

FROM MARIANA TO BRUMADINHO: THE CASE OF VALE S.A. FROM THE VIEWPOINT OF IAS 1

RUDOLPH FABIANO ALVES PEDROZA TEIXEIRA

Universidade Federal do Rio de Janeiro

Address: Avenida Pasteur, 250 | Sala 250 | Urca | 22.290-240 | Rio de Janeiro/RJ | Brazil.

 <https://orcid.org/0000-0001-5325-5267>

rudolphteixeira@gmail.com

HYAGO MIRANDA CÔRTEZ

Universidade Federal do Rio de Janeiro

Address: Avenida Pasteur, 250 | Sala 250 | Urca | 22.290-240 | Rio de Janeiro/RJ | Brazil.

 <https://orcid.org/0000-0001-5663-342X>

hyagocortez2@gmail.com

ADRIANO RODRIGUES

Universidade Federal do Rio de Janeiro

Address: Avenida Pasteur, 250 | Sala 250 | Urca | 22.290-240 | Rio de Janeiro/RJ | Brazil.

 <https://orcid.org/0000-0002-0099-0505>

adriano@facc.ufrj.br

ABSTRACT

Vale S.A. is a Brazilian company that is among the largest global players in the mining sector. Its activities operate in 20 countries and include, in addition to mining, energy, logistics and steel industry. However, despite Vale being a world reference company, the rupture of the Mariana dams in 2015 and Brumadinho in 2019, both in Minas Gerais, brought great expectations from investors and creditors regarding the disclosure and due recognition of these events in the financial statements (FS) of the company. Therefore, the objective of this teaching case is to propose a practical application of CPC 26 (R1)/IAS 1 (Presentation of Financial Statements), addressing Vale's financial statements. Additionally, as a specific objective, the draft of a new standard (known as IFRS 18) is explored, which is being discussed by the International Accounting Standards Board (IASB) to replace IAS 1. To this end, the present teaching case invites students from undergraduate and graduate programs to help four analysts who work at "PG Investimentos", a fictitious consulting and brokerage firm. Among their tasks, the students must examine the income statement for the year (IS), the explanatory note on costs and expenses by nature and some notes about Vale, considering the period 2015 to 2020, based on the concepts provided by CPC 26 (R1)/IAS 1. The teaching case is expected to assist students in learning CPC 26 (R1)/IAS 1, through this didactic familiarization to prepare them for the future normative transition in academic and professional environment.

Keywords: IAS 1. IS. IASB. Vale.

Edited in Portuguese and English. Original Release in Portuguese

Received on 07/01/2022. Revised on 09/25/2022. Accepted on 10/07/2022 by Professor PhD Rogério João Lunkes (Editor-in-Chief). Published on 11/04/2022.

Copyright © 2022 RCCC. All rights reserved. Part of the articles may be mentioned without prior authorization, provided that the source is identified.

1 INTRODUCTION

Vale S.A. is a Brazilian company that is among the largest global players in the mining sector, operating in 20 countries. Its main activity is mining, but the company also operates in the logistics branches (through railways, ports and terminals), energy and steel industry.

As far as mining is concerned, Vale is currently the largest global producer of iron and nickel ore (Fayh, 2021). While iron ore is a key input for steel manufacturing and items that are used in the automobile industry, construction and household appliance production, nickel is a widely applied material in the development of batteries and galvanized items. In addition, the company also stands out for the production in Brazilian soil of other ores, such as manganese and ferroalloys, which are usually employed in the manufacture of batteries, pots, paints, fertilizers and even in animal feed (Vale, 2022b).

In China, Vale produces coal, which is used to generate heat in boilers intended for the production of steel and energy in thermoelectric plants (Vale, 2022a). In the mines of Brazil and Canada, copper extraction is carried out, which has wide application in the production of different types of electrical wiring, in the sectors of generation, transmission and distribution of energy and, for residential, commercial and industrial use, besides serving for almost all types of electronic equipment (Brazilian Copper Association [ABCOBRE], 2022).

Still considering the energy issue, it is important to emphasize that due to the size of its operations and its production volume, Vale consumes around 2% of all electricity that is produced in Brazil. However, since the company has its own electric power generation (especially hydroelectric and wind sources), it can meet about 54% of its consumption (Vale, 2022a).

Regarding the logistics segment, Vale has railways, ports and terminals that form an integrated chain with its mines in Brazil, Indonesia, Malaysia and Oman, and it is also responsible for managing railways in China. Finally, regarding the steel industry, the practice adopted by the company is to operate in this segment through *joint ventures* such as the ThyssenKrupp plant, which is one of the largest and most modern steel mills in the world (Vale, 2022c).

That is, all this information and numbers show that the magnitude and relevance of Vale's operations both nationally and internationally are unquestionable. However, the size and magnitude of a company like this bring complexities, challenges and a great responsibility in the conduct of its business, which inevitably have consequences on the market, communities, the environment and society in general.

2 THE TEACHING CASE

However, despite Vale being a world reference company, the rupture of the Mariana dams in 2015 and Brumadinho in 2019, both in Minas Gerais, brought great expectations from investors and creditors regarding the disclosure and due recognition of these events in the financial statements of the company.

While the Mariana disaster struck 36 municipalities with the mud of mining tailings, reaching an extension of 663 km and resulting in the death of 19 people (Freitas, Barcellos, Asmus, Silva & Xavier, 2019; Leon, 2021), the Brumadinho tragedy affected 18 communities, for approximately 250 km, causing more than 300 fatal victims (Almeida, Jackson Filho & Vilela, 2019; Freitas et al., 2019).

As a consequence, the unfolding of these disasters generated several liabilities for the company (environmental, civil, labor, etc.), which caused adverse effects on its reputation, price and market return of its shares.

Attentive to these issues, the executive board of PG Investimentos, a consulting and brokerage company that promises to increase the assets of its clients in geometric progression, made an impact analysis of the Mariana and Brumadinho tragedies on the market value of Vale's shares.

When assessing a chart on Vale's ordinary shares behavior (OS), the members of PG Investimentos' executive board observed that the company's papers, which were traded at R\$ 16.95 per share, fell 7.55% from 11/05/2015 (date of the Mariana dam rupture), to 11/06/2015 (date of next trading), reaching the unit value of R\$ 15.67. This fall movement continued until 11/12/2015, when Vale's OS closed the trading market worth R\$ 15.05, that is, an accumulated devaluation of 11.21%

In turn, these same shares that were priced at R\$ 56.15 on 01/25/2019 (date of the rupture of Brumadinho dam), underwent a strong reduction of 24.52% on 01/28/2019 (date of the next trading), reaching the value of R\$ 42.38 per share. Nevertheless, Vale's shares achieved a partial recovery throughout the week, being valued at R\$ 46.25 on 02/01/2019 (accumulated drop of 17.63%). Figure 1 illustrates the chart analyzed by PG Investimentos' executive board, highlighting the price of Vale's shares in the two previous shares trading to Mariana and Brumadinho's events, respectively.



Figure 1. History of Vale' shares trading
Source: Adapted by Google Finance authors (2022).

Since PG Investimentos has a significant amount of Vale's papers in its portfolio, any exogenous or endogenous factor that negatively affects the results of the mining company can significantly impair the profitability of the brokerage and consulting investments, bringing serious losses to its investors.

Thus, seeking to predict potential adverse effects that may influence Vale's shares trading in the future, the executive board of PG Investimentos appointed a team formed by four analysts from its financial area (Alexandre, Caio, Marina and Renata), to evaluate Vale's financial statements, mainly, in the case of the financial statements, the income statement of the fiscal year (DRE).

According to the PG Investimentos' executive board, the fundamental question that should be answered by its four analysts is: "Has Vale been communicating clearly with the market, its investors and other *stakeholders*, presenting reliable financial statements?"

Being in charge of such a task, Alexandre, Caio, Marina and Renata did not waste time and after a first alignment meeting reached the consensus that CPC 26 (R1) presentation of the Financial Statements (Brazilian version of IAS 1 – *Presentation of Financial Statements*), is the appropriate accounting instrument to help them verify whether Vale is performing good communication with its *stakeholders* through its financial statements.

Then, the four analysts divided into pairs to facilitate the works execution, Alexandre and Caio being responsible for the unification of Vale's Income Statement for the years 2015 to 2020,

while Marina and Renata should consolidate the values found in the explanatory notes, to deal exclusively with the classification of expenses, also for the period 2015 – 2020.

The work developed by Alexandre and Caio can be observed in Table 1, which provides the Income Statement of Vale adapted and grouped in a comparative way for the years 2015 to 2020, considering the results reported in the view of the holding company, that is, bringing the result of the shareholdings in separately controlled companies.

Table 1
Vale's Income Statement for the period 2015 – 2020

Income Statement (Controller)	2020	2019	2018	2017	2016	2015
Sales revenue, net	127,395	86,428	81,133	64,037	46,424	42,560
Cost of products sold and services provided	(44,868)	(37,509)	(39,051)	(33,327)	(29,663)	(27,522)
Gross profit	82,527	48,919	42,082	30,710	16,761	15,038
Operational revenues (expenses)						
Sales and administrative	(1,564)	(934)	(959)	(959)	(1,021)	(1,141)
Research and development	(1,005)	(877)	(839)	(679)	(677)	(767)
Pre-operational and operational downtimes	(4,081)	(4,389)	(754)	(941)	(684)	(618)
Result from the share participations in affiliates	10,988	(6,670)	4,195	5,277	6,503	(35,338)
Brumadinho event	(27,016)	(28,818)	-	-	-	-
Other operating expenses, net	(2,384)	(1,770)	(1,163)	(893)	(1,166)	72
Reduction of recoverable values and write-off of non-current assets	(346)	(1,204)	(792)	(549)	205	816
Operating profit	57,119	4,257	41,770	31,966	19,921	(21,938)
Financial revenues	708	485	282	8,864	25,656	25,822
Financial expenses	(16,748)	(13,553)	(7,673)	(18,225)	(19,900)	(56,950)
Other financial items, net	(8,191)	(422)	(10,059)	-	-	-
Result of shareholdings, reduction of recoverable values and other results in affiliates and <i>joint ventures</i>	(5,436)	(2,684)	(693)	(277)	(3,122)	(1,981)
Profit (loss) before taxes on profit	27,452	(11,917)	23,627	22,328	22,555	(55,047)
Taxes on profit	(739)	5,245	2,340	(2,115)	(5,094)	10,834
Net profit (loss) of continued operations	26,713	(6,672)	25,967	20,213	17,461	(44,213)
Loss originating from discontinued operations	-	-	(310)	(2,586)	(4,150)	-
Net income (loss)	26,713	(6,672)	25,657	17,627	13,311	(44,213)

Note. All values are in millions of reais at current prices each year.

Source: Prepared by the authors from the information available in the Financial Statements disclosed on the website <http://www.vale.com/brasil/PT/investors/information-market/financial-statements/Paginas/default.aspx>.

As the rupture of Mariana and Brumadinho dams were two events that negatively impacted Vale's shares, bringing strong reflections in its financial statements, Alexandre and Caio studied with attention Table 1 and some explanatory notes of the period investigated, seeking to find relevant issues related to these and other events, the following has been verified:

- The impacts of the rupture of Mariana dam in 2015 were recognized in the Income Statement in the item "Results of shareholdings, reduction of recoverable values and other results in affiliates and *joint ventures*", by the equity method (MEP), since the company responsible for the operation and maintenance of the said dam is Samarco Mineração S.A, a *joint venture* controlled jointly by Vale and BHP Billinton Brasil Ltda, each with 50% of share participation;
- The accounting effects related to Mariana dam rupture in Vale's Income Statement, regarding December 31st, 2015, amounted to a total expense of R\$ 1,418 million;

- c) The value of R\$ 1,418 million (Mariana dam rupture), recognized in Vale's 2015 Income Statement, was not significant within the group of associates and *joint ventures*. In addition, this value was duly detailed in explanatory notes;
- d) The rupture of Brumadinho dam, wholly owned by Vale, led the company to recognize in its result in the item "Brumadinho Event", a loss of R\$ 28,818 million in the financial year 2019;
- e) All the Vale's financial statements from 2015 on began to highlight in its explanatory notes for the Mariana dam rupture, its consequences and subsequent effects, with the same having occurred from 2019 on to Brumadinho event; and
- f) It was possible to verify that the line "Other financial items, net" began to integrate the Vale's Income Statement structure from 2018 on, with the same occurring for the line "Brumadinho Event" from 2019 on. In addition, the explanatory notes related to these two lines indicated that the continuity of these two items is likely in the next Income Statements.

In turn, Marina and Renata analyzed in detail all the explanatory notes that dealt with the classification of Vale's expenses, consolidating such information for the years 2015 to 2020 in Table 2, which is shown below.

Table 2
Explanatory Note: Costs and Expenses by Nature

Classification of Expenses (Affiliates)	2020	2019	2018	2017	2016	2015
Cost of products sold and services provided						
Personnel	4,701	3,668	4,615	3,986	3,445	3,597
Materials and Services	7,071	4,970	6,248	5,504	5,438	5,619
Fuel oil and gases	2,855	3,329	3,703	2,869	2,714	2,590
Maintenance	8,941	7,380	7,250	6,926	6,068	5,397
Royalties	4,389	2,965	-	-	-	-
Energy	1,541	1,553	1,688	1,463	1,028	926
Acquisition of third-party ore	3,464	1,990	760	652	821	684
Depreciation, amortization and depletion	7,001	6,596	5,693	5,078	4,808	4,147
Freight	190	124	158	106	71	-
Others	4,715	4,934	8,936	6,743	5,270	4,562
Total	44,868	37,509	39,051	33,327	29,663	27,522
Sales and administrative expenses						
Sales	93	69	45	-	-	-
Personnel	847	468	490	514	473	509
Services	387	200	180	152	148	194
Depreciation and amortization	89	104	115	185	300	321
Advertising	84	23	-	-	21	30
Travel expenses	-	-	-	19	17	19
Rentals and other taxes	-	-	-	8	18	22
Others	64	70	129	81	44	46
Total	1,564	934	959	959	1,021	1,141
Other net operating expenses (revenues)						
Asset retirement obligations	422	283	-	-	-	-
Provision for legal proceedings	307	975	464	423	524	(53)
Provision for ICMS credit losses	-	-	-	-	143	767
Profits sharing program	374	195	435	307	137	41
Covid-19 expenses	573	-	-	-	-	-

Write-off (reversions) of materials and stocks	82	169	110	43	(56)	74
Alienation of write-off of fixed and intangible assets	-	-	-	-	-	165
Vale S.A. Foundation	-	-	-	-	-	41
Others	626	148	154	120	418	(1,107)
Total	2,384	1,770	1,163	893	1,166	(72)

Note. All values are in millions of reais at current prices each year.

Source: Prepared by the authors from the information available in the Financial Statements disclosed on the website <http://www.vale.com/brasil/PT/investors/information-market/financial-statements/Paginas/default.aspx>.

At first, Marina and Renata found that the company used the nature of expense method in their explanatory notes. However, they were a little confused, since the format adopted by Vale to present these expenses in the explanatory notes generated some doubts.

As a consequence, Marina and Renata chose to draw up a short summary to differentiate the two existing methods of classification from expenses, as follows: **a) nature of expense method:** it is the one in which the expense is aggregated according to its nature (e.g. depreciation, purchases of materials, transportation expenses, employee benefits and advertising expenses), and is not reallocated among the various functions within the entity; and **(b) function of expense method:** also known as the cost of goods and services sold method, in which the expense must be classified according to its function, as part of the cost of goods or services sold, or as distribution expenses or administrative activities. This method can provide more relevant information to users of accounting information, however, it is also possible that it may lead to arbitrary allocations and involve judgment.

With the closing of the data collection step, the two pairs gathered in a room to discuss their findings and observation in order to produce a report for the executive board of PG Investimentos. During the meeting, all analysts understood that they were able to collect important information about Vale. In addition, Marina and Renata brought as a complementary contribution the result of a consultation they made to the *International Accounting Standards Board (IASB) website*, which is the body responsible for editing the international accounting standards used in 144 countries (including Brazil), in which they found that there is a project in progress for changes in the companies' financial statements, which is mainly based on changes in the income statement. This project was presented in a summarized way by the two analysts to Alexandre and Caio, as follows.

2.1. Proposals for changes in the Primary Financial Statements

A topic that has been discussed within the IASB over the last seven (7) years refers to the Primary Financial Statements improvement project, which is an integral part of a broader project called Better Communication in Financial Reporting.

This improvement in Primary Financial Statements has been a demand from investors with IASB, who want more comparable and disciplined accounting information among companies, so that their forecasts and decisions can be made with greater security and comfort.

Thus, the objective of this project is to improve the way in which the information is communicated in the financial statements, focusing on changes in the statement of the income of the financial year. To this end, this project was developed on three main pillars: a) the need to define subtotals in the Income Statement that are comparable and fulfill the investors; b) greater discipline in the processes of aggregation and disaggregation of information relevant to investors (with the definition of principles); c) Disclosure of information on the performance of the administration (*non-GAAP* measures) in an explanatory note.

As a result of this work, the changes proposed in the Income Statement would result in the following elements:

- The Income Statement would be segregated into three main categories, i.e. operational, investment and financing, which do not confuse with the categories of the Cash Flow Statement (CFC);
- A measure of operating profit, equivalent to *Lucro Antes de Juros e Impostos* (LAJIR) or in English, *Earnings before Interest and Taxes* (EBIT) would be defined, which is a mandatory line in the Income Statement As a consequence, other *non-GAAP* indicators such as *Earnings before Interest and Taxes* (EBIT) or *Earnings Before Interest, Taxes, Depreciation and Amortization* (EBITDA) would be modified;
- Other mandatory lines would be required for relevant items such as: the equity results of wholly owned subsidiaries and *joint ventures* ; the equity results of associates and *non - integral joint ventures*; the taxes on profit; the results of discontinued operations, etc.;
- The operational expenses of the Income Statement would be submitted by the method that provided the most useful information to the users (function or nature) and, if the Income Statement included the expenses classified by function, those same expenses would necessary to be communicated in explanatory notes by the nature method;
- There would be the possibility of some indicator of administration performance being inserted into the Income Statement, provided that it does not change the basic structure of this statement; and
- The most relevant *non-GAAP* indicators would be highlighted in a single explanatory note, and may even bring about the reconciliation of certain values with the existing lines in the Income Statement (and/or between the Income Statement lines).

In this sense, after the presentation of Marina and Renata on the changes that are being discussed in IASB, Caio proposed the following:

- Why don't we rebuild Vale's Income Statement for the period 2015 – 2020 contemplating all the changes that are being discussed at IASB?

- Good idea! With this we could foresee behaviors and possible impacts on Vale's investors and the market when the new standard is in use, Alexandre replied.

- In addition, this would be a good opportunity to impress the members of our executive board, Marina added.

- Deal, guys! If we all agree, we will no longer waste time and get to work! Renata finalized.

Thus, PG Investimentos analysts set up Table 3, which represents Vale's Income Statement reformulated according to IASB's proposal for the period 2015 – 2020.

Table 3

Vale's Income Statement for the period 2015 – 2020 taking into account the IASB's proposal

Income Statement (Controller)	2020	2019	2018	2017	2016	2015	
Sales revenue, net	127,395	86,428	81,133	64,037	46,424	42,560	
Cost of products sold and services provided	(44,868)	(37,509)	(39,051)	(33,327)	(29,663)	(27,522)	
Gross profit	82,527	48,919	42,082	30,710	16,761	15,038	
Operational revenues (expenses)							
Sales and administrative	(1,564)	(934)	(959)	(959)	(1,021)	(1,141)	Operational
Research and development	(1,005)	(877)	(839)	(679)	(677)	(767)	
Pre-operational and operational downtimes	(4,081)	(4,389)	(754)	(941)	(684)	(618)	
Brumadinho event	(27,016)	(28,818)	-	-	-	-	
Other operating expenses, net	(2,384)	(1,770)	(1,163)	(893)	(1,166)	72	
Reduction of recoverable values and write-off of non-current assets	(346)	(1,204)	(792)	(549)	205	816	
Operating profit	46,131	10,927	37,575	26,689	13,418	13,400	

Result from the share participations in affiliates	10,988	(6,670)	4,195	5,277	6,503	(35,338)	Wholly owned affiliates and joint ventures
Operating profit and equity result of wholly owned affiliates and joint ventures	57,119	4,257	41,770	31,966	19,921	(21,938)	
Financial revenues	708	485	282	8,864	25,656	25,822	
Result of shareholdings, reduction of recoverable values and other results in affiliates and non-wholly owned joint ventures	(5,436)	(2,684)	(693)	(277)	(3,122)	(1,981)	Investment
Profit before financing and taxes	52,391	2,058	41,359	40,553	42,455	1,903	
Financial expenses	(16,748)	(13,553)	(7,673)	(18,225)	(19,900)	(56,950)	
Other financial items, net	(8,191)	(422)	(10,059)	-	-	-	Financing
Profit before taxes	27,452	(11,917)	23,627	22,328	22,555	(55,047)	
Taxes on profit	(739)	5,245	2,340	(2,115)	(5,094)	10,834	Taxes on result
Profit from continued operations	26,713	(6,672)	25,967	20,213	17,461	(44,213)	
Loss originating from discontinued operations	-	-	(310)	(2,586)	(4,150)	-	Discontinued operations
Net income (loss)	26,713	(6,672)	25,657	17,627	13,311	(44,213)	

Note. All values are in millions of reais at current prices each year.

Source: Prepared by the authors from the information available in the Financial Statements disclosed on the website <http://www.vale.com/brasil/PT/investors/information-market/financial-statements/Paginas/default.aspx>.

With all the findings made, as well as Tables 1, 2 and 3 duly checked and validated, THE analysts Alexandre, Caio, Marina and Renata (all of PG Investimentos' financial area) know that they have important elements to evaluate Vale's communication with the market, its investors and other *stakeholders* so that they can respond to the request of its executive board.

However, as Alexandre, Caio, Marina and Renata remained with some doubts, they found it more prudent to ask for assistance to the accounting area of PG Investimentos, of which you and your classmates are part or, before presenting any results to your directors. Therefore, answer the following questions that were brought by financial analysts Alexandre, Caio, Marina and Renata, using as a basis the CPC 26 (R1) and the elements provided throughout the text.

2.2. Questions for Discussion

- 1) In 2015 Vale highlighted the event that took place in Mariana in a detailed way only in its explanatory notes, adding the values related to the rupture of Samarco dam in its Income Statement in the line "Results of participations, reduction in recoverable value and other results in associates and *joint ventures*". On the other hand, for the fact that occurred in Brumadinho in 2019, the said company besides presenting the details in explanatory notes, also highlighted what happened in a specific item of its statement. As a result, analyze Table 1 and explain based on the materiality of the values involved, why Vale chose to give distinct treatment for two such similar cases?
- 2) Taking Table 1 as reference answer:
 - a) If the events of Mariana (2015) and Brumadinho (2019) had not occurred, would Vale have suffered losses in these two years?
 - b) In 2018, Vale's Income Statement began to have a new line, called "Other financial items, net", which did not exist in previous years. The same fact occurred in the Vale's

Income Statement from 2019 with the insertion of the line “Brumadinho Event”. Explain, based on the consistency of presentation, why Vale chose to include these two new lines in its Income Statement.

- 3) According to the title of Table 2, it is possible to observe that Vale presented in its explanatory notes the expenses classified by nature, while in Table 1 the expenses were classified by function. Thus, it is herein asked:
 - a) Why were expenses presented by nature in the explanatory notes in Table 2?
 - b) Could Vale improve the presentation of the items in Table 2? Make an argument by agreeing or disagreeing with the question.
- 4) Compare the Operating Profit line in the Income Statement of Tables 1 and 3 and answer:
 - a) What is the item responsible for the difference between the Operating Profit reported in the two Income Statements?
 - b) Why is this item not present in the Operating Profit concept of Table 3? Can you elaborate any logical justification for this?

3 TEACHING NOTES

In this topic the characteristics and actions that permeate the proposed teaching case are exposed. Initially, the educational objectives are presented, followed by the theoretical framework, the pedagogical aspects and the proposal of referral to the questions.

3.1. Educational Objectives

The aim of this teaching case is to propose a practical application of CPC 26 (R1)/IAS 1. In addition, as a specific objective, the case explores the draft of a new standard (known as IFRS 18) that is being discussed by the IASB to replace IAS 1, which will assist students in the future regulations transition.

Therefore, the proposed case deals with an analysis of Vale S.A.’s financial statements, carried out by analysts of a fictitious consulting and broker, PG Investimentos. In this analysis, real information and data from the mining company Vale were used, collected from its accounting statements regarding the closure of the financial years from 2015 to 2020, considering the view of the affiliate.

Considering that Vale was held responsible in some way for the rupture of two ore tailings dams in Minas Gerais, Mariana in 2015 and Brumadinho in 2019, which have devastating effects on some cities and the environment, provoking the death of dozens of people and animals, the analysis of their financial statements, mainly the income statement, brings motivations for students to try to find patterns, differences over time and accounting consequences on the company’s results, which helps to learn concepts and guidelines brought by CPC 26 (R1)/IAS1.

In a complementary way, the case addresses timely some relevant changes that are in an advanced stage of discussion in the IASB and that will lead to changes in the form of presentation and disclosure of the financial statements. Basically, the proposed changes aim to serve the investors, who have demanded from IASB more comparable and disciplined accounting information among companies, so that their forecasts and decisions can be made with greater security and comfort (IASB, 2019a; 2019b).

Regarding this point, the teaching case itself briefly brings the main aspects that are being discussed in the IASB regarding the new standard, regarding the Income Statement, its explanatory notes and other elements, this allows students to answer question 4 (four) without the need for complementary material.

Therefore, as the proposed teaching case partially deals with a new accounting standard that is under discussion, it is recommended that it be applied to the students of undergraduate and graduate courses (*stricto sensu*) in accounting sciences, mainly, in the discipline of financial accounting or similar ones.

3.2. Theoretical framework

CPC 26 (R1)/IAS 1 is an accounting standard endowed with fundamentally conceptual elements, which guides the preparation of the financial statements and their readers to relevant aspects that must be observed in relation to the presentation and communication of the assets, financial and economic situation of the companies.

However, due to the demand of many investors, IASB has been discussing changes in the primary financial statements since 2015, in order to generate more comparable statements among companies, increasing the relevance of accounting information that is generated for its users (Santos, Lima & Bonfim, 2020).

As a result of these discussions, the IASB issued in December 2019 the draft of a new standard (known as IFRS 18) that focuses on changes in the Income Statement. Among the main modifications that this statement would undergo can be mentioned: a) requirement of subtotals and mandatory categories; b) need to present expenses based on the information that is most useful to the user (by function or by nature); and c) mandatory insertion of operational profit measures. In addition, general principles of aggregation and disaggregation of expenditure and revenue would be defined for all financial statements; *non-GAAP measures* would be disclosed in a single explanatory note; and the cash flow statement would have reduced the accounting options provided by CPC 03, with a clear indication of classification for some elements such as interest and dividends (Braunbeck & Luccas, 2020).

In this sense, two points that have received great attention in the discussions of the new standard refer to the definition of subtotals and mandatory lines in the Income Statement, together with the need to disclose *non-GAAP* measures in an explanatory note. For the first, the idea is to make the Income Statement more uniform and comparable, both among different companies and over time for the same entity. Whereas for the second point, the standard intends to internalize in the set of financial statements indicators that are widely used by investors and creditors, but that are outside their scope (IASB, 2019a; 2019b). Table 4 exemplifies the new structure for the Income Statement that is being proposed by the IASB.

Table 4
Example of the New Structure for the Income Statement

Income Statement	
Revenue	Operational
Other revenues	
Variations in stocks of finished products and in preparation	
Raw materials and consumables	
Employee benefits expenses	
Depreciation expenses	
Amortization expenses	
Professional fees and other expenses	
Operating profit	

Equity result of associates and <i>joint ventures</i>	Wholly owned <i>joint ventures and affiliates</i>
Operating profit and equity result of affiliates and wholly owned <i>joint ventures</i>	
Equity result of associates and <i>non-wholly owned joint ventures</i>	Investment
Revenue from dividends	
Profit before financing and income tax	
Expenses of financing activities	Financing
Reversal of discount on liabilities of pension plans and provisions	
Profit before income tax	
Income tax	Taxes on result
Profit from continued operations	
Loss originating from discontinued operations	Discontinued operations
Net income (loss)	

Source: Elaborated by the authors based on IASB (2019a; 2019B).

By the new rule, the mandatory subtotals are all those highlighted in bold lines, i.e.: (a) operating profit, which refers to the result formed by the company's operational activities, excluding the result of the shareholdings in wholly- owned affiliates and *joint ventures* (which would be presented in a highlighted line, even for subsidiaries belonging to the same branch of activity); (b) operating profit after the result of equity equivalence of associates and *wholly- owned joint ventures*; (c) profit before financing and income tax; (d) profit before income tax; and (e) profit from discontinued operations. That is, it is verified that the IASB intends to reduce the liberality of companies in the construction of the Income Statement, making the format of this statement less malleable and more comparable.

Still analyzing the new structure of the Income Statement it is possible to infer that the operating profit line itself provides a *non-GAAP measure*, equivalent to EBIT or LAJIR, which already meets what investors and the market have demanded from the IASB, as regards the need to bring into the set of the financial statements the performance measures of the administration. In addition, companies would have the freedom to introduce other *non-GAAP measures* into the structure of the Income Statement, provided that its basic composition is not corrupted. An example would be the fixing of a subtotal that reflects the EBITAD or LAJIDA indicator before the operating profit line Santos, Lima & Bonfim, 2020).

According to Braunbeck and Luccas (2020), this proposal for the structuring of the Income Statement is also based on a line of research in accounting on *value relevance*, which deals with the relationship between measures of operating profit and the companies' performance. In short, this line of research is based on the importance of profit operating components as useful performance measures of an entity, excluding transient elements of the result.

Among the studies of this line of research it is possible to mention Silva (2020), who investigated whether EBITDA is a more informative measure than net profit (*GAAP measure*). For this purpose, data were collected from Brazilian companies listed in Brasil, Bolsa, Balcão [B³], referring to the period 2005 – 2018. As a result, the author found that the market prefers to evaluate the price of shares based on EBITDA, to the detriment of net profit.

Another interesting work is that of Eng and Vichitsarawong (2022), which examined the usefulness of subtotal operating profit and EBIT in eight countries: Germany, Australia, South Korea, France, Hong Kong, Malaysia, Thailand and the United Kingdom, during the period 2012 – 2019. The main findings indicated that operating profit and EBIT are better than net profit to

explain the stock price and operating cash flow of firms, mainly in countries with low corporate governance according to the Worldwide Governance Indicators (WGI).

Whereas Kim (2022) analyzed whether management skills are related to the quality of *non-GAAP* measures disclosed quarterly by a sample of 3,460 companies in the Compustat database, considering the period 2003 – 2018. According to the study, it was possible to verify that there is a positive correlation between managerial capacity and quality of *non-GAAP measures* disclosed. In addition, it was identified that investors consider *non-GAAP* results reported by companies that have skilled managers, as more informative and capable of reducing the informational asymmetry.

In turn, another relevant issue in which the IASB has been addressing under the new standard refers to the format for the presentation of expenses in the Income Statement. The proposal of the regulatory body is that companies structure their expenses by the method that is more relevant to their users, and this is not a free choice. This means that the companies will need to assess which expense format best meets their *stakeholders* and, if the function method is chosen, the disclosure of expenses by nature in an explanatory note will be mandatory.

According to Simpson and McGeachin (2020), the empirical evidence has shown that there is a great variability on the part of the entities regarding the presentation of their expenses in the Income Statement (function or nature), which would be motivated by issues related to the country, industry, the degree of international exposure of the company and its independent auditors.

Anyway, considering all the changes being proposed by the IASB, it is verified that the new basic structure of the Income Statement will provide more relevant and comparable information, *vis-a-vis* the current range of possibilities of this demonstration. First because subtotals and mandatory lines will be included. Second, because the own structure of the Income Statement by authorizing the inclusion of *non-GAAP* indicators could encourage practices of sectoral standardization. Third, because general principles of aggregation and disaggregation of values should be respected, with unusual revenues and expenses needing to be presented in a disaggregated form.

Currently, the debates around the draft of the new standard are thriving in broad steps. The forecast of the Brazilian representative at IASB, Tadeu Cendon, is that IFRS 18 will be published between 2023 and 2024, which will imply the repeal of the current CPC 26 (R1)/IAS 1, which will have part of its content transferred to the new normative (IASB, 2020).

However, despite the new standard bringing net benefits in general terms, Braunbeck and Luccas (2020) highlight that Brazil would have some challenges to be overcome to implement the normative fully, which are summarized below:

- Imposition by the Brazilian corporate law of some lines and subtotals in Income Statement (Article 187 of Law 6.404/1976). For example, the mandatory presentation of items such as the cost of goods and services sold, sales expenses, general and administrative expenses and other operating expenses, currently, already makes it impossible to present expenses by nature in the Income Statement, which ends up making the presentation of expenses by function mandatory;
- Guidelines for grouping similar items and small value balances, provided that the latter do not exceed 10% of the value of the respective group of accounts (§2nd of Article 176, of Law 6.404/1976). Although Law 6.404/1976 does not contradict principles for aggregation and disaggregation of values, it does not define important concepts such as materiality, relevance and comprehensibility, and may generate conflict with the new norm; and
- Need for companies to publish *non-GAAP* LAJIR and LAJIDA indicators outside the full set of financial statements (Article 8th of Normative Instruction CVM n° 527/2012). This Securities and Exchange Commission (CVM) regulation prevent such management performance measures from being included in the Income Statement or disclosed in an explanatory note.

In other words, it can be verified that the challenges imposed by laws and regulations are able to restrict the full applicability of the new regulation in Brazil. On the other hand, it cannot be denied that IASB's efforts to make financial statements more comparable have great potential to expand the relevance of accounting information and its consequent comprehensibility, taking into account the guidelines of CPC 00 (R2) – Conceptual Framework for Financial Report.

3.3. Pedagogical Aspects

It is expected that the teacher teach in previous class (face-to-face or virtual) the main aspects of CPC 26 (R1), so that at the beginning of the next class he or she will deal with the case of teaching bringing some images and news about the rupture of the Mariana and Brumadinho dams, so that the effects on communities and the environment are highlighted.

After the opening exhibition, the teacher may question the students if such disasters had repercussions on Vale's financial statements, which provides an ideal environment for arguments, debates and the application of the teaching case.

It is suggested that the case be applied in a class lasting 1 (one) hour and 40 (forty) minutes. In the first 10 – 15 minutes, it is recommended that the professor make the initial exposure with news and images about the ruptures of Mariana and Brumadinho dams, using computational resources such as *Power Point*, for example.

Then, groups of 4 to 5 students should be trained to read, reflect, discuss and answer the questions proposed in the case in an interval of 60 to 65 minutes. At this stage, it is interesting that the professor go to each of the groups to analyze the discussions, and can contribute with unobserved elements that help in understanding the case.

Finally, in the last 20 – 30 minutes the professor must present the expected pattern of answers for each of the questions, giving freedom for the students to make their arguments. For the relevant arguments, it is indicated that the teacher reaffirms the correct answers, which stimulates the students in their learning process. In turn, in the opposite hypothesis, it is suggested that the professor show the students the rationale of the answers based on the theory of CPC 26 (R1).

It is worth noting that in the impossibility of the case being taught in person, the professor can adapt his or her application to a virtual class with scheduled time. In this situation, the case study would have to occur individually, with the professor being able to request after his or her exposure, that the students read, think and answer the questions proposed in the case in up to 65 minutes. Then, the professor could ask students to present their answers, with the professor corroborating or correcting them. Finally, the professor would provide the expected pattern of answers in electronic file.

3.4. Proposal for a Forwarding to the Questions

In the first question, the student could answer that Vale probably chose to present in the Incomes Statement of 2015 the economic impacts of the event related to the rupture of Mariana dam in “results of participation, reduction of recoverable value and other results in associates and *joint ventures*”, as (a) Samarco is a *joint venture* controlled together with BHP Billinton Brasil Ltda (50% of the company's share), which means that Vale has rights and obligations only on its participation in the net assets and liabilities of such entity; b) the negative impact of R\$ 1,418 million, related to the rupture of Mariana dam, was not individually material for it to be disaggregated into a specific item of the Income Statement, as verified by Alexandre and Caio; and c) details on the values and effects of the dam rupture were provided in explanatory notes, as stated in the analyst's diagnosis. In turn, considering the rupture of Brumadinho dam, it can be seen that: a) this is a dam wholly belonging to Vale; (b) its recognized loss in the Income Statement

of 2019 was R\$ 28,818 million, that is, an expense that was only lower than the company's production costs in the period, which can characterize it as individually material so that it is presented in a disaggregated form of other expenses; e) It is verified that the entity has not reduced the comprehensibility of its financial statements, hiding material information such as the event of Brumadinho, with other non-relevant information.

Where as in the second question, the student could answer the first question (letter a) based on an analysis of Table 1, from which it would be easy to see that in 2015 Vale would have had a great loss, even if the rupture of Mariana dam had not occurred (approximately R\$ 42,795 million loss). Differently, in 2019, if Brumadinho event had not happened, Vale would have presented profit rather than loss (around R\$ 22,146 million profit). In turn, for the answer of the second question (letter b), the required line of reasoning is based on the relevance of accounting information and consistency of presentation. Thus, the student would have the possibility to argue that Vale probably opted for the inclusion in the Income Statement of the lines “Other financial items, Net” from 2018 and “Brumadinho Event” from 2019 as the company understands that such modifications are providing more reliable and relevant information to users of their accounting information, without harming the comparability among the Income Statements over the years. In addition, the diagnosis presented by PG Investimentos analysts provides evidence that the new Income Statement structure will remain in the coming years, which brings evidence that consistency in the presentation will be maintained.

For the third question, the answer indication for the first question (letter a) is that CPC 26 (R1) requires that when a company chooses to disclose its expenses in the Income Statement according to the function method, it should also disclose additional information about expenses based on the nature of expense method in its explanatory notes. It is also worth pointing out that in Brazil, as a result of Article 187 of Law number 6.404/1976, the classification of expenses by function in the companies' Income Statement becomes mandatory, given the need to be presented items such as: sales expenses, general expenses and administrative expenses, for example. Regarding the second question (letter b), a favorable argument to change the presentation of the explanatory notes evidenced in Table 2 is in the very concept of the nature of expense method. Through this method, expenses should not be reallocated between the various functions within the entity. However, what is verified in Table 2 is that the expenses are still grouped by function, occurring only a breakdown of their elements and values. On the other hand, the argument for maintaining the format could also be defended. To do so, it would be enough for the user of accounting information to sum up the elements of a similar nature among the different functions, which he would know the nature of the expense. An example is to add the amounts spent on personnel in “cost of products sold and services rendered”, with its pair in “sales and administrative expenses”.

In the fourth question, the answer to the first question (letter a) is direct, that is, the item that differentiates the operating profit in Tables 1 and 3 is the result of share participations in affiliates. Finally, in the second question (letter b), the student could argue that the concept of operational profit proposed by the IASB excludes the result of share participations in affiliates, as it intends to demonstrate only the result of the company's operational activities, which allows greater comparability with other companies (national or transnational). and promotes more useful information to the investors. Moreover, as the result of share participations in subsidiaries concerns the share of the affiliate in the result of invested companies, which can act, even in different finalist activities, the IASB understands that this component should be presented separately from the operating result, giving rise to a new subtotal (Result of share participations in affiliates) that could also be compared among different companies according to the interest of the accounting information user.

REFERENCES

- Almeida, I. M. D., Jackson Filho, J. M., & Vilela, R. A. D. G. (2019). Razões para investigar a dimensão organizacional nas origens da catástrofe industrial da Vale em Brumadinho, Minas Gerais, Brasil. *Cadernos de Saúde Pública*, 35(4), e00027319.
- Associação Brasileira do Cobre (ABCOBRE) (2021). *Entenda as Principais Características e Aplicações do Cobre*. Recuperado em 03 de setembro, 2022 de <http://abcobre.org.br/entenda-as-principais-caracteristicas-e-aplicacoes-do-cobre/>
- Braunbeck, G. O., & Luccas, R. G. (2020). A nova demonstração do resultado e a comparabilidade transnacional das demonstrações financeiras em IFRS: um idioma financeiro comum ou uma torre de babel? *Revista Fipecafi de Contabilidade, Controladoria e Finanças*, 1(2), 127-142.
- Comitê de Pronunciamento técnico – CPC (2019). *Pronunciamento Técnico CPC 00 (R2) Estrutura Conceitual para Relatório Financeiro*. Brasília, 10 de dezembro de 2019. Recuperado em 25 agosto, 2021 de [http://static.cpc.aatb.com.br/Documentos/573_CPC00\(R2\).pdf](http://static.cpc.aatb.com.br/Documentos/573_CPC00(R2).pdf)
- Comitê de Pronunciamento técnico – CPC (2011). *Pronunciamento Técnico CPC 26 (R1) Apresentação das Demonstrações Contábeis*. Brasília, 15 de dezembro de 2011. Recuperado em 25 agosto, 2021 de http://static.cpc.aatb.com.br/Documentos/312_CPC_26_R1_rev%2014.pdf
- Eng, L. L., & Vichitsarawong, T. (2022). Comparing the usefulness of two profit subtotals: Operating income and earnings before interest and taxes. *Finance Research Letters*, 47, 102529.
- Fayh, M. (2021, janeiro 21). O que faz a Vale (VALE 3) e os diferenciais da empresa. *The Capital Advisor*. Recuperado em 03 setembro, 2022 de <https://comoinvestir.thecap.com.br/o-que-faz-vale-vale3-e-os-diferenciais-da-empresa>
- Freitas, C. M. D., Barcellos, C., Asmus, C. I. R. F., Silva, M. A. D., & Xavier, D. R. (2019). Da Samarco em Mariana à Vale em Brumadinho: desastres em barragens de mineração e Saúde Coletiva. *Cadernos de Saúde Pública*, 35(5), e00052519.
- Google Finanças (2022). *Vale S. A.* Recuperado em 03 setembro, 2022 de <https://www.google.com/finance/quote/VALE3:BVMF?sa=X&ved=2ahUKEwjY8J2M9cD0AhWHqpUCHUTNCIoQ3ecFegQIBRAe&window=5Y>
- Instrução CVM nº 527, de 4 de outubro de 2012* (2012). Dispõe sobre a divulgação voluntária de informações de natureza não contábil denominadas LAJIDA e LAJIR. Recuperado em 03 setembro, 2021 de <http://conteudo.cvm.gov.br/export/sites/cvm/legislacao/instrucoes/anexos/500/inst527.pdf>
- International Accounting Standards Board* (2019a). General presentation and disclosures: exposure draft. Recuperado em 01 setembro, 2021 de <https://www.ifrs.org/content/dam/ifrs/project/primary-financial-statements/exposure-draft/ed-basis-for-conclusions-general-presentation-disclosures.pdf>

- International Accounting Standards Board* (2019b). General presentation and disclosures: illustrative examples. Recuperado em 01 setembro, 2021 de <https://www.ifrs.org/content/dam/ifrs/project/primary-financial-statements/exposure-draft/ed-illustrative-examples-general-presentation-disclosures.pdf>
- International Accounting Standards Board, August* (2020). Terceiro webinar em português sobre o exposure draft: general presentation and disclosures. Recuperado em 03 setembro, 2021 de <https://www.ifrs.org/projects/work-plan/primary-financial-statements/third-webinar-in-portuguese/>
- Kim, R. (2022). Do more able managers provide better non-GAAP earnings? *Accounting & Finance*, 00, e12941. doi: 10.1111/acfi.12941.
- Lei nº 6.404, de 15 de dezembro de 1976*. Dispõe sobre as Sociedades por Ações. Diário Oficial da União [da] República Federativa do Brasil, Poder Executivo, Brasília, DF, 17 dez. 1976. seção 1, Suplemento, p. 1.
- Leon, L. C. Tragédia em Mariana completa 6 anos sem nenhuma punição criminal. *Radioagência Nacional*. Recuperado em 03 setembro, 2022 de <https://agenciabrasil.ebc.com.br/radioagencia-nacional/meio-ambiente/audio/2021-11/tragedia-em-mariana-completa-6-anos-sem-nenhuma-punicao-criminal>
- Santos, E. M., Lima, J. D., & Bonfim, M. P. (2020). Demonstrações financeiras primárias: impactos das mudanças propostas pelo IASB. *Pensar Contábil, Encarte Especial* (parte integrante da edição nº 79), 3-11.
- Silva, J. P. C. D. (2020). *O value relevance dos non-gaap earnings e das IFRS*. Dissertação (Mestrado em Ciências Contábeis), Centro de Ciências Sociais Aplicadas, Programa de Pós-graduação em Ciências Contábeis, Universidade Federal do Rio Grande do Norte, Natal, RN, Brasil.
- Simpson, A., & Mcgeachin, A. (2020). Primary Financial Statements: Feedback Summary – Literature review. *IASB Meeting Staff Paper*, December 2020. Recuperado em 17 novembro, 2021 de <https://cdn.ifrs.org/-/media/feature/meetings/2021/january/iasb/ap21e-primary-financial-statements.pdf>
- Vale S.A. (2022a). *Energia*. Recuperado em 03 setembro, 2022 de <http://www.vale.com/brasil/PT/business/energy/Paginas/default.aspx>
- Vale S.A. (2022b). *Manganês e Ferroligas*. Recuperado em 03 setembro, 2022 de <http://www.vale.com/PT/business/mining/manganese/Paginas/default.aspx>
- Vale S.A. (2022c). *Siderurgia*. Recuperado em 03 setembro, 2022 de <http://www.vale.com/brasil/PT/business/steelmaking/Paginas/default.aspx>