

Vale S.A.
Form 6-K
October 27, 2016
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**United States
Securities and Exchange Commission**

Washington, D.C. 20549

FORM 6-K

**Report of Foreign Private Issuer
Pursuant to Rule 13a-16 or 15d-16
of the
Securities Exchange Act of 1934**

For the month of

September, 2016

Vale S.A.

**Avenida das Américas, No. 700
22640-100 Rio de Janeiro, RJ, Brazil**

(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

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(Check One) Form 20-F ☒ Form 40-F ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1)

(Check One) Yes ☐ No ☒

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7)

(Check One) Yes ☐ No ☒

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

(Check One) Yes ☐ No ☒

If ☒ Yes is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b). 82- .

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Interim Financial Statements

September 30, 2016

IFRS in US\$

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Vale S.A. Interim Financial Statements

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KPMG Auditores Independentes

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of

Vale S.A.

Rio de Janeiro - RJ

We have reviewed the accompanying condensed consolidated balance sheet of Vale S.A. (the Company) and its subsidiaries as of September 30, 2016 and the related condensed consolidated statements of income, comprehensive income and cash flows for the three- and nine-month periods ended September 30, 2016 and 2015 and the condensed consolidated statements of changes in equity for the nine-month periods ended on September 30, 2016 and 2015. These condensed consolidated financial statements are the responsibility of the Company s management.

We conducted our review in accordance with the standards of the Public Company Accounting Oversight Board (United States). A review of interim financial information consists principally of applying analytical procedures and making inquiries of persons responsible for financial and accounting matters. It is substantially less in scope than an audit conducted in accordance with the standards of the Public Company Accounting Oversight Board (United States), the objective of which is the expression of an opinion regarding the financial statements taken as a whole. Accordingly, we do not express such an audit opinion.

Based on our review, we are not aware of any material modification that should be made to the condensed consolidated financial statements referred to above for them to be in conformity with the International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

We have previously audited, in accordance with standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheet of Vale S.A. and its subsidiaries as of December 31, 2015 and the related consolidated statements of income, comprehensive income, stockholders equity and cash flows for the year then ended, and in our report dated February 24, 2016, we expressed an unqualified opinion on those consolidated financial statements. In our opinion, the information set forth in th accompanying condensed consolidated balance sheet as of December 31, 2015, is fairly stated, in all material respects, in relation to the consolidated balance sheet from which it has been derived.

KPMG Auditores Independentes

Rio de Janeiro, Brazil

October 26, 2016

KPMG Auditores Independentes, uma sociedade simples brasileira e firma-membro da rede KPMG de firmas-membro independentes e afiliadas à KPMG International Cooperative (KPMG International), uma entidade suíça.

KPMG Auditores Independentes, a Brazilian entity and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (KPMG International), a Swiss entity.

Table of Contents**Condensed Consolidated Income Statement**

In millions of United States dollars, except as otherwise stated

| | Notes | Three months period ended September 30 | | Nine months period ended September 30 | |
|--|---------|---|----------------|--|----------------|
| | | 2016 | 2015 | 2016 | 2015 |
| Net operating revenue | 3(c) | 7,324 | 6,505 | 19,669 | 19,710 |
| Cost of goods sold and services rendered | 21(a) | (4,955) | (5,040) | (13,999) | (15,394) |
| Gross profit | | 2,369 | 1,465 | 5,670 | 4,316 |
| Operating (expenses) income | | | | | |
| Selling and administrative expenses | 21(b) | (153) | (131) | (412) | (485) |
| Research and evaluation expenses | | (85) | (121) | (223) | (358) |
| Pre operating and operational stoppage | | (122) | (266) | (338) | (789) |
| Other operating income (expenses), net | 21(c) | 51 | (113) | (144) | (270) |
| | | (309) | (631) | (1,117) | (1,902) |
| Results on measurement or sale of non-current assets | 5 and 6 | (29) | (48) | (95) | 90 |
| Operating income | | 2,031 | 786 | 4,458 | 2,504 |
| Financial income | 22 | 374 | 2,556 | 7,580 | 6,375 |
| Financial expenses | 22 | (1,421) | (9,732) | (5,111) | (17,529) |
| Equity results in associates and joint ventures | 10 | 46 | (349) | 392 | (402) |
| Others results in associates and joint ventures | 4 and 6 | (33) | | (1,146) | 97 |
| Net income (loss) before income taxes | | 997 | (6,739) | 6,173 | (8,955) |
| Income taxes | 15 | | | | |
| Current tax | | (57) | (100) | (815) | (237) |
| Deferred tax | | (358) | 4,603 | (1,875) | 5,415 |
| | | (415) | 4,503 | (2,690) | 5,178 |
| Net income (loss) | | 582 | (2,236) | 3,483 | (3,777) |
| Income (loss) attributable to noncontrolling interests | 7 | | (119) | 26 | (217) |
| Net income (loss) attributable to Vale's stockholders | | 575 | (2,117) | 3,457 | (3,560) |
| Earnings per share attributable to Vale's stockholders: | | | | | |
| Basic and diluted earnings per share: | 20(b) | | | | |
| Preferred share (US\$) | | 0.11 | (0.41) | 0.67 | (0.69) |
| Common share (US\$) | | 0.11 | (0.41) | 0.67 | (0.69) |

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The accompanying notes are an integral part of these interim financial statements.

See report of independent registered public accounting firm.

Table of Contents**Condensed Consolidated Statement of Comprehensive Income**

In millions of United States dollars

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|---|---|-----------------|--|-----------------|
| | 2016 | 2015 | 2016 | 2015 |
| Net income (loss) | 582 | (2,236) | 3,483 | (3,777) |
| Other comprehensive income (loss): | | | | |
| Items that will not be reclassified subsequently to the income statement | | | | |
| Cumulative translation adjustments | (447) | (10,966) | 6,660 | (18,869) |
| Retirement benefit obligations | | | | |
| Gross balance for the period | (43) | (7) | (311) | (14) |
| Effect of taxes | 14 | 2 | 96 | 25 |
| | (29) | (5) | (215) | 11 |
| Total items that will not be reclassified subsequently to the income statement | (476) | (10,971) | 6,445 | (18,858) |
| Items that may be reclassified subsequently to the income statement | | | | |
| Cumulative translation adjustments | | | | |
| Gross balance for the period | 219 | 6,632 | (3,459) | 10,345 |
| Effect of taxes | 18 | | (123) | |
| Transfer of realized results to net income, net of taxes | | | (75) | |
| | 237 | 6,632 | (3,657) | 10,345 |
| Cash flow hedge | | | | |
| Gross balance for the period | | 148 | 6 | 689 |
| Effect of taxes | | (2) | (1) | (5) |
| Equity results in associates and joint ventures | | (3) | 5 | (5) |
| Transfer of realized results to net income, net of taxes | | (119) | (3) | (362) |
| | | 24 | 7 | 317 |
| Total of items that may be reclassified subsequently to the income statement | 237 | 6,656 | (3,650) | 10,662 |
| Total comprehensive income (loss) | 343 | (6,551) | 6,278 | (11,973) |
| Comprehensive income (loss) attributable to noncontrolling interests | (3) | (162) | 150 | (266) |
| Comprehensive income (loss) attributable to Vale's stockholders | 346 | (6,389) | 6,128 | (11,707) |

The accompanying notes are an integral part of these interim financial statements.

See report of independent registered public accounting firm.

Table of Contents**Condensed Consolidated Cash Flow Statement**

In millions of United States dollars

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|---|---|----------------|--|----------------|
| | 2016 | 2015 | 2016 | 2015 |
| Cash flow from operating activities: | | | | |
| Net income (loss) before income taxes | 997 | (6,739) | 6,173 | (8,955) |
| Adjustments for: | | | | |
| Equity results from associates and joint ventures | (46) | 349 | (392) | 402 |
| Others results in associates and joint ventures | | | 1,113 | (97) |
| Results on disposal of property, plant and equipment and intangibles | (121) | 48 | (55) | (320) |
| Depreciation, amortization and depletion | 963 | 1,022 | 2,740 | 3,045 |
| Financial results, net | 1,047 | 7,176 | (2,469) | 11,154 |
| Changes in assets and liabilities: | | | | |
| Accounts receivable | 57 | 343 | (136) | 686 |
| Inventories | 12 | (331) | 28 | (231) |
| Suppliers and contractors | 255 | 422 | 236 | 249 |
| Payroll and related charges | (16) | 53 | 29 | (524) |
| Other taxes assets and liabilities, net | (43) | (143) | (94) | (349) |
| Deferred revenue - Gold stream (note 23) (ii) | 524 | | 524 | 532 |
| Other assets and liabilities, net | (402) | 113 | (659) | 350 |
| Cash provided from operations | 3,227 | 2,313 | 7,038 | 5,942 |
| Interest on loans and borrowings paid | (423) | (381) | (1,245) | (1,157) |
| Derivatives received (paid), net (note 19) | (191) | (167) | (1,054) | (927) |
| Interest on participative stockholders' debentures paid | | | (37) | (39) |
| Income taxes | (88) | (47) | (347) | (365) |
| Income taxes - Settlement program | (116) | (89) | (304) | (298) |
| Net cash provided by operating activities | 2,409 | 1,629 | 4,051 | 3,156 |
| Cash flow from investing activities: | | | | |
| Financial investments redeemed (invested) | 69 | 51 | 46 | 303 |
| Loans and advances granted | (71) | 25 | (126) | (41) |
| Additions to investments | (9) | (8) | (230) | (144) |
| Additions to property, plant and equipment and intangible (note 3(b)) | (1,249) | (1,870) | (3,847) | (6,181) |
| Dividends and interest on capital received from associates and joint ventures | | 19 | 118 | 231 |
| Proceeds from disposal of assets and investments | 326 | 472 | 350 | 1,033 |
| Proceeds from gold stream transaction | 276 | | 276 | 368 |
| Net cash used in investing activities | (658) | (1,311) | (3,413) | (4,431) |
| Cash flow from financing activities: | | | | |
| Loans and borrowings (i) | | | | |

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| | | | | |
|--|--------------|--------------|--------------|--------------|
| Additions | 1,573 | 1,066 | 6,206 | 3,950 |
| Repayments | (1,987) | (928) | (4,953) | (1,814) |
| Transactions with stockholders: | | | | |
| Dividends and interest on capital paid to Vale's stockholders | | | | (1,000) |
| Dividends and interest on capital paid to noncontrolling interest | (129) | | (204) | (12) |
| Transactions with noncontrolling stockholders | | 1,089 | (17) | 1,049 |
| Net cash provided by (used in) financing activities | (543) | 1,227 | 1,032 | 2,173 |
| Increase (decrease) in cash and cash equivalents | | | | |
| 1,208 | 1,545 | 1,670 | 898 | |
| Cash and cash equivalents in the beginning of the period | 4,168 | 3,158 | 3,591 | 3,974 |
| Effect of exchange rate changes on cash and cash equivalents | (7) | (306) | 108 | (475) |
| Cash and cash equivalents at end of the period | 5,369 | 4,397 | 5,369 | 4,397 |
| Non-cash transactions: | | | | |
| Additions to property, plant and equipment - capitalized loans and borrowing costs | 172 | 195 | 562 | 568 |

(i) Includes transactions with related parties: Bradesco, Banco do Brasil and Banco Nacional do Desenvolvimento Econômico e Social - BNDES.

(ii) Net of warrants.

The accompanying notes are an integral part of these interim financial statements.

See report of independent registered public accounting firm.

Table of Contents**Condensed Consolidated Balance Sheet****In millions of United States dollars**

| | Notes | September 30, 2016 | December 31, 2015 |
|--|-------|--------------------|-------------------|
| Assets | | | |
| Current assets | | | |
| Cash and cash equivalents | 7 | 5,369 | 3,591 |
| Financial investments | | 115 | 28 |
| Derivative financial instruments | 19 | 141 | 121 |
| Accounts receivable | 8 | 2,556 | 1,476 |
| Inventories | 9 | 3,900 | 3,528 |
| Recoverable income taxes | | 317 | 900 |
| Recoverable taxes | | 1,603 | 1,404 |
| Related parties | 25 | 66 | 70 |
| Others | | 651 | 311 |
| | | 14,718 | 11,429 |
| Non-current assets held for sale | 5 | 4,789 | 4,044 |
| | | 19,507 | 15,473 |
| Non-current assets | | | |
| Derivative financial instruments | 19 | 504 | 93 |
| Loans | | 182 | 188 |
| Recoverable income taxes | | 542 | 471 |
| Recoverable taxes | | 688 | 501 |
| Deferred income taxes | 15(a) | 6,849 | 7,904 |
| Judicial deposits | 14(c) | 1,073 | 882 |
| Related parties | 25 | 19 | 1 |
| Others | | 661 | 613 |
| | | 10,518 | 10,653 |
| Investments in associates and joint ventures | 10 | 3,976 | 2,940 |
| Intangibles | 11 | 6,959 | 5,324 |
| Property, plant and equipment | 12 | 61,127 | 54,102 |
| | | 82,580 | 73,019 |
| Total assets | | 102,087 | 88,492 |
| Liabilities | | | |
| Current liabilities | | | |
| Suppliers and contractors | | 3,751 | 3,365 |
| Payroll and related charges | | 593 | 375 |
| Derivative financial instruments | 19 | 868 | 2,076 |
| Loans and borrowings | 13 | 2,181 | 2,506 |
| Related parties | 25 | 558 | 475 |
| Income taxes - Settlement program | 15(c) | 449 | 345 |
| Taxes payable | | 185 | 250 |

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| | | | |
|--|-------|----------------|---------------|
| Provision for income taxes | | 154 | 241 |
| Employee postretirement obligations | 16 | 72 | 68 |
| Asset retirement obligations | | 70 | 89 |
| Liabilities related to associates and joint ventures | 4 | 329 | |
| Others | | 1,488 | 648 |
| | | 10,698 | 10,438 |
| Liabilities associated with non-current assets held for sale | 5 | 149 | 107 |
| | | 10,847 | 10,545 |
| Non-current liabilities | | | |
| Derivative financial instruments | 19 | 1,167 | 1,429 |
| Loans and borrowings | 13 | 29,268 | 26,347 |
| Related parties | 25 | 137 | 213 |
| Employee postretirement obligations | 16 | 2,113 | 1,750 |
| Provisions for litigation | 14(a) | 919 | 822 |
| Income taxes - Settlement program | 15(c) | 4,977 | 4,085 |
| Deferred income taxes | 15(a) | 1,676 | 1,670 |
| Asset retirement obligations | | 3,169 | 2,385 |
| Participative stockholders' debentures | | 658 | 342 |
| Deferred revenue - Gold stream | 23 | 2,158 | 1,749 |
| Liabilities related to associates and joint ventures | 4 | 795 | |
| Others | | 2,372 | 1,451 |
| | | 49,409 | 42,243 |
| Total liabilities | | 60,256 | 52,788 |
| Stockholders' equity | | | |
| Equity attributable to Vale's stockholders | 20 | 39,719 | 33,589 |
| Equity attributable to noncontrolling interests | | 2,112 | 2,115 |
| Total stockholders' equity | | 41,831 | 35,704 |
| Total liabilities and stockholders' equity | | 102,087 | 88,492 |

The accompanying notes are an integral part of these interim financial statements.

See report of independent registered public accounting firm.

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Condensed Consolidated Statement of Changes in Equity

In millions of United States dollars

| | Share capital | Results on conversion of shares | Results from operation with noncontrolling interest | Profit reserves | Treasury stocks | Unrealized fair value gain (losses) | Cumulative translation adjustments | Retained earnings | Equity attributable to Vale's stockholders | Equity attributable to noncontrolling interests | Total stockholder equity |
|---|---------------|---------------------------------|---|-----------------|-----------------|-------------------------------------|------------------------------------|--------------------------|--|---|--------------------------|
| Balance at December 31, 2015 | 61,614 | (152) | (702) | 985 | (1,477) | (992) | (25,687) | | 33,589 | 2,115 | 35,704 |
| Net income | | | | | | | | 3,457 | 3,457 | 26 | 3,483 |
| Other comprehensive income: | | | | | | | | | | | |
| Retirement benefit obligations | | | | | | (215) | | | (215) | | (215) |
| Cash flow hedge Translation adjustments | | | | | | 7 | | | 7 | | 7 |
| | | | | 200 | | (90) | 2,608 | 161 | 2,879 | 124 | 3,003 |
| Transactions with stockholders: | | | | | | | | | | | |
| Dividends of noncontrolling interest | | | | | | | | | | (174) | (174) |
| Acquisitions and disposal of participation of noncontrolling interest | | | 2 | | | | | | 2 | | 2 |
| Capitalization of noncontrolling interest advances | | | | | | | | | | 21 | 21 |
| Balance at September 30, 2016 | 61,614 | (152) | (700) | 1,185 | (1,477) | (1,290) | (23,079) | 3,618 | 39,719 | 2,112 | 41,831 |
| | Share capital | Results on conversion of shares | Results from operation with noncontrolling interest | Profit reserves | Treasury stocks | Unrealized fair value gain (losses) | Cumulative translation adjustments | Retained earnings (loss) | Equity attributable to Vale's stockholders | Equity attributable to noncontrolling interests | Total stockholder equity |
| Balance at December 31, | 61,614 | (152) | (449) | 19,985 | (1,477) | (1,713) | (22,686) | | 55,122 | 1,199 | 56,321 |

| | | | | | | | | | | | |
|---|--|--|-----------------|--|--|----------------|--|--|----------------|--|--|
| 2014 | | | | | | | | | | | |
| Loss | | | | | | (3,560) | | | (3,560) | | |
| Other comprehensive income: | | | | | | | | | (217) | | |
| Retirement benefit obligations | | | | | | 11 | | | 11 | | |
| Cash flow hedge | | | | | | 317 | | | 317 | | |
| Translation adjustments | | | (6,404) | | | 214 | | | (3,062) | | |
| Transactions with stockholders: | | | | | | 777 | | | (8,475) | | |
| Dividends and interest on capital of Vale's stockholders | | | | | | (1,000) | | | (1,000) | | |
| Dividends of noncontrolling interest | | | | | | | | | (6) | | |
| Acquisitions and disposal of participation of noncontrolling interest | | | 180 | | | (336) | | | (156) | | |
| Capitalization of noncontrolling interest advances | | | | | | | | | 26 | | |
| Balance at September 30, 2015 | | | 61,614 | | | (152) | | | (269) | | |
| | | | 12,581 | | | (1,477) | | | (1,171) | | |
| | | | (26,084) | | | (2,783) | | | 42,259 | | |
| | | | 2,242 | | | 44,501 | | | | | |

The accompanying notes are an integral part of these interim financial statements.

See report of independent registered public accounting firm.

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Selected Notes to the Interim Financial Statements

Expressed in millions of United States dollar, unless otherwise stated

1. Corporate information

Vale S.A. (the Parent Company) is a public company headquartered at 700, Avenida das Américas, Rio de Janeiro, Brazil with securities traded on the stock exchanges of São Paulo - BM&F BOVESPA (Vale3 and Vale5), New York - NYSE (VALE and VALE.P) and Paris - NYSE Euronext (Vale3 and Vale5).

Vale and its direct and indirect subsidiaries (Vale , Group or Company) are producers of iron ore and iron ore pellets, key raw materials for steelmaking, and producers of nickel, which is used to produce stainless steel and metal alloys employed in the production of several products. The Group also produces copper, metallurgical and thermal coal, potash, phosphates and other fertilizer nutrients, manganese ore, ferroalloys, platinum group metals, gold, silver and cobalt. The information by segment is presented in note 3.

2. Basis for preparation of the interim financial statements

a) Statement of compliance

The condensed consolidated interim financial statements of the Company (interim financial statements) present the accounts of the Group, and have been prepared in accordance with IAS 34 Interim Financial Reporting of the International Financial Reporting Standards (IFRS) as adopted by the International Accounting Standards Board (IASB).

b) Basis of presentation

The interim financial statements have been prepared under the historical cost convention as adjusted to reflect: (i) the fair value of financial instruments measured at fair value through income statement or available-for-sale financial instruments measured at fair value through the statement of comprehensive income; and (ii) impairment of assets.

The accounting practices, accounting estimates and judgments, risk management and measurement methods are the same as those adopted when preparing the financial statements for the year ended December 31, 2015. These interim financial statements were prepared to update users about relevant information presented in the period and should be read in conjunction with the financial statements for the year ended December 31, 2015.

The interim financial statements of the Group and its associates and joint ventures are measured using the currency of the primary economic environment in which each entity operates (functional currency). In the case of the Parent Company the functional currency is the Brazilian real (BRL or R\$). For presentation purposes, these interim financial statements are presented in United States dollar (USD or US\$) as the Company believes that this is how international investors analyze the financial statements.

The exchange rates used by the Group for major currencies to translate its operations are as follows:

| | Closing rate | | Average rate for the | | Average rate for the | |
|---------------------------|-----------------------|----------------------|--|--|---|---|
| | September 30, 2016 | December 31, 2015 | Three months period ended September 30, 2016 | Three months period ended September 30, 2015 | Nine months period ended September 30, 2016 | Nine months period ended September 30, 2015 |
| Brazilian Reais (R\$) | 3.2462 | 3.9048 | 3.2460 | 3.5379 | 3.5450 | 3.1684 |
| Canadian dollar (CAD) | 2.4757 | 2.8171 | 2.4881 | 2.7024 | 2.6802 | 2.5090 |
| Australian dollar (AUD) | 2.4895 | 2.8532 | 2.4616 | 2.5642 | 2.6273 | 2.4067 |
| Euro (EUR or) | 3.6484 | 4.2504 | 3.6232 | 3.9365 | 3.9549 | 3.5285 |

Subsequent events were evaluated through October 26, 2016, which is the date the interim financial statements were approved by the Board of Directors.

c) Accounting standards issued but not yet effective

The standards and interpretations issued by IASB relevant to the Company but not yet effective are disclosed below:

- *IFRS 9 Financial instruments.*
- *IFRS 15 Revenue from contracts with customers.*
- *IFRS 16 Leases.*
- *Amendments to IAS 12 Recognition of deferred tax assets.*
- *Amendments to IAS 7 Disclosure Initiative.*
- *Amendments to IFRS 2 Classification and measurement of share-based payment transactions.*
- *Amendments to IFRS 4 Applying IFRS 9 Financial Instruments with IFRS 4 Insurance Contracts.*

The Company is currently analyzing potential impacts regarding these pronouncements on its financial statements.

Table of Contents**3. Information by business segment**

The information presented to the Executive Board on the performance of each segment is derived from the accounting records.

a) Adjusted EBITDA

Adjusted EBITDA is used by management to support the decision making process for segments. The definition of adjusted EBITDA for the Company is the operating income or loss less (i) the depreciation, depletion and amortization, (ii) results on measurement or sales of non-current assets, (iii) impairment, (iv) onerous contracts and plus (v) dividends received from associates and joint ventures.

| Three months period ended September 30, 2016 | | | | | | |
|--|-----------------------|--|--|----------------------------------|--|-----------------|
| | Net operating revenue | Cost of goods sold and services rendered | Sales, administrative and other operating expenses | Research and evaluation expenses | Pre operating and operational stoppage | Adjusted EBITDA |
| Ferrous minerals | | | | | | |
| Iron ore | 3,782 | (1,648) | (80) | (25) | (40) | 1,989 |
| Pellets | 991 | (512) | (8) | (4) | (5) | 462 |
| Ferroalloys and manganese | 76 | (63) | (6) | | (3) | 4 |
| Other ferrous products and services | 110 | (70) | (1) | | (1) | 38 |
| | 4,959 | (2,293) | (95) | (29) | (49) | 2,493 |
| Coal | 163 | (157) | 3 | (3) | (13) | (7) |
| Base metals | | | | | | |
| Nickel and other products | 1,159 | (792) | (31) | (21) | (26) | 289 |
| Copper | 420 | (255) | (2) | (2) | | 161 |
| Other base metals products | | | 150 | | | 150 |

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| | | | | | | |
|----------------------------|--------------|----------------|-------------|-------------|-------------|--------------|
| | 1,579 | (1,047) | 117 | (23) | (26) | 600 |
| Fertilizers | | | | | | |
| Potash | 34 | (35) | (1) | (1) | (4) | (7) |
| Phosphates | 470 | (413) | (26) | (3) | | 28 |
| Nitrogen | 69 | (53) | (2) | (1) | | 13 |
| Other fertilizers products | 25 | | | | | 25 |
| | 598 | (501) | (29) | (5) | (4) | 59 |
| Others | 25 | (58) | (64) | (25) | | (122) |
| Total | 7,324 | (4,056) | (68) | (85) | (92) | 3,023 |

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| Three months period ended September 30, 2015 | | | | | | | |
|--|-----------------------|--|--|----------------------------------|--|---|-----------------|
| | Net operating revenue | Cost of goods sold and services rendered | Sales, administrative and other operating expenses | Research and evaluation expenses | Pre operating and operational stoppage | Dividends received from associates and joint ventures | Adjusted EBITDA |
| Ferrous minerals | | | | | | | |
| Iron ore | 3,278 | (1,838) | (169) | (26) | (23) | | 1,222 |
| Pellets | 883 | (508) | 13 | (1) | (5) | | 382 |
| Ferroalloys and manganese | 26 | (31) | (2) | | (4) | | (11) |
| Other ferrous products and services | 125 | (70) | 5 | (1) | | | 59 |
| | 4,312 | (2,447) | (153) | (28) | (32) | | 1,652 |
| | | | | | | | |
| Coal | 127 | (207) | (17) | (7) | (25) | | (129) |
| | | | | | | | |
| Base metals | | | | | | | |
| Nickel and other products | 1,011 | (820) | 8 | (23) | (97) | | 79 |
| Copper | 336 | (218) | (1) | (3) | | | 114 |
| | 1,347 | (1,038) | 7 | (26) | (97) | | 193 |
| Fertilizers | | | | | | | |
| Potash | 41 | (29) | (1) | (15) | (8) | | (12) |
| Phosphates | 560 | (364) | (3) | (7) | (20) | | 166 |
| Nitrogen | 80 | (51) | (1) | (1) | (1) | | 26 |
| Other fertilizers products | 17 | | | | | | 17 |
| | 698 | (444) | (5) | (23) | (29) | | 197 |
| | | | | | | | |
| Others | 21 | (43) | 2 | (37) | | 19 | (38) |
| | | | | | | | |
| Total | 6,505 | (4,179) | (166) | (121) | (183) | 19 | 1,875 |

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| Nine months period ended September 30, 2016 | | | | | | | |
|---|-----------------------|--|--|----------------------------------|--|---|-----------------|
| | Net operating revenue | Cost of goods sold and services rendered | Sales, administrative and other operating expenses | Research and evaluation expenses | Pre operating and operational stoppage | Dividends received from associates and joint ventures | Adjusted EBITDA |
| Ferrous minerals | | | | | | | |
| Iron ore | 10,208 | (4,609) | (386) | (52) | (107) | | 5,054 |
| Pellets | 2,611 | (1,408) | (43) | (8) | (17) | 60 | 1,195 |
| Ferroalloys and manganese | 185 | (162) | (3) | | (9) | | 11 |
| Other ferrous products and services | 300 | (192) | 2 | (1) | (2) | | 107 |
| | 13,304 | (6,371) | (430) | (61) | (135) | 60 | 6,367 |
| Coal | 463 | (687) | 46 | (8) | (24) | | (210) |
| Base metals | | | | | | | |
| Nickel and other products | 3,209 | (2,332) | (55) | (57) | (84) | | 681 |
| Copper | 1,170 | (684) | (9) | (3) | | | 474 |
| Other base metals products | | | 150 | | | | 150 |
| | 4,379 | (3,016) | 86 | (60) | (84) | | 1,305 |
| Fertilizers | | | | | | | |
| Potash | 79 | (75) | 2 | (4) | (12) | | (10) |
| Phosphates | 1,123 | (976) | (62) | (10) | (2) | | 73 |
| Nitrogen | 187 | (139) | (8) | (2) | | | 38 |
| Other fertilizers products | 57 | | | | | 3 | 60 |
| | 1,446 | (1,190) | (68) | (16) | (14) | 3 | 161 |
| Others | 77 | (158) | (106) | (78) | (2) | 55 | (212) |
| Total | 19,669 | (11,422) | (472) | (223) | (259) | 118 | 7,411 |

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| Nine months period ended September 30, 2015 | | | | | | | |
|---|--------------------------|---|--|-------------------------------------|---|---|-----------------|
| | Net operating revenue | Cost of goods sold and services rendered | Sales, administrative and other operating expenses | Research and evaluation expenses | Pre operating and operational stoppage | Dividends received from associates and joint ventures | Adjusted EBITDA |
| Ferrous minerals | | | | | | | |
| Iron ore | 9,385 | (5,680) | (526) | (95) | (74) | | 3,010 |
| Pellets | 2,820 | (1,668) | 16 | (3) | (19) | 203 | 1,349 |
| Ferroalloys and manganese | 149 | (130) | (2) | | (14) | | 3 |
| Other ferrous products and services | 378 | (266) | 12 | (3) | (1) | 8 | 128 |
| | 12,732 | (7,744) | (500) | (101) | (108) | 211 | 4,490 |
| Coal | 418 | (579) | (131) | (18) | (49) | | (359) |
| Base metals | | | | | | | |
| Nickel and other products | 3,586 | (2,501) | (80) | (73) | (322) | | 610 |
| Copper | 1,119 | (664) | (11) | (6) | (1) | | 437 |
| Other base metals products | | | 230 | | | | 230 |
| | 4,705 | (3,165) | 139 | (79) | (323) | | 1,277 |
| Fertilizers | | | | | | | |
| Potash | 102 | (70) | 4 | (38) | (16) | | (18) |
| Phosphates | 1,362 | (923) | (23) | (20) | (42) | | 354 |
| Nitrogen | 237 | (157) | (4) | (2) | (3) | | 71 |
| Other fertilizers products | 43 | | | | | | 43 |
| | 1,744 | (1,150) | (23) | (60) | (61) | | 450 |
| Others | 111 | (102) | (97) | (100) | | 20 | (168) |
| Total | 19,710 | (12,740) | (612) | (358) | (541) | 231 | 5,690 |

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Adjusted Ebitda is reconciled to net income (loss) as follows:

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|--|--|----------------|---------------------------------------|----------------|
| | 2016 | 2015 | 2016 | 2015 |
| Adjusted EBITDA | 3,023 | 1,875 | 7,411 | 5,690 |
| Depreciation, depletion and amortization | (963) | (1,022) | (2,740) | (3,045) |
| Dividends received from associates and joint ventures | | (19) | (118) | (231) |
| Results on measurement or sale of non-current assets | (29) | (48) | (95) | 90 |
| Operating income | 2,031 | 786 | 4,458 | 2,504 |
| Financial results, net | (1,047) | (7,176) | 2,469 | (11,154) |
| Equity results in associates and joint ventures | 46 | (349) | 392 | (402) |
| Others results in associates and joint ventures | (33) | | (1,146) | 97 |
| Income taxes | (415) | 4,503 | (2,690) | 5,178 |
| Income (loss) attributable to noncontrolling interests | (7) | 119 | (26) | 217 |
| Income (loss) attributable to Vale's stockholders | 575 | (2,117) | 3,457 | (3,560) |

b) Assets by segment

| | September 30, 2016 | | | Three months period ended September 30, 2016 | Nine months period ended September 30, 2016 |
|------------------|--------------------|--|---|---|---|
| | Product inventory | Investments in associates and joint ventures | Property, plant and equipment and intangible assets | Additions to property, plant and equipment and intangible (i) | Additions to property, plant and equipment and intangible (i) |
| Ferrous minerals | 1,287 | 1,831 | 34,344 | 797 | 2,481 |
| Coal | 95 | 291 | 1,953 | 152 | 441 |
| Base metals | 1,142 | 16 | 24,983 | 189 | 691 |
| Fertilizers | 248 | 90 | 4,555 | 99 | 207 |
| Others | 1 | 1,748 | 2,251 | 12 | 27 |
| Total | 2,773 | 3,976 | 68,086 | 1,249 | 3,847 |

(i) Includes only cash effect.

| | December 31, 2015 | | | Three months period ended September 30, 2015 | Nine months period ended September 30, 2015 |
|------------------|-------------------|--|---|--|--|
| | Product inventory | Investments in associates and joint ventures | Property, plant and equipment and intangible assets | Additions to property, plant and equipment and intangible (i) | Additions to property, plant and equipment and intangible (i) |
| Ferrous minerals | 1,036 | 1,479 | 28,202 | 1,099 | 3,858 |
| Coal | 53 | 306 | 1,812 | 330 | 1,076 |
| Base metals | 1,166 | 17 | 23,522 | 368 | 1,021 |
| Fertilizers | 295 | 75 | 3,866 | 55 | 161 |
| Others | 3 | 1,063 | 2,024 | 18 | 65 |
| Total | 2,553 | 2,940 | 59,426 | 1,870 | 6,181 |

(i) Includes only cash effect.

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c) Revenues by geographic area

| | Three months period ended September 30, 2016 | | | | | Total |
|---|--|------------|--------------|-------------|-----------|--------------|
| | Ferrous minerals | Coal | Base metals | Fertilizers | Others | |
| Americas, except United States and Brazil | 81 | | 304 | 11 | | 396 |
| United States of America | 54 | | 184 | | | 238 |
| Europe | 624 | 56 | 446 | 21 | | 1,147 |
| Middle East/Africa/Oceania | 333 | 14 | 4 | | | 351 |
| Japan | 373 | 18 | 92 | | | 483 |
| China | 2,720 | 17 | 172 | | | 2,909 |
| Asia, except Japan and China | 286 | 58 | 333 | 10 | | 687 |
| Brazil | 488 | | 44 | 556 | 25 | 1,113 |
| Net operating revenue | 4,959 | 163 | 1,579 | 598 | 25 | 7,324 |

| | Three months period ended September 30, 2015 | | | | | Total |
|---|--|------------|--------------|-------------|-----------|--------------|
| | Ferrous minerals | Coal | Base metals | Fertilizers | Others | |
| Americas, except United States and Brazil | 82 | 12 | 206 | 19 | | 319 |
| United States of America | 9 | | 176 | | 3 | 188 |
| Europe | 627 | 23 | 422 | 37 | | 1,109 |
| Middle East/Africa/Oceania | 229 | 15 | 8 | 3 | | 255 |
| Japan | 389 | 22 | 88 | | | 499 |
| China | 2,355 | 24 | 176 | | | 2,555 |
| Asia, except Japan and China | 225 | 30 | 226 | 13 | | 494 |
| Brazil | 396 | 1 | 45 | 626 | 18 | 1,086 |
| Net operating revenue | 4,312 | 127 | 1,347 | 698 | 21 | 6,505 |

| | Nine months period ended September 30, 2016 | | | | | Total |
|---|---|------------|--------------|--------------|-----------|---------------|
| | Ferrous minerals | Coal | Base metals | Fertilizers | Others | |
| Americas, except United States and Brazil | 246 | 14 | 862 | 28 | | 1,150 |
| United States of America | 141 | | 532 | | 4 | 677 |
| Europe | 1,702 | 85 | 1,364 | 69 | | 3,220 |
| Middle East/Africa/Oceania | 784 | 55 | 17 | 3 | | 859 |
| Japan | 927 | 83 | 218 | | | 1,228 |
| China | 7,573 | 48 | 442 | | | 8,063 |
| Asia, except Japan and China | 671 | 178 | 840 | 49 | | 1,738 |
| Brazil | 1,260 | | 104 | 1,297 | 73 | 2,734 |
| Net operating revenue | 13,304 | 463 | 4,379 | 1,446 | 77 | 19,669 |

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Nine months period ended September 30, 2015

| | Ferrous minerals | Coal | Base metals | Fertilizers | Others | Total |
|---|---------------------|------------|--------------|--------------|------------|---------------|
| Americas, except United States and Brazil | 279 | 16 | 843 | 52 | | 1,190 |
| United States of America | 24 | | 644 | | 18 | 686 |
| Europe | 1,908 | 74 | 1,432 | 99 | | 3,513 |
| Middle East/Africa/Oceania | 807 | 82 | 64 | 6 | | 959 |
| Japan | 1,155 | 61 | 282 | | | 1,498 |
| China | 6,381 | 36 | 498 | | | 6,915 |
| Asia, except Japan and China | 864 | 132 | 720 | 50 | | 1,766 |
| Brazil | 1,314 | 17 | 222 | 1,537 | 93 | 3,183 |
| Net operating revenue | 12,732 | 418 | 4,705 | 1,744 | 111 | 19,710 |

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4. Liabilities related to associates and joint ventures

Refers to the provision to comply with the obligations under the agreement related to the dam failure of Samarco Mineração S.A. (Samarco), which is a Brazilian joint venture between Vale S.A. and BHP Billiton Brasil Ltda. (BHPB), as follows:

a) Reparation agreement

Samarco and its shareholders, Vale S.A. and BHPB, entered into an Agreement in connection with the US\$6.3 billion (R\$20.2 billion) lawsuit (Agreement) on March 2, 2016 with the Brazilian federal government, the two Brazilian states affected by the failure (Espírito Santo and Minas Gerais) and other governmental authorities in order to implement the programs for remediation and compensation of the areas and communities affected by Samarco's dam failure.

The Agreement does not contemplate admission of civil, criminal or administrative liability for the Fundão dam failure.

The Agreement has a 15-year term, renewable for successive one-year periods until all the obligations under the Agreement have been performed.

Under the Agreement, Samarco, Vale S.A. and BHPB have agreed to establish a foundation to develop and implement social and economic remediation and compensation, to be funded by Samarco as follows: US\$623 (R\$2.0 billion) in 2016, US\$374 (R\$1.2 billion) in 2017 and US\$374 (R\$1.2 billion) in 2018. From 2019 to 2021, Samarco agreed to provide funding based on the amounts needed to implement the projects approved for the relevant year, subject to an annual minimum of US\$249 (R\$800) and an annual maximum of US\$498 (R\$1.6 billion). From 2022 onwards, Samarco will provide the necessary funding in order to complete remaining programs approved for each relevant year. The foundation will allocate an annual amount of US\$75 (R\$240) over 15 years to the implementation of compensation programs, and these annual amounts are included in the annual contributions described above for the first six years. Through the end of 2018, US\$156 (R\$500) will be provided for sewage collection and treatment and solid waste disposal under the terms of the Agreement.

To the extent that Samarco does not meet its funding obligations to the foundation, each of Vale S.A. and BHPB will provide, under the terms of the Agreement, funds to the Foundation in proportion to its 50% equity interest in Samarco.

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On June 24, 2016, the Renova Foundation (Foundation) was constituted, under the Agreement, to develop and implement the socioeconomic and environmental's restoration and compensation programs. The Foundation began its operations in August of 2016.

As the consequence of the dam failure, the governmental authorities ordered the suspension of Samarco's operations.

b) Estimates used for the provision

The Samarco initially expected to resume its operations in the last quarter of 2016. Based on this assumption, Samarco's cash flow projections indicated that Samarco would be able to generate all or a substantial part of the funding required under the Agreement. This assumption was supported by studies of technical solutions available, combined with the progress of the repair works on the remaining dam structures after the dam failure and the definition of the contractual scope of the remediation measures and compensation to the communities impacted by the dam failure. Consequently, no provision was recognized in the Company's financial statements as of March 31, 2016.

However, in view of the current stage of the necessary procedures to resume operations and the uncertainties related to the licensing approval by the governmental authorities during the current year, Samarco reviewed its assumption and concluded that was unable to make a reliable estimate of how and when its operations will resume.

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Therefore, the Company recognized a provision on its interim financial statements as of June 30, 2016, in the amount of US\$1,732 (R\$5,560) which was discounted at a free-risk rate, resulting in US\$1,163 (R\$3,733) liability, which represents its best estimate of the obligation to comply with the reparation and compensation programs under the Agreement, equivalent to the percentage of 50% entered into under the Agreement by Vale.

On August, 2016, Samarco issued non-convertible private debentures which were subscribed equally by the Company and BHPB, and the resources contributed by Vale S.A. were allocated as follows: (i) US\$45 (R\$146) was used by Samarco in the reparation programs in accordance with the agreement, and therefore, discounted from the provision of US\$1,163 (R\$3,733) mentioned above; and (ii) US\$33 (R\$106) applied by Samarco's to fund its working capital, and recognized in the income statement as Others results in associates and joint ventures in the third quarter of 2016. Funds to working capital requirements will be released on an as-needed basis by the shareholders and will be subject to achieving certain milestones, without undertaking an obligation to Samarco.

For the period ended in September 2016, the movements of the provision are as follows:

| | |
|---------------------------------------|--------------|
| Balance at June 30, 2016 | 3,733 |
| Payments | (146) |
| Interests | 62 |
| Balances at September 30, 2016 | 3,649 |
| Current liabilities | 1,069 |
| Non-current liabilities | 2,580 |

At each reporting period, the Company will reassess the key assumptions used by Samarco in the preparation of the projected future cash flows and will adjust the provision, if required.

c) Relevant information of Samarco

Samarco disbursed US\$88 (R\$285) and US\$294 (R\$1,016) in the accident reparation during the three and nine months period ended September 30, 2016, respectively. Since the initial date of the accident, US\$326 (R\$1,141) has been disbursed to comply with the obligations under the agreement.

d) Contingencies related to Samarco accident

(i) Public civil claim filed by the Federal Government and others

The federal government, the two Brazilian states affected by the failure (Espírito Santo and Minas Gerais) and other governmental authorities have initiated a public civil lawsuit against Samarco and its shareholders, Vale S.A. and BHPB, which the estimated value indicated by the plaintiffs in US\$6.3 billion (R\$20.2 billion).

On May 5, 2016, the Agreement was ratified by the Federal Regional Court (TRF), 1st Region signed in March 2, 2016. In July, 2016 the Superior Court of Justice (STJ) in Brazil issued an interim order, suspending the decision of TRF, which ratified the Agreement until the final judgments of the claim.

On August 17, 2016, the TRF of the 1st Region has rejected the appeal presented by Samarco, Vale S.A. e BHPB against the interim order and overruled the judicial decision that ratified the Agreement. The decision granted by the TRF of the 1st Region, among other measures, confirmed a prior injunction that prohibited the defendants from transferring or conveying any of their interest in its Brazilian iron ore concessions, without, however, limiting their production and commercial activities.

Only the judicial decision that ratified the Agreement was suspended and, therefore, the Agreement between the parties remains valid, and the parties will continue fulfilling their obligations under the Agreement.

(ii) U.S. Securities class action suits

Vale S.A. and certain of its officers have been named as defendants in securities class action suits in Federal Court in New York brought by holders of Vale's American Depositary Receipts under U.S. federal securities laws. The lawsuits allege that Vale S.A. made false and misleading statements or omitted to make disclosures concerning the risks and dangers of the operations of Samarco's Fundão dam and the adequacy of related programs and procedures. The plaintiffs have not specified an amount of alleged damages in these actions. Vale S.A. intends to vigorously mount a full defense against the allegations. The litigation is at a very early stage. On March 7, 2016, the judge overseeing the securities class actions issued an order consolidating these actions and designating lead plaintiffs and counsel. On April 29, 2016, lead plaintiffs filed a Consolidated Amended Complaint that will serve as the operative complaint in the litigation. In July 2016, Vale S.A. and the individual defendants filed a motion to dismiss the Amended Complaint. In August 2016, the plaintiffs submitted their opposition to the motion to dismiss, which was replied by the defendants in September 2016. The decision on the motion to dismiss remains pending.

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(iii) Public civil action filed by Federal Prosecution Office

On May 3, 2016, the Federal Prosecution Office (MPF) filed a public civil action against Samarco and its shareholders and presented several demands, including: (i) the adoption of measures for mitigating the social, economic and environmental impacts resulting from the Fundão dam failure and other emergency measures; (ii) the payment of compensation to the community; and (iii) payments for the collective moral damage. The initial action value claimed by the Federal Prosecution Office (MPF) is US\$48 billion (R\$155 billion). The first conciliatory hearing was held on September 13th and a second hearing might be scheduled by the judge.

(iv) Criminal lawsuit

On October 20, 2016, the Federal Prosecutors Office (MPF) offered a criminal lawsuit to the Brazilian Federal Justice Court against Vale, BHPB, Samarco, VogBr Recursos Hídricos e Geotecnia Ltda. and 22 individuals for alleged crimes against the environment, urban planning and cultural heritage, flooding, landslide, as well as for alleged crimes against the victims of the Fundão dam failure. The MPF also requested that, if found guilty at the end of the criminal procedure, and the accused, the Judge imposes the minimum amount needed to repair the damage caused by the dam failure. So far, Vale was not serviced to present its defense.

(v) Other lawsuits

In addition, Samarco and its shareholders were named as a defendant in several other lawsuits brought by individuals, corporations and governmental entities seeking damages for material or personnel damages.

These lawsuits and petitions are at very early stages, thus it is not possible to determine a range of outcomes and/or reliable estimates of the potential exposure at this time. No contingent liability has been quantified and no provision was recognized for these other lawsuits.

5. Non-current assets and liabilities held for sale

| | September 30, 2016 | | December 31, 2015 |
|-----------------|--------------------|-------|-------------------|
| Shipping assets | Nacala | Total | Nacala |

| | | | | |
|---|------------|--------------|--------------|--------------|
| Non-current assets held for sale | | | | |
| Accounts receivable | | 11 | 11 | 3 |
| Other current assets | | 97 | 97 | 134 |
| Property, plant and equipment and Intangible, net | 497 | 4,184 | 4,681 | 3,907 |
| Total assets | 497 | 4,292 | 4,789 | 4,044 |
| Liabilities associated with non-current assets held for sale | | | | |
| Suppliers and contractors | | 138 | 138 | 93 |
| Other current liabilities | | 11 | 11 | 14 |
| Total liabilities | | 149 | 149 | 107 |
| Net non-current assets held for sale | 497 | 4,143 | 4,640 | 3,937 |

a) Shipping assets

In June 2016, Vale approved a plan to dispose its fleet of ships. As a consequence, the referenced assets were reclassified to non-current assets held for sale and a loss of US\$58 was recorded in the income statement as Results on measurement or sale of non-current assets .

b) Coal - Nacala logistic corridor (Nacala)

See note 6.

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6. Acquisitions and divestitures

2016

Coal assets - In December 2014, the Company signed an agreement with Mitsui & Co., Ltd. (Mitsui) to sell 50% of its stake in the Nacala corridor and 15% of Vale's stake in Vale Moçambique. After completion of the transaction, Vale will indirectly own 81% of the Moatize mine and approximately 50% of Nacala Assets, sharing control with Mitsui and therefore will not consolidate the assets, liabilities and results of Nacala Corridor. On that date, the assets and liabilities related to Nacala were classified as non-current assets held for sale with no impact in the income statement.

In September 2016, the Company reviewed the terms related to this transaction, in which Mitsui agreed to contribute up to US\$450, being: (i) US\$255 for a 15% of Vale's stake in the Moatize coal mine; and (ii) an additional contribution of up to US\$ 195 based on meeting certain conditions, including mine performance. Mitsui will also contribute US\$348 for a 50% stake in the equity and quasi-equity instruments of the Nacala and extend a long-term facility of US\$165.

As at September 2016, completion of the transaction remains subject to successful completion of the Project Finance and certain government approvals.

Shipping assets In June 2016, the Company concluded the sale of three vessels VLOC's of 400,000 tons for the consortium led by ICBC *International* (ICBC) and recognized a loss of US\$8 in the income statement as Results on measurement or sales of non-current assets. For this transaction, Vale received cash proceeds of US\$269 in the third quarter of 2016.

Thyssenkrupp Companhia Siderúrgica do Atlântico Ltd (CSA) In April 2016, the Company sold 100% of its interest at CSA (26.87%) for a non-significant amount. The transaction resulted in US\$75 loss on recycling the Cumulative translation adjustments recognized in the income statement as Others results in associates and joint ventures.

Minas da Serra Geral S.A. (MSG) In March 2016, the Company completed the purchase option on additional 50% participation at MSG which was owned by JFE Steel Corporation (JFE) in the amount of US\$17. Vale now holds 100% of MSG s total stockholder s equity.

2015

Energy generation assets - In December 2013, the Company signed agreements with CEMIG Geração e Transmissão S.A. (CEMIG GT) to incorporate two joint ventures, Aliança Norte Participações S.A. and Aliança Geração de Energia S.A. and exchange of assets and shares. The transaction was completed in the first quarter of 2015, in which Vale received cash proceeds of US\$97 and recognized a gain of US\$18 as Others results in associates and joint ventures and a gain of US\$193 as Results on measurement or sales of non-current assets .

7. Cash and cash equivalents

| | September 30, 2016 | December 31, 2015 |
|------------------------|--------------------|-------------------|
| Cash and bank deposits | 2,921 | 2,018 |
| Short-term investments | 2,448 | 1,573 |
| | 5,369 | 3,591 |

Cash and cash equivalents includes cash, immediately redeemable deposits and short-term investments with an insignificant risk of change in value. They are readily convertible to cash, part in R\$, indexed to the Brazilian Interbank Interest rate (DI Rate or CDI) and part denominated in US\$, mainly time deposits.

Table of Contents**8. Accounts receivable**

| | September 30, 2016 | December 31, 2015 |
|---|--------------------|-------------------|
| Trade receivables | 2,621 | 1,534 |
| Provision for doubtful debts | (65) | (58) |
| | 2,556 | 1,476 |
| Trade receivables related to the steel sector - % | 74.66% | 75.32% |

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|---|---|------|--|------|
| | 2016 | 2015 | 2016 | 2015 |
| Provision for doubtful debts recorded in the income statement | | (10) | | (11) |
| Trade receivables write-offs recorded in the income statement | (2) | 1 | (5) | (6) |

No individual customer represents over 10% of receivables or revenues.

9. Inventories

| | | |
|----------------------|--------------|--------------|
| Product inventory | 3,074 | 3,071 |
| | 2,773 | 2,553 |
| Consumable inventory | 1,127 | 975 |

Product inventories by segments are presented in note 3(b).

10. Investments in associates and joint ventures

Changes in investments in associates and joint ventures are as follows:

| | 2016 | 2015 |
|------------------------------------|--------------|--------------|
| Balance at June 30, | 3,963 | 4,208 |
| Additions | 9 | 8 |
| Disposals | (4) | |
| Translation adjustment | (43) | (750) |
| Equity results in income statement | 46 | (349) |
| Dividends declared | 0 | (8) |
| Others | 5 | (8) |
| Balance at September 30, | 3,976 | 3,101 |

| | 2016 | 2015 |
|------------------------------------|--------------|--------------|
| Balance at January 1st, | 2,940 | 4,133 |
| Acquisitions | | 579 |
| Additions | 228 | 26 |
| Disposals | (4) | 79 |
| Translation adjustment | 543 | (1,245) |
| Equity results in income statement | 392 | (402) |
| Dividends declared | (116) | (91) |
| Transfer to held for sale | | (5) |
| Others | (7) | 27 |
| Balance at September 30, | 3,976 | 3,101 |

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| Associates and joint ventures | Investments in associates and joint ventures | | Equity results in Income statement | | | | | | Dividends received | | | |
|--|--|------------------|------------------------------------|--------------|---------------------------|-------|---------------------------|-------|---------------------------|------|---------------------------|------|
| | % ownership | % voting capital | September 30, | December 31, | Three months period ended | | Three months period ended | | Three months period ended | | Three months period ended | |
| | | | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 |
| Ferrous minerals | | | | | | | | | | | | |
| Baovale Mineração S.A. Companhia Coreano-Brasileira de Pelotização | 50.00 | 50.00 | 30 | 24 | 9 | 5 | 8 | 6 | | | | |
| Companhia Hispano-Brasileira de Pelotização (i) | 50.00 | 50.00 | 67 | 62 | 2 | 7 | 11 | 18 | | | 13 | 11 |
| Companhia Ítalo-Brasileira de Pelotização (i) | 50.89 | 51.00 | 64 | 57 | 4 | 5 | 10 | 11 | | | 18 | 16 |
| Companhia Nipo-Brasileira de Pelotização(i) | 50.90 | 51.00 | 71 | 50 | 5 | 6 | 11 | 16 | | | 9 | 13 |
| Minas da Serra Geral S.A. (iii) | 51.00 | 51.11 | 111 | 104 | 9 | 11 | 17 | 35 | | | 20 | 17 |
| MRS Logística S.A. | 100.00 | 100.00 | | 13 | | | | (1) | | | | |
| Samarco Mineração S.A. (ii) | 48.16 | 46.75 | 497 | 368 | 17 | 8 | 49 | 32 | | | | |
| VLI S.A. | 50.00 | 50.00 | | | | (120) | | (167) | | | | 146 |
| Zhuhai YPM Pellet Co. | 37.60 | 37.60 | 969 | 778 | 16 | 13 | 32 | 32 | | | | 8 |
| Others | 25.00 | 25.00 | 22 | 23 | | | | | | | | 1 |
| | | | 1,831 | 1,479 | 62 | (65) | 138 | (18) | | | 60 | 212 |
| Coal | | | | | | | | | | | | |
| Henan Longyu Energy Resources Co., Ltd. | 25.00 | 25.00 | 291 | 306 | 2 | (9) | (8) | (6) | | | | |
| Base metals | | | | | | | | | | | | |
| Korea Nickel Corp. | 25.00 | 25.00 | 16 | 17 | 1 | (1) | (1) | (3) | | | | |
| Teal Minerals Inc. | 50.00 | 50.00 | | | (3) | (9) | (3) | (30) | | | | |
| | | | 16 | 17 | (2) | (10) | (4) | (33) | | | | |
| Others | | | | | | | | | | | | |
| Aliança Geração de Energia S.A. (i) | 55.00 | 55.00 | 588 | 481 | 11 | 7 | 33 | 26 | | 15 | 22 | 15 |
| Aliança Norte Energia Participações S.A. (i) | 51.00 | 51.00 | 143 | 81 | 2 | (1) | (1) | 1 | | | | |
| California Steel Industries, Inc. | 50.00 | 50.00 | 178 | 157 | 17 | (8) | 20 | (22) | | | | |
| Companhia Siderúrgica do Pecém | 50.00 | 50.00 | 686 | 225 | (52) | (245) | 177 | (311) | | | | |
| Mineração Rio Grande do Norte S.A. | 40.00 | 40.00 | 132 | 93 | 7 | 10 | 42 | 20 | | 3 | 32 | 3 |
| Thyssenkrupp Companhia Siderúrgica do Atlântico Ltd. (iii) | | | | | | (29) | | (60) | | | | |
| Others | | | 111 | 101 | (1) | 1 | (5) | 1 | | 1 | 4 | 1 |

| | | | | | | | | | |
|--------------|--------------|--------------|-----------|--------------|------------|--------------|-----------|------------|------------|
| | 1,838 | 1,138 | (16) | (265) | 266 | (345) | 19 | 58 | 19 |
| Total | 3,976 | 2,940 | 46 | (349) | 392 | (402) | 19 | 118 | 231 |

(i) Although the Company held majority of the voting capital, the entities are accounted under equity method due to shareholders agreements.

(ii) Note 4.

(iii) Note 6

Table of Contents**11. Intangibles**

Changes in intangibles are as follows:

| | Goodwill | Concessions | Right of use | Software | Total |
|--------------------------------------|--------------|--------------|--------------|------------|--------------|
| Balance at June 30, 2016 | 3,219 | 3,123 | 140 | 431 | 6,913 |
| Additions | | 206 | | 6 | 212 |
| Disposals | | (3) | | | (3) |
| Amortization | | (103) | (1) | (39) | (143) |
| Translation adjustment | (28) | 13 | (1) | (4) | (20) |
| Balance at September 30, 2016 | 3,191 | 3,236 | 138 | 394 | 6,959 |
| Cost | 3,191 | 4,376 | 218 | 1,572 | 9,357 |
| Accumulated amortization | | (1,140) | (80) | (1,178) | (2,398) |
| | 3,191 | 3,236 | 138 | 394 | 6,959 |

| | Goodwill | Concessions | Right of use | Software | Total |
|--------------------------------------|--------------|--------------|--------------|------------|--------------|
| Balance at June 30, 2015 | 3,464 | 2,146 | 254 | 476 | 6,340 |
| Additions | | 129 | | 28 | 157 |
| Amortization | | (34) | (10) | (36) | (80) |
| Translation adjustment | (310) | (470) | (21) | (103) | (904) |
| Balance at September 30, 2015 | 3,154 | 1,771 | 223 | 365 | 5,513 |
| Cost | 3,154 | 2,663 | 476 | 998 | 7,291 |
| Accumulated amortization | | (892) | (253) | (633) | (1,778) |
| | 3,154 | 1,771 | 223 | 365 | 5,513 |

| | Goodwill | Concessions | Right of use | Software | Total |
|--------------------------------------|--------------|--------------|--------------|------------|--------------|
| Balance at December 31, 2015 | 2,956 | 1,814 | 207 | 347 | 5,324 |
| Additions | | 1,015 | 1 | 10 | 1,026 |
| Disposals | | (8) | | | (8) |
| Amortization | | (177) | (2) | (117) | (296) |
| Translation adjustment | 235 | 515 | (1) | 80 | 829 |
| Transfers | | 77 | (67) | 74 | 84 |
| Balance at September 30, 2016 | 3,191 | 3,236 | 138 | 394 | 6,959 |
| Cost | 3,191 | 4,376 | 218 | 1,572 | 9,357 |
| Accumulated amortization | | (1,140) | (80) | (1,178) | (2,398) |
| | 3,191 | 3,236 | 138 | 394 | 6,959 |

| | Goodwill | Concessions | Right of use | Software | Total |
|-------------------------------------|--------------|--------------|--------------|------------|--------------|
| Balance at December 31, 2014 | 3,760 | 2,213 | 297 | 550 | 6,820 |
| Additions | | 487 | | 119 | 606 |
| Disposals | | (17) | | | (17) |
| Amortization | | (116) | (32) | (122) | (270) |

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| | | | | | |
|--------------------------------------|--------------|--------------|------------|------------|--------------|
| Translation adjustment | (645) | (796) | (42) | (182) | (1,665) |
| Acquisition of subsidiary | 39 | | | | 39 |
| Balance at September 30, 2015 | 3,154 | 1,771 | 223 | 365 | 5,513 |
| Cost | 3,154 | 2,663 | 476 | 998 | 7,291 |
| Accumulated amortization | | (892) | (253) | (633) | (1,778) |
| | 3,154 | 1,771 | 223 | 365 | 5,513 |

Table of Contents**12. Property, plant and equipment**

Changes in property, plant and equipment are as follows:

| | Land | Building | Facilities | Equipment | Mineral properties | Others | Constructions in progress | Total |
|--------------------------------------|------------|---------------|--------------|--------------|--------------------|--------------|---------------------------|---------------|
| Balance at June 30, 2016 | 891 | 10,320 | 9,232 | 7,983 | 11,166 | 6,848 | 14,519 | 60,959 |
| Additions (i) | | | | | | | 1,347 | 1,347 |
| Disposals | | (1) | (2) | (15) | (122) | (2) | | (142) |
| Depreciation and amortization | | (143) | (182) | (213) | (186) | (144) | | (868) |
| Translation adjustment | (8) | (89) | (79) | (58) | (95) | (65) | (233) | (627) |
| Assets retirement obligations | | | | | 458 | | | 458 |
| Transfers | 23 | 705 | 351 | 275 | 28 | 164 | (1,546) | |
| Balance at September 30, 2016 | 906 | 10,792 | 9,320 | 7,972 | 11,249 | 6,801 | 14,087 | 61,127 |
| Cost | 906 | 16,588 | 15,209 | 14,175 | 19,108 | 10,544 | 14,087 | 90,617 |
| Accumulated depreciation | | (5,796) | (5,889) | (6,203) | (7,859) | (3,743) | | (29,490) |
| | 906 | 10,792 | 9,320 | 7,972 | 11,249 | 6,801 | 14,087 | 61,127 |

| | Land | Building | Facilities | Equipment | Mineral properties | Others | Constructions in progress | Total |
|---|------------|---------------|---------------|--------------|--------------------|---------------|---------------------------|---------------|
| Balance at June 30, 2015 | 999 | 12,064 | 10,087 | 9,379 | 13,143 | 10,330 | 15,275 | 71,277 |
| Additions (i) | | | | | | | 2,592 | 2,592 |
| Disposals | | | (30) | (13) | | (583) | (6) | (632) |
| Depreciation and amortization | | (125) | (154) | (240) | (175) | (176) | | (870) |
| Transfers to non-current assets held for sale | | | | | (127) | | | (127) |
| Translation adjustment | (168) | (1,791) | (1,818) | (1,137) | (1,721) | (1,132) | (2,620) | (10,387) |
| Transfers | (55) | 455 | 933 | 128 | 198 | 563 | (2,222) | |
| Balance at September 30, 2015 | 776 | 10,603 | 9,018 | 8,117 | 11,318 | 9,002 | 13,019 | 61,853 |
| Cost | 776 | 13,384 | 13,213 | 12,676 | 16,918 | 12,542 | 13,019 | 82,528 |
| Accumulated depreciation | | (2,781) | (4,195) | (4,559) | (5,600) | (3,540) | | (20,675) |
| | 776 | 10,603 | 9,018 | 8,117 | 11,318 | 9,002 | 13,019 | 61,853 |

| | Land | Building | Facilities | Equipment | Mineral properties | Others | Constructions in progress | Total |
|-------------------------------------|------------|--------------|--------------|--------------|--------------------|--------------|---------------------------|---------------|
| Balance at December 31, 2015 | 766 | 9,101 | 8,292 | 7,307 | 10,304 | 7,206 | 11,126 | 54,102 |
| Additions (i) | | | | | | | 3,242 | 3,242 |
| Disposals | | (1) | (3) | (28) | (125) | (345) | (21) | (523) |
| Depreciation and amortization | | (372) | (471) | (663) | (590) | (454) | | (2,550) |
| | | | | | | (497) | | (497) |

| | | | | | | | | |
|---|------------|---------------|--------------|--------------|---------------|--------------|---------------|---------------|
| Transfers to non-current assets held for sale | | | | | | | | |
| Translation adjustment | 114 | 793 | 1,004 | 655 | 907 | 957 | 2,493 | 6,923 |
| Assets retirement obligations | | | | | 513 | | | 513 |
| Transfers | 26 | 1,271 | 498 | 701 | 240 | (66) | (2,753) | (83) |
| Balance at September 30, 2016 | 906 | 10,792 | 9,320 | 7,972 | 11,249 | 6,801 | 14,087 | 61,127 |
| Cost | 906 | 16,588 | 15,209 | 14,175 | 19,108 | 10,544 | 14,087 | 90,617 |
| Accumulated depreciation | | (5,796) | (5,889) | (6,203) | (7,859) | (3,743) | | (29,490) |
| | 906 | 10,792 | 9,320 | 7,972 | 11,249 | 6,801 | 14,087 | 61,127 |

| | Land | Building | Facilities | Equipment | Mineral properties | Others | Constructions in progress | Total |
|---|--------------|---------------|---------------|--------------|--------------------|---------------|---------------------------|---------------|
| Balance at December 31, 2014 | 1,069 | 11,654 | 10,813 | 9,287 | 14,929 | 10,954 | 19,416 | 78,122 |
| Additions (i) | | | | | | | 6,399 | 6,399 |
| Disposals | | (5) | (37) | (33) | (151) | (1,101) | (8) | (1,335) |
| Depreciation and amortization | | (402) | (548) | (816) | (636) | (555) | | (2,957) |
| Transfers to non-current assets held for sale | | | | | (127) | | | (127) |
| Translation adjustment | (300) | (3,320) | (3,178) | (2,006) | (2,881) | (2,244) | (4,440) | (18,369) |
| Transfers | 7 | 2,676 | 1,968 | 1,684 | 184 | 1,829 | (8,348) | |
| Acquisition of subsidiary | | | | 1 | | 119 | | 120 |
| Balance at September 30, 2015 | 776 | 10,603 | 9,018 | 8,117 | 11,318 | 9,002 | 13,019 | 61,853 |
| Cost | 776 | 13,384 | 13,213 | 12,676 | 16,918 | 12,542 | 13,019 | 82,528 |
| Accumulated depreciation | | (2,781) | (4,195) | (4,559) | (5,600) | (3,540) | | (20,675) |
| | 776 | 10,603 | 9,018 | 8,117 | 11,318 | 9,002 | 13,019 | 61,853 |

(i) Includes capitalized borrowing costs, see cash flow.

There are no material changes to the net book value of consolidated property, plant and equipment pledged to secure judicial claims and loans and borrowings (note 13(d)) compared to those disclosed in the financial statements as at December 31, 2015.

Table of Contents**13. Loans and borrowings****a) Total debt**

| | Current liabilities | | Non-current liabilities | |
|--|----------------------------|--------------------------|--------------------------------|--------------------------|
| | September 30, 2016 | December 31, 2015 | September 30, 2016 | December 31, 2015 |
| Debt contracts in the international markets | | | | |
| Floating rates in: | | | | |
| US\$ | 384 | 241 | 7,075 | 5,174 |
| Fixed rates in: | | | | |
| US\$ | 410 | 1,191 | 13,090 | 12,923 |
| EUR | | | 1,686 | 1,633 |
| Other currencies | 15 | 14 | 215 | 169 |
| Accrued charges | 279 | 326 | | |
| | 1,088 | 1,772 | 22,066 | 19,899 |
| Debt contracts in Brazil | | | | |
| Floating rates in: | | | | |
| R\$, indexed to TJLP, TR, IPCA, IGP-M and CDI | 369 | 212 | 5,661 | 4,709 |
| Basket of currencies and US\$ indexed to LIBOR | 333 | 290 | 1,249 | 1,342 |
| Fixed rates in: | | | | |
| R\$ | 76 | 63 | 264 | 268 |
| Accrued charges | 315 | 169 | 28 | 129 |
| | 1,093 | 734 | 7,202 | 6,448 |
| | 2,181 | 2,506 | 29,268 | 26,347 |

The future flows of debt payments (principal and interest) per nature of funding are as follows:

| | Bank loans (i) | Capital markets (i) | Development agencies (i) | Debt principal (i) | Estimated future payments of interest (ii) |
|-----------------------|-----------------------|----------------------------|---------------------------------|---------------------------|---|
| 2016 | 5 | | 210 | 215 | 1,653 |
| 2017 | 628 | | 1,009 | 1,637 | 1,708 |
| 2018 | 2,052 | 843 | 1,169 | 4,064 | 1,599 |
| 2019 | 992 | 1,000 | 1,341 | 3,333 | 1,381 |
| 2020 | 3,394 | 1,339 | 907 | 5,640 | 1,215 |
| 2021 | 366 | 1,342 | 882 | 2,590 | 1,002 |
| Between 2022 and 2025 | 1,225 | 3,345 | 1,049 | 5,619 | 2,609 |
| 2026 onwards | 88 | 7,489 | 152 | 7,729 | 5,871 |

| | | | | |
|-------|--------|-------|--------|--------|
| 8,750 | 15,358 | 6,719 | 30,827 | 17,038 |
|-------|--------|-------|--------|--------|

(i) Does not include accrued charges.

(ii) Consists of estimated future payments of interest, calculated based on interest rate curves and foreign exchange rates applicable as at September 30, 2016 and considering that all amortization payments and payments at maturity on loans and borrowings will be made on their contracted payments dates. The amount includes the estimated values of future interest payments (not yet accrued), in addition to interest already recognized in the financial statements.

At September 30, 2016, the average annual interest rates by currency are as follows:

| | Average interest rate (i) | Total debt |
|--------------------------------|---------------------------|---------------|
| Loans and borrowings in | | |
| US\$ | 4.55% | 22,781 |
| R\$ (ii) | 11.15% | 6,703 |
| EUR (iii) | 4.06% | 1,734 |
| Other currencies | 3.50% | 231 |
| | | 31,449 |

(i) In order to determine the average interest rate for debt contracts with floating rates, the Company used the last renegotiated rate at September 30, 2016.

(ii) R\$ denominated debt that bears interest at IPCA, CDI, TR or TJLP, plus spread. For a total of US\$4,583, the Company entered into derivative transactions to mitigate the exposure to the cash flow variations of the floating rate debt denominated in R\$, resulting in an average cost of 2.19% per year in US\$.

(iii) Eurobonds, for which the Company entered into derivatives to mitigate the exposure to the cash flow variations of the debt denominated in EUR, resulting in an average cost of 4.29% per year in US\$.

Table of Contents**b) Credit and financing lines**

| Type | Contractual currency | Date of agreement | Period of the agreement | Total amount | Available amount September 30, 2016 |
|-------------------------------|-------------------------|----------------------|----------------------------|--------------|---|
| Credit lines | | | | | |
| Revolving credit facilities | US\$ | May 2015 | 5 years | 3,000 | 1,200 |
| Revolving credit facilities | US\$ | July 2013 | 5 years | 2,000 | 1,800 |
| Financing lines | | | | | |
| BNDES (i) | R\$ | April 2008 | 10 years | 2,249 | 276 |
| BNDES - CLN 150 | R\$ | September 2012 | 10 years | 1,196 | 6 |
| BNDES - S11D e S11D Logística | R\$ | May 2014 | 10 years | 1,899 | 754 |

(i) Memorandum of understanding signature date, however term is considered from the signature date of each contract amendment. This credit line supported or supports the Usina VIII, Onça Puma, Salobo I and II and capital expenditure of Itabira projects.

c) Funding

During 2016, the Company drew down part of its revolving credit facilities of which US\$2,000 is outstanding at September 30, 2016.

In June and August 2016, the Company issued through its wholly owned subsidiary Vale Overseas Limited the guaranteed notes due 2021 and 2026 totaling US\$2,250. These notes bear a coupon of 5.875% and 6.250% per year, respectively, payable semi-annually, and were sold at a price of 100.000% of the principal amount.

d) Guarantees

As at September 30, 2016 and December 31, 2015, loans and borrowings are secured by property, plant and equipment and receivables in the amount of US\$469 and US\$495, respectively.

The securities issued through Vale's 100%-owned finance subsidiary Vale Overseas Limited are fully and unconditionally guaranteed by Vale.

e) Covenants

Some of the Company's debt agreements with lenders contain financial covenants. The main covenants in those agreements require maintaining certain ratios, such as debt to EBITDA (Earnings before Interest Taxes, Depreciation and Amortization) and interest coverage. The Company has not identified any instances of noncompliance as at September 30, 2016 and December 31, 2015.

Table of Contents**14. Litigation****a) Provision for litigation**

Vale is party to labor, civil, tax and other ongoing lawsuits, at administrative and court levels. Provisions for losses resulting from lawsuits are estimated and updated by the Company, based on analysis from the Company's legal consultants. Changes in provision for litigation are as follows:

| | Tax litigation | Civil litigation | Labor litigation | Environmental litigation | Total of litigation provision |
|--------------------------------------|----------------|------------------|------------------|--------------------------|-------------------------------|
| Balance at June 30, 2016 | 231 | 112 | 555 | 26 | 924 |
| Additions | 6 | 26 | 74 | | 106 |
| Reversals | (1) | (29) | (40) | (4) | (74) |
| Payments | (2) | (3) | (23) | | (28) |
| Indexation and interest | (4) | (6) | 15 | (1) | 4 |
| Translation adjustment | (4) | (2) | (6) | (1) | (13) |
| Balance at September 30, 2016 | 226 | 98 | 575 | 20 | 919 |

| | Tax litigation | Civil litigation | Labor litigation | Environmental litigation | Total of litigation provision |
|--------------------------------------|----------------|------------------|------------------|--------------------------|-------------------------------|
| Balance at June 30, 2015 | 322 | 131 | 625 | 69 | 1,147 |
| Additions | 19 | 8 | 59 | | 86 |
| Reversals | (9) | (9) | (72) | | (90) |
| Payments | (16) | (39) | (6) | (10) | (71) |
| Indexation and interest | 17 | 5 | (23) | 8 | 7 |
| Translation adjustment | (60) | (23) | (131) | (7) | (221) |
| Balance at September 30, 2015 | 273 | 73 | 452 | 60 | 858 |

| | Tax litigation | Civil litigation | Labor litigation | Environmental litigation | Total of litigation provision |
|--------------------------------------|----------------|------------------|------------------|--------------------------|-------------------------------|
| Balance at December 31, 2015 | 269 | 79 | 454 | 20 | 822 |
| Additions | 41 | 82 | 184 | 5 | 312 |
| Reversals | (40) | (51) | (87) | (8) | (186) |
| Payments | (93) | (47) | (91) | | (231) |
| Indexation and interest | 27 | 16 | 22 | (1) | 64 |
| Translation adjustment | 22 | 19 | 93 | 4 | 138 |
| Balance at September 30, 2016 | 226 | 98 | 575 | 20 | 919 |

| | Tax litigation | Civil litigation | Labor litigation | Environmental litigation | Total of litigation provision |
|--------------------------------------|----------------|------------------|------------------|--------------------------|-------------------------------|
| Balance at December 31, 2014 | 366 | 118 | 706 | 92 | 1,282 |
| Additions | 177 | 55 | 124 | | 356 |
| Reversals | (182) | (39) | (114) | (1) | (336) |
| Payments | (19) | (38) | (20) | (21) | (98) |
| Indexation and interest | 29 | 18 | (19) | 2 | 30 |
| Translation adjustment | (98) | (41) | (225) | (12) | (376) |
| Balance at September 30, 2015 | 273 | 73 | 452 | 60 | 858 |

b) Contingent liabilities

Contingent liabilities of administrative and judicial claims, with expectation of loss classified as possible, and for which the recognition of a provision is not considered necessary by the Company, based on legal advice are as follows:

| | September 30, 2016 | December 31, 2015 |
|--------------------------|--------------------|-------------------|
| Tax litigation | 7,901 | 5,326 |
| Civil litigation | 1,600 | 1,335 |
| Labor litigation | 2,695 | 1,866 |
| Environmental litigation | 1,846 | 1,381 |
| Total | 14,042 | 9,908 |

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i - Tax litigation - Our most significant tax-related contingent liabilities result from disputes related to (i) the deductibility of our payments of social security contributions on the net income (CSLL) from our taxable income, (ii) challenges of certain tax credits we deducted from our PIS and COFINS payments, (iii) assessments of CFEM (royalties), and (iv) charges of value-added tax on services and circulation of goods (ICMS), especially relating to certain tax credits we claimed from the sale and transmission of energy, ICMS charges in connection with the transfer of iron ore between different Brazilian states, ICMS charges on our own transportation costs and challenges to other tax credits we claimed. The changes reported in the period resulted from interest and inflation adjustments in the amounts in dispute.

ii - Civil litigation - Most of those claims have been filed by suppliers for indemnification under construction contracts, primarily relating to certain alleged damages, payments and contractual penalties. A number of other claims related to contractual disputes regarding inflation index.

iii - Labor litigation - Represents individual claims by employees and service providers, primarily involving demands for additional compensation for overtime work, time spent commuting or health and safety conditions; and the Brazilian federal social security administration (INSS) regarding contributions on compensation programs based on profits.

iv - Environmental litigation - The most significant claims concern alleged procedural deficiencies in licensing processes, non-compliance with existing environmental licenses or damage to the environment.

c) Judicial deposits

In addition to the provisions and contingent liabilities, the Company is required by law to make judicial deposits to secure a potential adverse outcome of certain lawsuits. These court-ordered deposits are monetarily adjusted and reported as non-current assets until a judicial decision to draw the deposit occurs.

| | September 30, 2016 | December 31, 2015 |
|------------------|--------------------|-------------------|
| Tax litigation | 268 | 211 |
| Civil litigation | 69 | 102 |

| | | |
|--------------------------|--------------|------------|
| Labor litigation | 715 | 553 |
| Environmental litigation | 21 | 16 |
| Total | 1,073 | 882 |

d) Others

In the third quarter of 2015, the Company filed an enforceable action in the amount of R\$524 (US\$147) referring to the final court decision in favor of the Company of the accrued interest of compulsory deposits from 1987 to 1993. Currently it is not possible to estimate the economic benefit inflow as the counterparty can appeal on the calculation. Consequently, the asset was not recognized in the financial statements.

For contingencies related to Samarco Mineração S.A., see note 4.

Table of Contents**15. Income taxes****a) Deferred income tax**

Changes in deferred tax are as follows:

| | Assets | Liabilities | Total |
|---|--------------|--------------|--------------|
| Balance at June 30, 2016 | 7,289 | 1,739 | 5,550 |
| Effect in income statement | (263) | 95 | (358) |
| Transfers between asset and liabilities | (148) | (148) | |
| Translation adjustment | (52) | (1) | (51) |
| Other comprehensive income | 23 | (9) | 32 |
| Balance at September 30, 2016 | 6,849 | 1,676 | 5,173 |

| | Assets | Liabilities | Total |
|--------------------------------------|--------------|--------------|--------------|
| Balance at June 30, 2015 | 4,300 | 3,089 | 1,211 |
| Effect in income statement | 4,605 | 2 | 4,603 |
| Translation adjustment | (934) | (206) | (728) |
| Other comprehensive income | 11 | 11 | |
| Balance at September 30, 2015 | 7,982 | 2,896 | 5,086 |

| | Assets | Liabilities | Total |
|---|--------------|--------------|--------------|
| Balance at December 31, 2015 | 7,904 | 1,670 | 6,234 |
| Effect in income statement | (1,835) | 40 | (1,875) |
| Transfers between asset and liabilities | (4) | (4) | |
| Translation adjustment | 891 | 49 | 940 |
| Other comprehensive income | (107) | (79) | (186) |
| Balance at September 30, 2016 | 6,849 | 1,676 | 5,173 |

| | Assets | Liabilities | Total |
|--------------------------------------|--------------|--------------|--------------|
| Balance at December 31, 2014 | 3,976 | 3,341 | 635 |
| Effect in income statement | 5,364 | (51) | 5,415 |
| Translation adjustment | (1,375) | (402) | (1,777) |
| Other comprehensive income | 28 | 8 | 36 |
| Acquisition of subsidiary | (11) | | (11) |
| Balance at September 30, 2015 | 7,982 | 2,896 | 5,086 |

b) Income tax reconciliation

The total amount presented as income taxes in the income statement is reconciled to the rate established by law, as follows:

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|--|---|----------------|--|----------------|
| | 2016 | 2015 | 2016 | 2015 |
| Net income (loss) before income taxes | 997 | (6,739) | 6,173 | (8,955) |
| Income taxes at statutory rates - 34% | (339) | 2,291 | (2,099) | 3,045 |
| Adjustments that affect the basis of taxes: | | | | |
| Income tax benefit from interest on stockholders' equity | | | | 356 |
| Tax incentives | 92 | 12 | 190 | 37 |
| Equity results | 9 | (119) | 129 | (137) |
| Additions (reversals) of tax loss carry forward | 68 | 2,848 | (98) | 2,848 |
| Unrecognized tax losses of the period | (170) | (387) | (519) | (579) |
| Others results in associates and joint ventures | (11) | | (364) | |
| Others | (64) | (142) | 71 | (392) |
| Income taxes | (415) | 4,503 | (2,690) | 5,178 |

c) Income taxes - Settlement program (REFIS)

In 2013, the Company elected to participate in the REFIS, a federal tax settlement program, to settle most of the claims related to the collection of income tax and social contribution on equity gains of foreign subsidiaries and affiliates from 2003 to 2012.

At September 30, 2016, the balance of US\$5,426 (US\$449 as current and US\$4,977 as non-current) is due in 145 remaining monthly installments, bearing interest at the SELIC rate.

Table of Contents**16. Employee postretirement obligations****Reconciliation of assets and liabilities recognized in the balance sheet**

| | Overfunded pension plans | September 30, 2016 Underfunded pension plans | Others benefits | Overfunded pension plans | December 31, 2015 Underfunded pension plans | Others benefits |
|---|-----------------------------|--|--------------------|-----------------------------|---|--------------------|
| Balance at beginning of the period | 961 | | | 1,301 | | |
| Interest income | 115 | | | 130 | | |
| Changes in asset ceiling and onerous liability | 530 | | | (54) | | |
| Translation adjustment | 262 | | | (416) | | |
| Balance at end of the period | 1,868 | | | 961 | | |
| Amount recognized in the balance sheet | | | | | | |
| Present value of actuarial liabilities | (3,069) | (4,300) | (1,382) | (2,474) | (3,689) | (1,223) |
| Fair value of assets | 4,937 | 3,497 | | 3,435 | 3,094 | |
| Effect of the asset ceiling | (1,868) | | | (961) | | |
| Liabilities | | (803) | (1,382) | | (595) | (1,223) |
| Current liabilities | | (20) | (52) | | (17) | (51) |
| Non-current liabilities | | (783) | (1,330) | | (578) | (1,172) |
| Liabilities | | (803) | (1,382) | | (595) | (1,223) |

17. Financial instruments classification

| | September 30, 2016 | | | December 31, 2015 | | | |
|-------------------------------------|---|--|--------------|---|--|---|--------------|
| | Loans and receivables or amortized cost | At fair value through net income | Total | Loans and receivables or amortized cost | At fair value through net income | Derivatives designated as hedge accounting | Total |
| Financial assets | | | | | | | |
| Current | | | | | | | |
| Cash and cash equivalents | 5,369 | | 5,369 | 3,591 | | | 3,591 |
| Financial investments | 115 | | 115 | 28 | | | 28 |
| Derivative financial instruments | | 141 | 141 | | 121 | | 121 |
| Accounts receivable | 2,556 | | 2,556 | 1,476 | | | 1,476 |
| Related parties | 66 | | 66 | 70 | | | 70 |
| | 8,106 | 141 | 8,247 | 5,165 | 121 | | 5,286 |

Non-current

| | | | | | | |
|----------------------------------|--------------|------------|--------------|--------------|------------|--------------|
| Derivative financial instruments | | 504 | 504 | | 93 | 93 |
| Loans | 182 | | 182 | 188 | | 188 |
| Related parties | 19 | | 19 | 1 | | 1 |
| | 201 | 504 | 705 | 189 | 93 | 282 |
| Total of financial assets | 8,307 | 645 | 8,952 | 5,354 | 214 | 5,568 |

Financial liabilities**Current**

| | | | | | | | |
|----------------------------------|--------------|------------|--------------|--------------|--------------|-----------|--------------|
| Suppliers and contractors | 3,751 | | 3,751 | 3,365 | | | 3,365 |
| Derivative financial instruments | | 868 | 868 | | 2,023 | 53 | 2,076 |
| Loans and borrowings | 2,181 | | 2,181 | 2,506 | | | 2,506 |
| Related parties | 558 | | 558 | 475 | | | 475 |
| | 6,490 | 868 | 7,358 | 6,346 | 2,023 | 53 | 8,422 |

Non-current

| | | | | | | | |
|---------------------------------------|---------------|--------------|---------------|---------------|--------------|-----------|---------------|
| Derivative financial instruments | | 1,167 | 1,167 | | 1,429 | | 1,429 |
| Loans and borrowings | 29,268 | | 29,268 | 26,347 | | | 26,347 |
| Related parties | 137 | | 137 | 213 | | | 213 |
| Participative stockholders debentures | | 658 | 658 | | 342 | | 342 |
| Others (i) | | 252 | 252 | | 141 | | 141 |
| | 29,405 | 2,077 | 31,482 | 26,560 | 1,912 | | 28,472 |
| Total of financial liabilities | 35,895 | 2,945 | 38,840 | 32,906 | 3,935 | 53 | 36,894 |

(i) See note 18(a).

Table of Contents**18. Fair value estimate****a) Assets and liabilities measured and recognized at fair value:**

| | September 30, 2016 | | | December 31, 2015 | | |
|--|--------------------|------------|--------------|-------------------|------------|--------------|
| | Level 2 | Level 3 | Total | Level 2 | Level 3 | Total |
| Financial assets | | | | | | |
| Derivative financial instruments | 316 | 329 | 645 | 214 | | 214 |
| Total | 316 | 329 | 645 | 214 | | 214 |
| Financial liabilities | | | | | | |
| Derivative financial instruments | 1,787 | 248 | 2,035 | 3,505 | | 3,505 |
| Participative stockholders' debentures | 658 | | 658 | 342 | | 342 |
| Others (minimum return instrument) | | 252 | 252 | | 141 | 141 |
| Total | 2,445 | 500 | 2,945 | 3,847 | 141 | 3,988 |

There are no changes in the methods and techniques of evaluation of instruments above compared to disclosed in the financial statements as at December 31, 2015.

b) Fair value of financial instruments not measured at fair value

The fair values and carrying amounts of loans (net of interest) are as follows:

| Financial liabilities | Balance | Fair value | Level 1 | Level 2 |
|---------------------------|---------|------------|---------|---------|
| September 30, 2016 | | | | |
| Debt principal | 30,827 | 29,789 | 14,288 | 15,501 |
| December 31, 2015 | | | | |
| Debt principal | 28,229 | 26,233 | 12,297 | 13,936 |

19. Derivative financial instruments

a) Derivatives effects on balance sheet

| | September 30, 2016 | | December 31, 2015 | |
|---|--------------------|-------------|-------------------|-------------|
| | Current | Non-current | Current | Non-current |
| Derivatives not designated as hedge accounting | | | | |
| Foreign exchange and interest rate risk | | | | |
| CDI & TJLP vs. US\$ fixed and floating rate swap | 131 | | 69 | |
| IPCA swap | 7 | 74 | 2 | 16 |
| Pré-dolar swap | 2 | 16 | | |
| | 140 | 90 | 71 | 16 |
| Commodities price risk | | | | |
| Nickel | 1 | 5 | 50 | 11 |
| | 1 | 5 | 50 | 11 |
| Others | | 409 | | 66 |
| | | 409 | | 66 |
| Total | 141 | 504 | 121 | 93 |

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| | September 30, 2016 | | December 31, 2015 | |
|---|--------------------|--------------|-------------------|--------------|
| | Current | Non-current | Current | Non-current |
| Derivatives not designated as hedge accounting | | | | |
| Foreign exchange and interest rate risk | | | | |
| CDI & TJLP vs. US\$ fixed and floating rate swap | 659 | 779 | 799 | 1,131 |
| IPCA swap | 19 | 75 | 21 | 101 |
| Eurobonds swap | 6 | 24 | 146 | 29 |
| Euro Forward | 7 | | | |
| Pre dollar swap | 20 | 36 | 93 | 72 |
| | 711 | 914 | 1,059 | 1,333 |
| Commodities price risk | | | | |
| Nickel | 2 | 4 | 40 | 10 |
| Bunker oil | 155 | | 924 | |
| | 157 | 4 | 964 | 10 |
| Others | | | | |
| | | 249 | | 86 |
| | | 249 | | 86 |
| Derivatives designated as cash flow hedge accounting | | | | |
| Bunker oil | | | 50 | |
| Foreign exchange | | | 3 | |
| | | | 53 | |
| Total | 868 | 1,167 | 2,076 | 1,429 |

b) Effects of derivatives on the income statement, cash flow and other comprehensive income

| | Gain (loss) recognized in the income statement | | Three months period ended September 30 | | Gain(loss) recognized in other comprehensive income | |
|---|--|----------------|---|------------|---|------|
| | 2016 | 2015 | Financial settlement inflows(outflows) 2016 | 2015 | 2016 | 2015 |
| Derivatives not designated as hedge accounting | | | | | | |
| Foreign exchange and interest rate risk | | | | | | |
| CDI & TJLP vs. US\$ fixed and floating rate swap | (57) | (891) | 4 | 2 | | |
| IPCA swap | 1 | (110) | (26) | | | |
| Eurobonds swap | 9 | (14) | | | | |
| Euro forward | 5 | | | | | |
| Pre dollar swap | (7) | (181) | | (3) | | |
| | (49) | (1,196) | (22) | (1) | | |
| Commodities price risk | | | | | | |

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| | | | | | |
|--|-------------|----------------|--------------|--------------|-----------|
| Nickel | (3) | (19) | (3) | (22) | |
| Bunker oil | (7) | (530) | (166) | (30) | |
| | (10) | (549) | (169) | (52) | |
| Others | 20 | (43) | | | |
| Derivatives designated as cash flow | | | | | |
| hedge accounting | | | | | |
| Bunker oil | | (121) | | (104) | 22 |
| Foreign exchange | | (11) | | (10) | 5 |
| | | (132) | | (114) | 27 |
| Total | (39) | (1,920) | (191) | (167) | 27 |

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| | Gain (loss) recognized in the income statement | | Nine months period ended September 30 Financial settlement inflows(outflows) | | Gain(loss) recognized in other comprehensive income | |
|---|---|----------------|--|--------------|--|------------|
| | 2016 | 2015 | 2016 | 2015 | 2016 | 2015 |
| Derivatives not designated as hedge accounting | | | | | | |
| Foreign exchange and interest rate risk | | | | | | |
| CDI & TJLP vs. US\$ fixed and floating rate swap | 781 | (1,662) | (88) | (334) | | |
| IPCA swap | 74 | (159) | (25) | 7 | | |
| Eurobonds swap | 3 | (137) | (142) | (13) | | |
| Euro forward | (7) | | | | | |
| Pre dollar swap | 69 | (257) | (74) | (7) | | |
| | 920 | (2,215) | (329) | (347) | | |
| Commodities price risk | | | | | | |
| Nickel | (40) | (38) | (29) | (48) | | |
| Bunker oil | 127 | (500) | (642) | (175) | | |
| | 87 | (538) | (671) | (223) | | |
| Others | | | | | | |
| | 156 | (114) | | | | |
| Derivatives designated as cash flow hedge accounting | | | | | | |
| Bunker oil | | (305) | (51) | (322) | | 310 |
| Foreign exchange | (3) | (35) | (3) | (35) | 2 | 12 |
| | (3) | (340) | (54) | (357) | 2 | 322 |
| Total | 1,160 | (3,207) | (1,054) | (927) | 2 | 322 |

During 2015, the Company implemented bunker oil purchase cash flows protection program and recognized as cost of goods sold and services rendered and financial expense the amounts of US\$118 and US\$1,799 for the three months period ended on September 30, 2015, respectively, and the amounts of US\$299 and US\$2,902 for the nine months period ended on September 30, 2015, respectively. In 2016, all derivatives impacts were charged to financial results.

The maturity dates of the derivative financial instruments are as follows:

| | Last maturity dates |
|-------------------------------|---------------------|
| Currencies and interest rates | July 2023 |
| Bunker oil | December 2016 |
| Nickel | September 2018 |
| Others | December 2027 |

Additional information about derivatives financial instruments

The risk of the derivatives portfolio is measured using the delta-Normal parametric approach, and considers that the future distribution of the risk factors and its correlations tends to present the same statistic properties verified in the historical data. The value at risk estimate considers a 95% confidence level for a one-business day time horizon.

There was no cash amount deposited as margin call regarding derivative positions on September 30, 2016. The derivative positions described in this document did not have initial costs associated.

The following tables detail the derivatives positions for Vale and its controlled companies as of September 30, 2016, with the following information: notional amount, fair value including credit risk, gains or losses in the period, value at risk and the fair value breakdown by year of maturity.

a) Foreign exchange and interest rates derivative positions

(i) Protection programs for the R\$ denominated debt instruments

In order to reduce cash flow volatility, swap transactions were implemented to convert into US\$ the cash flows from certain debt instruments denominated in R\$ with interest rates linked mainly to CDI, TJLP and IPCA. In those swaps, Vale pays fixed or floating rates in US\$ and receives payments in R\$ linked to the interest rates of the protected debt instruments.

The swap transactions were negotiated over-the-counter and the protected items are the cash flows from debt instruments linked to R\$. These programs transform into US\$ the obligations linked to R\$ to achieve a currency offset in the Company's cash flows, by matching its receivables - mainly linked to US\$ - with its payables.

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| Valor principal | | | | | Valor justo | | Liquidação financeira | | Valor em Risco | | Valor |
|------------------|------------------------|------------------------|------------|------------------------|------------------------|------------------------|------------------------|------------------------|----------------|-------|-------|
| Fluxo | 30 de Setembro de 2016 | 31 de Dezembro de 2015 | Taxa Média | 30 de Setembro de 2016 | 31 de Dezembro de 2015 | 30 de Setembro de 2016 | 30 de Setembro de 2016 | 30 de Setembro de 2016 | 2016 | 2015 | 2016 |
| Swap | | | | | | | | | | | |
| CDI vs. | | | | | | | | | | | |
| Taxa | | | | | | | | | | | |
| Fixa em | | | | | | | | | | | |
| US\$ | | | | | | | | | | | |
| | | | | | (580) | (783) | 105 | | 51 | (420) | |
| Ativo | R\$ 6,289 | R\$ 5,239 | CDI | 106.78% | | | | | | | |
| Passivo | US\$ 2,563 | US\$ 2,288 | Pré | 3.46% | | | | | | | |
| Swap | | | | | | | | | | | |
| TJLP vs. | | | | | | | | | | | |
| Taxa | | | | | | | | | | | |
| Fixa em | | | | | | | | | | | |
| US\$ | | | | | | | | | | | |
| | | | TJLP | | (671) | (1,015) | (189) | | 69 | (14) | (2) |
| Ativo | R\$ 4,559 | R\$ 5,484 | + | 1.33% | | | | | | | |
| Passivo | US\$ 2,126 | US\$ 2,611 | Pré | 1.72% | | | | | | | |
| Swap | | | | | | | | | | | |
| TJLP vs. | | | | | | | | | | | |
| Taxa | | | | | | | | | | | |
| flutuante | | | | | | | | | | | |
| em US\$ | | | | | | | | | | | |
| | | | TJLP | | (56) | (63) | (2) | | 5 | (1) | |
| Ativo | R\$ 253 | R\$ 267 | + | 0.92% | | | | | | | |
| Passivo | US\$ 147 | US\$ 156 | Libor | | | | | | | | |
| | | | + | -1.21% | | | | | | | |
| Swap | | | | | | | | | | | |
| Taxa | | | | | | | | | | | |
| Fixa em | | | | | | | | | | | |
| R\$ vs. | | | | | | | | | | | |
| Taxa | | | | | | | | | | | |
| Fixa em | | | | | | | | | | | |
| US\$ | | | | | | | | | | | |
| | | | | | (38) | (165) | (76) | | 23 | (15) | |
| Ativo | R\$ 1,107 | R\$ 1,356 | Pré | 7.43% | | | | | | | |
| Passivo | US\$ 383 | US\$ 528 | Pré | -0.79% | | | | | | | |
| Swap | | | | | | | | | | | |
| IPCA vs. | | | | | | | | | | | |
| Taxa | | | | | | | | | | | |
| Fixa em | | | | | | | | | | | |
| US\$ | | | | | | | | | | | |
| | | | IPCA | | (59) | (105) | 1 | | 12 | | |
| Ativo | R\$ 1,000 | R\$ 1,000 | + | 6.55% | | | | | | | |
| Passivo | US\$ 434 | US\$ 434 | Pré | 0 | | | | | | | |
| Swap | | | | | | | | | | | |
| IPCA vs. | | | | | | | | | | | |
| CDI | | | | | | | | | | | |
| | | | IPCA | | 46 | 2 | (26) | | 0.4 | | |
| Ativo | R\$ 1,350 | R\$ 1,350 | + | 6.62% | | | | | | | |

| | | | | | | |
|---------|-----|-------|------|-------|-----|--------|
| Passivo | R\$ | 1,350 | US\$ | 1,350 | CDI | 98.58% |
|---------|-----|-------|------|-------|-----|--------|

(ii) Protection program for EUR denominated debt instruments

In order to reduce the cash flow volatility, swap and forward transactions were implemented to convert into US\$ the cash flows from certain debt instruments issued in Euros by Vale. In those swaps, Vale receives fixed rates in EUR and pays fixed rates in US\$. And in those forwards only the principal amount of the debt is converted from EUR to US\$.

The swap and forward transactions were negotiated over-the-counter and the protected items are the cash flows from debt instruments linked to EUR. The financial settlement inflows/outflows are offset by the protected items' losses/gains due to EUR/US\$ exchange rate.

| Flow | Valor principal | | | | Valor justo | | Liquidação financeira | Valor em Risco | Valor justo | |
|---------|------------------------|------------------------|------------------------|------------|------------------------|------------------------|-----------------------|------------------------|-------------|------|
| | 30 de Setembro de 2016 | 30 de Setembro de 2016 | 31 de Dezembro de 2015 | Taxa Média | 30 de Setembro de 2016 | 31 de Dezembro de 2015 | Entradas (Saídas) | 30 de Setembro de 2016 | 2016 | 2017 |
| Swap | | | | | | | | | | |
| Taxa | | | | | | | | | | |
| Fixa | | | | | | | | | | |
| em | | | | | | | | | | |
| EUR | | | | | | | | | | |
| vs. | | | | | | | | | | |
| Taxa | | | | | | | | | | |
| Fixa | | | | | | | | | | |
| em | | | | | | | | | | |
| US\$ | | | | | (30) | (175) | (141) | 12 | (5) | |
| Ativo | 500 | 1,000 | Pré | 3.75% | | | | | | |
| Passivo | US\$ 613 | US\$ 1,302 | Pré | 4.29% | | | | | | |

| Flow | Valor principal | | | | Valor justo | | Liquidação financeira | Valor em Risco | Valor justo | |
|-------|------------------------|------------------------|------------------------|----------------|------------------------|------------------------|-----------------------|------------------------|-------------|------|
| | 30 de Setembro de 2016 | 30 de Setembro de 2016 | 31 de Dezembro de 2015 | Compra / Venda | 30 de Setembro de 2016 | 31 de Dezembro de 2015 | Entradas (Saídas) | 30 de Setembro de 2016 | 2016 | 2017 |
| Termo | 500 | | | C | 1.143 | (7) | | | | 6.1 |

(iii) Foreign exchange hedging program for disbursements in CAD

In order to reduce the cash flow volatility, forward transactions were implemented to mitigate the foreign exchange exposure that arises from the currency mismatch between revenues denominated in US\$ and disbursements denominated in CAD.

The forward transactions were negotiated over-the-counter and the protected item is part of the CAD denominated disbursements. The financial settlement inflows/outflows are offset by the protected items' losses/gains due to CAD/US\$ exchange rate. This program is classified under the hedge accounting requirements, and it was settled in the first quarter.

| Flow | Notional | | Bought / Average rate | | Fair value | | Financial Settlement | Value at Risk | Fair value |
|------|--------------------|-------------------|-----------------------|-------------|--------------------|-------------------|----------------------|--------------------|------------|
| | September 30, 2016 | December 31, 2015 | USD / CAD | (CAD / USD) | September 30, 2016 | December 31, 2015 | Inflows (Outflows) | September 30, 2016 | by year |
| | | | | | | | September 30, 2016 | | 2016 |

| | | | | |
|----------|--------|---|-------|-----|
| Forwards | CAD 10 | B | 1.028 | (2) |
|----------|--------|---|-------|-----|

Table of Contents**b) Commodities derivative positions****(i) Bunker Oil purchase cash flows protection program**

In order to partially reduce the impact of bunker oil price fluctuation on maritime freight hiring/supply and, consequently, reducing the company's cash flow volatility, bunker oil derivatives were implemented. These transactions are usually executed through forward purchases and zero cost-collars.

The derivative transactions were negotiated over-the-counter and the protected item is part of the Vale's costs linked to bunker oil prices. The financial settlement inflows/outflows are offset by the protected items' losses/gains due to bunker oil prices changes.

| Flow | Notional (ton) | | Bought / Sold | Average strike (US\$/ton) | Fair value | | Financial settlement | Value at Risk | F |
|-----------------------|--------------------|-------------------|------------------|------------------------------|--------------------|-------------------|--|---------------|------|
| | September 30, 2016 | December 31, 2015 | | | September 30, 2016 | December 31, 2015 | Inflows (Outflows) September 30, 2016 | | |
| Bunker Oil protection | | | | | | | | | |
| Forwards | 352,500 | 1,867,500 | B | 511 | (88) | (577) | (457) | | 4 |
| Call options | 540,000 | 2,041,500 | B | 380 | 0.18 | 0.02 | | | 0.12 |
| Put options | 540,000 | 2,041,500 | S | 300 | (27) | (297) | (173) | | 5 |
| Total | | | | | (115) | (873) | | | |

As at September 30, 2016 and December 31, 2015, excludes US\$40 e US\$101, respectively, of transactions in which the financial settlement occurs subsequently of the closing month.

(ii) Protection programs for base metals raw materials and products

In the operational protection program for nickel sales at fixed prices, derivatives transactions were implemented to convert into floating prices the contracts with clients that required a fixed price, in order to keep nickel revenues exposed to nickel price fluctuations. Those operations are usually implemented through the purchase of nickel forwards.

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In the operational protection program for the purchase of raw materials and products, derivatives transactions were implemented, usually through the sale of nickel and copper forward or futures, in order to reduce the mismatch between the pricing period of purchases (concentrate, cathode, sinter, scrap and others) and the pricing period of the final product sales to the clients.

The derivative transactions are negotiated at London Metal Exchange or over-the-counter and the protected item is part of Vale's revenues and costs linked to nickel and copper prices. The financial settlement inflows/outflows are offset by the protected items' losses/gains due to nickel and copper prices changes.

| | Notional (ton) | | Bought / Sold | Average strike (US\$/ton) | Fair value | | Financial settlement | Value at Risk | Fa |
|----------------------------------|--------------------|-------------------|------------------|------------------------------|--------------------|-------------------|--|--------------------|-------------|
| Flow | September 30, 2016 | December 31, 2015 | | | September 30, 2016 | December 31, 2015 | Inflows (Outflows) September 30, 2016 | September 30, 2016 | 2015 |
| Fixed price sales protection | | | | | | | | | |
| Nickel forwards | 12,923 | 16,917 | B | 10,272 | 4 | (46) | (30) | | 4 |
| Raw material purchase protection | | | | | | | | | |
| Nickel forwards | 153 | 118 | S | 9,890 | (0.11) | 0.10 | (0.10) | | 0.05 (0.05) |
| Copper forwards | 1,262 | 385 | S | 4,873 | (0.00) | 0.09 | 0.09 | | 0.05 (0.05) |
| Total | | | | | (0.11) | 0.19 | | | (0.05) |

c) Silver Wheaton Corp. warrants

The company owns warrants of Silver Wheaton Corp. (SLW), a Canadian company with stocks negotiated in Toronto Stock Exchange and New York Stock Exchange. Such warrants configure American call options and were received as part of the payment regarding the sale of part of gold payable flows produced as a sub product from Salobo copper mine and some nickel mines in Sudbury.

| Flow | Notional (quantity) | | Bought / Sold | Average strike (US\$/share) | Fair value | | Financial settlement | Value at Risk | Fair value |
|--------------|---------------------|-------------------|------------------|--------------------------------|--------------------|-------------------|--|--------------------|--------------------|
| | September 30, 2016 | December 31, 2015 | | | September 30, 2016 | December 31, 2015 | Inflows (Outflows) September 30, 2016 | September 30, 2016 | September 30, 2015 |
| Call options | 10,000,000 | 10,000,000 | B | 44 | 80 | 7 | | 8 | |

Table of Contents**d) Call options from debentures**

The company has debentures in which lenders have call options of a specified quantity of Ferrovia Norte Sul S.A. ordinary shares, later changed to VLI S.A. shares. The call option's strike price is given by the debentures' remaining notional in each exercise date.

| Flow | Notional (quantity) | | Bought / Sold | Average strike (R\$/share) | Fair value | | Financial settlement | Value at Risk | Fair value |
|--------------|---------------------|-------------------|------------------|-------------------------------|--------------------|-------------------|--|---------------|------------|
| | September 30, 2016 | December 31, 2015 | | | September 30, 2016 | December 31, 2015 | Inflows (Outflows) September 30, 2016 | | |
| Call options | 140,239 | 140,239 | S | 8,570 | (37) | (39) | | 2 | |

e) Options related to Minerações Brasileiras Reunidas S.A. (MBR) shares

The Company entered into a contract that has options related to MBR shares. Under certain restrict and contingent conditions, which are beyond the buyer's control, such as illegality due to changes in the law, the contract has a clause that gives the buyer the right to sell back its stake to the Company. In this case, the Company could settle through cash or shares. On the other hand, the Company has the right to buy back this non-controlling interest in the subsidiary.

| Flow | Notional (quantity, in millions) | | Bought / Sold | Average strike (R\$/share) | Fair value | | Financial settlement | Value at Risk | Fair value |
|---------|----------------------------------|-------------------|------------------|-------------------------------|--------------------|-------------------|--|---------------|------------|
| | September 30, 2016 | December 31, 2015 | | | September 30, 2016 | December 31, 2015 | Inflows (Outflows) September 30, 2016 | | |
| Options | 2,139 | 2,139 | B/S | 1.9 | 119 | 15 | | 10 | |

f) Embedded derivatives in commercial contracts

The Company has some nickel concentrate and raw materials purchase agreements in which there are provisions based on nickel and copper future prices behavior. These provisions are considered as embedded derivatives.

| Notional (ton) | Bought / | Average strike | Fair value | Financial settlement | Value at Risk | Fair value |
|----------------|----------|----------------|------------|----------------------|---------------|------------|
| | | | | Inflows (Outflows) | | by y |

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| Flow | September 30, 2016 | December 31, 2015 | Sold | (US\$/ton) | September 30, 2016 | December 31, 2015 | September 30, 2016 | September 30, 2016 | 2 |
|-----------------|--------------------|-------------------|------|------------|--------------------|-------------------|--------------------|--------------------|---|
| Nickel forwards | 5,538 | 3,877 | S | 10,236 | 0.3 | 3.0 | | | |
| Copper forwards | 4,527 | 5,939 | S | 4,768 | 0.3 | 2.0 | | | |
| Total | | | | | 0.5 | 5.0 | | 2.3 | |

The Company has also a natural gas purchase agreement in which there's a clause that defines that a premium can be charged if the Company's pellet sales prices trade above a pre-defined level. This clause is considered an embedded derivative.

| Flow | Notional (volume/month) | | Bought / Sold | Average strike (US\$/ton) | Fair value | | Financial settlement | Value at Risk | Fair value |
|--------------|-------------------------|-------------------|---------------|---------------------------|--------------------|-------------------|---------------------------------------|---------------|------------|
| | September 30, 2016 | December 31, 2015 | | | September 30, 2016 | December 31, 2015 | Inflows (Outflows) September 30, 2016 | | |
| Call options | 746,667 | 746,667 | S | 179 | (1.7) | | | 1.1 | (0.0) |

g) Sensitivity analysis of derivative financial instruments

The following tables present the potential value of the instruments given hypothetical stress scenarios for the main market risk factors that impact the derivatives positions. The scenarios were defined as follows:

- *Scenario I:* fair value calculation considering market prices as of September 30, 2016
- *Scenario II:* fair value estimated considering a 25% deterioration in the associated risk variables
- *Scenario III:* fair value estimated considering a 50% deterioration in the associated risk variables

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| Instrument | Instrument's main risk events | Scenario I | Scenario II | Scenario III |
|---|---|------------|-------------|--------------|
| CDI vs. US\$ fixed rate swap | R\$ depreciation | (581) | (1,235) | (1,889) |
| | US\$ interest rate inside Brazil decrease | (581) | (588) | (596) |
| | Brazilian interest rate increase | (581) | (582) | (584) |
| Protected item: R\$ denominated debt | R\$ depreciation | n.a. | | |
| TJLP vs. US\$ fixed rate swap | R\$ depreciation | (671) | (1,193) | (1,715) |
| | US\$ interest rate inside Brazil decrease | (671) | (696) | (721) |
| | Brazilian interest rate increase | (671) | (732) | (788) |
| | TJLP interest rate decrease | (671) | (714) | (758) |
| Protected item: R\$ denominated debt | R\$ depreciation | n.a. | | |
| TJLP vs. US\$ floating rate swap | R\$ depreciation | (56) | (90) | (124) |
| | US\$ interest rate inside Brazil decrease | (56) | (58) | (61) |
| | Brazilian interest rate increase | (56) | (60) | (64) |
| | TJLP interest rate decrease | (56) | (59) | (62) |
| Protected item: R\$ denominated debt | R\$ depreciation | n.a. | | |
| R\$ fixed rate vs. US\$ fixed rate swap | R\$ depreciation | (38) | (138) | (238) |
| | US\$ interest rate inside Brazil decrease | (38) | (49) | (61) |
| | Brazilian interest rate increase | (38) | (67) | (93) |
| Protected item: R\$ denominated debt | R\$ depreciation | n.a. | | |
| IPCA vs. US\$ fixed rate swap | R\$ depreciation | (59) | (176) | (294) |
| | US\$ interest rate inside Brazil decrease | (59) | (65) | (73) |
| | Brazilian interest rate increase | (59) | (88) | (114) |
| | IPCA index decrease | (59) | (73) | (88) |
| Protected item: R\$ denominated debt | R\$ depreciation | n.a. | | |
| IPCA vs. CDI swap | Brazilian interest rate increase | 46 | (1) | (42) |
| | IPCA index decrease | 46 | 22 | (1) |
| Protected item: R\$ denominated debt linked to IPCA | IPCA index decrease | n.a. | (22) | 1 |
| EUR fixed rate vs. US\$ fixed rate swap | EUR depreciation | (30) | (207) | (385) |
| | Euribor increase | (30) | (33) | (36) |
| | US\$ Libor decrease | (30) | (43) | (56) |
| Protected item: EUR denominated debt | EUR depreciation | n.a. | 207 | 385 |
| EUR Forward | EUR depreciation | (8) | (148) | (288) |
| | Euribor increase | (8) | (8) | (8) |
| | US\$ Libor decrease | (8) | (8) | (9) |
| Protected item: EUR denominated debt | EUR depreciation | n.a. | 148 | 288 |

| Instrument | Instrument's main risk events | Scenario I | Scenario II | Scenario III |
|------------|-------------------------------|------------|-------------|--------------|
|------------|-------------------------------|------------|-------------|--------------|

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| | | | | |
|---|---------------------------------|-------|-------|-------|
| Bunker Oil protection | | | | |
| Forwards and options | Bunker Oil price decrease | (115) | (169) | (227) |
| Protected item: Part of costs linked to bunker oil prices | Bunker Oil price decrease | n.a. | 169 | 227 |
| Nickel sales fixed price protection | | | | |
| Forwards | Nickel price decrease | 4 | (30) | (64) |
| Protected item: Part of nickel revenues with fixed prices | Nickel price fluctuation | n.a. | 30 | 64 |
| Purchase protection program | | | | |
| Nickel forwards | Nickel price increase | (0.1) | (0.5) | (0.9) |
| Protected item: Part of costs linked to nickel prices | Nickel price increase | n.a. | 0.5 | 0.9 |
| Copper forwards | Copper price increase | (0.0) | (0.6) | (1.2) |
| Protected item: Part of costs linked to copper prices | Copper price increase | n.a. | 0.6 | 1.2 |
| SLW warrants | SLW stock price decrease | 80 | 44 | 15 |
| VLI call options | VLI stock value increase | (37) | (56) | (79) |
| Options regarding non-controlling interest in subsidiary | Subsidiary stock value decrease | 119 | 20 | (49) |

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| Instrument | Main risks | Scenario I | Scenario II | Scenario III |
|---|-----------------------|------------|-------------|--------------|
| Embedded derivatives - Raw material purchase (nickel) | Nickel price increase | 0.3 | (13.8) | (27.9) |
| Embedded derivatives - Raw material purchase (copper) | Copper price increase | 0.3 | (5.1) | (10.4) |
| Embedded derivatives - Gas purchase | Pellet price increase | (0.5) | (2.3) | (4.9) |

h) Financial counterparties ratings

The transactions of derivative instruments, cash and cash equivalents as well as investments are held with financial institutions whose exposure limits are periodically reviewed and approved by the delegated authority. The financial institutions credit risk is performed through a methodology that considers, among other information, ratings provided by international rating agencies.

The table below presents the ratings in foreign currency published by agencies Moody's and S&P regarding the main financial institutions that we had outstanding positions as of September 30, 2016.

| Long term ratings by counterparty | Moody's | S&P |
|---------------------------------------|---------|------|
| ANZ Australia and New Zealand Banking | Aa2 | AA- |
| Banco Bradesco | Ba3 | BB |
| Banco de Credito del Peru | Baa1 | BBB |
| Banco do Brasil | Ba3 | BB |
| Banco do Nordeste | Ba3 | BB |
| Banco Safra | Ba3 | BB |
| Banco Santander | Ba3 | BB |
| Banco Votorantim | Ba3 | BB |
| Bank of America | Baa1 | BBB+ |
| Bank of Nova Scotia | Aa3 | A+ |
| Bank of Tokyo Mitsubishi UFJ | A1 | A |
| Banpara | Ba3 | BB- |
| Barclays | Baa3 | BBB |
| BBVA | A3 | BBB+ |
| BNP Paribas | A1 | A |
| BTG Pactual | Ba3 | BB- |
| Caixa Economica Federal | Ba3 | BB |
| Citigroup | Baa1 | BBB+ |
| Credit Agricole | A1 | A |
| Deutsche Bank | A3 | BBB+ |
| Goldman Sachs | A3 | BBB+ |
| HSBC | A1 | A |

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| | | |
|-----------------------------|------|------|
| Intesa Sanpaolo Spa | A3 | BBB- |
| Itau Unibanco | Ba3 | BB |
| JP Morgan Chase & Co | A3 | A- |
| Macquarie Group Ltd | A3 | BBB |
| Morgan Stanley | A3 | BBB+ |
| National Australia Bank NAB | Aa2 | AA- |
| Royal Bank of Canada | Aa3 | AA- |
| Societe Generale | A2 | A |
| Standard Bank Group | Baa3 | |
| Standard Chartered | A1 | BBB+ |

i) **Market curves**

The curves used on the pricing of derivatives instruments were developed based on data from BM&F, Central Bank of Brazil, London Metals Exchange and Bloomberg.

(i) **Products**

Nickel

| Maturity | Price (US\$/ton) | Maturity | Price (US\$/ton) | Maturity | Price (US\$/ton) |
|----------|------------------|----------|------------------|----------|------------------|
| SPOT | 10,460 | MAR17 | 10,617 | SEP17 | 10,683 |
| OCT16 | 10,544 | APR17 | 10,627 | SEP18 | 10,798 |
| NOV16 | 10,560 | MAY17 | 10,640 | SEP19 | 10,882 |
| DEC16 | 10,578 | JUN17 | 10,650 | SEP20 | 10,964 |
| JAN17 | 10,593 | JUL17 | 10,662 | | |
| FEB17 | 10,605 | AUG17 | 10,673 | | |

Copper

| Maturity | Price (US\$/lb) | Maturity | Price (US\$/lb) | Maturity | Price (US\$/lb) |
|----------|-----------------|----------|-----------------|----------|-----------------|
| SPOT | 2.21 | MAR17 | 2.21 | SEP17 | 2.22 |
| OCT16 | 2.20 | APR17 | 2.22 | SEP18 | 2.23 |
| NOV16 | 2.21 | MAY17 | 2.22 | SEP19 | 2.25 |
| DEC16 | 2.21 | JUN17 | 2.22 | SEP20 | 2.26 |
| JAN17 | 2.21 | JUL17 | 2.22 | | |
| FEB17 | 2.21 | AUG17 | 2.22 | | |

Bunker Oil

| Maturity | Price (US\$/ton) | Maturity | Price (US\$/ton) | Maturity | Price (US\$/ton) |
|----------|------------------|----------|------------------|----------|------------------|
| SPOT | 256 | MAR17 | 262 | SEP17 | 267 |
| OCT16 | 259 | APR17 | 263 | SEP18 | 280 |

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| | | | | | |
|-------|-----|-------|-----|-------|-----|
| NOV16 | 262 | MAY17 | 264 | SEP19 | 293 |
| DEC16 | 262 | JUN17 | 264 | SEP20 | 308 |
| JAN17 | 262 | JUL17 | 265 | | |
| FEB17 | 261 | AUG17 | 266 | | |

Table of Contents**(ii) Foreign exchange and interest rates****US\$-Brazil Interest Rate**

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|-----------------|----------------------|-----------------|----------------------|-----------------|----------------------|
| 11/01/16 | 1.61 | 09/01/17 | 2.00 | 01/02/20 | 2.86 |
| 12/01/16 | 1.74 | 10/02/17 | 2.05 | 04/01/20 | 2.98 |
| 01/02/17 | 1.78 | 01/02/18 | 2.17 | 07/01/20 | 3.07 |
| 02/01/17 | 1.81 | 04/02/18 | 2.25 | 10/01/20 | 3.18 |
| 03/01/17 | 1.82 | 07/02/18 | 2.36 | 01/04/21 | 3.28 |
| 04/03/17 | 1.83 | 10/01/18 | 2.42 | 04/01/21 | 3.34 |
| 05/02/17 | 1.86 | 01/02/19 | 2.54 | 07/01/21 | 3.43 |
| 06/01/17 | 1.92 | 04/01/19 | 2.62 | 10/01/21 | 3.52 |
| 07/03/17 | 1.93 | 07/01/19 | 2.68 | 01/03/22 | 3.57 |
| 08/01/17 | 1.99 | 10/01/19 | 2.72 | 01/02/23 | 3.87 |

US\$ Interest Rate

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|-----------------|----------------------|-----------------|----------------------|-----------------|----------------------|
| 1M | 0.53 | 6M | 0.91 | 11M | 0.94 |
| 2M | 0.65 | 7M | 0.92 | 12M | 0.94 |
| 3M | 0.85 | 8M | 0.93 | 2Y | 1.02 |
| 4M | 0.88 | 9M | 0.93 | 3Y | 1.08 |
| 5M | 0.90 | 10M | 0.94 | 4Y | 1.15 |

TJLP

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|-----------------|----------------------|-----------------|----------------------|-----------------|----------------------|
| 11/01/16 | 7.50 | 09/01/17 | 7.50 | 01/02/20 | 7.50 |
| 12/01/16 | 7.50 | 10/02/17 | 7.50 | 04/01/20 | 7.50 |
| 01/02/17 | 7.50 | 01/02/18 | 7.50 | 07/01/20 | 7.50 |
| 02/01/17 | 7.50 | 04/02/18 | 7.50 | 10/01/20 | 7.50 |
| 03/01/17 | 7.50 | 07/02/18 | 7.50 | 01/04/21 | 7.50 |
| 04/03/17 | 7.50 | 10/01/18 | 7.50 | 04/01/21 | 7.50 |
| 05/02/17 | 7.50 | 01/02/19 | 7.50 | 07/01/21 | 7.50 |
| 06/01/17 | 7.50 | 04/01/19 | 7.50 | 10/01/21 | 7.50 |

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| | | | | | |
|----------|------|----------|------|----------|------|
| 07/03/17 | 7.50 | 07/01/19 | 7.50 | 01/03/22 | 7.50 |
| 08/01/17 | 7.50 | 10/01/19 | 7.50 | 01/02/23 | 7.50 |

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BRL Interest Rate

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 11/01/16 | 14.03 | 09/01/17 | 12.58 | 01/02/20 | 11.58 |
| 12/01/16 | 13.93 | 10/02/17 | 12.48 | 04/01/20 | 11.60 |
| 01/02/17 | 13.77 | 01/02/18 | 12.19 | 07/01/20 | 11.61 |
| 02/01/17 | 13.60 | 04/02/18 | 12.01 | 10/01/20 | 11.59 |
| 03/01/17 | 13.48 | 07/02/18 | 11.85 | 01/04/21 | 11.58 |
| 04/03/17 | 13.32 | 10/01/18 | 11.73 | 04/01/21 | 11.59 |
| 05/02/17 | 13.16 | 01/02/19 | 11.63 | 07/01/21 | 11.59 |
| 06/01/17 | 13.00 | 04/01/19 | 11.59 | 10/01/21 | 11.60 |
| 07/03/17 | 12.88 | 07/01/19 | 11.57 | 01/03/22 | 11.60 |
| 08/01/17 | 12.72 | 10/01/19 | 11.58 | 01/02/23 | 11.68 |

Implicit Inflation (IPCA)

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 11/01/16 | 7.40 | 09/01/17 | 6.04 | 01/02/20 | 5.27 |
| 12/01/16 | 7.32 | 10/02/17 | 5.95 | 04/01/20 | 5.29 |
| 01/02/17 | 7.16 | 01/02/18 | 5.75 | 07/01/20 | 5.30 |
| 02/01/17 | 7.00 | 04/02/18 | 5.63 | 10/01/20 | 5.29 |
| 03/01/17 | 6.89 | 07/02/18 | 5.50 | 01/04/21 | 5.28 |
| 04/03/17 | 6.74 | 10/01/18 | 5.41 | 04/01/21 | 5.29 |
| 05/02/17 | 6.59 | 01/02/19 | 5.32 | 07/01/21 | 5.30 |
| 06/01/17 | 6.43 | 04/01/19 | 5.28 | 10/01/21 | 5.31 |
| 07/03/17 | 6.32 | 07/01/19 | 5.26 | 01/03/22 | 5.32 |
| 08/01/17 | 6.17 | 10/01/19 | 5.27 | 01/02/23 | 5.43 |

EUR Interest Rate

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 1M | -0.38 | 6M | -0.11 | 11M | -0.01 |
| 2M | -0.35 | 7M | -0.08 | 12M | 0.00 |
| 3M | -0.32 | 8M | -0.05 | 2Y | -0.22 |
| 4M | -0.21 | 9M | -0.04 | 3Y | -0.21 |
| 5M | -0.15 | 10M | -0.02 | 4Y | -0.19 |

CAD Interest Rate

| Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) | Maturity | Rate (% p.a.) |
|----------|---------------|----------|---------------|----------|---------------|
| 1M | 0.88 | 6M | 1.01 | 11M | 0.10 |
| 2M | 0.89 | 7M | 0.74 | 12M | 0.01 |
| 3M | 0.90 | 8M | 0.51 | 2Y | 0.88 |
| 4M | 0.96 | 9M | 0.34 | 3Y | 0.91 |
| 5M | 1.00 | 10M | 0.21 | 4Y | 0.95 |

Currencies - Ending rates

| | | | | | |
|----------|--------|----------|--------|----------|--------|
| CAD/US\$ | 0.7623 | US\$/BRL | 3.2462 | EUR/US\$ | 1.1222 |
|----------|--------|----------|--------|----------|--------|

Table of Contents**20. Stockholders equity****a) Share capital**

At September 30, 2016 and December 31, 2015, the share capital was US\$61,614 corresponding to 5,244,316,120 shares issued and fully paid without par value.

| | ON | September 30, 2016 PNA | Total |
|--|----------------------|---------------------------|-----------------------|
| Stockholders | | | |
| Valepar S.A. | 1,716,435,045 | 20,340,000 | 1,736,775,045 |
| Brazilian Government (Golden Share) | | 12 | 12 |
| Foreign investors - ADRs | 792,920,634 | 640,657,142 | 1,433,577,776 |
| FMP - FGTS | 75,083,246 | | 75,083,246 |
| PIBB - BNDES | 742,578 | 993,751 | 1,736,329 |
| BNDESPar | 206,378,882 | 66,185,272 | 272,564,154 |
| Foreign institutional investors in local market | 273,953,175 | 746,942,370 | 1,020,895,545 |
| Institutional investors | 76,600,716 | 128,382,435 | 204,983,151 |
| Retail investors in Brazil | 43,538,724 | 364,220,944 | 407,759,668 |
| Shares outstanding | 3,185,653,000 | 1,967,721,926 | 5,153,374,926 |
| Shares in treasury | 31,535,402 | 59,405,792 | 90,941,194 |
| Total issued shares | 3,217,188,402 | 2,027,127,718 | 5,244,316,120 |
| Amounts per class of shares (in millions) | 38,525 | 23,089 | 61,614 |
| Total authorized shares | 3,600,000,000 | 7,200,000,000 | 10,800,000,000 |

b) Basic and diluted earnings per share

Basic and diluted earnings per share are as follows:

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|--|---|----------------|--|----------------|
| | 2016 | 2015 | 2016 | 2015 |
| Net income (loss) attributable to Vale's stockholders | 575 | (2,117) | 3,457 | (3,560) |

| | | | | |
|--|------------------|------------------|------------------|------------------|
| Basic and diluted earnings per share: | | | | |
| Income (loss) available to preferred stockholders | 220 | (808) | 1,320 | (1,359) |
| Income (loss) available to common stockholders | 355 | (1,309) | 2,137 | (2,201) |
| Total | 575 | (2,117) | 3,457 | (3,560) |
| Thousands of shares | | | | |
| Weighted average number of shares outstanding - preferred shares | 1,967,722 | 1,967,722 | 1,967,722 | 1,967,722 |
| Weighted average number of shares outstanding - common shares | 3,185,653 | 3,185,653 | 3,185,653 | 3,185,653 |
| Total | 5,153,375 | 5,153,375 | 5,153,375 | 5,153,375 |
| Basic and diluted earnings (loss) per share | | | | |
| Preferred share | 0.11 | (0.41) | 0.67 | (0.69) |
| Common share | 0.11 | (0.41) | 0.67 | (0.69) |

Table of Contents**21. Costs and expenses by nature****a) Cost of goods sold and services rendered**

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|----------------------------|--|--------------|---------------------------------------|---------------|
| | 2016 | 2015 | 2016 | 2015 |
| Personnel | 581 | 567 | 1,681 | 1,724 |
| Materials and services | 1,017 | 980 | 2,955 | 2,925 |
| Fuel oil and gas | 338 | 315 | 962 | 974 |
| Maintenance | 739 | 595 | 2,015 | 1,939 |
| Energy | 215 | 139 | 568 | 452 |
| Acquisition of products | 132 | 168 | 361 | 672 |
| Depreciation and depletion | 899 | 861 | 2,577 | 2,654 |
| Freight | 617 | 909 | 1,728 | 2,534 |
| Others | 417 | 506 | 1,152 | 1,520 |
| Total | 4,955 | 5,040 | 13,999 | 15,394 |
| Cost of goods sold | 4,817 | 4,925 | 13,639 | 14,994 |
| Cost of services rendered | 138 | 115 | 360 | 400 |
| Total | 4,955 | 5,040 | 13,999 | 15,394 |

b) Selling and administrative expenses

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|--|--|------------|---------------------------------------|------------|
| | 2016 | 2015 | 2016 | 2015 |
| Personnel | 61 | 56 | 170 | 212 |
| Services (consulting, infrastructure and others) | 19 | 26 | 53 | 80 |
| Advertising and publicity | 2 | 4 | 5 | 10 |
| Depreciation and amortization | 37 | 31 | 93 | 95 |
| Travel expenses | 2 | 3 | 5 | 9 |
| Taxes and rents | 4 | 3 | 11 | 13 |
| Others | 28 | 8 | 75 | 66 |
| Total | 153 | 131 | 412 | 485 |

c) Others operational expenses (incomes), net

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|---|---|------------|--|------------|
| | 2016 | 2015 | 2016 | 2015 |
| Provision for litigation | 32 | (4) | 126 | 20 |
| Provision for loss with VAT credits (ICMS) | 27 | 55 | 62 | 157 |
| Provision for profit sharing program | 20 | 1 | 26 | 20 |
| Provision (reversals) for disposal of materials and inventories | 4 | 7 | (73) | 101 |
| Gold stream transaction | (150) | | (150) | (230) |
| Others | 16 | 54 | 153 | 202 |
| Total | (51) | 113 | 144 | 270 |

Table of Contents**22. Financial result**

| | Three months period ended September 30 | | Nine months period ended September 30 | |
|--|---|----------------|--|-----------------|
| | 2016 | 2015 | 2016 | 2015 |
| Financial expenses | | | | |
| Loans and borrowings gross interest | (466) | (434) | (1,330) | (1,230) |
| Capitalized loans and borrowing costs | 172 | 195 | 562 | 568 |
| Labor, tax and civil lawsuits | (4) | 10 | (25) | (40) |
| Derivative financial instruments | (101) | (1,799) | (325) | (3,224) |
| Indexation and exchange rate variation (a) | (605) | (7,581) | (2,830) | (13,518) |
| Participative stockholders debentures | (48) | 75 | (250) | 711 |
| Expenses of REFIS | (144) | (138) | (387) | (425) |
| Others | (225) | (60) | (526) | (371) |
| | (1,421) | (9,732) | (5,111) | (17,529) |
| Financial income | | | | |
| Short-term investments | 6 | 51 | 75 | 98 |
| Derivative financial instruments | 62 | | 1,485 | 322 |
| Indexation and exchange rate variation (b) | 277 | 2,464 | 5,966 | 5,865 |
| Others | 29 | 41 | 54 | 90 |
| | 374 | 2,556 | 7,580 | 6,375 |
| Financial results, net | (1,047) | (7,176) | 2,469 | (11,154) |
| Summary of indexation and exchange rate variation | | | | |
| Loans and borrowings | (295) | (6,913) | 5,124 | (11,035) |
| Others | (33) | 1,796 | (1,988) | 3,382 |
| Net (a) + (b) | (328) | (5,117) | 3,136 | (7,653) |

23. Deferred revenue - Gold stream

In August 2016, the Company entered into an amendment to the original agreement with Silver Wheaton Corp. (SLW) to sell an additional 25% premium of the payable gold stream in copper concentrate from the Salobo copper mine for the life of the mine. In this transaction, the Company received: (i) an initial cash payment of US\$800 ; (ii) an option value with a reduction of the exercise price, from US\$65.00 to US\$43.75, of the 10 million warrants of SLW held by Vale since 2013 and maturing in 2023; and (iii) future cash payments for each ounce of gold delivered to SLW under the agreement, equal to the lesser of US\$400 per oz (plus a 1% annual adjustment from 2019 onwards) and the prevailing market price.

Vale may also receive an additional cash payment contingent on its decision to expand its capacity to process Salobo copper ores to more than 28 Mtpy before 2036. Salobo I and Salobo II, which are ramping up, will have a total capacity to process 24 Mtpy of run-of-mine (ROM). The

contingent additional cash payment could range from US\$113 to US\$953 depending on ore grade, timing and size of the expansion.

This transaction was bifurcated into two identifiable components (i) the sale of the mineral rights which resulted in US\$150 gain in the income statement under Other operating income (expenses), net and, (ii) US\$549 recorded as deferred revenue (liability) related to the services for gold extraction on the portion in which Vale operates as an agent for SLW gold extraction.

After the completion of this transaction SLW holds 75% of the payable gold stream in copper concentrated from the Salobo mine and 70% of the gold extracted during the next 20 years as a by-product of the Sudbury nickel mines. During the three months period ended September 30, 2016 and 2015, the Company recognized US\$58 and US\$23, respectively, and during the nine months period ended September 30, 2016 and 2015, US\$141 and US\$70, respectively, in income statement related to rendered services of the original and amended transactions.

Defining the gain on sale of mineral interest and the deferred revenue portion of the transaction required the use of critical accounting estimates as follow:

- Discount rates used to measure the present value of future inflows and outflows;
- Allocation of costs between copper and gold based on relative prices;
- Expected margin for the independent elements (sale of mineral rights and service for gold extraction) based on Company's best estimate.

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24. Commitments

a) Base metals operations

In December 2015, the put option related to the dilution of Sumic Nickel Netherland B.V. (Sumic) interest in Vale Nouvelle-Calédonie S.A.S. (VNC) was automatically triggered.

In March 2016, Vale Canada Limited purchased the equity interest held by Sumic in VNC for US\$135.

b) Participative stockholders debentures

At October 3rd, 2016 (subsequently event), the company has paid the semiannual remuneration to stockholders debentures the amount of US\$51 (R\$164).

c) Operating lease and purchase obligations

The future payment commitments for operating lease and purchase obligations are as follows:

| | |
|--|------------|
| 2016 | 37 |
| 2017 | 55 |
| 2018 | 58 |
| 2019 | 50 |
| 2020 and thereafter | 53 |
| Total minimum payments required | 253 |

d) Guarantees provided

As of September 30, 2016, corporate guarantees provided by Vale (within the limit of its direct or indirect interest) for the companies Norte Energia S.A. and Companhia Siderúrgica do Pecém S.A. totaled US\$354 and US\$1,351, respectively.

Table of Contents**25. Related parties**

Transactions with related parties are made by the Company at arm's-length, observing the price and usual market conditions and therefore do not generate any undue benefit to their counterparties or loss to the Company.

In the normal course of operations, Vale enters into contracts with related parties (associates, joint ventures and stockholders), related to the sale and purchase of products and services, loans, derivatives, leasing of assets, sale of raw material and railway transportation services.

The balances of these related party transactions and their effects on the financial statements are as follows:

| | September 30, 2016 | | | | December 31, 2015 | | | |
|--|---------------------------|----------------------------------|---------------------|-----------------|---------------------------|----------------------------------|---------------------|-----------------|
| | Cash and cash equivalents | Derivative financial instruments | Accounts receivable | Related parties | Cash and cash equivalents | Derivative financial instruments | Accounts receivable | Related parties |
| Banco Bradesco S.A. | 536 | 219 | | | 37 | 66 | | |
| Banco do Brasil S.A. | 155 | 31 | | | 395 | 16 | | |
| Baovale Mineração S.A. | | | | | | | | 1 |
| Companhia Coreano-Brasileira de Pelotização | | | | 14 | | | | 6 |
| Companhia Hispano-Brasileira de Pelotização | | | 2 | | | | 1 | 4 |
| Companhia Ítalo-Brasileira de Pelotização | | | | | | | | 8 |
| Companhia Nipo-Brasileira de Pelotização | | | | 22 | | | | 9 |
| Companhia Siderúrgica do Atlântico | | | | 16 | | | | |
| Companhia Siderúrgica do Pecém | | | 57 | | | | | |
| Consórcio de Rebocadores da Baía de São Marcos | | | 12 | | | | 15 | |
| Ferrovia Norte Sul S.A. | | | 1 | | | | 3 | |
| Mitsui & Co., Ltd. | | | 3 | | | | 1 | |
| MRS Logística S.A. | | | | 19 | | | | 17 |
| VLI Multimodal S.A. | | | 5 | | | | 9 | |

| | | | | | | | | |
|-------------------------------|------------|------------|------------|-----------|------------|-----------|-----------|-----------|
| VLI Operações Portuárias S.A. | | | 2 | | | | 25 | |
| VLI S.A. | | | 2 | 12 | | | | 10 |
| Others | | | 21 | 2 | | | 24 | 16 |
| Total | 691 | 250 | 105 | 85 | 432 | 82 | 78 | 71 |

| | September 30, 2016 | | | | December 31, 2015 | | | |
|--|----------------------------------|--------------------|-----------------|----------------------|----------------------------------|--------------------|-----------------|----------------------|
| | Derivative financial instruments | Others liabilities | Related parties | Loans and borrowings | Derivative financial instruments | Others liabilities | Related parties | Loans and borrowings |
| Aliança Geração de Energia S.A. | | 12 | 48 | | | 11 | | |
| Banco Bradesco S.A. | 470 | | | 6 | 205 | 54 | | 370 |
| Banco do Brasil S.A. | 209 | | | 2,885 | 250 | | | 2,625 |
| BNDES | 38 | | | 4,473 | 39 | | | 4,066 |
| Baovale Mineração S.A. | | 22 | | | | 8 | | |
| BNDES Participações S.A. | | | | 440 | | | | 371 |
| Companhia Coreano-Brasileira de Pelotização | | 46 | 30 | | | 4 | 70 | |
| Companhia Hispano-Brasileira de Pelotização | | 25 | 31 | | | 37 | 7 | |
| Companhia Ítalo-Brasileira de Pelotização | | 32 | 50 | | | 3 | 64 | |
| Companhia Nipo-Brasileira de Pelotização | | 92 | 61 | | | 9 | 112 | |
| Consórcio de Rebocadores da Baía de São Marcos | | | | | | 8 | | |
| Ferrovia Centro-Atlântica S.A. | | | 83 | | | | 68 | |
| Mitsui & Co., Ltd. | | 13 | | | | 11 | | |
| MRS Logística S.A. | | 13 | | | | 23 | | |
| Sumic Nickel Netherland B.V | | | 352 | | | | 352 | |
| VLI S.A. | | 1 | 34 | | | | | |
| Others | | 29 | 6 | | | 22 | 15 | |
| Total | 717 | 285 | 695 | 7,804 | 494 | 190 | 688 | 7,432 |

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| | Three months period ended September 30 | | | | | |
|---|--|-------------------------|------------------|-----------------------|-------------------------|------------------|
| | Net operating revenue | 2016 Costs and expenses | Financial result | Net operating revenue | 2015 Costs and expenses | Financial result |
| Aliança Geração de Energia S.A. | | (32) | | 6 | | |
| Banco Bradesco S.A. (i) | | | (249) | | | (87) |
| Banco do Brasil S.A. (i) | | | (244) | | | (127) |
| Baovale Mineração S.A. | | (4) | | | | |
| BNDES (i) | | | (162) | | | (96) |
| BNDES Participações S.A. (i) | | | (22) | | | (1) |
| Companhia Coreano-Brasileira de Pelotização | | (6) | (5) | | (24) | |
| Companhia Hispano-Brasileira de Pelotização | | (12) | (3) | | (16) | |
| Companhia Ítalo-Brasileira de Pelotização | | (13) | (6) | | (20) | |
| Companhia Nipo-Brasileira de Pelotização | | (27) | (9) | | (23) | |
| Companhia Siderúrgica do Pecem | 59 | | | | | |
| Ferrovia Centro Atlântica S.A. | 11 | (9) | (1) | 13 | (9) | (1) |
| Ferrovia Norte Sul S.A. | 3 | | | | | |
| Mitsui & Co., Ltd. | 41 | | | 41 | | |
| MRS Logística S.A. | | (133) | | | (110) | |
| Samarco Mineração S.A. | | | | 20 | | |
| VLI Multimodal S.A. | 9 | | | | | |
| VLI Operações Portuárias S.A. | 31 | (7) | | 28 | | |
| VLI S.A. | 34 | | | 42 | | |
| Others | 2 | (9) | 3 | 11 | (5) | 4 |
| Total | 190 | (252) | (698) | 161 | (207) | (308) |

(i) Does not include exchange rate variation.

| | Nine months period ended September 30 | | | | | |
|---|---------------------------------------|-------------------------|------------------|-----------------------|-------------------------|------------------|
| | Net operating revenue | 2016 Costs and expenses | Financial result | Net operating revenue | 2015 Costs and expenses | Financial result |
| Aliança Geração de Energia S.A. | | (94) | | 6 | | |
| Banco Bradesco S.A. (i) | | | (115) | | | (161) |
| Banco do Brasil S.A. (i) | | | (326) | | | (250) |
| Baovale Mineração S.A. | | (12) | | | (20) | |
| BNDES (i) | | | (313) | | | (132) |
| BNDES Participações S.A. (i) | | | (42) | | | (11) |
| Companhia Coreano-Brasileira de Pelotização | | (42) | (5) | | (58) | |

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| | | | | | | |
|---|------------|--------------|--------------|------------|--------------|--------------|
| Companhia Hispano-Brasileira de Pelotização | | (31) | (3) | | (37) | |
| Companhia Ítalo-Brasileira de Pelotização | | (35) | (6) | | (48) | |
| Companhia Nipo-Brasileira de Pelotização | | (80) | (9) | | (73) | |
| Companhia Siderúrgica do Atlântico | | (6) | | | | |
| Companhia Siderúrgica do Pecem | 91 | | | | | |
| Ferrovia Centro Atlântica S.A. | 30 | (22) | (2) | 37 | (30) | (1) |
| Ferrovia Norte Sul S.A. | 14 | | | | | |
| Mitsui & Co., Ltd. | 103 | | | 150 | | |
| MRS Logística S.A. | | (335) | | | (370) | |
| Samarco Mineração S.A. | | | | 109 | | |
| VLI Multimodal S.A. | 9 | | | | | |
| VLI Operações Portuárias S.A. | 99 | (11) | | 29 | | |
| VLI S.A. | 93 | | | 172 | | |
| Others | 12 | (24) | 1 | 43 | (29) | 5 |
| Total | 451 | (692) | (820) | 546 | (665) | (550) |

(i) Does not include exchange rate variation.

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Members of the Board of Directors, Fiscal Council, Advisory Committees and Executive Officers

Board of Directors

Gueitiro Matsuo Genso
Chairman

Sérgio Alexandre Figueiredo Clemente
Vice-President

Dan Antonio Marinho Conrado
Marcel Juviano Barros
Eduardo Refinetti Guardia
Fernando Jorge Buso Gomes
Motomu Takahashi
Oscar Augusto de Camargo Filho
Eduardo de Salles Bartolomeo
Lucio Azevedo
Alberto Guth

Alternate

Gilberto Antonio Vieira
Moacir Nachbar Junior
Arthur Prado Silva
Francisco Ferreira Alexandre
Robson Rocha
Luiz Mauricio Leuzinger
Yoshitomo Nishimitsu
Eduardo de Oliveira Rodrigues Filho
Marcelo Marcolino
Carlos Roberto de Assis Ferreira
Marcelo Gasparino

Advisory Committees of the Board of Directors

Controlling Committee

Eduardo Cesar Pasa
Moacir Nachbar Junior
Oswaldo Mário Pego de Amorim Azevedo

Executive Development Committee

Oscar Augusto de Camargo Filho

Governance and Sustainability Committee

Fernando Jorge Buso Gomes
Fernando Santos do Nascimento
Eduardo de Oliveira Rodrigues Filho
Priscila Valle Costa de Oliveira
Ricardo Simonsen

Fiscal Council

Marcelo Amaral Moraes
Chairman

Paulo José dos Reis Souza
Sandro Kohler Marcondes
Aníbal Moreira dos Santos
Raphael Manhães Martins

Alternate

Paula Bicudo de Castro Magalhães
Sergio Mamede Rosa do Nascimento
Oswaldo Mário Pego de Amorim Azevedo
Julio Sergio de Souza Cardozo

Executive Officers

Murilo Pinto de Oliveira Ferreira
Chief Executive Officer

Clovis Torres Junior

Executive Officer (Human Resources, Health & Safety, Sustainability, Energy, Mergers and Acquisitions, Governance, Corporate Integrity, Legal and Tax)

Luciano Siani Pires

Executive Officer (Finance and Investors Relations)

Roger Allan Downey

Executive Officer (Fertilizers, Coal and Strategy)

Gerd Peter Poppinga

Executive Officer (Ferrous)

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Marcel Juvinião Barros
Fernando Jorge Buso Gomes
Tatiana Boavista Barros Heil

Strategic Committee

Murilo Pinto de Oliveira Ferreira
Gueitiro Matsuo Genso
Luiz Carlos Trabuço Cappi
Oscar Augusto de Camargo Filho
Eduardo de Salles Bartolomeo

Finance Committee

Gilmar Dalilo Cezar Wanderley
Fernando Jorge Buso Gomes
Eduardo de Oliveira Rodrigues Filho
Marcelo Marcolino

Humberto Ramos de Freitas
Executive Officer (Logistics and Mineral Research)

Jennifer Anne Maki
Executive Officer (Base Metals)

Rogério Nogueira
Global Controller Director

Murilo Müller
Controllershship Director

Dioni Brasil
Accounting Manager
TC-CRC-RJ 083305/O-8

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Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: October 27, 2016

By:

Vale S.A.
(Registrant)

/s/ Andre Figueiredo
Andre Figueiredo
Director of Investor Relations
