Vale’s iron ore briquettes

VALE’S PERFORMANCE IN 3Q21

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Vale's 3Q21 performance

Rio de Janeiro, October 28th, 2021 – "In this third quarter, our iron ore production was close to 90 million tons, with meaningful progress in the operational resumption of the Vargem Grande Complex. We continue to work towards improving operational reliability, especially in the Base Metals business. Our cash generation remains robust, surpassing last quarter by 18%, a pace that allowed the payment of historic dividends in 2021. We now announce a new buyback program, which demonstrates our confidence in Vale's potential. By maintaining our value-over-volume strategy and optimizing costs, we will continue to create and share value with our shareholders.", commented Eduardo Bartolomeo, Chief Executive Officer.

In 3Q21, Vale reported a proforma adjusted EBITDA of US$ 7.109 billion, US$ 4.130 billion lower than 2Q21, mainly due to lower revenues in Ferrous Minerals and Base Metals business, following the lower iron ore realized prices and the lower nickel byproducts revenues, the later impacted by the labor disruption in Sudbury. Cash generation in the quarter reached US$ 7.765 billion, US$ 1.238 billion higher than 2Q21.

Reparation of Brumadinho

The compensation and reparation currently reach over 11,400 people through individual and labor indemnification agreements, with a total of R$ 2.7 billion committed, out of which R$ 2.5 already paid[1].

We are also evolving and working with the authorities on the implementation of the Integral Reparation Agreement. Up to September, we paid R$ 3.9 billion in relation to our commitments, such as the water safety program and the first instalments in the urban mobility and reinforcement of public service programs. For 4Q21 we expect to pay approximately R$ 9.2 billion, out of which R$ 4.4 billion related to the income transfer program.

For further details on the reparation progress, an overview of ongoing works and projects, and the terms of the Integral Reparation Agreement, please visit www.vale.com/esg.

Advancements in the ESG agenda

In September, we relinquished all our mineral rights in Indigenous Lands in Brazil, which includes applications for exploration permits and mining concessions. Between 2020 and 2021, Vale relinquished 104 mining processes interfering with Indigenous Lands in Brazil.

We believe that mining activities in Indigenous Lands in Brazil can only be carried out through Free, Prior and Informed Consent (FPIC) of the indigenous people themselves.

In 3Q21, we also made concrete progress in our Climate Agenda.

- In July, the first large ore carrier equipped with rotor sails arrived at the Tubarão port. The system will allow an energy efficiency increase of up to 8% per vessel per year.

[1] Includes agreements signed by affected people, including those pending court verifications, and paid and payable amounts as of October 21, 2021.

- In August, the first ore carrier with air-lubrication technology, which we estimate could reduce fuel consumption by around 5 to 8%, arrived at Ponta da Madeira port, and we announced our partnership with Ternium to develop solutions to decarbonize the steel industry.
- In September, we announced the iron ore briquette, a new product, developed by the company over almost 20 years, which is able to reduce by up to 10%[2] of the greenhouse gases (GHG) emissions in the steel production (Vale's scope 3) and is 80% less intensive than pelletizing process (Vale's scope 1 and 2).

Increasing transparency about Vale's resilience to climate change risks and opportunities and also further detailing our climate-related commitments, Vale released in October 2021 its Climate Change Report, which followed guidelines provided by the Task Force on Climate-Related Financial Disclosures (TCFD).

In the Diversity & Inclusion front, the company also released a dedicated report on the subject, which introduces our initiatives and progress, challenges and opportunities in this long journey.

We invite you to access both reports, as well as further information on our ESG initiatives and practices, at www.vale.com/esg.

Capacity resumption and value-over-volume in iron ore

We remain committed to our capacity resumption plan, which is associated with eliminating restrictions, optimizing costs and focusing on margin preservation. In this sense, in 3Q21, we had some significant achievements:

- In the Vargem Grande complex, we started the Maravilhas III dam operation and the long-distance conveyor belt commissioning. At the end of commissioning, an increase of 6 Mtpy is expected in the production capacity of the site.
- In the Fábrica site, we reached full capacity after the resumption of beneficiation plants in 2Q21.
- In the Mariana complex, we received the Regional Superintendence of Labor (SRT) authorization to resume regular operation of the Vitória a Minas Railroad (EFVM) on the Fábrica Nova branch, improving the logistics of the production from the Timbopeba plant.

An essential feature of our value chain is the capacity to adapt our production and sales strategy according to market conditions, therefore prioritizing value over volume. We actively take market opportunities to manage our portfolio of products, logistics and inventories, supplying clients under any market condition. Such is the case of the high-silica low-margin products, which we will reduce its offer by 4Mt for the fourth quarter this year after the strong price correction that happened in 3Q21, adjusting for the softer demand we are seeing for this product. If this scenario persists, we should also reduce the offer of low-margin products in 2022 by around 12-15 Mt.

For additional information on Vale's production in 3Q21, please see our Production and Sales report published on October 19, 2021 here.

[2] Iron ore briquettes can replace sinter and thus allow a reduction of over 10% in carbon emissions in the BF-BOF steelmaking route.

An eventful quarter in Base Metals

In August, Vale has concluded a new five-year collective bargaining agreement with the United Steelworkers Local 6500, ending the labor disruption that began in June and affected production in Sudbury of nickel and its byproducts and of which impacts we will discuss in this report.

In September, we had an incident in the shaft of Totten mine, Sudbury, while moving mining equipment, rendering it inoperant. The rescue team safely brought to the surface the thirty-nine underground employees through a system of secondary ladders as part of the emergency plans and procedures. The scoop bucket that blocked the shaft has been removed and we continue with the investigation of the incident. Production is currently halted at the site.

In October, a fire partially affected the conveyor belt at Salobo mine, with no injuries and no environmental damage. Operation and production at the site have resumed after being halted for 18 days.

Also, in October, Onça Puma mine operation was halted for a total of 13 days, following the suspension of the operating license by the Environmental and Sustainability office of the Pará State (Secretaria de Estado de Meio Ambiente e Sustentabilidade, SEMAS). Vale resumed the activities at the Onça Puma nickel mine after the reestablishment of the operating license, following a decision by the Minister President of the Superior Court of Justice to suspend the effects of previous decision rendered in the process.

Sharing value creation

Cash generation in 3Q21 reached US$ 7.765 billion, US$ 1.238 billion higher than 2Q21, following the collection of the accounts receivable built in the record proforma EBITDA of 2Q21.

In September, we distributed a dividend of approximately US$ 7.4 billion based on the results of the first half of 2021. Considering the dividends distributed in March and June, US$ 13.5 billion has been returned directly to shareholders.

In continuity with the concluding 270 million shares buyback, the Board of Directors approved a new share buyback program of up to 200 million shares, equivalent to 4.1% of the currently outstanding shares of the company. The new program reflects the confidence of the company's management in Vale's potential to create and share value in a consistent way.

Vale's performance 3Q21

In 3Q21, Vale reported a proforma adjusted EBITDA of US$ 7.109 billion, US$ 4.130 billion lower than 2Q21.

Proforma EBITDA 3Q21 vs. 2Q21

[1] Net of Brumadinho expenses and COVID-19 donations

The main drivers of the difference of 3Q21 performance in comparison to 2Q21 were:

- Ferrous Minerals lower realized sales prices (US$ 3.891 billion), mainly due to the declining trend of the iron ore fines price throughout the quarter and pricing mechanisms effect, which take into consideration the difference between provisional and final prices, lagged prices and forward curves.
- Base Metals lower realized prices, mostly impacted by lower nickel byproducts revenues due to the labor disruptions in Sudbury (US$ 379 million).
- Higher unit costs and expenses, mainly due to Ferrous Minerals' higher freight costs (US$ 159 million), affected by higher bunker oil and spot freight prices.

The higher sales volumes in Ferrous Minerals and Coal business partially offset the adverse effects.

Selected financial indicators

US$ million	3Q21	2Q21	3Q20
Net operating revenues	12,682	16,675	10,762
Total costs and other expenses	6,288	6,344	5,349
Expenses related to Brumadinho	161	185	114
Adjusted EBIT	6,238	10,189	5,321
Adjusted EBIT margin (%)	49%	61%	49%
Adjusted EBITDA	6,938	11,038	6,095
Adjusted EBITDA margin (%)	55%	66%	57%
Proforma adjusted EBITDA[1]	7,109	11,239	6,224
Iron ore - 62% Fe reference price	162.9	200.0	118.2
Net income	3,886	7,586	2,908
Net debt [2]	2,207	(738)	6,095
Capital expenditures[3]	1,248	1,139	895

[1] Excluding expenses related to Brumadinho and donations associated with COVID-19.

[2] Including leases (IFRS 16).

[3] Including recoverable taxes in 3Q20 (US$ 23 million)

US$ million	9M21	9M20	%
Net operating revenues	42,002	25,249	66%
Total costs and other expenses	17,621	15,068	17%
Expenses related to Brumadinho	461	403	14%
Adjusted EBIT	24,046	9,952	142%
Adjusted EBIT margin (%)	57%	39%	18%
Adjusted EBITDA	26,326	12,348	113%
Adjusted EBITDA margin (%)	63%	49%	14%
Proforma adjusted EBITDA[1]	26,815	12,851	109%
Net income	17,018	4,142	311%
Capital expenditures[2]	3,396	2,986	14%

[1] Excluding expenses related to Brumadinho and donations associated with COVID-19.

[2] Does not includes Boston Metal investment of US$ 6 million in 9M21 and includes recoverable taxes in 9M20 (US$ 23 million)

Net income was US$ 3.886 billion in 3Q21, US$ 3.700 billion lower than 2Q21, primarily due to lower proforma EBITDA and the full impairment of the investment in Coal business.

Total CAPEX for 3Q21 amounted to US$ 1.248 billion, US$ 109 million higher than in 2Q21, explained by the growth of investments in Salobo III and Serra Sul 120 Mtpy projects as planned, the higher sustaining investments to increase safety factor of Torto dam project, and higher expenditures in Coal business.

We ended the quarter with gross debt and leases at US$ 13.585 billion, slightly lower than 2Q21. Net debt totaled US$ 2.207 billion in the same period, US$ 2.945 billion higher than 2Q21, with expanded net debt following at US$ 13.881 billion.

Performance of business segments in 3Q21

Ferrous Minerals EBITDA of US$ 6.730 billion in 3Q21

- Ferrous Minerals EBITDA was US$ 6.730 billion, US$ 3.949 billion lower than 2Q21, mainly driven by 31% lower iron ore fines realized prices, but still the highest EBITDA for a third quarter since 2012.
- Vale's average CFR reference price was US$ 142.5/t, down US$ 59.5/t vs. 2Q21, due to sharply lower 62% Fe reference price and strong negative effect from provisional prices in the current quarter and from the previous quarter, partially offset by the positive impact of lagged priced sales.
- Sales of high-silica iron ore products still pressured Vale's average quality premiums, which we expect to improve in 4Q21, following the reduction of this kind of product sales since September due to weaker demand.
- Iron ore fines and pellets EBITDA breakeven cost was US$ 49.9/t, US$ 5.4/t higher than 2Q21, resulting from (i) US$ 2.5/t higher freight costs, (ii) US$ 1.9/t lower quality and pellets adjustments, and (iii) US$ 0.5/t higher C1 costs.
- We expect C1 costs ex-third-party purchases to decrease US$ 1.5/t in 4Q21 vs. 2Q21.

Base Metals EBITDA was US$ 505 million in 3Q21, US$ 361 million lower than 2Q21

- Nickel business EBITDA was US$ 99 million in 3Q21, down US$ 331 million vs. 2Q21, mainly due to the labor disruptions in Sudbury, resulting in lower nickel sales volumes and byproducts credits, primarily copper, PGMs and precious metals.
- Copper business EBITDA was US$ 406 million in 3Q21, down US$ 30 million vs. 2Q21, mostly related to the impact of provisional price adjustments on the realized price, which was partially offset by higher sales volumes in South Atlantic.

Coal business EBITDA was US$ 32 million in 3Q21, US$ 196 million higher than 2Q21

- Adjusted EBITDA improved significantly, reaching US$ 43 million in September, after improving but still negative EBITDA in July and August. The better result was mainly driven by higher net revenues, following higher realized prices and sales volumes.

Market overview

Iron Ore

Iron ore 62% Fe reference price averaged US$ 162.9/dmt in 3Q21, 19% lower than 2Q21, but 27% higher than 3Q20. Along 3Q21, steel production cuts in China impacted iron ore demand and prices retreated from high levels achieved along 2Q21. As a result of lower demand and constant supply, iron ore stocks at China's ports increased weighting pressure over iron ore prices.

MB65% index averaged US$ 190.4/dmt in 3Q21, 18% lower than 2Q21 but 32% higher than 3Q20. Despite the decrease in prices, the spread between the MB65% and the 62% iron ore reference price recovered along the quarter closing September at around US$ 25/t. the increase in coal/coke prices and the high steel margins supported the high-grade premiums.

China's steel production totalled 73.75 Mt in September, achieving accumulated steel production of 805.9 Mt in the 9M21, an increase of 2% vs. 9M20. On the macro side, China's GDP growth was 4.9% YoY in 3Q21 and accumulated GDP growth in 9M 2021 was 9.8% YoY mainly due to the low base in 2020. Construction and manufacturing sectors recorded strong rebound in the post-pandemic economic recovery of China since 2H 2020, yet downstream activities of both sectors were negatively affected by energy consumption control policy and tight property policy in September and 3Q21.

According to World Steel Association (WSA), ex-China steel production totalled 214 Mt in 3Q21, 13% higher YoY and -3.4% QoQ, achieving 655 Mt during the 9M21. All the major markets have improved output compared to 2020, however, slightly below compared to pre-pandemic levels (9M19). The exception is Brazil, with production of 27.2 Mt in 9M21, +9.6% compared to 24.8 Mt in 9M19. EU28, JKT and USA are still slightly below at -1.5%, -2.6% and -2.6% when compared to 9M19 levels, respectively.

Outlook

WSA, in its latest short-term outlook, forecasts that steel demand should grow by 4.5% YoY in 2021 and further 2.2% to 1,896.4Mt in 2022, guided by the progress on vaccinations across the world and potential new variants being less damaging and disruptive compared to previous waves. Other regions ex-China are expected to continue and strengthen their recovery momentum following a reduction in supply chain bottlenecks, continued pent-up demand and rising business and consumer confidence. However, downside risks such as rising inflation and continued slow vaccination progress in developing countries besides deceleration in China, will be pressuring output and potentially slowing down the economic recovery momentum.

Coal

Coking coal: The FOB Australia premium low vol (PLV) index averaged US$262.3/t in 3Q21, up significantly from the previous quarter by US$125.8/t. The index increased steadily throughout the quarter on the back of limited supply from Australia, strong post-pandemic demand and high CFR China prices, which rose from an average of $258.2/t in 2Q21 to $405.1/t in 3Q21. With China's ban on Australian coal still in place, Chinese buyers continued to seek alternative supplies from Canada, USA, Russia and Mozambique. China's domestic production was affected by safety checks and reduced to meet emissions goals; Mongolian supply continued to be hampered by multiple COVID-related border closures.

Outlook

China's accelerating steel cuts should dampen coking coal demand. In addition, ongoing electricity shortages across China may lead to downward economic pressure, triggering power rationing in energy-intensive sectors. For example, demand for finished steel is will likely be affected as manufacturers are forced to either slow or idle production to conserve electricity. Domestic coal supply should see some recovery as China's supply crunch should soften, though it will take time as safety will remain a top focus for domestic mines. China's ban on Australian coking coal is expected to remain in place. For international supply, the market view is that availability may improve somewhat in 4Q21.

Thermal coal: In the thermal coal market, Richards Bay 6000 kcal NAR price averaged US$ 138.7/t in 3Q21, 33% higher than the previous quarter. Thermal coal prices were at record highs; Richards Bay 6000 kcal NAR price was US$ 200.2/t on September 30, and Australia 6000 kcal NAR and CIF Antwerp-Rotterdam-Amsterdam 6000 kcal NAR were also both above US$ 200.0/t. Coal shortage has contributed to the power crisis in China, while the natural gas shortage in Europe led to a resurgence of coal-fired power generation. Hence, global buyers raced to restock coal and ensure their power supply for winter. Heavy rains in Indonesia and railing issues for Atlantic miners limited seaborne coal supply. The spread between the Australian mid-CV and high-CV grades remained wide at 40% by the end of the quarter, as China continued to ban Australian coal imports.

Outlook

The market view is that thermal coal prices should trend higher in 4Q21, as demand continues to firm towards the northern hemisphere winter but without a matching supply response likely. The threat of La Niña repeating during winter would offer further upside to prices as it would bring colder weather to Northeast Asia and Europe and at the same time bring wet weather supply disruptions to major coal-producing regions.

Nickel

LME nickel prices averaged US$ 19,125/t in 3Q21, 10% higher quarter over quarter and 35% higher than 3Q20.

Total exchange inventories (LME and SHFE) decreased, closing at 162.4 kt at the end of 3Q21, down 32% in the quarter and 39% year over year. LME inventories stood at 157.1 kt at the end of 3Q21, a decrease of 75.4 kt in the quarter and 79.3 kt year over year. SHFE inventories decreased by 0.8 kt in the quarter and 25.1 kt year over year.

Demand/Supply

Global sales of electric vehicles (EV) are on track to increase by 84% from 3Q20, led by robust growth in China and Europe. EV sales continue to gain market share as manufacturers prioritize EV sales amidst a persistent semiconductor shortage impacting total vehicle production globally. Preliminary figures suggest a 17% decrease in total vehicle sales in 3Q21 from the previous quarter reflecting the impact of the semiconductor shortage and lingering pandemic-related restrictions.

Global stainless-steel production increased 9% from 3Q20. Quarter over quarter, global production decreased 4% as stainless mills in China were forced to cut output due to power shortages and emissions control policies. Nickel consumption in stainless was flat in the quarter as scrap usage decreased. Year over year, nickel consumption in stainless increased 16%. Visible Chinese stainless-steel inventories increased 10% from 3Q20 and decreased 19% from 2Q21 as stainless-steel demand remained strong through the summer months.

The aerospace industry continues to recover with aircraft deliveries from Boeing and Airbus up 23% from 3Q20. Quarter over quarter, deliveries were down 16% after a healthy second quarter. Despite persistent air travel restrictions in regions such as China and Australia, global commercial flights finished 3Q21 at 83% of pre-COVID levels, up 12% from 2Q21.

Oil and gas prices have increased dramatically as the global energy industry is experiencing shortages. Brent crude oil prices increased 6% quarter over quarter in 3Q21, while Henry Hub natural gas prices have increased 45% quarter over quarter in 3Q21. Global rig counts have increased 13% in the quarter and 38% when compared to 3Q20.

3Q21 nickel production increased 14% from 3Q20 and 5% from 2Q21, as Indonesian NPI supply increase offset production issues at Nornickel and various FeNi operations. Chinese NPI production decreased 16% in 3Q21, compared to 3Q20, while Indonesian NPI production increased 46% over the same period. Quarter over quarter Chinese and Indonesian NPI production were up 4%. China's dual energy controls cut NPI production in September and threaten growth in 4Q21.

Outlook

Port closures in China, container shortages and decreased ore availability exacerbated supply deficits in the quarter, with the market expected to be in a 63 kt deficit in 2021. Downside risks exist on the demand side in the fourth quarter due to power cuts at stainless-steel mills and battery precursor producers. Indicators of a slowing Chinese economy and rising inflation pose additional risks.

In the medium-term, the shift towards the electrification of the world economies will improve demand with solid government incentives and penalty programs continuing to drive EV adoption rates as countries commit to low emission targets. This growth potential should favor high nickel content batteries chemistry due to its higher energy density. The North American supply chain is particularly dependent on this market dynamic, as the commitment to green initiatives, including the development of the EV supply chain, is forcing manufacturers to look critically at the sustainability of upstream suppliers. In the medium term, additions to NPI and HPAL supply planned in Indonesia may supply a large portion of the growth requirements for stainless steel and batteries. However, environmental concerns around the CO2 intensity of NPI and the push for geographical diversification of the battery supply chain could result in supply shortages in the longer term.

Our long-term outlook for nickel remains very positive, driven by strong demand in the EV sector with the prevalence of nickel-rich batteries. Additionally, as countries continue to set aggressive decarbonization goals, EV growth and the infrastructure needed to support them are crucial. Markets previously heavily impacted by the pandemic, such as aerospace, are expected to improve with the success of the global COVID-19 vaccine rollout, while energy shortages in Europe and China are putting increased pressure on an expedited shift to renewable energy. In the long term, the global pursuit of net-zero emissions should positively impact nickel demand in the stainless steel, aerospace, automotive and energy markets.

Copper

LME copper prices averaged US$ 9,372/t in 3Q21, 3% lower quarter over quarter and 44% higher than 3Q20.

Total exchange inventories (LME, SHFE, and COMEX) decreased, closing at 314.3 kt at the end of 3Q21, down 23% in the quarter and 23% year over year. LME inventories stood at 219.5 kt at the end of 3Q21, increasing 8.0 kt in the quarter and 53.9 kt year over year. SHFE inventories decreased by 110.3 kt in the quarter and 126.9 kt year over year. COMEX inventories increased by 0.1 kt in the quarter and decreased 21.2 kt year over year.

Demand/Supply

Global refined copper demand increased 5.5% in 3Q21 compared to 3Q20 and 0.3% quarter over quarter. Strength in the U.S. and India offset weakness in China. Global copper use in machinery continues to increase while utilization in consumer goods and appliances has started to slow led by decreases in China in 3Q21. However, it is expected that all end use sectors in China will experience growth in 2021 when compared to 2020.

Global refined copper production increased 2.3% in 3Q21 compared to 3Q20 and 1.2% quarter over quarter. Supply concerns eased in the quarter with successful labor negotiations across multiple mines on strike in Chile. However, pandemic-related supply disruptions are lingering due to workforce availability, and power outages are threatening copper production in the fourth quarter. Aggressive smelter maintenance programs and growth in concentrate supply have resulted in spot treatment and refining charges (TC/RCs) to increase 87% in the quarter and 18% from 3Q20.

Outlook

It is expected that the market will be in a 77 kt deficit in 2021, as surging power costs and the ongoing pandemic leads to global supply disruptions. In the medium term, the accelerated transition towards copper-intensive sustainable energy will support copper demand.

Our long-term outlook for copper remains very positive. Copper has a solid long-term growth profile driven by industrialization, construction, and the buildout of electrical network infrastructure. Governments globally have set ambitious decarbonization targets that, coupled with falling costs of renewable energy and stimulus investments in the green economy, will pivot towards more copper-intensive uses in renewable energy and transportation projects related to EVs. Additionally, aluminum, one of the few potential substitutes in various copper applications, saw the largest price increase in the base metal complex in 2021, following increasing electricity prices and resulting power cuts at smelters. Should aluminum sustain current levels, there is a lower incentive to move away from copper. On the supply side, growth continues to struggle given declining ore grades and the lack of significant discoveries. In the short term, It is expected that the quality assets currently in development should meet the increasing demand. In the medium to long term, significantly more qua0lity assets are required to replace existing operations ramping down or closing. Higher costs could defer investment, considering potential increases to taxes or royalties, logistical constraints, and lower ore grades, adding risk to longer-dated supply growth from key greenfield projects.

Adjusted EBITDA

Adjusted EBITDA

US$ million	3Q21	2Q21	3Q20
Net operating revenues	12,682	16,675	10,762
COGS	(5,836)	(5,805)	(4,816)
SG&A	(115)	(133)	(127)
Research and development	(136)	(141)	(105)
Pre-operating and stoppage expenses	(165)	(191)	(188)
Expenses related to Brumadinho	(161)	(185)	(114)
Expenses related to COVID-19 donations	(10)	(16)	(15)
Other operational expenses	(26)	(58)	(98)
Dividends and interests on associates and JVs	5	43	22
Adjusted EBIT	**6,238**	**10,189**	**5,321**
Depreciation, amortization & depletion	700	849	774
Adjusted EBITDA	**6,938**	**11,038**	**6,095**
Proforma adjusted EBITDA[1]	**7,109**	**11,239**	**6,224**

[1] Excluding expenses related to Brumadinho and COVID-19 donations.

Adjusted EBITDA by business area

US$ million	3Q21	2Q21	3Q20
Ferrous Minerals	6,730	10,679	5,856
Base Metals	505	866	792
Coal	32	(164)	(213)
Others	(158)	(142)	(211)
Brumadinho expenses	(161)	(185)	(114)
Expenses related to COVID-19 donations	(10)	(16)	(15)
Total	**6,938**	**11,038**	**6,095**

Net operating revenue by business area

US$ million	3Q21	%	2Q21	%	3Q20	%
Ferrous Minerals	**10,678**	**84.2**	**14,297**	**85.7**	**8,684**	**80.7**
Iron ore fines	8,530	67.3	12,200	73.2	7,357	68.4
ROM	17	0.1	14	0.1	5	0.0
Pellets	2,009	15.8	1,947	11.7	1,195	11.1
Manganese ore	18	0.1	29	0.2	37	0.3
Ferroalloys	27	0.2	23	0.1	14	0.1
Others	77	0.6	84	0.5	76	0.7
Base Metals	**1,574**	**12.4**	**2,180**	**13.1**	**1,806**	**16.8**
Nickel	761	6.0	815	4.9	794	7.4
Copper	519	4.1	711	4.3	519	4.8
PGMs[1]	-20	-0.2	169	1.0	155	1.4
Gold as by-product	166	1.3	163	1.0	218	2.0
Silver as by-product	5	0.0	13	0.1	13	0.1
Cobalt	31	0.2	24	0.1	19	0.2
Others[2]	112	0.9	285	1.7	88	0.8
Coal[3]	**352**	**2.8**	**161**	**1.0**	**103**	**1.0**
Metallurgical coal	222	1.8	99	0.6	76	0.7
Thermal coal	122	1.0	60	0.4	27	0.3
Others	**78**	**0.6**	**37**	**0.2**	**169**	**1.6**
Total	**12,682**	**100.0**	**16,675**	**100.0**	**10,762**	**100.0**

[1] In 3Q21, PGMs revenue was impacted by negative provisional price adjustments along with lower sales volumes
[2] Includes marketing activities
[3] Includes US$ 8 million of general cargo in 3Q21 and US$ 2 million in 2Q21

COGS by business segment

US$ million	3Q21	%	2Q21	%	3Q20	%
Ferrous Minerals	4,178	71.6	3,879	66.8	2,961	61.5
Base Metals	1,187	20.3	1,459	25.1	1,230	25.5
Coal	364	6.2	340	5.9	321	6.7
Others	107	1.8	127	2.2	304	6.3
Total COGS[1]	**5,836**	**100.0**	**5,805**	**100.0**	**4,816**	**100.0**
Depreciation	653		800		726	
COGS, ex-depreciation	**5,183**		**5,005**		**4,090**	

[1] COGS currency exposure in 3Q21 was as follows: 53.9% USD, 41.8% BRL, 4.1% CAD and 0.2% Other currencies.

Operating expenses

US$ million	3Q21	2Q21	3Q20
SG&A ex-depreciation	**104**	**123**	**118**
SG&A	**115**	**133**	**127**
Administrative	**90**	**108**	**106**
Personnel	29	52	50
Services	29	22	28
Depreciation	11	10	9
Others	21	24	19
Selling	**25**	**25**	**21**
R&D	**136**	**141**	**105**
Pre-operating and stoppage expenses	**165**	**191**	**188**
Depreciation	36	39	39
Expenses related to Brumadinho	**161**	**185**	**114**
Incurred expenses	161	185	114
Expenses related to COVID-19 donations	**10**	**16**	**15**
Other operating expenses	**26**	**58**	**98**
Total operating expenses	**613**	**724**	**647**
Depreciation	47	49	48
Operating expenses ex-depreciation	**566**	**675**	**599**

Impact of Brumadinho provisions and expenses in 3Q21 – in USD

US$ million	Provisions balance 30jun21	EBITDA impact	Payments	FX and other adjustments[1]	Provisions balance 30set21
Decharacterization	2,155	-	(91)	(207)	1.857
Integral Reparation Agreement	4,021	-	(63)	(6)	3.952
Other reparation[2]	470	-	(27)	(39)	404
Total Provisions	6,646	**-**	(181)	(252)	**6.213**
Incurred expenses		161	(161)		
Total		161	(342)		

[1] Includes foreign exchange, present value and other adjustments
[2] Includes individual, labor and emergency indemnifications and tailing removal and containment works

In 3Q21, Vale paid US$ 342 million related to Brumadinho, including the Integral Reparation Agreement (US$ 63 million), decharacterization program (US$ 91 million), other required reparation (US$ 27 million) and incurred expenses (US$ 161 million). The aggregate amount of the provisions decreased to US$ 6.2 billion, mainly due to the provision payments (US$ 181 million) and Brazilian real depreciation and inflation impact (US$ 252 million).

In local currency, the provision increased from R$ 33.2 billion in 2Q21 to R$ 33.8 billion in 3Q21, mainly due to inflation adjustments, as provided in the Integral Reparation Agreement, resulting in an impact of R$ 1.737 billion. This impact was partially offset by the payments of obligations related to (i) decharacterization program (R$ 481 million), (ii) other required reparation (R$ 140 million) and (iii) Integral Reparation Agreement (R$ 350 million).

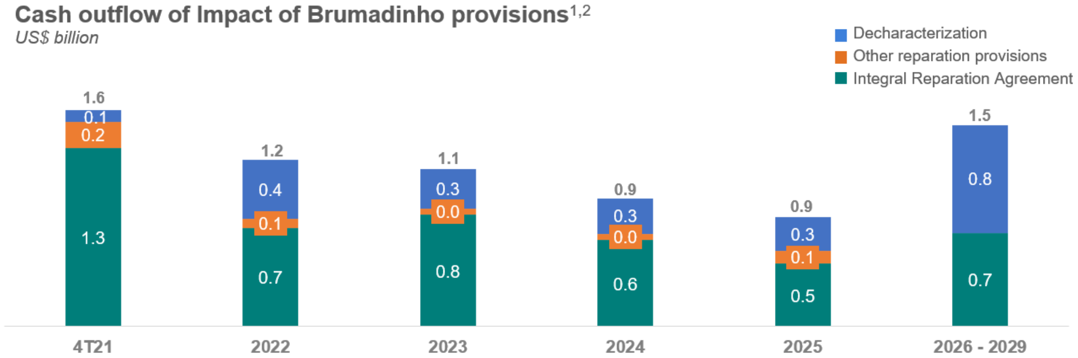
Payments related to the Integral Reparation Agreement for Brumadinho Reparation started in 2Q21, and Vale expects to disburse US$ 1.3 billion in 4Q21 concerning the agreement.

Impact of Brumadinho provisions and expenses since 2019

US$ million	EBITDA impact by 2020	Payments By 2020	PV & FX adjust	Provisions balance 31dec20	EBITDA impact in 9M21	Payments 9M21	FX and other adjustments[2] 9M21	Provisions balance 30set21
Decharacterization	3,241	(451)	(501)	2,289	-	(254)	(178)	1,857
Agreements & donations[1]	8,056	(2,660)	(821)	4,575	-	(384)	165	4,356
Total Provisions	**11,297**	**(3,111)**	**(1,322)**	**6,864**	-	**(638)**	**(13)**	**6,213**
Incurred expenses	1,240	(1240)			(461)	(461)		
Others	122	-						
Total	**12,569**	**(4,351)**			(461)	**(1.099)**	(13)	

[1] Includes Integral Reparation Agreement, individual, labor and emergency indemnifications and tailing removal and containment works
[2] Includes foreign exchange, present value and other adjustments

Cash outflow of Impact of Brumadinho provisions[1,2]
US$ billion



[1] Estimate cash outflow for 4Q21 - 2029 period, given BRL-USD exchange rates of 5.43940
[2] Amounts stated without discount to present value and net of judicial deposits

Pre-operating and stoppage expenses breakdown

US$ million	3Q21	2Q21	3Q20
Pre-operating and stoppage expenses	**165**	**191**	**188**
Depreciation	36	39	39
Pre-operating and stoppage expenses, ex-depreciation	**129**	**152**	**149**
Brumadinho - stoppage expenses	52	66	111
Minas Centrais Complex (Brucutu and others)	-	6	22
Mariana Complex (Alegria, Timbopeba and others)	-	-	4
Paraopeba Complex (Mutuca, Fábrica[1] and others)	25	32	52
Vargem Grande Complex (Vargem Grande[1], Pico and others)	27	28	33
Tubarão pellet plants	6	7	**7**
Ontario	53	59	-
Others	18	20	31

[1] Including pelletizing plants.

Net income

Reconciliation of proforma EBITDA to net income

US$ million	3Q21	2Q21	3Q20
EBITDA Proforma	**7,109**	**11,239**	**6,224**
Brumadinho & COVID-19 donations	(171)	(201)	(129)
Depreciation, depletion & amortization	(700)	(849)	(774)
Dividends received	(5)	(43)	(22)
Impairment & disposal of non-current assets	(2,390)	(432)	(298)
Financial results	(373)	350	(1,360)
Equity results	56	(405)	61
Income taxes	360	(2,073)	(794)
Net income	**3,886**	**7,586**	**2,908**

Main factors that affected net income for 3Q21 vs. 2Q21

	US$ million	
2Q21 Net income	**7,586**	
Δ EBITDA proforma	(4,130)	(i) Lower realized prices and higher freight costs on Ferrous Minerals business (ii) Lower byproducts revenues in Base Metals business due to labor disruptions in Sudbury, partially offset by higher realized prices and sales volumes in Coal business
Δ Brumadinho & COVID-19 donations	30	
Δ Depreciation, depletion & amortization	149	
Δ Dividends received	38	Dividends received from pelletizing plants in 2Q21
Δ Impairment & disposal of non-current assets	(1,958)	Impairment charges on Coal business
Δ Financial results	(723)	(i) Lower mark-to-market of the Participative stockholders' debentures (ii) Gains in derivatives in 2Q21
Δ Equity results	461	(i) Positive result from CSI due to higher steel prices (ii) Renova foundation provision in 2Q21
Δ Income taxes	2,433	
3Q21 Net income	**3,886**	

Δ: difference between 3Q21 and 2Q21 figures

Financial results

US$ million	3Q21	2Q21	3Q20
Financial expenses	**(136)**	**(177)**	**(1,215)**
Gross interest	(157)	(176)	(208)
Capitalization of interest	14	14	13
Shareholder debentures[1]	152	(278)	(553)
Others	(128)	273	(457)
Financial expenses (REFIS)	(17)	(10)	(10)
Financial income	**91**	**86**	**69**
Derivatives[1]	**(458)**	**856**	**(187)**
Currency and interest rate swaps	(472)	788	(145)
Others (commodities, etc)	14	68	(42)
Foreign Exchange	**372**	**(390)**	**(18)**
Monetary variation	**(242)**	**(25)**	**(9)**
Financial result, net	**(373)**	**350**	**(1,360)**

[1] The cash effect of the derivatives was a gain of US$ 22 million in 3Q21 and a gain of US$ 60 million in 2Q21.

CAPEX

Investments in 3Q21 totaled US$ 1.248 billion, comprising US$ 963 million in the maintenance of operations and US$ 285 million in project execution. Investments were 9.6% higher than in 2Q21, mainly due to: (i) increase of investments in Salobo III and Serra Sul 120 Mtpy projects as planned; (ii) higher sustaining investments in the Ferrous Minerals business mainly as a result of the start-up of works to increase safety factor of Torto dam project; and (iii) higher expenditures in Coal business.

Project Execution and Sustaining by business area

US$ million	3Q21	%	2Q21	%	3Q20	%
Ferrous Minerals	724	58.0	648	56.9	461	51.5
Base Metals	438	35.1	426	37.4	378	42.2
Coal	49	3.9	36	3.2	27	3.0
Energy and others	37	3.0	29	2.5	29	3.2
Total	**1,248**	**100.0**	**1,139**	**100.0**	**895**	**100.0**

Project execution

Investments in project execution totaled US$ 285 million in 3Q21, US$ 75 million higher than 2Q21, mainly due to higher investments in: (i) Salobo III project after the re-planning of contractors' performance; (ii) Serra Sul 120 Mtpy with the hiring of contractors; and (iii) Sol do Cerrado solar project by the acquisition of electromechanical materials.

Project execution by business area

US$ million	3Q21	%	2Q21	%	3Q20	%
Ferrous Minerals	136	47.7	113	53.8	40	36.4
Base Metals	113	39.6	69	32.9	69	62.7
Energy and others	36	12.6	28	13.3	1	0.9
Total	**285**	**100.0**	**210**	**100.0**	**110**	**100.0**

Main project developments in 3Q21

- The Northern System 240 Mtpy Project concluded the earthworks of the 5th products stockyard and started constructing the railcar weigh scale of the 3rd loading silo.
- Serra Sul 120 Mtpy progressed on hiring contractors and started the vegetation clearing of the previously licensed plant site areas.
- The Capanema project started the civil works in the primary crusher area.
- Salobo III project delivered the concreting of crushing silos and secondary crushing and significant advancements to electromechanical assembly.

Capital projects progress indicator[3]

Projects	Capacity (per year)	Estimated start-up[1]	Executed capex (US$ million)		Estimated capex (US$ million)		Physical progress (%)
			3Q21	Total	2021	Total	
Ferrous Minerals Project							
Northern System 240 Mtpy	10 Mt	2H22	37	329	229	772	86%[1]
Capanema	18 Mt[2]	2H23	5	6	47	495	4%
Serra Sul 120 Mtpy[3]	20 Mt	2H24	50	76	168	1,502	3%
Base Metals Project							
Salobo III	30-40 kt	2H22	107	578	329	1,056	81%

[1] Considering mine-plant project front physical progress.
[2] Capanema project adds 14 Mtpy capacity in Timbopeba site expedition in its first years.
3 The project consists of increasing the S11D mine-plant capacity by 20 Mtpy.

Sustaining CAPEX

Investments in the maintenance of operations totaled US$ 963 million in 3Q21, US$ 34 million higher than in 2Q21, mainly due to: (i) higher sustaining investments in the Ferrous Minerals business mainly as a result of the start-up of works to increase safety factor of Torto dam project; and (ii) higher expenditures in Nacala Corridor in Coal business, which were partially offset by lower investments in Voisey's Bay Mine Extension project, as planned in the investment program.

Sustaining capex by business area

US$ million	3Q21	%	2Q21	%	3Q20	%
Ferrous Minerals	588	61.1	535	57.6	421	53.6
Base Metals	325	33.7	357	38.4	309	39.4
Nickel	290	30.1	325	35.0	283	36.1
Copper	35	3.6	32	3.4	26	3.3
Coal	49	5.1	36	3.9	27	3.4
Energy and others	1	0.1	1	0.1	28	3.6
Total	**963**	**100.0**	**929**	**100.0**	**785**	**100.0**

Sustaining capex by type - 3Q21

US$ million	Ferrous Minerals	Base Metals	Coal	Energy and others	TOTAL
Enhancement of operations	242	139	36	1	418
Replacement projects	40	138	5	-	183
Filtration and dry stacking projects	130	-	-	-	130
Dam management	6	4	-	-	10
Other investments in dams and waste dumps	47	3	-	-	50
Health and Safety	47	23	3	-	73
Social investments and environmental protection	20	4	4	-	28
Administrative & Others	56	13	1	-	71
Total	**588**	**325**	**49**	**1**	**963**

[3] Pre-operating expenses were not included in the estimated capex for the year, although included in the total estimated capex column, in line with Vale's Board of Directors approvals. Estimated capex for the year is only reviewed once a year.

Main project developments in 3Q21

- On the Gelado project, Vale completed the assembly of the screening distributors and started assembling the substation control panels. The Gelado project is expected to start-up in 2H22 with 5 Mtpy capacity in the first years, as it requires Usina 1 conversion to dry processing to achieve full capacity (9.7 Mtpy). The conversion is expected for 2025, increasing site's mass recovery and productivity.
- On the Voisey's Bay Mine Extension project, construction activities continue on the new powerhouses and on the backfill system required to support the ramp-up of underground production in 2022.

Replacement projects progress indicator

Projects	Capacity (per year)	Estimated start-up	Executed capex (US$ million)		Estimated capex (US$ million)		Physical progress (%)
			3Q21	Total	2021	Total	
Gelado	9.7 Mt	2H22	24	247	100	428	85%
Voisey's Bay Mine Extension	45 kt	1H21	127	1,282	449	1,694	70%

Projects under evaluation and growth options

Projects	Project scope / capacity	Comments
Copper		
Alemão	• 60ktpy Cu with high gold content as byproduct • Underground mine	Stage: FEL3 / Invest decision: 2023
South Hub life of mine extension (Cristalino)	• 80ktpy • Replacement project. Maintain Sossego plant operating at full capacity	Stage: FEL3 / Invest decision: 2023
South Hub Upside or life of mine extension (Bacaba, Barão, Visconde and 118)	Bacaba: • 60 - 70 ktpy Cu • Open Pit mine • Replacement or optionality to increase production 118, Visconde and Barão: • Satellite deposits being developed to assess potential options to increase production	Stage: FEL2 completed Stage: FEL 1
North Hub	• 70-100ktpy Cu potential in North Hub • Growth Project	Stage: FEL 1
Salobo IV	• +30ktpy potential • Growth project	Stage: FEL1
Victor	• 20ktpy Cu + 4ktpy Ni	JV partnership under discussion Stage: FEL2
Hu'u	• +250ktpy[1] Cu potential + 200koz Au • Underground block cave • Growth Project	Stage: FEL2
Nickel		
Onça Puma 2nd furnace	• +50 yrs LoM • +12 - 15ktpy Ni	Stage: FEL3 / Invest decision: 2022
Bahodopi	• 20-year mine saprolite ore • RKEF FeNi smelter plant • Production: 70ktpy Ni	Mine owned by PTVI, FeNi plant owned through JV Stage: FEL3 / Invest decision: 2021/2022
Pomalaa	• 30-year mine limonite and saprolite ore • HPAL plant • Production: 40ktpy[1] Ni + 4ktpy Co as byproduct	Mine owned by PTVI, HPAL plant owned through JV Stage: FEL3 / Invest decision: 2022
CCM PH 3&4	• Replacement • Underground mine	Stage: FEL2
Thompson Mine Extension PH2	• Life extension • Underground mine	Stage: FEL2
Iron ore		
Serra Norte N1/N2	• Replacement project of 50 Mtpy of ROM in Serra Norte.	Stage: FEL3 / Invest decision: 2022 Start-up: 2026
New Steel plants	• Plants in Oman, Fábrica and Fazendão • Capacity: 17 Mtpy	Stage: FEL2 / Invest decision: 2022/2023 Start-up: 2024/2026
Serra Leste expansion	• Growth project • Project's capacity under evaluation	Stage: FEL2 / Invest decision: 2022 Start-up: 2025
S11C	• Expand Serra Sul to ore body C Replacement project.	Stage: FEL2
Briquetting plants	• 3 plants under construction (7 Mtpy capacity) • 5 other plants currently under analysis (FEL 1)	Stage: FEL1 / Invest decision: 2024/2026

[1] Considering full equity in Sumbawa Timur Mining and based on initial studies arising from the ongoing prefeasibility study.

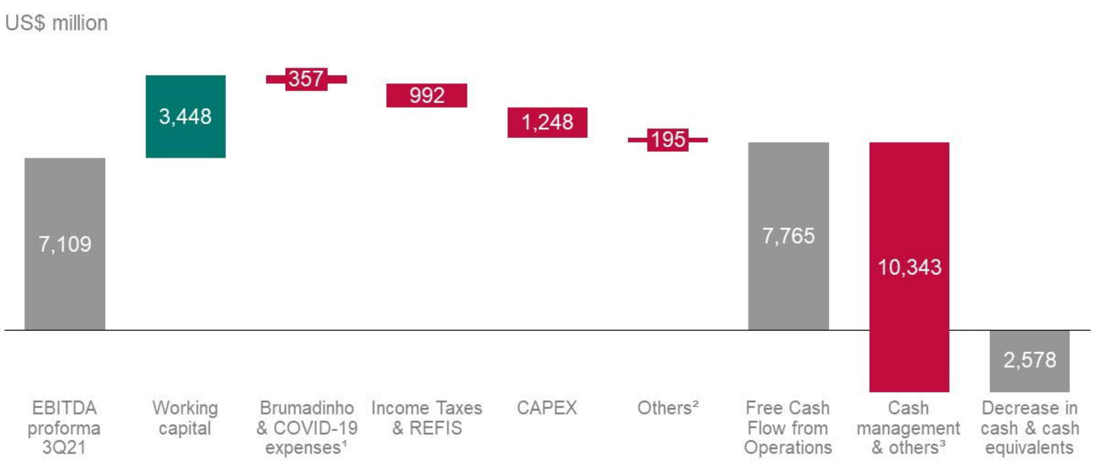
Free cash flow

In 3Q21, Vale had a strong Free Cash Flow from Operations of US$ 7.765 billion.

The quarter was marked by the positive impact of working capital variation, which was mainly driven by a significant decrease in accounts receivable explained by the combined effect of (i) strong collection from elevated accrual sales volume and price registered in 2Q21; and (ii) lower accrual sales volumes and price registered in 3Q21.

Consistent with our capital allocation strategy, Vale distributed US$ 7.391 billion to shareholders and repurchased US$ 2.841 billion of its shares.

Free Cash Flow 3Q21



[1] Includes US$ 186 million of disbursement of Brumadinho provisioned expenses, US$ 161 million of Brumadinho incurred expenses and US$ 10 million of COVID-19 expenses.
[2] Includes interest on loans, derivatives, leasing, dividends paid to noncontrolling interest, and others.
[3] Includes US$ 7.391 billion of shareholder remuneration, US$ 2.841 billion of share buyback, US$ 111 million of debt repayment.

Debt

Gross debt totaled US$ 11.951 billion as of September 30, 2021, slightly lower than June 30, 2021. Net debt position increased to US$ 2.207 billion in the same period, US$ 2.945 billion higher than 2Q21, mainly due to the US$ 7.4 billion dividend payment in September and the US$ 2.8 billion share buyback program in 3Q21, partially offset by the strong cash flow generation.

Expanded net debt increased to US$ 13.881 billion as of September 30, 2021, mainly due to the increase mentioned above in net debt.

Average debt maturity was 8.8 years on September 30, 2021, and the average cost of debt, after currency and interest rate swaps, was 4.62 % per annum, both in line with 2Q21.

Debt indicators

US$ million	3Q21	2Q21	3Q20
Gross debt [1]	**11,951**	**12,154**	**13,444**
Lease (IFRS 16)	1,634	1,708	1,621
Gross debt and leases	**13,585**	**13,862**	**15,065**
Cash, cash equivalents and short-term investments	11,378	14,600	8,970
Net debt	**2,207**	**(738)**	**6,095**
Currency swaps[2]	786	357	1,161
Refis	2,410	2,692	2,600
Brumadinho provisions	6,213	6,646	3,124
Samarco & Renova Foundation provisions	2,265	2,491	1,485
Expanded net debt	**13,881**	**11,448**	**14,465**
Total debt / adjusted LTM EBITDA (x)	0.4	0.5	0.8
Net debt / adjusted LTM EBITDA (x)	0.07	(0.02)	0.44
Adjusted LTM EBITDA / LTM gross interest (x)	41.1	37.4	19.4

[1] Does not include leases (IFRS 16).

[2] Includes interest rate swaps.

Performance of the business segments

Segment information — 3Q21, as per footnote of financial statements

US$ million	Net operating revenues	Cost[1]	Expenses: SG&A and others[1]	Expenses: R&D[1]	Expenses: Pre operating & stoppage[1]	Dividends and interest received from associates and JVs	Adjusted EBITDA
Ferrous Minerals	10,678	(3,785)	(33)	(55)	(75)	-	6,730
Iron ore fines	8,530	(3,064)	(32)	(53)	(61)	-	5,320
Pellets	2,009	(612)	(2)	(1)	(10)	-	1,384
Others ferrous	94	(76)	-	-	-	-	18
Mn & Alloys	45	(33)	1	(1)	(4)	-	8
Base Metals	1,574	(1,024)	51	(43)	(53)	-	505
Nickel[2]	896	(782)	57	(20)	(52)	-	99
Copper[3]	678	(242)	(6)	(23)	(1)	-	406
Coal	352	(314)	(5)	(1)	-	-	32
Others	78	(60)	(143)	(37)	(1)	5	(158)
Subtotal	**12,682**	**(5,183)**	**(130)**	**(136)**	**(129)**	**5**	**7,109**
Brumadinho impact	-	-	(161)	-	-	-	(161)
COVID-19 donations	-	-	(10)	-	-	-	(10)
Total	**12,682**	**(5,183)**	**(301)**	**(136)**	**(129)**	**5**	**6,938**

[1] Excluding depreciation, depletion and amortization.

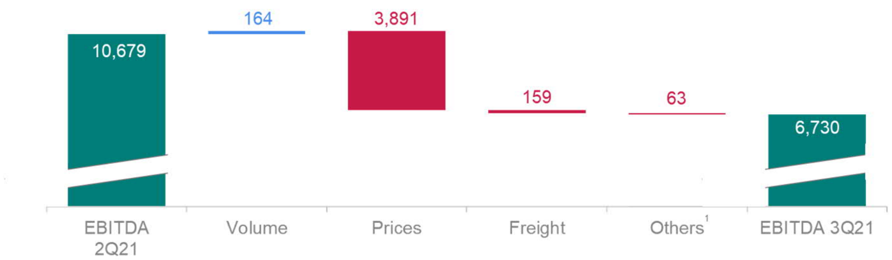
[2] Including copper, by-products from our nickel operations and marketing activities.

[3] Including by-products from our copper operations.

Ferrous Minerals

Ferrous Minerals adjusted EBITDA totaled US$ 6.730 billion, a 37% decrease vs. 2Q21, guided by a sharp reduction of price index, but still the highest EBITDA result for a third quarter since 2012. The adjusted EBITDA per ton for Ferrous Minerals, excluding Manganese and Ferroalloys, totaled US$ 88.6/t, a decrease of US$ 53.9/t compared to 2Q21.

Ferrous Minerals EBITDA variation – US$ million (3Q21 x 2Q21)



[1] Including the positive effect of higher costs and expenses, excluding FX and volume effect, (US$ 27 million), lower dividends (US$ 22 million) and negative FX impact (US$ 14 million).

The share of premium products[4] in total sales was 80% in 3Q21, in line with 2Q21.

Iron ore fines and pellets quality premiums reached US$ 6.6/t, US$ 1.8/t lower than in 2Q21, due to (i) lower premiums paid to low alumina ores, as BRBF and IOCJ; and (ii) lower contribution from Pellets business as the 65/62% Fe index spread narrowed. The lower premiums were partially offset by (i) higher Fe content premiums, despite the lower benchmark index, due to the lower sales of high-silica iron ore products; and (ii) higher contractual pellet premiums.

Iron ore fines and pellets quality premium

US$/t	3Q21	2Q21	3Q20
Iron ore fines quality premium	1.9	3.0	3.7
Pellets weighted average contribution	4.6	5.4	0.9
Iron ore fines and pellets total quality premium	**6.6**	**8.4**	**4.6**
Share of premium products[1] (%)	**80%**	**82%**	**83%**

[1] Composed of pellets, Carajás (IOCJ), Brazilian Blend Fines (BRBF) and pellet feed.

Volume sold

'000 metric tons	3Q21	2Q21	3Q20
Iron ore fines	67,304	66,740	65,607
ROM	540	479	162
Pellets	8,037	7,647	8,464
Manganese ore	111	169	428
Ferroalloys	16	15	15

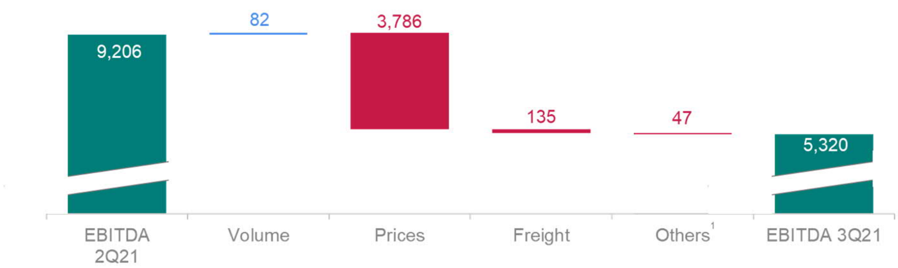
[4] Pellets, Carajás (IOCJ), Brazilian Blend Fines (BRBF) and pellet feed.

Net operating revenue by product

US$ million	3Q21	2Q21	3Q20
Iron ore fines	8,530	12,200	7,357
ROM	17	14	5
Pellets	2,009	1,947	1,195
Manganese & Ferroalloys	45	52	51
Others	77	84	76
Total	**10,678**	**14,297**	**8,684**

Iron ore fines (excluding Pellets and ROM)

Iron ore fines EBITDA variation – US$ million (3Q21 x 2Q21)



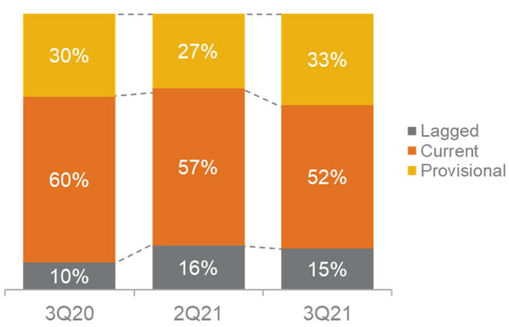
[1] Including the positive effect of higher costs and expenses, excluding FX and volume effect, (US$ 37 million) and negative FX impact (US$ 10 million).

Revenues and sales volumes

Iron ore fines' net revenues, excluding pellets and run of mine (ROM), were US$ 8,530 billion in 3Q21 vs. US$ 12.200 billion in 2Q21, as a result of lower realized prices (US$ 3,786 billion), partially offset by higher sales volumes (US$ 116 million).

Sales volumes of iron ore fines totaled 67.3 Mt in 3Q21, and CFR sales totaled 53.3 Mt in 3Q21, representing 79% of total sales, both in line with 2Q21.

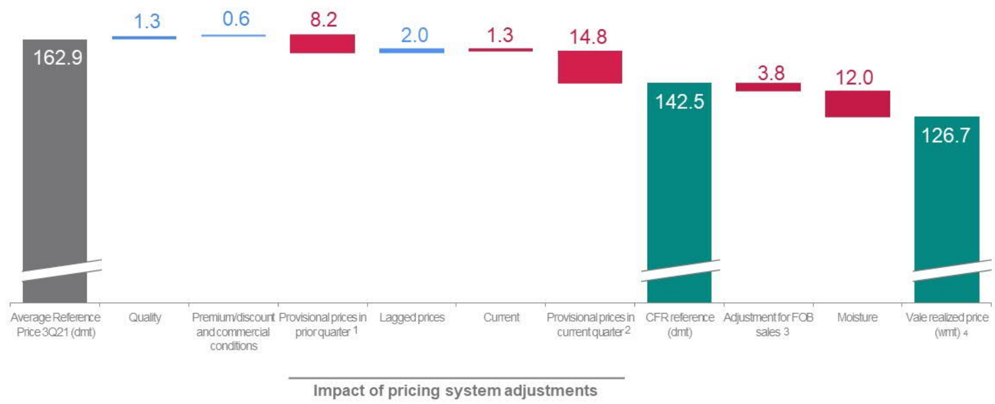
Pricing system breakdown (%)



Vale's realized price CFR/FOB totaled US$ 126.7/t, a decrease of US$ 56.1/t compared with 2Q21 mainly due to (i) lower 62% Fe reference price (US$ 37.1/t); (ii) a strong negative effect from provisional prices in the current quarter (US$ 16.7/t), as 33% of the sales volumes were provisionally set at US$ 117.7/t at the end of 3Q21 vs. the average benchmark price of US$ 162.9/t in the quarter; and (iii) pricing adjustments of provisional price sales set in the previous quarter (US$ 13.7/t), as the provisional price of US$ 206.9/t at the end of 2Q21 was significantly higher than of the average benchmark price. The positive impact of lagged priced sales of US$ 2.0/t, US$ 9.8/t higher than 2Q21, partially offset the adverse effects.

In 3Q21, sales of high-silica iron ore products still pressured Vale's average quality premiums, which we expect to improve in 4Q21 as Vale has been reducing the sales of this kind of product since September due to weaker demand.

Price realization iron ore fines – US$/t, 3Q21



[1] Adjustment as a result of provisional prices booked in 2Q21 at US$ 206.9/t.
[2] Difference between the weighted average of the prices provisionally set at the end of 3Q21 at US$ 117.7/t based on forward curves and US$ 162.9t from the 3Q21 62% Fe reference price.
[3] Includes freight pricing mechanisms of CFR sales freight recognition.
[4] Vale's price is net of taxes.

Average prices

US$/ metric ton	3Q21	2Q21	3Q20
Iron ore - Metal Bulletin 65% index	190.4	232.9	129.2
Iron ore - Metal Bulletin 62% low alumina index	164.7	202.1	118.7
Iron ore - 62% Fe reference price	162.9	200.0	118.2
Provisional price at the end of the quarter	117.7	206.9	119.8
Iron ore fines Vale CFR reference (dmt)	142.5	202.0	123.1
Iron ore fines Vale CFR/FOB realized price	126.7	182.8	112.1
Pellets CFR/FOB (wmt)	249.9	254.7	141.2
Manganese ore	163.9	171.8	85.3
Ferroalloys	1,792.3	1,508.1	968.2

Costs

IRON ORE COGS - 2Q21 x 3Q21

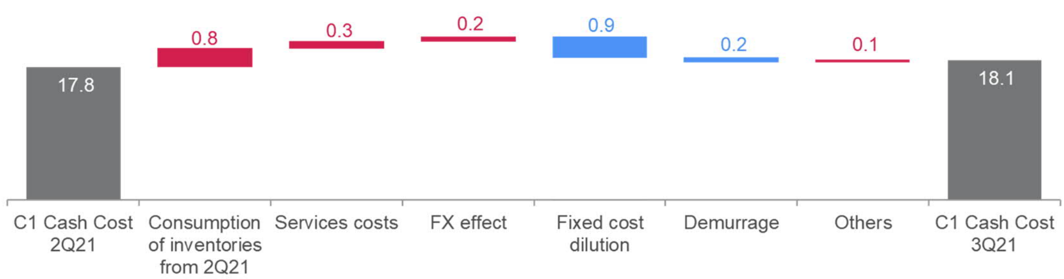
		Variance drivers				
US$ million	**2Q21**	**Volume**	**Exchange rate**	**Others**	**Total variation**	**3Q21**
C1 cash costs	1,479	13	8	29	50	1,529
Freight	925	17	-	135	152	1,077
Distribution costs	80	1	-	1	2	82
Royalties & others	332	3	-	41	44	376
Total costs before depreciation and amortization	**2,816**	**34**	**8**	**206**	**248**	**3,064**
Depreciation	312	3	4	(31)	(24)	287
Total	**3,128**	**37**	**11**	**175**	**224**	**3,351**

Vale's C1 cash cost ex-third-party purchases totaled US$ 18.1/t, increasing US$ 0.3/t from 2Q21 as a result of (i) consumption of inventories with higher average production costs in 2Q21; (ii) higher service costs; and (iii) negative effect of foreign exchange, which were partially offset by (i) higher dilution of fixed cost as a result of production increase, particularly in the Northern System; and (ii) lower demurrage cost with performance improvement at Ponta da Madeira Terminal, after the maintenance carried out in 1H21.

As disclosed in 2Q21 Performance Report, Vale expects C1 costs ex-third-party purchases for 4Q21 (vs. 2Q21) to decrease around US$ 1.5/t, mainly due to higher dilution of fixed costs and normalization of demurrage costs.

Third-party purchases are usually priced with one month lag. As a result, despite the drop in average iron ore price in 3Q21, Vale's average third-party purchase C1 cash cost increased from US$ 78.6/t in 2Q21 to US$ 81.9/t in 3Q21 as the 62% Fe benchmark index averaged US$ 195/t between June-August vs. US$ 184/t between March-May. In 4Q21, Vale expects a reduction of third-party purchase costs if prices persist at October's levels.

C1 cash cost variation (excluding 3rd party purchases) – US$/t (3Q21 x 2Q21)



Vale's shipping strategy relies on securing a major part of its CFR sales with long-term contracts of affreightment to transport cargo in larger and more efficient vessels, as Valemaxes and Guaibamaxes, reducing the impact in a scenario of volatility in the freight market.

Vale's unit maritime freight cost was US$ 20.2/t in 3Q21, US$ 2.5/t higher than 2Q21, mainly explained by: (i) higher spot freight market and seasonally higher exposure to this market (±US$ 1.7/t), despite the significant increase in the spot freight market of approximately US$ 5,0/t in this period; (ii) higher bunker fuel costs (±US$ 1.0/t).

In 4Q21, Vale does not expect to be impacted by the hike of spot freight market cost observed in October as: (i) part of Vale's spot vessels affreightment requirements were already contracted under better conditions; and (ii) Vale should lower its supply of high-silica low-margin products by around 4 Mt, therefore requiring fewer spot vessels affreightment.

Iron ore fines cash cost and freight

	3Q21	2Q21	3Q20
Costs (US$ million)			
Vale's iron ore fines C1 cash cost (A)	1,529	1,479	977
Third-party purchase costs[1] (B)	397	378	209
Vale's C1 cash cost ex-third-party volumes (C = A – B)	1.132	1.102	768
Sales volumes (Mt)			
Volume sold (ex-ROM) (D)	67.3	66.7	65.6
Volume sold from third-party purchases (E)	4.8	4.8	4.1
Volume sold from own operations (F = D – E)	62.5	61.9	61.5
Iron ore fines cash cost (ex-ROM, ex-royalties), FOB (US$ /t)			
Vale's C1 cash cost ex-third-party purchase cost (C/F)	18.1	17.8	12.5
Average third-party purchase C1 cash cost (B/E)	81.9	78.6	50.8
Vale's iron ore cash cost (A/D)	22.7	22.2	14.9
Freight			
Maritime freight costs (G)	1,077	925	840
% of CFR sales (H)	79%	78%	81%
Volume CFR (Mt) (I = D x H)	53.3	52.3	53.5
Vale's iron ore unit freight cost (US$/t) (G/I)	20.2	17.7	15.7

[1] Includes logistics costs related to third-party purchases.

EXPENSES

Iron ore fines expenses, net of depreciation, amounted to US$ 146 million in 3Q21, US$ 32 million lower than 2Q21, mainly due to (i) lower Brumadinho stoppage expenses (US$ 12 million); (ii) absence of the non-recurring expense of MBR incorporation (US$ 11 million), which impacted 2Q21 results; and (iii) lower impact from clients' claims (US$ 7 million).

Expenses - iron ore fines

US$ millions	3Q21	2Q21	3Q20
Selling	**19**	**17**	**13**
R&D	**53**	**43**	**31**
Pre-operating and stoppage expenses	**61**	**74**	**121**
Brumadinho stoppage expenses	49	61	102
Others	12	13	19
Other expenses	**13**	**44**	**38**
Total expenses	**146**	**178**	**203**

Iron ore pellets

Adjusted EBITDA for pellets was US$ 1.384 billion in 3Q21, only 4% lower than in 2Q21, despite the lower 65%Fe price index (19% lower vs. 2Q21) and higher freight costs, which was offset by higher volumes, the positive effect of lagged prices and higher contractual premiums.

Realized prices in 3Q21 averaged US$ 249.9/t, decreasing only US$ 4.8/t vs. 2Q21. The sharply lower 65% Fe price index was almost totally offset by the positive effect from pricing mechanisms, as pellet sales are predominantly linked to lagged prices (43% in 3Q21).

FOB pellets sales of 5.1 Mt in 3Q21, representing 63% of total pellets sales, were in line with 2Q21. CFR pellets sales amounted to 2.9 Mt in 3Q21.

Costs totaled US$ 612 million (or US$ 694 million with depreciation charges) in 3Q21. Excluding the impact of higher sales volumes of US$ 30 million, costs, considering FX variation, increased by US$ 62 million when compared with 2Q21, mainly due to higher leasing costs, as a result of higher premiums, and higher freight costs.

Pellets - EBITDA

	3Q21		2Q21	
	US$ million	US$/wmt	US$ million	US$/wmt
Net revenues / Realized price	2,009	249.9	1,947	254.7
Dividends received (Leased pelletizing plants)	-	-	22	2.9
Cash costs (Iron ore, leasing, freight, overhead, energy and other)	(612)	(76.1)	(520)	(68.0)
Pre-operational & stoppage expenses	(10)	(1.2)	(13)	(1.7)
Expenses (Selling, R&D and other)	(3)	(0.4)	2	0.3
EBITDA	**1,384**	**172.2**	**1,438**	**188.0**

Iron ore fines and pellets cash break-even[5]

Iron ore and pellets cash break-even landed in China[1]

US$/t	3Q21	2Q21	3Q20
Vale's C1 cash cost ex-third-party purchase cost	18.1	17.8	12.5
Third party purchases cost adjustments	4.6	4.4	2.4
Vale's iron ore cash cost (ex-ROM, ex-royalties), FOB (US$ /t)	22.7	22.2	14.9
Iron ore fines freight cost (ex-bunker oil hedge)	20.2	17.7	15.7
Iron ore fines distribution cost	1.2	1.2	0.7
Iron ore fines stoppage expenses[2] related to Brumadinho	0.7	0.9	1.6
Iron ore fines expenses[2] & royalties	7.1	6.7	4.5
Iron ore fines moisture adjustment	4.5	4.2	3.3
Iron ore fines quality adjustment	(1.9)	(3.0)	(3.7)
Iron ore fines EBITDA break-even (US$/dmt)	**54.6**	**49.9**	**37.0**
Iron ore fines pellet adjustment	(4.6)	(5.4)	(0.9)
Iron ore fines and pellets EBITDA break-even (US$/dmt)	**49.9**	**44.5**	**36.1**
Iron ore fines sustaining investments	8.1	7.5	5.8
Iron ore fines and pellets cash break-even landed in China (US$/dmt)	**58.0**	**52.0**	**41.9**

[1] Measured by unit cost + expenses + sustaining investment adjusted for quality

[2] Net of depreciation and includes dividends received

Volume sold by destination – Iron ore and pellets

'000 metric tons	3Q21	2Q21	3Q20
Americas	**9,135**	**9,939**	**7,663**
Brazil	7,666	7,633	5,639
Others	1,469	2,306	2,024
Asia	**60,020**	**56,381**	**60,833**
China	47,350	45,142	50,448
Japan	7,337	6,054	5,314
Others	5,333	5,185	5,071
Europe	**4,722**	**6,215**	**3,104**
Germany	1,096	825	468
France	625	1,539	591
Others	3,001	3,851	2,045
Middle East	**486**	**1,566**	**1,616**
Rest of the World	**1,518**	**765**	**1,017**
Total	**75,881**	**74,866**	**74,233**

Selected financial indicators - Ferrous Minerals

US$ million	3Q21	2Q21	3Q20
Net Revenues	10,678	14,297	8,684
Costs[1]	(3,785)	(3,446)	(2,599)
Expenses[1]	(33)	(59)	(53)
Pre-operating and stoppage expenses[1]	(75)	(91)	(146)
R&D expenses	(55)	(44)	(32)
Dividends and interests on associates and JVs	-	22	2
Adjusted EBITDA	6,730	10,679	5,856
Depreciation and amortization	(412)	(455)	(403)
Adjusted EBIT	6,318	10,224	5,453
Adjusted EBIT margin (%)	59.2	71.5	62.8

[1] Net of depreciation and amortization

[5] Does not include the impact from the iron ore fines and pellets pricing system mechanism.

Selected financial indicators - Iron ore fines

US$ million	3Q21	2Q21	3Q20
Adjusted EBITDA (US$ million)	5,320	9,206	5,090
Volume Sold (Mt)	67.3	66.7	65.6
Adjusted EBITDA (US$/t)	79	138	78

Selected financial indicators - Pellets

US$ million	3Q21	2Q21	3Q20
Adjusted EBITDA (US$ million)	1,384	1,438	748
Volume Sold (Mt)	8.0	7.6	8.5
Adjusted EBITDA (US$/t)	172	188	88

Selected financial indicators - Ferrous ex Manganese and Ferroalloys

US$ million	3Q21	2Q21	3Q20
Adjusted EBITDA (US$ million)	6,722	10,671	5,861
Volume Sold (Mt)[1]	75.9	74.9	74.2
Adjusted EBITDA (US$/t)	89	143	79

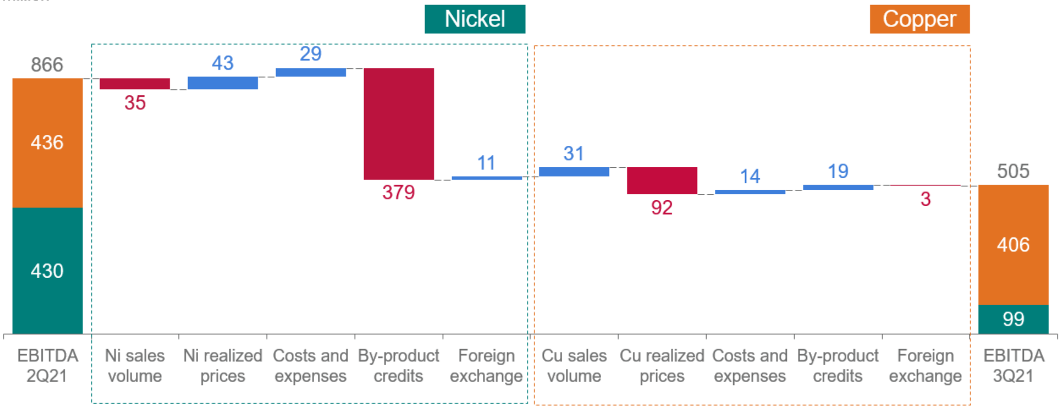
[1] Volume including iron ore fines, pellets and ROM.

Base Metals

Base Metals adjusted EBITDA[6] was US$ 505 million in 3Q21, US$ 361 million lower than 2Q21

Base Metals - EBITDA 3Q21 vs. 2Q21

US$ million



The lower EBITDA in the quarter was mainly due to:

- Effects of labor disruption at Sudbury on nickel sales volumes and nickel by-products credits, primarily copper and PGM.
- Lower copper realized prices, mainly due to provisional price adjustments.

These effects were partially offset by:

- Higher nickel realized prices, mainly due to higher LME nickel prices.
- Higher copper sales volumes in South Atlantic, as a result of the production volume increase in Sossego.

Base Metals EBITDA overview – 3Q21

US$ million	North Atlantic	PTVI (site)	Onça Puma	Sossego	Salobo	Others	Subtotal Base Metals	Marketing activities	Total Base Metals
Net Revenues	**611**	**271**	**87**	**248**	**430**	**(189)**	**1,458**	**116**	**1,574**
Costs	(635)	(145)	(55)	(83)	(159)	165	(912)	(112)	(1,024)
Selling and other expenses	55	-	(2)	(3)	-	1	51	-	51
Pre-operating and stoppage expenses	(51)	-	-	-	(1)	(1)	(53)	-	(53)
R&D	(18)	(1)	-	(8)	-	(16)	(43)	-	(43)
EBITDA	**(38)**	**125**	**30**	**154**	**270**	**(40)**	**501**	**4**	**505**

[6] VNC site results are not reported as part of Base Metals results. Previous Base Metals results were restated to reflect this change. Results from VNC site are being accounted for as "Other" in the Segment Information.

Average prices

US$/ metric ton	3Q21	2Q21	3Q20
Nickel - LME	19,125	17,359	14,210
Copper - LME	9,372	9,700	6,519
Nickel - realized prices	18,211	17,183	15,824
Copper - realized prices[1]	8,187	9,653	6,268
Gold (US$/oz)	1,798	1,708	2,177
Silver (US$/oz)	24.15	25.05	22.53
Cobalt (US$/t)	56,859	43,039	55,876

[1]Considers Salobo and Sossego operations.

Nickel operations

Nickel operations, excluding marketing activities – EBITDA by operation

US$ million	3Q21	2Q21	3Q20
North Atlantic operation[1]	(38)	317	294
PTVI	125	72	85
Onça Puma	30	35	1
Others[2]	(22)	5	32
Total	**95**	**429**	**412**

[1] Includes the operations in Canada and in the United Kingdom.

[2] Includes the PTVI, intercompany sales eliminations, purchase of finished nickel. Hedge results have been relocated to each nickel business operation.

North Atlantic operations' EBITDA was lower in 3Q21 as a result of the labor disruption in Sudbury, which caused (i) stoppage expenses, (ii) lower by-products credits and (iii) lower nickel sales volumes. Higher nickel realized prices partially offset those effects.

PTVI's EBITDA was higher in 3Q21 due to (i) higher sales volumes and realized prices and (ii) higher dilution of fixed costs and lower maintenance costs.

Onça Puma's EBITDA was lower in 3Q21 mainly due to higher costs as a result of the extended maintenance during the quarter, as previously scheduled. Higher nickel realized prices partially offset this.

Nickel Revenue and Realized Price

Net operating revenue by product - Nickel operations, excluding marketing activities

US$ million	3Q21	2Q21	3Q20
Nickel	761	815	794
Copper	9	173	129
Gold as by-product	2	18	27
Silver as by-product	1	8	7
PGMs[1]	(20)	169	155
Cobalt	31	24	19
Others	(4)	21	4
Total	**780**	**1,228**	**1,135**

[1] In 3Q21, PGMs revenue was impacted by negative provisional price adjustments along with lower sales volumes.

Volume sold - Nickel operations

'000 metric tons	3Q21	2Q21	3Q20
Nickel[1]	42	47	50
Upper Class I	23	26	15
Lower Class I nickel	6	8	20
Class II nickel	9	10	12
Intermediates	4	3	5
VNC eliminations[2]	-	-	(2)
Copper	3	18	18
Gold as by-product ('000 oz)	1	11	14
Silver as by-product ('000 oz)	34	333	367
PGMs ('000 oz)	11	69	60
Cobalt (metric ton)	538	568	333

[1] Nickel sales volumes were adjusted in the financial report to reflect VNC divestment

[2] Volumes associated with revenues from VNC that are accounted for as Other in segment information.

Nickel realized price

US$/t	3Q21	2Q21	3Q20
LME average nickel price	19,125	17,359	14,210
Average nickel realized price	18,211	17,183	15,824
Contribution to the NRP by category:			
Nickel average aggregate premium	(120)	0	0
Other timing and pricing adjustments contribution	(794)	(176)	1,614

Nickel realized price in 3Q21 increased 6.0% from 2Q21 mainly due to 10% higher LME nickel average price, which was partially offset by the negative impact of timing and pricing adjustments.

Premiums / discount by nickel product

US$/t	3Q21	2Q21	3Q20
Upper Class I nickel	790	820	1,080
Lower Class I nickel	200	170	70
Class II nickel	(770)	(760)	(330)
Intermediates	(4,410)	(4,040)	(2,700)

Product type by operation

% of source sales	North Atlantic	PTVI	Onça Puma	Total 3Q21	Total 2Q21
Upper Class I	68.3%	0%	0%	54.0%	54%
Lower Class I	26.9%	0%	0%	14.5%	17%
Class II	4.5%	46%	100%	22.2%	21%
Intermediates	0.3%	54%	0%	9.3%	8%

Other timing and pricing adjustments had an aggregate negative impact of US$ 794/t in 3Q21, due to (i) the Quotational Period effects (based on sales distribution in the prior three months, as well as the differences between the LME price at the moment of sale and the LME average price), with an impact of negative US$ 200/t , (ii) fixed-price sales, with an impact of negative US$ 134/t (iii) the effect of the hedging on Vale's nickel price realization, with a negative impact of US$ 457/t[7] in the quarter and (iv) other effects, of negative US$ 3/t.

[7] In October 2020, Vale decided to execute new hedge operations, continuing the Nickel Revenue Hedging Program to provide stable cash generation during a period of significant investments. As of September 30th, 2021, the average strike price for the collar position was US$ 15,000/t for the put options and US$ 17,505/t for the call options.

Nickel Costs and Expenses

Nickel COGS, excluding marketing activities - 2Q21 x 3Q21

		Variance drivers				
US$ million	2Q21	Volume	Exchange rate	Others	Total variation	3Q21
Nickel operations	696	(67)	(11)	52	(26)	670
Depreciation	230	(3)	(4)	(96)	(103)	127
Total	**926**	**(70)**	**(15)**	**(44)**	**(129)**	**797**

Nickel operations – unit cash cost of sales, net of by-product credits

US$/t	3Q21	2Q21	3Q20
North Atlantic operations[1]	19,871	5,840	8,040
PTVI	7,813	8,492	6,291
Onça Puma	10,928	8,248	12,078

[1] North Atlantic figures include Clydach refining costs.

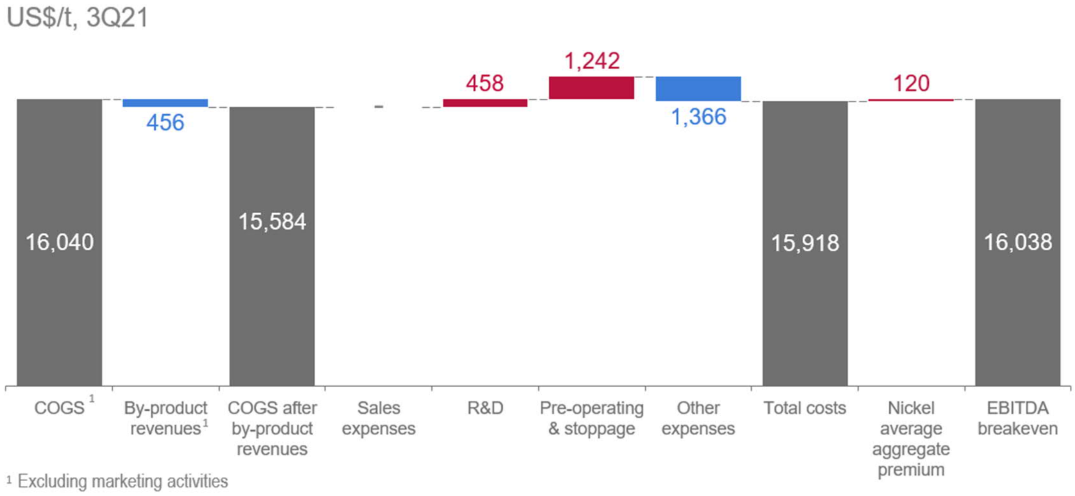
Unit cash cost in North Atlantic operations were significantly impacted by the labor disruption at Sudbury, as the lower volumes impacted fixed costs dilution.

Selling expenses and other expenses totaled a revenue of US$ 57 million in 3Q21, mainly due to the reversal of provisions (US$ 59 million).

Pre-operating and stoppage expenses totaled US$ 52 million, mainly due to the labor disruption at our Sudbury operations (US$ 51 million).

R&D expenses were US$ 20 million in 3Q21, slightly higher than 2Q21. These expenses encompass R&D initiatives for further operational improvements in North Atlantic.

EBITDA break-even – nickel operations[8]



[1] Excluding marketing activities

[8] Considering only the cash effect of US$ 400/oz that Wheaton Precious Metals pays for 70% of Sudbury's gold by-product, nickel operations EBITDA break-even would increase to US$ 16,102/t.

Selected financial indicators - Nickel operations, excluding marketing activities

US$ million	3Q21	2Q21	3Q20
Net Revenues	780	1,228	1,135
Costs[1]	(670)	(696)	(693)
Expenses[1]	57	(25)	(26)
Pre-operating and stoppage expenses[1]	(52)	(60)	-
R&D expenses	(20)	(18)	(4)
Adjusted EBITDA	95	429	412
Depreciation and amortization	(145)	(230)	(233)
Adjusted EBIT	(50)	199	179
Adjusted EBIT margin (%)	(6.4)	16.2	15.8

[1] Net of depreciation and amortization

Copper operations – Salobo and Sossego

Copper – EBITDA by operation

US$ million	3Q21	2Q21	3Q20
Salobo	270	351	287
Sossego	154	100	104
Others Copper[1]	(18)	(15)	(10)
Total	**406**	**436**	**380**

[1] Includes research expenses related to the Hu'u project.

Salobo's EBITDA decreased in 3Q21 compared to 2Q21 mainly due to lower copper realized price and higher unit cost due to a corrective maintenance at the site.

Sossego's EBITDA in 3Q21 increased compared to 2Q21 mainly due to higher sales volumes and higher fixed cost dilution as maintenance activities at SAG[9] and ball mills were finished in 2Q21.

Copper revenue and realized price

Net operating revenue by product - Copper operations

US$ million	3Q21	2Q21	3Q20
Copper	510	538	390
Gold as by-product	164	145	192
Silver as by-product	4	5	5
Total	**678**	**688**	**587**

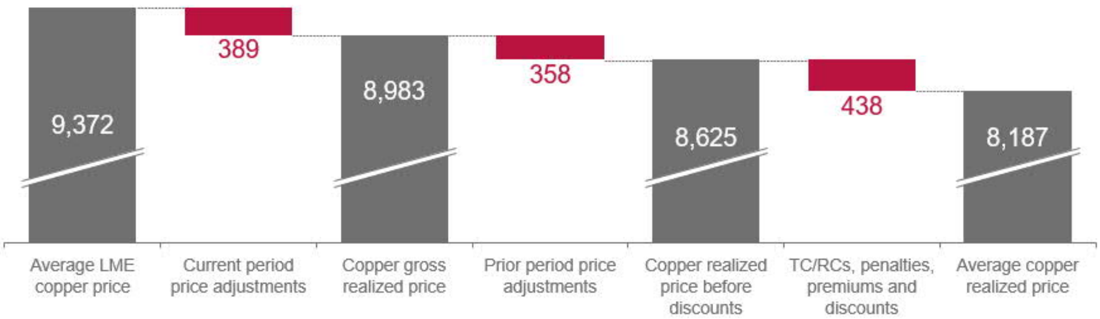
Volume sold - Copper operations

'000 metric tons	3Q21	2Q21	3Q20
Copper	62	56	62
Gold as by-product ('000 oz)	91	84	86
Silver as by-product ('000 oz)	176	188	193

[9] SAG mill – Semi-autogenous grinding mill

Price realization – copper operations

US$/t, 3Q21



Vale's copper products are sold on a provisional pricing basis[10] during the quarter, with final prices determined in a future period, generally one to four months forward.

- Current period price adjustments: at the end of the quarter, mark-to-market of open invoices based on the copper price forward curve[11]
- Prior period price adjustment: based on the difference between the price used in final invoices (and in the mark-to-market of invoices from previous quarters still open at the end of the quarter) and the provisional prices used for sales in prior quarters
- TC/RCs, penalties, premiums and discounts for intermediate products

The negative effects of the current period price adjustments of US$ 389/t, and prior period price adjustments of US$ 358/t were mainly due to the forward price steadily declining during the third quarter.

Copper Costs and Expenses

Salobo unit cash costs after by-products have increased mainly due to the impact of corrective maintenance and lower fixed costs dilution, still in the positive territory. Sossego unit cash cost has decreased due to higher fixed cost dilution following the maintenance at both SAG and ball mills in 2Q21 and reached a unit cash cost level below US$2,000/t in 3Q21.

Copper COGS - 2Q21 x 3Q21

		Variance drivers				
US$ million	2Q21	Volume	Exchange rate	Others	Total variation	3Q21
Copper operations	229	33	2	(22)	13	242
Depreciation	41	27	-	(31)	(4)	37
Total	**270**	**60**	**2**	**(53)**	**9**	**279**

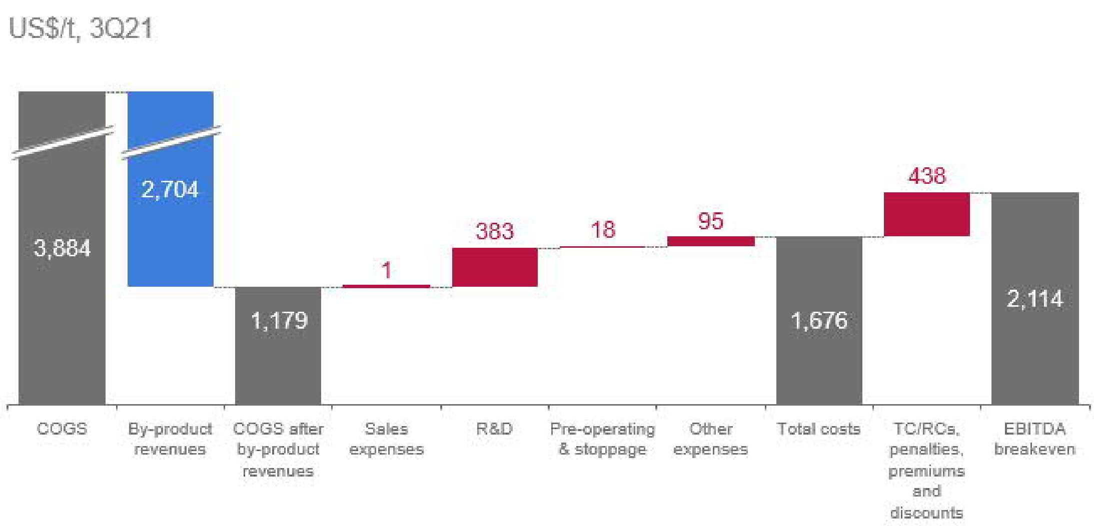
[10] On September 30th, 2021, Vale had provisionally priced copper sales from Sossego and Salobo totaling 88,665 tons valued at an LME forward price of US$ 9,061/t, subject to final pricing over the following months.
[11] Includes a small number of final invoices that were provisionally priced and settled within the quarter.

Copper operations – unit cash cost of sales, net of by-product credits

US$/t	3Q21	2Q21	3Q20
Salobo	700	422	(806)
Sossego	1,911	3,623	1,269

Selling and other expenses were US$ 6 million. Pre-operational and stoppage expenses totaled US$ 1 million in 3Q21. Research and development expenses were US$ 23 million in 3Q21, with Hu'u-related expenditures amounting to US$ 15 million and Sossego-related expenses amounting to US$ 8 million.

EBITDA break-even – copper operations[12]



The realized price to be compared to the EBITDA break-even should be the copper realized price before discounts (US$ 8,625/t), given that TC/RCs, penalties and other discounts are already part of the EBITDA break-even build-up.

Selected financial indicators - Copper operations, excluding marketing activities

US$ million	3Q21	2Q21	3Q20
Net Revenues	679	688	587
Costs¹	(242)	(229)	(190)
Expenses¹	(6)	(1)	(2)
Pre-operating and stoppage expenses¹	(1)	(1)	-
R&D expenses	(23)	(21)	(15)
Adjusted EBITDA	406	436	380
Depreciation and amortization	(37)	(41)	(29)
Adjusted EBIT	369	395	351
Adjusted EBIT margin (%)	54.3	57.4	59.8

¹ Net of depreciation and amortization

[12] Considering only the cash effect of US$ 400/oz that Wheaton Precious Metals pays for 75% of Salobo's gold by-product, copper operations EBITDA break-even would increase to US$ 2,896/t.

Coal

Adjusted EBITDA for the Coal business segment improved significantly and reached break-even, totaling US$ 32 million in 3Q21, US$ 196 higher than in 2Q21. September EBITDA reached US$ 43 million after improving but still negative EBITDA of US$ 9 million in July and negative US$ 2 million in August.

The better result was mainly driven by higher net revenues (US$ 191 million).

Revenue and price realization

The higher net revenues on 3Q21 were due to higher prices (US$ 74 million) and higher sales volumes (US$ 117 million), with the continuing ramp-up of Moatize, expected to be concluded in 4Q21.

The average realized price for coking coals was US$ 193.2/t. The higher market prices (91.8% vs. 2Q21) were partially offset mainly by the effect of lagged prices which represented 71% of sales this quarter. We expect higher realized prices in 4Q21, following lagged sales at higher prices, closer to the current market levels.

The average realized price for thermal coals was US$ 81.3/t. The higher market prices (32% vs. 2Q21) were partially offset by the effect of lagged prices mainly in spot deals which represented 50% of sales this quarter and by the hedge program impact fixed with an average strike price of US$ 105/t-US$108/t.

Volume sold

'000 metric tons	3Q21	2Q21	3Q20
Metallurgical coal	1,150	713	809
Thermal coal	1,490	831	572
Total	**2,640**	**1,544**	**1,381**

Net operating revenue by product

US$ million	3Q21	2Q21	3Q20
Metallurgical coal	222	99	76
Thermal coal	122	60	27
Total[1]	**352**	**161**	**103**

[1] It includes US$ 8 million of general cargo in 3Q21 and US$ 2 million in 2Q21

Coal prices

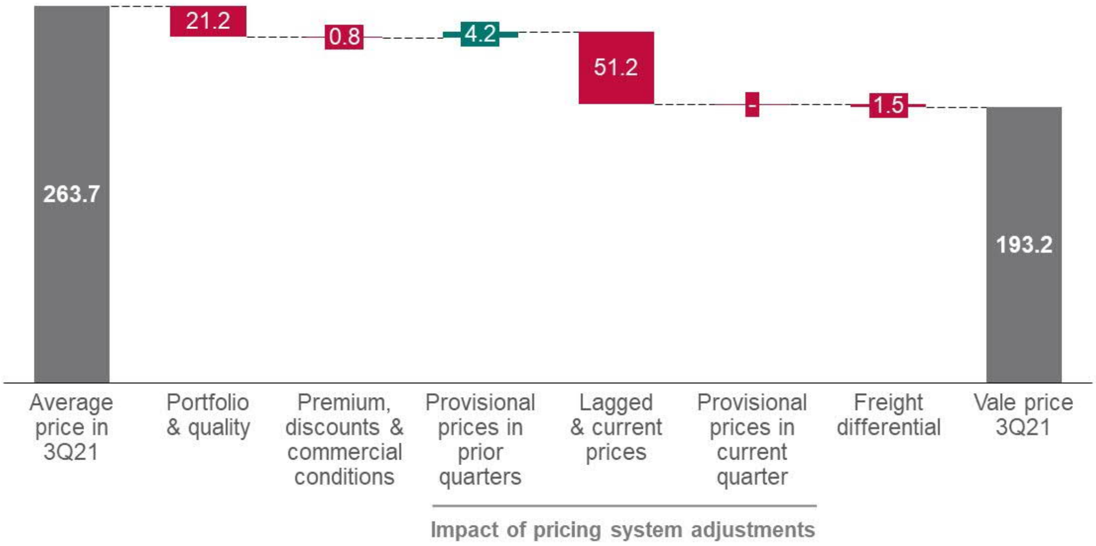
US$/ metric ton	3Q21	2Q21	3Q20
Metallurgical coal index price[1]	263.7	137.5	114.8
Vale's metallurgical coal realized price	193.2	139.7	93.8
Thermal coal index price[2]	138.7	104.7	55.4
Vale's thermal coal realized price	81.3	72.4	47.0
Vale's average realized price	**130.1**	**103.5**	**74.4**

[1] Reference price Premium Low Vol Hard Coking Coal FOB Australia.

[2] McCloskey FOB Richards Bay

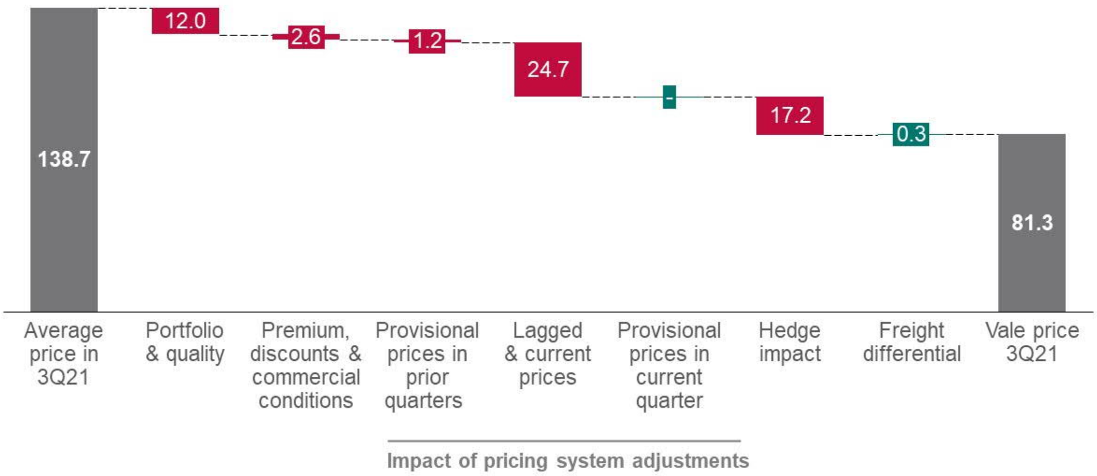
Price realization – Metallurgical coal

US$/t 3Q21



Price realization – Thermal coal

US$/t 3Q21



Costs and expenses

Pro-forma C1 cash cost totaled US$ 111.2/t; a decrease compared to 2Q21 mainly due to the absence of the cost related to the Nacala non-operational tariff, given the consolidation of Nacala and the prepayment of Project Finance. Costs totaled US$ 314 million in 3Q21, in line with 2Q21, given the reduction of C1 cash cost was offset by the impact of higher absolute variable cost resulting from higher sales volumes.

Pro-forma cash cost

US$/ metric ton	3Q21	2Q21	3Q20
Pro-forma operational costs[1] (A)	122.7	103.2	103.9
Nacala non-operational tariff [2] (B)	n.a.	34.8	31.4
Other costs (C) [3]	(11.5)	8.7	(43.5)
Cost at Nacala Port (D = A+B+C)	111.2	146.7	91.8
NLC's debt service to Vale (E)	n.a.	-	14.5
Pro-forma C1 cash cost (F = D-E)	111.2	146.7	77.3
Idle capacity	-	62.8	140.9
Total	111.2	209.5	218.2

[1] Includes the inferred NLC tariff components related to fixed and variable costs and excludes royalties.

[2] Up until 2Q21, it included the inferred NLC tariff components related to sustaining capex, working capital, taxes and other financial items.

[3] Average costs of inventories are monthly tested vs. the expected sales prices leading to positive or negative variations, depending on previous provisions recorded.

Selected financial indicators - Coal

US$ million	3Q21	2Q21	3Q20
Net Revenues	352	161	103
Costs[1 2]	(314)	(323)	(321)
Expenses[1]	(5)	-	(5)
R&D expenses	(1)	(2)	(10)
Dividends and interests on associates and JVs	-	-	20
Adjusted EBITDA	32	(164)	(213)
Depreciation and amortization	(51)	(17)	-
Adjusted EBIT	(19)	(181)	(213)
Adjusted EBIT margin (%)	(5)	(112)	(207)

[1] Net of depreciation and amortization

[2] Including idle capacity

ANNEXES

SIMPLIFIED FINANCIAL STATEMENTS

Income Statement

US$ million	3Q21	2Q21	3Q20
Net operating revenue	**12,682**	**16,675**	**10,762**
Cost of goods sold and services rendered	(5,836)	(5,805)	(4,816)
Gross profit	**6,846**	**10,870**	**5,946**
Gross margin (%)	54.0	65.2	55.2
Selling and administrative expenses	(115)	(133)	(127)
Research and evaluation expenses	(136)	(141)	(105)
Pre-operating and operational stoppage	(165)	(191)	(188)
Brumadinho event	(161)	(185)	(114)
Other operational expenses, net	(36)	(74)	(113)
Impairment and disposal of non-current assets	(2,390)	(432)	(298)
Operating income	**3,843**	**9,714**	**5,001**
Financial income	91	86	69
Financial expenses	(136)	(177)	(1,215)
Other financial items, net	(328)	441	(214)
Equity results and other results in associates and joint ventures	128	(454)	(40)
Income (loss) before income taxes	**3,598**	**9,610**	**3,601**
Current tax	(2,464)	(1,201)	(743)
Deferred tax	2,824	(872)	(51)
Net income	**3,958**	**7,537**	**2,807**
Loss attributable to noncontrolling interests	72	(49)	(101)
Net income attributable to Vale's stockholders	**3,886**	**7,586**	**2,908**
Earnings per share (attributable to the Company's stockholders - US$):			
Basic and diluted earnings per share (attributable to the Company's stockholders - US$)	0.76	1.49	0.57

Equity income (loss) by business segment

US$ million	3Q21	%	2Q21	%	3Q20	%
Ferrous Minerals	58	29	55	52	19	(317)
Base Metals	-	-	-	-	(1)	17
Coal	-	-	-	-	-	-
Others	140	71	50	48	(24)	400
Total	**198**	**100**	**105**	**100**	**(6)**	**100**

Balance sheet

US$ million	9/30/2021	6/30/2021	9/30/2020
Assets			
Current assets	**19,991**	**25,403**	**17,544**
Cash and cash equivalents	10,857	13,649	8,845
Short term investments	521	951	125
Accounts receivable	873	4,954	3,014
Other financial assets	1,366	214	454
Inventories	5,085	4,701	4,329
Recoverable taxes	824	668	474
Others	405	266	303
Non-current assets held for sale	60	-	-
Non-current assets	**14,790**	**14,235**	**15,799**
Judicial deposits	1,221	1,326	2,040
Other financial assets	162	1,430	2,472
Recoverable taxes	1,322	1,440	1,071
Deferred income taxes	11,402	9,338	9,610
Others	683	701	606
Fixed assets	**52,099**	**57,078**	**46,638**
Total assets	**86,880**	**96,716**	**79,981**
Liabilities			
Current liabilities	**16,074**	**14,335**	**10,684**
Suppliers and contractors	4,096	3,777	3,099
Loans, borrowings and leases	1,345	992	1,024
Other financial liabilities	1,557	1,547	1,782
Taxes payable	2,594	1,678	807
Settlement program (REFIS)	330	356	313
Provisions	1,176	1,156	1,016
Liabilities related to associates and joint ventures	1,551	1,467	688
Liabilities related to Brumadinho	2,336	2,223	936
De-characterization of dams	435	454	320
Dividends and interest on capital	35	27	-
Others	606	658	699
Liabilities associated with non-current assets held for sale	13	-	-
Non-current liabilities	**36,717**	**40,022**	**36,088**
Loans, borrowings and leases	12,240	12,870	14,041
Participative stockholders' debentures	4,128	4,687	2,533
Other financial liabilities	2,825	3,027	2,756
Settlement program (REFIS)	2,080	2,336	2,287
Deferred income taxes	1,928	1,985	1,635
Provisions	7,274	8,003	7,781
Liabilities related to associates and joint ventures	714	1,024	797
Liabilities related to Brumadinho	2,020	2,268	614
De-characterization of dams	1,422	1,701	1,254
Streaming transactions	1,936	1,961	2,017
Others	150	160	373
Total liabilities	**52,791**	**54,357**	**46,772**
Stockholders' equity	**34,089**	**42,359**	**33,209**
Total liabilities and stockholders' equity	**86,880**	**96,716**	**79,981**

Cash flow

US$ million	3Q21	2Q21	3Q20
Cash flow from operations	**10,194**	**9,277**	**5,567**
Interest on loans and borrowings paid	(173)	(138)	(203)
Cash received (paid) on settlement of Derivatives, net	22	60	(130)
Interest on participative stockholders debentures paid	-	(193)	-
Income taxes (including settlement program)	(992)	(1,280)	(450)
Net cash provided by operating activities	**9,051**	**7,726**	**4,784**
Cash flows from investing activities:			
Short-term investment	424	543	-
Capital expenditures	(1,248)	(1,139)	(872)
Investment in fund applications	-	-	(31)
Acquisition of NLC, net of cash	-	(2,345)	-
Dividends received from joint ventures and associates	5	43	2
Other investment activities, net	18	(189)	(106)
Net cash used in investing activities	**(801)**	**(3,087)**	**(1,007)**
Cash flows from financing activities:			
Loans and financing:			
Loans and borrowings from third-parties	-	10	1,800
Payments of loans and borrowings from third-parties	(111)	(179)	(5,265)
Lease payments	(58)	(49)	(45)
Payments to stockholders:			
Dividends and interest on capital paid to stockholders	**(7,391)**	**(2,208)**	**(3,327)**
Dividends and interest on capital paid to noncontrolling interest	(3)	(3)	(3)
Share buyback program	(2,841)	(2,004)	-
Net cash used in financing activities	**(10,404)**	**(4,433)**	**(6,840)**
Increase (decrease) in cash and cash equivalents	**(2,154)**	**206**	**(3,063)**
Cash and cash equivalents in the beginning of the period	13,649	12,883	12,113
Effect of exchange rate changes on cash and cash equivalents	(638)	560	(205)
Cash and cash equivalents at the end of period	**10,857**	**13,649**	**8,845**
Non-cash transactions:		-	-
Additions to property, plant and equipment - capitalized loans and borrowing costs	14	14	13
Cash flows from operating activities:		-	-
Income before income taxes	**3,598**	**9,610**	**3,601**
Adjusted for:		-	-
Provisions related to Brumadinho	-	-	-
Equity results and other results in associates and joint ventures	(128)	454	40
Impairment and disposal of non-current assets	2,390	432	298
Depreciation, depletion and amortization	700	849	774
Financial results, net	373	(350)	1,360
Change in assets and liabilities	-	-	-
Accounts receivable	3,889	(1,105)	(276)
Inventories	(574)	(188)	(298)
Suppliers and contractors	338	291	214
Provision - Payroll, related charges and other remunerations	60	82	177
Payments related to Brumadinho	(186)	(303)	(218)
Other assets and liabilities, net	(266)	(495)	(105)
Cash flow from operations	**10,194**	**9,277**	**5,567**

REVENUES, VOLUMES SOLD, PRICES AND MARGINS

Net operating revenue by destination

US$ million	3Q21	%	2Q21	%	3Q20	%
North America	**387**	**3.1**	**578**	**3.5**	**283**	**2.6**
USA	345	2.7	449	2.7	278	2.6
Canada	42	0.3	129	0.8	5	0.0
South America	**1,846**	**14.6**	**1,780**	**10.7**	**862**	**8.0**
Brazil	1,580	12.5	1,531	9.2	717	6.7
Others	266	2.1	249	1.5	145	1.3
Asia	**8,506**	**67.1**	**11,426**	**68.5**	**7,800**	**72.5**
China	5,673	44.7	8,976	53.8	6,416	59.6
Japan	1,451	11.4	1,082	6.5	558	5.2
South Korea	555	4.4	439	2.6	296	2.8
Others	827	6.5	929	5.6	530	4.9
Europe	**1,348**	**10.6**	**2,191**	**13.1**	**1,400**	**13.0**
Germany	350	2.8	617	3.7	441	4.1
Italy	159	1.3	231	1.4	58	0.5
Others	839	6.6	1,343	8.1	901	8.4
Middle East	**136**	**1.1**	**456**	**2.7**	**249**	**2.3**
Rest of the World	**459**	**3.6**	**244**	**1.5**	**168**	**1.6**
Total	**12,682**	**100.0**	**16,675**	**100.0**	**10,762**	**100.0**

Volume sold - Minerals and metals

'000 metric tons	3Q21	2Q21	3Q20
Iron ore fines	67,304	66,740	65,607
ROM	540	479	162
Pellets	8,037	7,647	8,464
Manganese ore	111	169	428
Ferroalloys	16	15	15
Thermal coal	1,490	831	572
Metallurgical coal	1,150	713	809
Nickel	42	47	50
Copper	65	74	81
Gold as by-product ('000 oz)	92	95	100
Silver as by-product ('000 oz)	210	522	560
PGMs ('000 oz)	11	69	60
Cobalt (metric ton)	538	568	333

Average realized prices

US$/ton	3Q21	2Q21	3Q20
Iron ore fines Vale CFR reference (dmt)	142.5	202.0	123.1
Iron ore fines Vale CFR/FOB realized price	126.7	182.8	112.1
Pellets CFR/FOB (wmt)	249.9	254.7	141.2
Manganese ore	163.9	171.8	85.3
Ferroalloys	1,792.3	1,508.1	968.2
Thermal coal	98.6	72.4	47.0
Metallurgical coal	193.2	139.7	93.8
Nickel	18,211	17,183	15,824
Copper[1]	7,933	9,590	6,441
Gold (US$/oz)	1,798	1,708	2,177
Silver (US$/oz)	24.15	25.05	22.53
Cobalt (US$/t)	56,859	43,039	55,876

[1]Considers Salobo, Sossego and North Atlantic operations.

Operating margin by segment (EBIT adjusted margin)

%	3Q21	2Q21	3Q20
Ferrous Minerals	59.2	71.5	62.8
Base Metals	20.5	26.4	31.3
Coal	(5.4)	(112.4)	(206.8)
Total	**49.2**	**61.1**	**49.4**

RECONCILIATION OF IFRS AND "NON-GAAP" INFORMATION

(a) Adjusted EBIT

US$ million	3Q21	2Q21	3Q20
Net operating revenues	12,682	16,675	10,762
COGS	(5,836)	(5,805)	(4,816)
Sales and administrative expenses	(115)	(133)	(127)
Research and development expenses	(136)	(141)	(105)
Pre-operating and stoppage expenses	(165)	(191)	(188)
Brumadinho event	(161)	(185)	(114)
Other operational expenses, net	(36)	(74)	(113)
Dividends received and interests from associates and JVs	5	43	22
Adjusted EBIT	**6,238**	**10,189**	**5,321**

(b) Adjusted EBITDA

EBITDA defines profit or loss before interest, tax, depreciation, depletion and amortization. The definition of Adjusted EBITDA for the Company is the operating income or loss plus dividends received and interest from associates and joint ventures, and excluding the amounts charged as (i) depreciation, depletion and amortization and (ii) impairment and disposal of non-current assets. However, our adjusted EBITDA is not the measure defined as EBITDA under IFRS and may possibly not be comparable with indicators with the same name reported by other companies. Adjusted EBITDA should not be considered as a substitute for operational profit or as a better measure of liquidity than operational cash flow, which are calculated in accordance with IFRS. Vale provides its adjusted EBITDA to give additional information about its capacity to pay debt, carry out investments and cover working capital needs. The following tables shows the reconciliation between adjusted EBITDA and operational cash flow and adjusted EBITDA and net income, in accordance with its statement of changes in financial position.
The definition of Adjusted EBIT is Adjusted EBITDA plus depreciation, depletion and amortization.

Reconciliation between adjusted EBITDA and operational cash flow

US$ million	3Q21	2Q21	3Q20
Adjusted EBITDA	**6,938**	**11,038**	**6,095**
Working capital:			
Accounts receivable	3,889	(1,105)	(276)
Inventories	(574)	(188)	(298)
Suppliers and contractors	338	291	214
Provision - Payroll, related charges and other remunerations	60	82	177
Payments related to Brumadinho	(186)	(303)	(218)
Others	(271)	(538)	(127)
Cash provided from operations	**10,194**	**9,277**	**5,567**
Income taxes paid - including settlement program	(992)	(1,280)	(450)
Interest on loans and borrowings paid	(173)	(138)	(203)
Interest on participative shareholders' debentures paid	-	(193)	-
Cash received (paid) on settlement of Derivatives, net	22	60	(130)
Net cash provided by (used in) operating activities	**9,051**	**7,726**	**4,784**

Reconciliation between adjusted EBITDA and net income (loss)

US$ million	3Q21	2Q21	3Q20
Adjusted EBITDA	**6,938**	**11,038**	**6,095**
Depreciation, depletion and amortization	(700)	(849)	(774)
Dividends received and interest from associates and joint ventures	(5)	(43)	(22)
Impairment and disposal of non-current assets	(2,390)	(432)	(298)
Operating income	**3,843**	**9,714**	**5,001**
Financial results	(373)	350	(1,360)
Equity results and other results in associates and joint ventures	128	(454)	(40)
Income taxes	360	(2,073)	(794)
Net income	**3,958**	**7,537**	**2,807**
Net income (loss) attributable to noncontrolling interests	72	(49)	(101)
Net income attributable to Vale's stockholders	**3,886**	**7,586**	**2,908**

(c) Net debt

US$ million	3Q21	2Q21	3Q20
Gross debt	11,951	12,154	13,444
Leases	1,634	1,708	1,621
Cash and cash equivalents[1]	11,378	14,600	8,970
Net debt	2,207	(738)	6,095

[1] Including financial investments

(d) Gross debt / LTM Adjusted EBITDA

US$ million	3Q21	2Q21	3Q20
Gross debt and leases / LTM Adjusted EBITDA (x)	0.4	0.5	0.9
Gross debt and leases / LTM operational cash flow (x)	0.4	0.5	1.3

(e) LTM Adjusted EBITDA / LTM interest payments

US$ million	3Q21	2Q21	3Q20
Adjusted LTM EBITDA / LTM gross interest (x)	41.1	37.4	19.4
LTM adjusted EBITDA / LTM interest payments (x)	41.4	38.7	18.7
LTM operational profit / LTM interest payments (x)	31.0	31.3	8.2