Vale’s Performance in 3Q18

Truckless system – S11D

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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 that present Vale's expectations about future events or results. All statements, when based upon expectations about the future, involve various risks and uncertainties. Vale cannot guarantee that such statements will prove correct. These risks and uncertainties include factors related to the following: (a) the countries where we operate, 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. To obtain further information on factors that may lead to results different from those forecast by Vale, please consult the reports Vale files with the U.S. Securities and Exchange Commission (SEC), the Brazilian Comissão de Valores Mobiliários (CVM) and 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.

Vale's performance in 3Q18 – delivering in every meaningful way

US$ 4.4 bi Total EBITDA ↑ 12%	US$ 3.1 bi Free cash flow ↑ 2%	US$ 10.7 bi Net Debt ↓ 8%
US$ 27.4/t Iron ore EBITDA breakeven ↓ US$ 1.4/t	US$ 11/t Iron ore & pellet premiums ↑ 7%	US$ 2.4 bi Pellets EBITDA in 9M18 ↑ 10%

All figures based on 3Q18 vs. 2Q18, except for pellets EBITDA 9M18 vs. 9M17

Chief Executive Officer, Mr. Fabio Schvartsman, commented on the 3Q18 results, *"The strong 3Q18 results showcase the structural change in the Chinese iron ore and steel markets. We are the mining company that is best suited to further benefit from the flight to quality given the increasing share of premium products."* He concluded, *"We are turning Vale into a very predictable company by delivering sound operational performance, higher price realization, lower costs and rigorous capital allocation."*

- In line with our annual production guidance, we reached a record of 104.9 Mt for iron ore in 3Q18, with an improvement in the overall quality of our products that is a unique combination of higher volumes and higher quality.

- Our flexible supply chain along with S11D and pellet plants ramp-ups led to another quarterly sales volume record for iron ore and pellets at 98.2 Mt. 3Q18 was also marked by the increase in the share of our premium products, which achieved 79% of total sales. Our pellets volumes reached a record high of 14.3 Mt, supported by our decision to restart the three idle pellet plants.

- Iron ore fines and pellets quality premiums reached the record of US$ 11.0/t[1] , an increase of US$ 4.2/t, when compared to 3Q17, completely offsetting the decrease in iron ore prices thus showing our ability to cope with changes in the market trend and adding predictability to our performance.

- Our strong cash flow generation of US$ 3.1 billion led us to virtually achieve the net debt target of US$ 10 billion. Net debt reduced further, despite the return of US$ 2.4 billion to our shareholders, totaling US$ 10.7 billion in 3Q18, the lowest level since the third quarter of 2009.

- 3Q18 results translated into a minimum shareholder remuneration of US$ 1.142 billion. If we deliver the same results next quarter, our minimum dividend related to the second half, according to our policy, will be US$ 2.3 billion, against US$ 1.9 billion in the first half. Chief Financial Officer Mr. Luciano Siani Pires highlighted, *"Over the next years we will explore*

[1] Iron ore premium of US$ 8.6/t and weighted average contribution of pellets of US$ 2.4/t.

options for our accumulated free cash flow in a disciplined way. Dividends will be our natural choice based on our new policy, and on top of dividends, we will pursue: (i) extraordinary dividends or buybacks, (ii) organic growth opportunities, such as the recently approved Salobo III project, (iii) bolt-on acquisitions and (iv) optimization of other liabilities."

- Consistent with our rigorous capital allocation strategy, we have just approved the investment of US$ 1.1 billion in the Salobo III copper project, a high return investment. Vale will receive a bonus ranging from approximately US$ 600 to 700 million from Wheaton Precious Metals, after achieving certain production targets. We have also approved a sustaining investment of US$ 428 million in the Gelado project, which will recover approximately 10 Mtpy of pellet feed with 64.3% Fe content, 2.0% silica and 1.65% alumina from tailings dams in the Carajás Complex, reducing opex (no trucks, no transportation distances and no grinding) and future capex (lower production rates and less replacement of equipment at the existing Carajás mine). Gelado shows the flexibility of our resource base, where even former waste is superior in quality to industry standards. Salobo III and Gelado will start up in 1H22 and 2H21, respectively.

- Despite the US$ 4/t drop in iron ore prices, Ferrous Minerals EBITDA increased US$ 197 million when compared to 3Q17, totaling US$ 3.960 billion in 3Q18, showing strong volumes and premiums along with lower C1 cash costs. Mr. Peter Poppinga, Executive Officer for Ferrous Minerals and Coal commented, *"Aligned with the consolidation of our differentiation strategy, the quality premium on Vale's realized price improved for the third quarter in a row, achieving a record of US$ 11/t in 3Q18. The increase of over 7% vs. 2Q18 reflects our value over volume strategy, our margin optimization approach and our strong pricing position in the spot market, attesting to the intrinsic value of our premium products. Additionally, the demand for products with low contaminants, such as alumina and phosphorous, increased and contributed to higher market premiums."*

- On August 27th, 2018, Metal Bulletin launched a new index, the MB 62% Fe low alumina, which is based on our blended product, Brazilian Blend Fines (BRBF). During 3Q18 the MB 62% Fe low alumina traded with a premium of US$ 5.9/t over the 62% index. The recently launched index better captures the intrinsic value of Vale's BRBF.

- 9M18 pellets EBITDA was US$ 2.4 billion, representing 19% of Vale's total EBITDA and is on track to achieve more than US$ 3 billion in 2018.

- As anticipated in 2Q18, our iron ore C1 cash cost decreased US$ 2.3/t totaling US$ 12.4/t in 3Q18, reflecting S11D's ramp-up, higher productivity, dilution of fixed costs on higher volumes and exchange rate variation.

- We continued to show strong competitiveness and our iron ore and pellets EBITDA breakeven in 3Q18 reduced even further and reached our lowest level ever of US$ 27.4/t in

3Q18, despite the inflationary pressures of bunker prices and spot freight rates.

- Base Metals EBITDA was US$ 528 million in 3Q18, a decrease of US$ 250 million when compared to 2Q18, with about 65% of the decrease related to the exogenous factor of lower prices of nickel, copper and cobalt, and 35% mainly associated with Sudbury's annual scheduled maintenance shutdown and its effects on lower by-product volumes and higher costs. Mr. Eduardo Bartolomeo, Executive Officer for Base Metals commented, *"3Q18 results represented a tipping point for the Base Metals business. We are undergoing an important restructuring process led by our new management team with the focus on optimizing our operations, stabilizing our cost structure and reviewing mine plans. We are creating the basis for the nickel business to generate strong cash flows in any price scenario, while keeping the optionality to capture the upside of emerging demand for nickel in electric vehicles."*

- Base Metals EBITDA in 9M18 was US$ 1.950 billion, significantly higher than the US$ 1.441 billion registered in 9M17.

- The price of our nickel products was US$ 14,092/t in 3Q18, US$ 826/t higher than the average LME, representing an aggregate nickel price realization of 6.2% above LME prices, the highest percentage above the benchmark in the last 10 years.

Selected financial indicators

US$ million	3Q18	2Q18	3Q17
Net operating revenues	9,543	8,616	9,050
Total costs and expenses	6,100	5,767	5,866
Adjusted EBIT	3,525	3,041	3,184
Adjusted EBIT margin (%)	37%	35%	35%
Adjusted EBITDA	4,374	3,902	4,192
Adjusted EBITDA margin (%)	46%	45%	46%
Iron ore - 62% Fe reference price	66.7	65.3	70.9
Net income (loss)	1,408	76	2,230
Underlying earnings	2,056	2,094	2,090
Underlying earnings per share on a fully diluted basis (US$ / share)	0.40	0.40	0.40
Net debt	10,704	11,519	21,066
Capital expenditures	692	705	863

US$ million	9M18	9M17	%
Net operating revenues	26,762	24,800	7.9
Total costs and expenses	17,487	16,473	6.2
Adjusted EBIT	9,664	8,327	16.1
Adjusted EBIT margin (%)	36%	34%	7.5
Adjusted EBITDA	12,247	11,229	9.1
Adjusted EBITDA margin (%)	46%	45%	1.1
Net income (loss)	3,074	4,736	(35.1)
Underlying earnings	5,937	5,137	15.6
Underlying earnings per share on a fully diluted basis (US$ / share)	1.14	0.99	15.7
Capital expenditures	2,287	2,870	(20.3)

Market overview

IRON ORE

Iron ore 62% Fe reference price averaged US$ 66.7/dmt in 3Q18, a decrease of 6% YoY, however it represents an increase of 2% from 2Q18 as steel production continues to respond to firm steel demand ahead of the winter season in the northern hemisphere.

In China, the combination of steel capacity restrictions and healthy demand enabled steel mills to enjoy a solid margin. The increase in environmental awareness and controls is leading steel mills to optimize steel output whilst decreasing CO2 emissions. As a result, the market has recognized that higher Fe grade ores offer a substantial advantage and this can be seen through the premium captured by 65% Fe in the market and the resulting US$ 27/dmt in 3Q18. Vale is well positioned as a major supplier of sinter fines combining high Fe and low alumina, and also as a major supplier of pellets.

COAL

In 3Q18, seaborne coking coal prices decreased to US$ 188.6/t from US$ 190.2/t in the previous quarter, influenced by import restrictions in China and seasonally weaker demand from India due to monsoons. This has slowly improved in September due to restocking demand, logistics constrains and supply tightness. In the thermal coal market, 3Q18 Richards Bay FOB edged up to US$ 101.6/t, from US$ 100.3/t in the previous quarter. The quarter started very strong with prices reaching a 6 ½ year high during July at US$ 109.2/t. This price hike in July was driven by strong demand in Asia, increased coal-fired power generation in Europe and supply tightness from Colombia and USA. But the same has been downplayed from August and was impacted by weaker demand from India due to the monsoon, and arbitrage from Australian coals owing to weaker demand from China over import restrictions.

NICKEL

LME nickel prices declined during 3Q18 to an average of US$13,266/t, vs. US$ 14,476/t, in 2Q18. Total exchange inventories (LME and SHFE) continued to decline closing at 245 kt, at the end of 3Q18, down 165 kt since the end of 2017.

Global stainless-steel production increased 2.4% in 3Q18 relative to 3Q17, while sales of EVs worldwide grew 48% during the same period. Demand for nickel in other applications continues to be positive. Supply decreased approximately 0.8% in 3Q18 relative to 3Q17, Class II (NPI) material increased (+5.6%) and Class I material declined (-8.3%) in the same period.

Our near-term outlook for nickel remains cautious as current inventories will act as a buffer to price recovery. Meanwhile, macroeconomic factors such as the ongoing trade dispute between major powers introduce volatility to the base metals price complex, nickel included.

Our long-term outlook for nickel continues to be positive. Nickel in electric vehicle batteries will become an increasingly important source of demand growth particularly as battery chemistry favors higher nickel content due to lower cost and higher energy density. Capital is starting to flow back into the industry given the recovery in price. However, the timing of investments may increase the lag and widen future deficits given continued demand growth.

COPPER

LME copper price averaged US$ 6,105/t in 3Q18, a decrease of 11% from 2Q18 (US$ 6,872/t) impacted by concerns about the trade war. Copper inventories on all exchanges, LME, SHFE and COMEX, decreased by 294 kt in 3Q18 vs. 2Q18.

Global demand increased approximately 1.8% in 3Q18 vs. 3Q17. In China, demand increased 3.2% in the same period and was driven primarily by increased infrastructure investment. On the supply side, global refined copper production increased nearly 1% in 3Q18 vs. 3Q17. More labor negotiations were concluded this quarter, reducing the potential for supply disruption for the year given that these settlements create precedent for the upcoming negotiations.

Vale’s near-term outlook for copper shifted to a more positive tone, as the market is expected to remain essentially balanced for the year while maintaining a potential for deficit in 2019.

The long-term outlook for copper is positive. Copper demand is expected to grow, partially driven by EVs and renewable energy as well as infrastructure investments, while future supply growth is challenged given declining ore grades and the need for greenfield investment.

COBALT

Cobalt price averaged US$ 65,724/t in 3Q18 a decrease of 25% vs. 2Q18, mainly due to the strong supply growth in the DRC and the continued drive to reduce cobalt use in EV batteries.

Cobalt is one of the key metals, besides nickel, to produce the highest energy density batteries for use in electric vehicles. The cobalt market needs to grow significantly to feed into battery demand – but unlike other metals, cobalt is predominantly a by-product of nickel and copper mines. This means that it does not have the flexibility to respond to demand pressures as readily as other metals. Moreover, much of the cobalt comes from the DRC, which introduces ethical sourcing issues as well as reliance on operations in an unpredictable jurisdiction.

Our near-term outlook for cobalt is mixed. Although demand for cobalt is increasing, supply is expected to increase as well with the start-up of major cobalt production in the DRC.

Over the long term, although we see demand well supported by the battery market, chemistry developments are shifting to nickel-rich materials that bring lower cost and higher density. On the supply side, given the need to grow in nickel we see the nickel industry increase its contribution of cobalt units into the market, minimizing concerns about the future supply of cobalt for the electric vehicle battery market.

Adjusted EBITDA

Adjusted EBITDA was US$ 4.374 billion in 3Q18, 12.1% higher than 2Q18 mainly as a result of (i) the strong operational performance of the Ferrous Minerals segment that reached an iron ore fines sales record of 83.5 Mt, representing a positive net effect of US$ 372 million on sales and COGS; (ii) the higher price realization (US$ 284 million) due to the increase in the share of premium products[2] on total sales (79% in 3Q18 vs. 77% in 2Q18) together with the increase in the contributions of quality and average premium to the realized price of iron ore fines (US$ 8.6/t in 3Q18 vs US$ 7.1/t in 2Q18); and (iii) the positive impact on COGS (US$ 121 million) of BRL depreciation against USD. The above-mentioned US$ 777 million effect was partially offset by Base Metals' lower volumes and prices (US$ 254 million).

Adjusted EBITDA

US$ million	3Q18	2Q18	3Q17
Net operating revenues	9,543	8,616	9,050
COGS	(5,756)	(5,377)	(5,412)
SG&A	(136)	(122)	(129)
Research and development	(87)	(92)	(91)
Pre-operating and stoppage expenses	(60)	(67)	(83)
Other operational expenses	(12)	(82)	(151)
Dividends and interests on associates and JVs	33	165	88
Adjusted EBIT	**3,525**	**3,041**	**3,184**
Depreciation, amortization & depletion	849	861	920
Adjusted EBITDA	**4,374**	**3,902**	**4,192**
Iron ore - 62% Fe reference price	66.7	65.3	70.9

Adjusted EBITDA by business area

US$ million	3Q18	2Q18	3Q17
Ferrous Minerals	3,960	3,228	3,763
Coal	16	45	53
Base Metals	528	778	587
Others	(130)	(149)	(211)
Total	**4,374**	**3,902**	**4,192**
Iron ore - 62% Fe reference price	66.7	65.3	70.9

[2] Pellets, Carajás, Brazilian Blend Fines (BRBF), pellet feed and Sinter Feed Low Alumina (SFLA).

Net operating revenue by business area

US$ million	3Q18	%	2Q18	%	3Q17	%
Ferrous Minerals	**7,439**	**78.0**	**6,321**	**73.4**	**6,820**	**75.4**
Iron ore fines	5,594	58.6	4,570	53.0	5,131	56.7
ROM	8	0.1	5	0.1	7	0.1
Pellets	1,627	17.0	1,518	17.6	1,441	15.9
Manganese ore	61	0.6	74	0.9	87	1.0
Ferroalloys	43	0.5	41	0.5	44	0.5
Others	106	1.1	113	1.3	110	1.2
Coal	**425**	**4.5**	**356**	**4.1**	**360**	**4.0**
Metallurgical coal	284	3.0	261	3.0	266	2.9
Thermal coal	141	1.5	95	1.1	94	1.0
Base Metals	**1,586**	**16.6**	**1,870**	**21.7**	**1,762**	**19.5**
Nickel	807	8.5	911	10.6	752	8.3
Copper	452	4.7	570	6.6	683	7.5
PGMs	103	1.1	126	1.5	72	0.8
Gold as by-product	150	1.6	156	1.8	161	1.8
Silver as by-product	5	0.1	9	0.1	7	0.1
Cobalt	65	0.7	94	1.1	79	0.9
Others	4	0.0	4	0.0	8	0.1
Others	**93**	**1.0**	**69**	**0.8**	**108**	**1.2**
Total	**9,543**	**100.0**	**8,616**	**100.0**	**9,050**	**100.0**

COGS by business segment

US$ million	3Q18	%	2Q18	%	3Q17	%
Ferrous Minerals	3,808	66%	3,507	65%	3,375	62%
Base Metals	1,383	24%	1,417	26%	1,524	28%
Coal	498	9%	379	7%	423	8%
Other products	67	1%	74	1%	90	2%
Total COGS	**5,756**	**100%**	**5,377**	**100%**	**5,412**	**100%**
Depreciation	814		827		868	
COGS, ex-depreciation	**4,942**		**4,550**		**4,544**	

Expenses

US$ million	3Q18	2Q18	3Q17
SG&A ex-depreciation	**118**	**109**	**110**
SG&A	**136**	**122**	**129**
Administrative	**118**	**88**	**112**
Personnel	61	41	56
Services	19	18	19
Depreciation	18	13	19
Others	20	16	18
Selling	**18**	**34**	**17**
R&D	**87**	**92**	**91**
Pre-operating and stoppage expenses	**60**	**67**	**83**
Stobie & Birchtree	5	6	-
S11D	17	19	39
Others	21	21	9
Depreciation	17	21	35
Other operating expenses	**61**	**109**	**151**
Total expenses	**344**	**390**	**454**
Depreciation	35	34	52
Expenses ex-depreciation	**309**	**356**	**402**

Underlying earnings

Following another strong operational performance, underlying earnings in 3Q18 were US$ 2.056 billion, remaining practically in line with 2Q18, with higher EBITDA being offset mainly by higher income tax in 3Q18. Income tax increased in 3Q18 mainly as a result of the positive impact on tax of shareholder remuneration declared as interest on equity in 2Q18.

Underlying earnings exclude the non-cash impacts from net income such as: (i) the effect of the depreciation of BRL on USD denominated debt (US$ 765 million[3]); (ii) the impairment and other results on non-current assets of US$ 172 million. All the adjustments resulted in income tax of US$ 334 million in the underlying earnings.

As a consequence of the non-cash impacts, net income was US$ 1.408 billion in 3Q18 vs. US$ 76 million in 2Q18.

Underlying earnings

US$ million	3Q18	2Q18	3Q17
Net Income (loss)	**1,408**	**76**	**2,230**
Items excluded from basic earnings			
Impairment and other results on non-current assets	172	(5)	389
Impairment and other results in associates and joint ventures	20	411	26
Shareholders Debentures	3	304	72
Foreign exchange and swaps	765	2,333	(747)
Income tax over excluded items	(334)	(1,035)	172
Others	22	10	(52)
Underlying earnings	**2,056**	**2,094**	**2,090**

Financial results

Following Vale's deleveraging path, in 3Q18, gross interest totaled US$ 272 million, decreasing 7.5% and 34.8% vs. 2Q18 and 3Q17, respectively.

Non-cash effects, such as the impact of the BRL depreciation, represented 60% of the net financial loss in 3Q18. Net financial results totaled a loss of US$ 1.263 billion mainly due to the BRL depreciation (3.8%) against the USD from BRL 3.8558/ USD as of June 30th, 2018 to BRL 4.0039/ USD as of September 30th, 2018.

[3] Includes currency and interest rate swaps.

Financial results

US$ million	3Q18	2Q18	3Q17
Financial expenses	**(367)**	**(781)**	**(826)**
Gross interest	(272)	(294)	(417)
Capitalization of interest	50	44	111
Tax and labor contingencies	(7)	(26)	(22)
Shareholder debentures	(3)	(304)	(72)
Others	(87)	(150)	(332)
Financial expenses (REFIS)	(48)	(51)	(94)
Financial income	**111**	**81**	**152**
Derivatives[1]	**(105)**	**(306)**	**365**
Currency and interest rate swaps	(80)	(387)	295
Others[2] (bunker oil, commodities, etc)	(25)	81	70
Foreign Exchange	**(685)**	**(1,946)**	**443**
Monetary variation	**(217)**	**(103)**	**86**
Financial result, net	**(1,263)**	**(3,055)**	**220**

[1] The net derivatives loss of US$ 105 million in 3Q18 is comprised of settlement loss of US$ 22 million and mark-to-market loss of US$ 83 million.

[2] Other derivatives include bunker oil derivatives which, for 3Q18 were US$ 9 million.

Equity income from affiliated companies

Equity income from affiliated companies showed a gain of US$ 32 million in 3Q18. The main contributors to equity income were the leased pelletizing companies in Tubarão (US$ 76 million), CSI (US$ 24 million), VLI (US$ 21 million) and MRS (US$ 12 million), which was partly offset by losses from CSP (US$ 119 million). CSP losses were mainly due to the non-cash impact of the BRL depreciation on its USD denominated debt.

Shareholders' remuneration

Vale considers its share buy-back program one of the best investments for its excess cash following the strong cash performance, the accelerated deleveraging profile and the positive outlook for its operational and financial performance. As such, Vale has executed 48.9% in 3Q18 of its US$ 1 billion share buy-back, purchasing 36.8 million shares at an average price of US$ 13.27[4] as of September 30th, 2018.

According to Vale's shareholder remuneration policy, the 1H18 result translated into a shareholder remuneration of R$ 7.694 billion that was equivalent to US$ 2.054 billion considering the exchange rate of July 24th, 2018. As a result of the BRL depreciation against the USD[5], shareholder remuneration paid on September 20th, 2018 amounted to US$ 1.876 billion.

The 3Q18 result yields a minimum shareholder remuneration of US$ 1.142 billion, which will be further increased by applying the threshold of 30% over adjusted EBITDA less sustaining investments to 4Q18 results, for payment in March 2019.

[4] Net of brokerage fee.

[5] The dividend of USD 0.3952 per share was translated into BRL at the exchange rate of BRL/USD 3.7459 on July 24th, 2018 but was effectively paid on September 20th, 2018 at the prevailing exchange rate of BRL/USD 4.0997.

CAPEX

Capital expenditures totaled US$ 692 million in 3Q18 with US$ 123 million in project execution and US$ 569 million in sustaining capital.

As a result of Vale's more rigorous capital allocation approach, a new governance process was established in the implementation of sustaining projects, which led to a reengineering of some projects included in the 2018 budget. Consequently, the new governance will lead to a concentration of disbursements in 4Q18, which together with the usual seasonality of disbursements translates into a very high expenditure in the last quarter.

Project Execution and Sustaining by business area

US$ million	3Q18	%	2Q18	%	3Q17	%
Ferrous Minerals	437	63.2	462	65.5	551	63.8
Coal	30	4.3	34	4.8	14	1.6
Base Metals	223	32.2	208	29.5	289	33.5
Power generation	2	0.3	1	0.1	7	0.8
Others	-	-	-	-	1	0.1
Total	**692**	**100.0**	**705**	**100.0**	**863**	**100.0**

Project execution

Investment in project execution totaled US$ 123 million in 3Q18, a decrease of US$ 82 million when compared to 2Q18, in line with Vale's budget and reflecting that CLN S11D, its main capital project under development, is approaching its completion.

In October 2018, Vale's Board of Directors approved the investment of US$ 1.1 billion in the Salobo III copper project, a brownfield expansion increasing processing throughput capacity. The project encompasses a third concentrator line, and it will use Salobo's existing infrastructure. Salobo III will produce an average copper volume of approximately 50 ktpy in the first 5 years, 42 ktpy in the first 10 years and 33 ktpy throughout the life of mine. As Salobo III will anticipate copper and gold production from the original mine plan, the life of mine will go until 2052 instead of 2067. Start-up is scheduled for 1H22 with a ramp-up of 15 months.

Vale will receive a bonus ranging from approximately US$ 600 million to US$ 700 million from Wheaton Precious Metals after achieving certain production targets, as part of the previously negotiated terms of the goldstream transaction.

S11D (including mine, plant and associated logistics – CLN S11D) achieved a combined physical progress of 98% in 3Q18 with the mine site concluded and 96% progress at the logistic infrastructure sites.

The duplication of the railway reached 93% physical progress with all 63 segments duplicated and 53% of the patios renewed. The successful development of the project together with the

S11D mine and plant ramp-up enabled Vale's 3Q18 iron ore production volume to achieve a quarterly record.

S11D Logistics – Duplication of the railway

Capital projects progress indicator[6]

Project	Capacity (Mtpy)	Estimated start-up	Executed capex (US$ million)		Estimated capex (US$ million)		Physical progress
			2018	Total	2018	Total	
Ferrous Minerals project							
CLN S11D	230 (80)[a]	1H14 to 2H19	478	7,054	647	7,850[b]	96%

[a] Net additional capacity.

[b] Original capex budget of US$ 11.582 billion.

Project execution by business area

US$ million	3Q18	%	2Q18	%	3Q17	%
Ferrous Minerals	122	99.2	171	83.4	273	92.5
Coal	-	-	15	7.3	2	0.7
Base Metals	-	-	19	9.3	13	4.4
Power generation	1	0.8	-	-	7	2.4
Others	-	-	-	-	1	0.3
Total	**123**	**100.0**	**205**	**100.0**	**295**	**100.0**

Sustaining capex

Sustaining capital expenditure totaled US$ 569 million in 3Q18, US$ 69 million higher when compared to 2Q18. For 4Q18, sustaining capex will increase due to the usual seasonality of

[6] 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.

disbursements, the above-mentioned new governance process and higher investments in Ferrous Minerals and in VBME.

In September 2018, Vale's Board of Directors approved the Gelado project in the Northern System, for a total of US$ 428 million. The project encompasses the recovery of approximately 10 Mtpy of iron ore fines from the Gelado tailings dam up to 2031, in order to feed the recently restarted São Luís pellet plant. The tailings have an average of 64.3% Fe content, 2.0% of silica and 1.65% of alumina. The economics of the project are robust as it will (i) allow 9.7 Mtpy of iron ore production with zero transportation distance and no use of trucks, therefore reducing opex and (ii) reduce the mining rate at the existing Carajás mine, avoiding sustaining capital on the replacement of trucks. It also depicts the flexibility of Vale's resource base – where even former waste is better than the industry's standard product.

In 3Q18, the Digital Transformation program continued its evolution, Vale's Executive Board approved its extension into the Base Metals operations, in Canada. An additional US$ 116 million of a multiyear sustaining capex will encompass the implementation of 15 suites of projects for Sudbury operations. The main suites of projects that started to be developed are: (i) integrated planning and scheduling; (ii) cooling system; (iii) advanced insight center; and, (iv) tagging and tracking (Radio-Frequency IDentification RFID). The objective of the program in Sudbury is to unlock capacity for additional feed (~10%) over the first 3 years, aligned with the premium portfolio and the flexibility that Vale is enhancing in its operations.

The Digital Transformation program encompasses more than 120 projects throughout the Ferrous Minerals and Base Metals segments totaling US$ 467 million approved up to 3Q18 to be spent by 2023.

The Ferrous Minerals and Base Metals business segments accounted for 55% and 39%, respectively, of total sustaining capex in 3Q18, remaining in line with 2Q18.

Sustaining capex in the Base Metals business segment was mainly for: (i) operational improvements (US$ 146 million); (ii) enhancements in the current standards of health and safety, social and environmental protection (US$ 64 million); and (iii) maintenance improvements and expansion of tailings dams (US$ 6 million).

Sustaining capital for the Ferrous Minerals business segment included, among others: (i) enhancements and replacements in operations (US$ 219 million); (ii) improvements in the current standards of health and safety, social and environmental protection (US$ 44 million); and (iii) maintenance, improvement and expansion of tailings dams (US$ 31 million). Maintenance of railways and ports in Brazil and Malaysia accounted for US$ 76 million.

Replacement projects progress indicator[7]

Project	Capacity (Ktpy)	Estimated start-up	Executed capex (US$ million)		Estimated capex (US$ million)		Physical progress
			2018	Total	2018	Total	
Voisey's Bay Mine Extension	40	1H21	54	113	141	1,694	12%
Gelado	9,700	2H21	0	0	3	428	0%

Sustaining capex by type - 3Q18

US$ million	Ferrous Minerals	Coal	Base Metals	TOTAL
Operations	219	24	146	389
Waste dumps and tailing dams	31	-	6	37
Health and Safety	35	0	8	43
Social investments and environmental protection	10	3	56	69
Administrative & Others	22	2	7	31
Total	**317**	**29**	**223**	**569**

Sustaining capex by business area

US$ million	3Q18	%	2Q18	%	3Q17	%
Ferrous Minerals	315	55.3	291	58.2	278	48.9
Coal	30	5.3	19	3.8	12	2.1
Base Metals	223	39.2	188	37.7	276	48.6
Nickel	194	34.1	159	31.8	250	44.0
Copper	29	5.1	29	5.9	26	4.6
Power generation	1	0.2	1	0.3	1	0.2
Others	-	-	-	-	-	-
Total	**569**	**100.0**	**500**	**100.0**	**568**	**100.0**

Corporate social responsibility

Investments in corporate social responsibility totaled US$ 123 million in 3Q18, of which US$ 110 million dedicated to environmental protection and conservation and US$ 13 million to social projects.

Vale aims to transform natural resources into prosperity and sustainable development. The main driver of Fundação Vale, with its 50 years of experience, is to support positive social legacies for the territories where it operates. Fundação Vale develops social projects related to work and income generation, health, and education. From its inception, the projects establish a relationship with the communities, based on open dialogue, respecting the local culture, their values, initiatives and desires.

The following results can be highlighted:

- Work and income generation: promotion of sustainable labor alternatives in 24 municipalities, benefiting more than 2,000 social entrepreneurs and more than 400 rural producers of family agriculture since 2014.

[7] 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.

- Health: improving primary care in 28 municipalities, benefiting more than 4,100 health professionals and community leaders, and providing around 5,000 pieces of equipment to 126 basic health units since 2014.
- Education: promoting reading habits and access to books in 40 municipalities, benefiting more than 60,000 people, providing more than 30,000 books since 2012 and 21 reading locations in 2017.

In order to obtain effective results, Fundação Vale understands that development only becomes sustainable when there is an alignment between companies, the state and civil society. In this regard, Fundação Vale fosters a network amongst its suppliers and clients to integrate and leverage voluntary corporate social responsibility investments, and uses voluntary social investments for the implementation and strengthening of public policies.

Portfolio Management

In 3Q18, Vale concluded the sale of its 50% interest in the Eagle Downs hard coking coal project in Queensland, Australia, to a subsidiary of China BaoWu Steel Group Corporation Limited (Baosteel) for US$ 117 million in cash[8], aligned with Vale's strategy to simplify its asset portfolio and divest non-core assets.

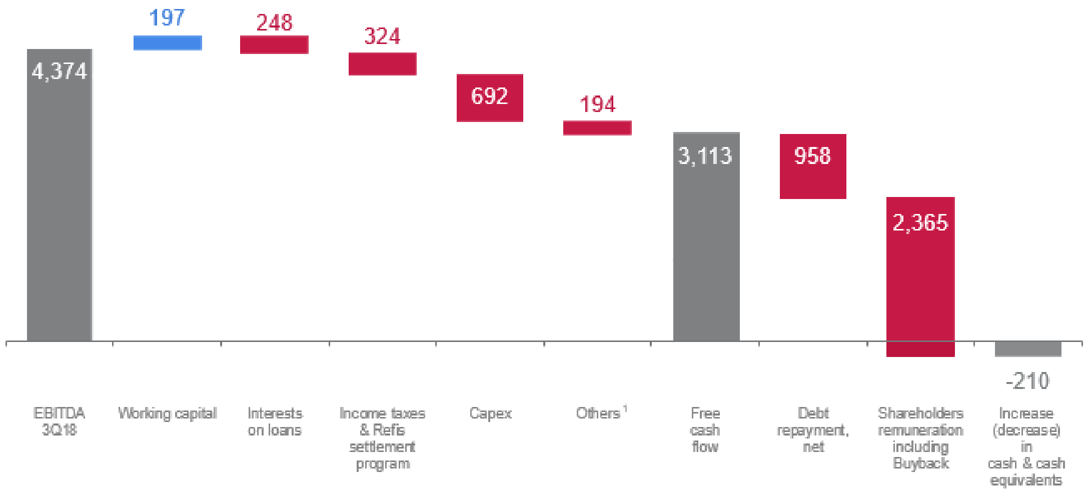
[8] Out of which US$ 90 million were a cash inflow in 3Q18 and US$ 27 million will be paid once operational preconditions are met.

Free cash flow

Free cash flow was US$ 3.113 billion in 3Q18. The strong cash generation in the quarter enabled both continuity in the deleveraging of the company towards the US$ 10 billion net debt target and the return to investors of US$ 2.4 billion through interest on capital, dividends and share buyback.

Free Cash Flow 3Q18

US$ million



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

Debt indicators

Vale has continued to trim its net debt and practically achieved the US$ 10 billion net debt target, lowering it to US$ 10.704 billion as of September 30th, 2018, decreasing by US$ 815 million from June 30th, 2018 and by US$ 10.362 billion from September 30th, 2017, reaching the lowest net debt level since 3Q09. Leverage measured by net debt to LTM[9] adjusted EBITDA remained at 0.7x, the lowest level since 1Q12.

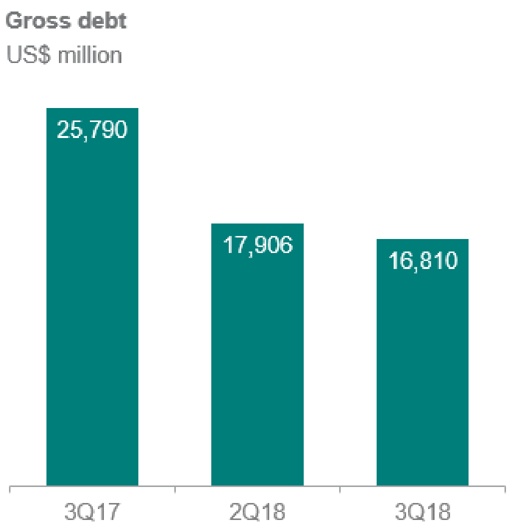
The debt decrease was supported by strong cash generation and was achieved despite the payment of shareholder remuneration of US$ 1.9 billion and the share buyback program[10] of US$ 489 million, which occurred in 3Q18.

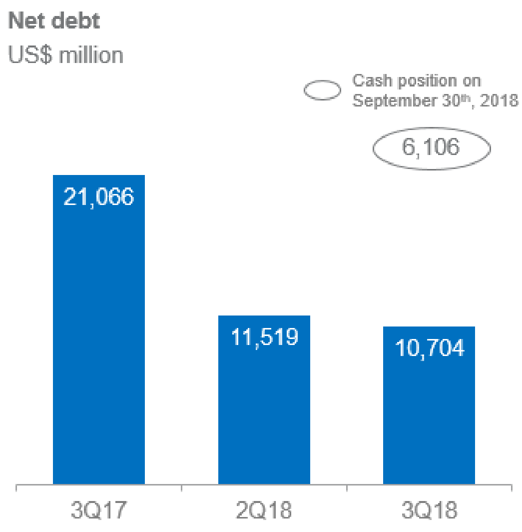
Gross debt amounted to US$ 16.810 billion as of September 30th, 2018, decreasing by US$ 1.096 billion from June 30th, 2018 and by US$ 8.980 billion from September 30th, 2017. The decrease in gross debt compared to the end of last quarter was mainly due to net debt repayments[11] of US$ 1.206 billion in 3Q18.

Average debt maturity increased to 9.1 years on September 30th, 2018, against 8.9 years on June 30th, 2018. Average cost of debt, after currency and interest rate swaps, increased slightly to 5.09% per annum on September 30th, 2018 from 4.96% per annum on June 30th, 2018.

Debt indicators

US$ million	3Q18	2Q18	3Q17
Total debt	16,810	17,906	25,790
Net debt	10,704	11,519	21,066
Total debt / adjusted LTM EBITDA (x)	1.0	1.1	1.6
Net debt / adjusted LTM EBITDA (x)	0.7	0.7	1.3
Adjusted LTM EBITDA / LTM gross interest (x)	12.8	11.4	9.1

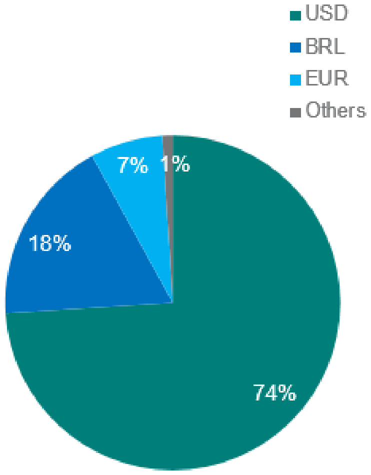




[9] Last twelve months.
[10] US$ 1.0 billion share buyback program announced on July 26th, 2018 to be carried out over a period of up to 365 days.
[11] Debt repayments less debt additions. Include interest payments.

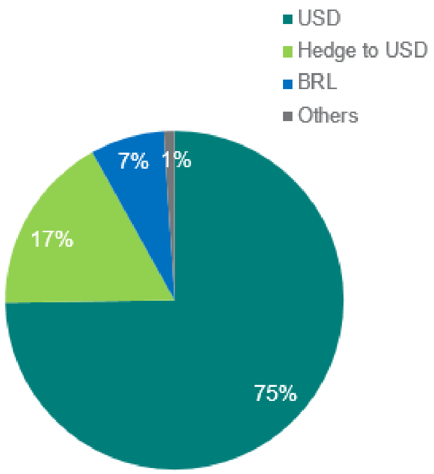
Debt position breakdown by currency (before hedge)

%



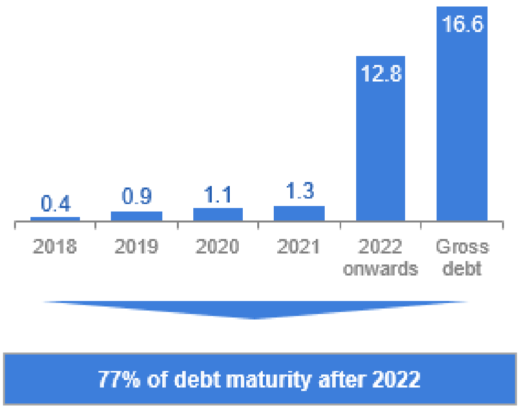
Debt position breakdown by currency (after hedge)

%



Debt amortization schedule[1]

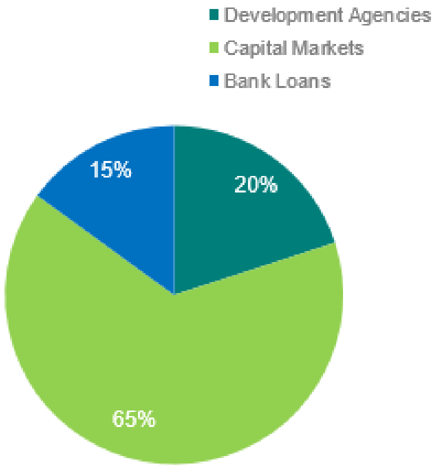
US$ billion



[1] As of September 30th, 2018. Does not include accrued charges.

Debt breakdown by instrument

%



Performance of the business segments

Segment information - 3Q18, as per footnote of financial statements

US$ million	Net Revenues	Cost[1]	Expenses			Dividends and interests on associates and JVs	Adjusted EBITDA
			SG&A and others[1]	R&D[1]	Pre operating & stoppage[1]		
Ferrous Minerals	7,439	(3,416)	(6)	(34)	(30)	7	3,960
Iron ore fines	5,594	(2,459)	(1)	(27)	(24)	-	3,083
ROM	8	-	-	-	-	-	8
Pellets	1,627	(811)	(4)	(6)	(6)	-	800
Others ferrous	106	(74)	(1)	(1)	-	7	37
Mn & Alloys	104	(72)	-	-	-	-	32
Coal	425	(433)	2	(4)	-	26	16
Base Metals	1,586	(1,030)	(5)	(15)	(8)	-	528
Nickel[2]	1,086	(804)	(3)	(11)	(8)	-	260
Copper[3]	500	(226)	(2)	(4)	-	-	268
Others	93	(63)	(121)	(34)	(5)	-	(130)
Total	9,543	(4,942)	(130)	(87)	(43)	33	4,374

[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

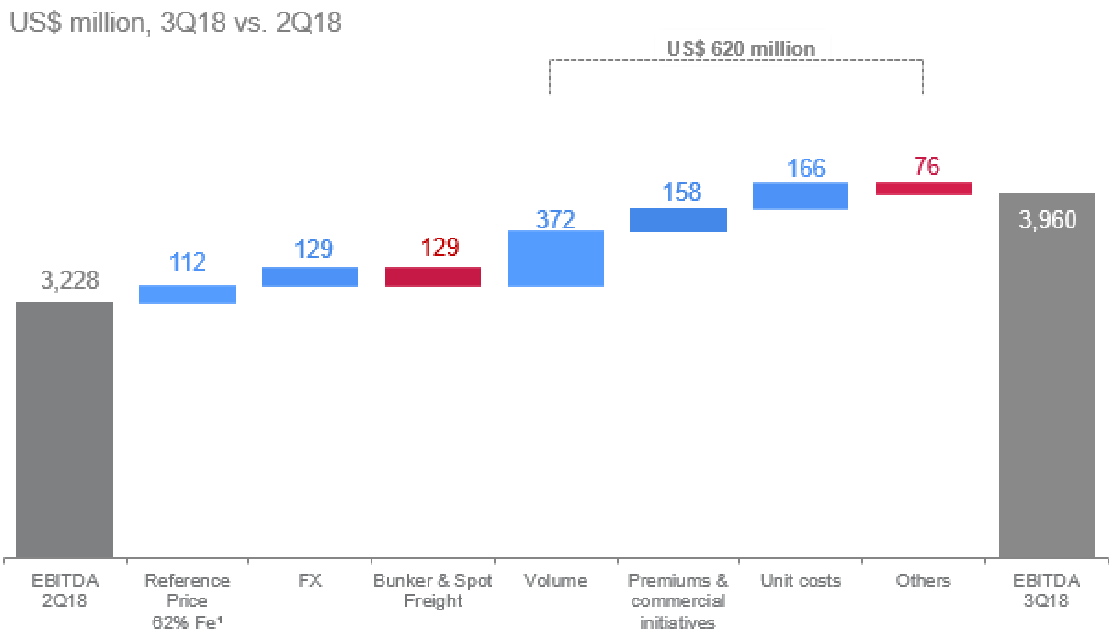
Adjusted EBITDA of the Ferrous Minerals business segment was US$ 3.960 billion in 3Q18, US$ 732 million higher than in 2Q18, mainly due to higher sales volumes, lower C1 cash cost and better average premium, reflecting: (i) marketing efforts to position Vale's premium product portfolio; (ii) the flexibility of the operations; (iii) the active supply chain management; (iv) the share of premium products in total sales; and (v) stronger market premiums.

The successful ramp-up of S11D and Tubarão pellet plants I and II led to quarterly records in production and sales volumes, increasing the share of premium products, which achieved the record of 79% of total sales, and decreasing the level of contaminants. Therefore, Vale's portfolio is benefiting from the structural "flight to quality" trend with rising market premiums.

Iron ore fines and pellets quality premiums broke the barrier of US$ 10/t for the second consecutive quarter, totaling US$ 11.0/t in 3Q18 and resulting in a gain of US$ 158 million vs. 2Q18.

The strong operational performance was also translated into unit costs reductions beyond the positive effect of exchange rate variation, with total savings amounting to US$ 166 million.

EBITDA variation 2Q18 vs. 3Q18 – Ferrous Minerals business segment

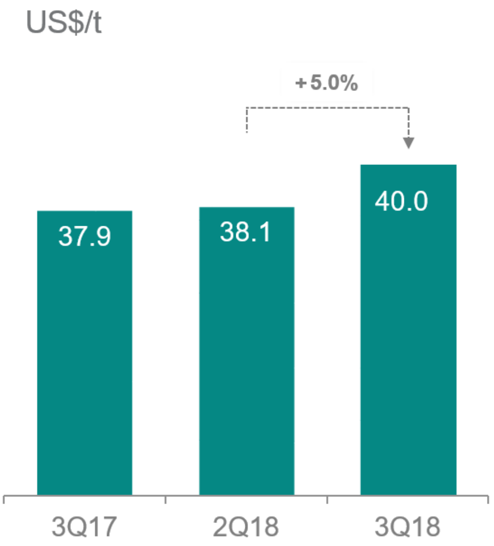


[1] Reference price 62% Fe net effect in both revenues (US$ 126 million) and costs (-US$ 14 million).

FERROUS MINERALS ADJUSTED EBITDA MARGIN[12]

Adjusted EBITDA per ton for Ferrous Minerals, excluding Manganese and Ferroalloys, was US$ 40.0/t in 3Q18, an increase of US$ 3.2/t when compared to the US$ 36.8/t recorded in 2Q18. After normalizing the impacts of 62% iron ore market reference prices, bunker oil prices and exchange rate on the previous quarters, 3Q18 adjusted EBITDA per ton maintained its progressive growth trend and posted a new record, being US$ 1.9/t higher than the second-best quarter in Vale's history (2Q18).

Normalized EBITDA/t – Ferrous Minerals business segment



[1] Normalized by 3Q18 levels of reference price US$ 66.7/t, bunker oil US$ 465/t and FX BRL/USD 3.96

Iron ore fines (excluding Pellets and ROM)

ADJUSTED EBITDA[13]

Adjusted EBITDA of iron ore fines was US$ 3.083 billion in 3Q18, 31.2% higher than 2Q18, mainly due to higher volumes (US$ 352 million), higher premiums (US$ 135 million), higher market reference prices (US$ 117 million) and exchange rate variations (US$ 77 million).

SALES REVENUES AND VOLUME

Net sales revenues of iron ore fines, excluding pellets and run of mine (ROM), increased to US$ 5.594 billion in 3Q18 vs. US$ 4.570 billion in 2Q18, as a result of higher sales volumes (US$ 705 million) and higher sales prices (US$ 319 million).

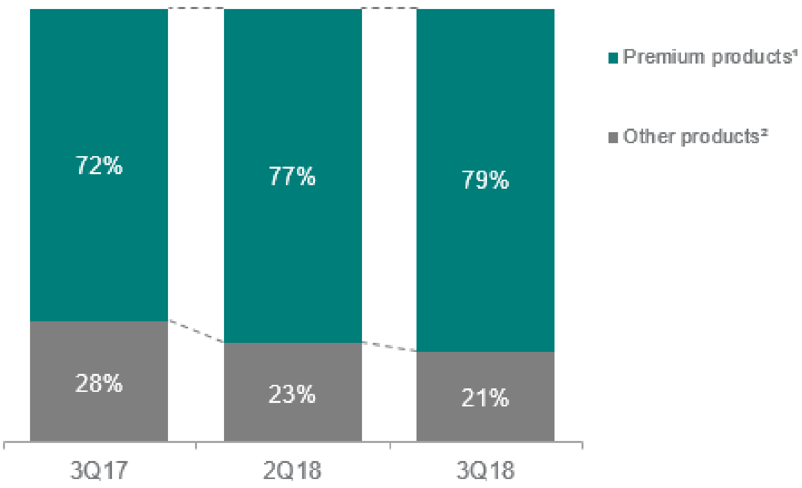
[12] Excluding Manganese and Ferroalloys.
[13] Considers the new allocation criteria for general and administrative expenses as described in the box "Managerial Allocation Changes" of the 1Q18 Earnings Release.

Sales volumes of iron ore fines achieved a quarterly record of 83.5 Mt in 3Q18, despite the increase in offshore stocks to support the ongoing blending activities.

CFR sales of iron ore fines totaled 61.0 Mt in 3Q18, representing 73% of all iron ore fines sales volumes in 3Q18, 4.4 p.p. higher than in 2Q18.

The sales mix has been consistently improving mainly as a result of S11D and Tubarão I and II pellet plants ramp-ups. The share of premium products (pellets, Carajás, Brazilian Blend Fines – BRBF, pellet feed and Sinter Feed Low Alumina - SFLA) increased to 79% in 3Q18, contributing to the US$ 1.5/t increase of Vale's average premium in the realized iron ore fines CFR/FOB wmt price in 3Q18 vs. 2Q18, which has been continuously improving to reach US$ 8.6/t in 3Q18 vs. US$ 7.1/t in 2Q18 and US$ 5.6/t in 3Q17.

Sales composition - %



[1] Composed by pellets, Carajás, Brazilian Blend Fines (BRBF), pellet feed and Sinter Feed Low Alumina (SFLA)
[2] Composed by standard sinter feed, lump and high silica

Net operating revenue by product

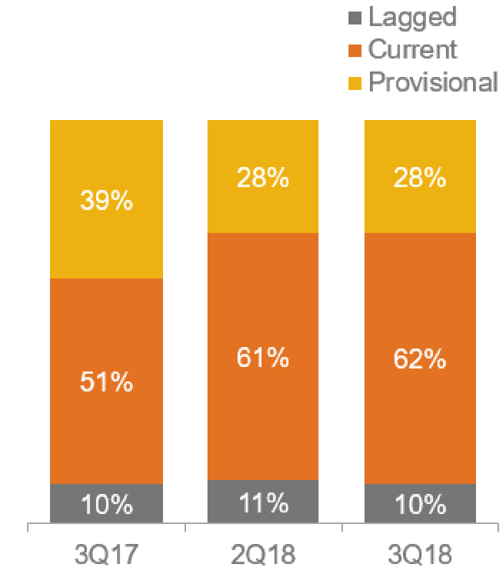
US$ million	3Q18	2Q18	3Q17
Iron ore fines	5,594	4,570	5,131
ROM	8	5	7
Pellets	1,627	1,518	1,441
Manganese & Ferroalloys	104	115	131
Others	106	113	110
Total	**7,439**	**6,321**	**6,820**

Volume sold

'000 metric tons	3Q18	2Q18	3Q17
Iron ore fines	83,500	72,921	76,388
ROM	476	368	406
Pellets	14,250	13,231	13,135
Manganese ore	554	239	498
Ferroalloys	37	34	32

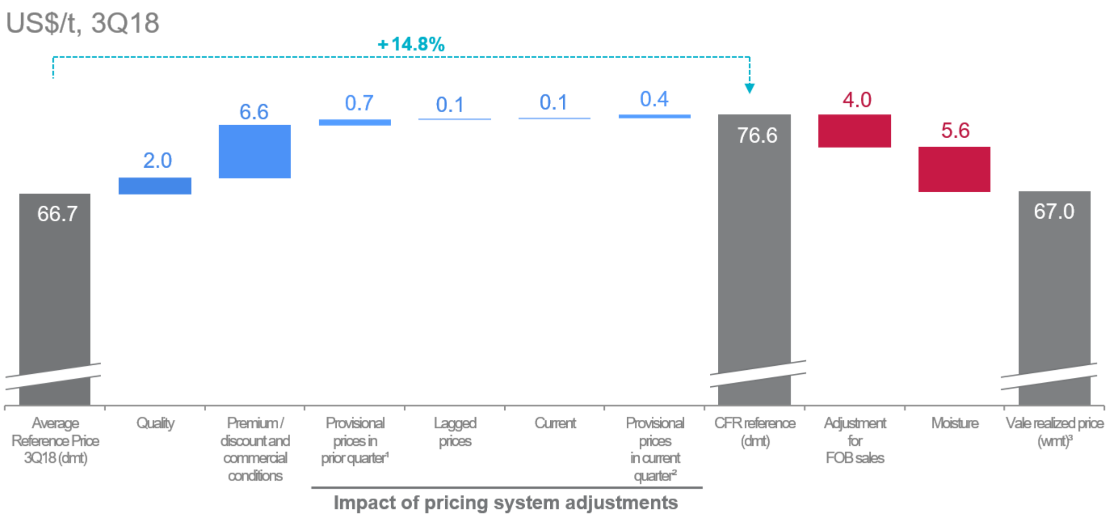
REALIZED PRICES

Pricing system breakdown - %



The percentage of sales recorded under the provisional pricing system in relation to total sales in 3Q18 was in line with 2Q18, after having decreased in the previous quarters. 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 2Q18 at US$ 64.0/t.
[2] Difference between the weighted average of the prices provisionally set at the end of 3Q18 at US$ 68.0/t based on forward curves and US$ 66.7/t from the 3Q18 62% Fe reference price.
[3] Vale price is net of taxes.

Vale's CFR dmt reference price for iron ore fines (ex-ROM) was US$ 76.6/t, US$ 9.9/t higher than the market reference price for 62% Fe content, mainly as a result of higher quality and premiums (US$ 8.6/t).

Vale's realized price increased 6.9% (US$ 4.3/t) and totaled US$ 67.0/t, mainly as a result of the above-mentioned higher premiums.

The 'Premiums/Discounts and commercial conditions' totaled US$ 6.6/t in 3Q18, achieving the highest level ever and increasing by US$ 1.6/t from the US$ 5.0/t recorded in 2Q18. The record was a result of marketing efforts to position Vale's premium product portfolio and the dynamic supply chain management maximizing margins. Additionally, Vale's realized premiums were also supported by stronger market premiums.

Iron ore fines and pellets quality premium

US$/t	3Q18	2Q18	3Q17
Iron ore fines quality premium	8.6	7.1	5.6
Pellets weighted average contribution	2.4	3.2	1.2
Iron ore fines and pellets total quality premium	**11.0**	**10.3**	**6.8**

Average prices

US$/ metric ton	3Q18	2Q18	3Q17
Iron ore - Metal Bulletin 65% index	94.2	86.0	91.2
Iron ore - Metal Bulletin 62% low alumina index	72.6	67.9	n.a.
Iron ore - 62% Fe reference price	66.7	65.3	70.9
Provisional price at the end of the quarter	68.0	64.0	62.7
Iron ore fines CFR reference (dmt)	76.6	72.7	76.1
Iron ore fines CFR/FOB realized price	67.0	62.7	67.2
ROM	18.7	19.5	17.2
Pellets CFR/FOB (wmt)	114.2	114.7	109.7
Manganese ore	109.1	310.1	175.8
Ferroalloys	1,168.6	1,194.4	1,380.3

COSTS

Costs for iron ore fines amounted to US$ 2.459 billion (or US$ 2.738 billion with depreciation charges) in 3Q18. Costs remained practically in line with 2Q18[14], with lower C1 cash costs offsetting higher freight costs.

IRON ORE COGS - 2Q18 x 3Q18

		Variance drivers				
US$ million	2Q18	Volume	Exchange rate	Others	Total variation	3Q18
C1 cash costs	1,072	137	(73)	(103)	(39)	1,033
Freight	861	189	-	132	321	1,182
Others	211	31	-	2	33	244
Total costs before depreciation and amortization	**2,144**	**357**	**(73)**	**31**	**315**	**2,459**
Depreciation	295	39	(24)	(31)	(16)	279
Total	**2,439**	**396**	**(97)**	**0**	**299**	**2,738**

Unit maritime freight cost per iron ore metric ton was US$ 19.4/t in 3Q18, US$ 2.2/t higher than in 2Q18, mainly due to the impact of higher freight spot prices (US$ 1.0/t) and higher bunker oil prices (US$ 0.9/t)[15].

C1 CASH COST

C1 cash cost FOB port per metric ton for iron ore fines ex-royalties decreased substantially, as previously forecast, and totaled US$ 12.4/t in 3Q18. The reduction of US$ 2.3/t vs. 2Q18 was due to the successful S11D ramp-up, higher productivity, higher dilution of fixed costs on higher

[14] After adjusting for the effects of higher sales volumes (US$ 353 million) and the positive impact of exchange rate variations (US$ 73 million).
[15] The average bunker oil price in Vale's freight portfolio increased to US$ 443/t in 3Q18 from US$ 396/t in 2Q18.

production volumes, exchange rate variations and lower service and demurrage costs as forecast in the 2Q18 Earnings Release.

Iron ore fines costs and expenses in BRL

R$/t	3Q18	2Q18	3Q17
C1 Cash Costs[1]	49.1	53.3	45.8
Expenses[1 2]	2.5	3.9	3.5
Total	**51.6**	**57.2**	**49.3**

[1] Net of depreciation
[2] Considers the new allocation criteria for general and administrative expenses as described in the box "Managerial Allocation Changes" of the 1Q18 Earnings Release

Iron ore fines cash cost and freight

	3Q18	2Q18	3Q17
Costs (US$ million)			
COGS, less depreciation and amortization	2,459	2,144	2,086
(-) Distribution costs	69	51	51
(-) Maritime freight costs (A)	1,182	861	819
FOB at port costs (ex-ROM)	**1,208**	**1,232**	**1,216**
(-) Royalties	175	160	107
FOB at port costs (ex-ROM and ex-royalties) (B)	**1,033**	**1,072**	**1,109**
Sales volumes (Mt)			
Total iron ore volume sold	83.9	73.3	76.8
(-) Total ROM volume sold	0.4	0.4	0.4
Volume sold (ex-ROM) (C)	83.5	72.9	76.4
Vale's iron ore cash cost (ex-ROM, ex-royalties), FOB (US$/t) (B/C)	**12.4**	**14.7**	**14.5**
Freight			
Maritime freight costs (A)	1,182	861	819
% of CFR sales (D)	73%	69%	71%
Volume CFR (Mt) (E = C x D)	61.0	50.0	54.5
Vale's iron ore unit freight cost (US$/t) (A/E)	19.4	17.2	15.0

EXPENSES[16]

Iron ore expenses, net of depreciation, amounted to US$ 52 million in 3Q18, 33.3% lower than in 2Q18. Sales and other expenses totaled US$ 1 million in 3Q18, decreasing US$ 25 million vs. 2Q18, mainly due to some positive effects, such as lower provision for doubtful debts, return of insurance premiums on vessels sold and settlement of an insurance claim. R&D amounted to US$ 27 million, remaining practically in line with 2Q18. Pre-operating and stoppage expenses, net of depreciation, amounted to US$ 24 million, 11% lower than in 2Q18, mainly as a result of lower S11D pre-operating expenses. Following the current S11D ramp-up profile, pre-operating expenses related to S11D are expected to be zero as of 1Q19.

Iron ore pellets

Adjusted EBITDA for pellets in 3Q18 was US$ 800 million, in line with 2Q18, despite the lower dividends received[17] (US$ 105 million) which follows a seasonality of payments in the second and

[16] Considers the new allocation criteria for general and administrative expenses as described in the box "Managerial Allocation Changes" of 1Q18 Earnings Release.
[17] Dividends from leased pelletizing plants, which are usually paid every 6 months in 2Q and 4Q.

fourth quarter. Higher sales volumes (US$ 59 million) and lower costs[18] (US$ 29 million) partially offset the lower dividends received.

Realized prices in 3Q18 were an average CFR/FOB of US$ 114.2/t, in line with 2Q18.

CFR pellet sales of 3.9 Mt in 3Q18 represented 27% of total pellet sales, remaining practically in line with 2Q18. FOB pellet sales amounted to 10.4 Mt in 3Q18, also in line with 2Q18.

Adjusted EBITDA for pellets totaled US$ 2.4 billion in 9M18, a record level since 9M14, representing 19% of Vale's total EBITDA in the same period, the highest share since 9M15.

Pellets - EBITDA

	3Q18		2Q18	
	US$ million	US$/wmt	US$ million	US$/wmt
Net Revenues / Realized Price	1,627	114.2	1,518	114.7
Dividends Received (Leased pelletizing plants)	-	-	105	7.9
Cash Costs (Iron ore, leasing, freight, overhead, energy and other)	(811)	(56.9)	(808)	(61.1)
Expenses (Selling, R&D and other)	(16)	(1.1)	(18)	(1.4)
EBITDA	800	56.1	797	60.2

IRON ORE FINES AND PELLETS CASH BREAKEVEN[19]

In 3Q18, Vale's iron ore fines and pellets EBITDA breakeven reached its lowest level in history of US$ 27.4/t, US$ 1.4/t lower than in 2Q18 as a result of higher quality and premiums for iron ore fines (US$ 1.5/t) and lower C1 cash costs (US$ 2.3/t) which were partially offset by exogenous pressures on freight (US$ 2.2/t) and lower dividends received by the leased pelletizing plants[20] (US$ 0.8/t).

Iron ore and pellets cash breakeven landed in China[1]

US$/t	3Q18	2Q18	3Q17
Vale's iron ore cash cost (ex-ROM, ex-royalties), FOB (US$/t)	12.4	14.7	14.5
Iron ore fines freight cost (ex-bunker oil hedge)	19.4	17.2	15.0
Iron ore fines distribution cost[2]	0.8	0.7	0.7
Iron ore fines expenses[3] & royalties	2.7	3.3	2.5
Iron ore fines moisture adjustment	3.1	3.2	2.8
Iron ore fines quality adjustment	(8.6)	(7.1)	(5.6)
Iron ore fines EBITDA breakeven (US$/dmt)	**29.8**	**32.0**	**29.9**
Iron ore fines pellet adjustment	(2.4)	(3.2)	(1.2)
Iron ore fines and pellets EBITDA breakeven (US$/dmt)	**27.4**	**28.8**	**28.7**
Iron ore fines sustaining investments	3.0	3.5	3.2
Iron ore fines and pellets cash breakeven landed in China (US$/dmt)	**30.4**	**32.3**	**31.8**

[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

[18] Net of exchange rate variations and higher volumes.

[19] Considers the new allocation criteria for general and administrative expenses as described in the box "Managerial Allocation Changes" of 1Q18 Earnings Release.

[20] Dividends from leased pelletizing plants, which are usually paid every 6 months in 2Q and 4Q.

Manganese and ferroalloys

Adjusted EBITDA of manganese ore and ferroalloys was US$ 32 million in 3Q18, US$ 15 million lower than in 2Q18, mainly due to lower sales volumes (US$ 41 million) which were partially offset by lower costs[21] (US$ 26 million).

Volume sold by destination – iron ore and pellets

'000 metric tons	3Q18	2Q18	3Q17
Americas	**10,608**	**10,155**	**9,306**
Brazil	7,460	7,064	6,710
Others	3,148	3,091	2,596
Asia	**71,028**	**59,261**	**65,854**
China	56,754	45,995	52,355
Japan	7,320	8,094	8,127
Others	6,954	5,172	5,372
Europe	**11,418**	**13,109**	**10,226**
Germany	4,147	4,545	4,309
France	1,875	1,769	1,678
Others	5,396	6,795	4,239
Middle East	**3,573**	**1,960**	**2,153**
Rest of the World	**1,599**	**2,035**	**2,390**
Total	**98,226**	**86,520**	**89,929**

Selected financial indicators - Ferrous Minerals

US$ million	3Q18	2Q18	3Q17
Net Revenues	7,439	6,321	6,820
Costs[1]	(3,416)	(3,101)	(2,967)
Expenses[1]	(6)	(33)	(27)
Pre-operating and stoppage expenses[1]	(30)	(33)	(49)
R&D expenses	(34)	(32)	(27)
Dividends and interests on associates and JVs	7	106	13
Adjusted EBITDA	3,960	3,228	3,763
Depreciation and amortization	(408)	(425)	(442)
Adjusted EBIT	3,552	2,803	3,321
Adjusted EBIT margin (%)	47.7	44.3	48.7

[1] Net of depreciation and amortization

Selected financial indicators - Iron ore fines

US$ million	3Q18	2Q18	3Q17
Adjusted EBITDA (US$ million)	3,083	2,349	2,961
Volume Sold (Mt)	83.5	72.9	76.4
Adjusted EBITDA (US$/t)	36.9	32.2	38.8

Selected financial indicators - Pellets

US$ million	3Q18	2Q18	3Q17
Adjusted EBITDA (US$ million)	800	797	692
Volume Sold (Mt)	14.3	13.2	13.1
Adjusted EBITDA (US$/t)	56.1	60.2	52.7

Selected financial indicators - Ferrous ex Manganese and Ferroalloys

US$ million	3Q18	2Q18	3Q17
Adjusted EBITDA (US$ million)	3,928	3,181	3,705
Volume Sold (Mt)[1]	98.2	86.5	89.9
Adjusted EBITDA (US$/t)	40.0	36.8	41.2

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

[21] After adjusting for the effects of lower volumes (US$ 37 million) and exchange rate variations (-US$ 4 million).

Base Metals

ADJUSTED EBITDA

Base Metals adjusted EBITDA was US$ 528 million in 3Q18 vs. US$ 778 million in 2Q18, with about 65% of the US$ 250 million decrease related to the exogenous factor of lower prices for nickel, copper and cobalt (US$ 162 million). The remainder was mainly associated with Sudbury's annual scheduled maintenance shutdown and its effects on lower by-product volumes, leading to lower volumes (US$ 86 million) and higher costs[22] (US$ 33 million), mostly from one-off effects of the above-mentioned maintenance shutdown.

Despite lower LME prices, the average nickel realized price was US$ 14,092/t, US$ 826/t higher than the average LME nickel price of US$ 13,266/t in 3Q18, an aggregate nickel price realization 6.2% above LME prices, the highest percentage above the benchmark in the last 10 years, and in line with the strategy of exploring the potential of its premium nickel products.

Base Metals EBITDA in 9M18 was US$ 1.950 billion, significantly higher than the US$ 1.441 billion registered in 9M17. The EBITDA increase comes even with the one-off adaptations of Canadian flowsheet in 3Q18 and the resumption of Coleman mine in 2Q18. Looking forward, the Base Metals business will improve its performance based on the operational stabilization plan of its new management team along with the tailwind of EV demand for battery-suitable nickel as a catalyst in the medium to long-term.

Average prices

US$/ metric ton	3Q18	2Q18	3Q17
Nickel	14,092	14,784	10,554
Copper	4,895	6,020	6,203
Platinum (US$/oz)	1,229	877	917
Gold (US$/oz)	1,198	1,330	1,175
Silver (US$/oz)	13.6	15.3	15.9
Cobalt (US$/t)	57,706	73,984	53,428

Base Metals EBITDA overview – 3Q18

US$ million	North Atlantic	PTVI Site	VNC Site	Onça Puma	Sossego	Salobo	Others	Total Base Metals
Net Revenues	**693**	**205**	**97**	**76**	**141**	**359**	**15**	**1,586**
Costs	(535)	(132)	(137)	(44)	(84)	(142)	44	(1,030)
Selling and other expenses	-	-	-	(1)	(2)	-	(2)	(5)
Pre-operating and stoppage	(7)	-	-	(1)	-	-	-	(8)
R&D	(3)	(3)	(2)	(1)	(3)	(1)	(2)	(15)
EBITDA	**148**	**70**	(42)	**29**	**52**	**216**	**55**	**528**

[22] Net of volume and exchange rate effects.

Nickel operations

Nickel operations – EBITDA by operation

US$ million	3Q18	2Q18	3Q17
North Atlantic operation[1]	148	393	240
PTVI	70	66	35
VNC	(42)	1	(6)
Onça Puma	29	25	13
Others[2]	55	12	(32)
Total	**260**	**497**	**250**

[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	3Q18	2Q18	3Q17
North Atlantic operations[1]	9,234	4,680	4,484
PTVI	7,084	7,170	5,866
VNC	15,100	12,515	9,841
Onça Puma	7,938	7,957	7,944

[1] North Atlantic figures include Clydach and Acton refining costs.

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

- The North Atlantic operations EBITDA was US$ 148 million, decreasing by US$ 245 million vs. 2Q18 mainly due to lower nickel and by-product volumes (US$ 77 million), higher costs (US$ 76 million) and lower nickel, copper and cobalt realized prices (US$ 73 million). Unit cash costs increased mostly due to lower copper, and other by-products volumes as nickel volumes decreased in the quarter with Sudbury's maintenance shutdown and Thompson's transition to a mine-mill operation. Also, there were the effects of lower dilution of fixed costs, as nickel volumes decreased in the quarter, and lower by-product prices, in line with lower LME benchmark prices.

- PTVI's EBITDA was US$ 70 million, increasing by US$ 4 million when compared to 2Q18, due to slightly higher nickel price realization (US$ 3 million) related to the timing of deliveries in the quarter. Unit cash costs were in line with 2Q18.

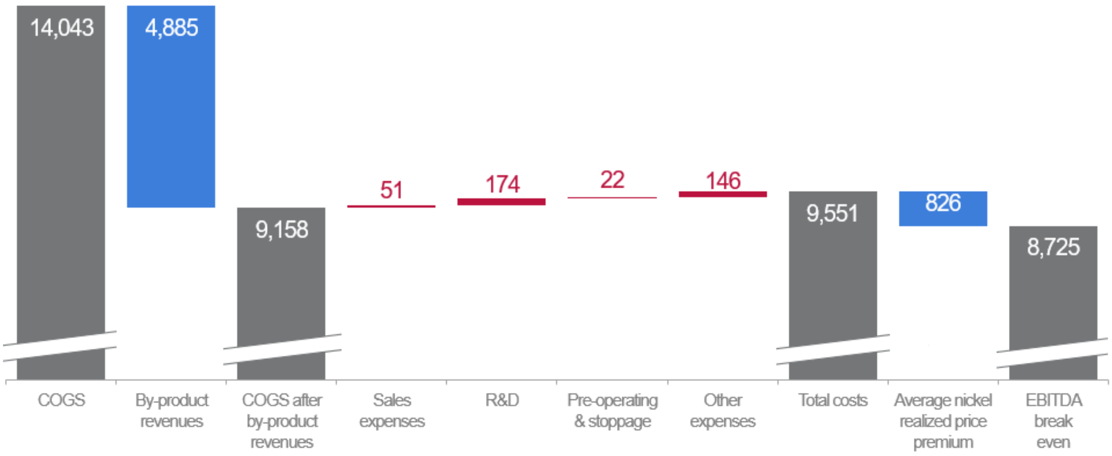
- VNC's EBITDA was negative US$ 42 million, decreasing by US$ 43 million when compared to 2Q18, mainly as a result of lower nickel and cobalt realized prices (US$ 33 million) and higher costs[23] (US$ 11 million). Unit cash costs increased with lower cobalt prices affecting by-product credits and also due to lower ore deliveries from the mine and refinery limitations.

- Onça Puma's EBITDA was US$ 29 million, increasing by US$ 4 million when compared to 2Q18. Unit cash costs were in line with 2Q18 as favourable exchange rate variations offset a slight increase in costs related to energy and supplies.

[23] Costs net of volume effect.

EBITDA breakeven – nickel operations[24]

US$/t, 3Q18



SALES REVENUES AND VOLUMES

Nickel sales revenues were US$ 807 million in 3Q18, decreasing US$ 104 million vs. 2Q18 as a result of lower sales volumes (US$ 64 million) and lower realized prices (US$ 40 million). Sales volumes of nickel were 57 kt in 3Q18, 5 kt lower than in 2Q18. Nickel sales volumes were lower than in 2Q18 in line with lower production in the quarter, partially offset by drawdown of finished inventory in 3Q18.

Copper by-product from nickel operations generated sales revenues of US$ 96 million in 3Q18, decreasing US$ 80 million vs. 2Q18 as a result of lower sales volumes (US$ 50 million), mainly related to lower copper by-product from the North Atlantic operations, and lower copper realized prices (US$ 30 million) following the decrease in the LME benchmark. Sales volumes of copper by-product totaled 21 kt in 3Q18, 9 kt lower than in 2Q18. Sales volumes were lower than in 2Q18 reflecting the annual scheduled maintenance in Sudbury and the strategic decision to decrease mine production at Voisey's Bay to extend the mine lifespan to match the Voisey's Bay Mine Extension (VBME) underground development schedule.

Cobalt by-product sales revenues totaled US$ 65 million in 3Q18, decreasing US$ 29 million vs. 2Q18 mainly as a result of lower cobalt prices (US$ 18 million). Sales volumes of cobalt by-product amounted to 1,120 t in 3Q18, 152 t lower than in 2Q18.

Net operating revenue by product - Nickel operations

US$ million	3Q18	2Q18	3Q17
Nickel	807	911	752
Copper as by-product	96	176	227
Gold as by-product	10	23	27
Silver as by-product	2	5	4
PGMs	103	126	72
Cobalt	65	94	79
Others	3	4	8
Total	**1,086**	**1,339**	**1,169**

[24] 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$ 9,540/t

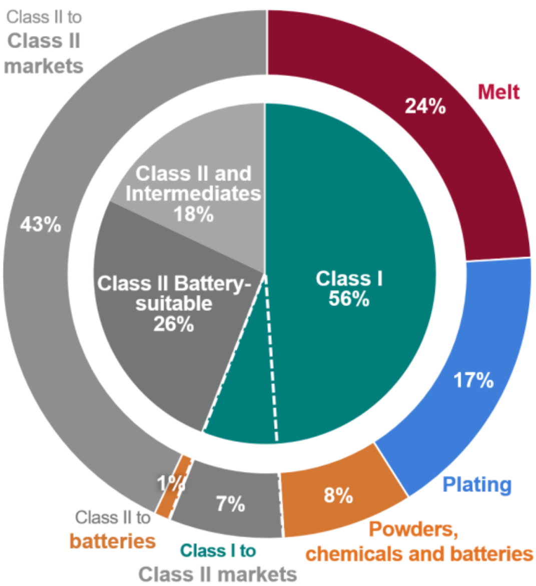
Volume sold - Nickel operations

'000 metric tons	3Q18	2Q18	3Q17
Nickel	57	62	71
Class I nickel	32	37	37
Class II Battery-suitable nickel	15	16	17
Class II nickel	6	4	6
Intermediates	4	4	11
Copper as by-product	21	30	37
Gold as by-product ('000 oz)	11	18	34
Silver as by-product ('000 oz)	185	329	242
PGMs ('000 oz)	90	138	85
Cobalt (metric ton)	1,120	1,272	1,482

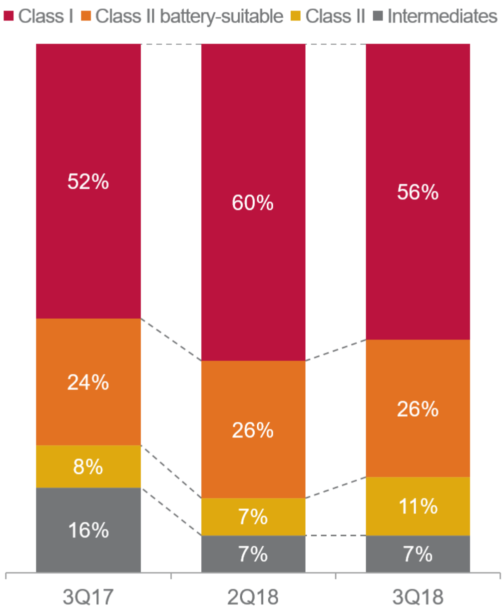
REALIZED NICKEL PRICES

Vale's nickel products are classified as Class I, Class II Battery-suitable, Class II and Intermediates. In 3Q18, 56% of our production was high-quality Class I. Considering Class II products that can be used in the production of batteries, 82% of Vale's current quarterly production has an upside with the advent of EVs. The proportion of Class I within the nickel product mix decreased temporarily in 3Q18 as a result of the one-off lower production from Sudbury and Thompson.

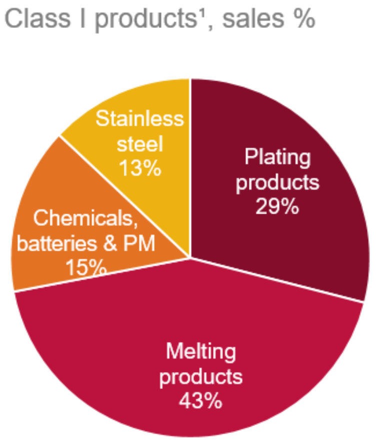
3Q18 nickel sales by product type and end markets

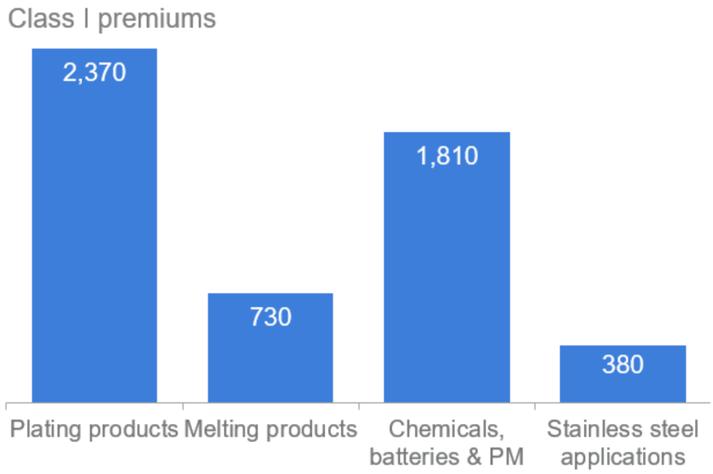


Nickel sales product mix



Class I products, 32 kt, 56% of nickel sales in 3Q18





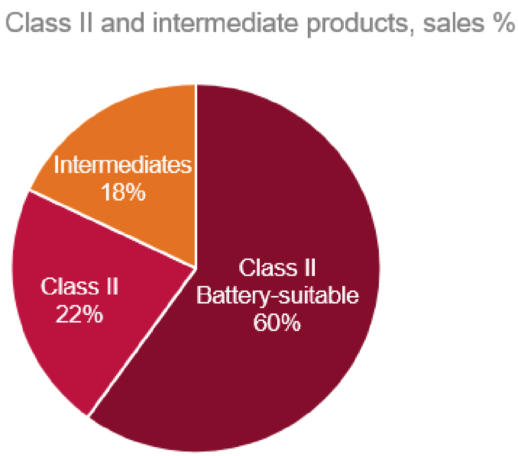
¹ PM stands for powder metallurgical applications

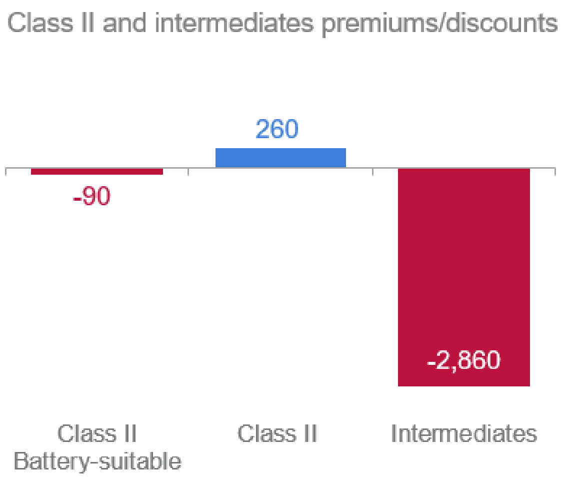
Class I products are sourced from 100% of North Atlantic operations and 46% of PTVI operations.

Part of the Class I nickel products is being sold at premiums for the specialties/high-quality markets but part of it is sold to stainless-steel Class II markets, with lower premiums. As demand for specialty products and batteries for EVs increases, a larger portion of our high-quality Class I nickel products will be sold to Class I markets, capturing a larger share of premiums among its products.

In line with the strategy to increase awareness of the quality of Vale's new Class I products, in September Vale welcomed more than 80 significant customers to attend a workshop in Long Harbour. The event was an opportunity for customers to learn about Vale's business, its processes and to see, firsthand, how Vale's new plating rounds were made as well as its benefits.

Class II Battery-suitable, Class II and Intermediates, 25 kt, 44% of nickel sales in 3Q18





Class II Battery-suitable products offer an upside for use as feed into the battery supply chain for EV batteries. Although technically any nickel can be upgraded to the purity level required by the EV batteries market, the products comprising the Class II Battery-suitable nickel are those which offer economic feasibility and cost-efficient solutions to be used in that market. Also, the different products included in this category offer different levels of potential and readiness for utilization in EVs. The Class II Battery-suitable products are sourced from 100% of VNC operations and 35% of PTVI operations.

It is economically challenging to use Class II products such as ferro-nickel in electric vehicle battery applications, mainly due to impurities, operational costs and capital costs associated with the conversion process. Vale's Class II products are sourced from 100% of Onça Puma operations.

Intermediate products are sourced from 19% of PTVI production. These products do not represent finished nickel production and are generally sold at a discount given that they still need to be processed before being sold to end customers.

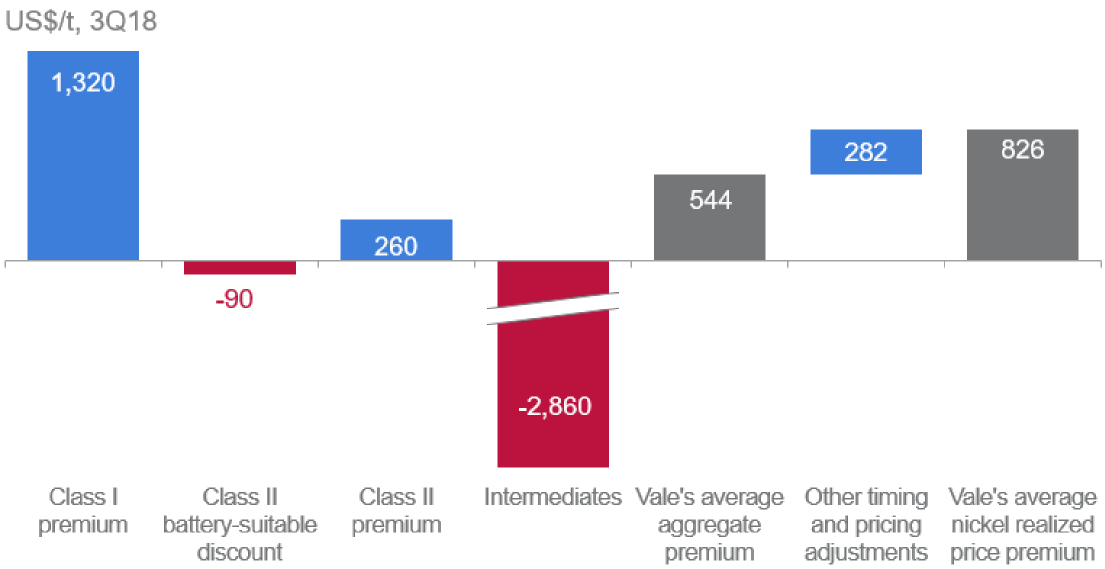
Premiums/discount by nickel product

US$/t	3Q18	2Q18	3Q17
Class I nickel	1,320	1,430	790
Class II Battery-suitable nickel	(90)	(180)	(100)
Class II nickel	260	420	190
Intermediates	(2,860)	(2,690)	(1,210)

The average nickel realized price was US$ 14,092/t, US$ 826/t higher than the average LME nickel price of US$ 13,266/t in 3Q18. The aggregate impact of the aforementioned premiums and discounts (considering their respective volumes in the sales mix) was:

- Premium for Class I nickel products for 56% of sales, with aggregate impact of US$ 739/t;
- Discount for Class II Battery-suitable nickel products for 26% of sales, with aggregate impact of -US$ 23/t;
- Premium for Class II nickel products for 11% of sales, with aggregate impact of US$ 29/t;
- Discount for Intermediates for 7% of sales, with aggregate impact of -US$ 201/t;
- Other timing and pricing adjustments, mainly due to carryover effects from the differences between the LME price at the moment of sale and the quarterly LME average, along with the impact of fixed forward price sales, with a positive aggregate impact of US$ 282/t.

Nickel premium/discount by product and average aggregate premiums



Nickel COGS - 2Q18 x 3Q18

		Variance drivers				
US$ million	2Q18	Volume	Exchange rate	Others	Total variation	3Q18
Nickel operations	810	(54)	(11)	59	(6)	804
Depreciation	309	(45)	5	45	5	314
Total	**1,119**	**(99)**	**(6)**	**104**	**(1)**	**1,118**

EXPENSES[25]

Selling expenses and other expenses totaled US$ 3 million in 3Q18, lower than the US$ 18 million registered last quarter as, in 2Q18, part of the G&A expenses was still in transition from the Base Metals business segment to "Others", along with other general and corporate expenses that are not directly related to the performance of the nickel segment.

R&D expenses were US$ 11 million in 3Q18, higher than the US$ 8 million registered in 2Q18. These expenses encompass R&D initiatives for further operational improvements, with North Atlantic, PTVI and VNC corresponding to US$ 5 million, US$ 3 million and US$ 2 million, respectively, in the quarter.

Pre-operating and stoppage expenses were US$ 8 million in 3Q18, mainly due to care and maintenance expenses for Stobie and Birchtree in the North Atlantic operations (US$ 5 million) and expenses associated with the closure of Acton PGM refinery in the U.K. (US$ 2 million).

Selected financial indicators - Nickel operations

US$ million	3Q18	2Q18	3Q17
Net revenues	1,086	1,340	1,168
Costs[1]	(804)	(810)	(883)
Expenses[1]	(3)	(18)	(21)
Pre-operating and stoppage expenses[1]	(8)	(7)	-
R&D expenses	(11)	(8)	(14)
Dividends and interests on associates and JVs	-	-	-
Adjusted EBITDA	260	497	250
Depreciation and amortization	(316)	(313)	(340)
Adjusted EBIT	(56)	184	(90)
Adjusted EBIT margin (%)	(5.2)	13.7	(7.7)

[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	3Q18	2Q18	3Q17
Sossego	2,822	3,212	2,951
Salobo	351	937	792

Copper – EBITDA by operation

US$ million	3Q18	2Q18	3Q17
Sossego	52	61	77
Salobo	216	220	260
Total	**268**	**281**	**337**

[25] Considers the new allocation criteria for general and administrative expenses as described in the box "Managerial Allocation Changes" of the 1Q18 Earnings Release.

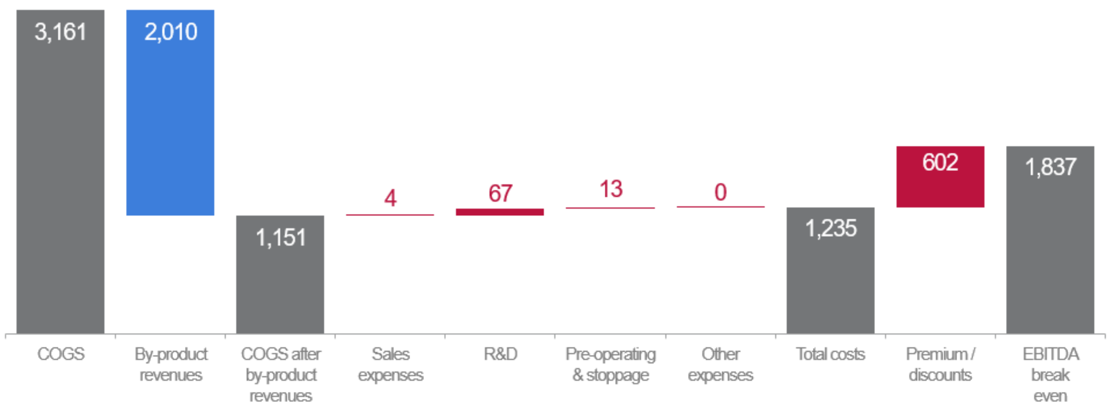
Details of copper operations' adjusted EBITDA by operation are as follows:

- Sossego's EBITDA was US$ 52 million, decreasing by US$ 9 million vs. 2Q18, mainly as a result of lower copper realized prices (US$ 24 million) that were partially offset by positive exchange rate variations (US$ 7 million) and higher volumes (US$ 6 million). Unit cash costs decreased mainly due to dilution of costs on higher by-product volumes along with the positive effect of exchange rate variations.

- Salobo's EBITDA was US$ 216 million, in line with 2Q18. Unit cash costs decreased to US$ 351/t, reaching close to negative cost levels, mainly due to higher by-product credits, the impact of higher volumes on fixed cost dilution and the positive effect of exchange rate variations.

EBITDA breakeven – copper operations[26]

US$/t, 3Q18



The realized price to be used against the EBITDA breakeven should be the copper realized price before discounts (US$ 5,590/t), given that TC/RCs and other discounts are already part of the EBITDA breakeven build-up.

SALES REVENUES AND VOLUMES

Copper sales revenues were US$ 356 million in 3Q18, decreasing US$ 38 million vs. 2Q18 as a result of lower realized prices (US$ 75 million) which were partially offset by higher copper volumes (US$ 37 million). Copper sales volumes were 71 kt in 3Q18, 6 kt higher than in 2Q18, in line with the increase in production over the quarter.

By-products revenues were US$ 143 million in 3Q18, increasing US$ 6 million vs. 2Q18 as a result of higher volumes (US$ 20 million) which were partially offset by lower by-product prices (US$ 13 million). Sales volumes of gold by-product were 114,000 oz in 3Q18, 15,000 oz higher than in 2Q18 and sales volumes of silver by-product were 211,000 oz in 3Q18, 48,000 oz lower than in 2Q18.

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[26] 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$ 2,659/t

Net operating revenue by product - Copper operations

US$ million	3Q18	2Q18	3Q17
Copper	356	394	456
Gold as by-product	140	133	134
Silver as by-product	3	4	3
Total	**500**	**531**	**593**

Volume sold - Copper operations

'000 metric tons	3Q18	2Q18	3Q17
Copper	71	65	73
Gold as by-product ('000 oz)	114	99	104
Silver as by-product ('000 oz)	211	259	223

REALIZED COPPER PRICES

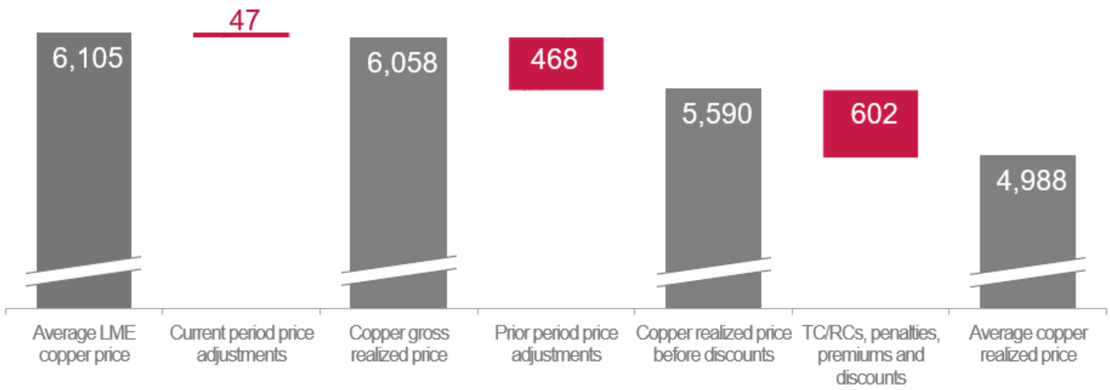
The realized copper price was US$ 4,988/t, US$ 1,117/t lower than the average LME copper price of US$ 6,105/t in 3Q18. Vale's copper products are sold on a provisional pricing basis during the quarter with final prices determined in a future period, generally one to four months forward[27].

The realized copper price differed from the average LME price in 3Q18 due to the following factors:

- Current period price adjustments: mark-to-market of invoices still open in the quarter based on the copper price forward curve[28] at the end of the quarter (-US$ 47/t);
- Prior period price adjustment: variance 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 previous quarters (-US$ 468/t); and,
- TC/RCs, penalties, premiums and discounts for intermediate products (-US$ 602/t).

Price realization – copper operations

US$/t, 3Q18



[27] On September 30th, 2018, Vale's copper operations had provisionally priced copper sales totaling 57,485 tons valued at an LME forward price of US$ 6,201/t, subject to final pricing over the following months.
[28] Includes a small number of final invoices that were provisionally priced and settled within the quarter.

Copper COGS - 2Q18 x 3Q18

US$ million	2Q18	Variance drivers Volume	Exchange rate	Others	Total variation	3Q18
Copper operations	245	23	(16)	(26)	(19)	226
Depreciation	54	5	(3)	(17)	(15)	39
Total	**299**	**28**	**(19)**	**(43)**	**(34)**	**265**

EXPENSES

Selling expenses and other expenses totaled US$ 2 million in 3Q18. Research and development expenses were US$ 4 million in 3Q18, in line with 2Q18, with Sossego and Salobo corresponding to US$ 3 million and US$ 1 million, respectively, in the quarter.

Selected financial indicators - Copper operations

US$ million	3Q18	2Q18	3Q17
Net revenues	500	530	594
Costs[1]	(226)	(245)	(246)
Expenses[1]	(2)	-	(5)
Pre-operating and stoppage expenses[1]	-	-	-
R&D expenses	(4)	(4)	(6)
Dividends and interests on associates and JVs	-	-	-
Adjusted EBITDA	268	281	337
Depreciation and amortization	(39)	(53)	(55)
Adjusted EBIT	229	228	282
Adjusted EBIT margin (%)	45.8	43.0	47.5

[1] Net of depreciation and amortization

Coal

ADJUSTED EBITDA

The adjusted EBITDA of Vale's Coal business was US$ 16 million in 3Q18, US$ 29 million lower than in 2Q18, as higher costs associated with the structural changes being implemented in the business and lower metallurgical coal realized prices more than offset the positive impact of higher sales volumes and lower expenses.

Volume sold

'000 metric tons	3Q18	2Q18	3Q17
Metallurgical coal	1,611	1,408	1,869
Thermal coal	1,584	1,101	1,279
Total	**3,195**	**2,508**	**3,148**

REVENUES AND PRICE REALIZATION

Revenues increased US$ 69 million to US$ 425 million in 3Q18 from US$ 356 million in 2Q18, mainly due to higher sales volumes (US$ 79 million) and higher thermal coal realized prices (US$ 5 million), which were partially offset by lower metallurgical coal realized prices (US$ 16 million).

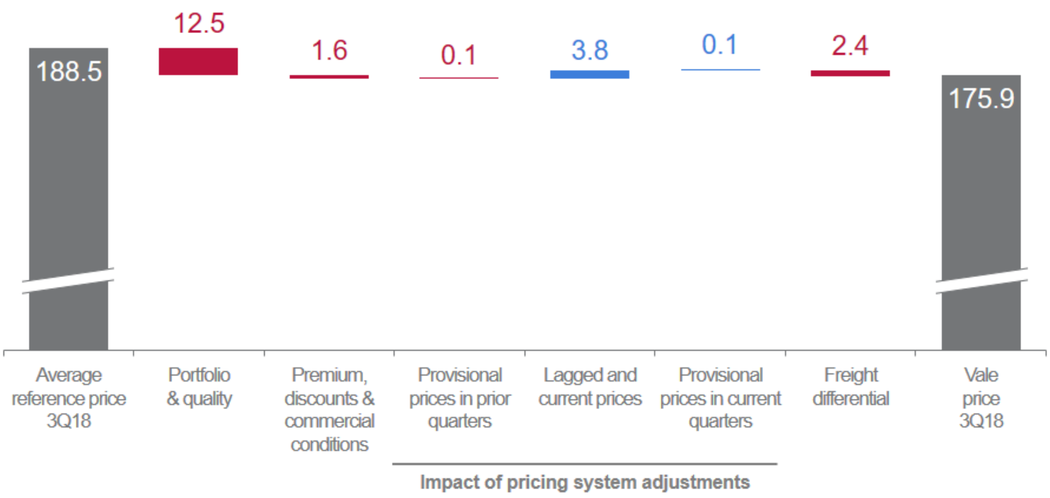
Net operating revenue by product

US$ million	3Q18	2Q18	3Q17
Metallurgical coal	284	261	266
Thermal coal	141	95	94
Total	**425**	**356**	**360**

Vale's metallurgical coal realized price declined 5.3% in 3Q18, to US$ 175.9/t in 3Q18 from US$ 185.9/t in 2Q18, with price realization of 93% of market index in 3Q18. Price realization was mainly affected by: (i) lower allocation in September when market prices were higher, while lagged index sales were priced based on previous months lower prices, (ii) widening spread between premium and non-premium indices and (iii) increased freight rates to Asia.

Price realization – Metallurgical coal

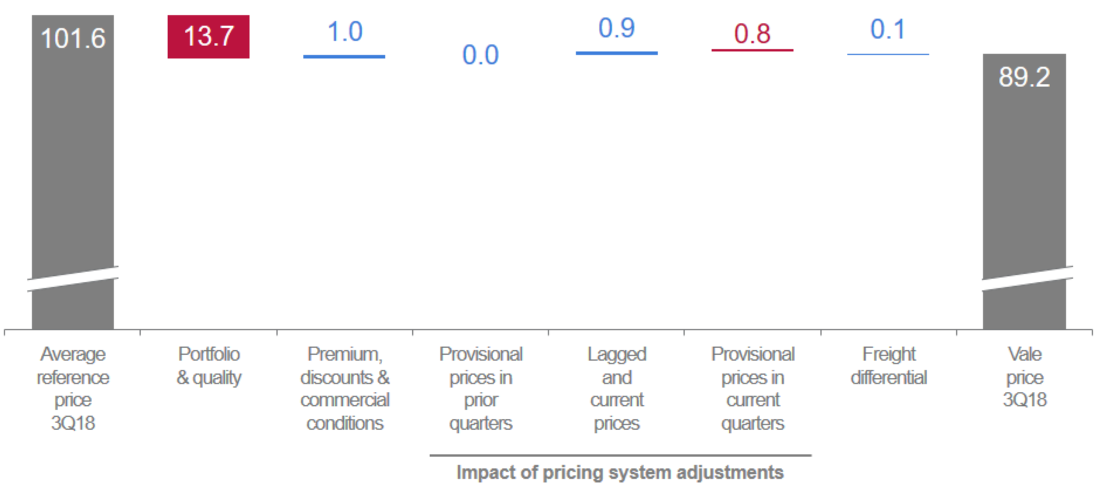
US$/t, 3Q18



Vale's thermal coal realized price increased US$ 3.1/t in 3Q18, to US$ 89.2/t in 3Q18 from US$ 86.1/t in 2Q18, with price realization of 88% of market index in 3Q18, higher than the 86% of market index achieved in 2Q18. The 2 p.p. higher price realization was mainly due to higher lagged indexed sales prices as the market index trended lower in the quarter.

Price realization – Thermal coal

US$/t, 3Q18



Coal prices

US$ / metric ton	3Q18	2Q18	3Q17
Metallurgical coal index price[1]	188.6	190.2	188.8
Vale's metallurgical coal realized price	175.9	185.9	141.8
Thermal coal index price[2]	101.6	100.3	86.6
Vale's thermal coal realized price	89.2	86.1	73.8
Vale's average realized price	**132.9**	**142.1**	**114.2**

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

[2] Argus API4 FOB Richards Bay 6000 kg/kcal Nar

COSTS AND EXPENSES

Costs totaled US$ 433 million in 3Q18, US$ 106 million higher than in 2Q18, mainly due to higher volumes and the implementation of initiatives associated with the structural changes in the coal segment, such as the increase in removal of overburden, opening of new mine sections and preparation of selected mining pits for future tailing disposals. Therefore, pro-forma C1 cash cost increased to US$ 125.0/t in 3Q18 from US$ 116.6/t in 2Q18. Despite the short-term impact on costs, these initiatives will ensure a sustainable ramp-up of Moatize from 2019 onwards.

Pro-forma cash cost

US$/ metric ton	3Q18	2Q18	3Q17
Pro-forma operational costs[1] [3] (A)	79.9	72.6	70.0
Nacala non-operational tariff[2] [3] (B)	53.2	51.9	45.5
Other costs (C)	0.1	3.6	(1.3)
Cost at Nacala Port (D = A+B+C)	133.2	128.1	114.2
NLC's debt service to Vale (E)	8.1	11.6	21.3
Pro-forma C1 cash cost (F = D-E)	125.0	116.6	92.9

[1] Includes the inferred NLC tariff components related to fix 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] Reallocation of US$ 6.7/t in 2Q18 between pro-forma operational costs and Nacala non-operational tariff lines due to adjustment of accounting procedure from railed volume to sales volume

Selected financial indicators - Coal

US$ million	3Q18	2Q18	3Q17
Net Revenues	425	356	360
Costs[1]	(433)	(327)	(368)
Expenses[1]	2	(7)	(2)
Pre-operating and stoppage expenses[1]	-	-	-
R&D expenses	(4)	(6)	(4)
Dividends and interests on associates and JVs	26	29	67
Adjusted EBITDA	16	45	53
Depreciation and amortization	(67)	(56)	(55)
Adjusted EBIT	(51)	(10)	(2)
Adjusted EBIT margin (%)	(12.0)	(2.9)	(0.5)

[1] Net of depreciation and amortization

ANNEXES

SIMPLIFIED FINANCIAL STATEMENTS

Income Statement

US$ million	3Q18	2Q18	3Q17
Net operating revenue	**9,543**	**8,616**	**9,050**
Cost of goods sold	(5,756)	(5,377)	(5,412)
Gross profit	**3,787**	**3,239**	**3,638**
Gross margin (%)	39.7	37.6	40.2
Selling, general and administrative expenses	(136)	(122)	(129)
Research and development expenses	(87)	(92)	(91)
Pre-operating and stoppage expenses	(60)	(67)	(83)
Other operational expenses	(61)	(109)	(151)
Impairment and others results in non-current assets	(172)	5	(169)
Operating profit	**3,271**	**2,854**	**3,015**
Financial revenues	111	81	152
Financial expenses	(367)	(781)	(758)
Gains (losses) on derivatives, net	(105)	(306)	365
Monetary and exchange variation	(902)	(2,049)	461
Equity results in associates and joint ventures	32	41	115
Impairment and others results in associates and joint ventures	(20)	(411)	(26)
Income (loss) before taxes	**2,020**	**(571)**	**3,324**
Current tax	77	(127)	(522)
Deferred tax	(724)	791	(457)
Net Earnings (loss) from continuing operations	**1,373**	**93**	**2,345**
Net income (loss) attributable to noncontrolling interest	(35)	7	7
Gain (loss) from discontinued operations	-	(10)	(108)
Net earnings (attributable to the Company's stockholders)	**1,408**	**76**	**2,230**
Earnings (loss) per share (attributable to the Company's stockholders - US$)	0.27	0.01	0.43
Diluted earnings (loss) per share (attributable to the Company's stockholders - US$)	0.27	0.01	0.43

Equity income (loss) by business segment

US$ million	3Q18	%	2Q18	%	3Q17	%
Ferrous Minerals	110	350	105	256	91	79
Coal	1	2	8	20	4	3
Base Metals	1	4	-	-	1	1
Logistics	-	-	-	-	-	-
Steel	(95)	(302)	(63)	(154)	9	8
Others	15	48	(9)	(22)	10	9
Total	**32**	**103**	**41**	**100**	**115**	**100**

Balance sheet

US$ million	9/30/2018	6/30/2018	9/30/2017
Assets			
Current assets	**15,131**	**15,468**	**19,889**
Cash and cash equivalents	6,100	6,369	4,719
Accounts receivable	2,450	2,348	2,712
Other financial assets	413	482	2,255
Inventories	4,056	3,999	4,083
Prepaid income taxes	645	657	333
Recoverable taxes	949	1,023	1,125
Others	518	590	337
Non-current assets held for sale and discontinued operation	-	-	4,325
Non-current assets	**11,986**	**12,694**	**13,417**
Judicial deposits	1,681	1,744	2,005
Other financial assets	3,217	3,042	3,262
Recoverable income taxes	561	505	539
Recoverable taxes	543	564	651
Deferred income taxes	5,713	6,535	6,651
Others	271	304	309
Fixed assets	58,369	59,925	68,786
Total assets	**85,486**	**88,087**	**102,092**
Liabilities			
Current liabilities	**9,170**	**9,186**	**10,717**
Suppliers and contractors	4,038	3,587	4,013
Loans and borrowing	1,373	1,822	1,838
Other financial liabilities	885	795	634
Taxes payable	631	640	730
Provision for income taxes	159	255	309
Provisions	1,173	1,005	1,197
Liabilities related to associates and joint ventures	292	273	301
Others	619	809	563
Liabilities directly associated with non-current assets held for sale and discontinued operations	-	-	1,132
Non-current liabilities	**34,675**	**36,013**	**44,893**
Loans and borrowing	15,437	16,084	23,952
Other financial liabilities	2,818	2,994	2,963
Taxes payable	3,858	4,071	5,168
Deferred income taxes	1,711	1,678	1,604
Provisions	6,367	6,567	6,877
Liabilities related to associates and joint ventures	761	895	725
Gold stream transaction	1,669	1,725	1,922
Others	2,054	1,999	1,682
Total liabilities	**43,845**	**45,199**	**55,610**
Stockholders' equity	**41,641**	**42,888**	**46,482**
Total liabilities and stockholders' equity	**85,486**	**88,087**	**102,092**

Cash flow

US$ million	3Q18	2Q18	3Q17
Cash flows from operating activities:			
Net income (loss) before taxes on income	2,020	(571)	3,324
Adjustments to reconcile			
Depreciation, depletion and amortization	849	861	920
Equity Income	(32)	(41)	(115)
Impairment on assets and investments	192	406	195
Items of the financial result	1,263	3,055	(220)
Variation of assets and liabilities			
Accounts receivable	(149)	201	(936)
Inventories	(200)	(262)	(52)
Suppliers and contractors	336	(37)	37
Payroll and related charges	200	175	205
Tax assets and liabilities, net	(18)	(18)	(114)
Cobalt transaction	-	690	-
Others	28	(422)	(121)
Net cash provided by operations	**4,489**	**4,037**	**3,123**
Interest on loans and financing	(248)	(274)	(407)
Derivatives received (paid), net	(22)	12	(113)
Remuneration paid to debentures	-	(72)	-
Income taxes	(220)	(46)	(84)
Income taxes - settlement program	(104)	(113)	(124)
Net cash provided by operating activities	3,895	3,544	2,395
Cash flows from investing activities:			
Additions to property, plant, equipment and investments	(692)	(711)	(913)
Proceeds from disposal of assets and investments	116	259	198
Dividends and interest on capital received from joint ventures and associates	7	136	21
Loans and advances receivable	(87)	(99)	(101)
Others	(45)	(25)	(30)
Net cash used in investing activities	**(701)**	**(440)**	**(825)**
Cash flows from financing activities:			
Loans and financing			
Additions	211	765	351
Repayments	(1,169)	(2,599)	(2,818)
Payments to shareholders:			
Dividends and interest on capital	(1,876)	-	-
Dividends and interest on capital attributed to noncontrolling interest	(82)	(6)	(116)
Other transactions with noncontrolling interest	(489)	-	-
Net cash provided by (used in) financing activities	**(3,405)**	**(1,840)**	**(2,583)**
Increase (decrease) in cash and cash equivalents from discontinuing operations	**-**	**(2)**	**(18)**
Increase (decrease) in cash and cash equivalents	(210)	1,262	1,031
Cash and cash equivalents in the beginning of the period	6,369	5,368	5,720
Effect of exchange rate changes on cash and cash equivalents	(59)	(247)	28
Cash of subsidiaries disposed	-	(14)	2
Cash and cash equivalents, end of period	**6,100**	**6,369**	**4,719**

Non-cash transactions:			
Additions to property, plant and equipment - interest capitalization	50	44	111

REVENUES, VOLUMES SOLD, PRICES AND MARGINS

Net operating revenue by destination

US$ million	3Q18	%	2Q18	%	3Q17	%
North America	**587**	**6.2**	**578**	**6.7**	**617**	**6.8**
USA	352	3.7	354	4.1	352	3.9
Canada	210	2.2	184	2.1	246	2.7
Mexico	25	0.3	40	0.5	19	0.2
South America	**937**	**9.8**	**890**	**10.3**	**916**	**10.1**
Brazil	775	8.1	735	8.5	783	8.7
Others	162	1.7	155	1.8	133	1.5
Asia	**5,909**	**61.9**	**5,060**	**58.7**	**5,520**	**61.0**
China	4,266	44.7	3,264	37.9	3,822	42.2
Japan	697	7.3	759	8.8	736	8.1
South Korea	312	3.3	402	4.7	384	4.2
Others	634	6.6	635	7.4	578	6.4
Europe	**1,427**	**15.0**	**1,549**	**18.0**	**1,409**	**15.6**
Germany	368	3.9	427	5.0	368	4.1
Italy	110	1.2	150	1.7	99	1.1
Others	949	9.9	972	11.3	942	10.4
Middle East	**459**	**4.8**	**252**	**2.9**	**282**	**3.1**
Rest of the World	**224**	**2.3**	**287**	**3.3**	**306**	**3.4**
Total	**9,543**	**100.0**	**8,616**	**100.0**	**9,050**	**100.0**

Volume sold - Minerals and metals

'000 metric tons	3Q18	2Q18	3Q17
Iron ore fines	83,500	72,921	76,388
ROM	476	368	406
Pellets	14,250	13,231	13,135
Manganese ore	554	239	498
Ferroalloys	37	34	32
Thermal coal	1,584	1,101	1,279
Metallurgical coal	1,611	1,408	1,869
Nickel	57	62	71
Copper	92	95	110
Gold as by-product ('000 oz)	125	117	138
Silver as by-product ('000 oz)	396	588	465
PGMs ('000 oz)	90	138	85
Cobalt (metric ton)	1,120	1,272	1,482

Average prices

US$/ton	3Q18	2Q18	3Q17
Iron ore fines CFR reference (dmt)	76.6	72.7	76.1
Iron ore fines CFR/FOB realized price	67.0	62.7	67.2
ROM	18.7	19.5	17.2
Pellets CFR/FOB (wmt)	114.2	114.7	109.7
Manganese ore	109.1	310.1	175.8
Ferroalloys	1,169	1,194	1,380
Thermal coal	89.2	86.1	73.8
Metallurgical coal	175.9	185.9	141.8
Nickel	14,092	14,784	10,554
Copper	4,895	6,020	6,203
Platinum (US$/oz)	1,229	877	917
Gold (US$/oz)	1,198	1,330	1,175
Silver (US$/oz)	13.6	15.3	15.9
Cobalt (US$/t)	57,706	73,984	53,428

Copper realized price – including North Atlantic copper by-products

US$/t, 3Q18

Operating margin by segment (EBIT adjusted margin)

%	3Q18	2Q18	3Q17
Ferrous Minerals	47.7	44.3	48.7
Coal	(12.0)	(2.9)	(0.5)
Base Metals	10.9	22.0	10.9
Total[1]	**36.9**	**35.3**	**35.2**

[1] Excluding non-recurring effects

RECONCILIATION OF IFRS AND "NON-GAAP" INFORMATION

(a) Adjusted EBIT[1]

US$ million	3Q18	2Q18	3Q17
Net operating revenues	9,543	8,616	9,050
COGS	(5,756)	(5,377)	(5,412)
SG&A	(136)	(122)	(129)
Research and development	(87)	(92)	(91)
Pre-operating and stoppage expenses	(60)	(67)	(83)
Other operational expenses	(12)	(82)	(151)
Dividends and interests on associates and JVs	33	165	-
Adjusted EBIT	**3,525**	**3,041**	**3,184**

[1] Excluding non-recurring effects.

(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

US$ million	3Q18	2Q18	3Q17
Adjusted EBITDA	**4,374**	**3,902**	**4,192**
Working capital:			
Accounts receivable	(149)	201	(936)
Inventories	(200)	(262)	(52)
Suppliers	336	(37)	37
Payroll and related charges	200	175	205
Others	10	250	(235)
Adjustment for non-recurring items and other effects	**(82)**	**(192)**	**(88)**
Cash provided from operations	**4,489**	**4,037**	**3,123**
Income taxes paid - current	(220)	(46)	(84)
Income taxes paid - settlement program	(104)	(113)	(124)
Interest paid for third parties	(248)	(274)	(407)
Participative stockholders' debentures paid	-	(72)	-
Derivatives received (paid), net	(22)	12	(113)
Net cash provided by (used in) operating activities	**3,895**	**3,544**	**2,395**

Reconciliation between adjusted EBITDA and net income (loss)

US$ million	3Q18	2Q18	3Q17
Adjusted EBITDA	**4,374**	**3,902**	**4,192**
Depreciation, depletion and amortization	(849)	(861)	(920)
Dividends received and interest from associates and joint ventures	(33)	(165)	(88)
Special events	(221)	(22)	(169)
Operating income	**3,271**	**2,854**	**3,015**
Financial results	(1,263)	(3,055)	220
Equity results in associates and joint ventures	32	41	115
Impairment and other results in associates and joint ventures	(20)	(411)	(26)
Income taxes	(647)	664	(979)
Net income	**1,373**	**93**	**2,345**
Net income attributable to noncontrolling interests	(35)	7	7
Net income attributable to Vale's stockholders	**1,408**	**86**	**2,338**

(c) Net debt

US$ million	3Q18	2Q18	3Q17
Total debt	16,810	17,906	25,790
Cash and cash equivalents[1]	6,106	6,387	4,724
Net debt	10,704	11,519	21,066

[1] Including financial investments.

(d) Total debt / LTM Adjusted EBITDA

US$ million	3Q18	2Q18	3Q17
Total debt / LTM Adjusted EBITDA (x)	1.0	1.1	1.6
Total debt / LTM operational cash flow (x)	1.3	1.5	2.3

(e) LTM Adjusted EBITDA / LTM interest payments

US$ million	3Q18	2Q18	3Q17
Adjusted LTM EBITDA / LTM gross interest (x)	12.8	11.4	8.8
LTM adjusted EBITDA / LTM interest payments (x)	13.0	11.4	9.1
LTM operational profit / LTM interest payments (x)	9.7	8.6	6.1