



Green Electric Charges Boom in Metals

Price \$21.85

Recent Buy

June 21, 2021

- Dividend more than 9%.
- Boom from elongated commodity cycle.
- Metal's demand soaring with renewable buildout. Demand recovery from COVID-19 global recession.
- Infrastructure spending will boost demand.
- Increased free cash flow is driving dividends higher and could result in a higher stock price.

Investment Thesis

Carbon-neutral goals from companies and governments are charging demand higher for renewable energy. The recovery from COVID-19 is leading to a steel boom as companies make up for lost production. This has trickled down to the mining industry, where companies like Vale S.A. ramp up production and boast record EBITDA levels. With iron ore hitting a 10-year price high, and copper demand surging 80% from 2020, it is safe to say that the commodity cycle is booming and, in our view, will be elongated as the industry has underinvested which will keep supply under demand over the next several years. Vale offers dividends with a 12-month yield of over 9% (and a 5-year growth of over 30%). Free cash is funding share repurchase and simultaneously, investment to expand operations. This combination should, in our opinion, grow dividends over the next several years.

What is Vale S.A.?

Vale is an all-around mining firm, the world's foremost producer of nickel and iron ore with operations in 26 countries. In addition to nickel and iron, they also produce manganese, ferroalloys, coal, and copper. Vale also owns a robust logistics operation with 2,700km of rail and 7 ports.



image: Vale 20-F filing

Nickel is commonly used as an additive to steel, to coat corrosive resistant materials, and batteries.

Iron ore and iron pellets are <u>used primarily for steel production</u>, along with the metallurgical coal that Vale mines. Due to ESG concerns, Vale has begun to divest from thermal coal which is used for power generation.

Manganese and other ferroalloys are used in steel, aluminum, and gasoline. It also has uses in batteries and pigmentation.

Copper's primary modern use is in electronics and industrial machinery. Copper is a heat and electricity conductor and plays a critical role in renewables.

Expansions

<u>China currently makes up 80% of global demand for iron, 60% of demand for nickel, and 54% of demand for copper</u>. As a global center for manufacturing, these metals are often converted into the finished product and exported by China. The current strategic goals for Vale in China are to enter partnerships to ensure the security of supply, support low-carbon

steelmaking, and price discovery in new markets within China. Copper demand is set to rise over 80% and nickel 23% from FY2020 as more and more electric vehicles are produced. The average electric vehicle uses over triple the cooper as a traditional car, and this is already creating a boom in the market.

To support this effort, Vale is expanding their production with 8 new operations.

Mine	Resource	Estimated yearly output, Kilotons	Date
Salobo III (Brazil)	Copper	30-40,000	2022
Alemão (Brazil)	Copper	60,000	2025
Cristalino (Brazil)	Copper	80,000	2025
Hu'u (Indonesia)	Copper	250,000	2025
VBME (Canada)	Nickel	45,000	Q2 2021
CCM1 (Canada)	Nickel	10,000	Q2 2021
Onça Puma (Brazil)	Nickel	15,000	2023
Bahodopi e Pomalaa (Indonesia)	Nickel	110,000	2026

ESG Concerns

Vale operates many dams, to store liquid byproducts of iron production. Famously, the Mariana dam disaster in 2015 killed 19 people and caused massive environmental damage. More recently, in 2019, the Brumadinho dam ruptured similarly, killing 270 and contaminating the water table with heavy metals. Vale has settled and is currently in the process of paying out over \$7 billion in damages to families. Vale pledged more money to inspect older dams, but should a similar event happen again it would spell disaster for Vale and the people nearby. However, they classify the event as a watershed moment, which prompted much change internally.

Vale has begun to shift their production away from methods that require dams to be used. Vale has invested over \$2 billion in making sure that the mining methods that have liquid byproducts are stored more safely.

ESG Advances

Vale has pledged to protect 500,000 hectares of the Amazon rainforest beyond what they control. This includes the restoration of biodiversity to the area and elimination of deforestation practices. <u>Already, they have managed</u> to recover 53,900 hectares of the Amazon.

Mining uses a lot of water and runs the risk of pollution. <u>Vale has pledged to reduce their freshwater intake by 10% and shift away from water-intensive operations.</u>

To further these goals, they seek to have 100% of energy consumption by renewable sources by 2030. <u>In Brazil, this is already on the horizon by 2025, as they will have over 180MW of renewable capacity by 2022</u>. On top of this, Vale will reduce non-energy greenhouse gas emissions by as much as 33% by 2030.

There are many advantages beyond environmental. A significant cost component of nickel production is electrical costs for furnaces. These pledges, besides being good for climate change, may help increase the profits of Vale.

Risk

Vale is a producer of industrial raw materials, and the industrial production cycle can be volatile and cyclical. Any fluctuations in the market could potentially reduce the value of the ore Vale mines.

Despite the lofty goals of governments globally, delays in the adoption of renewables could reduce demand for copper and nickel. Traditional risks in mining firms such as loss in efficiency or environmental damage are always a risk. Since Vale has had a spell of two major disasters, they have high insurance costs compared to the average.

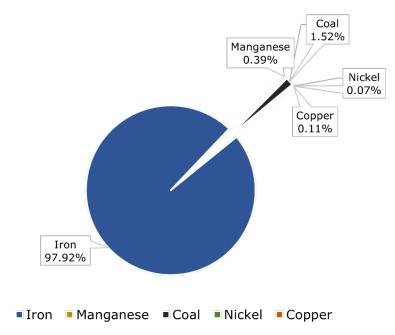
Metrics

While steel demand fell during 2020, iron ore prices hit a 10 year high in 2021. Vale will repurchase approximately 5.3% of shares throughout 2021. The commodity market is seeing a boom as COVID-19 restrictions wind down. Additionally, Vale is a top producer of several metals critical in the production of batteries, solar cells, and other renewables.



	Yield (forward Price-to-		Estimated Earnings Per Share		
	12 months)	Book	E2021	E2022	E2023
Vale S.A.	9%	2.3	4.6	5.7	5.7

Sales, Kilotons, Q1 2021



Vale Q1 2021 sales by %

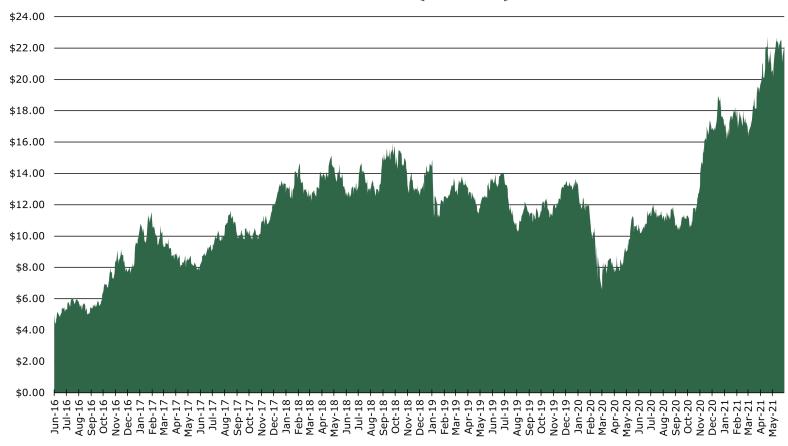
Compared to competitors, Vale has far outperformed the sector for growth in 2020. As Vale's cash flow rises, it is possible for special dividends to be issued in the following few years.

What is important to note, is that many of the other top-performing mining firms are Australian. This is relevant because of ongoing diplomatic <u>tensions</u> between Australia and China. Often leading China to impose heavy duties on Australian metals, or outright eliminating them from the import schedule. China has signaled its <u>desire to look elsewhere for iron ore imports</u>, and Vale has partnerships within China that allow it to capitalize on this.



Estimated 2021	Dividend Yield	Price-to- Book	Price-to- Earnings
Vale S.A. (VALE)	9%	2.3	4.6
Rio Tinto LTD (RIO)	7.5%	2.8	6.3
BHP Group LTD (BHP)	6.9%	3.31	10.9
Fortescue Metals Group (FSUGY)	11%	5.25	5.18

Vale S.A. (VALE)



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