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Effect of Anti-Corruption Law adoption on firm value of Brazilian companies listed on Ibovespa

Efeito da adoção da Lei Anticorrupção no valor de mercado das companhias brasileiras listadas no Ibovespa

Efecto de la adopción de la Ley Anticorrupción en el valor de mercado de las empresas brasileñas que cotizan en Ibovespa

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Fernando Maciel Ramos

<https://orcid.org/0000-0002-4222-1253>

Professor at the University of Contestado
Doctor of Accounting Sciences at the Unisinos
framos@unc.br

Gabrielle Secchi Hohn

<https://orcid.org/0000-0003-4166-7103>

Master's student in Accounting and
Administration at Unochapecó
Graduated in Accounting Sciences at the
University of Contestado
gabrielle-hohn@hotmail.com

Lucas Antônio Vargas

<https://orcid.org/0000-0002-8264-4373>

Master's student in Accounting Sciences and
Administration at the Unochapecó
Graduated in Accounting Sciences at the
University of Contestado
lucasvargas@unochapeco.edu.br

ABSTRACT

Currently, corruption is a highly addressed issue. As anti-corruption practices, which are increasingly required in the financial market, this study aims to analyze the effect of adopting the Anti-Corruption Law on Brazilian companies' firm value listed on Ibovespa. The sample consisted of 229 observations from 2014 - 2018. Based on the econometric estimates, the results demonstrated a positive effect of adopting anti-corruption practices on companies' firm value. Given the problem of corruption in the Brazilian market, this study contributes to information that encourages the regulation of the market, organizations, and stakeholders in adopting and disclosing anti-corruption practices.

Keywords: corruption; firm value; law; Brazilian companies; Ibovespa.

RESUMO

Atualmente a corrupção é um assunto muito abordado, bem como as práticas anticorrupção, que estão sendo cada vez mais exigidas no mercado financeiro. O objetivo deste estudo foi analisar o efeito da adoção da Lei Anticorrupção sobre o valor de mercado das empresas de capital aberto brasileiras listadas no Ibovespa. A amostra foi composta por 229 observações, referentes aos anos de 2014 a 2018. A partir das estimações econométricas realizadas, os resultados evidenciam um efeito positivo da adoção de práticas anticorrupção sobre o valor de mercado das companhias. Dada a problemática da corrupção no cenário brasileiro, esse estudo contribui para informações que incentivem a regulamentação do mercado, organizações e seus *stakeholders* na adoção e divulgação das práticas anticorrupção.

Palavras-chave: corrupção; valor de mercado; regulamentação; companhias brasileiras; Ibovespa.

RESUMEN

La corrupción es ahora un tema muy abordado, así como las prácticas anticorrupción, que se requieren cada vez más en el mercado financiero. El propósito de este estudio fue analizar el efecto de la adopción de la Ley Anticorrupción sobre el valor de mercado de las empresas brasileñas que cotizan en bolsa que cotizan en Ibovespa. La muestra consistió en 229 observaciones, referidas a los años 2014 a 2018. Con base en las estimaciones econométricas realizadas, los resultados muestran un efecto positivo de la adopción de prácticas anticorrupción en el valor de mercado de las empresas. Dado el problema de la corrupción en el escenario brasileño, este estudio contribuye con información que fomenta la regulación del mercado, las organizaciones y sus partes interesadas en la adopción y difusión de prácticas anticorrupción.

Palabras clave: corrupción; valor de mercado; regulación; empresas brasileñas; Ibovespa.

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1 INTRODUCTION

In recent years, Brazil's economy has been marked by corruption scandals involving public and private power. To mitigate acts of corruption by companies against public authorities, the Brazilian government instituted Law 12.846/2013, also known as the Anti-Corruption Law, representing a major step, as it deals directly with the conduct of corrupt companies. According to the Corruption Perception Index (CPI), Brazil's position in 2016 was 79th. In 2017, it ranked 96th, and, in 2018, it ranked 105th. The decrease in this index was parallel to all the corruption events that broke out in the country.

In emerging countries (including Brazil), corruption is much more worrying where the levels of development of governance mechanisms may not be sufficiently adequate to deal with the impacts that corruption can cause (Lourenço et al., 2018). One of the impacts for companies based in countries with high levels of corruption is the devaluation of their brands in relation to companies located in countries with lower levels of corruption (Lin & Chuang, 2016), causing a negative impact on the company's value (Thakur et al., 2019). In the late 1990s, the need for regulations to punish corrupt acts in the corporate environment became evident. The Inter-American Convention on Corruption sought to develop actions that would minimize organizational corruption from the perspective of restrictive and punitive measures. Also, in 2003, the United Nations Convention against Corruption highlighted the importance of international cooperation in combating corruption, preventing, criminalizing corruption, and recovering assets (Gin, 2016). Thus, countries participating in the convention, such as Brazil, the USA, and the United Kingdom, sought to incorporate legislation to combat corruption, each in its form and essence, expressing strong measures.

In this context, corruption becomes negative in all areas, causing serious economic problems through the retraction of investments (Shleifer & Vishny, 1993; Murphy et al., 1991; Murphy et al., 1993). Evidence of corruption increases the risk of investments, negatively affects the financial market, and, consequently, the company's valuation before investors (Huang et al., 2015; Liu et al., 2017).

The adoption of anti-corruption practices is understood as an inherent aspect of Corporate Social Responsibility (CSR), by which companies aim to achieve their legitimacy since, by adopting these practices, they are concerned with the company's ethics and morals (Joseph et al., 2016; Rodriguez et al., 2006).

Accordingly Nascimento et al., (2018), it was noted that political and economic instabilities influenced Brazilian companies' financial performance and market value listed on the BM&FBovespa from 2013 to 2015. Araújo et al. (2018) identified that Lava Jato reduced the market value of companies directly involved in corruption scandals. However, these studies did not observe the levels of

adoption of anti-corruption practices and the effect that the adoption of these measures had on companies' market value. Therefore, this study has the guiding question: "What is the influence of the adoption of anti-corruption practices on the market value of Brazilian companies listed in [B]³?". Therefore, the study's objective is to verify whether the adoption of anti-corruption practices influences the market value of Brazilian companies listed in [B]³.

Conducting this investigation is justified because it contributes to a more comprehensive understanding of the relationship between anti-corruption practices, corporate social responsibility, and market value. This research's relevance is that several international initiatives are being adopted, aiming to fight corruption worldwide. It is understood that the disclosure of anti-corruption practices affects the share price, as well as when punishments and involvement with corruption are disclosed, the market value of the shares may vary negatively.

One can cite initiatives taken by other countries to prevent corrupt acts. For example, the USA, for example, which in 1977 established the *Foreign Corrupt Practices Act*, a law seen as a precursor, and which established sanctions for infractions of corrupt acts among private entities and public bodies. Years later, as a result of corporate fraud events, the United States also implemented the Sarbanes Oxley Act in 2002, in response to the various corporate scandals that occurred in the late 1990s and early 2000s, which culminated in the bankruptcy of companies that were among the largest in the North American stock market. Commonly called SOX, this law provides for greater credibility in disclosing information provided to the corporate environment and protecting investors (Borgeth, 2007). SOX's scope of action goes beyond disclosing information, incorporating ethical and transparent practices for executives, stockbrokers, administrators, consultants, auditors, and other members who work directly with the *Security Exchange Commission* (SEC), the entity responsible for regulating the stock market in the USA. Additionally, the law implements punitive sanctions for those who fail to comply with their legal provisions (Belli et al., 2016). Other initiatives can also be cited, such as in the United Kingdom where there is the *United Kingdom Bribery Act* (UKBA), the anti-corruption campaign in China (Brown et al., 2019; Xu, 2018; Ying & Liu, 2018)

This study aims to contribute to the academic environment, as well as to managers and those responsible for corporate governance, bringing to regulatory bodies, shareholders, related parties, and public bodies how anti-corruption actions affect the market value of companies listed in [B]³, also seeking to collaborate with society, adding content to research on corruption and market value in Brazil.

Other authors can use this study's results, which sought to verify whether the market value is affected by anti-corruption practices. For the researched sample, it was found, through the estimates made, that the level of adherence to anti-corruption practices has a positive

relationship with the market value, and if the variables are assessed individually through Panel Data Regression, it is also verified that such data are statistically significant, that is; the index of anti-corruption practices significantly influences the market value.

This article is structured in five sections. In the first, introductory aspects are presented. The theoretical review is presented in the second, covering the research theme, followed by the study methodology and design. The fourth section consists of data analysis, and finally, we present the final considerations.

2 THEORETICAL FRAMEWORK

2.1 Anticorruption Practices and Market Value

Corruption permeates several countries, not separating those developed from those in development, causing fraud and damage to the image and conduct of organizations and nations. In this context, events of corruption figure in global history long before the current laws were implemented in each country. In the United States, for example, in the 1970s, the Watergate case became known for involving 400 American companies in a bribery scheme that involved public officials in the collusion (Campos, 2015). In that same decade, the International Chamber of Commerce (ICC) released a set of practices and guidelines for companies to adopt to fight corruption and the Organization for Economic Cooperation and Development (OECD) with its 30 members and more non-member countries. Among them, Brazil signed a convention that established corruption as a criminal practice. Years later, in 2003, the Global Pact to fight corruption was signed, mediated by the UN, and which became the first global instrument to fight corruption (Pavesi, 2016).

Due to acts of corruption in different economic environments, countries such as the United States and the United Kingdom have sanctioned normative bases to mitigate these events. The USA has the *Foreign Corrupt Practices Act* (FCPA), which provides for violations and corrupt acts by companies to the public administration, and the United Kingdom has the *United Kingdom Bribery Act* (UKBA), which is the British anti-corruption standard, which has applications in the criminal and administrative sphere. Even though Brazil was present at several anti-corruption events, such as, for example, the United Nations Convention on Corruption and the Inter-American Convention to Combat Corruption (OAS), specific anti-corruption legislation took time to be created. Following international initiatives, such as the USA and the United Kingdom, Brazil, on August 1, 2013, instituted Law 12,846, known as the Anti-Corruption Law (Campos, 2015). From this, it is possible to argue that the enactment of the anti-corruption law in Brazil was influenced by an international context of movements by international organizations and other countries fighting against corruption.

The Anticorruption Law punishes Brazilian companies, civilly and administratively, for any act harmful to the public administration, national or foreign. According to the provisions of the law mentioned above, companies' liability is objective, not excluding the individual liability of any natural person, author, co-author, or who participates in the illegal act (Brasil, 2013a; Brasil 2013b).

Following the Law, Decree 8,420 was enacted in March 2015, which regulates the Anti-Corruption Law and determines the bases for creating integrity programs in companies. When implementing these programs, companies should have as main objective to establish mechanisms and procedures of integrity, in addition to codes of ethics and conduct, aiming at good compliance with the laws. They must also work to detect and remedy fraud and unlawful acts. This compliance program extends to all company members, regardless of position. Thus, the Integrity Program has become an element of defense in companies' eventual administrative processes, helping to reduce fines and sign a leniency agreement.

According to the research by Castro, Amaral e Guerreiro (2018), the integrity program directly affected the internal control of companies, leading Brazilian companies to adhere to the parameters of the compliance program of the anti-corruption law through new internal controls, which are mostly related to financial statements, bids, infractions, and donations to public parties.

The disclosure of information regarding compliance programs and the adoption of anti-corruption practices is directly related to the economic, political, and regulatory environment of each country, as well as the level of corruption in each country, as disseminating scarce information is as a way of hiding corrupt practices (Agyei-Mensah, 2017). The adoption and disclosure of anti-corruption actions by organizations are directly related to Corporate Governance and Corporate Social Responsibility. Companies adopt more conservative measures and more complex *compliance* structures to prevent fraud and litigation (Cella et al., 2019).

Caixe and Krauter (2014) and Madorran and Garcia (2016) point out that the practices of corporate governance and corporate social responsibility result in higher market value for companies, as they denote the adequacy of these with higher standards of corporate responsibility, becoming an instrument that can promote changes and improve trust, support, and the legitimacy of consumers and lead to greater transparency in the disclosure of information. When corrupt behavior is recognized in companies, anti-corruption legislation positively impacts the quality of accounting information (Bunkanwanicha & Greusard, 2018).

With the adherence and disclosure of anti-corruption practices, organizations can bring public awareness about the business's moral principles, serving as an accountability mechanism. Also, it allows its *stakeholders* to know the organizational position regarding the accountability of managers and employees who may become involved in

cases of corruption, to recognize their responsibility and the implications for reputation, integrity, and organizational legitimacy (Joseph et al., 2016). In this way, it is possible to argue that the adoption of anti-corruption practices can help entities achieve internal and external organizational goals and get their stakeholders to recognize the institutional efforts for the development of value businesses.

Regarding the relationship between corruption and the market value internationally, Fu (2019) identified that Chinese companies linked to announcements of corruption investigations had a decline in the price of their shares. In the Indian stock market, corruption is an important determinant of corporate liquidity and value (Thakur et al., 2019). In Europe, corruption is at high levels and represents a significant risk to developing the financial market (Boadi & Amegbe, 2017).

Miari, Mesquita and Pardini (2015) state that the Brazilian stock market does not react efficiently when it comes to issues related to organizational corruption. In contrast, Malgwi (2016) research shows that not all corruption and bribery have the same degree of impact in all countries and economies. Companies with high market performance suffer less impact than companies with low performance in the presence of corruption (Rocha et al., 2019). Additionally, Rodrigues and Medeiros (2019) denote that corruption may be associated with regional features, influencing how public managers will interpret the phenomenon of corruption.

Baugarte et al. (2019) suggested that corruption encourages activities developed through entrepreneurship, demonstrating a positive effect of corruption on entrepreneurship in developing countries. The studies of Amaral e Santos (2017) analyzed the effect on the price of the shares of Brazilian companies that were subject to the *Foreign Corrupt Practices Act* (FCPA) resulting from the punishment imposed by the *Securities and Exchange Commission* (SEC) due to acts of corruption practiced with foreign government officials, concluding that the returns showed a negative reaction from the market participants towards the punishment, however, some market participants had access to the information of the punishment in advance. For Grossi et al. (2018), Brazilian companies with ADRs in the American market obtained lower abnormal returns when disclosing information involving them in corporate crimes or corruption scandals.

Corruption hinders Brazilian firms' investment decision making. Thus, the company's adoption of anti-corruption measures can increase the organization's credibility. With the help of anti-corruption preventive mechanisms, investments in companies are boosted (Pellicani, 2017). Consequently, investors' perception positively impacts companies, leading them to prefer to invest in companies with ethical conduct.

From a market perspective, companies that adopt compliance practice require that they also have and follow anti-corruption rules when negotiating with other

organizations. When providing international business, foreign authorities opt for caution when negotiating with Brazilian companies portrayed in corruption scandals. For this reason, when implementing anti-corruption practices, companies aim to provide greater transparency and minimize information asymmetry among stakeholders. Anti-corruption compliance practices also contribute to improving communication with the external environment, given the achievement of a competitive differential in relation to the market, with the legitimacy created in the disclosure of this information.

Therefore, the compliance program is a way to attract investors, customers, and suppliers, improving the company's competitiveness and transparency. Finally, it is observed that when implementing a compliance program that shows anti-corruption practices, the organization will demonstrate greater corporate responsibility to the market, denoting greater security, transparency, compliance with the laws (in the operationalization of its activities), which mitigate the probability of the company in engaging in acts of corruption, whether civil, labor, tax, environmental (Brandi, 2017). Given the spectrum presented, the study hypothesis is announced:

H1: The level of adoption of anti-corruption practices positively impacts the market value.

Given the study's hypothesis, the following section presents the methodological path used to test it to verify the assumptions made in that study.

3 METHODOLOGY

Collis and Hussey (2005) indicate that studies in applied social sciences can be classified as objective procedures for obtaining data and addressing the problem. Considering the above, this study is classified as descriptive in relation to its objective, documentary with regard to the strategy adopted for data collection, and a quantitative approach to analyzing the problem.

The research population comprised all the companies listed in [B]³ (Brazilian Stock Exchange). The initial sample used in the study was made up of the 66 companies listed on the Ibovespa in August 2019. The Ibovespa index was used because it is the main performance indicator of the stocks traded on [B]³. Its composition is due to shares that have good liquidity and a high volume of trades. As such, it measures the mean performance of the most representative stock portfolios traded on the stock exchange.

For the analysis, financial institutions were excluded, as these entities have peculiar characteristics in relation to other companies. Companies that did not have all the variables available for the study were also eliminated. From this, the final sample was determined, which resulted in 50 companies listed in this index. Table 1 shows the distribution of companies by sectors defined by [B]³.

Table 1

Sample composition analyzed by sectors

Sectors	Number of Companies	%
Industrial goods	7	14.00
Cyclical consumption	11	22.00
Non-cyclical consumption	6	12.00
Primary materials	9	18.00
Oil, gas, and biofuels	4	8.00
Health	4	8.00
Telecommunications	2	4.00
Public interest	7	14.00
Total	50	100.00%

Source: Elaborated by the authors.

The number of companies/year varied according to the availability of documents necessary to capture the level of adherence to anti-corruption practices. In 2014, the final sample of analysis totaled 43 companies. In 2015, 44 companies reported. In 2016, 45 companies made the base documents available for analysis. In 2017, 47 companies and in 2018, 50 companies. The companies listed on the Ibovespa and which were not analyzed were due to not disclosing the necessary documents and/or not having the financial information for the periods analyzed. In the end, it totaled 229 observations.

3.1 Data Collection and Analysis Procedures

Data collection was started by consulting the companies and [B]³ email addresses, looking for financial statements, sustainability reports or equivalent, integrated reports, reference forms, code of ethics and conduct, and/or company policies, referring to the years 2014 to 2018, seeking to evidence whether these companies have adhered to anti-corruption rules over the analyzed period. The economic and financial data were extracted from Economática®.

To check the degree of companies' adherence to anti-corruption practices, after collecting the documents, a checklist was used, consisting of 13 questions based on the 10th Principle of the UN Global Compact. The questions were adapted from the work of Pavesi (2016), who studied the level of anti-corruption disclosure of Brazilian companies listed in the new market segment in 2015. As reported by (Pavesi, 2016), the issues were based on the 10th UN Global Compact Principle, on Transparency International (TI) studies, on the Integrity program that is dealt with in the Anti-Corruption Law (BRASIL, 2013), and on the sustainability reports of the Global Reporting Initiative (GRI). Appendix A shows the checklist used and the assessment criteria used.

According to the checklist from the analyzed documents, the aspects verified through the checklist were evaluated with a score ranging between 0.00 points, 0.5 points, and 1.0 points, according to the fulfillment/disclosure of the criteria contained in the checklist. When meeting 13 points, the company would have 100% adherence to anti-corruption practices, and if it met 0 points, the company would not meet any anti-corruption practices, demonstrating the lack of concern with this issue. Thus, the anti-corruption

practices index (IPAC) was measured based on the proportion of points obtained in the checklist by the total of 13 points. The procedures adopted are similar to those already carried out by Pavesi (2016) and Joseph et al. (2016). The variables used and their respective operations are shown in Table 2.

Table 2

Operationalization of variables

Variable	Classification	Operationalization
Market Value (VLRMERC)	Dependent	Obtained from the natural log of the result of multiplying the share value of company <i>i</i> in year <i>t</i> by the total shares of the respective class.
Anti-Corruption Practices Index (IPAC)	Independent	Obtained from the checklist consisting of 13 items, adapted from Pavesi (2016).
Company Size (PORTE)	Control	Total Asset Log of company <i>i</i> in year <i>t</i> .
Big four (Big4)	Control	Dummy variable that assumes 1 for when the audit firm is between <i>Big fours</i> and 0 otherwise.
New Market (NVOMERC)	Control	Dummy variable that assumes 1 for when the company is listed in the New Market Corporate Governance of [B] ³ .
Family Business (FAM)	Control	Dummy variable that assumes 1 for when the company is family-owned and 0 otherwise
Leverage (ALV)	Control	(Current Liabilities + Non-Current Liabilities) / Total Assets.
Corporate Sustainability Index (ISE)	Control	Dummy variable that assumes 1 for when the company is listed on the ISE and 0 otherwise.
Company Age (IDD)	Control	Company Foundation Year – Year of Analysis .
General Liquidity (Liquidez)	Control	Current assets + Long-term assets / (Current liabilities + Non-current liabilities)
Return on Equity (ROE)	Control	Net Income / Shareholders' Equity.
Company growth (Cresc)	Control	Revenue for the year under review – Revenue for the previous year / Revenue for the previous year.
Shareholding Control (CONT)	Control	Dummy that takes 1 for when the entity is state-owned and 0 otherwise.
Stock Volatility (VOLAC)	Control	Obtained through the Standard Deviation between the share price in the year analyzed and the previous year.
Return on Assets (ROA)	Control	Net income for the period analyzed / Total assets for the previous period.

Source: Elaborated by the authors.

To test the established hypothesis, which predicts a positive effect of adopting anti-corruption practices on the analyzed companies' market value, econometric models

were employed, using the multiple linear regression technique with data organized in a cross-section poll with sector dummies and standard deviations clustered by company. The multiple linear regression technique allows verifying the relationship between one or more explanatory variables and a quantitative dependent variable. The implicit assumption that there may be causal relationships between them (Fávero & Belfiore, 2017; Gujarati & Porter, 2011). The choice of estimation based on this technique was because, in the sample, the data are unbalanced, and to verify the existence of a relationship between the market value, dependent variable, and the index of adoption of anti-corruption practices, an independent variable of the study and control variables. To test the effect of the anti-corruption law on companies' market value, the model in equation 1 was proposed.

$$\begin{aligned} VLRMERC_{it} = & \beta_0 + \beta_1 IPAC_{it} + \beta_2 PORTE_{it} + \beta_3 ALV_{it} \\ & + \beta_4 Liquidez_{it} + \beta_5 Cresc_{it} + \beta_6 ROA_{it} \\ & + \beta_7 ROE_{it} + \beta_8 VOLAC_{it} + \beta_9 ISE_i \\ & + \beta_{10} IDD_{it} + \beta_{11} CONT_i + \beta_{12} NVOMERC_{it} \\ & + \beta_{13} FAM_i + \beta_{14} Big4_{it} + \varepsilon_{it} \end{aligned}$$

In the proposed model, the companies' market value was used as the dependent variable in the respective years of observation and as explanatory variables, the index of anti-corruption practices and the other control variables, as shown in Table 2. The equation model was estimated in four moments, the first with only the explanatory variable, and later with the gradual inclusion of the variables of financial control, governance, and characteristics of the companies. We opted to perform this estimation process to capture the effect that control variables can have on the relationship between the index of adoption of anti-corruption practice and the market value of the companies in the sample. As a robustness test, the models were re-estimated with panel data regression with fixed effects to allow verification that the results found in the initial estimates remain, even when the timing of the data is controlled. According to Gujarati e Porter (2011), the estimation of econometric models with panel data offers informative data, with greater variability, less collinearity that allows examining the dynamics of change during the analysis period considered, and offers greater efficiency in estimating when evaluating the evolution of variables over time (Fávero, 2013). The Hausmann test was used to verify the adequacy of the use of fixed effects in the estimation instead of random effects.

The control variables that made up the proposed econometric model were established in view of previous studies that have already shown the effect of these on the market value, thereby mitigating possible biases. The size of the company is a factor that can affect the market value, it is expected that the larger the organization, the greater the control capacity of the entity in generating results that reverberate in return to shareholders, contributing to the appreciation of the organization by the market (Basu et al., 2016; Fosu et al., 2016; Moura et al., 2020). Leverage was included in the proposed model, as it can be considered as a disciplinary mechanism for management and the organization's performance, leveraged companies present

greater financial risk, which consequently can cause the market to apply a higher discount rate, which may consequently affect the market value (Araújo et al., 2018; Moura et al., 2020; Viana et al., 2019). The performance of an entity perceived by investors are also aspects that can affect performance and market value (Agyei-Mensah, 2017; Brown et al., 2019; Thakur et al., 2019), so to control the effect of these aspects, liquidity, ROA, and ROE were considered as proxies. Companies that have higher growth rates tend to be valued by the market, as they manage to indicate to investors potential for generating returns, and with this, impacting on the valuation of their shares (Fosu et al., 2016; Likitwongkajon & Vithessonthi, 2020; Varaiya et al., 1987). As a measure of business risk, the volatility of a company's stock value can negatively affect the market value because of the greater the variability of stock returns, the greater the risk perceived by the investor, which can lead the market to react negatively (Nascimento et al., 2018; Rossi & Harjoto, 2019).

Corporate governance is also a factor that may have an effect on the market value (Caixe & Krauter, 2014; Li et al., 2015; Santos et al., 2019), so a dummy was used to capture the entities listed in the new market and a dummy for when the statements were audited by a Big Four audit company. There are theoretical aspects in the literature that indicate that the adoption of sustainable practices has an effect on the firm value, one that predicts that the market tends to recognize sustainable companies and consequently value them, and another that deals with the market that does not recognize since these expenses reflect only expenses to shareholders (Qureshi et al., 2020; Yu & Zhao, 2015), to capture this aspect, a dummy for companies listed on the ISE was included. Characteristics of organizations can also affect the market value of the entity, including the age of the organization, ownership control, and family business (Brown et al., 2019; Goes et al., 2017; Jara et al., 2019; Klein et al., 2005; Rossi & Harjoto, 2019) were the characteristics controlled in this study.

To reduce the impact of observations with outliers, the financial variables were submitted to the winsorize technique, where a lower limit (1%) and an upper limit (99%) were applied, which allowed to control the extreme effects for each variable used and thereby reducing the impact of outliers. The tests were performed using the Stata® software.

4 ANALYSIS AND DISCUSSION OF RESULTS

Regarding the characteristics of the companies that make up the sample, it was observed that only 3 were not listed in the Corporate Sustainability Index (ISE), which is the index that analyzes the sustainability performance of companies listed in [B]³. Regarding the control of these companies, it was found that 88.65% of them are privately owned companies, and 11.35% are state-owned.

If the number of companies that are part of the New Market is observed, the percentage reached 60.26%, that is, more than half of the companies that formed the sample are companies that voluntarily commit themselves to adopt corporate governance practices, in addition to those

required by law. New Market includes companies with the highest levels of corporate governance in [B]³.

Only 37.99% of all companies are family-owned. It should be noted that entities that control the shareholding by members of the same family, whether directly or indirectly, were considered family companies. The percentage of companies audited by the four largest auditing and consulting companies in the world is 92.14%, demonstrating that the Big Four have audited companies in the vast majority of years. For Almeida and Almeida (2009), the hiring of audit companies considered *Big Four* indicates to the market greater reliability, due to the expertise of the auditors of these audit companies.

After collecting all the data, the consolidated IPAC result for the year was reached, as shown in Table 3.

Table 3
General IPAC by year (%)

	Mean	Minimum	Maximum	Std Dev.	Median
2014	60.85	0.00	100.00	31.71	73.32
2015	70.65	0.00	100.00	31.07	84.13
2016	84.13	0.00	100.00	17.02	88.70
2017	86.58	0.00	100.00	18.53	92.55
2018	89.62	4.00	100.00	12.97	94.23

Source: Research data.

It is observed that the lowest mean adherence to anti-corruption practices occurred in 2014, in the proportion of 60.85%. Over the period analyzed, this mean increased, reaching a mean of 89.62% in 2018. Therefore, it appears that companies have improved their adherence or the way they disclose anti-corruption practices over these years. It is suggested that one of the justifications for the increase in the adherence rate is the institution of the Anti-Corruption Law, which came into force in 2014. Decree 8,420, promulgated in March 2015 and, in parallel, there were several corruption scandals in the country, making the market, companies, and investors more demanding in relation to anti-corruption practices, making companies feel obliged to disclose such practices.

Also noteworthy are the following findings made during data analysis; in 2014, the lack of some documents made the analysis a little more restricted. However, the information disclosed about anti-corruption practices by companies was very scarce. In 2015, some companies started to highlight that they were implementing or implementing anti-corruption compliance programs. In 2016, in addition to the increase in data found on corruption, some companies were condemned by the Lava Jato operation, agreements with the FCPA, and investigations on irregular payments. In 2017 and 2018, the subject that predominated in the information disclosed on the subject was reviewing codes of ethics and the reformulation of company policies.

The gradual increase in the calculated index may be due to greater pressure from the market in terms of regulation, business, and mimicry that makes organizations increasingly concerned with showing their stakeholders their commitment to the morality with which business is

managed. For Joseph et al. (2016), organizations are led to adopt anti-corruption practices due to several factors, among them there are coercive issues, which derive from the obligation resulting from regulation, as an isomorphic mimetic force, which is due to the adherence of anti-corruption practices to be adopted by competitors.

When segregating companies by sectors, analyzing the IPAC, it was found that, according to Table 4, the sector that in 2014 had the highest level of adherence to anti-corruption practices is that of Oil, gas, and biofuels. The higher level of adoption by this sector is justified because it is composed of state-owned companies. Therefore, it is believed that they have already released such information, as they are closer to the legislation.

Table 4
Percentage of IPAC - Sector X Year

Sector	Year	Mean	Minimum	Maximum	Std Dev	Median
Industrial goods	2014	67.31	11.54	100.00	33.33	76.92
	2015	88.46	46.15	100.00	21.07	96.15
	2016	95.51	88.46	100.00	5.11	96.15
	2017	93.41	65.38	100.00	13.08	100.00
	2018	93.96	69.23	100.00	11.72	100.00
Cyclical consumption	2014	35.47	0.00	88.46	36.32	30.77
	2015	58.85	0.00	88.46	39.14	80.77
	2016	79.23	0.00	100.00	28.79	86.54
	2017	83.46	0.00	100.00	29.68	90.38
	2018	85.31	30.77	100.00	20.05	88.46
Non-cyclical consumption	2014	61.54	19.23	84.62	24.69	71.15
	2015	74.36	26.92	92.31	24.65	84.62
	2016	76.92	38.46	96.15	21.35	82.69
	2017	83.33	46.15	100.00	19.86	90.38
	2018	92.31	84.62	100.00	5.44	92.31
Primary materials	2014	60.26	0.00	100.00	40.29	76.92
	2015	61.11	0.00	100.00	40.86	76.92
	2016	80.77	26.92	100.00	21.84	84.62
	2017	82.91	26.92	100.00	22.84	88.46
	2018	84.62	26.92	100.00	22.84	92.31
Oil, gas, and biofuels	2014	93.27	73.08	100.00	13.46	100.00
	2015	91.35	65.38	100.00	17.31	100.00
	2016	93.27	73.08	100.00	13.46	100.00
	2017	91.35	65.38	100.00	17.31	100.00
	2018	91.35	65.38	100.00	17.31	100.00
Health	2014	51.92	0.00	100.00	41.96	53.85
	2015	51.92	0.00	100.00	41.96	53.85
	2016	77.88	50.00	100.00	20.68	80.77
	2017	81.73	50.00	100.00	22.73	88.46
	2018	97.12	92.31	100.00	3.68	98.08
Telecommunications	2014	84.62	69.23	100.00	21.76	84.62
	2015	84.62	69.23	100.00	21.76	84.62
	2016	90.38	80.77	100.00	13.60	90.38
	2017	90.38	80.77	100.00	13.60	90.38
	2018	90.38	80.77	100.00	13.60	90.38
Public interest	2014	70.77	0.00	100.00	41.83	92.31
	2015	78.46	30.77	100.00	41.83	96.15
	2016	88.46	69.23	100.00	11.32	88.46
	2017	90.66	76.92	100.00	9.12	92.31
	2018	90.66	76.92	100.00	9.12	92.31

Source: Research data.

The sector with the lowest adoption, in that same year, is Cyclic Consumption, according to Table 4. On the other hand, it can be seen that it is also the sector that most evolved and improved its IPAC, which in 2014 was, on average, 35.47% in adherence and in 2018 it rose to

85.31%, showing an evolution of 49.84% between its lowest and highest IPAC mean. Analyzing 2018, all sectors, except Cyclic Consumption and Basic Materials, adhered 90.00% or more to anti-corruption practices. Nonetheless, the fact that they did not reach such an average is justified by the number of companies in their composition. Therefore, these are the two sectors comprising the largest number of companies. The fact that some sectors have relatively low standard deviations reinforces the discussion about whether the adoption and disclosure of anti-corruption practices can be explained by the existence of mimicry among companies in the same sector (Joseph et al., 2016). Thus, the disclosure of anti-corruption practices can be perceived as a transparency mechanism, capable of providing competitiveness to entities, which is perceived by peers.

The results found in this study are superior to those found by Pavesi (2016), who found a mean adherence of 44% when analyzing companies listed in the new market segment. Divergent from the research findings, we find that the sector of industrial goods, oil, gas, and biofuels, and health are among the sectors with the highest level of disclosure of the adoption of anti-corruption practices. Considering that the author evaluated the 2015 period, it is possible to argue that organizations have increased efforts in the adoption and dissemination of anti-corruption practices in recent years.

To analyze the influence of IPAC on market value, variables related to market value were identified. Table 5 shows the descriptive statistics for the variables in the period evaluated.

Table 5
Descriptive Statistics Table of Financial Variables

Variable	Minimum	Maximum	Mean	Std. Dev.
Market Value	386078.9	3.34E+08	2.88E+07	5.31E+07
IPAC	0	1	0.7811555	0.2829889
Total Assets	3005820	9.00E+08	5.52E+07	1.29E+08
Leverage	0.0634259	1.434114	0.6235665	0.2093866
IDD	4	65	28.52838	16.28354
Liquidity	0.2343439	2.344809	0.8724125	0.3908263
Growth	-0.6220424	1.685377	0.106551	0.2315807
Stock value	0.012937	50.12865	3.767332	5.536787
ROA	-0.4471325	0.2452955	0.0407555	0.0689918

Source: Research data.

It appears that the mean liquidity of the companies observed was 0.87. General Liquidity demonstrates the company's financial health, as it considers the company's short and long-term obligations. Out of the 229 observations, the mean growth was 10.65%, and the mean age of these companies was 28 years, and of the total sample, the youngest company is 4 years old and the oldest, 65.

Regarding the market value of these companies, the minimum value for the entire period was R\$ 386,078.90. A maximum of R\$ 334,313,502.88. The mean market value was R\$ 28,816,032.70. If the IPAC variable is observed, a mean of 78.11% adherence to anti-corruption practices was

obtained, demonstrating that most of the anti-corruption practices listed in the checklist are complied with and disclosed by companies, higher than that reported by Pavesi (2016).

The proposed equational model was estimated using multiple linear regression to test the research hypothesis, and the results are reported in Table 6.

Table 6
Summary of estimated models

	(1)	(2)	(3)	(4)
IPAC	0.883** (0.336)	0.652*** (0.217)	0.527** (0.209)	0.465** (0.186)
Size		0.758*** (0.0699)	0.842*** (0.0747)	0.839*** (0.0666)
Leverage		-0.501 (0.309)	-0.235 (0.334)	-0.500 (0.370)
Liquidity		0.0675 (0.184)	0.0618 (0.181)	0.0935 (0.157)
Growth		0.603** (0.233)	0.592** (0.231)	0.693*** (0.223)
ROA		7.540*** (2.340)	7.842*** (2.341)	6.844*** (1.970)
ROE		-0.00075 (0.00402)	-0.0019 (0.00396)	-0.00052 (0.00400)
Stock Volatility		0.0265** (0.0118)	0.0189 (0.0118)	0.0112 (0.0112)
ISE			-0.497*** (0.184)	-0.537** (0.249)
Age			0.00249 (0.00534)	0.00860 (0.00534)
Controlling interest			-0.339 (0.269)	-0.141 (0.202)
New Market			0.218 (0.145)	0.0592 (0.153)
Family			-0.0931 (0.158)	-0.158 (0.141)
Big4			0.411* (0.226)	0.664*** (0.207)
SECTOR	No	No	No	Yes
_cons	15.78*** (0.282)	2.879** (1.259)	1.407 (1.342)	1.819 (1.238)
Observations	229	229	229	229
Adjusted R2	0.048	0.663	0.675	0.740
F Statistic	6.923	30.520	35.683	60.247

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Research data.

From the results reported in Table 6, it is possible to point out that the adoption of anti-corruption practices had a positive effect on the companies' market value, in all estimates. This result indicates that the adoption of anti-corruption practices causes an increase in the entities' market value. This result is consistent with what was found previously by Lin and Chuang (2016), Thakur et al. (2019), Brown et al. (2019), Boadi & Amegbe (2017) and Fu (2019), who identified that the regulation of anti-corruption practices

positively affects the value of companies and diverges from the results reported in Zulvina and Adhariani (2020) and Miari et al. (2015).

Unlike the studies (Xu, 2018; Zeume, 2017; Zulvina & Adhariani, 2020) that found a negative effect of adopting anti-corruption regulations on firm value, the results found are consistent with the perspective that the adoption of anti-corruption practices are recognized by the market and investors, giving greater security to stakeholders and adding value to organizations and shareholders. From this, it is possible to point out that the Brazilian market reacts favorably to the adoption of anti-corruption practices by companies and diverging from the hypothesis of the economic literature that says that corruption is harmful to organizations and is capable of negatively affecting the performance and value of organizations (Shleifer & Vishny, 1993).

Contrary to expectations, the company's participation in the ISE showed a negative effect on the market value of the companies analyzed, which is in line with what was reported by Andrade et al. (2013). When comparing the market value of companies listed in the ISE with those not listed, they identified that the unlisted companies had a higher market value. When analyzing the post-financial crisis period of 2008, the ISE had a negative effect on the companies' market value. This finding may lead to a signal that it is not yet evident that the Brazilian financial market recognizes institutional efforts to adopt sustainable practices and that there may be differences between business sectors (Cristófaló et al., 2016; Qureshi et al., 2020). Furthermore, this result corroborates the theoretical aspect that spending on sustainable aspects is an expense for shareholders and does not add value to organizations (Yu & Zhao, 2015).

The variables size, growth, ROA, and Big4 were also significant and positively affected market value, which shows that larger companies with higher returns lead to an increase in market value. This finding makes it possible to point out that investors value organizations with adequate management of their resources to generate profits. These findings corroborate previous studies (Thakur et al., 2019; Vafeas & Vlittis, 2019) that have also evaluated companies' market value determinants.

Considering that the study has a time horizon of five periods, we re-estimated the proposed model using the regression technique with panel data to test the results' robustness. Estimations were performed with fixed and random effects, considering the Hausmann test ($X_2 = 25.94$; p -value < 0.05), the estimation with fixed effects proved to be more appropriate for the proposed model. Given that the estimation by fixed effects proved to be more appropriate, the variables of the company's characteristics such as property, level of governance, and family business technically it was not possible to include in the estimates due to being invariant over time. The results are reported in Table 7.

Table 7
Robustness test

	(1)	(2)	(3)
IPAC	0.585*** (0.162)	0.520*** (0.138)	0.277* (0.158)
Size		1.050*** (0.185)	0.723*** (0.216)
Leverage		-1.225* (0.636)	-1.349** (0.625)
Liquidity		0.642** (0.262)	0.440* (0.265)
Growth		0.476*** (0.154)	0.472*** (0.151)
ROA		3.744*** (0.965)	3.337*** (0.953)
ROE		0.0000503 (0.00219)	0.000142 (0.00214)
Stock Volatility		0.0178** (0.00822)	0.0176** (0.00806)
ISE			-0.232 (0.282)
Age			0.0805*** (0.0267)
Big4			0.186 (0.185)
_cons	16.01*** (0.131)	-1.766 (3.229)	1.947 (3.277)
Observations	229	229	229
Adjusted R2	0.194	0.260	0.291
F Statistic	12.978	17.151	13.961

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Research data.

The results obtained in the estimations with the regression with panel data with fixed effects confirm the initial estimates' results. In other words, it denotes that the adoption of anti-corruption practices has a positive effect on the market value of the analyzed entities.

Thus, based on the tests performed, it is possible to accept the study's hypothesis, which predicted a positive relationship between the adoption rate of anti-corruption practices and the companies' market value. These results show that organizations' efforts to demonstrate suitability in relation to government regulations demonstrate the market transparency of their corporate responsibility, legitimized by investors. Thus, generating value for the shareholders and stakeholders of the organizations.

Given the results obtained in this investigation, it is possible to show that it is convergent with the theoretical aspect that denotes the benefits of the legislators' efforts regarding the regulation of the adoption of anti-corruption practices. Thus, the adoption of these practices can no longer be seen only as costs of controls, but also as a mechanism capable of reflecting on better results for organizations, through market recognition in the valuation of these entities.

Regarding the control variables in the estimation with fixed effects, the results are similar to those previously found. Adding that the leverage was shown to have a negative effect on the company's value, that is, the increase in indebtedness decreases the companies' market value, which differs from previous studies that show that leverage has a disciplinary effect on the performance and market

value of companies (Araújo et al., 2018; Moura et al., 2020), and liquidity had a positive effect, which denotes that the solvency of the entities is capable of reflecting positively on the market value of the companies (Arrighetti et al., 2014; Moura et al., 2020).

5 CONCLUSIONS

The study aimed to verify the existence of a relationship between anti-corruption practices and the market value of publicly traded companies listed on Ibovespa. To this end, a descriptive, documentary, and quantitative research was carried out, aiming to measure the level of companies' adherence to anti-corruption practices, through the examination of corporate documents, such as: reference forms, codes of ethics and conduct, company policies, sustainability reports, and other equivalent documents, and, after that, verify the relationship with the market value through the variables that have been defined.

The results showed that, statistically, there is a positive relationship between the adoption of anti-corruption practices and the market value of the companies included in the sample. Therefore, the study hypothesis was accepted. The results of this research bring data that can add knowledge and help investors, public agencies, and other related parties, as it shows that organizations have been increasing disclosure about the adoption of anti-corruption practices. As can be seen from the results, in 2018, the mean number of companies complying with the Anti-Corruption Law was 89.62%, while in 2014, the mean level was 60.85%. There is an increase of 28.77% in adhesion level, demonstrating that companies' concern in disclosing or adhering to such practices increased during the period analyzed. Also, of the 229 observations in the sample, only 3 were not listed in the ISE, and 11.35% of these companies are state-owned. Now, if the number of New Market members is verified, there are 138 companies, and 37.99% of the total are family businesses.

The results of this investigation contribute to the empirical and theoretical field by showing that the regulation of the adoption and disclosure of anti-corruption practices can influence companies' performance and add value to shareholders. At the end of this investigation, it is recalled that this study contributes to the academic environment by establishing a discussion about the effect of the regulation of the adoption of anti-corruption practices on the market value of companies in emerging markets. Empirically, the study is relevant for managers and those responsible for corporate governance, bringing to regulatory bodies, shareholders, related parties, and public bodies how anti-corruption actions affect the market value of companies listed in [B]³, also seeking to collaborate with society, adding content to research on corruption and market value in Brazil.

For future research, it is suggested the inclusion of financial institutions in the studied sample and also an analysis considering the factors: involvement in scandals or

corruption investigations and how they can influence the market value and adherence to anti-corruption practices. It is also worth emphasizing the importance of analyzing and identifying other factors that may influence the market value, in addition to the variables used in this study.

As a limitation of the study, it is possible to point out that only a portion of the companies listed in [B]³, which is the Ibovespa, was analyzed, which may be a factor that limited the results obtained. Besides, as a checklist was used to measure the level of anti-corruption practices, interpretation bias should be considered.

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Appendix A

Categorization of the Anti-Corruption Practices Index

ITEM	CRITERIA
1) Publicly stated commitment to anti-corruption	1.0 point: there is an explicit declaration of “zero tolerance for corruption” or equivalent (that is, a commitment to fight any corruption activities). 0.5 point: there is no general anti-corruption statement, but only a reference for the public sector/government corruption. If there is at least a weak direct statement. If a company is a signatory to the UNGC (UN) and explicitly emphasizes its commitment to the 10th principle. 0.0 point: there is no explicit statement/commitment, even if relevant policies exist. If a company is a signatory to the UNGC, but there is no explicit reference to its commitment to the 10th principle.
2) Compliance with all applicable laws, including anti-corruption laws	1.0 point: If there is an explicit statement of such a commitment for all jurisdictions in which the company operates. Reference to “all laws” is considered to include anti-corruption laws, even if they are not specifically mentioned. 0.0 point: If there is no explicit reference to compliance with laws or the reference to compliance with laws excludes or omits anti-corruption laws.
3) The company's Board of Directors demonstrates its support for the fight against corruption	1.0 point: If the company's Board of Directors (senior member of management or the board) issues a personal statement highlighting the company's commitment to anti-corruption. Whether the company's Board of Directors (senior member of management or board) issues a personal letter supporting the code of conduct or equivalent and whether the company's code of conduct includes anti-corruption policies. 0.0 point: If the statement does not specifically refer to corruption or is not included in the code of conduct. If the statement is not issued by the person indicated. If there is no such statement.
4) Code of conduct/anti-corruption policy explicitly apply to all employees and directors	1.0 point: If the policy explicitly mentions that it applies to all employees and directors, regardless of their position in the company's hierarchy. There can be no exceptions for any country of operation. 0.5 point: If the policy applies to all employees, but does not explicitly mention directors. 0.0 point: If there is no explicit statement that the relevant policies are applied to all employees and directors. Whether the policies apply to a selected group of employees only, that is, to managers.
5) The company's anti-corruption policy applies explicitly to people who are not employees (Agents, consultants, company representatives)	1.0 point: Whether these people must comply with the policy. 0.0 point: If these people are only encouraged to comply with the policy. If these people are not covered by the anti-corruption policy or are expressly excluded from the policy.
6) The anti-corruption program applies to non-controlled people or entities that provide goods or services under contract	1.0 point: If it complies with all the following three elements: (i) These people/entities are required to comply with the company's anti-corruption program or an equivalent such as the supplier code issued by the company; (ii) The company carries out anti-corruption surveillance on people/entities; (iii) The company monitors these people/entities. 0.5 point: If these people/entities are only “encouraged” to comply with the policy or if only one or two of the three elements above are present. 0.0 point: If there is no reference to these people/entities; or they are not specifically required to comply with company policy or the equivalent.
7) Anti-corruption training for employees and directors	1.0 point: The company states in a public document that this program is in effect for employees and directors (the reference to the training program can expressly focus not only on training on anti-corruption policies but can also refer to training in the code of conduct, including anti-corruption provisions). 0.5 point: The company states in a public document that such a training program is in place for employees, but not for directors (or vice versa). If there is public information about a training program for employees and directors on all ethical/integrity issues, and from other sources, we can accept it, which includes anti-corruption policies. 0.0 point: There is no public reference to such a training program.
8) Policy on gifts, hospitality, and expenses	1.0 point: The company has a policy of regulating the offer, donation, and receipt of gifts, hospitality, or expenses. The policy must cover the following elements: (i) Any offer or donation of such items, (ii) Receipt of such items, (iii) A definition of limits (descriptive or quoted with the amounts) for accepting gifts, hospitality, or expenses, as well as procedures and requirements. Attention: Exact guidelines for employees should not be available to the public. There should be publicly available information that such guidance exists and that it includes all necessary elements. 0.5 point: If some, but not all, of the elements listed above are present. 0.0 point: The company does not disclose that it has such a policy.
9) Policy that expressly prohibits the facilitation of payments	1.0 point: There is an express prohibition and not just a simple discouragement of such payments (recognizing that exceptions can be made in situations that threaten life or health). 0.0 point: These payments are discouraged or regulated internally (this is allowed after being approved by the manager). Whether such payments are “permitted if permitted by local law”. If there is no reference to facilitating payments or that are expressly authorized.
10) Reports of violations (of the anti-corruption program), without risk of reprisals	1.0 point: There is a publicly available policy specifying that no employee will be demoted, penalized, or otherwise retaliated for raising concerns or reporting violations (report). 0.0 point: If there is no explicit policy that prohibits this type of retaliation.
11) Channel for reporting anti-corruption policy violations confidentially and/or anonymously	1.0 point: If there is a public availability on this channel in a way that guarantees total confidentiality and/or anonymity, and two-way communication with the whistleblower for any need to follow up on the complaint. 0.5 point: If this channel exists, but bidirectional communication with the whistleblower is not guaranteed. 0.0 point: There is no such channel, or the channel does not allow confidential or anonymous reports.
12) Regular monitoring of their anti-corruption program	1.0 point: There is public information about the regular or continuous control of the anti-corruption program. 0.5 point: If there is information on regular and permanent monitoring of all sustainability issues (without specific reference to anti-corruption policies and procedures) and, in addition, some implicit information that the company's anti-corruption program must be included. 0.0 point: If there is information about any monitoring, but it is not a regular or continuous process. If there is only monitoring related to compliance on-site, with no specific reference to the review of the adequacy and effectiveness program. If there is only inspection or audit of the report (which mentions the program). If no monitoring is mentioned publicly.
13) Policy of prohibition or disclosure of political contributions.	1.0 point: If the company publicly discloses or prohibits all its political contributions (in all its countries of operation). 0.5 point: If political contributions are regulated but not disclosed or prohibited (for example, there is a special internal approval process and internal communication system for such contributions, but actual payments are not made public). 0.0 point: If political contributions are disclosed only to certain countries, such as the company's home country. If a company's policy refers only to employee contributions, but not to a company's contributions. If political contributions are not regulated and/or disclosed.

Source: Adapted of Pavesi (2016).

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