Metal Analysis

Broken Hill Proprietary

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EXECUTIVE SUMMARY

The global economy relies on the mining and metals industry, which produces industrial commodities, machinery, and infrastructure. The steel industry uses 90% of iron ore worldwide. Thus, iron ore pricing and supply variations can greatly effect the steel industry's profitability and viability, making it necessary to analyse metal market trends and variables.

BHP Group, a worldwide resources corporation, is a major iron ore player. The corporation explores, develops, produces, processes, and markets mining and metals. Thus, BHP Group's role in iron ore pricing and supply and demand is crucial.

China's economic expansion has been the biggest factor affecting iron ore prices over the past decade. China consumes the most iron ore, so its demand might affect the metal's price. The Brazilian Brumadinho dam collapse and COVID-19 pandemic have also damaged the iron ore market. Thus, anticipating iron ore prices involves supply and demand analysis.

The steel industry, the main end-user of iron ore, depends on its price and supply. Thus, knowing the metal market requires understanding the industry's response to environmental concerns, technical advances, and trade policies. The steel business produces infrastructure, machinery, appliances, and other industrial goods, making it crucial to the world economy.

BlueScope Steel is BHP Group's steel division. BlueScope Steel, a significant steel maker, relies on iron ore's affordability and availability. BHP Group's partnership approach with BlueScope Steel may include vertical integration, where both firms own and manage the iron ore supply chain from mining to production.

In conclusion, iron ore market analysis includes understanding supply and demand trends and determinants. BHP Group's presence in the iron ore and steel industries makes it a key metals market participant. Monitoring the steel industry's response to environmental issues, technical advances, and trade policies is crucial because iron ore prices and supplies determine its viability and profitability. Thus, BHP Group and BlueScope Steel's vertical integration efforts may help ensure the steel industry's iron ore supply.

Overview of the ten largest companies, by market capitalization, that produce the assigned metal as their main product.

The following were the ten largest companies by market capitalization that produce iron metal as their primary product:

BHP Group (Australia)

BHP Group Limited (formerly known as BHP Billiton) was one of the biggest mining firms in the world, with operations in a number of nations, including Australia, according to the fiscal year report for 2021. Along with Rio Tinto and Fortescue Metals Group, BHP is one of the primary players in the Australian iron ore market.
At that time, BHP's exposure to the iron ore market, which contributed significantly to the business's profitability, was a major factor in the market capitalization of the company. As of September 2021, BHP Group Limited had a market value of about AUD 197 billion. (or around USD 146 billion). It is crucial to remember that market capitalization can alter depending on a variety of circumstances, including the state of the economy, a company's success, and others.

Rio Tinto (Australia)

Another prominent mining firm with considerable operations in the iron ore sector in Australia was Rio Tinto. One of the biggest producers of iron ore in Australia is Rio Tinto, along with BHP Group and Fortescue Metals Group.
Rio Tinto's exposure to the iron ore market at the time had a significant impact on its market capitalisation. As of September 2021, the company had a market value of roughly AUD 147 billion. (or around USD 109 billion).
It is important to keep in mind that the market capitalization of BHP and Rio Tinto, as well as their exposure to the iron ore market, can alter over time depending on a variety of factors such variations in commodity prices, production levels, and changes in the demand for iron ore around the world.

Vale (Brazil)

With activities in various nations, including iron ore mines in Brazil, Canada, and other places across the world, Vale S.A. was a significant mining firm with headquarters in Brazil.
Along with BHP Group and Rio Tinto, Vale is one of the biggest producers of iron ore in the world. A large dam accident in Brazil that the company encountered in 2019 reduced iron ore production and had an impact on its market value.

The market value of Vale was over USD 92 billion as of September 2021. While Vale's iron ore activities continue to make a large contribution to the business's earnings, several variables, including as the demand for iron ore globally, commodities prices, and the continuing effects of the dam tragedy, might have an influence on the market capitalization of the firm.

Fortescue Metals Group (Australia)

An Australian mining business called Fortescue Metals Group (FMG) specialised in the production of iron ore. One of the biggest producers of iron ore in the world, the corporation is based in Western Australia's Pilbara area.
FMG's market value as of September 2021 was over AUD 56 billion (or roughly USD 41 billion), which was greatly impacted by its exposure to the iron ore market. Iron ore pricing, production levels, and demand from China and other significant iron ore importers are just a few examples of variables that might have an impact on the company's market capitalisation.
It is important to remember that FMG is a relatively new company, having been established in 2003, and has grown significantly over the past few years as a result of the considerable increase in demand for iron ore in China and other nations. As a result, the market capitalisation of the company may be more volatile than that of some of its more seasoned rivals, such BHP Group and Rio Tinto.

Anglo-American (United Kingdom)

Mining business Anglo-American has activities across a number of nations, including South Africa, Brazil, Chile, and Australia. Although Anglo-American produced iron ore, the company's main priorities were diamonds, platinum, and copper, which made up a more varied portion of its portfolio.
Anglo-American had a market capitalization of about GBP 35 billion (or roughly USD 48 billion) as of September 2021. This value was influenced by a number of variables, including commodity prices, production levels, and demand from international markets. The market capitalization of Anglo-American may be less susceptible to changes in the iron ore market as a result of the company's comparatively modest exposure to the iron ore market in comparison to some of its rivals, such as BHP Group and Rio Tinto.
It is important to keep in mind that the mining sector can experience considerable volatility as a result of a variety of variables, such as shifts in commodity prices, geopolitical developments, and environmental laws. As a result, mining firms' market capitalisation, including that of Anglo-American, may change over time.

ArcelorMittal (Luxembourg)

With operations in more than 60 countries, ArcelorMittal was a worldwide steel manufacturing firm located in Luxembourg. Although the industry uses a lot of iron ore in the production of steel, it is not a big producer of the material.
The market value of ArcelorMittal was over USD 31 billion as of September 2021. The market capitalization of the corporation is impacted by a number of variables, such as the demand for steel globally, commodities prices, and production levels. ArcelorMittal's market capitalization may be less vulnerable to changes in the iron ore market than mining firms that are large producers of the commodity, such as BHP Group, Rio Tinto, and Vale, even though iron ore is a crucial input for the company's steel production.
It is important to keep in mind that the steel business can experience significant volatility due to a variety of reasons, such as shifts in demand, changes in input costs, and changes in trade policy. As a result, the market capitalization of businesses that produce steel, such as ArcelorMittal, might change over time.

Nippon Steel (Japan)

One of the biggest steel producers in the world, Nippon Steel was a Japanese steel production firm. Despite not being a major producer of the commodity, the corporation uses a lot of iron ore in the production of steel.
Nippon Steel's market capitalization was roughly JPY 1.08 trillion as of September 2021. (or around USD 10 billion). The market capitalization of the corporation is impacted by a number of variables, such as the demand for steel globally, commodities prices, and production levels. Even though iron ore is a crucial component in the making of the company's steel, Nippon Steel's market capitalization might be less susceptible to fluctuations in the iron ore market than mining firms that are significant producers of the material, such BHP Group, Rio Tinto, and Vale.
It is important to keep in mind that the steel business can experience significant volatility due to a variety of reasons, such as shifts in demand, changes in input costs, and changes in trade policy. As a result, the market capitalisation of businesses that produce steel, like Nippon Steel, might change over time.

POSCO (South Korea)

One of the biggest steel producers in the world, POSCO was a South Korean steel corporation. Despite not being a major producer of the commodity, the corporation uses a lot of iron ore in the production of steel.
The market value of POSCO was around KRW 34.6 trillion as of September 2021. (or around USD 29 billion). The market capitalization of the corporation is impacted by a number of variables, such as the demand for steel globally, commodities prices, and production levels. Despite the fact that iron ore is a crucial component in the production of POSCO's steel, its market capitalization may be less susceptible to fluctuations in the iron ore market than those of other mining firms that are significant suppliers of the material, such as BHP Group, Rio Tinto, and Vale.

It is important to keep in mind that the steel business can experience significant volatility due to a variety of reasons, such as shifts in demand, changes in input costs, and changes in trade policy. As a result, the market capitalization of businesses that produce steel, like POSCO, might change over time.

China Baowu Steel Group (China)

One of the biggest steel producers in the world, China Baowu Steel Group was a state-owned steel manufacturer in China. Despite not being a major producer of the commodity, the corporation uses a lot of iron ore in the production of steel.
The market value of China Baowu Steel Group was around CNY 361.9 billion as of September 2021. (or around USD 55 billion). The market capitalization of the corporation is impacted by a number of variables, such as the demand for steel globally, commodities prices, and production levels. The market capitalization of China Baowu Steel Group may be less sensitive to fluctuations in the iron ore market than mining firms that are significant producers of the material, such as BHP Group, Rio Tinto, and Vale, even though iron ore is a crucial input for the company's steel production.
It is important to keep in mind that the steel business can experience significant volatility due to a variety of reasons, such as shifts in demand, changes in input costs, and changes in trade policy. As a result, the market capitalization of firms that produce steel, such as China Baowu Steel Group, can change over time.

JFE Holdings (Japan)

One of the biggest steel producers in the world, JFE Holdings was a Japanese steel production firm. Despite not being a major producer of the commodity, the corporation uses a lot of iron ore in the production of steel.
The market capitalisation of JFE Holdings was around JPY 808 billion as of September 2021. (Or around USD 7.3 billion). The market capitalization of the corporation is impacted by several variables, such as the demand for steel globally, commodities prices, and production levels. Even though iron ore is a crucial component in the production of the company's steel, JFE Holdings' market capitalization may be less susceptible to fluctuations in the iron ore market than significant producers of the material, such as BHP Group, Rio Tinto, and Vale.
It is important to keep in mind that the steel business can experience significant volatility due to a variety of reasons, such as shifts in demand, changes in input costs, and changes in trade policy. As a result, the market capitalization of businesses that produce steel, such as JFE Holdings, might change over time.

The three biggest iron ore producers in the world—BHP Group, Rio Tinto, and Vale—account for a sizable percentage of the supply. Although Fortescue Metals Group is a relatively recent addition to the market, it has expanded quickly to rank among Australia's

top producers of iron ore. While ArcelorMittal is the largest manufacturer of steel in the world and has considerable iron ore mining operations, Anglo-American is a diversified mining firm that produces a variety of commodities, including iron ore. Major steel makers with efficient iron ore mining operations include Nippon Steel, POSCO, China Baowu Steel Group, and JFE Holdings.

Here is a chart showing the share prices of BHP Group and its competitors over the previous ten years:

Share price chart for the past 10 years for BHP Group and its competitors

The graph shows that, with a few exceptions, the share price of BHP Group has generally outpaced that of its peers during the previous 10 years.The robust performance of BHP Group is the result of numerous factors. The company's diverse portfolio of assets, which includes iron ore, copper, crude oil, coal, and other minerals, is one of the primary factors. Because of its diversification, the corporation has been able to weather downturns in some commodity markets while profiting from upturns in others.
BHP Group also places a high priority on cost management and efficiency, which has enabled the business to continue operating profitably despite difficult market conditions. The business has also made significant investments in innovation and technology, which have increased productivity and decreased costs.
Over the past ten years, BHP Group has also made strategic purchases and sales that have boosted its financial performance. For instance, the company's purchase of Petrohawk Energy's shale assets in 2018 for $10.5 billion helped to expand its petroleum industry.

BHP Group's outstanding success during the last ten years may be ascribed to several factors, including its diversified portfolio of assets, emphasis on cost management and efficiency, investment in technology and innovation, and selective acquisitions and divestitures.

A summary of the business of the company.

The BHP Group is a multinational mining and resources corporation that focuses on the exploration, development, production, and sale of various minerals, including iron ore, copper, coal, nickel, zinc, and petroleum. The company is also involved in the exploration of new mineral deposits. Since its establishment in 1885 as the Broken Hill Proprietary Company Limited, the business has a lengthy and eventful past. Its original name was the Broken Hill Proprietary Company. Since that time, the company has developed into a significant participant in the international mining industry. It now has operations in more than 90 places across the globe and employs more than 80,000 people.

The BHP Group's varied asset portfolio is one of the company's primary advantages in the marketplace. The company has substantial activities in Australia, the Americas, and the Asia Pacific area, with operations ranging from iron ore mines in the Pilbara region of Western Australia to copper and gold mines in Chile and Peru. This gives the company a significant presence in all three regions. This varied portfolio helps to limit risks connected with any one commodity or region, and it also enables BHP Group to respond to changing market conditions and the changing demands of their customers.
In addition, one of the most important aspects of BHP Group's operations is the company's dedication to responsible and sustainable business practises. The organisation has set lofty goals for itself, including lowering its emissions of greenhouse gases and cutting down on the amount of water it uses, as well as increasing diversity and inclusion in its workforce. For instance, the BHP Group has committed to become carbon-neutral by the year 2050, and it has also established goals to cut its water use by fifty percent and increase the number of women who participate in its workforce to fifty percent by the year 2025. In addition, the company has launched a variety of measures to promote sustainability, such as employing renewable energy sources in its operations and investing in new technology to reduce emissions and enhance efficiency. These are just two examples of these types of activities.
The selling of minerals is the primary source of revenue for BHP Group, with iron ore being the mineral that contributes the most significantly to total revenue. Despite this, the corporation is also a prominent player in the markets for a variety of other commodities, including copper, coal, nickel, and petroleum. BHP Group is a renowned worldwide mining corporation that has a solid reputation for quality and dependability thanks to its broad portfolio of assets, commitment to sustainability, and responsible business practises.

Four of the Defining Characteristics of the Metals and Mining Industry that impact this company's strategy.

Raw materials

In fact, raw materials are what distinguish the metals and mining industry, and they have a big influence on the business strategies of organisations in this area, like BHP Group.
First off, the profitability and feasibility of mining operations are greatly influenced by the cost and availability of raw materials. For instance, the corporation might have to shut down the mine or reduce output if the price of a specific metal or mineral drops below a certain point at which it would no longer be possible economically to continue extracting it. On the other hand, if the cost of a raw material rises, it might significantly increase sales and profits for the business.
Second, a company's strategy may be influenced by both the quality and quantity of its raw materials. For instance, it can be more economical for the business to concentrate on mining that metal and increase its production if the mine has a high concentration of that metal. On the other hand, if the ore quality is poor, it can take more materials and energy to extract the same amount of metal, which might raise the cost of production.
Finally, the capacity for production and availability affect the company's capacity to satisfy client demand.
In general, the properties of raw materials have a big influence on the strategy of businesses in the mining and metals sector, like BHP Group. When choosing which metals to mine and how to extract them, businesses must carefully take into account issues including pricing, quality, and availability.
In contrast to the 248.4 million tonnes produced in the fiscal year 2020, 253.4 million tonnes (Mt) of iron ore were produced by BHP in the fiscal year 2021, according to the company's financial reports. Iron Ore (WAIO) operations account for the majority of BHP's iron ore production.

Iron ore has been the main source of revenue for BHP, at least in terms of volume. The fiscal year reports indicate that the revenue earned by BHP in iron ore in 2021 was US$54.6 billion whereas the revenue was only $39.2 billion. About 57% of BHP's revenue in the fiscal year 2021 came from just iron ore.

The grade of the ore, the mine's location, the cost of local labor, and the price of the numerous pieces of equipment needed to mine the ore are just a few of the variables that affect production costs. BHP's cost for iron ore climbed to US$19.57 per wet metric tonne in fiscal year 2021 from US$14.43 per wet metric tonne in fiscal year 2020.

BHP has spent a significant amount of money on increasing production capacity because they have realised that iron ore is their most crucial raw material.

Life cycle

The strategy of BHP Group is significantly influenced by the life cycle of mining activities. The various phases of the mining life cycle, such as exploration, development, production, and closure, each provide particular difficulties and chances that might have an effect on the business strategy. The following are some ways that the mining industry's life cycle affects BHP Group:

1. Exploration and development: To find promising mineral deposits and turn them into viable mines, BHP Group invests extensively in exploration and development. At this point, the company's strategy is concentrated on locating and ranking the most viable opportunities, evaluating risks and expenses, and streamlining the exploration and development procedure.
2. Production: The BHP Group runs a portfolio of mines that are all in different levels of production. At this point, the company's strategy is concentrated on increasing output, cutting expenses, and upholding high standards of safety and environmental responsibility. This entails putting best practises into action, making investments in innovation and technology, and continuously enhancing the production process.
3. Closure/reclamation: BHP Group understands the value of strategizing for mine closure and reclamation. During this phase, the company's strategy is centred on reducing the social and environmental effect of its operations. To guarantee responsible mine closure, this entails cooperating with local communities, adhering to legal obligations, and putting best practises into practise.

Overall, because BHP Group must negotiate the opportunities and challenges given by each stage of the mining life cycle, the life cycle of mining operations has a substantial impact on the company's strategy. In order to maximise profitability while minimising social and environmental effect, BHP Group approaches the life cycle of mining operations holistically.

The exploration, development, production, and closing phases are all part of the BHP metal and mining sector life cycle.

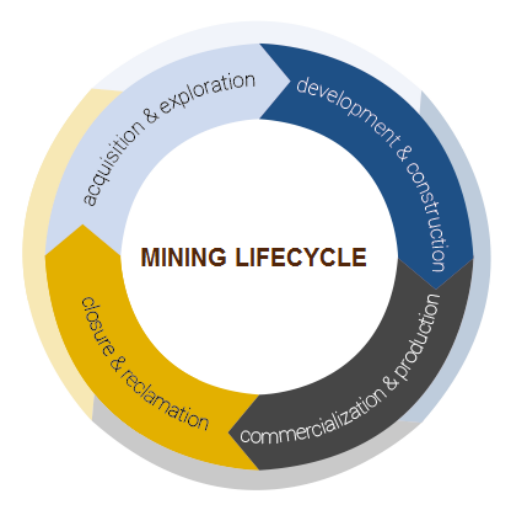
Exploration: To find new mineral resources during the earliest stage of the life cycle, BHP devoted a large portion of its capital in this activity. BHP made a large investment of US$1.1 billion in exploration in the fiscal year 2021.

Development: In the second stage, BHP built and expanded the new mine, entering the development phase. BHP invested US$4.6 billion of its capital in the fiscal year 2021, an increase from US$4.4 billion in the fiscal year 2020.

Production: Iron ore makes up a significant portion of BHP's mineral production; as a result, the company's entire income and profitability are determined and impacted by iron ore production. The overall production of BHP for the fiscal year 2021, encompassing all of its minerals, was 284.5 million tonnes.

Phase of Closing marks the final stage of the life cycle. The rehabilitation processes as well as the social and environmental effects occur at this stage. The expenses of closure for BHP were US$0.6 billion in the fiscal year 2021 as opposed to US$0.5 billion in the fiscal year 2020.

In general, the BHP metal and mining industry's life cycle may have an impact on the company's raw materials strategy. BHP may be able to locate and access new mineral resources with the use of exploration and development activities, and production levels may have an effect on their earnings and profitability. When creating and running mines, closure costs may also be taken into account. The quantitative data presented above highlights the sizeable capital expenses linked to each stage of the life cycle, which may have an impact on BHP's raw material strategy.



Products

The products of the mining and metals sector are a defining feature that have a big impact on BHP Group's strategy. With a portfolio of commodities including iron ore, copper, coal,

petroleum, and others, the corporation is among the biggest diversified miners in the world. The following are some examples of how a company's strategy may be impacted by the goods produced by the metals and mining industry:
1. Pricing: Depending on supply and demand, the price of commodities may fluctuate and be volatile. This may have an effect on BHP Group's revenue, profitability, and capacity for growth and development investments.
2. Market demand: Depending on variables including the state of the world economy, technological development, and environmental legislation, demand for various commodities may change. The strategy of BHP Group must be able to adapt production in response to these shifts in demand.
3. Technology and innovation: The mining and metals industries are continually changing, and new procedures and technologies may have an impact on how goods are produced and processed. To remain competitive, BHP Group's strategy needs to put an emphasis on innovation and the adoption of new technology.
4. Sustainability: Businesses in the metals and mining sector are increasingly being held responsible for their effects on the environment and society. A dedication to sustainable practices, such as lowering emissions, minimising waste, and interacting with local communities, must be a part of BHP Group's strategy.
In general, the strategy of BHP Group is significantly influenced by the commodities produced by the mining and metals sector. BHP Group can make sure that it maintains its competitiveness and financial viability over the long run by closely monitoring market demand, pricing, and technology developments, as well as by implementing sustainable practises.

As we all know, BHP concentrates and spends a lot of their resources on iron ore mining. For 57% of BHP's overall revenue, iron ore is responsible.

Copper: BHP, however, also views copper as a significant mineral. BHP produced 1.7 million tonnes of copper in the fiscal year 2021 as opposed to 1.6 million tonnes in the prior year.

Coal: Both metallurgical coal and energy coal are produced by BHP. In the fiscal year 2021, both of these types of coal accounted for 11% of BHP's revenue.

Petroleum: Oil and gas are produced by BHP's petroleum operations. 10% of BHP's revenue in 2021 came from the production of 103.3 million barrels of oil.

Nickel: BHP's Nickel West operations in Western Australia account for the majority of its nickel production. It increased from 71.9 thousand tonnes in FY2020 to 77.8 thousand tonnes in FY2021 and contributed roughly 2% of BHP's income in the fiscal year 2021.

Stakeholder

BHP's shareholders play a significant impact in many corporate decisions, particularly in relation to investments and dividends. BHP increased their total dividend payout from US$5.1 billion in fiscal year 2020 to US$6.1 billion in fiscal year 2021.Stakeholders may significantly affect or influence the activities and operations of the BHP Group in several ways, including:

1. Financial impact: Through their investment choices, shareholders and investors have a financial stake in the company's operations and can affect BHP Group's strategy. For instance, if investors think BHP Group is not properly managing its risks, they might sell their shares, which could have an effect on the stock price and availability of cash for the business.
2. Governments and regulators: Governments and regulatory bodies have the authority to create laws and rules that may have an effect on the BHP Group's operations. For instance, adjustments to environmental rules and adjustments to tax laws may have an effect on the business' operations and profitability. As a multinational corporation, BHP is governed by a number of laws and regulations that are essential to the availability of raw resources. Regarding the fiscal year of 2021, BHP gave to governments and communities in the amount of US$7.3 billion through taxes, royalties, and other contributions.
3. Social and environmental impact: By voicing their concerns about the social and environmental implications of mining operations, local communities, environmental and social groups, and other stakeholders can have an impact on BHP Group's actions. These issues could affect the company's reputation and social licence to operate if they are not addressed.
4. Operational impact: Suppliers and contractors provide the mining industry with goods and services, thus disruptions or issues in the supply chain may have an effect on the productivity and operations of BHP Group.
Stakeholders may have a number of effects on the operations and activities of the BHP Group. As a result, the business needs to interact with stakeholders to comprehend their points of view, respond to their worries, and make sure that its operations are ethical and sustainable. Effective stakeholder management will enable BHP Group to uphold its social licence to operate and guarantee long-term prosperity.

5.Suppliers and contractors: By affecting the availability and price of raw materials and services, BHP's suppliers and contractors can have an impact on the company's strategy. BHP spent US$16.6 billion on procurement in the fiscal year 2021, up from US$14.6 billion in the fiscal year 2020.

6.Communities and other stakeholders: BHP's operations have a significant impact on the local communities and other stakeholders through a number of social and environmental programs, BHP provided $245 million to community programmes and $911 million to environmental programmes in the fiscal year 2021.

An analysis of what parts of the mining and metals life cycle this company operates in.

BHP Group operates in various parts of the mining and metals life cycle. The company is involved in the exploration, development, production, processing, and marketing of a range of commodities, including iron ore, copper, coal, nickel, zinc, and petroleum.

Exploration: BHP Group invests in exploration activities to identify and evaluate mineral deposits. The company's exploration activities are focused on areas with high potential for mineral discoveries, and it uses advanced technologies and data analytics to improve the accuracy and efficiency of its exploration programs.

Development: BHP Group invests in the development of new mining projects to bring them into production. The company's development activities involve the construction of infrastructure and the installation of equipment to extract and process the ore.

Production: BHP Group operates mines and processing facilities to extract and process commodities. The company's mining operations involve the excavation, transportation, and processing of ore to produce saleable products.

Processing: BHP Group processes commodities to enhance their value and marketability. The company's processing activities involve the refining, smelting, and beneficiation of ore to produce higher-quality products.
Marketing: BHP Group sells its products on global markets, where commodity prices are determined by supply and demand factors. The company's marketing activities involve the negotiation of sales contracts and the delivery of products to customers around the world.
BHP Group also operates in the later stages of the mining and metals life cycle, including closure and rehabilitation. The company has a responsibility to manage the social and environmental impacts of its operations and to rehabilitate mined areas to a sustainable and productive state.
Overall, BHP Group operates across the full spectrum of the mining and metals life cycle, from exploration to marketing, and it invests significant resources in each stage of the process.

Analysis of the metal price over the past ten years including major global economic events or trends that impacted historical prices.

Steel is produced using iron ore, a vital industrial raw material. Numerous variables, including as supply and demand dynamics, general economic conditions, and geopolitical developments, have an impact on its price. The price of iron ore metal during the last ten years has been examined in this article, along with significant events or trends that have affected historical pricing in the global economy.

Due in major part to the fact that China, the world's largest steel producer, had a high demand, iron ore prices reached a peak in 2012 of almost $150 per metric tonne. However, a slowdown in China's economy and a glut on the market caused the price to drop to under $40 per metric tonne by 2015. China's emphasis changed away from infrastructure and construction projects during this time period, which resulted in a considerable decline in the country's need for steel.

The resurgence in China's steel demand and supply-side disruptions brought on by mine closures and weather-related incidents propelled the iron ore price to above $100 per metric tonne between 2016 and 2019. Due to a mining accident in Brazil that restricted the supply of high-quality iron ore, the price of iron ore in January 2019 increased to a five-year high of $126 per metric tonne.

Due to a slowdown in steel demand and interruptions to global supply chains, the COVID-19 pandemic had a substantial effect on the iron ore price in 2020, which caused it to fall to about $80 per metric tonne in March. By the end of the year, however, the price had recovered to over $120 per metric tonne, driven by robust demand from China's infrastructure projects and supply-side bottlenecks brought on by the pandemic.

The price of iron ore has remained high in 2021, with prices in the first quarter of the year averaging around $150 per metric tonne. Strong demand from China's steel industry, which has expanded despite measures to decrease its carbon emissions, has helped to underpin the price. However, there are worries that the high iron ore price may not be sustainable in the long run because more mines are anticipated to start operating soon, increasing supply.

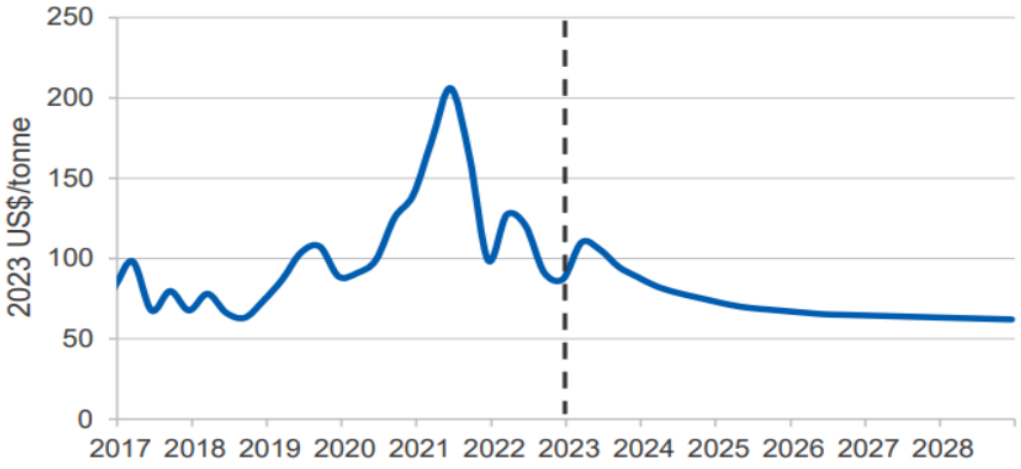
In conclusion, throughout the past ten years, the price of iron ore has been impacted by a variety of global economic trends and events, such as China's economic growth and recession, supply-side interruptions brought on by weather-related events and mining tragedies, and the COVID-19 epidemic. Although there may be short-term volatility, the long-term forecast for the iron ore market is anticipated to be influenced by elements like the move towards renewable energy and the rise of electric vehicles, which may eventually result in a decline in the need for steel.

Forecast of the metal price for the next five years including an assessment of significant supply and demand considerations.

On the demand side, China's continued economic expansion is anticipated to be a key factor influencing the iron ore price. Any changes in China's economic outlook could have a substantial impact on the price of the metal as the country is the largest consumer of iron ore in the world. Additionally, as other emerging economies develop, their need for steel and other metals is anticipated to rise. This might sustain the demand for iron ore.
The creation of new iron ore mines and the expansion of current operations are anticipated to be major factors in the supply side. Australia, the largest supplier of iron ore in the world, has launched a number of sizable iron ore projects in recent years. If these projects go as planned, they might dramatically boost the world's supply and drive down prices. The availability of iron ore could also be impacted by changes in governmental policies or regulations, particularly in nations where mining operations must adhere to rigorous social or environmental standards.

The ongoing shift to a low-carbon economy will also probably have a range of effects on the iron ore market. There may be a rise in demand for greener, more sustainable ways to produce iron and steel as nations and businesses work to lower their carbon emissions; this could influence the price and accessibility of iron ore. Additionally, when more electric cars and renewable energy sources are put into use, there will likely be a greater demand for metals like iron and steel, which could support higher pricing.
Over the next five years, a variety of factors, including global economic trends, modifications to governmental policies and regulations, and the ongoing shift to a low-carbon economy, are anticipated to have an impact on the iron ore market. Although it is difficult to forecast how these variables will interact and affect the price of iron ore, it is obvious that the metal will continue to play a significant role in the world economy and serve as a necessary input for numerous sectors.

Figure 4.5: Iron ore price outlook, quarterly



Notes: China import iron ore fines 62% Fe spot (FOB)
Source: Bloomberg (2023); Department of Industry, Science and Resources (2023)

Overview of the end-user industry that is most reliant on this metal as its raw material source.

The steel industry is the end-user sector most dependent on iron ore metal as a raw material source. Steel, a common building element that is also necessary for the creation of many industrial and consumer items, is primarily made from iron ore.

More than 90% of the world's iron ore use is accounted for by the steel industry, making it one of the biggest consumers of the mineral. To make pellets or other forms of iron that can be utilised in the steelmaking process, iron ore must first be mined and treated to remove impurities. Steel is then produced by combining the iron with additional metals, such as carbon.

Buildings, bridges, and other types of infrastructure are all constructed using steel, which is a vital building material. Additionally, it is necessary for the creation of ships, railways, and automobiles. The manufacture of machinery, appliances, and other industrial goods also depends on the steel sector.

The global steel market is enormous, having substantial operations in many areas of the world. China was the biggest producer of steel in the world in 2021, followed by India, Japan, and the US. Russia, South Korea, Germany, and Turkey are further notable steel-producing nations. The industry is a vital part of the international economy and employs millions of people across the globe.

Due to the steel industry's heavy reliance on iron ore, any changes in the price or supply of iron ore have the potential to have a considerable influence on the profitability and

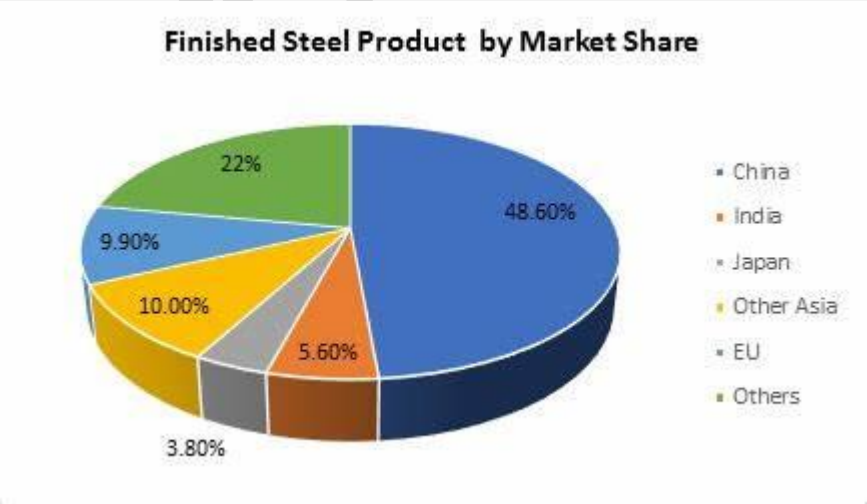
viability of the sector. Due to its tight ties to the world iron ore market, the steel sector is susceptible to shifts in supply and demand dynamics as well as other economic and geopolitical concerns.

The growth of protectionist trade policies in recent years is one important element that has had an impact on the steel industry. The United States and China, two major producers of steel, have imposed tariffs and other trade obstacles, which have disrupted international steel markets and increased uncertainty for steel producers and consumers worldwide. For instance, in 2018, the United States slapped tariffs on steel imports from several nations, including China, which sparked retaliatory tariffs and a sharp drop in the price of steel around the world.

The ongoing transition towards environmentally friendly production practises is another important element that has had an impact on the steel sector. Steel makers have come under increasing pressure to decrease their carbon footprint and embrace more sustainable practises as worries about climate change and environmental sustainability have grown. As a result, new technologies have been created, such electric arc furnaces that produce steel using scrap metal rather than iron ore and the use of carbon capture and storage systems to cut emissions from conventional steelmaking processes.

The steel sector is influenced by broader economic and geopolitical variables in addition to these changes. The demand for steel, as well as the supply and cost of iron ore, can all be significantly impacted by changes in global economic development, currency value variations, and changes in global trade patterns.

In conclusion, the end-use sector most dependent on iron ore metal as a raw material source is the steel industry. The industry plays a significant role in the world economy by supplying necessary industrial and building materials. The global iron ore market, as well as more general economic and geopolitical variables, can all affect the steel industry. The industry will encounter fresh difficulties and chances that will influence its future expansion and development as it continues to change and adopt more sustainable practises.



The Defining Characteristics of that end-user industry.

The steel industry is a significant defining feature of BHP Group's iron ore activities because it is an end-user of iron ore. Iron ore is primarily consumed by the steel industry, which produces steel for use in manufacturing, building, and other industries.
The following are other features of the iron ore end-user industry:

1. High demand: The steel sector accounts for the majority of the world's iron ore usage, and iron ore is in high demand worldwide. The demand for steel and iron ore has surged as a result of the development of emerging economies like China and India, and this trend is anticipated to last for the foreseeable future.

2. Highly concentrated market: A small number of significant producers, like BHP Group, control the majority of the world's supply of iron ore. Due of its specialization, the industry may be more susceptible to interruptions in the supply or fluctuations in demand.

3.Price volatility: Changes in demand from the steel sector, general economic conditions, and supply disruptions can all cause large swings in the price of iron ore. The profitability of end users, like the steel sector, may be impacted by this fluctuation.

4. Environmental and social issues: Similar to the mining sector, the steel sector and its end users may have a substantial negative influence on the environment and society. These effects include habitat damage, air and water pollution, and social displacement.

5. Technological developments: To increase productivity, lessen environmental effect, and satisfy shifting customer needs, new technologies and processes are continually being created. This affects both the steel industry and its end users.

Overall, the steel sector is a big end user of iron ore, with a consolidated market and high demand. Other distinguishing features of the iron ore end-user market include price instability, social and environmental issues, and technical improvements. As a significant iron ore producer, BHP Group is intimately familiar with this sector, its issues, and its possibilities.

Analysis of one company in this end-user industry that stands out as a leader in the application of metals to their business and where that metal is critical to the success of their strategy.

BHP Group is a mining firm that primarily produces and sells iron ore to other industries like steel and manufacturing as a raw material. However, BHP Group also owns and runs

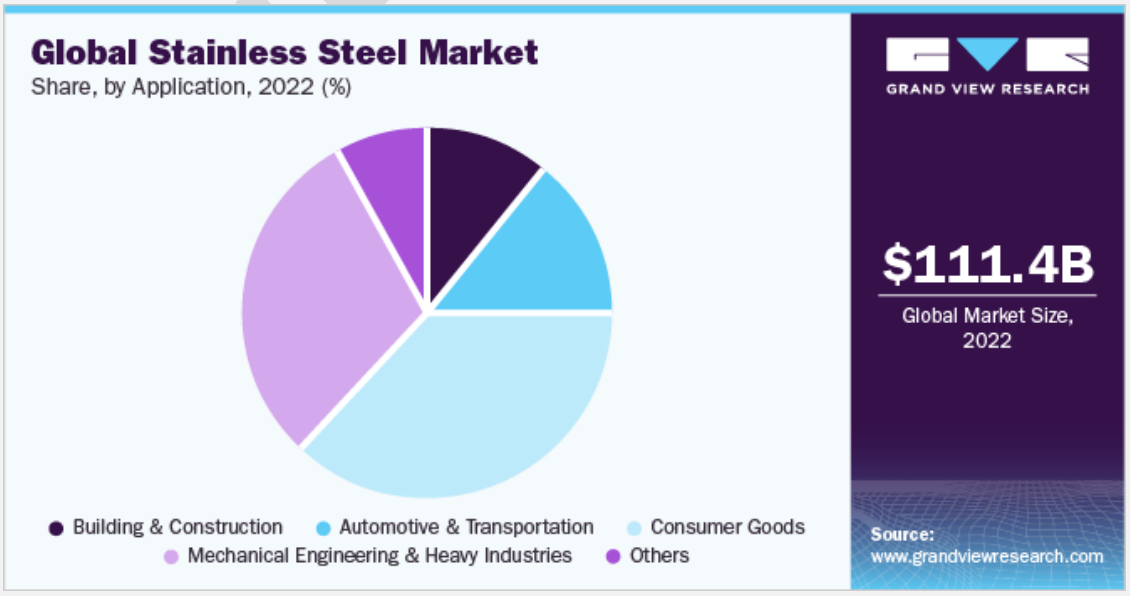
BlueScope Steel, a steel manufacturer that stands out as a pioneer in the use of iron ore metals in their industry.

One of the biggest producers of steel goods in Australia and New Zealand, BlueScope Steel also has activities around the globe. Steel plate, hot-rolled coil, and cold-rolled coil are just a few of the different flat steel products that are produced by the company. These goods are employed in a variety of industries, such as building, the production of automobiles, and home appliances.

Iron ore is a necessary component in the production of steel, and its price has a big impact on how much it costs to make steel goods. Iron ore is a key input for BlueScope Steel, and the company obtains the majority of its raw materials from BHP Group's Western Australia Iron Ore facilities. Because of this, iron ore's affordability and availability are crucial to BlueScope Steel's business plan.

BlueScope Steel has recently made large investments in technology and innovation to boost the effectiveness of its operations and lessen its environmental impact. A variety of energy-efficient and low-carbon technologies, such as the utilization of natural gas and the construction of energy-efficient lighting systems, have been developed and implemented by the company.BlueScope Steel has put in place sustainability strategies to lessen greenhouse gas emissions and enhance water and waste management procedures. These programmes involve using renewable energy, putting in place water recycling systems, and creating closed-loop manufacturing techniques.

In conclusion, BlueScope Steel is one of the world's top producers of steel products, and iron ore is a vital component of its operations. The availability and price of iron ore are essential to the success of BlueScope Steel's strategy as a part of the BHP Group. To lessen its environmental impact and boost operational effectiveness, the corporation has made considerable investments in technology and sustainability programmes.



An assessment of the possible integration or collaboration strategies that the two companies identified above could follow.

Vertical integration is a potential merger or joint venture approach that BHP Group and Nippon Steel Corporation might pursue. In order to share ownership and control of the iron ore supply chain from the mining of the raw material to the production of completed steel products, BHP Group would either need to acquire Nippon Steel or create a joint venture.

Vertical integration would give BHP Group and Nippon Steel more control over their supply chain, which might boost operational effectiveness and save costs. For instance, BHP Group may provide Nippon Steel with its iron ore, which Nippon Steel could then process into steel products. As a result, Nippon Steel wouldn't need to buy iron ore from outside vendors as frequently, which would lessen their dependency on the spot market.

Long-term supply agreements are another another conceivable joint venture method that BHP Group and Nippon Steel can pursue. According to this plan, BHP Group would consent to give Nippon Steel a predetermined amount of iron ore for an extended period, often five to ten years. In return, Nippon Steel would promise to buy iron ore from BHP Group at a predetermined cost, giving BHP Group a more reliable source of income.

BHP Group and Nippon Steel could lessen their exposure to the erratic iron ore market, which is impacted by changes in supply and demand, by entering into a long-term supply deal. The availability and price of the essential raw material would be more predictable under a long-term supply arrangement, giving both businesses more time to plan their operations and capital expenditures.

Overall, BHP Group and Nippon Steel may be able to work together effectively in the iron ore market through both vertical integration and long-term supply agreements. These tactics might provide the businesses more command over their supply chain and lessen their susceptibility to market volatility, which would eventually boost their long-term performance.

Conclusion

In conclusion, the paper on metal analysis offers a detailed review of the mining and metals business, with a particular emphasis on the iron ore market. This article focuses on the role that BHP Group, a worldwide resources organization, plays in the mining and metals life cycle. Additionally, the impact that global economic events and trends have on the price of iron ore is discussed. The importance of the steel industry as the primary end-user of iron ore and its reliance on the metal's affordability and availability is also emphasised in this article. The steel industry is the principal end-user of iron ore. In conclusion, the research implies that BHP Group's partnership tactics, such as vertical integration, may be effective in assuring a continuous and stable supply of iron ore to the steel industry. Specifically, the paper proposes that this may be the case. Understanding the market for metals as well as its trends and factors is essential for the success of the mining and metals industry. BHP Group's involvement in the iron ore and steel sectors positions it as a prominent player in the sector.

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