EFFECT OF CORPORATE GOVERNANCE ON THE RELATIONSHIP OF FINANCIAL PERFORMANCE AND MANAGERIAL OPPRTUNISM TO GOODWILL LOSSES

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RESUMO

The study aimed to verify the effect of monitoring corporate governance on the relationship between financial performance and managerial opportunism with goodwill losses. The sample consisted of 173 companies listed on B3 with goodwill in the period from 2012 to 2017. The variable that captured the recognition of impairment losses was evidenced by the dummy equal to 1. Then, the magnitude of the losses of the goodwill in relation to the total assets of the companies. The performance indicators were: sales growth, variation in operating cash flow, profitability of assets and market-to-book. As for managerial opportunism, the variables were: indebtedness, company size, first year of the CEO's term and last year of the CEO's term. The corporate governance indicator was built by a set of four characteristics: the majority of independent members on the board of directors; non-duality between the positions of chief executive officer and chairman of the board of directors; audit by big four firm; and, existence of the audit committee. The results showed that 9.83% of the companies that had goodwill, recognized impairment losses. The oil, gas and biofuels sector had the highest average percentage of goodwill losses. The results also suggest that the existence and magnitude of goodwill losses were associated with financial performance and not with managerial opportunism. Finally, the results also indicated that governance plays a monitoring role in the relationship between financial performance and goodwill losses.

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Keywords: Monitoring. Corporate governance. Financial Performance. Managerial Opportunism. Goodwill losses.

EFEITO DA GOVERNANÇA CORPORATIVA NA RELAÇÃO DO DESEMPENHO FINANCEIRO E DO OPORTUNISMO GERENCIAL COM AS PERDAS DO GOODWILL

RESUMO

O estudo objetivou verificar o efeito do monitoramento da governança corporativa na relação do desempenho financeiro e do oportunismo gerencial com as perdas do *goodwill*. A amostra foi composta por 173 companhias listadas na B3 com *goodwill* no período de 2012 a 2017. A variável que captou a existência de perdas no valor recuperável do *goodwill* foi evidenciada pela *dummy* igual a 1. Em seguida, foi identificada a magnitude das perdas do *goodwill* em relação ao ativo total das empresas. Os indicadores de desempenho foram: crescimento das vendas, variação do fluxo de caixa operacional, rentabilidade dos ativos e *market-to-book*. Quanto ao oportunismo gerencial, as variáveis foram: endividamento, tamanho da empresa, primeiro ano de mandato do CEO e último ano de mandato do CEO. O indicador de governança corporativa foi construído pelo conjunto de quatro características: maioria de membros independentes no conselho de administração; não dualidade entre os cargos de diretor-presidente e presidente do conselho de administração; auditoria por firma *big four;* e, existência do comitê de auditoria. Os resultados apontaram que 9,83% das empresas que possuíam *goodwill,* reconheceram perdas no valor recuperável. O setor de petróleo, gás e biocombustíveis possuía o maior percentual médio de magnitude nas perdas do g*oodwill*. Os resultados sugerem também que a existência e a magnitude das perdas do *goodwill* estavam associadas ao desempenho financeiro e não ao oportunismo gerencial. Por fim, os resultados indicaram ainda que a governança desempenha um papel de monitoramento na relação entre o desempenho financeiro e as perdas do *goodwill*.

Palavras-Chave: Monitoramento; Governança Corporativa; Desempenho Financeiro; Oportunismo Gerencial; Perdas do *Goodwill*.

1 INTRODUCTION

Asset recoverability test emerged from the adequacy of the Brazilian accounting environment to international accounting standards. This standardization has the premise of preventing certain assets from being shown in the financial statements, by a book value that exceeds the recoverable value. In case that this occurs, the company will have to recognize a loss in the asset book value, with counterpart in the year-end results (Saints, Dani, & Klann, 2014; Moura, Fank, Mazzioni, Angonese, & Silva, 2019).

The assets recoverable value is estimated at fair value and value in use, whichever is greater. In particular, fair value is the amount received for the sale of an asset or paid for the transfer of a liability in an unforced transaction. The value in use arises from the expectations of the future cash flows of an asset brought to

present value. In order to project future cash flows, there is a manager subjectivity in the judgment of internal and external factors that can interfere in the estimation of prices, costs and expenses (CPC 01, R1, 2010).

All the assets can present losses in the recoverable value, but, in literature, the analysis of *goodwill* losses has received prominence. In first place, for the representation that such asset possesss in the company. Second, due to the subjectivity (judgment) that exists in the recognition and accounting, both of goodwill and of its respective losses (Kabir & Rahman, 2016). *Goodwill* is an asset that arises, in most cases, from the acquisition of one company by another. It is represented by the trading values exceeding the fair value of the identifiable net assets, that is, it reflects the amounts of incremental investments that are made with the purpose of obtaining future economic benefits (Wen & Moehrle, 2016).

The recoverability test on *goodwill* was introduced in order to improve the information content and more accurately measure the book value. However, it is a process that requires deep technical knowledge, in addition to being surrounded by subjectivity (Li, Shroff, Venkataraman, & Zhang, 2010). This means that the company can use the impairment of *goodwill* to underestimate, or even not recognize existing losses, which favors accounting earnings management practices (Abughazaleh, Al-Haresr, & Roberts, 2011).

Given the importance of the subject, numerous national researchers (Barbosa, Consoni, Scherer, & Clemente, 2014; Santos, Dani, & Klann, 2015; Amaro, Bachmann, Fonseca, & Espejo, 2015; Wrubel, Marassi, & Klann, 2015; Vogt, Pletsch, Morás, & Klann, 2016; Pacheco, Pacheco, Campagnoni, & Rover, 2017; Moura et al., 2019) and international ones (Zhang & Zhang, 2007; Avallone & Quagli, 2015; Majid, 2015; Kabir & Rahman, 2016; Sun, 2016; Chen, Keung, & Lin, 2019) have sought to identify factors that may influence the recognition and magnitude of *goodwill* impairment losses.

The main factors investigated have been associated with financial performance and managerial opportunism (Majid, 2015; Kabir & Rahman, 2016; Sun, 2016; Vogt et al., 2016; Moura et al., 2019). The justification lies in the fact of that the decline in the financial health affects the company expectation of future cash flows, which results in reduction in the *goodwill*recoverable value (Riedl, 2004; Kabir & Rahman, 2016; Vogt et al., 2016; Moura et al., 2019). In this scenario, managers can exercise opportunistic behavior when judging future cash flow estimates, in order to overestimate *goodwill* losses aiming at the attainment of private benefits (Avallone & Quagli, 2015; Kabir & Rahman, 2016; Moura et al., 2019).

The adoption of efficient mechanisms of corporative governance can assure more trustworthy estimates in impairment test of assets. In this way, a stronger and more active corporate governance can ensure that *goodwill* impairment losses are recorded only when there are indicators of devaluation. Stronger corporate governance is also likely to mitigate the opportunistic behavior of managers in the estimates and judgments involving goodwill impairment losses (Duh, Lee, & Lin, 2009; Kabir & Rahman, 2016).

Corporate governance mechanisms minimize the interest of managers in earnings management practices. Thus, the theoretical framework offers evidence of the need to associate corporate governance mechanisms with incentives for earnings management practices, aiming to mitigate the managers' overestimated

judgment in estimating the magnitude of *goodwill* losses. In this context, the research question emerges: What is the effect of monitoring corporate governance on the relationship between financial performance and managerial opportunism with *goodwill* losses? The study aimed to verify the effect of corporate governance monitoring on the relationship between financial performance and managerial opportunism with *goodwill* losses.

In view of the concern arising from the extensive use of managerial estimates and subjective judgments in recognizing *goodwill* losses, it is relevant to investigate the role of corporate governance in these decisions. The monitoring performed by the corporate governance mechanisms can guarantee greater reliability in the economic estimates used to justify the impairment test of the entities' assets (Kabir & Rahman, 2016).

Moreover, the existing national studies (Santos, Dani, & Klann, 2015; Wrubel, Marassi, & Klann, 2015; Vogt et al., 2016; Pacheco et al., 2017; Moura et al. 2019) examined whether the *goodwill* impairment losses is related mainly to variables that capture financial performance and managerial opportunism. However, these authors have not analyzed the role of corporate governance in such relationships. Therefore, the research contributes to the literature with empirical evidence related to the Brazilian scenario, which still lacks research of this nature.

2 DETERMINAT FACTORS OF GOODWILL LOSSES

Literature presents several factors that are capable of influencing the recognition of *goodwill* impairment losses. These factors are directly related to variables that capture financial performance and managerial opportunism (Majid, 2015; Kabir & Rahman, 2016; Sun, 2016; Vogt et al., 2016; Moura et al., 2019).

2.1 Financial Performance and Reduction of Goodwill Impairment Losses

The performance factors are capable of capturing changes in companies' financial conditions. Consequently, possible falls in these indicators may represent declines in the company's financial health, which results in the possibility of losses in the recoverable value of *goodwill* (Riedl, 2004; Kabir & Rahman, 2016). Sales growth, operating cash flow variation, asset profitability and market value are the main performance indicators listed in the literature.

In this sense, sales growth improves the company's operating performance and contributes to greater projections of future benefits from assets (Majid, 2015). Logically, the possibility of an increase in the current cash flow and in future projections reduces the occurrence of *goodwill* losses, since the value in use becomes greater than the book value (Abughazaleh, Al-Hares, & Roberts, 2011).

Operating cash flow is a performance indicator that captures the assets' ability to generate cash. Therefore, a positive variation in the cash flow contributes to increase the estimated value in use of the assets in the recoverability test. However, a decrease in cash flow can reduce the value in use of the estimated asset and increase the likelihood of recognizing losses from *goodwill* (Riedl, 2004; Abughazaleh, Al-Hares, & Roberts, 2011; Kabir & Rahman, 2016).

The return on assets is also a widely used performance indicator. Companies with higher return on assets tend to recognize lower losses due to *impairment* from *goodwill*, mainly because they have a greater potential to attract investors and exponentially increase their market value (Francis, Sun, & Wu, 2013; Zang, 2008, Vogt et al., 2016). On the other hand, the inefficiency in return on assets can devaluate the share price and cause losses by impairment (Rield, 2004; Abughazaleh, Al-Hares,

The market value represents a measure of return of companies' shares and can be considered an indicator of growth. According to authors such as Chen and Zhao (2004), Zang (2008) and Kabir and Rahman (2016), companies with the largest *market-to-book* show lower losses from *goodwill impairment*. AbuGhazaleh, Al-Hares, and Roberts (2011) demonstrated that the *market-to-book* is negatively related to *goodwill* impairment losses.

Literature points out that financial performance indicators serve as a guide instrument for future economic benefit incorporated into the estimated asset. The value in use estimate used to determine the recoverable value of an asset is based on the assumptions of future economic benefit intrinsic to the financial performance of companies.

Given the above, hypotheses 1 and 2 of the research are formulated:

H_1: There is a negative relationship between financial performance and the existence of *goodwill* losses.

H_2: There is a negative relationship between financial performance and the magnitude of *goodwill* losses.

In this sense, it is expected that companies that perform better will avoid or reduce *goodwill* impairment losses, as pointed out by AbuGhazaleh, Al-Hares, and Roberts (2011), Kabir and Rahman (2016), Vogt et al. (2016) and Moura et al. (2019).

2.2 Managerial Opportunism and the Reduction of Goodwill Impairment Losses

In addition to financial performance, which can impact in the reduction of recoverable value of *goodwill*, there are still incentives for managerial opportunism, which are mainly related to indebtedness, company size and CEO mandate (Majid, 2015; Kabir & Rahman, 2016; Sun, 2016; Vogt et al., 2016; Moura et al., 2019).

In relation to the indebtedness, the companies with bigger levels of indebtedness seek earnings management practices to maximize profits. In this in case, they can underestimate *goodwill* losses especially when the indebtedness is associated with contractual restrictive clauses called *covenants* (Verriest & Gaeremynck, 2009; Avallone & Quagli, 2015; Majid, 2015). Therefore, when a company is highly leveraged financially, the recognition of *goodwill* losses tends to be prevented, given that high amounts of loss act negatively on the financial structure of the company and cause the net equity to be reduced (Zang, 2008; Kabir & Rahman, 2016; Sun, 2016).

With regard to size, in general, the literature recommends that the largest companies have a preference for accounting policies that reduce the reported

results. Managers of the largest corporations act in an opportunistic manner to safeguard that resources are retained in the company instead of being distributed to shareholders (Kabir & Rahman, 2016). Therefore, managers of bigger companies possess more incentives to recognize *goodwill* losses in order to reduce profits.

The CEO's term of office can also influence the recognition of *goodwill* losses. Riedl (2004) points out that managers, in the first year of their mandate, are not responsible for the company's past performance, which contributes to recognizing losses in the first year, since the responsibility will be reported to the previous administration. In addition, by recognizing losses in the first year of office, CEOs reduce the possibilities of these events in the future (Zang, 2008). Dal Magro, Dani and Klann (2019) contribute by indicating that CEOs, in the first years of their mandate, are prone to earnings management practices aimed at showing managerial capacity to the capital market.

On the other hand, managers who are in the last year of their mandate will seek greater profits in order to increase the value of shares and improve their professional reputation when they leave the company (Dal Magro, Dani & Klan, 2019). Therefore, a negative association is expected from CEOs active in the last year of office and *goodwill* losses, given that the recognition of losses would damage the reputation in the corporate market and reduce bonuses and rewards in the last year of the term. Then, the chances of managers acting opportunistically in the term last year are increased, avoiding the recognition of losses.

In view of the literature premises, hypotheses 3 and 4 of the research are established:

H_3: There is a positive relationship between managerial opportunism and the existence of *goodwill* losses.

H_4: There is a positive relationship between managerial opportunism and the magnitude of *goodwill* losses.

In this sense, it is expected that companies with managers who have greater incentives to act opportunistically will have a greater chance of presenting *goodwill* losses, as well as losses of greater value, as pointed out by authors such as Zang (2008), Majid (2015), Avallone and Quagli (2015) and Kabir and Rahman (2016).

2.3 Effect of The Corporative Governance in Reduction of Goodwill Impairment Losses

Corporate governance mechanisms contribute to the decision-making process, mitigate conflicts of interest between partners, executives and minority shareholders, ensure corporate harmony and make cognitive and technical limitations as allies in maximizing long-term results (Ferreira, Lima, Gomes, & Mello, 2019).

Through a set of mechanisms aimed at reducing informational asymmetry and opportunistic earnings management practices by managers, corporate governance contributes to the protection of capital, increasing information integrity and protecting the interests of shareholders and others *stakeholders* (Luthan & Satria, 2016; Xue & Hong, 2016). Strict management rules, combined with compliance with legislation, improve the company's reputation with the stock and

credit markets. Thus, the company's commitment to efficient management mechanisms has an impact on reducing the cost of capital for third parties (Easley & O'Hara, 2004; Lima, 2009).

Thus, it is necessary that monitoring measures are able to ensure that the manager's opportunistic behavior is inhibited through better corporate governance practices. These practices improve the alignment of managers' interests with the concern of shareholders to maximize profit to obtain a greater return on invested capital (Santos, 2002).

The strong performance of corporate governance mechanisms are allied with the monitoring of earnings management practices and improve the quality of accounting information. Therefore, it is likely that good corporate governance practices will ensure that the estimates and judgments inherent to the impairment test of *goodwill* will be properly carried out (Xue & Hong, 2016; Nazir & Afza, 2018).

In other words, corporate governance can ensure that *goodwill* impairment losses are recorded when there is real financial evidence of *goodwill* impairment. Therefore, the incentives for managers' opportunistic behavior are mitigated in the estimates and judgments that involve the measurement and recognition of *goodwill* impairment losses (Kabir & Rahman, 2016).

In this context, research hypotheses 5, 6, 7 and 8 are formulated:

H_5 Corporate governance strengthens the negative relationship between financial performance and the existence of *goodwill* losses.

H_6 Corporate governance strengthens the negative relationship between financial performance and the magnitude of *goodwill* losses.

H_7 Corporate governance weakens the positive relationship between managerial opportunism and the existence of *goodwill* losses.

H_8 Corporate governance weakens the positive relationship between managerial opportunism and the magnitude of *goodwill* losses.

It is hoped that corporate governance practices, in the face of transparency, can strengthen the relationship between financial performance and *goodwill* impairment losses and also weaken the associations between managerial opportunism with such losses (Kabir & Rahman, 2016).

3 METHODOLOGICAL PROCEDURES

A quantitative, descriptive and documentary research was carried out in a sample of publicly traded companies from B3 - Brasil, Stock Exchange, Over the Counter Market. For the sample definition, through Economatica database, firstly, companies that had *goodwill* in the period from 2012 to 2017 were identified. Then, due to the specificities of the sector, in each searched year, companies that engaged in financial activities were excluded.

Companies that did not have the necessary information to compose the metrics of corporate governance were also removed, as well as those that did not have data that would allow the calculation of performance indicators and managerial opportunism. Thus, it was an unbalanced panel, composed of 35 companies in 2012, 31 in 2013, 28 in 2014, 28 in 2015, 26 in 2016 and 25 in 2017, totaling 173 companies in the period from 2012 to 2017.

To ascertain the existence of *goodwill* impairment losses, a categorical variable called Dummy_GoodwillLoss was created, which received a value of "1" in cases where the company had losses due to *goodwill* non-recoverability, and a value of "0" otherwise. The adoption of this criterion is also similar to that adopted in other previous studies such as Verriest and Gaeremynck (2009), Avallone and Quagli (2015), Majid (2015), Kabir and Rahman (2016), Sun (2016), Vogt et al. (2016) and Moura et al. (2019).

Afterwards, the magnitude of the losses (Value_*GoodwillLoss*) was verified, through proportionality of the losses in relation to the total assets of the companies. This method is similar to that adopted in previous studies by Amaro et al. (2015), Avallone and Quagli (2015), Majid (2015), Kabir and Rahman (2016), Sun (2016) and Moura et al. (2019).

It should be noted that analyzing only the loss account disclosed in the Income Statement, it was not possible to distinguish those that had *goodwill* losses from those that had losses from other assets. Therefore, it was necessary to analyze, individually, the explanatory management notes and reports of each company to identify the existence of *goodwill* losses as well as the amount of such losses.

Table 1 presents financial performance and managerial opportunism variables.

Table 1
Variables of financial performance and managerial opportunism

	Variables	Metrics	Basic authors
Financial Performance	Growth of Sales (GrowthSales)	Percentage of average sales growth in the last 3 years	Majid (2015); Kabir & Rahman (2016); Vogt et al. (2016); Moura et al. (2019)
	Variation in operating cash flow (VarOCF)	$(FCO_t - FCO_{t-1}) / AT$ OCF = Operating Cash Flow TA = Total Assets	Riedl, (2004); Majid (2015); Kabir & Rahman (2016); Vogt et al. (2016); Moura et al. (2019)
	Return of assets. (ROA)	Net income / Total Assets	Verriest & Gaeremynck (2009); Avallone & Quagli (2015); Vogt et al. (2016); Sun (2016); Moura et al. (2019)
	Market-to-book (MTB)	Market value / Owner's Equity	Zhang & Zhang (2007); Kabir & Rahman (2016); Vogt et al. (2016); Moura et al. (2019)
	IndPerformTOPSIS	TOPSIS	Avallone and Quagli (2015); Majid (2015); Vogt et al. (2016); Kabir and Rahman (2016)
Managerial Opportunism	Indebtedness (Indebt)	(Current liabilities + Non-current liabilities) / Total assets	(2015), Avallone and Quagli (2015), Majid (2015), Kabir and Rahman (2016), Sun (2016) and Moura et al. (2019)
	Size (LogAT)	Log of the Asset Total	Verriest & Gaeremynck (2009); Avallone & Quagli (2015); Kabir & Rahman (2016); Sun (2016); Moura et al. (2019)
	First Year of CEO mandate (CEO_Firstyear)	First year of CEO mandate?: Yes = 1 / No = 0	Majid (2015); Avallone & Quagli (2015); Kabir & Rahman (2016); Vogt et al. (2016); Moura et al. (2019)

Variables	Metrics	Basic authors
Last Year of CEO mandate (CEO_Lastyear)	CEO's last year of mandate ?: Yes = 1 / No = 0	Majid (2015); Avallone & Quagli (2015); Kabir & Rahman (2016); Vogt et al. (2016); Moura et al. (2019)
IndOportunTOPSIS	TOPSIS	Verriest and Gaeremynck (2009); Kabir and Rahman (2016); Sun (2016); Fank (2018)

Source: prepared by the authors.

Indicators of financial performance and managerial opportunism in Table 1 were supported by previous studies, such as Riedl, (2004), Zhang and Zhang, (2007), Verriest and Gaeremynck (2009), Avallone and Quagli (2015), Majid (2015), Kabir and Rahman (2016), Vogt et al. (2016); Sun (2016); Moura et al. (2019).

Additionally, using the Technique for Order Preference by Smilarity to Ideal Solution (TOPSIS), a method developed by Hwang and Yoon (1981), all performance variables were aggregated into a single indicator (IndPerformTOPSIS). The same occurred with the variables of managerial opportunism (IndOpportunTOPSIS). In this way, it was also possible to determine a general level of performance and a general level of managerial opportunism for each company in the sample.

Data for the variables "sales growth", "operating cash flow variation", "asset return", "*market-to-book*", "indebtedness" and "size" were collected in the Economatica database, for the entire analyzed period. The data related to the executive officers' mandates were collected in the Reference Forms, in Section 12.5 / 6 - Composition and professional experience of the management and the Fiscal Council.

The metrics for measuring the corporate governance variable, as shown in Table 2, were mainly based on the study by Kabir and Rahman (2016), who stressed that the board of directors and the audit are the main governance agents, since they have monitoring roles over the organization.

Table 2
Corporate Governance Metrics

Variables	Metrics	Basic authors
Independence of Council	Most members of the board are independent: Yes (1) No=0	Kabir & Rahman (2016)
CEO Duality	There is no duality in the position of CEO and chairman of the board of directors: Yes (1) No=0	
Auditing firm *Big Four*	The company is audited by a *big four* auditor: Yes (1) No=0	
Audit Committee	It has an audit committee: Yes (1) No=0	
Governance General Index (IndGovern)	Percentage of corporate governance practices adopted	

Source: prepared by the authors.

In the index formation, the responses were binary (0 and 1), 1 for the characteristics that represented good corporate governance practices and 0 for those that did not. For example, for companies that had the majority of independent members on the board, a value of "1" was assigned. The same occurred when there was no duality in the positions of CEO and chairman of the board, if the company was audited by one of the *big four* and if there was an audit committee in the organization, otherwise a value of "0" was assigned. All investigated practices had the same weight and in the end each company obtained a score that ranged from 0% (worst) to 100% (best).

The data for the governance variables were collected manually, in each year, for each company in the sample. In the case of the variables of board independence and duality in the CEO and chairman of the Board position, the data were collected in the Reference Forms, in Section 12.5 / 6 - Composition and professional experience of management and the fiscal council. The independent audit variables by *big four* and existence of the audit committee were collected in Sections 2.1 / 2 Identification and remuneration of independent auditors and 12.7 / 8 Composition of the committees, of the Reference Forms.

Thus, to analyze the indicators influence of financial performance and the managerial incentives in the "existence" of *goodwill* impairment losses, monitored by corporate governance, logistic regression was adopted. For the performance indicators and managerial opportunism in relation to "magnitude" of *goodwill* impairment losses, monitored by corporate governance, panel data regression analyzes were performed.

4 ANALYSIS AND DISCUSSION OF RESULTS

In this section, it is presented the study data description and analysis. Initially, totals and percentages of companies are presented according to the economic sector of B3 that accounted for *goodwill* in the Balance Sheet, in the period from 2012 to 2017.

Table 3
Number and percentage of companies that accounted for *goodwill* and *goodwill* impairment losses in the period from 2012 to 2017 according to B3 economic sectors

Economic sectors of B3	Companies that had *goodwill*		Companies that recorded *goodwill* impairment losses	
Industrial Goods	41	23.70%	Industrial Goods	41
Cyclical consumption	34	19.65%	Cyclical consumption	34
Non-cyclical consumption	17	9.83%	Non-cyclical consumption	17
Basic materials	32	18.50%	Basic materials	32
Oil gas and Biocomb.	8	4.62%	Oil gas and Biocomb.	8
Health	14	8.09%	Health	14
Information technology	15	8.67%	Information technology	15
Telecommunications	8	4.62%	Telecommunications	8
Public utility	4	2.31%	Public utility	4
TOTALS	**173**	**100%**	**TOTALS**	**173**

Source: prepared by the authors.

Regarding the number of companies that had *goodwill*, it can be seen in Table 3 that the total is equivalent to 173 companies, in the period from 2012 to 2017, distributed in nine B3 economic sectors. Among the companies, those in "industrial goods" economic sector stand out, making a total of 41 companies, which represents 23.70% of the sample total (173).

With 34 companies, approximately 20% of the sample, the "cyclical consumption" sector also stands out, followed by the "basic materials" sector with 32 companies that accounted for the *goodwill*, that is, 18.50% of the sample. It is noteworthy that these 3 economic sectors, totaled 61.85% of the total of companies that had *goodwill*.

According to a study by Moura and Beuren (2017), companies in the sectors of industrial goods, cyclical consumption and basic materials are among those most involved in mergers and acquisitions processes, which may justify the number of companies in these segments with greater accounting for *goodwill*.

On the other hand, the "public utility" economic sector has only 4 companies that have shown values in *goodwill* on their balance sheets, followed by the "oil, gas and biofuels" and "telecommunications" sectors with 8 companies each, together representing only 11.56% of the sample.

Regarding the number of companies that accounted for impairment losses, Table 3 shows that, of the total of 173 companies in the sample that had *goodwill*, only 17 recorded losses on this asset, which represents only 9.83%. This percentage is similar to that identified by Vogt et al. (2016), where the authors found that of the 91 Brazilian companies analyzed, 6% recorded *goodwill* impairment losses in the period from 2011 to 2014. It is also similar to the percentage corresponding to

10.81%, of a total of 148 Brazilian public companies in the period from 2012 to 2016, which was found by Moura et al. (2019).

As for losses by economic sector, "oil, gas and biofuels" stands out, which proportionally presented the greatest recognition, since of the 8 companies in this sector, 4 of them, that is, 50% recorded losses. It is noteworthy that the period of the research coincides with the period of "Lava Jato" operation, carried out by the Federal Police of Brazil that investigates crimes of corruption, in which administrative members of companies in the oil sector are involved, a fact that may have influenced for the increase in the loss record.

The sectors of "basic materials" and "cyclical consumption" appear next with 15.63% and 14.71%, respectively. It should also be noted that the segments of "non-cyclical consumption", "telecommunications" and "public utility" did not present companies that had losses in the analyzed period. In addition, it is worth mentioning the fact that the "industrial goods" economic sector has only one company with a loss accounting of *goodwill*, despite being the sector with the largest number of companies that had *goodwill*.

Table 4 shows the coefficients of logistic regressions related to the influence of performance and opportunism indicators, as well as corporate governance as a moderator, in the existence of *goodwill* losses.

Table 4
Coefficients of influence regressions of the explanatory variables on the existence of *goodwill* losses

VARIABLES	Dependent variable: Dummy_LossesGoodwill			
	MODEL I	**MODEL II**	**MODEL III**	**MODEL IV**
IndGovern	0.756		0.756	
Financial performance				
(GrowthSales)	**-3.014****			
(VarOCF)	**-1.025***			
ROA	**-9,046*****			
MTB	-0.384			
IndPerformTOPSIS	**-1.103****			
Financial performance monitored by governance				
IndGovernXGrowthSales		**-5.613****		
IndGovernXVarOCF		**-1.413***		
IndGovernXROA		**-13.501***		
IndGovernXROA		-0.540		
IndGovernXIndPerformTOPSIS		**-1.162****		
Managerial Oportunism				
(*Indebt*)			0.962	
(*LogAT*)			-0.435	
(*CEO_Firstyear*)			0.837	
(*CEO_Lastyear*)			-0.104	
IndOpportunTOPSIS			0.935	
Managerial Oportunism monitored by governance				
IndGovernXIndebt				0.483
IndGovernXLogAT				-0.852
IndGovernXCEO_Firstyear				0.335
IndGovernXCEO_Lastyear				-0.112
IndGovernXIndOpportunTOPSIS				0.970
Amount of *goodwill*				
GoodwillValue	**3. 473****	**3.473*****	**3.473****	**3.473*****
(Constant)	**-4.639*****	**-3.850*****	**9.640*****	**3.487*****
Step / Block / Model	**16.21*****	**20.05*****	**10.38****	**9.68****
-2 Log likelihood	94.94	91.11	100.77	101.47
Cox & Snell R Square	0,09	0,11	0,06	0,05
Nagelkerke R Square	0.19	0.23	0.12	0.12
Hosmer and Lemeshow Test	8.08	5.89	5.92	7.41

*** Significant at 1%; ** Significant at 5%; * Significant at 10%.
Source: prepared by the authors.

The Step, Block and Model tests, in Table 4, aim to demonstrate the predictive capacity of the model. According to Table 4, the result for model one was 16.21, for model two was 20.05, for model three 10.38 and for model four 9.68, all of which were statistically significant, confirming that independent variables contribute to improve the quality of predictions.

The -2Log likelihood test indicators corresponding to 94.94, 91.11, 100.77 and 101.47 indicate good adjustments. Cox & Snell test, which is similar to the determination coefficient R2 used in the linear model, indicated that approximately 10% of the variations that occurred in the log of the dependent variable ratio (existence or not of *goodwill* losses), in models one and two they are explained by the set of independent variables. However, only 6% of the variations

are explained in model three and 5% in model four. Nagelkerke, which is an adapted version of Cox and Snell, indicates that the model is able to explain around 20% of the variations recorded in the dependent variable in models 1 and 2 and only 12% in models 3 and 4.

The percentages of identified explanation are similar to those recorded in other previous surveys of the same nature, such as Majid (2015) who presented regressions with explanatory power ranging from 5% to 11%, Kabir and Rahman (2016) with 19%, 20 and 23% and AbuGhazaleh, Al-Hares and Roberts (2011) with 13.2%. Being thus, the clarifying percentage for the models is considered acceptable.

Finally, the Hosmer and Lemesshow test, which aims to test the hypothesis that there are no significant differences between what was predicted and what was observed by the model, resulted in a value of 8.08 in model 1, 5.89 in model 2, 5.92 in model 3 and 7.41 in model 4, not being significant in any model. This result indicates that the predicted values were not significantly different from those observed. Therefore, there is one more indication that the models can be considered reliable to verify the influence of the variables that make up these models.

It is also possible to verify, in Table 4, that the variable "Ind_Govern", which captures the adoption of good corporate governance practices, when analyzed individually, was not statistically significant in the 2 models tested (1 and 3), that is, there is no influence of corporate governance on the recognition of *goodwill* impairment losses.

This may have implications for the country's legal system and not just for the quality of corporate governance. In this direction, Astami, Hartadi and Tower (2008) had evidenced that the characteristics of each country can determine critically the decisions to register the losses or not of the goodwill. In countries with stricter legal enforcement, managers' discretion is less likely. Verriest and Gaeremynck (2009) argue that the applicability of international standards will only significantly affect the quality of accounting information in the environment with legal application with sufficient protection from investors.

As for the performance indicators, sales growth, cash flow variation and ROA presented negative coefficients of -3.014, -1.025 and -9.046, respectively, and all statistically significant. The "VarOCF" variable, despite the lack of significance, also presented a negative coefficient. In addition, it is noted in Table 4 that the variable "IndPerformTOPSIS", which represents the performance indicators grouped by the TOPSIS method, also presented a negative coefficient (-1.103) and statistically significant.

Thus, a negative relationship between *goodwill* performance and losses is identified, that is, the higher the performance indicators, the lower the chances of recognizing *goodwill* impairment losses, in the sample companies. The results found are similar and confirm the arguments of Abughazaleh, Al-Hares and Roberts (2011), Majid (2015) and Kabir and Rahman (2016), who reported that the performance variables are negatively associated with the amount of *goodwill* impairment losses. Therefore, the hypothesis H_1 that there is a negative relationship between the financial performance and losses of *goodwill* is not rejected.

It is also possible to observe that the variables "IndGovernXGrowthSales", "IndGovernXVarOCF" and "IndGovernXROA", which capture the effect of monitoring corporate governance in relation to sales growth, variation in cash flow and ROA with the existence of *goodwill* losses also showed negative coefficients (-5.613, -1.413, -13.501) and with statistical significance. The variable "IndGovernXMTB" was the only one, among the performance indicators that did not have statistical significance, however the coefficient was also negative. It is also verified that the metric "IndGovernXIndPerformTOPSIS", which captures the effect of monitoring corporate governance in the relation of the general performance indicator, obtained by TOPSIS method, with the existence of *goodwill* losses also presented a negative coefficient (-1.162) and with statistical significance.

So, the results show that in the face of better corporate governance practices, the chances are greater that losses will be recognized when performance is poor. Regarding governance as a moderating variable, the results are similar and confirm Duh, Lee and Lin (2009) and Kabir and Rahman (2016) arguments, that stronger and more active corporate governance can ensure that *goodwill* impairment losses are recorded when there are performance reduction indicators. So, given that, the hypothesis H_5 of this research is not rejected, that corporate governance strengthens the negative relationship between financial performance and *goodwill* losses.

As for managerial opportunism, the literature indicates that indebted companies tend to make accounting choices that maximize results, so managers are likely to underestimate losses (Vogt et al. 2016). However, the "Indebt" variable did not prove to be statistically significant, so it is not possible to infer that indebtedness impacts the losses of the sample companies.

In the case of the size, bigger companies are more inclined the transactions of merger and acquisitions, beyond possessing more incentives for retention of profits aiming at reinvestments, therefore, tend to register bigger losses (Zang, 2008; Kabir & Rahman, 2016). However, the coefficient was also not significant, making it impossible to confirm such premises.

CEO term of office, both in relation to the variable "CEO_FirstYear", and in relation to the variable "CEO_LastYear, can be directly related to *goodwill* losses However, again, the coefficients have no statistical significance in any of the models, so it is not possible to infer that they influence losses. Beyond these, "IndOpportunTOPSIS" variable, that represents the managerial opportunism indicators grouped by TOPSIS method, it was also not statistically significant.

Therefore, in general, in the analyzed period and in the investigated Brazilian companies, managerial opportunism does not represent a driving factor for the recognition of *goodwill* impairment losses. Therefore, the hypothesis H_3 that there is a positive relationship between managerial opportunism and the *goodwill* losses is rejected. This result confirms the findings gotten from the averages tests, that in the sample companies, the register of *goodwill* losses is associated with the financial performance and not to the managerial opportunism.

With regard to the role of corporate governance as a moderating variable in the relationship between managerial opportunism and *goodwill* losses, the results in Table 4 show that the coefficients of all variables (IndGovernXIndebt, IndGovernXLogAT, IndGovernXCEOFirstYear, IndGovernXCEOLastyear and

IndGovernXIndOpportunTOPSIS) were not significant, pointing out that there is no influence of governance in such relations. Therefore, the H_3 hypothesis, that there is a positive relationship between managerial opportunism and the *goodwill* losses is rejected.

Finally, the positive and significant coefficients of "ValueGoodwill" variable, in all models, point to *goodwill* as a factor that positively and significantly influences the existence of losses. The results are in line with AbuGhazaleh, Al-Hares and Roberts (2011) Avallone and Quali (2015) and Vogt et al. (2016) who point out that companies that have higher amounts recorded in in *goodwill* may report more losses due to impairment, due to the exposure to *impairment tests* being higher.

In this regard, AbuGhazaleh, Al-Hares and Roberts (2011) investigated UK companies between the years 2005 to 2006 and identified the existence of a significant and positive association between the *goodwill* value and the recognition of losses by impairment. Avallone and Quali (2015) analyzed European entities in the period from 2007 to 2011 and also found a positive relationship between higher *goodwill* values and high losses. Vogt et al. (2016) investigated Brazilian companies in the period from 2011 to 2014 and concluded that the higher the *goodwill* value, the greater the risk that the company will suffer losses with this type of asset.

Table 5 presents the coefficients of regressions by panel data referring to the influence of performance and opportunism indicators, as well as corporate governance as moderator, on the magnitude of *goodwill* losses.

Table 5
Coefficients of influence regressions of the explanatory variables on the magnitude of *goodwill* losses

VARIABLES	Dependent variable: *Vlr_PerdasGoodwill*			
	MODEL I *(Random effects)*	**MODEL II** *(Fixed Efects)*	**MODEL III** *(Random effects)*	**MODEL IV** *(Random effects)*
IndGovern	0.009		0.010	
Performance Financial				
(GrowthSales)	**-0,316****			
(VarOCF)	**-0.295***			
ROA	**-0.658*****			
MTB	-0.027			
IndPerformTOPSIS	**-0.882*****			
Financial performance monitored by governance				
IndGovernXGrowthSales		**-0.577****		
IndGovernXVarOCF		**-0.981***		
IndGovernXROA		**-1.050*****		
IndGovernXROA		-0.044		
IndGovernXIndPerformTOPSIS		**-1.002*****		
Managerial Opportunism				
(*Indebt*)			0.039	
(*LogAT*)			-0.015	
(*CEO_FirstYear*)			0.279	
(*CEO_LastYear*)			-0.196	
IndOportunTOPSIS			0.061	
Managerial Opportunism monitored by governance				
IndGovernXIndebt				0.023
IndGovernXLogAT				-0.028
IndGovernXCEOFirstYear				0.059
IndGovernXCEOLastYear				-0.046
IndGovernXIndOpportunTOPSIS				0.105
Amount of *goodwill*				
GoodwillValue	**0.175****	**0.129****	**0.153****	**0.146****
(Constant)	**1.575****	**0.923****	**-1.014*****	**-1.379*****
R ² Within		0.20		
R² Overall	0.22		0.07	0.09
Model Significance	**0.00*****	**0.00*****	**0.00****	**0.00****
No. of observations	173	173	173	173
Breusch-Pagan LM	**0.00*****	**0.00*****	**0.00*****	**0.00*****
Hausman test	0.28	**0.03****	0.36	0.12

*** Significant at 1%; ** Significant at 5%; * Significant at 10%.
Source: prepared by the authors.

Table 5 shows that the Breusch-Pagan tests were significant at the level of 1% (p <0.01) in all models. However, Hausman test was significant only in model 2. Then, we used panel modeling of fixed effects in model 2 and random effects in models 1, 3 and 4, as described by Favero and Belfiore (2017) for results like these.

It is also possible to verify that the R², Within for model 2 and Overall for models 1, 3 and 4, were 22%, 20%, 7% and 9%. These R² are similar to those registered in other previous surveys of the same nature, such as Avallone and

Quagli (2015), which presented regressions with R^2 of 9% and 25%, Majid (2015) with R^2 between 5% and 11%, Kabir and Rahman (2016) with R^2 of 19%, 20% and 23% and Sun (2016) who had R^2 of 20%. Thus, the percentages explained by the independent variables can be considered acceptable.

Still in Table 5, it is noted that the variable "IndGovern", which captures the adoption of good corporate governance practices, just as it had occurred in relation to the existence of *goodwill* losses, did not present statistically significant coefficients in the 2 tested models. Therefore, the results demonstrate that governance, individually, does not influence the amount of *goodwill* losses.

In relation to the performance indicators, again, "GrowthSales", "VarOCF", "ROA" and "IndPerformTOPSIS" variables proved to be statistically significant. Therefore, once again, the results corroborate the researchers' arguments such as AbuGhazaleh, Al-Hares and Roberts (2011), Majid (2015) and Kabir and Rahman (2016), that performance variables are negatively associated with the amount of *goodwill* impairment losses. Therefore, in this study, the hypothesis H_2 that there is a negative relationship between financial performance and the magnitude of *goodwill* losses is not rejected.

It is also possible to observe that the variables "IndGovernXGrowthSales", "IndGovernXVarOCF" and "IndGovernXROA", which capture the effect of monitoring corporate governance in relation to sales growth, variation in cash flow and ROA with the existence of *goodwill* losses also showed negative coefficients (-5.613, -1.413, -13.501) and with statistical significance. "IndGovernXMTB" variable did not have statistical significance, but it also presented a negative coefficient. So, the results show that in the face of better corporate governance practices, the chances are greater that there will be higher amounts of *goodwill* losses when performance is poor. These results are in line with those of Kabir and Rahman (2016). So, given that, the hypothesis H_5 of this research, that corporate governance strengthens the negative relationship between performance and *goodwill* losses, is not rejected.

As for managerial opportunism, the results in Table 5 show that the coefficients are not significant, in the same way as the moderating variables of the relationship between managerial opportunism and *goodwill* losses. Therefore, the hypothesis H_4 that there is a positive relationship between managerial opportunism and the magnitude of *goodwill* losses and H_8 that the corporate governance weakens the positive relationship between managerial opportunism and the magnitude of *goodwill* losses.

Finally, the coefficients were again positive and significant for "ValorGoodwill" variable, in all models, confirming that *goodwill* is a factor that positively and significantly influences not only the existence, but also the magnitude of losses. The results are in line with those of AbuGhazaleh, Al-Hares and Roberts (2011) Avallone and Quali (2015) and Vogt et al. (2016) and Moura et al. (2019).

5 CONCLUSIONS

The study aimed to verify the effect of corporate governance monitoring on the relationship between financial performance and managerial opportunism with *goodwill* losses. Initially, when investigating the existence and the magnitude of *goodwill* impairment losses, the results showed that only 9.83% of the total companies that had *goodwill*, recognized impairment losses this asset. Similar

results to those of Vogt et al. (2016), who identified that of 91 Brazilian companies analyzed, 6% recorded *goodwill* impairment losses in the period from 2011 to 2014 and of Moura et al. (2019) with a percentage corresponding to 10.81%, of a total of 148 Brazilian publicly companies in the period from 2012 to 2016.

Regarding the verification of the influence of financial performance and managerial opportunism on the existence and magnitude of *goodwill* impairment losses the results initially revealed, about performance, a negative relationship with the existence and magnitude of losses, that is, the higher the performance indicators, the lower the amounts and the chances of recognizing *goodwill* losses in the sample companies. The results found are similar and confirm the arguments of authors such as Abughazaleh, Al-Hares and Roberts (2011), Majid (2015) and Kabir and Rahman (2016). Therefore, the hypotheses H_1 and H_2 that there is a negative relationship between financial performance and the existence and magnitude of *goodwill* losses were not rejected.

In the case of managerial opportunism, no relationship was identified with the existence and magnitude of *goodwill* losses. Thus, the hypotheses H_3 and H_4 that there is a positive relationship between managerial opportunism and the existence and magnitude of *goodwill*losses were rejected. This result confirms the findings of the univariate analysis, that in the sample companies, the register of *goodwill* losses is associated with the financial performance and not with managerial opportunism.

Finally, regarding the influence of financial performance and managerial opportunism, monitored by corporate governance, on the existence and magnitude of *goodwill* impairment losses, in the case of performance, the results corroborate the arguments of Duh, Lee and Lin (2009) and Kabir and Rahman (2016), that a stronger and more active corporate governance can ensure that the *goodwill* impairment losses are recorded when there are performance reduction indicators. Therefore, hypotheses H_5 and H_6 of the research were not rejected, being that, the corporative governance strengthens the negative relationship of financial performance with the existence and the magnitude of *goodwill* losses.

With regard to the role of monitoring corporate governance in the relationship between managerial opportunism and *goodwill* losses, the results revealed that there was no governance influence in such relationships. Thus, the hypotheses H_3 and H_4, that corporate governance weakens the positive relationship between managerial opportunism and the existence and magnitude of *goodwill* losses, were rejected.

So, it is concluded that, in the investigated sample, the loss record of *goodwill* is associated only with financial performance, and corporate governance plays an important monitoring role in this relationship. For future studies, it is recommended to increase the number of corporate governance practices, so that it is possible to develop a more robust index to assess the quality of corporate governance or investigate other financial performance indicators of managerial opportunism.

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Contributions	Viviane Krein	Geovanne Dias de Moura	Cristian Baú Dal Magro
1. Idealization and conception of the research subject and theme		✓	
2. Definition of the research problem	✓	✓	✓
3. Development of Theoretical Platform	✓	✓	✓
4. Design of the research methodological approach	✓	✓	✓
5. Data collection	✓		
6. Analyses and interpretations of collected data	✓	✓	✓
7. Research conclusions	✓	✓	✓
8. Critical review of the manuscript	✓	✓	✓
9. Final writing of the manuscript, according to the rules established by the Journal.	✓	✓	✓
10. Research supervision		✓	