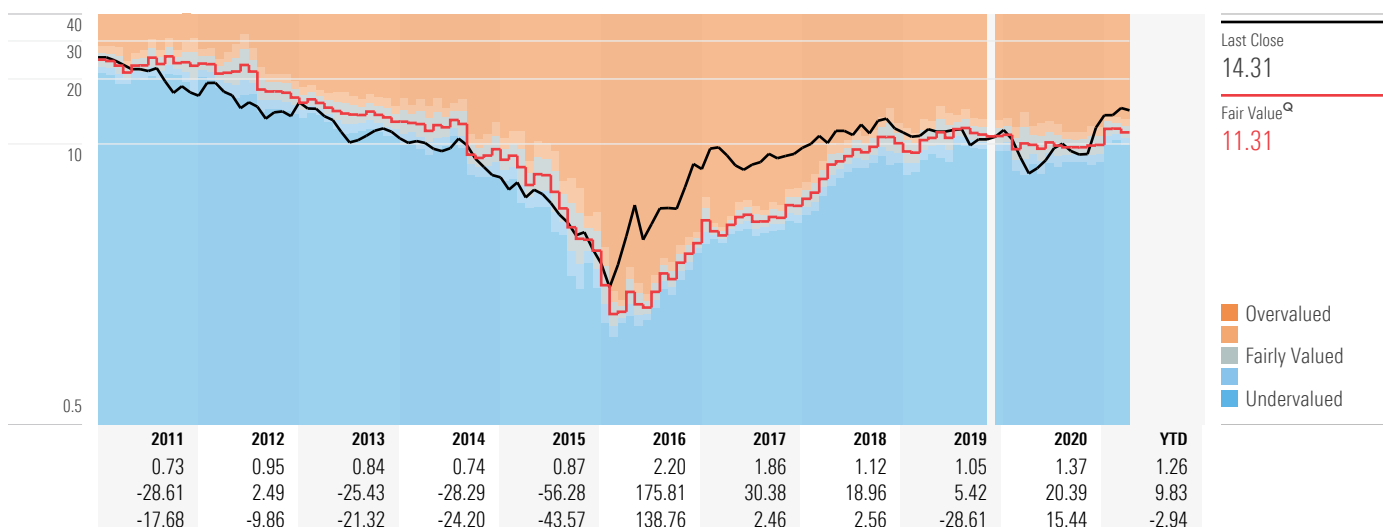


Vale SA XVALO Q 5 Mar 2021, 23:34 UTC

Economic Moat ^Q	Uncertainty ^Q	Price/Fair Value ^Q	Trailing Dividend Yield %	Market Cap	Investment Style	Sector	Industry
None	Medium	1.3	6.94	73.4090 Bil	Large Value	Basic Materials	Other Industrial Metals & Mining



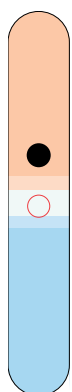
Total Return % as of 5 Mar 2021. Last Close as of 5 Mar 2021. Fair Value as of 5 Mar 2021, 23:34 UTC. Index: Morningstar Brazil GR BRL.

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Contact

Valuation

as of 5 Mar 2021



Last Close
14.31

Fair Value ^Q
11.31
Uncertainty ^Q :
Medium

XVALO is Over Valued at a 26% premium.

Economic Moat ^Q

 None

Financial Health ^Q

Moderate

1-Star Price ^Q

> 12.94

5-Star Price ^Q

< 9.89

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Financials as of 5 Mar 2021 (Fiscal Year End 31 Dec 2020)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	Fiscal
Revenue (Bil)	60	47	47	35	23	27	34	37	38	—	25	Revenue (Bil)
Operating Income (Bil)	29	14	17	9	3	8	11	13	14	—	10	Operating Income (Bil)
Operating Margin (%)	48.19	30.11	37.27	25.13	10.83	30.17	33.09	35.23	36.84	—	40.32	Operating Margin (%)
Net Income (Mil)	22,795	5,454	584	657	-12,129	3,982	5,507	6,860	-1,683	—	4,142	Net Income (Mil)
Diluted Earnings/Share	4.34	1.06	0.11	0.13	-2.33	0.77	1.05	1.32	-0.33	—	0.81	Diluted Earnings/Share
Operating Cash Flow (Bil)	23	16	15	13	4	6	12	13	12	—	8	Operating Cash Flow (Bil)
Capital Spending (Bil)	-16	-15	-13	-12	-8	-5	-4	-4	-4	—	-3	Capital Spending (Bil)
Free Cash Flow (Mil)	7,596	813	1,687	1,327	-4,182	1,450	8,619	9,117	8,406	—	4,842	Free Cash Flow (Mil)
Avg Shares Outstand(Bil)	5	5	5	5	5	5	5	5	5	—	5	Avg Shares Outstand(Bil)
Dividend Per Share	2.89	3.86	2.79	1.89	0.98	0.17	1.33	0.49	1.41	2.41	0.99	Dividend Per Share

Valuation as of 5 Mar 2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Current	Calendar
Price/Fair Value ^Q	0.73	0.95	0.84	0.74	0.87	2.20	1.86	1.12	1.05	1.37	1.26	Price/Fair Value ^Q
Price/Sales	2.13	2.21	1.58	1.05	0.55	1.63	1.73	1.87	1.80	2.42	2.21	Price/Sales
Price/Earnings	5.38	20.83	17.01	—	—	—	8.75	15.21	18.30	33.42	18.12	Price/Earnings
Price/Cash Flow	5.12	6.53	4.54	3.30	3.62	7.74	5.19	5.06	5.37	7.96	6.18	Price/Cash Flow
Price/Book	1.90	2.06	1.47	1.12	0.82	1.05	1.32	1.62	1.59	2.48	2.54	Price/Book

Operating Performance as of 5 Mar 2021 (Fiscal Year End 31 Dec 2020)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Q3	Fiscal (%)
Return on Assets	17.75	4.24	0.46	0.55	-11.83	4.25	5.56	7.32	-1.87	—	3.57	Return on Assets
Return on Equity	38.3	9.3	1.19	1.81	-57.03	30.11	18.54	15.69	-4.0	—	8.47	Return on Equity
Rtn on Invested Capital	28.6	7.81	2.35	2.37	-23.57	11.42	12.29	12.19	0.53	—	6.37	Rtn on Invested Capital

Business Description

Vale is the world's largest iron ore miner and one of the largest diversified miners, along with BHP and Rio Tinto. Earnings are dominated by the bulk materials division, primarily iron ore and iron ore pellets, with minor contributions from iron ore proxies, including manganese and coal. The base

metals division is much smaller, primarily consisting of nickel mines and smelters with a small contribution from copper.

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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.

One-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*

Two-Star - 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)*

Three-Star – 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)*

Four-Star – 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)*

Five-Star – 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.

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

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

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