



Vale's Performance in 2018



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Conference call and webcast on Thursday, March 28th

Portuguese (non-translated) at 10:00 a.m. Rio de Janeiro time

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English, at 12:00 p.m. Rio de Janeiro time (11:00 a.m. New York time, 3:00 p.m. London time).

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The conference call and presentation will be transmitted live via webcast available at:
www.choruscall.com.br/vale/4q18.htm

Except where otherwise indicated the operational and financial information in this release is based on the consolidated figures in accordance with IFRS. Our quarterly financial statements are reviewed by the company's independent auditors. The main subsidiaries that are consolidated are the following: Companhia Portuária da Baía de Sepetiba, Mineração Corumbaense Reunida S.A., Minerações Brasileiras Reunidas S.A. PT Vale Indonesia Tbk, Salobo Metais S.A, Vale International Holdings GMBH, Vale Canada Limited, Vale International S.A., Vale Manganês S.A., Vale Malaysia Minerals Sdn. Bhd., Vale Moçambique S.A., Vale Nouvelle-Calédonie SAS, Vale Oman Pelletizing Company LLC and Vale Oman Distribution Center LLC. This press release may include statements about Vale's current expectations about future events or results (forward-looking statements). Many of those forward-looking statements can be identified by the use of forward-looking words such as "anticipate," "believe," "could," "expect," "should," "plan," "intend," "estimate" "will" and "potential," among others. All forward-looking statements involve various risks and uncertainties. Vale cannot guarantee that these statements will prove correct. These risks and uncertainties include, among others, factors related to: (a) the countries where Vale operates, especially Brazil and Canada; (b) the global economy; (c) the capital markets; (d) the mining and metals prices and their dependence on global industrial production, which is cyclical by nature; and (e) global competition in the markets in which Vale operates. Vale cautions you that actual results may differ materially from the plans, objectives, expectations, estimates and intentions expressed in this presentation. Vale undertakes no obligation to publicly update or revise any forward-looking statement, whether as a result of new information or future events or for any other reason. To obtain further information on factors that may lead to results different from those forecast by Vale, please consult the reports that Vale files with the U.S. Securities and Exchange Commission (SEC), the Brazilian Comissão de Valores Mobiliários (CVM), the French Autorité des Marchés Financiers (AMF) and, in particular, the factors discussed under "Forward-Looking Statements" and "Risk Factors" in Vale's annual report on Form 20-F. Cautionary Note to U.S. Investors - The SEC permits mining companies, in their filings with the SEC, to disclose only those mineral deposits that a company can economically and legally extract or produce. We present certain information in this presentation, including 'measured resources,' 'indicated resources,' 'inferred resources,' 'geologic resources', which would not be permitted in an SEC filing. These materials are not proven or probable reserves, as defined by the SEC, and we cannot assure you that these materials will be converted into proven or probable reserves, as defined by the SEC. U.S. Investors should consider closely the disclosure in our Annual Report on Form 20-K, which may be obtained from us, from our website or at <http://http://us.sec.gov/edgar.shtml>. The information contained in this press release includes financial measures that are not prepared in accordance with IFRS. These non-IFRS measures differ from the most directly comparable measures determined under IFRS, but we have not presented a reconciliation to the most directly comparable IFRS measures, because the non-IFRS measures are forward-looking and a reconciliation cannot be prepared without unreasonable efforts.

Rupture of Brumadinho Dam I

In the early afternoon of January 25th, 2019, there was a rupture of the Dam I in the Córrego do Feijão Mine in Brumadinho (MG) and, since then, Vale has been making every effort to meet the needs of those affected and to mitigate damages.

Since the first days following the rupture of the Dam I, Vale's initiatives have had four main purposes: (i) assistance to the affected people and recovery of the area affected by the rupture of the Dam I; (ii) determination of the causes of the rupture of the Dam I; (iii) ensure the safety of our existing upstream structures and of the communities nearby; and, (iv) acceleration of the decommissioning or de-characterization process of our remaining upstream dams.

Extensive details about all those initiatives may be found at the "Report from Administration" published on March 27th, 2019.

Vale's performance in 2018

Selected financial indicators

<i>US\$ million</i>	4Q18	3Q18	4Q17
Net operating revenues	9,813	9,543	9,167
Total costs and expenses	6,234	6,100	6,270
Adjusted EBIT	3,699	3,476	3,133
Adjusted EBIT margin (%)	38%	36%	34%
Adjusted EBITDA	4,467	4,325 ¹	4,109
Adjusted EBITDA margin (%)	46%	45%	45%
Iron ore - 62% Fe reference price	71.6	66.7	65.6
Net income (loss)	3,786	1,408	771
Net debt	9,650	10,704	18,143
Capital expenditures	1,497	692	977

<i>US\$ million</i>	2018	2017	%
Net operating revenues	36,575	33,967	7.7
Total costs and expenses	23,721	22,743	4.3
Adjusted EBIT	13,242	11,630	13.9
Adjusted EBIT margin (%)	36%	34%	5.9
Adjusted EBITDA	16,593	15,338	8.2
Adjusted EBITDA margin (%)	45%	45%	1.5
Net income (loss)	6,860	5,507	24.6
Capital expenditures	3,784	3,848	(1.6)

¹ Includes provision for litigation.

Adjusted EBITDA

Adjusted EBITDA

US\$ million	4Q18	3Q18	4Q17	2018	2017
Net operating revenues	9,813	9,543	9,167	36,575	33,967
COGS	(5,752)	(5,756)	(5,791)	(22,109)	(21,039)
SG&A	(141)	(136)	(146)	(523)	(531)
Research and development	(125)	(87)	(104)	(373)	(340)
Pre-operating and stoppage expenses	(66)	(60)	(125)	(271)	(413)
Other operational expenses	(150)	(61)	(104)	(445)	(420)
Dividends and interests on associates and JVs	120	33	236	388	406
Adjusted EBIT	3,699	3,476	3,133	13,242	11,630
Depreciation, amortization & depletion	768	849	976	3,351	3,708
Adjusted EBITDA	4,467	4,325²	4,109	16,593	15,338
Iron ore - 62% Fe reference price	71.6	66.7	65.6	69.5	65.6

Adjusted EBITDA by business area

US\$ million	4Q18	3Q18	4Q17	2018	2017
Ferrous Minerals	4,115	3,960	3,427	14,711	13,553
Coal	16	16	74	181	362
Base Metals	592	528	815	2,542	2,256
Others	(259)	(179)	(207)	(841)	(833)
Total	4,467	4,325²	4,109	16,593	15,338
Iron ore - 62% Fe reference price	71.6	66.7	65.6	69.5	65.6

Net operating revenue by business area

US\$ million	4Q18	%	3Q18	%	4Q17	%	2018	%	2017	%
Ferrous Minerals	7,646	77.9	7,439	78.0	6,698	73.1	27,933	76.4	25,129	74.0
Iron ore fines	5,487	55.9	5,594	58.6	5,023	54.8	20,354	55.6	18,524	54.5
ROM	9	0.1	9	0.1	8	0.1	35	0.1	38	0.1
Pellets	1,921	19.6	1,627	17.0	1,422	15.5	6,651	18.2	5,653	16.6
Manganese ore	70	0.7	61	0.6	88	1.0	288	0.8	289	0.9
Ferroalloys	41	0.4	43	0.5	47	0.5	166	0.5	180	0.5
Others	118	1.2	105	1.1	110	1.2	439	1.2	445	1.3
Coal	482	4.9	425	4.5	402	4.4	1,643	4.5	1,567	4.6
Metallurgical coal	351	3.6	284	3.0	306	3.3	1,189	3.3	1,240	3.7
Thermal coal	131	1.3	141	1.5	96	1.0	454	1.2	327	1.0
Base Metals	1,613	16.4	1,586	16.6	2,000	21.8	6,703	18.3	6,871	20.2
Nickel	723	7.4	807	8.5	941	10.3	3,231	8.8	3,139	9.2
Copper	582	5.9	452	4.7	744	8.1	2,115	5.8	2,530	7.4
PGMs	78	0.8	103	1.1	62	0.7	381	1.0	296	0.9
Gold as by-product	152	1.6	150	1.6	157	1.7	606	1.7	587	1.7
Silver as by-product	9	0.1	5	0.1	9	0.1	31	0.1	33	0.1
Cobalt	64	0.7	65	0.7	79	0.9	313	0.9	258	0.8
Others	5	0.0	4	0.0	8	0.1	26	0.1	28	0.1
Others	72	0.7	93	1.0	67	0.7	296	0.8	400	1.2
Total	9,813	100.0	9,543	100.0	9,167	100.0	36,575	100.0	33,967	100.0

² Includes provision for litigation.

COGS by business segment

US\$ million	4Q18	%	3Q18	%	4Q17	%	2018	%	2017	%
Ferrous Minerals	3,881	67	3,808	66	3,664	63	14,641	66	13,007	62
Base Metals	1,260	22	1,383	24	1,558	27	5,363	24	5,989	28
Coal	543	9	498	9	490	8	1,820	8	1,641	8
Other products	68	1	67	1	79	1	285	1	402	2
Total COGS	5,752	100	5,756	100	5,791	100	22,109	100	21,039	100
Depreciation	738		814		918		3,207		3,484	
COGS, ex-depreciation	5,014		4,942		4,873		18,902		17,555	

Expenses

US\$ million	4Q18	3Q18	4Q17	2018	2017
SG&A ex-depreciation	129	118	125	461	440
SG&A	141	136	146	523	531
Administrative	110	118	127	428	463
Personnel	48	61	62	212	234
Services	34	21	29	92	77
Depreciation	12	18	21	62	91
Others	16	18	15	62	61
Selling	31	18	19	95	68
R&D	125	87	104	373	340
Pre-operating and stoppage expenses	66	60	125	271	413
Stobie & Birchtree	4	3	-	16	50
S11D	22	17	43	82	150
Others	22	23	45	91	80
Depreciation	18	17	37	82	133
Other operating expenses	150	61	104	445	420
Total expenses	482	344	479	1,612	1,704
Depreciation	30	35	58	144	224
Expenses ex-depreciation	452	309	421	1,468	1,480

Financial results

US\$ million	4Q18	3Q18	4Q17	2018	2017
Financial expenses	(550)	(367)	(562)	(2,345)	(3,273)
Gross interest	(283)	(272)	(378)	(1,185)	(1,697)
Capitalization of interest	40	50	73	194	370
Tax and labor contingencies	(7)	(7)	(10)	(31)	(52)
Shareholder debentures	(60)	(3)	(54)	(550)	(625)
Others	(195)	(87)	(124)	(571)	(872)
Financial expenses (REFIS)	(45)	(48)	(69)	(202)	(397)
Financial income	113	111	149	423	478
Derivatives¹	55	(105)	(29)	(266)	454
Currency and interest rate swaps	83	(80)	(133)	(279)	313
Others ² (bunker oil, commodities, etc)	(28)	(25)	104	13	141
Foreign Exchange	448	(685)	(540)	(2,247)	(467)
Monetary variation	(81)	(217)	(305)	(522)	(211)
Financial result, net	(15)	(1,263)	(1,287)	(4,957)	(3,019)

¹ The net derivatives loss of US\$ 55 million in 4Q18 is comprised of settlement loss of US\$ 32 million and mark-to-market gains of US\$ 87 million.

² Other derivatives include bunker oil derivatives which, for 4Q18 were US\$51 million.

Shareholders' remuneration

In light of the breach of Dam I of the Córrego do Feijão mine in Brumadinho (MG, Brazil), on January 27th, 2019, Vale's Board of Directors decided to suspend of the Shareholder Remuneration Policy, and therefore the non-payment of dividends and interest on capital, as well as any other decisions on shares buyback. By its turn, the Brazilian corporate law and establishes a mandatory shareholder remuneration of 25% of the company's profits in the fiscal year, a definition that was duly complied with as per the performance in 2018.

Vale's net profit in 2018 was R\$ 25.657 billion, out of which the minimum legal reserves and fiscal incentives (R\$ 2.780 billion) need to be discounted, following local regulation on the subject. Hence, the net profit to be used as the basis for the calculation of the minimum mandatory shareholder remuneration in 2018 was R\$ 22.877 billion. The 25% share of this amount equals to R\$ 5.719 billion. Considering that the distribution of interest on capital is subject to a 15% deduction of withholding income tax borne by shareholders, and taking into account that local regulation defines that the 25% of net profit needs to be the net amount of cash received by shareholders after such taxes are applied, the final minimum mandatory shareholder remuneration for the fiscal year of 2018 – as defined by the Brazilian law and established in Vale's By-laws – was R\$ 6.729 billion.

Vale has already remunerated over and above this minimum threshold with the payment of dividends / interest on capital of R\$ 7.694 billion on September 20th, 2018, which was paid as a component of the minimum remuneration related to the period ended on December 31st, 2018.

CAPEX

Project Execution and Sustaining by business area

US\$ million	4Q18	%	3Q18	%	4Q17	%	2018	%	2017	%
Ferrous Minerals	838	56.0	437	63.2	680	69.6	2,392	63.2	2,680	69.7
Coal	59	3.9	30	4.3	33	3.4	156	4.1	118	3.1
Base Metals	595	39.7	223	32.2	259	26.5	1,223	32.3	1,009	26.2
Power generation	5	0.3	2	0.3	6	0.6	12	0.3	34	0.9
Others	-	-	-	-	-	-	1	0.0	7	0.2
Total	1,497	100.0	692	100.0	977	100.0	3,784	100.0	3,847	100.0

Capital projects progress indicator³

Project	Capacity (Mtpy)	Estimated start-up	Executed capex (US\$ million)		Estimated capex (US\$ million)		Physical progress
			2018	Total	2019	Total	
Ferrous Minerals project							
CLN S11D	230 (80) ^a	1H14 to 2H19	578	7,146	209	7,679 ^b	97%

^a Net additional capacity.

^b Original capex budget of US\$ 11.582 billion.

Project execution by business area

US\$ million	4Q18	%	3Q18	%	4Q17	%	2018	%	2017	%
Ferrous Minerals	197	99.5	122	99.2	315	90.8	823	92.7	1,485	91.8
Coal	-	-	-	-	5	1.4	24	2.7	45	2.8
Base Metals	-	-	-	-	23	6.6	34	3.8	50	3.1
Power generation	1	0.5	1	0.8	5	1.4	6	0.7	30	1.9
Others	-	-	-	-	-	-	1	0.1	7	0.4
Total	198	100.0	123	100.0	347	100.0	888	100.0	1,617	100.0

Replacement projects progress indicator³

Project	Capacity (Ktpy)	Estimated start-up	Executed capex (US\$ million)		Estimated capex (US\$ million)		Physical progress
			2018	Total	2019	Total	
Voisey's Bay Mine Extension	40	1H21	163	223	1,694	1,694	17%
Gelado	9,700	2H21	5	5	384	428	3%

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.

Sustaining capex by type - 4Q18

<i>US\$ million</i>	Ferrous Minerals	Coal	Base Metals	Total
Operations	425	51	415	891
Dam management	14	-	24	38
New conventional dams	12	-	17	29
Dam raisings	8	-	13	21
Waste dumps	9	-	-	9
Others	1	-	-	1
Health and Safety	76	2	18	96
Social investments and environmental protection	30	3	99	132
Administrative & Others	67	2	11	80
Total	641	59	598	1,298

Sustaining capex by business area

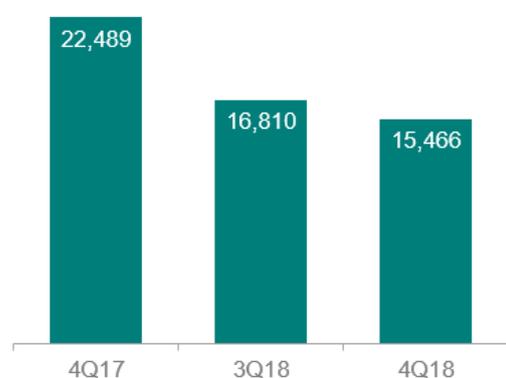
<i>US\$ million</i>	4Q18	%	3Q18	%	4Q17	%	2018	%	2017	%
Ferrous Minerals	641	49.4	315	55.4	365	57.8	1,569	54.2	1,195	53.6
Coal	59	4.5	30	5.3	28	4.4	132	5.6	73.0	3.3
Base Metals	596	45.9	223	39.2	236	37.4	1,189	41.1	959	43.0
Nickel	536	41.3	194	34.1	186	29.5	1,027	35.5	856	38.4
Copper	61	4.7	29	5.1	50	7.9	162	5.6	104	4.7
Power generation	4	0.3	1	0.2	1	0.2	6	0.2	3	0.1
Others	-	-	-	-	-	-	-	-	-	-
Total	1,298	100.0	569	100.0	631	100.0	2,896	100.0	2,231	100.0

Debt indicators

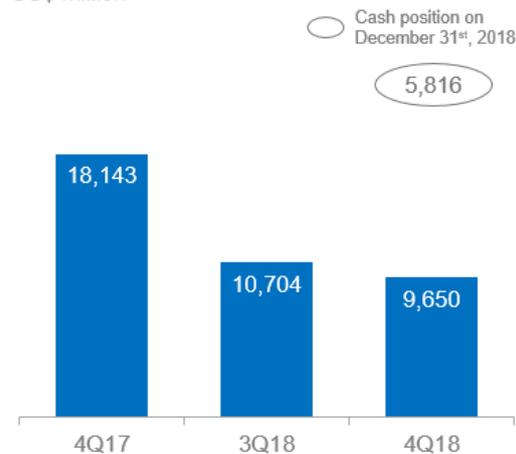
Debt indicators

US\$ million	4Q18	3Q18	4Q17
Total debt	15,466	16,810	22,489
Net debt	9,650	10,704	18,143
Total debt / adjusted LTM EBITDA (x)	0.9	1.0	1.5
Net debt / adjusted LTM EBITDA (x)	0.6	0.7	1.2
Adjusted LTM EBITDA / LTM gross interest (x)	14.0	12.8	9.0

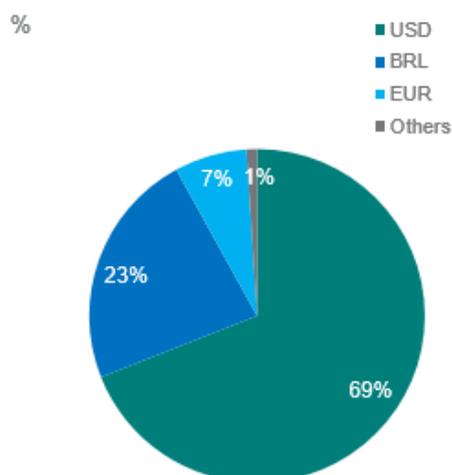
Gross debt
US\$ million



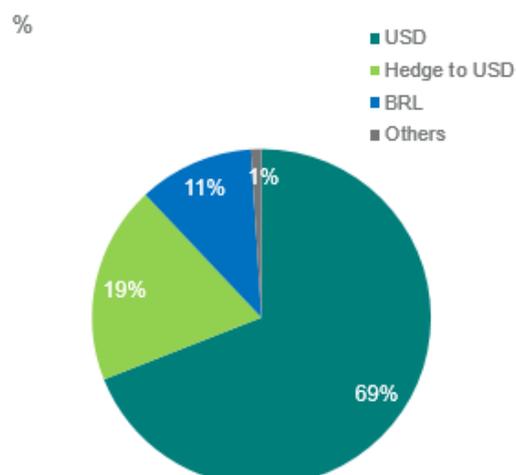
Net debt
US\$ million



Debt position breakdown by currency (before hedge)

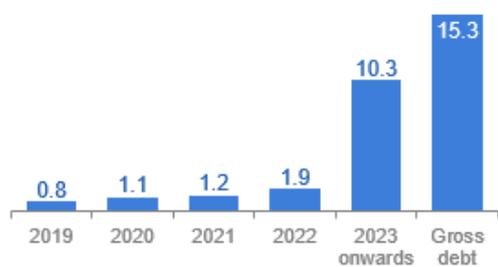


Debt position breakdown by currency (after hedge)



Debt amortization schedule¹

US\$ billion

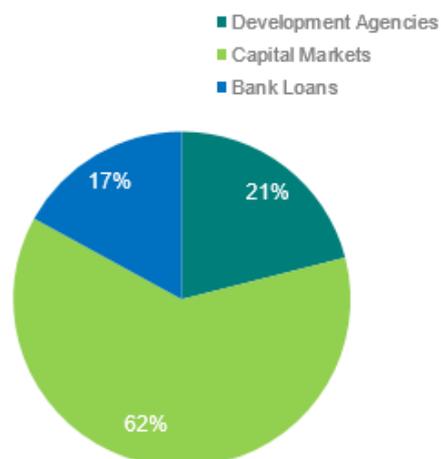


67% of debt maturity after 2023

¹ As of December 31st, 2018. Does not include accrued charges.

Debt breakdown by instrument

%



IFRS 16 - Changes to accounting standards on leasing

From 1Q19 onwards Vale will adopt the IFRS 16 accounting standard, issued by IASB in January 2016 with mandatory adoption date of January 1st, 2019. Vale expects the following impacts on its financial reporting:

- The majority of leases will be recognized on the balance sheet as the distinction between operating and finance leases is removed. Both assets (the right to use the leased item) and financial liabilities to pay rentals are recognized – exemptions are applied for some short-term leases and leases of low-value items.
- Upon adoption, a simplified transition approach will be undertaken, not restating comparative amounts for the year prior to first adoption of the new standard.
- Right-of-use assets will be measured at the amount of the lease liability upon adoption.

As of now, Vale has a total nominal value (non-NPV) of US\$ 2.5 billion of non-cancellable operating lease commitments, and an NPV ranging from US\$ 1.8 billion to US\$ 2.0 billion will be recognized as right-of-use assets and lease liabilities on the balance sheet from 1Q19 onwards.

Therefore, with the changes to IFRS 16, financial liabilities should be expected to increase in line with the increase in assets; by its turn, these changes will generate a favorable impact on EBITDA, as what is currently being accounted as operating leases will be classified as depreciation, with a corresponding positive effect on the EBITDA breakeven, among other indicators.

The above-mentioned figures are just an estimate of the impact and, as such, they are still subject to changes as (i) the assessment is still ongoing by a dedicated team and (ii) the new accounting policies may still be modified until Vale presents its 1Q19 Financial Statements.

Performance of the business segments

Segment information — 2018, as per footnote of financial statements

US\$ million	Net Revenues	Expenses				Dividends and interests on associates and JVs	Adjusted EBITDA
		Cost ¹	SG&A and others ¹	R&D ¹	Pre operating & stoppage ¹		
Ferrous Minerals	27,933	(13,044)	(94)	(138)	(135)	189	14,711
Iron ore fines	20,354	(9,048)	(76)	(110)	(115)	28	11,033
ROM	35	-	-	-	-	-	35
Pellets	6,651	(3,393)	(11)	(26)	(19)	154	3,356
Others ferrous	439	(313)	(4)	(1)	(1)	7	127
Mn & Alloys	454	(290)	(3)	(1)	-	-	160
Coal	1,643	(1,575)	(9)	(21)	-	143	181
Base Metals	6,703	(4,020)	(51)	(57)	(33)	-	2,542
Nickel ²	4,610	(3,060)	(47)	(39)	(33)	-	1,431
Copper ³	2,093	(960)	(4)	(18)	-	-	1,111
Others	296	(263)	(752)	(157)	(21)	56	(841)
Total	36,575	(18,902)	(906)	(373)	(189)	388	16,593

¹ Excluding depreciation and amortization

² Including copper and by-products from our nickel operations

³ Including by-products from our copper operations

Segment information — 4Q18, as per footnote of financial statements

US\$ million	Net Revenues	Expenses				Dividends and interests on associates and JVs	Adjusted EBITDA
		Cost ¹	SG&A and others ¹	R&D ¹	Pre operating & stoppage ¹		
Ferrous Minerals	7,646	(3,489)	(37)	(47)	(34)	76	4,115
Iron ore fines	5,487	(2,367)	(36)	(38)	(29)	27	3,044
ROM	9	-	-	-	-	-	9
Pellets	1,921	(961)	-	(9)	(4)	49	996
Others ferrous	118	(82)	(1)	-	(1)	-	34
Mn & Alloys	111	(79)	-	-	-	-	32
Coal	482	(480)	(6)	(8)	-	28	16
Base Metals	1,613	(982)	(12)	(17)	(10)	-	592
Nickel ²	1,052	(741)	(11)	(11)	(10)	-	279
Copper ³	561	(241)	(1)	(6)	-	-	313
Others	72	(63)	(224)	(53)	(4)	16	(256)
Total	9,813	(5,014)	(279)	(125)	(48)	120	4,467

¹ Excluding depreciation and amortization

² Including copper and by-products from our nickel operations

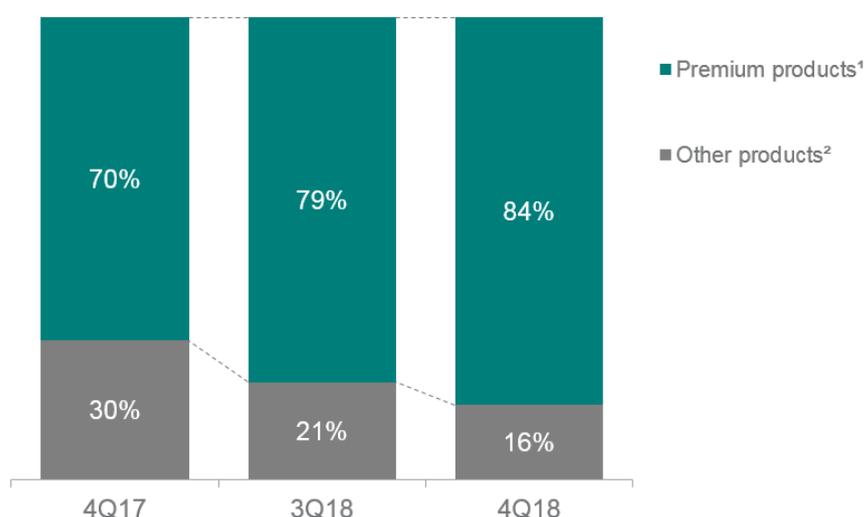
³ Including by-products from our copper operations

Ferrous Minerals

Adjusted EBITDA of the Ferrous Minerals business segment was US\$ 4.115 billion in 4Q18, US\$ 155 million higher than in 3Q18, mainly due to higher prices and lower freight costs. Average freight costs were positively impacted by the increased use of Valemax 2nd generation in operation.

Vale defined the reference price for its 2019 pellet contracts, resulting in potentially higher price realization on pellet sales. The Metal Bulletin 65% is the new reference index and the premiums for blast furnace and direct reduction pellets remained the same as 2018, US\$ 60/t on average.

Sales composition - %



¹ Composed of pellets, Carajás, Brazilian Blend Fines (BRBF), pellet feed and Sinter Feed Low Alumina (SFLA)

² Composed of standard sinter feed, lump and high silica

Iron ore fines and pellets quality premium

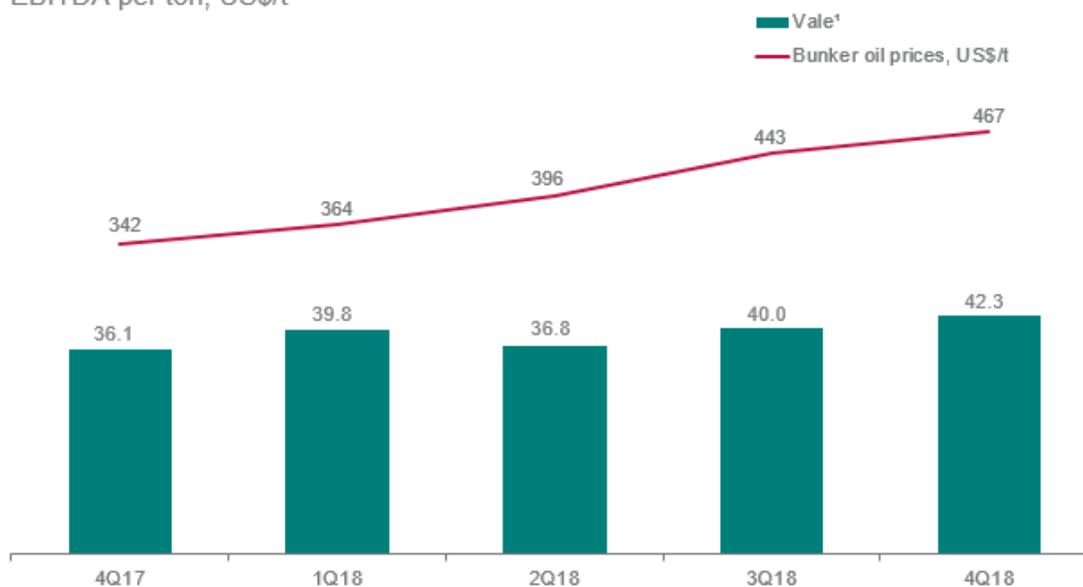
US\$/t	4Q18	3Q18	4Q17	2018	2017
Iron ore fines quality premium	8.1	8.6	3.9	7.3	3.4
Pellets weighted average contribution	3.4	2.4	1.8	2.9	1.9
Iron ore fines and pellets total quality premium	11.5	11.0	5.7	10.2	5.3

FERROUS MINERALS ADJUSTED EBITDA MARGIN⁴

Adjusted EBITDA per ton for Ferrous Minerals, excluding Manganese and Ferroalloys, was US\$ 42.3/t in 4Q18, an increase of US\$ 2.3/t (5.8%) when compared to the US\$ 40.0/t recorded in 3Q18, despite the increase in bunker oil prices (5.4%) and the appreciation of the BRL against the USD (3.6%).

⁴ Excluding Manganese and Ferroalloys.

EBITDA per ton, US\$/t



¹ Adjusted EBITDA of Ferrous Minerals excluding manganese ore and ferroalloys for Vale's figures
Source: Financial reports of Vale; Bloomberg

Net operating revenue by product

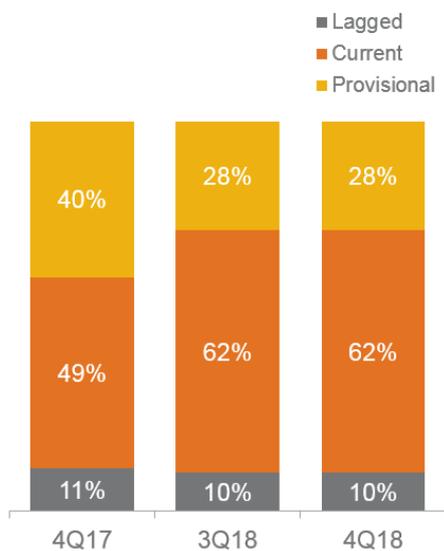
US\$ million	4Q18	3Q18	4Q17	2018	2017
Iron ore fines	5,487	5,594	5,023	20,354	18,524
ROM	9	9	8	35	38
Pellets	1,921	1,627	1,422	6,651	5,653
Manganese & Ferroalloys	111	104	135	454	469
Others	118	105	110	439	445
Total	7,646	7,439	6,698	27,933	25,129

Volume sold

'000 metric tons	4Q18	3Q18	4Q17	2018	2017
Iron ore fines	80,201	83,500	79,603	307,433	288,692
ROM	294	476	355	1,548	2,637
Pellets	15,987	14,250	13,579	56,592	51,775
Manganese ore	442	554	740	1,572	1,825
Ferroalloys	36	37	34	141	132

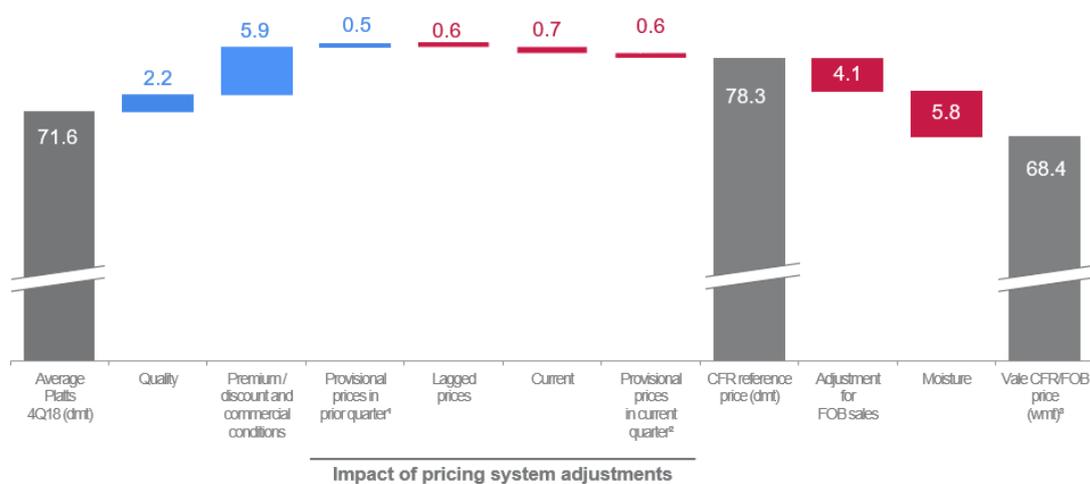
REALIZED PRICES

Pricing system breakdown - %



The percentage of sales recorded under the provisional pricing system in relation to total sales in 4Q18 was in line with 3Q18 and with 2Q18. This new level reflects Vale's reduced time to market, following the increased number of distribution centers offshore, and therefore being closer to the end customer. The reduction of the share of provisional pricing system sales also improves the predictability of Vale's results, as it decreases the price adjustments.

Price realization – iron ore fines



¹ Adjustment as a result of provisional prices booked in 3Q18 at US\$ 68.0/t.

² Difference between the weighted average of the prices provisionally set at the end of 4Q18 at US\$ 69.3/t based on forward curves and the average of US\$ 71.6/t from the 4Q18 IODEX.

³ Vale price is net of taxes.

Average prices

US\$/ metric ton	4Q18	3Q18	4Q17	2018	2017
Iron ore - Metal Bulletin 65% index	91.6	94.2	84.7	90.4	88.0
Iron ore - Metal Bulletin 62% low alumina index	75.2	72.6	n.a	73.9	n.a
Iron ore - 62% Fe reference price	71.6	66.7	65.6	69.5	71.3
Provisional price at the end of the quarter	69.3	68.0	72.8	66.5	72.7
Iron ore fines CFR reference (dmt)	78.3	76.6	72.6	76.0	88.0
Iron ore fines CFR/FOB realized price	68.4	67.0	63.1	66.2	64.2
ROM	32.6	18.7	22.6	22.8	14.4
Pellets CFR/FOB (wmt)	120.1	114.2	104.7	117.5	109.2
Manganese ore	158.9	109.1	119.3	162.5	159.0
Ferroalloys	1,141.1	1,168.6	1,361.3	1,178.5	1,353.7

COSTS

IRON ORE COGS - 3Q18 x 4Q18

US\$ million	3Q18	Variance drivers			Total variation	4Q18
		Volume	Exchange rate	Others		
C1 cash costs	1,033	(38)	23	5	(10)	1,023
Freight	1,182	(58)	-	(35)	(93)	1,089
Others	244	(7)	-	18	11	255
Total costs before depreciation and amortization	2,459	(103)	23	(12)	(92)	2,367
Depreciation	279	(11)	10	(9)	(10)	269
Total	2,738	(114)	33	(21)	(102)	2,636

Iron Ore Fines Costs and Expenses in BRL

R\$/t	4Q18	3Q18	4Q17	2018	2017
C1 cash costs ¹	48.7	49.1	47.7	49.8	47.2
Expenses ¹	3.6	2.5	2.7	3.2	2.5
Total	52.3	51.6	50.4	53.0	49.7

¹ Net of depreciation

Iron ore fines cash cost and freight

	4Q18	3Q18	4Q17	2018	2017
Costs (US\$ million)					
COGS, less depreciation and amortization	2,367	2,459	2,301	9,048	7,949
(-) Distribution costs	80	69	54	253	163
(-) Maritime freight costs (A)	1,089	1,182	947	3,950	3,064
FOB at port costs (ex-ROM)	1,198	1,208	1,300	4,845	4,722
(-) Royalties	175	175	134	665	459
FOB at port costs (ex-ROM and ex-royalties) (B)	1,023	1,033	1,166	4,179	4,263
Sales volumes (Mt)					
Total iron ore volume sold	80.5	83.9	80.0	308.9	291.3
(-) Total ROM volume sold	0.3	0.4	0.4	1.5	2.6
Volume sold (ex-ROM) (C)	80.2	83.5	79.6	307.4	288.7
Vale's iron ore cash cost (ex-ROM, ex-royalties), FOB (US\$/t) (B/C)	12.8	12.4	14.6	13.6	14.8
Freight					
Maritime freight costs (A)	1,089	1,182	947	3,950	3,064
% of CFR sales (D)	72%	73%	70%	71%	69%
Volume CFR (Mt) (E = C x D)	58.0	61.0	55.6	219.0	199.3
Vale's iron ore unit freight cost (US\$/t) (A/E)	18.8	19.4	17.0	18.0	15.4

Pellets - EBITDA

	4Q18		3Q18	
	US\$ million	US\$/wmt	US\$ million	US\$/wmt
Net Revenues / Realized Price	1,921	120.2	1,627	114.2
Dividends Received (Leased pelletizing plants)	49	3.1	-	-
Cash Costs (Iron ore, leasing, freight, overhead, energy and other)	(961)	(60.1)	(811)	(56.9)
Expenses (Selling, R&D and other)	(13)	(0.8)	(16)	(1.1)
EBITDA	996	62.3	800	56.1

Iron ore and pellets cash break-even landed in China¹

US\$/t	4Q18	3Q18	4Q17	2018	2017
Vale's iron ore cash cost (ex-ROM, ex-royalties), FOB (US\$/t)	12.8	12.4	14.6	13.6	14.8
Iron ore fines freight cost (ex-bunker oil hedge)	18.8	19.4	17.0	18.0	15.4
Iron ore fines distribution cost ²	1.0	0.8	0.7	0.8	0.6
Iron ore fines expenses ³ & royalties	3.1	2.7	2.5	3.1	2.4
Iron ore fines moisture adjustment	3.1	3.1	3.0	3.1	2.9
Iron ore fines quality adjustment	(8.1)	(8.6)	(3.9)	(7.3)	(3.4)
Iron ore fines EBITDA break-even (US\$/dmt)	30.7	29.8	34.0	31.3	32.6
Iron ore fines pellet adjustment	(3.4)	(2.4)	(1.8)	(2.9)	(1.9)
Iron ore fines and pellets EBITDA break-even (US\$/dmt)	27.3	27.4	32.2	28.5	30.8
Iron ore fines sustaining investments	6.7	3.0	4.0	4.3	3.6
Iron ore fines and pellets cash break-even landed in China (US\$/dmt)	34.0	30.4	36.1	32.8	34.3

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

² Distribution cost per ton calculation method has been revised and adjusted retroactively, now dividing by total sales volume instead of CFR sales volume

³ Net of depreciation and includes dividends received

Volume sold by destination – Iron ore and pellets

'000 metric tons	4Q18	3Q18	4Q17	2018	2017
Americas	10,413	10,608	9,994	41,051	38,799
Brazil	7,547	7,460	7,231	28,915	28,830
Others	2,866	3,148	2,763	12,136	9,969
Asia	67,075	71,028	67,093	255,803	241,413
China	53,172	56,754	54,181	203,206	196,796
Japan	6,764	7,320	7,518	29,031	27,442
Others	7,139	6,954	5,394	23,566	17,175
Europe	12,344	11,418	12,638	48,419	48,592
Germany	3,926	4,147	4,747	17,135	18,313
France	2,035	1,875	1,796	7,082	6,528
Others	6,383	5,396	6,095	24,202	23,751
Middle East	4,153	3,573	2,351	12,313	8,093
Rest of the World	2,497	1,599	1,461	7,987	6,207
Total	96,482	98,226	93,537	365,573	343,104

Selected financial indicators - Ferrous Minerals

US\$ million	4Q18	3Q18	4Q17	2018	2017
Net Revenues	7,646	7,439	6,698	27,933	25,129
Costs ¹	(3,489)	(3,416)	(3,239)	(13,044)	(11,410)
Expenses ¹	(37)	(6)	(22)	(94)	5
Pre-operating and stoppage expenses ¹	(34)	(30)	(56)	(135)	(192)
R&D expenses	(47)	(34)	(34)	(138)	(109)
Dividends and interests on associates and JVs	76	7	80	189	130
Adjusted EBITDA	4,115	3,960	3,427	14,711	13,553
Depreciation and amortization	(407)	(408)	(454)	(1,672)	(1,709)
Adjusted EBIT	3,708	3,552	2,973	13,039	11,844
Adjusted EBIT margin (%)	48.5	47.7	44.4	46.7	47.1

¹ Net of depreciation and amortization

Selected financial indicators - Iron ore fines

US\$ million	4Q18	3Q18	4Q17	2018	2017
Adjusted EBITDA (US\$ million)	3,044	3,083	2,654	11,033	10,346
Volume Sold (Mt)	80.2	83.5	79.6	307.4	288.7
Adjusted EBITDA (US\$/t)	38	37	33	36	36

Selected financial indicators - Pellets

US\$ million	4Q18	3Q18	4Q17	2018	2017
Adjusted EBITDA (US\$ million)	996	800	675	3,356	2,823
Volume Sold (Mt)	16.0	14.3	13.6	56.6	51.8
Adjusted EBITDA (US\$/t)	62	56	50	59	55

Selected financial indicators - Ferrous ex Manganese and Ferroalloys

US\$ million	4Q18	3Q18	4Q17	2018	2017
Adjusted EBITDA (US\$ million)	4,083	3,928	3,378	14,551	13,374
Volume Sold (Mt) ¹	96.5	98.2	93.5	365.6	343.1
Adjusted EBITDA (US\$/t)	42	40	36	40	39

¹ Volume including iron ore fines, pellets and ROM.

Base Metals

Annual performance

2018 was marked by: (i) the cobalt streaming deal that unlocked Voisey's Bay expansion, granting Vale higher future exposure to nickel, cobalt and copper resources; (ii) the Base Metals business operating with an enhanced single-furnace flowsheet in Sudbury at the same time that Thompson has fully transitioned to a mine-mill operation; and, (iii) the maintenance of Salobo's solid performance with sub-US\$ 1,000/t unit costs⁵ and an expansion on the horizon, as the Board approved Salobo III during 4Q18 for start-up in early 2022.

Also, in line with the strategy of exploring the potential of Vale's premium nickel products, the average realized nickel price in 2018 was US\$ 13,667/t, US\$ 545/t higher than the average LME nickel price of US\$ 13,122/t in the year, an aggregate nickel price realization 4.2% above LME prices, the highest percentage above the benchmark since 2002.

Average prices

US\$/ metric ton	4Q18	3Q18	4Q17	2018	2017
Nickel - LME	11,516	13,266	11,584	13,122	10,411
Copper - LME	6,172	6,105	6,808	6,523	6,166
Nickel	12,133	14,092	11,781	13,667	10,654
Copper	5,591	4,895	6,735	5,583	5,970
Gold (US\$/oz)	1,179	1,198	1,450	1,254	1,247
Silver (US\$/oz)	13.42	13.60	15.48	14.43	15.30
Cobalt (US\$/t)	49,090	57,706	57,680	62,911	51,513

Base Metals EBITDA overview – 4Q18

US\$ million	North Atlantic	PTVI Site	VNC Site	Onça Puma	Sossego	Salobo	Others	Total Base Metals
Net Revenues	761	197	101	81	156	405	(89)	1,613
Costs	(499)	(145)	(150)	(52)	(89)	(152)	105	(982)
Selling and other expenses	(26)	7	-	(2)	-	(1)	10	(12)
Pre-operating and stoppage	(7)	-	-	(1)	-	-	(2)	(10)
R&D	(6)	(2)	(1)	(1)	(5)	(1)	(1)	(17)
EBITDA	223	57	(50)	26	62	251	23	592

⁵ After by-products.

Nickel operations

Nickel operations – EBITDA by operation

US\$ million	4Q18	3Q18	4Q17	2018	2017
North Atlantic operation ¹	223	148	366	1,022	910
PTVI	57	70	45	236	117
VNC	(50)	(42)	12	(63)	(62)
Onça Puma	26	29	32	105	45
Others ²	23	55	(13)	131	49
Total	279	260	441	1,431	1,059

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

² Includes the PTVI and VNC off-takes, intercompany sales eliminations, purchase of finished nickel and corporate center allocation for Base Metals.

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

US\$/t	4Q18	3Q18	4Q17	2018	2017
North Atlantic operations ¹	4,703	9,234	4,624	6,227	5,287
PTVI	6,897	7,084	6,609	7,090	6,515
VNC	13,793	15,100	8,420	12,405	10,053
Onça Puma	7,517	7,938	7,536	7,751	8,642

¹ North Atlantic figures include Clydach refining costs.

EBITDA breakeven – nickel operations¹

US\$/t, 4Q18



¹ 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 breakeven would increase to US\$ 7,646/t.

SALES REVENUES AND VOLUMES

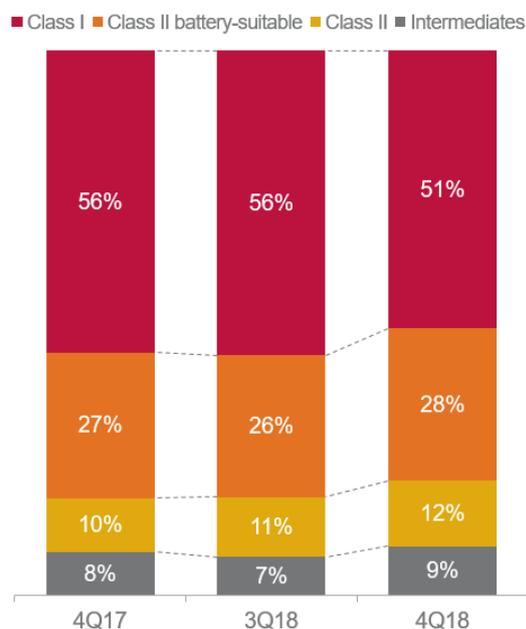
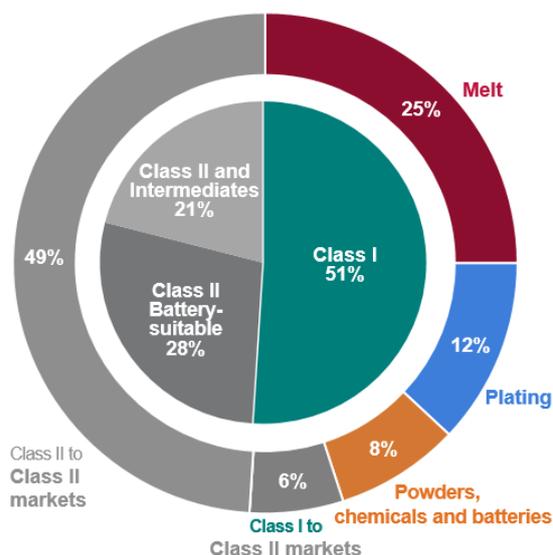
Net operating revenue by product - Nickel operations

US\$ million	4Q18	3Q18	4Q17	2018	2017
Nickel	723	807	941	3,231	3,139
Copper	160	96	250	573	838
Gold as by-product	16	10	13	68	89
Silver as by-product	6	2	5	19	19
PGMs	78	103	62	382	296
Cobalt	64	65	79	313	258
Others	5	3	8	24	28
Total	1,052	1,086	1,358	4,610	4,667

Volume sold - Nickel operations

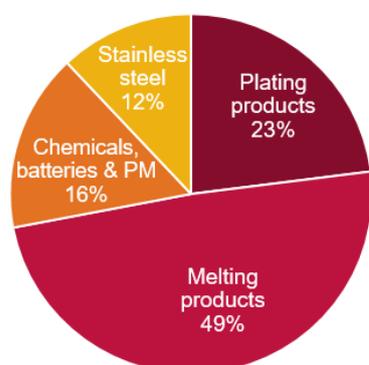
'000 metric tons	4Q18	3Q18	4Q17	2018	2017
Nickel	60	57	80	236	295
Class I nickel	31	32	44	137	158
Class II Battery-suitable nickel	17	15	18	61	74
Class II nickel	7	6	8	21	25
Intermediates	5	4	10	17	37
Copper as by-product	30	21	37	105	143
Gold as by-product ('000 oz)	12	11	-	57	74
Silver as by-product ('000 oz)	474	185	383	1,309	1,339
PGMs ('000 oz)	72	90	68	374	350
Cobalt (metric ton)	1,306	1,120	1,368	4,974	5,013

4Q18 nickel sales by product type and end markets

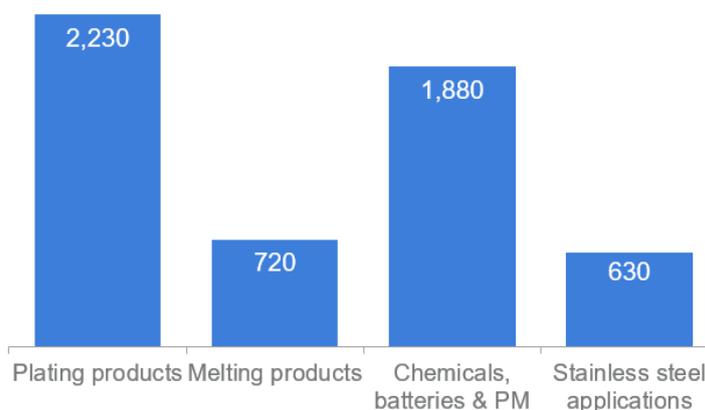


Class I products, 31 kt, 51% of nickel sales in 4Q18

Class I products¹, sales %



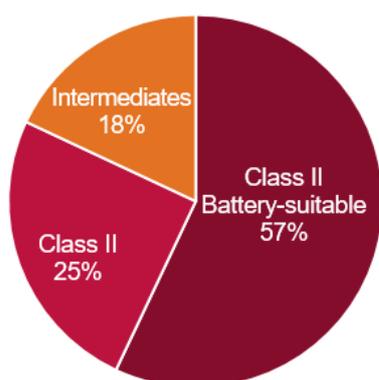
Class I premiums



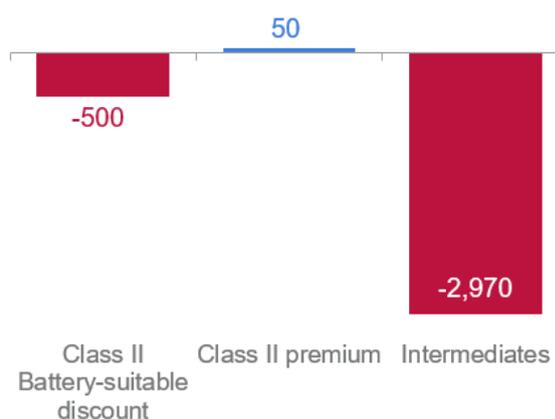
¹ PM stands for powder metallurgical applications

Class II Battery-suitable, Class II and Intermediates, 29 kt, 49% of nickel sales in 4Q18

Class II and intermediate products, sales %



Class II and intermediates premiums/discounts

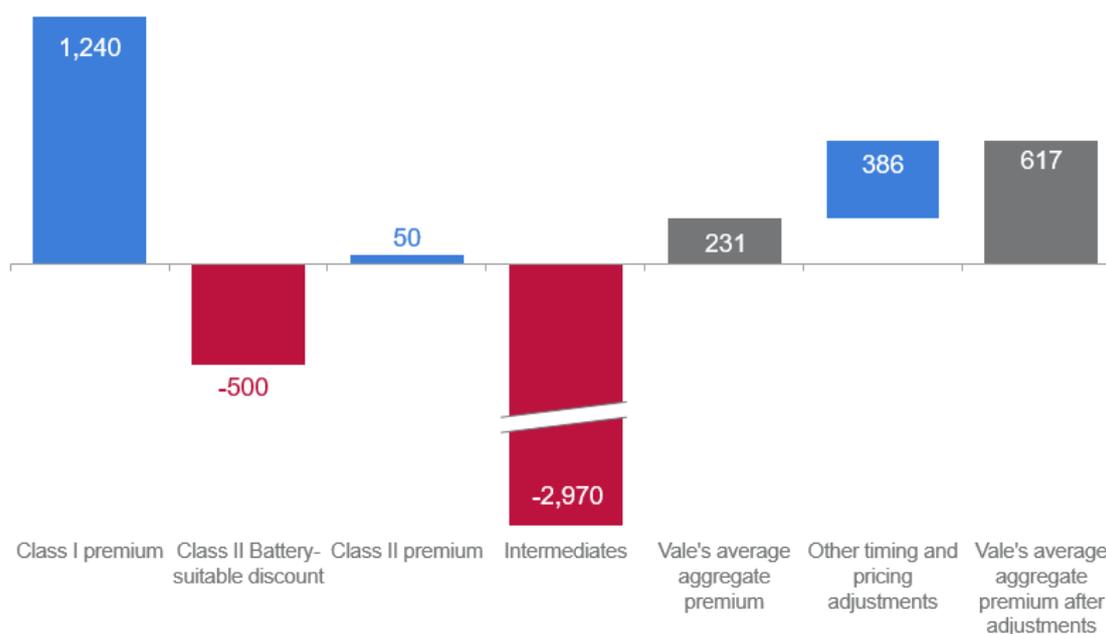


Premiums / discount by nickel product

US\$/t	4Q18	3Q18	4Q17
Class I nickel	1,240	1,320	940
Class II Battery-suitable nickel	(500)	(90)	(230)
Class II nickel	50	260	200
Intermediates	(2,970)	(2,860)	(1,370)

Nickel premium/discount by product and average aggregate premiums

US\$/t, 4Q18



Nickel COGS - 3Q18 x 4Q18

US\$ million	Variance drivers					4Q18
	3Q18	Volume	Exchange rate	Others	Total variation	
Nickel operations	804	27	(5)	(85)	(63)	741
Depreciation	314	41	(1)	(119)	(79)	235
Total	1,118	68	(6)	(204)	(142)	976

Selected financial indicators - Nickel operations

US\$ million	4Q18	3Q18	4Q17	2018	2017
Net Revenues	1,052	1,086	1,358	4,610	4,667
Costs ¹	(741)	(804)	(874)	(3,060)	(3,437)
Expenses ¹	(11)	(3)	(3)	(47)	(47)
Pre-operating and stoppage expenses ¹	(10)	(8)	(25)	(33)	(75)
R&D expenses	(11)	(11)	(15)	(39)	(49)
Dividends and interests on associates and JVs	-	-	-	-	-
Adjusted EBITDA	279	260	441	1,431	1,059
Depreciation and amortization	(237)	(316)	(377)	(1,162)	(1,372)
Adjusted EBIT	42	(56)	64	269	(313)
Adjusted EBIT margin (%)	4.0	(5.2)	4.7	5.8	(6.7)

¹ Net of depreciation and amortization

Copper operations – Salobo and Sossego

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

US\$/t	4Q18	3Q18	4Q17	2018	2017
Sossego	2,941	2,822	3,270	3,049	2,935
Salobo	624	351	679	747	1,009

Copper – EBITDA by operation

US\$ million	4Q18	3Q18	4Q17	2018	2017
Sossego	62	52	68	229	273
Salobo	251	216	306	882	924
Total	313	268	374	1,111	1,197

Details of copper operations' adjusted EBITDA by operation are as follows:

EBITDA breakeven – copper operations⁶

US\$/t, 4Q18



SALES REVENUES AND VOLUMES

Net operating revenue by product - Copper operations

US\$ million	4Q18	3Q18	4Q17	2018	2017
Copper	422	356	494	1,542	1,692
Gold as by-product	136	140	144	538	498
Silver as by-product	3	3	4	13	14
Total	561	500	642	2,093	2,204

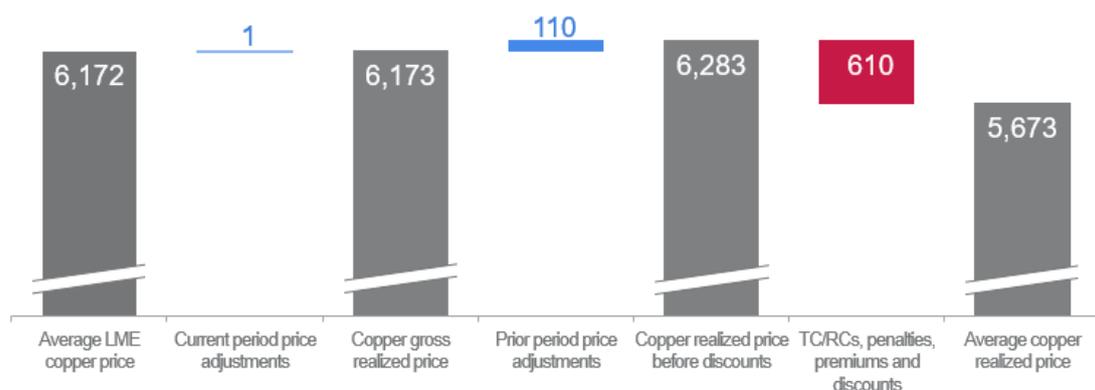
Volume sold - Copper operations

'000 metric tons	4Q18	3Q18	4Q17	2018	2017
Copper	74	71	74	274	281
Gold as by-product ('000 oz)	117	114	108	427	397
Silver as by-product ('000 oz)	217	211	219	860	840

⁶ 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 breakeven would increase to US\$ 2,908/t

Price realization – Copper operations

US\$/t, 4Q18



Copper COGS - 3Q18 x 4Q18

US\$ million	Variance drivers					Total variation	4Q18
	3Q18	Volume	Exchange rate	Others			
Copper operations	226	10	6	(1)	15	241	
Depreciation	39	2	-	2	4	43	
Total	265	12	6	1	19	284	

Selected financial indicators - Copper operations

US\$ million	4Q18	3Q18	4Q17	2018	2017
Net Revenues	561	500	642	2,093	2,204
Costs ¹	(241)	(226)	(256)	(960)	(979)
Expenses ¹	(1)	(2)	(9)	(4)	(15)
Pre-operating and stoppage expenses ¹	-	-	-	-	-
R&D expenses	(6)	(4)	(3)	(18)	(13)
Dividends and interests on associates and JVs	-	-	-	-	-
Adjusted EBITDA	313	268	374	1,111	1,197
Depreciation and amortization	(43)	(39)	(54)	(189)	(218)
Adjusted EBIT	270	229	320	922	979
Adjusted EBIT margin (%)	48.1	45.8	49.8	44.1	44.4

¹ Net of depreciation and amortization

Coal

Annual performance

In 2018, the Coal business faced operational bottlenecks, which were augmented by rain in both the beginning and the end of the year, affecting the pace of the ramp-up and impacting the metallurgical coal production. As a response, management decided to stabilize the operation by implementing key initiatives such as: bring coal feed from new mining sections; prepare selected mining pits for future reject disposals; transfer of knowledge and support from Iron Ore operations; and advance the removal of overburden.

Lower volumes impacted the dilution of the Nacala Logistics Corridor tariff, which was in place for the full year in 2018, but only partially throughout 2017. Additionally, to a lower extent, costs were also impacted by the above-mentioned structural changes.

These combined effects were the main drivers affecting the adjusted EBITDA for the Coal business.

The development of new mining sections started in 2H18, with removal of overburden, increasing 29% from 2Q18 to 3Q18 and 10% from 3Q18 to 4Q18, and will continue over 1H19. The planned production is estimated to total 6.5 Mt in 1H19 as per the budget approved in 2018, despite the increase in total tons moved, as a result of lower ROM grade quality of the mine sections being opened.

Volume sold

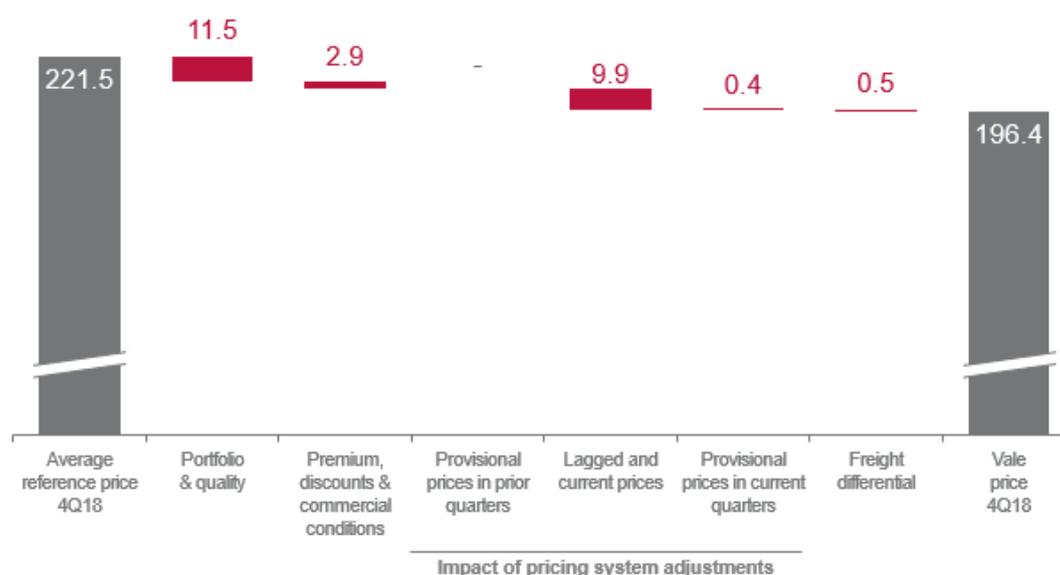
'000 metric tons	4Q18	3Q18	4Q17	2018	2017
Metallurgical coal	1,790	1,611	1,715	6,240	7,178
Thermal coal	1,643	1,584	1,228	5,393	4,602
Total	3,433	3,195	2,943	11,633	11,780

Net operating revenue by product

US\$ million	4Q18	3Q18	4Q17	2018	2017
Metallurgical coal	351	284	306	1,189	1,240
Thermal coal	131	141	96	454	327
Total	482	425	402	1,643	1,567

Price realization – Metallurgical coal

US\$/t 4Q18



Price realization – Thermal coal

US\$/t, 4Q18



Coal prices

US\$/ metric ton	4Q18	3Q18	4Q17	2018	2017
Metallurgical coal index price ¹	221.5	188.6	204.7	207.2	188.0
Vale's metallurgical coal realized price	196.4	175.9	178.4	190.6	172.7
Thermal coal index price ²	95.9	101.6	92.4	98.1	84.4
Vale's thermal coal realized price	79.5	89.2	78.6	84.2	71.0
Vale's average realized price	140.4	132.9	136.6	141.2	133.0

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

² Argus API4 FOB Richards Bay 6000 kg/kcal Nar considering 2017 and 4Q17 and McCloskey FOB Richards Bay considering 2018, 3Q18 and 4Q18.

Pro-forma cash cost

<i>US\$/ metric ton</i>	4Q18	3Q18	4Q17	2018	2017³
Pro-forma operational costs ¹ (A)	87.1	79.9	96.2	84.2	89.6
Nacala non-operational tariff ² (B)	53.4	53.2	50.2	48.9	26.5
Other costs (C)	(2.9)	0.1	(1.3)	0.0	(3.9)
Cost at Nacala Port (D = A+B+C)	137.5	133.2	145.0	133.1	112.2
NLC's debt service to Vale (E)	8.2	8.1	38.1	12.3	15.2
Pro-forma C1 cash cost (F = D-E)	129.4	125.0	107.0	120.8	96.9

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

² Includes the inferred NLC tariff components related to sustaining capex, working capital, taxes and other financial items

³ Unitary costs accounts for the period between April and December 2017, reflecting the deconsolidation of the Nacala Logistics Corridor in March 2017.

Selected financial indicators - Coal

<i>US\$ million</i>	4Q18	3Q18	4Q17	2018	2017
Net Revenues	482	425	402	1,643	1,567
Costs ¹	(480)	(433)	(433)	(1,575)	(1,354)
Expenses ¹	(6)	2	(4)	(9)	(12)
Pre-operating and stoppage expenses ¹	-	-	-	-	(4)
R&D expenses	(8)	(4)	(3)	(21)	(14)
Dividends and interests on associates and JVs	28	26	112	143	179
Adjusted EBITDA	16	16	74	181	362
Depreciation and amortization	(65)	(67)	(61)	(252)	(296)
Adjusted EBIT	(49)	(51)	13	(71)	66
Adjusted EBIT margin (%)	(10.2)	(12.0)	3.2	(4.3)	4.2

¹ Net of depreciation and amortization

ANNEXES

SIMPLIFIED FINANCIAL STATEMENTS

Income Statement

<i>US\$ million</i>	4Q18	3Q18	4Q17	2018	2017
Net operating revenue	9,813	9,543	9,167	36,575	33,967
Cost of goods sold	(5,752)	(5,756)	(5,791)	(22,109)	(21,039)
Gross profit	4,061	3,787	3,376	14,466	12,928
Gross margin (%)	41.4	39.7	36.8	39.6	38.1
Selling, general and administrative expenses	(141)	(136)	(146)	(523)	(531)
Research and development expenses	(125)	(87)	(104)	(373)	(340)
Pre-operating and stoppage expenses	(66)	(60)	(124)	(271)	(413)
Other operational expenses	(150)	(61)	(105)	(445)	(420)
Impairment and others results in non-current assets	(714)	(172)	(417)	(899)	(294)
Operating profit	2,865	3,271	2,480	11,955	10,930
Financial revenues	113	111	149	423	478
Financial expenses	(550)	(367)	(562)	(2,345)	(3,273)
Gains (losses) on derivatives, net	55	(105)	(29)	(266)	454
Monetary and exchange variation	367	(902)	(845)	(2,769)	(678)
Equity results in associates and joint ventures	147	32	(66)	305	98
Impairment and others results in associates and joint ventures	(42)	(20)	(59)	(487)	(180)
Income (loss) before taxes	2,955	2,020	1,068	6,816	7,829
Current tax	(609)	77	243	(752)	(849)
Deferred tax	1,485	(724)	(85)	924	(646)
Net Earnings (loss) from continuing operations	3,831	1,373	1,226	6,988	6,334
Net income (loss) attributable to noncontrolling interest	45	(35)	(32)	36	21
Gain (loss) from discontinued operations	-	-	(487)	(92)	(806)
Net earnings (attributable to the Company's stockholders)	3,786	1,408	771	6,860	5,507
Earnings (loss) per share (attributable to the Company's stockholders - US\$)	0.73	0.27	0.15	1.32	1.06
Diluted earnings (loss) per share (attributable to the Company's stockholders - US\$)	0.73	0.27	0.15	1.32	1.06

Equity income (loss) by business segment

<i>US\$ million</i>	4Q18	%	3Q18	%	4Q17	%	2018	%	2017	%
Ferrous Minerals	125	85	110	344	77	(117)	417	137	329	336
Coal	3	2	1	3	-	-	16	5	20	20
Base Metals	-1	0	1	3	-	-	1	0	1	1
Logistics	-	-	-	-	-	-	-	-	-	-
Steel	13	9	(95)	(297)	(115)	174	(166)	(54)	(222)	(226)
Others	7	4	15	47	(28)	42	37	12	(30)	(28)
Total	147	100	32	100	(66)	100	305	100	98	100

Balance sheet

<i>US\$ million</i>	12/31/2018	9/30/2018	12/31/2017
Assets			
Current assets	15,292	15,131	18,954
Cash and cash equivalents	5,784	6,100	4,328
Accounts receivable	2,648	2,450	2,600
Other financial assets	435	413	2,022
Inventories	4,443	4,056	3,926
Prepaid income taxes	543	645	781
Recoverable taxes	883	949	1,172
Others	556	518	538
Non-current assets held for sale and discontinued operation	-	-	3,587
Non-current assets	13,326	11,986	13,291
Judicial deposits	1,716	1,681	1,986
Other financial assets	3,144	3,217	3,232
Recoverable income taxes	544	561	530
Recoverable taxes	751	543	638
Deferred income taxes	6,908	5,713	6,638
Others	263	271	267
Fixed assets	59,572	58,369	66,939
Total assets	88,190	85,486	99,184
Liabilities			
Current liabilities	9,111	9,170	13,114
Suppliers and contractors	3,512	4,038	4,041
Loans and borrowing	1,003	1,373	1,703
Other financial liabilities	1,604	885	986
Taxes payable	650	631	697
Provision for income taxes	210	159	355
Provisions	1,363	1,173	1,394
Dividends and interest on capital	-	-	1,441
Liabilities related to associates and joint ventures	289	292	326
Others	480	619	992
Liabilities directly associated with non-current assets held for sale and discontinued operations	-	-	1,179
Non-current liabilities	34,247	34,675	41,298
Loans and borrowing	14,463	15,437	20,786
Other financial liabilities	2,711	2,818	2,894
Taxes payable	3,917	3,858	4,890
Deferred income taxes	1,532	1,711	1,719
Provisions	7,095	6,367	7,027
Liabilities related to associates and joint ventures	832	761	670
Gold stream transaction	1,603	1,669	1,849
Others	2,094	2,054	1,463
Total liabilities	43,358	43,845	54,412
Stockholders' equity	44,832	41,641	44,772
Total liabilities and stockholders' equity	88,190	85,486	99,184

Cash flow

US\$ million	4Q18	3Q18	4Q17	2018	2017
Cash flows from operating activities:					
Net income (loss) before taxes on income	2,956	2,020	1,068	6,816	7,829
Adjustments to reconcile					
Depreciation, depletion and amortization	768	849	976	3,351	3,708
Equity results and other results in associates and joint ventures	(105)	(12)	125	182	82
Impairment on assets and investments	715	171	-	899	294
Items of the financial result	15	1,263	1,287	4,957	3,019
Variation of assets and liabilities					
Accounts receivable	(225)	(149)	173	(156)	1,277
Inventories	(411)	(200)	157	(817)	(339)
Suppliers and contractors	(335)	336	(131)	(376)	232
Payroll and related charges	155	200	210	(11)	372
Tax assets and liabilities, net	(84)	214	(246)	301	(297)
Cobalt transaction	-	-	-	690	-
Others	407	(203)	262	(506)	(615)
Net cash provided by operations	3,856	4,489	4,298	15,330	15,562
Interest on loans and financing	(217)	(248)	(352)	(1,121)	(1,686)
Derivatives received (paid), net	(32)	(22)	(17)	(67)	(240)
Remuneration paid to debentures	(41)	-	(65)	(113)	(135)
Income taxes	(167)	(220)	(74)	(676)	(563)
Income taxes - settlement program	(110)	(104)	(123)	(452)	(488)
Net cash provided by operating activities	3,289	3,895	3,667	12,901	12,450
Cash flows from investing activities:					
Additions to property, plant, equipment and investments	(1,497)	(692)	(978)	(3,807)	(3,924)
Proceeds from disposal of assets and investments	5	116	201	1,481	922
Dividends and interest on capital received from joint ventures and associates	92	7	124	245	227
Loans and advances receivable	(128)	(87)	-	2,326	(445)
Others	(15)	(45)	(168)	(86)	(138)
Net cash used in investing activities	(1,543)	(701)	(840)	159	(3,358)
Cash flows from financing activities:					
Loans and financing					
Additions	249	211	175	1,225	1,976
Repayments	(1,796)	(1,169)	(3,210)	(7,841)	(8,998)
Payments to shareholders:					
Dividends and interest on capital	-	(1,876)	(2)	(3,313)	(1,456)
Dividends and interest on capital attributed to noncontrolling interest	(3)	(82)	(2)	(182)	(126)
Other transactions with noncontrolling interest	-	-	-	(17)	(98)
Share buyback program	(511)	(489)	-	(1,000)	-
Net cash provided by (used in) financing activities	(2,061)	(3,405)	(3,039)	(11,128)	(8,702)
Increase (decrease) in cash and cash equivalents from discontinuing operations					
Increase (decrease) in cash and cash equivalents	(315)	(210)	(293)	1,886	138
Cash and cash equivalents in the beginning of the period	6,100	6,369	4,719	4,328	4,262
Effect of exchange rate changes on cash and cash equivalents	(1)	(59)	(98)	(313)	(60)
Cash of subsidiaries disposed	-	-	-	(117)	(12)
Cash and cash equivalents, end of period	5,784	6,100	4,328	5,784	4,328
Non-cash transactions:					
Additions to property, plant and equipment - interest capitalization	40	50	73	194	370

REVENUES, VOLUMES SOLD, PRICES AND MARGINS

Net operating revenue by destination

US\$ million	4Q18	%	3Q18	%	4Q17	%	2018	%	2017	%
North America	438	4.5	587	6.2	638	7.0	2,138	5.8	2,379	7.0
USA	313	3.2	352	3.7	351	3.8	1,353	3.7	1,310	3.9
Canada	106	1.1	210	2.2	269	2.9	657	1.8	1,008	3.0
Mexico	19	0.2	25	0.3	18	0.2	128	0.3	61	0.2
South America	1,098	11.2	937	9.8	1,307	14.3	3,941	10.8	4,078	12.0
Brazil	897	9.1	775	8.1	1,149	12.5	3,248	8.9	3,475	10.2
Others	201	2.1	162	1.7	158	1.7	693	1.9	603	1.8
Asia	5,738	58.5	5,909	61.9	5,473	59.7	21,651	59.3	20,056	59.0
China	4,118	42.0	4,266	44.7	3,824	41.7	15,242	41.7	14,018	41.3
Japan	682	6.9	697	7.3	633	6.9	2,743	7.5	2,456	7.2
South Korea	331	3.4	312	3.3	449	4.9	1,299	3.6	1,399	4.1
Others	607	6.2	634	6.6	567	6.2	2,367	6.5	2,183	6.4
Europe	1,663	16.9	1,427	15.0	1,260	13.7	6,107	16.7	5,502	16.2
Germany	462	4.7	368	3.9	374	4.1	1,653	4.5	1,389	4.1
Italy	191	1.9	110	1.2	162	1.8	553	1.5	521	1.5
Others	1,010	10.3	949	9.9	724	7.9	3,901	10.7	3,592	10.6
Middle East	524	5.3	459	4.8	301	3.3	1,604	4.4	1,085	3.2
Rest of the World	352	3.6	224	2.3	188	2.1	1,134	3.1	867	2.6
Total	9,813	100.0	9,543	100.0	9,167	100.0	36,575	100.0	33,967	100.0

Volume sold - Minerals and metals

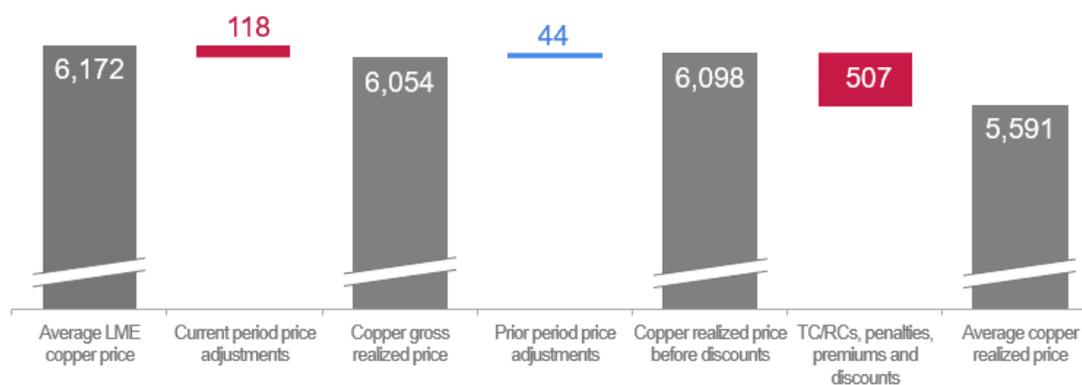
'000 metric tons	4Q18	3Q18	4Q17	2018	2017
Iron ore fines	80,201	83,500	79,603	307,433	288,692
ROM	294	476	355	1,548	2,637
Pellets	15,987	14,250	13,579	56,592	51,775
Manganese ore	442	554	740	1,572	1,825
Ferroalloys	36	37	34	141	132
Thermal coal	1,643	1,584	1,228	5,393	4,602
Metallurgical coal	1,790	1,611	1,715	6,240	7,178
Nickel	60	57	80	236	295
Copper	104	92	111	379	424
Gold as by-product ('000 oz)	129	125	108	484	471
Silver as by-product ('000 oz)	691	396	602	2,169	2,179
PGMs ('000 oz)	72	90	68	374	350
Cobalt (metric ton)	1,306	1,120	1,368	4,974	5,013

Average prices

US\$/ton	4Q18	3Q18	4Q17	2018	2017
Iron ore fines CFR reference (dmt)	78.3	76.6	72.6	76.0	88.0
Iron ore fines CFR/FOB realized price	68.4	67.0	63.1	66.1	64.2
ROM	32.6	18.7	22.6	22.8	14.4
Pellets CFR/FOB (wmt)	120.1	114.2	104.7	117.5	109.2
Manganese ore	158.9	109.1	119.3	162.5	159.0
Ferroalloys	1,141	1,169	1,361	1,179	1,354
Thermal coal	79.5	89.2	78.6	84.2	71.0
Metallurgical coal	196.3	175.9	178.4	190.6	172.7
Nickel	12,133	14,092	11,781	13,667	10,654
Copper	5,591	4,895	6,735	5,583	5,970
Gold (US\$/oz)	1,179	1,198	1,450	1,254	1,247
Silver (US\$/oz)	13.42	13.60	15.48	14.43	15.30
Cobalt (US\$/t)	49,090	57,706	57,680	62,911	51,513

Copper realized price – including North Atlantic copper by-products

US\$/t, 4Q18



Operating margin by segment (EBIT adjusted margin)

%	4Q18	3Q18	4Q17	2018	2017
Ferrous Minerals	48.5	47.7	44.4	46.7	47.1
Coal	(10.2)	(12.0)	3.2	(4.3)	4.2
Base Metals	19.3	10.9	19.2	17.8	9.7
Total¹	38.3	36.4	34.2	36.2	34.2

¹ Excluding non-recurring effects

RECONCILIATION OF IFRS AND “NON-GAAP” INFORMATION

(a) Adjusted EBIT¹

<i>US\$ million</i>	4Q18	3Q18	4Q17
Net operating revenues	9,813	9,543	9,167
COGS	(5,752)	(5,756)	(5,791)
SG&A	(141)	(136)	(146)
Research and development	(125)	(87)	(104)
Pre-operating and stoppage expenses	(66)	(61)	(124)
Other operational expenses	(150)	(60) ²	(105)
Dividends and interests on associates and JVs	120	33	236
Adjusted EBIT	3,699	3,476	3,133

¹ Excluding non-recurring effects.

² Includes provision for litigation.

(b) Adjusted EBITDA

EBITDA defines profit or loss before interest, tax, depreciation and amortization. Vale uses the term adjusted EBITDA to reflect exclusion of gains and/or losses on sale of assets, non-recurring expenses and the inclusion of dividends received from non-consolidated affiliates. 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 table shows the reconciliation between adjusted EBITDA and operational cash flow, in accordance with its statement of changes in financial position:

Reconciliation between adjusted EBITDA and operational cash flow

<i>US\$ million</i>	4Q18	3Q18	4Q17
Adjusted EBITDA	4,467	4,325¹	4,109
Working capital:			
Accounts receivable	(225)	(149)	173
Inventories	(411)	(200)	157
Suppliers	(335)	336	(131)
Payroll and related charges	155	200	210
Others	323	10	16
Adjustment for non-recurring items and other effects	(118)	(33)	(236)
Cash provided from operations	3,856	4,489	4,298
Income taxes paid - current	(167)	(220)	(74)
Income taxes paid - settlement program	(110)	(104)	(123)
Interest paid for third parties	(217)	(248)	(352)
Participative stockholders' debentures paid	(41)	-	(65)
Derivatives received (paid), net	(32)	(22)	(17)
Net cash provided by (used in) operating activities	3,289	3,895	3,667

¹ Includes provision for litigation.

Reconciliation between adjusted EBITDA and net income (loss)

<i>US\$ million</i>	4Q18	3Q18	4Q17
Adjusted EBITDA	4,467	4,325¹	4,109
Depreciation, depletion and amortization	(768)	(849)	(976)
Dividends received and interest from associates and joint ventures	(120)	(33)	(236)
Special events	(714)	(172)	(417)
Operating income	2,865	3,271	2,480
Financial results	(15)	(1,263)	(1,287)
Equity results in associates and joint ventures	147	32	(66)
Impairment and other results in associates and joint ventures	(42)	(20)	(59)
Income taxes	876	(647)	158
Net income from continuing operations	3,831	1,373	1,226
Net income attributable to noncontrolling interests	45	(35)	(32)
Net income attributable to Vale's stockholders	3,786	1,408	1,258

¹ Includes provision for litigation

(c) Net debt

<i>US\$ million</i>	4Q18	3Q18	4Q17
Total debt	15,466	16,810	22,489
Cash and cash equivalents ¹	5,816	6,106	4,346
Net debt	9,650	10,704	18,143

¹ Including financial investments

(d) Total debt / LTM Adjusted EBITDA

<i>US\$ million</i>	4Q18	3Q18	4Q17
Total debt / LTM Adjusted EBITDA (x)	0.9	1.0	1.5
Total debt / LTM operational cash flow (x)	1.2	1.3	1.8

(e) LTM Adjusted EBITDA / LTM interest payments

<i>US\$ million</i>	4Q18	3Q18	4Q17
Adjusted LTM EBITDA / LTM gross interest (x)	14.0	12.8	9.0
LTM adjusted EBITDA / LTM interest payments (x)	14.8	13.0	9.1
LTM operational profit / LTM interest payments (x)	11.2	9.7	6.5

Free Cash Flow 4Q18

<i>US\$ million</i>	4Q18
EBITDA 4Q18	4,467
Working capital	(491)
Interests on loans	(218)
Income taxes & Refis settlement program	(277)
Capex	(1,497)
Others ¹	(238)
Free cash flow	1,746
Debt repayment, net	(1,547)
Shareholders remuneration including buyback	(514)
Increase (decrease) in cash & cash equivalents	(315)

¹ Includes derivatives, Samarco, dividends and interest on capital paid to noncontrolling interest, net disposal of assets and investments and others

Free Cash Flow 2018

<i>US\$ million</i>	2018
EBITDA 2018	16,593
Working capital ¹	(875)
Interests on loans	(1,121)
Income taxes & Refis settlement program	(1,128)
Capex	(3,807)
Net disposal / acquisition of assets and investments ²	4,181
Others ³	(800)
Free cash flow	13,043
Debt repayment, net	(6,616)
Shareholders remuneration including buyback	(4,495)
Increase (decrease) in cash & cash equivalents	1,932

¹ Includes cobalt stream

² Includes Nacala Project Finance, Fertilizers transaction and others

³ Includes derivatives, Samarco, dividends and interest on capital paid to noncontrolling interest and others.