iv) Quantitative Economic Moat, and (v) Quantitative Financial Health (collectively the "Quantitative Ratings").

The Quantitative Ratings are calculated daily and derived from the analyst-driven ratings of a company's peers as determined by statistical algorithms. Morningstar, Inc. ("Morningstar", "we", "our") calculates Quantitative Ratings for companies whether or not it already provides analyst ratings and qualitative coverage. In some cases, the Quantitative Ratings may differ from the analyst ratings because a company's analyst-driven ratings can significantly differ from other companies in its peer group.

i. **Quantitative Fair Value Estimate:** Intended to represent Morningstar's estimate of the per share dollar amount that a company's equity is worth today. Morningstar calculates the Quantitative Fair Value Estimate using a statistical model derived from the Fair Value Estimate Morningstar's equity analysts assign to companies. Please go to <http://global.morningstar.com/equitydisclosures> for information about Fair Value Estimate Morningstar's equity analysts assign to companies.

ii. **Quantitative Economic Moat:** Intended to describe the strength of a firm's competitive position. It is calculated using an algorithm designed to predict the Economic Moat rating a Morningstar analyst would assign to the stock. The rating is expressed as Narrow, Wide, or None.

**Narrow** – assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 70% but less than 99%.

**Wide** – assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 99%.

**None** – assigned when the probability of an analyst receiving a "Wide Moat" rating by an analyst is less than 70%.

iii. **Quantitative Star Rating:** Intended to be the summary rating based on the combination of our Quantitative Fair Value Estimate, current market price, Quantitative Uncertainty Rating, and momentum. The rating is expressed as One-Star, Two-Star, Three-Star, Four-Star, and Five-Star.

★ – the stock is overvalued with a reasonable margin of safety.

*Log (Quant FVE/Price) < -1\*Quantitative Uncertainty*

*Micro-Caps: Log (Quant FVE/Price) < -1.5\*Quantitative Uncertainty*

★★ – the stock is somewhat overvalued.

*Log (Quant FVE/Price) between (-1\*Quantitative Uncertainty, -0.5\*Quantitative Uncertainty)*

*Micro-Caps: Log (Quant FVE/Price) between (-1.5\*Quantitative Uncertainty, -0.75\*Quantitative Uncertainty)*

★★★ – the stock is approximately fairly valued.

*Log (Quant FVE/Price) between (-0.5\*Quantitative Uncertainty, 0.5\*Quantitative Uncertainty)*

*Micro-Caps: Log (Quant FVE/Price) between (-0.75\*Quantitative Uncertainty, 0.75\*Quantitative Uncertainty)*

★★★★ – the stock is somewhat undervalued.

*Log (Quant FVE/Price) between (0.5\*Quantitative Uncertainty, 1\*Quantitative*

*Uncertainty)*

*Micro-Caps: Log (Quant FVE/Price) between (0.75\*Quantitative Uncertainty, 1.5\*Quantitative Uncertainty)*

★★★★★ – the stock is undervalued with a reasonable margin of safety.

*Log (Quant FVE/Price) > 1\*Quantitative Uncertainty*

*Micro-Caps: Log (Quant FVE/Price) > 1.5\*Quantitative Uncertainty*

After the initial calculation for the star rating, there is a final filtering step based on the momentum of the company. We rank the companies based on their 12-1 month momentum, then restrict those below the 30th percentile to a maximum of 3 stars.

iv. **Quantitative Uncertainty:** Intended to represent Morningstar's level of uncertainty about the accuracy of the Quantitative Fair Value Estimate. Generally, the lower the Quantitative Uncertainty, the narrower the potential range of outcomes for that particular company. The rating is expressed as Low, Medium, High, Very High, and Extreme.

**Low** – the interquartile range for possible fair values is less than 10%

**Medium** – the interquartile range for possible fair values is less than 15% but greater than 10%

**High** – the interquartile range for possible fair values is less than 35% but greater than 15%

**Very High** – the interquartile range for possible fair values is less than 80% but greater than 35%

**Extreme** – the interquartile range for possible fair values is greater than 80%

v. **Quantitative Financial Health:** Intended to reflect the probability that a firm will face financial distress in the near future. The calculation uses a predictive model designed to anticipate when a company may default on its financial obligations. The rating is expressed as Weak, Moderate, and Strong.

**Weak** – assigned when Quantitative Financial Health < 0.2

**Moderate** – assigned when Quantitative Financial Health is between 0.2 and 0.7

**Strong** – assigned when Quantitative Financial Health > 0.7

## Other Definitions

i. **Last Close** – Price of the stock as of the close of the market of the last trading day before date of the report.

ii. **Quantitative Valuation** – Using the below terms, intended to denote the relationship between the security's **Last Price** and Morningstar's quantitative fair value estimate for that security.

**Undervalued – Last Price** is below Morningstar's quantitative fair value estimate.

**Fairly Valued – Last Price** is in line with Morningstar's quantitative fair value estimate.

**Fairly Valued – Last Price** is in line with Morningstar's quantitative fair value estimate.

**Overvalued – Last Price** is above Morningstar's quantitative fair value estimate.

**Sustainalytics ESG Risk Rating Assessment:** The ESG Risk Rating Assessment is provided by Sustainalytics; a Morningstar company. Sustainalytics' ESG Risk Ratings measure the degree to which company's economic value at risk is driven by environment, social and governance (ESG) factors.

Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risks represented as a quantitative score. Unmanaged Risk is measured on an open-ended scale starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

Based on their quantitative scores, companies are grouped into one of five Risk Categories (negligible, low, medium, high, severe). These risk categories are absolute, meaning that a 'high risk' assessment reflects a comparable degree

of unmanaged ESG risk across all subindustries covered.

The ESG Risk Rating Assessment is a visual representation of Sustainalytics ESG Risk Categories on a 1 to 5 scale. Companies with Negligible Risk = 5 Globes, Low Risk = 4, Medium Risk = 3 Globes, High Risk = 2 Globes, Severe Risk = 1 Globe. For more information, please visit [sustainalytics.com/esg-ratings/](https://sustainalytics.com/esg-ratings/)

Ratings should not be used as the sole basis in evaluating a company or security. Ratings involve unknown risks and uncertainties which may cause our expectations not to occur or to differ significantly from what was expected and should not be considered an offer or solicitation to buy or sell a security.

This Report **has not been made available** to the issuer of the security prior to publication.

### Risk Warning

Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report.

The quantitative equity ratings are not statements of fact. Morningstar does not guarantee the completeness or accuracy of the assumptions or models used in determining the quantitative equity ratings. In addition, there is the risk that the price target will not be met due to such things as unforeseen changes in demand for the company's products, changes in management, technology, economic development, interest rate development, operating and/or material costs, competitive pressure, supervisory law, exchange rate, and tax rate. For investments in foreign markets there are further risks, generally based on exchange rate changes or changes in political and social conditions. A change in the fundamental factors underlying the quantitative equity ratings can mean that the valuation is subsequently no longer accurate.

For more information about Morningstar's quantitative methodology, please visit [www.corporate.morningstar.com](http://www.corporate.morningstar.com).

## General Disclosure

The Quantitative Equity Report ("Report") is derived from data, statistics and information within Morningstar, Inc.'s database as of the date of the Report and is subject to change without notice.

Given the nature of this Report, there is no one analyst in which a given Report is fully attributable to; however, Mr. Lee Davidson, Chief Analytics Officer for Morningstar, Inc., is responsible for overseeing the methodology that supports the Report. Mr. Davidson is guided by the Morningstar, Inc. Code of Ethics in carrying out his responsibilities. Morningstar's Manager Research, Investment, and Analytics Group includes research employees of various Morningstar, Inc. subsidiaries who prepare analysis on investment products and quantitative research employees of Morningstar, Inc. or its subsidiaries who aim to help investors by providing innovative research, models, and software.

This Report is for informational purposes, should not be the sole piece of information used in making an investment decision, and has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. This publication is intended to provide information to assist investors in making their own investment decisions, not to provide investment advice to any specific investor. Therefore, investments discussed herein may not be suitable for all investors; investors must exercise their own independent judgment as to the suitability of such investments and recommendations in the light of their own investment objectives, experience, taxation status and financial position. Morningstar encourages Report recipients to read all

relevant issue documents (e.g., prospectus) pertaining to the security concerned, including without limitation, information relevant to its investment objectives, risks, and costs before making an investment decision and when deemed necessary, to seek the advice of a financial, legal, tax, and/or accounting professional.

The quantitative equity ratings noted in the Report are provided in good faith, are as of the date of the Report and are subject to change. While Morningstar has obtained data, statistics, and information from sources it believes to be reliable, Morningstar does not perform an audit or seeks independent verification of any of the data, statistics, and information it receives.

The quantitative equity ratings are not a market call, and do not replace the Recipient or the Recipient's clients from conducting their own due-diligence on the security. The quantitative equity rating is not a suitability assessment; such assessments take into account many factors including a person's investment objective, personal and financial situation, and risk tolerance all of which are factors the quantitative equity rating statistical model does not and did not consider.

Prices noted with the Report are the closing prices on the last stock-market trading day before the publication date stated, unless another point in time is explicitly stated. Unless otherwise provided in a separate agreement, recipients accessing this report may only use it in the country in which the Morningstar distributor is based.

Unless stated otherwise, the original distributor of the report is Morningstar Inc., a U.S.A. domiciled financial institution.

The information, data and statistics presented herein are not warranted to be accurate, correct, complete or timely. Unless otherwise provided in a separate agreement, Morningstar makes no representation that the report contents meet all of the presentation and/or disclosure standards applicable in the jurisdiction the recipient is located.

Except as otherwise required by law or provided for in a separate agreement, Morningstar and its officers, directors and employees shall not be responsible or liable for any trading decisions, damages or other losses resulting from, or related to, the information, data, analyses or opinions within the report. Morningstar encourages recipients of this report to read all relevant issue documents (e.g., prospectus) pertaining to the security concerned, including without limitation, information relevant to its investment objectives, risks, and costs before making an investment decision and when deemed necessary, to seek the advice of a legal, tax, and/or accounting professional.

The Report and its contents are not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Morningstar or its affiliates to any registration or licensing requirements in such jurisdiction.

Where this report is made available in a language other than English and in the case of inconsistencies between the English and translated versions of the report, the English version will control and supersede any ambiguities associated with any part or section of a report that has been issued in a foreign language. Neither the analyst, Morningstar, or Morningstar affiliates guarantee the accuracy of the translations.

This report may be distributed in certain localities, countries and/or jurisdictions ("Territories") by independent third parties or independent intermediaries and/or distributors ("Distributors"). Such Distributors are not acting as agents or representatives of the analyst or Morningstar. In Territories where a Distributor distributes our report, the Distributor, and not the analyst or Morningstar, is solely responsible for complying with all applicable regulations, laws, rules, circulars, codes and guidelines established by local and/or regional regulatory bodies, including laws in connection with the distribution third-party research reports.

## Conflicts of Interest

- ▶ Morningstar, Inc. may hold a long position in the security subject of this investment research report that exceeds 0.5% of the total issued share capital of the security. To determine if such is the case, please click <http://msi.morningstar.com> and <http://mdi.morningstar.com>
- ▶ The Chief Analytics Officer compensation is derived from Morningstar's overall earnings and consists of salary, bonus and market stock units of Morningstar, Inc.
- ▶ Morningstar does not receive commissions for providing research and does not charge companies to be rated.
- ▶ Morningstar is not a market maker or a liquidity provider of the security noted within this report.
- ▶ Morningstar has not been a lead manager or co-lead manager over the previous 12-months of any publicly disclosed offer of financial instruments of the issuer.
- ▶ Morningstar affiliates (i.e., its investment management group) have arrangements with financial institutions to provide portfolio management/ investment advice some of which an analyst may issue investment research reports on. However, the Chief Analytics Officer does not have authority over Morningstar's investment management group's business arrangements nor allow employees from the investment management group to participate or influence the analysis or opinion prepared by them.
- ▶ Morningstar, Inc. is a publicly traded company (Ticker Symbol: MORN) and thus a financial institution the security of which is the subject of this report may own more than 5% of Morningstar, Inc.'s total outstanding shares. Please access Morningstar, Inc.'s proxy statement, "Security Ownership of Certain Beneficial Owners and Management" section <https://shareholders.morningstar.com/investor-relations/financials/sec-filings/default.aspx>
- ▶ Morningstar may provide the product issuer or its related entities with services or products for a fee and on an arms' length basis including software products and licenses, research and consulting services, data services, licenses to republish our ratings and research in their promotional material, event sponsorship and website advertising.

Further information on Morningstar, Inc.'s conflict of interest policies is available from <http://global.morningstar.com/equitydisclosures>. Also, please note analysts are subject to the CFA Institute's Code of Ethics and Standards of Professional Conduct.

Morningstar's quantitative ratings are available for more than 40,000 companies in 86 countries that trade on 64 exchanges. If you wish to obtain further information regarding Morningstar's quantitative equity reports please contact your local Morningstar office.

**Risk Warning** Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security's investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. For investments in foreign markets there are further risks, generally based on exchange rate changes or changes in political and social conditions.

For more information about Morningstar's methodologies, please visit [global.morningstar.com/equitydisclosures](http://global.morningstar.com/equitydisclosures)

For a list of securities which the Equity Research Group currently covers and provides written analysis on please contact your local Morningstar office. In addition, for historical analysis of securities covered, including their fair value estimate, please contact your local office.

**For recipients in Australia:** This Report has been issued and distributed in Australia by Morningstar Australasia Pty Ltd (ABN: 95 090 665 544; ASFL: 240892). Morningstar Australasia Pty Ltd is the provider of the general advice

('the Service') and takes responsibility for the production of this report. The Service is provided through the research of investment products.

To the extent the Report contains general advice it has been prepared without reference to an investor's objectives, financial situation or needs. Investors should consider the advice in light of these matters and, if applicable, the relevant Product Disclosure Statement before making any decision to invest. Refer to our Financial Services Guide (FSG) for more information at <http://www.morningstar.com.au/fsg.pdf>

**For recipients in New Zealand:** This report has been issued and distributed by Morningstar Australasia Pty Ltd and/or Morningstar Research Ltd (together 'Morningstar'). This report has been prepared and is intended for distribution in New Zealand to wholesale clients only and has not been prepared for use by New Zealand retail clients (as those terms are defined in the Financial Markets Conduct Act 2013). The information, views and any recommendations in this material are provided for general information purposes only, and solely relate to the companies and investment opportunities specified within. Our reports do not take into account any particular investor's financial situation, objectives or appetite for risk, meaning no representation may be implied as to the suitability of any financial product mentioned for any particular investor. We recommend seeking financial advice before making any investment decision.

**For recipients in Canada:** This research is not prepared subject to Canadian disclosure requirements.

**For recipients in Hong Kong:** The Report is distributed by Morningstar Investment Management Asia Limited, which is regulated by the Hong Kong Securities and Futures Commission to provide services to professional investors only. Neither Morningstar Investment Management Asia Limited, nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information unless expressly agreed to by Morningstar Investment Management Asia Limited.

**For recipients in India:** This investment research is issued by Morningstar India Private Limited. The ESG-related information, methodologies, tool, ratings, data and opinions contained or reflected herein are not directed to or intended for use or distribution to India-based clients or users and their distribution to Indian resident individuals or entities is not permitted, and Morningstar/Sustainalytics accepts no responsibility or liability whatsoever for the actions of third parties in this respect.

**For recipients in Japan:** The Report is distributed by Ibbotson Associates Japan, Inc., which is regulated by Financial Services Agency, for informational purposes only. Neither Ibbotson Associates Japan, Inc., nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information.

**For recipients in Singapore:** For Institutional Investor audiences only. The Report is distributed by Morningstar Investment Adviser Singapore Pte. Limited, which is licensed by the Monetary Authority of Singapore to provide financial advisory services in Singapore. Morningstar Investment Adviser Singapore Pte. Limited is the entity responsible for the creation and distribution of the research services described in this presentation. Investors should consult a financial adviser regarding the suitability of any investment product, taking into account their specific investment objectives, financial situation or particular needs, before making any investment decisions.

**For recipients in Korea:** The report is distributed by Morningstar Korea Ltd., which has filed to the Financial Services Committee, for informational purposes only. Neither Morningstar Korea Ltd. nor its representatives are acting or will be deemed to be acting as an investment advisor to any recipients of this information.