

RISK FACTORS

Risks relating to our business

Our business is exposed to the cyclical nature of global economic activity and requires significant investments of capital.

As a mining company, we are a supplier of industrial raw materials. Industrial production tends to be the most cyclical and volatile component of global economic activity, which affects demand for minerals and metals. At the same time, investment in mining requires a substantial amount of funds in order to replenish reserves, expand and maintain production capacity, build infrastructure and preserve the environment. Sensitivity to industrial production, together with the need for significant long-term capital investments, are important sources of risk for our financial performance and growth prospects.

Adverse economic developments in China could have a negative impact on our revenues, cash flow and profitability.

China has been the main driver of global demand for minerals and metals over the last few years. In 2015, Chinese demand represented 69% of global demand for seaborne iron ore, 51% of global demand for nickel and 46% of global demand for copper. The percentage of our net operating revenues attributable to sales to customers in China was 35.5% in 2015. Therefore, any contraction of China's economic growth could result in lower demand for our products, leading to lower revenues, cash flow and profitability. Poor performance in the Chinese real estate sector, the largest consumer of carbon steel in China, would also negatively impact our results.

Our business may be adversely affected by declines in demand for and prices of the products our customers produce, including steel (for our iron ore and coal business), stainless steel (for our nickel business), copper wire (for copper) and agricultural commodities (for our fertilizer nutrients business).

Demand for our iron ore, coal and nickel products depends on global demand for steel. Iron ore and iron ore pellets, which together accounted for 62.2% of our 2015 net operating revenues, are used to produce carbon steel. Nickel, which accounted for 18.3% of our 2015 net operating revenues, is used mainly to produce stainless and alloy steels. Demand for steel depends heavily on global economic conditions, but it also depends on a variety of regional and sectorial factors. The prices of different steels and the performance of the global steel industry are highly cyclical and volatile, and these business cycles in the steel industry affect demand and prices for our products. In addition, vertical backward integration of the steel and stainless steel industries and the use of scrap could reduce the global seaborne trade of iron ore and primary nickel. The demand for copper is affected by the demand for copper wire, and a sustained decline in the construction industry could have a negative impact on our copper business. The demand for fertilizers is affected by prices of agricultural commodities in the international and Brazilian markets, and a sustained decline in the price of one or more agricultural commodities could negatively impact our fertilizer nutrients business.

The prices we charge, including prices for iron ore, nickel, copper, coal and fertilizers, are subject to volatility.

Our iron ore prices are based on a variety of pricing options, which generally use spot price indices as a basis for determining the customer price. Our prices for nickel and copper are based on reported prices for these metals on commodity exchanges such as the London Metal Exchange ("LME") and the New York Mercantile Exchange ("NYMEX"). Our prices and revenues for these products are consequently volatile, which may adversely affect our cash flow. Global prices for metals are subject to significant fluctuations and are affected by many factors, including actual and expected global macroeconomic and political conditions, levels of supply and demand, the availability and cost of substitutes, inventory levels, investments by commodity funds and others and actions of participants in the commodity markets. A continuous decrease in the market prices for the products we sell may result in the suspension of certain of our projects and operations, decrease in our mineral reserves and the impairment of assets, and it would adversely affect our financial position and results of operations.

In 2015, prices of steelmaking raw materials, such as iron ore, coal and nickel, decreased as supply grew more than demand. Additionally, copper prices dropped as a result of lower demand, in spite of some disruptions in supply.

We are most exposed to movements in iron ore prices. For example, a price reduction of US\$1 per dry metric ton unit ("dmt") in the average iron ore price would have reduced our operating income for the year ended December 31, 2015 by approximately US\$320 million. Average iron ore prices decreased 59% in the last two years, from US\$135 per dmt in 2013 to US\$97 per dmt in 2014 and US\$55.5 per dmt in 2015, according to the average Platts IODEX (62% Fe CFR China). On February 29, 2016 the year to date average Platts IODEX iron ore price was US\$44.10 per dmt. In addition to reduced demand for iron ore, an excess in supply has adversely affected our prices since 2014 and may grow with the expected conclusion of certain iron ore projects in coming years.

World nickel prices have also been adversely affected by lower demand and by strong supply growth in the nickel industry, especially in China. Nickel refining in China, primarily using imported nickel ores and related raw materials, increased by an estimated 417,000 metric tons from 2006 to 2015, with Chinese nickel pig iron production representing 19% of global nickel output. Chinese nickel pig iron production has been adversely affected by export restrictions in feed-producing countries, and prices could be further affected if these restrictions are revoked.

For additional information about the average realized prices for the products we sell, see *Operating and financial review and prospects—Overview—Major factors affecting prices*.

The financial performance and economic viability of certain of our operations may be significantly impacted by a continuing decline in the demand for and prices of our products. For instance, in 2015, we suspended certain iron ore and manganese operations, and other operations may be suspended in the future. Also, in the case of our nickel operations in New Caledonia, the impact of lower prices and demand for nickel is heightened due to the stage of the ramp up of that facility. We are considering various options to ensure the continuation of the operations in New Caledonia as it continues to ramp up. If those options are not available and current conditions continue to be adverse, we may consider a reduction or stoppage of production for a period of time.

We may not be able to adjust production volume in a timely or cost-efficient manner in response to changes in demand.

Lower utilization of capacity during periods of weak demand may expose us to higher unit production costs since a significant portion of our cost structure is fixed in the short term due to the high capital intensity of mining operations. In addition, efforts to reduce costs during periods of weak demand could be limited by labor regulations or previous labor or government agreements.

Conversely, during periods of high demand, our ability to rapidly increase production capacity is limited, which could prevent us from meeting demand for our products. Moreover, we may be unable to complete expansions and greenfield projects in time to take advantage of rising demand for iron ore, nickel or other products. When demand exceeds our production capacity, we may meet excess customer demand by purchasing iron ore, iron ore pellets or nickel from joint ventures or unrelated parties and reselling it, which would increase our costs and narrow our operating margins. If we are unable to satisfy excess customer demand in this way, we may lose customers. In addition, operating close to full capacity may expose us to higher costs, including demurrage fees due to capacity restraints in our logistics systems.

Lower cash flows, resulting from decreased prices of our products, have adversely affected our credit ratings and the cost and availability of financing.

A continuous decrease in the prices of our products and the volatility in the global economy may adversely affect our future cash flows, credit ratings and ability to secure financing at attractive rates. Decreased prices have resulted in lower cash flows, which have also adversely affected our credit rating and our costs to access the capital markets. This may negatively affect our ability to fund our capital investments, pay dividends and comply with the financial covenants in some of our long-term debt instruments.

Also, certain Canadian provinces where we operate require us to provide financial assurances, such as letters of credit, surety bonds or cash collateral, to cover certain closure and remediation costs after we conclude our operations. We may be required to increase the amount of these financial assurances if our credit ratings are downgraded below certain levels. If we are unable to provide these financial assurances, we would need to have discussions with the relevant jurisdictions about other options and ultimately it could impact our ability to operate in these jurisdictions.

The failure of a tailings dam of Samarco Mineração S.A. ("Samarco") in Minas Gerais could negatively impact our business.

On November 5, 2015, one of Samarco's tailings dams (Fundão) failed unexpectedly, releasing muddy tailings downstream, reaching and flooding certain communities and causing environmental damage to the surrounding area. As a result of the failure of the Fundão tailings dam, our Alegria mine, located near the dam, is operating with a dry beneficiation process at a lower mine productivity, and a conveyor belt connecting our Fábrica Nova mine to our Timbopeba beneficiation plant was damaged, decreasing production at the Mariana mining complex in the Brazilian state of Minas Gerais. In addition, we have interrupted the sale of run of mine (ROM) from our Fazendão mine to Samarco. We are still exploring alternatives for these mines; however if we are unable to find adequate alternatives, this may negatively affect our overall production. See *Information on the Company–Business overview–Significant changes in our business–Failure of Samarco's tailings dam in Minas Gerais*.

We are involved in legal proceedings that could have a material adverse effect on our business in the event of unfavorable outcomes.

We are involved in legal proceedings in which adverse parties have claimed substantial amounts. These include several legal proceedings and investigations relating to the failure of Samarco's Fundão tailings dam. For additional information, see *Additional information–Legal proceedings*. Although we are vigorously contesting them, the outcomes of these proceedings are uncertain and may result in obligations that could materially adversely affect our business and the value of our securities.

Our obligations under a settlement agreement arising from the failure of Samarco's tailings dam could have a material impact on our financial condition.

Samarco and its shareholders, Vale and BHPB Brasil Ltda. ("BHPB"), a Brazilian subsidiary of BHP Billiton plc ("BHP Billiton"), entered into a settlement agreement on March 2, 2016 with governmental authorities, including the federal Attorney General of Brazil and the two Brazilian states affected by the failure (Espírito Santo and Minas Gerais). Under the agreement, Samarco, Vale and BHPB will create a foundation to develop and implement remediation and compensation programs in substantial amounts over many years. See *Information on the Company–Business overview–Significant changes in our business–Failure of Samarco's tailings dam in Minas Gerais*.

Samarco is currently unable to conduct ordinary mining and processing. Samarco's management is working on a plan that would permit it to resume operations, but the feasibility, timing and scope of restarting remain uncertain. If Samarco does not meet its funding obligations, each of Vale and BHPB is obligated to provide funding to the foundation in proportion to its 50% interest in Samarco. Vale does not currently expect to record a provision in its financial statements in respect of these obligations, but if Samarco is eventually unable to resume operations or to meet its funding obligations, Vale could determine that it should recognize a provision.

Regulatory, political, economic and social conditions in the countries in which we have operations or projects could adversely impact our business and the market price of our securities.

Our financial performance may be negatively affected by regulatory, political, economic and social conditions in countries in which we have significant operations or projects.

In many of these jurisdictions, we are exposed to various risks such as potential renegotiation, nullification or forced modification of existing contracts and licenses, expropriation or nationalization of property, foreign exchange controls, changes in local laws, regulations and policies, political instability, bribery, extortion, corruption, civil strife, acts of war, guerilla activities, piracy in international shipping lanes and terrorism. We also face the risk of having to submit to the jurisdiction of a foreign court or arbitration panel or having to enforce a judgment against a sovereign nation within its own territory.

Actual or potential political or social changes and changes in economic policy may undermine investor confidence, which may hamper investment and thereby reduce economic growth, and otherwise may adversely affect the economic and other conditions under which we operate in ways that could have a materially negative effect on our business.

Political and economic instability in Brazil could adversely impact our business and the market price of our securities.

The Brazilian federal government's economic policies may have important effects on Brazilian companies, including us, and on market conditions and prices of Brazilian securities. Our financial condition and results of operations may be adversely affected by the following factors and the Brazilian federal government's response to these factors:

- exchange rate movements and volatility;
- inflation and high interest rates;
- financing of the current account deficit;
- liquidity of domestic capital and lending markets;
- tax policy;
- political instability resulting from allegations of corruption involving political parties, elected officials or other public officials; and
- other political, diplomatic, social and economic developments in or affecting Brazil.

Historically, the country's political situation has influenced the performance of the Brazilian economy, and political crises have affected the confidence of investors and the general public, which resulted in economic deceleration and heightened volatility in the securities issued abroad by Brazilian companies. Ongoing corruption investigations have led to charges against public officials and members of several political parties. Political instability may aggravate economic uncertainties in Brazil and increase volatility in the Brazilian securities markets and securities issued by Brazilian issuers.

In 2015, Brazil faced an economic recession, adverse fiscal developments and political instability, which have continued in 2016. Brazilian GDP declined by 3.85% in 2015 and unemployment increased to 6.9% in 2015 from 4.3% 2014. Inflation for the year of 2015 was 10.67% (as reported by IBGE, the Brazilian Institute of Geography and Statistics), as compared to 6.41% in 2014. The Brazilian Central Bank's base interest rate (SELIC) increased to 14.25% in December 31, 2015 from 11.75% in December 31, 2014. Future economic, social and political developments in Brazil may impair our business, financial condition or results of operations, or cause the market value of our securities to decline.

Disagreements with local communities in which we operate could adversely impact our business and reputation.

Disputes with communities where we operate may arise from time to time. In some instances, our operations and mineral reserves are located on or near lands owned or used by indigenous people or other groups of stakeholders. Some of these indigenous peoples may have rights to review or participate in natural resource management. Some of our mining and other operations are located in territories where title may be subject to disputes or uncertainties, or in areas claimed for agriculture or land reform purposes, which may lead to disagreements with landowners, local communities and the government. We may be required to consult and negotiate with these groups as part of the process to obtain licenses required to operate, to mitigate impact on our operations or to obtain access to their lands.

Disagreements or disputes with local groups, including indigenous groups, could cause delays or interruptions to our operations, adversely affect our reputation or otherwise hamper our ability to develop our reserves and conduct our operations. Protesters have taken actions to disrupt our operations and projects, and they may continue to do so in the future, which may harm our operations and could adversely affect our business. As one of Samarco's shareholders, our reputation, particularly in the affected communities, has been adversely affected by the failure of Samarco's tailings dam in 2015. See *Information on the Company—Business overview—Significant changes in our business—Failure of Samarco's tailings dam in Minas Gerais*.

We could be adversely affected by changes in government policies or trends such as resource nationalism, including the imposition of new taxes or royalties on mining activities.

Mining is subject to government regulation, including taxes and royalties, which can have a significant financial impact on our operations. In the countries where we are present, governments may impose new taxes, raise existing taxes and royalty rates, reduce tax exemptions and benefits, request or force renegotiation of tax stabilization agreements or change the basis on which taxes are calculated in a manner that is unfavorable to us. Governments that have committed to provide a stable taxation or regulatory environment may alter those commitments or shorten their duration.

We are also required to meet domestic beneficiation requirements in certain countries in which we operate, such as local processing rules, export taxes or restrictions or charges on unprocessed ores. The imposition of or increase in such requirements, taxes or charges can significantly increase the risk profile and costs of operations in those jurisdictions. We and the mining industry are subject to rising trends of resource nationalism in certain countries in which we operate that can result in constraints on our operations, increased taxation or even expropriations and nationalizations.

Concessions, authorizations, licenses and permits are subject to expiration, limitation on renewal and various other risks and uncertainties.

Our operations depend on authorizations and concessions from governmental regulatory agencies in the countries in which we operate. We are subject to laws and regulations in many jurisdictions that can change at any time, and changes in laws and regulations may require modifications to our technologies and operations and result in unanticipated capital expenditures.

Some of our mining concessions are subject to fixed expiration dates and might only be renewed a limited number of times for a limited period of time. Apart from mining concessions, we may need to obtain various authorizations, licenses and permits from governmental or other regulatory bodies in connection with the planning, maintenance, operation and closure of our mines and related logistics infrastructure, which may be subject to fixed expiration dates or periodic review or renewal. While we anticipate that renewals will be given as and when sought, there is no assurance that such renewals will be granted as a matter of course and on a timely basis, and there is no assurance that new conditions will not be imposed in connection with renewal. Fees for mining concessions might increase substantially due to the passage of time from the original issuance of each individual exploration license. If so, the costs of holding or renewing our mining concessions might impede our business objectives. Accordingly, we need to continually assess the mineral potential of each mining concession, particularly at the time of renewal, to determine if the costs of maintaining the concession are justified by the results of operations to date, and we might elect to let some of our concessions lapse. There can be no assurance that concessions will be obtained on terms favorable to us, or at all, for our future intended mining or exploration targets.

In a number of jurisdictions where we have exploration projects, we may be required to retrocede to the state a certain portion of the area covered by the exploration license as a condition to renewing the license or obtaining a mining concession. This requirement can lead to a substantial loss of part of the mineral deposit originally identified in our feasibility studies. For more information on mining concessions and other similar rights, see *Information on the Company—Regulatory matters*.

After the failure of Samarco's Fundão tailings dam at its iron ore operations in the Brazilian state of Minas Gerais, Brazilian authorities ordered the suspension of its operations in Minas Gerais and other measures. See *Information on the Company—Business overview—Significant changes in our business—Failure of Samarco's tailings dam in Minas Gerais*.

Our projects are subject to risks that may result in increased costs or delay in their implementation.

We are investing to maintain and further increase our production capacity and logistics capabilities and to expand the scope of the minerals we produce. We regularly review the economic viability of our projects. As a result of this review, we may decide to postpone, suspend or interrupt the implementation of certain projects. Our projects are also subject to a number of risks that may adversely affect our growth prospects and profitability, including the following:

- We may encounter delays or higher than expected costs in obtaining the necessary equipment or services and in implementing new technologies to build and operate a project.
- Our efforts to develop projects on schedule may be hampered by a lack of infrastructure, including reliable telecommunications services and power supply.
- Suppliers and contractors may fail to meet their contractual obligations to us.
- We may face unexpected weather conditions or other *force majeure* events.
- We may fail to obtain the required permits and licenses to build a project, or we may experience delays or higher than expected costs in obtaining them.
- Changes in market conditions or regulations may make a project less profitable than expected at the time we initiated work on it.
- There may be accidents or incidents during project implementation.
- We may face shortages of skilled personnel.

Operational problems could materially and adversely affect our business and financial performance.

Ineffective project management and operational breakdowns might require us to suspend or curtail operations, which could generally reduce our productivity. Operational breakdowns could entail failure of critical plant and machinery. There can be no assurance that ineffective project management or other operational problems will not occur. Any damages to our projects or delays in our operations caused by ineffective project management or operational breakdowns could materially and adversely affect our business and results of operations. Our business is subject to a number of operational risks that may adversely affect our results of operations, such as:

- Unexpected weather conditions or other *force majeure* events.
- Adverse mining conditions delaying or hampering our ability to produce the expected quantity of minerals and to meet specifications required by customers, which can trigger price adjustments.
- Accidents or incidents involving our mines and related infrastructure, such as dams, plants, railroads, ports and ships.
- Delays or interruptions in the transportation of our products, including with railroads, ports and ships.
- Tropical diseases, HIV/AIDS and other contagious diseases in regions where some of our operations or projects are located, which pose health and safety risks to our employees.
- Labor disputes that may disrupt our operations from time to time.
- Changes in market conditions or regulations may affect the economic prospects of an operation and make it inconsistent with our business strategy.
- Disruptions to or unavailability of critical information technology systems or services resulting from accidents or malicious acts.

Our business could be adversely affected by the failure of our counterparties to perform their obligations.

Customers, suppliers, contractors, financial institutions, joint venture partners and other counterparties may fail to perform existing contracts and obligations, which may unfavorably impact our operations and financial results. The ability of suppliers and customers to perform their obligations may be adversely affected in times of financial stress and economic downturn.

We currently operate important parts of our iron ore, pelletizing, bauxite, nickel, coal, copper, fertilizers and steel businesses through joint ventures. Important parts of our electricity investments and projects are operated through consortia or joint ventures. Our forecasts and plans for these joint ventures and consortia assume that our partners will observe their obligations to make capital contributions, purchase products and, in some cases, provide skilled and competent managerial personnel. If any of our partners fails to observe its commitments, the affected joint venture or consortium may not be able to operate in accordance with its business plans, or we may have to increase the level of our investment to implement these plans.

Some of our investments are controlled by joint venture partners or have separate and independent management. These investments may not fully comply with our standards, controls and procedures, including our health, safety, environment and community standards. Failure by any of our partners or joint ventures to adopt adequate standards, controls and procedures could lead to higher costs, reduced production or environmental, health and safety incidents or accidents, which could adversely affect our results and reputation.

Our business is subject to environmental, health and safety incidents.

Our operations involve the use, handling, storage, discharge and disposal of hazardous substances into the environment and the use of natural resources, and the mining industry is generally subject to significant risks and hazards, including fire, explosion, toxic gas leaks, spilling of polluting substances or other hazardous materials, rockfall incidents in mining operations and incidents involving mobile equipment or machinery. This could occur by accident or by breach of operating and maintenance standards, and could result in a significant environmental impact, damage to or destruction of mineral properties or production facilities, personal injury or death, environmental damage, delays in production, monetary losses and possible legal liability. Notwithstanding our standards, policies and controls, our operations remain subject to incidents or accidents that could adversely affect our business or reputation.

Our business may be adversely affected by environmental and health and safety regulation, including regulations pertaining to climate change.

Nearly all aspects of our activities, products, services and projects around the world are subject to environmental regulations and health and safety regulations, which may expose us to increased liability or increased costs. These regulations require us to obtain environmental licenses, permits and authorizations for our operations, and to conduct environmental and social impact assessments in order to get approval for our projects and permission for initiating construction. Significant changes to existing operations are also subject to these requirements. Difficulties in obtaining permits may lead to construction delays, cost increases, and may adversely impact our production volumes. Environmental and health and safety regulations also impose standards and controls on activities relating to mineral research, mining, pelletizing activities, railway and marine services, ports, decommissioning, refining, distribution and marketing of our products. Such regulation may give rise to significant costs and liabilities.

In addition, communities and other stakeholders may increase demands for socially responsible and environmentally sustainable practices, and their efforts may lead to the creation or revision of government regulations and policies, which could entail significant costs and reduce our profitability. Private litigation relating to these or other matters may adversely affect our financial condition or cause harm to our reputation.

Environmental and health and safety regulation in many countries in which we operate has become stricter in recent years, and it is possible that more regulation or more aggressive enforcement of existing regulations will adversely affect us by imposing restrictions on our activities and products, creating new requirements for the issuance or renewal of environmental licenses, raising our costs or requiring us to engage in expensive reclamation efforts. For example, changes in Brazilian legislation for the protection of caves have required us to conduct extensive technical studies and to negotiate compensatory measures with Brazilian environmental regulators in order to continue to operate in certain sites. It is possible that in certain of our iron ore mining operations or projects, we may be required to limit or modify our mining plans or to incur additional costs to preserve caves or to compensate for the impact on them, with potential consequences for production volumes, costs or reserves in our iron ore business. For more information about Brazilian environmental regulations related to caves, see *Information on the Company—Regulatory matters—Environmental regulations*.

In response to the failure of Samarco's tailings dam in Minas Gerais, additional environmental and health and safety laws and regulations may be forthcoming in Brazil and authorities may impose more stringent conditions in connection with the licensing process of our projects and operations. Also, we may encounter delays in the receipt of environmental operating license for other tailings dams.

National policies and international regulations regarding climate change may affect a number of our businesses in different countries, because we operate worldwide. For example, there is legislation in many countries where we operate that limits greenhouse gas emissions from the mining industry. There is increased pressure from international organizations for establishing a global carbon price, and for companies and governments to adopt carbon pricing strategies, which may adversely affect the coal business.

Regulatory initiatives at the national and international levels that affect our shipping practices could increase our costs or require us to make new capital expenditures.

Natural disasters may cause severe damage to our operations and projects in the countries where we operate and may have a negative impact on our sales to countries adversely affected by such disasters.

Natural disasters, such as wind storms, droughts, floods, earthquakes and tsunamis may adversely affect our operations and projects in the countries where we operate, and may cause a contraction in sales to countries adversely affected due to, among other factors, power outages and the destruction of industrial facilities and infrastructure. The physical impact of climate change on our business remains highly uncertain, but we may experience changes in rainfall patterns, water shortages, rising sea levels, increased storm intensity and flooding as a result of climate change, which may adversely affect our operations. On some occasions in recent years, we have determined that *force majeure* events have occurred due to effect of severe weather on our mining and logistics activities.

We may not have adequate insurance coverage for some business risks.

Our businesses are generally subject to a number of risks and hazards, which could result in damage to, or destruction of, properties, facilities and equipment. The insurance we maintain against risks that are typical in our business may not provide adequate coverage. Insurance against some risks (including liabilities for environmental pollution or certain hazards or interruption of certain business activities) may not be available at a reasonable cost, or at all. Even when it is available, we may self-insure where we determine that is more cost-effective to do so. As a result, accidents or other negative developments involving our mining, production or transportation facilities could have a material adverse effect on our operations.

Our reserve estimates may materially differ from mineral quantities that we are actually able to recover; our estimates of mine life may prove inaccurate; and market price fluctuations and changes in operating and capital costs may render certain ore reserves uneconomical to mine.

Our reported reserves are estimated quantities of ore and minerals that we have determined can be economically mined and processed under present and assumed future conditions. There are numerous uncertainties inherent in estimating quantities of reserves and in projecting potential future rates of mineral production, including factors beyond our control. Reserve reporting involves estimating deposits of minerals that cannot be measured in an exact manner, and the accuracy of any reserve estimate is a function of the quality of available data, engineering and geological interpretation and judgment. As a result, no assurance can be given that the indicated amount of ore will be recovered or that it will be recovered at the rates we anticipate. Reserve estimates and estimates of mine life may require revisions based on actual production experience, projects and other factors. For example, lower market prices of minerals and metals, reduced recovery rates or increased operating and capital costs due to inflation, exchange rates, changes in regulatory requirements or other factors may render proven and probable reserves uneconomic to exploit and may ultimately result in a restatement of reserves. Such a restatement could affect depreciation and amortization rates and have an adverse effect on our financial performance.

We may not be able to replenish our reserves, which could adversely affect our mining prospects.

We engage in mineral exploration, which is highly uncertain in nature, involves many risks and frequently is non-productive. Our exploration programs, which involve significant expenditures, may fail to result in the expansion or replacement of reserves depleted by current production. If we do not develop new reserves, we will not be able to sustain our current level of production beyond the remaining lives of our existing mines.

The feasibility of new mineral projects may change over time.

Once mineral deposits are discovered, it can take a number of years from the initial phases of drilling until production is possible, during which the economic feasibility of production may change. Substantial time and expenditures are required to:

- establish mineral reserves through drilling;
- determine appropriate mining and metallurgical processes for optimizing the recovery of metal contained in ore;
- obtain environmental and other licenses;
- construct mining, processing facilities and infrastructure required for greenfield properties; and
- obtain the ore or extract the minerals from the ore.

If a project proves not to be economically feasible by the time we are able to exploit it, we may incur substantial losses and be obliged to take write-downs. In addition, potential changes or complications involving metallurgical and other technological processes arising during the life of a project may result in delays and cost overruns that may render the project not economically feasible.

We face rising extraction costs or investment requirements over time as reserves deplete.

Reserves are gradually depleted in the ordinary course of a given open pit or underground mining operation. As mining progresses, distances to the primary crusher and to waste deposits become longer, pits become steeper, mines may move from being open pit to underground, and underground operations become deeper. In addition, for some types of reserves, mineralization grade decreases and hardness increases at greater depths. As a result, over time, we usually experience rising unit extraction costs with respect to each mine, or we may need to make additional investments, including adaptation or construction of processing plants and expansion or construction of tailings dams. Several of our mines have been operating for long periods, and we will likely experience rising extraction costs per unit in the future at these operations in particular.

Labor disputes may disrupt our operations from time to time.

A substantial number of our employees, and some of the employees of our subcontractors, are represented by labor unions and are covered by collective bargaining or other labor agreements, which are subject to periodic negotiation. Strikes and other labor disruptions at any of our operations could adversely affect the operation of facilities and the timing of completion and cost of our capital projects. For more information about labor relations, see *Management and employees –Employees*. Moreover, we could be adversely affected by labor disruptions involving unrelated parties that may provide us with goods or services.

Higher energy costs or energy shortages would adversely affect our business.

Energy costs are a significant component of our cost of production, representing 9.1% of our total cost of goods sold in 2015. To fulfill our energy needs, we depend on the following sources: oil by-products, which represented 43% of total energy needs in 2015, electricity (26%), natural gas (16%), coal (13%) and other energy sources (2%).

Electricity costs represented 2.8% of our total cost of goods sold in 2015. If we are unable to secure reliable access to electricity at acceptable prices, we may be forced to curtail production or may experience higher production costs, either of which would adversely affect our results of operations. We face the risk of energy shortages in the countries where we have operations and projects, especially Brazil, due to lack of infrastructure or weather conditions, such as floods or droughts. Future shortages, and government efforts to respond to or prevent shortages, may adversely impact the cost or supply of electricity for our operations.

Price volatility—relative to the U.S. dollar—of the currencies in which we conduct operations could adversely affect our financial condition and results of operations.

A substantial portion of our revenues and our debt is denominated in U.S. dollars, and changes in exchange rates may result in (i) losses or gains on our net U.S. dollar-denominated indebtedness and accounts receivable and (ii) fair value losses or gains on currency derivatives we use to stabilize our cash flow in U.S. dollars. In 2015, 2014 and 2013 we had foreign exchange losses of US\$7.2 billion, US\$2.1 billion and US\$2.8 billion, respectively. In addition, the price volatility of the Brazilian *real*, the Canadian dollar, the Australian dollar, the Indonesian rupiah and other currencies against the U.S. dollar affects our results since most of our costs of goods sold are denominated in currencies other than the U.S. dollar, principally the *real* (49% in 2015) and the Canadian dollar (13% in 2015), while our revenues are mostly U.S. dollar-denominated. We expect currency fluctuations to continue to affect our financial income, expense and cash flow generation.

Significant volatility in currency prices may also result in disruption of foreign exchange markets, which could limit our ability to transfer or to convert certain currencies into U.S. dollars and other currencies for the purpose of making timely payments of interest and principal on our indebtedness. The central banks and governments of the countries in which we operate may institute restrictive exchange rate policies in the future and impose taxes on foreign exchange transactions.

Failures in our information technology systems or difficulties in integrating new enterprise resource planning software may interfere with the normal functioning of our business.

We rely on information technology ("IT") systems for the operation of many of our business processes. Failures in our IT systems, whether caused by accident or malicious acts, may result in the disclosure or theft of sensible information, misappropriation of funds and disruptions to our business operations.

Risks relating to our corporate structure

Our controlling shareholder has significant influence over Vale, and the Brazilian government has certain veto rights.

As of February 29, 2016, Valepar S.A. ("Valepar") owned 53.9% of our outstanding common stock and 33.7% of our total outstanding capital. As a result of its share ownership, Valepar can elect the majority of our board of directors and control the outcome of some actions that require shareholder approval. For a description of our ownership structure and of the Valepar shareholders' agreement, see *Share ownership and trading—Major shareholders*.

The Brazilian government owns 12 golden shares of Vale, granting it limited veto power over certain company actions, such as changes to our name, the location of our headquarters and our corporate purpose as it relates to mining activities. For a detailed description of the Brazilian government's veto powers, see *Additional information—Memorandum and articles of association—Common shares and preferred shares*.

Our governance and compliance processes may fail to prevent regulatory penalties and reputational harm.

We operate in a global environment, and our activities extend over multiple jurisdictions and complex regulatory frameworks with increased enforcement activities worldwide. Our governance and compliance processes, which include the review of internal control over financial reporting, may not prevent future breaches of legal, accounting or governance standards. We may be subject to breaches of our Code of Ethics and Conduct, anti-corruption policies and business conduct protocols and to instances of fraudulent behavior, corrupt practices and dishonesty by our employees, contractors or other agents. Our failure to comply with applicable laws and other standards could subject us to fines, loss of operating licenses and reputational harm.

It could be difficult for investors to enforce any judgment obtained outside Brazil against us or any of our associates.

Our investors may be located in jurisdictions outside Brazil and could seek to bring actions against us or our directors or officers in the courts of their home jurisdictions. The Company is a Brazilian company, and the majority of our officers and directors are residents of Brazil. The vast majority of our assets and the assets of our officers and directors are likely to be located in jurisdictions other than the home jurisdictions of our investors. It might not be possible for investors to effect service of process within their home jurisdictions on us or on our officers or directors who reside outside their home jurisdictions. In addition, a foreign judgment will be enforceable in the courts of Brazil without a re-examination of the merits only if previously confirmed by the Brazilian Superior Court of Justice (*Superior Tribunal de Justiça*), and confirmation will only be granted if the judgment: (a) fulfills all formalities required for its enforceability under the laws of the country where it was issued; (b) was issued by a competent court after due service of process on the defendant, as required under applicable law; (c) was authenticated by a Brazilian consulate in the country in which it was issued and is accompanied by a sworn translation into the Portuguese language; and (d) is not contrary to Brazilian national sovereignty, public policy or good morals. Therefore, investors might not be able to recover against us or our directors and officers on judgments of the courts of their home jurisdictions predicated upon the laws of such jurisdictions.

Risks relating to our depositary shares

If ADR holders or HDR holders exchange ADSs or HDSs, respectively, for the underlying shares, they risk losing the ability to remit foreign currency abroad.

The custodian for the shares underlying our ADSs and HDSs maintains a registration with the Central Bank of Brazil entitling it to remit U.S. dollars outside Brazil for payments of dividends and other distributions relating to the shares underlying our ADSs and HDSs or upon the disposition of the underlying shares. If an ADR holder or HDR holder exchanges its ADSs or HDSs for the underlying shares, it will be entitled to rely on the custodian's registration for only five business days from the date of exchange. Thereafter, an ADR holder or HDR holder may not be able to obtain and remit foreign currency abroad upon the disposition of, or distributions relating to, the underlying shares unless it obtains its own registration under applicable regulation, which permits qualifying institutional foreign investors to buy and sell securities on the BM&FBOVESPA. For more information regarding these exchange controls, see *Additional information—Exchange controls and other limitations affecting security holders*. If an ADR holder or HDR holder attempts to obtain its own registration, it may incur expenses or suffer delays in the application process, which could delay the receipt of dividends or other distributions relating to the underlying shares or the return of capital in a timely manner.

The custodian's registration or any registration obtained could be affected by future legislative changes, and additional restrictions applicable to ADR holders or HDR holders, the disposition of the underlying shares or the repatriation of the proceeds from disposition could be imposed in the future.

ADR holders and HDR holders may be unable to exercise preemptive rights relating to the shares underlying their ADSs and HDSs.

The ability of ADR holders and HDR holders to exercise preemptive rights is not assured, particularly if the applicable law in the holder's jurisdiction (for example, the Securities Act in the United States or the Companies Ordinance in Hong Kong) requires that either a registration statement be effective or an exemption from registration be available with respect to those rights, as is in the case in the United States, or that any document offering preemptive rights be registered as a prospectus, as is the case in Hong Kong. We are not obligated to extend the offer of preemptive rights to holders of ADRs or HDRs, to file a registration statement in the United States, or to make any other similar filing in any other jurisdiction, relating to preemptive rights or to undertake steps that may be needed to make exemptions from registration available, and we cannot assure holders that we will file any registration statement or take such steps.

ADR holders and HDR holders may encounter difficulties in the exercise of voting rights.

ADR holders and HDR holders do not have the rights of shareholders. They have only the contractual rights set forth for their benefit under the deposit agreements. ADR holders and HDR holders are not permitted to attend shareholders' meetings, and they may only vote by providing instructions to the depositary. In practice, the ability of a holder of ADRs or HDRs to instruct the depositary as to voting will depend on the timing and procedures for providing instructions to the depositary either directly or through the holder's custodian and clearing system. With respect to ADSs for which instructions are not received, the depositary may, subject to certain limitations, grant a proxy to a person designated by us.

The legal protections for holders of our securities differ from one jurisdiction to another and may be inconsistent, unfamiliar or less effective than investors anticipate.

We are a global company with securities traded in several different markets and investors located in many different countries. The legal regime for the protection of investors varies around the world, sometimes in important ways, and investors in our securities should recognize that the protections and remedies available to them may be different from those to which they are accustomed in their home markets. We are subject to securities legislation in several countries, which have different rules, supervision and enforcement practices. The only corporate law applicable to our parent company is the law of Brazil, with its specific substantive rules and judicial procedures. We are subject to corporate governance rules in several jurisdictions where our securities are listed, but as a foreign private issuer, we are not required to follow many of the corporate governance rules that apply to U.S. domestic issuers with securities listed on the New York Stock Exchange, and we are not subject to the U.S. proxy rules. Similarly, we have been granted waivers and exemptions from certain requirements of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited ("HKEx Listing Rules"), the Codes on Takeovers and Mergers and Share Repurchases and the Securities and Futures Ordinance of Hong Kong that are generally applicable to issuers listed in Hong Kong.

SELECTED FINANCIAL DATA

The tables below present selected consolidated financial information as of and for the periods indicated. You should read this information together with our consolidated financial statements in this annual report.

Consolidated statement of income data

	For the year ended December 31,				
	2011	2012	2013	2014	2015
	(US\$ million)				
Net operating revenues	60,875	46,553	46,767	37,539	25,609
Cost of products and services	(24,528)	(25,390)	(24,245)	(25,064)	(20,513)
Selling, general and administrative expenses	(2,271)	(2,172)	(1,302)	(1,099)	(652)
Research and evaluation expenses	(1,671)	(1,465)	(801)	(734)	(477)
Pre-operating and operational stoppage and other operating expenses, net	(2,775)	(3,588)	(2,843)	(2,145)	(1,233)
Impairment of non-current assets and onerous contracts	-	(4,023)	(2,290)	(1,152)	(8,926)
Gain (loss) on measurement or sales of non-current assets	1,494	(506)	(215)	(167)	61
Operating income	30,324	9,409	15,063	7,178	(6,131)
Non-operating income (expenses):					
Financial income (expenses), net	(3,549)	(4,022)	(8,332)	(6,069)	(10,801)
Equity results in associates and joint controlled entities	1,138	645	469	505	(439)
Results on sale of investments from associates and joint ventures	-	-	41	(30)	97
Impairment on investments	-	(1,941)	-	(31)	(446)
Income (loss) before income taxes	27,913	4,091	7,241	1,553	(17,720)
Income taxes	(5,265)	1,174	(6,833)	(1,200)	5,100
Income (loss) from continuing operations	22,648	5,265	408	353	(12,620)
Income (loss) attributable to non-controlling interests	(233)	(257)	(178)	(304)	(491)
Net income (loss) attributable to Company's shareholders, from continuing operations	22,881	5,522	586	657	(12,129)
Loss from discontinued operations, net of tax	(86)	(68)	(2)	-	-
Net income (loss) attributable to Company's shareholders	22,795	5,454	584	657	(12,129)
Income (loss) attributable to non-controlling interests	(233)	(257)	(178)	(304)	(491)
Net income (loss)	22,562	5,197	406	353	(12,620)
Total cash paid to shareholders(1)	0,000	6,000	4,500	4,200	1,500

(1) Consists of total cash paid to shareholders during the period, whether classified as dividends or interest on shareholders' equity.

Earnings per share

	For the year ended December 31,				
	2011	2012	2013	2014	2015
	(US\$, except as noted)				
Earnings (loss) per share:					
Per common share	4.34	1.06	0.11	0.13	(2.35)
Per preferred share	4.34	1.06	0.11	0.13	(2.35)
Weighted average number of shares outstanding (in thousands)(1):					
Common shares	3,197,063	3,172,179	3,185,653	3,185,653	3,185,653
Preferred shares	1,984,030	1,933,491	1,967,722	1,967,722	1,967,722
Treasury common shares underlying convertible notes	18,416	-	-	-	-
Treasury preferred shares underlying convertible notes	47,285	-	-	-	-
Total	5,246,794	5,105,670	5,153,375	5,153,375	5,153,375
Distributions to shareholders per share(2):					
Expressed in US\$	1.74	1.17	0.87	0.81	0.29
Expressed in R\$	2.89	2.26	1.81	1.89	0.98

(1) Each common ADS represents one common share and each preferred ADS represents one preferred share.

(2) Our distributions to shareholders may be classified as either dividends or interest on shareholders' equity. In many years, part of each distribution has been classified as interest on shareholders' equity and part has been classified as dividends. For information about distributions paid to shareholders, see *Share ownership and trading-Distributions*.

Balance sheet data

	At December 31,				
	2011	2012	2013 (US\$ million)	2014	2015
Current assets	21,538	22,069	20,611	16,594	11,429
Property, plant and equipment, net and intangible assets	91,863	94,093	88,536	84,942	59,426
Investments in associated companies and joint ventures	8,613	6,384	3,584	4,133	2,940
Other assets	5,502	8,031	11,866	10,820	14,697
Total assets	126,916	130,577	124,597	116,489	88,492
Current liabilities	11,093	12,402	9,164	10,626	10,438
Liabilities associated with assets held for sale and discontinued operations	-	169	448	111	107
Long-term liabilities(1)	16,470	16,380	22,379	22,043	15,896
Long-term debt(2)	21,538	26,799	27,670	27,388	26,347
Total liabilities	49,101	55,750	59,661	60,168	52,788
Shareholders' equity:					
Capital stock	60,578	60,578	60,578	61,614	61,614
Additional paid-in capital	7	(552)	(552)	(601)	(854)
Mandatorily convertible notes-common ADSs	191	-	-	-	-
Mandatorily convertible notes-preferred ADSs	422	-	-	-	-
Retained earnings and revenue reserves	14,902	13,213	3,299	(5,891)	(27,171)
Total Company shareholders' equity	76,100	73,239	63,325	55,122	33,589
Non-controlling interests	1,715	1,588	1,611	1,199	2,115
Total shareholders' equity	77,815	74,827	64,936	56,321	35,704
Total liabilities and shareholders' equity	126,916	130,577	124,597	116,489	88,492

(1) Excludes long-term debt.

(2) Excludes current portion of long-term debt.

I. INFORMATION ON THE COMPANY

BUSINESS OVERVIEW

Summary

We are one of the largest metals and mining companies in the world, based on market capitalization. We are the world's largest producer of iron ore and iron ore pellets and the world's largest producer of nickel. We also produce manganese ore, ferroalloys, metallurgical and thermal coal, copper, platinum group metals ("PGMs"), gold, silver, cobalt, potash, phosphates and other fertilizer nutrients. We are engaged in greenfield mineral exploration in six countries around the globe. We operate large logistics systems in Brazil and other regions of the world, including railroads, maritime terminals and ports, which are integrated with our mining operations. In addition, we have a portfolio of maritime freight assets, floating transfer stations and distribution centers to support the distribution of iron ore worldwide. Directly and through affiliates and joint ventures, we also have investments in energy and steel businesses.

The following table presents the breakdown of total net operating revenues attributable to each of our main lines of business.

	Year ended December 31,					
	2013		2014		2015	
	US\$ million	% of total	US\$ million	% of total	US\$ million	% of total
Ferrous minerals:						
Iron ore	27,844	59.6%	19,301	51.4%	12,330	48.2%
Iron ore pellets	6,000	12.8	5,263	14.0	3,600	14.1
Manganese and ferroalloys	523	1.1	392	1.0	162	0.6
Other ferrous products and services	425	0.9	741	2.0	470	1.8
Subtotal-ferrous minerals	34,792	74.4	25,697	68.4	16,562	64.7
Coal	1,010	2.2	739	2.0	526	2.0
Base metals:						
Nickel and other products(1)	5,839	12.5	6,241	16.6	4,693	18.3
Copper(2)	1,447	3.1	1,451	3.9	1,470	5.8
Subtotal-base metals	7,286	15.6	7,692	20.5	6,163	24.1
Fertilizer nutrients	2,814	6.0	2,415	6.4	2,225	8.7
Other(3)	865	1.8	996	2.7	133	0.5
Total net operating revenues from continued operations	46,767	100.0%	37,539	100.0%	25,609	100.0%

(1) Includes nickel co-products (copper) and by-products (precious metals, cobalt and others).

(2) Does not include copper produced as a nickel co-product.

(3) Includes pig iron and energy.