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Corporate transparency and performance: what is the role of women in this relationship?

Transparencia corporativa y desempeño: ¿cuál es el papel de las mujeres en esta relación?

Transparência corporativa e desempenho: qual o papel das mulheres nessa relação?

Authors

Verivaldo Alves de Freitas

Master's student in Administration and Controllershship at the Federal University of Ceará.
Federal University of Ceará. Address: Avenida da Universidade 2431, Fortaleza, Ceará,
Brasil, CEP: 60.020-180. Phone: 83 99856-0002. Identifiers (ID):

ORCID: <https://orcid.org/0000-0003-0543-5073>

Lattes: <http://lattes.cnpq.br/9494835134753106>

E-mail: verivaldofreitas@hotmail.com

Messias Elmiro Gomes Loiola de Oliveira

Master's student in Administration and Controllershship at the Federal University of Ceará.
Federal University of Ceará. Address: Avenida da Universidade 2431, Fortaleza, Ceará,
Brasil, CEP: 60.020-180. Phone: 88 99911-4869. Identifiers (ID):

ORCID: <https://orcid.org/0000-0003-1245-3624>

Lattes: <http://lattes.cnpq.br/9913209744003560>

E-mail: messias_elmiro@outlook.com

Jislene Trindade Medeiros

PhD candidate in Administration and Controllershship at the Federal University of Ceará. M.Sc.
in Accounting Sciences from the Federal University of Rio Grande do Norte (UFRN).

Address: Avenida da Universidade 2431, Fortaleza, Ceará, Brasil, CEP: 60.020-180. Phone:
85 99913-8174. Identifiers (ID):

ORCID: <https://orcid.org/0000-0003-0941-0228>

Lattes: <http://lattes.cnpq.br/8666736565678694>

E-mail: jislenetm@gmail.com

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Márcia Martins Mendes De Luca

PhD in Controllershship and Accounting from the University of São Paulo. Professor at the Federal University of Ceará. Address: Avenida da Universidade 2431, Fortaleza, Ceará, Brasil, CEP: 60.020-180. Phone: 85 98614-8899. Identifiers (ID):
ORCID: <http://orcid.org/0000-0002-9995-5637>
Lattes: <http://lattes.cnpq.br/4260748805828013>
E-mail: marciammdeluca@gmail.com

Abstract

Purpose: In this study, we investigated the influence of female board membership on the relationship between corporate transparency and performance in Brazilian public firms.

Methodology: The sample of this empirical-analytical study included 297 non-financial firms traded on B3 in the period 2015-2019. The data were analyzed with Student's *t* test, the Mann-Whitney test and regressions on panel data.

Results: Female board representation was small (6.9%). Student's *t* test and the Mann-Whitney test showed that firms with female board members and transparency awards did not differ from other firms with regard to economic performance, but market performance was better. In the regression analysis, corporate transparency had no significant impact on performance and, despite the growing acknowledgment in society of the role of women in key corporate positions, the presence of women on the board did not change this association. Thus, our results indicate that the sampled firms did not derive measurable economic benefits from the presence of women on the board of directors.

Contribution of the study: The study enriches the debate on female representation in key corporate positions in Brazilian public firms and helps understand the influence of female board membership on the relationship between corporate transparency and economic/market performance.

Key words: Female representation. Board of directors. Corporate transparency. Corporate performance.

Resumen

Objetivo: investigación tiene como objetivo investigar la influencia de la participación femenina en juntas directivas en la relación entre la transparencia corporativa y el desempeño de empresas brasileñas.

Metodología: Esta es una investigación empírico-analítica. La muestra reúne 297 empresas no-financieras listadas en la B3 entre 2015-2019. Para alcanzar el objetivo de la investigación se aplicaron la prueba *t* de Student y la prueba de Mann-Whitney, además de la técnica de regresión de datos de panel.

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Resultados: Se verificó la baja participación femenina en las JD, ya que solo el 6,9% de estos colegiados son mujeres. A partir de las pruebas *t* de Student y Mann-Whitney, se identificó que, en el grupo de empresas de la muestra, las que tienen presencia femenina en la JD y las contempladas en el Trofeo Transparencia no presentan un desempeño económico diferente al resto. Sin embargo, exhiben un mayor desempeño en el mercado. De acuerdo con los resultados de las regresiones, la transparencia corporativa no influye en el desempeño y, a pesar del creciente debate en la sociedad sobre la participación de las mujeres en cargos de alta relevancia, la participación femenina en juntas directivas de las empresas estudiadas no cambia esta relación. Por tanto, estos resultados indican que la participación de mujeres en puestos de alta relevancia no genera beneficios económicos para las empresas.

Contribuciones del Estudio: El estudio amplía el debate sobre la presencia femenina en cargos de alta relevancia en grandes empresas brasileñas de capital abierto y contribuye a una mejor comprensión de la influencia de la presencia femenina en las juntas directivas en la relación entre la transparencia corporativa y el desempeño económico y el desempeño de mercado.

Palabras clave: Participación femenina. Junta Directiva. Transparencia corporativa. Desempeño empresarial.

Resumo

Objetivo: Esta pesquisa tem por objetivo investigar a influência da participação feminina no conselho de administração na relação entre a transparência corporativa e o desempenho de empresas brasileiras.

Metodologia: A pesquisa caracteriza-se como empírico-analítica. A amostra reúne 297 empresas não-financeiras listadas na B3 no período 2015-2019. Para atingir o objetivo da pesquisa, aplicaram-se o Teste *t* de Student e o Teste de Mann-Whitney e a técnica de regressão com dados em painel.

Resultados: Verificou-se a baixa participação feminina nos CAs, haja vista que apenas 6,9% dos membros desse tipo de colegiado são mulheres. A partir dos testes *t* de Student e de Mann-Whitney, identificou-se que no conjunto das empresas da amostra, aquelas com presença feminina no CA e aquelas contempladas com o Troféu Transparência não apresentam desempenho econômico diferente na comparação com as demais. Entretanto, ostentam maior desempenho de mercado. De acordo com os resultados das regressões, verifica-se que a transparência corporativa não influencia de forma significativa o desempenho e, apesar do crescente debate na sociedade sobre a participação das mulheres em cargos de alta gestão, a participação feminina no conselho de administração das empresas estudadas não altera essa relação. Portanto, esses resultados sinalizam que a participação de mulheres em cargos de alta gestão não resulta em benefícios econômicos para as empresas.

Contribuições do Estudo: O estudo amplia o debate sobre a influência da presença feminina nos cargos de alta relevância nas grandes empresas brasileiras de capital aberto e contribuir para uma melhor compreensão da influência da participação das mulheres na relação entre a transparência corporativa e o desempenho econômico e o desempenho de mercado.

Palavras-chave: Participação feminina. Conselho de administração. Transparência corporativa. Desempenho empresarial.

1 Introduction

Corporate governance may be defined as a system with which firms and other organizations are oriented, monitored and encouraged, involving internal and external relationships with stakeholders, with the purpose of conducting and controlling activities through the establishment and observance of norms, rules and procedures of decision making, and contributing to corporate survival (Instituto Brasileiro de Governança Corporativa [IBGC], 2015).

Beuren and Silva (2013, p. 73) define corporate governance as a set of practices and procedures established in a contract made spontaneously between firms and regulatory bodies, committed to the provision of transparent information to external users and the mitigation of agency conflicts (Jensen & Meckling, 1976) through the harmonization of managers' actions and shareholders' interests (Silva & Martins, 2017).

Essentially, corporate governance implies the distribution of rights and responsibilities among different components of the firm, including managers, shareholders, board members, and assorted stakeholders (Aguilera, 2005). Silveira, Lanzana, Barros and Famá (2004) identified access to information, information quality, ownership structure and board control and structure as some of the main dimensions in the exercise of corporate governance.

One of the core components of corporate governance is the board of directors. The board oversees decision making processes and upholds corporate values, principles, business purposes and the governance system. It also acts as a link between owners and managers (IBGC, 2015), promoting transparency and adherence to good governance practices (Costa, Sampaio, & Flores, 2019; Rodrigues & Seabra, 2011). Moreover, the board is responsible for the firm's strategic approach to risk management, making it an organ of guidance and monitoring (Sewpersah, 2019).

In view of the growing representativeness of women in academia and on the Brazilian labor market, one would expect to see considerable female participation in top corporate management, especially in boards of directors (Costa *et al.*, 2019; Grybaité, 2006). In fact, according to Bruni, Gherardi and Poggio (2004), the presence of women in key corporate positions may have a favorable impact on performance since 'strongly success-oriented women' reportedly view entrepreneurial activity as an opportunity for greater professional fulfilment.

Nevertheless, as shown by the IBGC (2019), female participation in the upper echelons of corporate life is still relatively small. The small percentage of women on boards of directors in general has been the object of heated academic and corporate discussion (Nisiyama & Nakamura, 2018). For example, Silva and Martins (2017) believe a more balanced representation of female directors would aggregate value, increase transparency and improve performance.

Transparency is another core element of corporate governance. While covering a wide scope of information exchange, from the accounting perspective transparency is evidenced by systematic and timely access to quality financial data, making it possible for users to adequately assess the economic potential, financial situation and assets of the firm (Zuccolotto, Teixeira, & Riccio, 2015). As pointed out by Pires and Macagnan (2013), firms looking to gain an edge

over the competition are advised to adopt good practices of transparency, making relevant and sufficient information available to all stakeholders involved in assessment and decision making (Michener & Bersch, 2013). In this study, ‘transparency’ refers specifically to accounting information.

It has been argued that accounting information transparency and board diversity result in higher share prices (Carter, Simkins, & Simpson, 2003; Lazzaretti & Godoi, 2012), but it remains unclear how the presence of female directors affects the relationship between corporate transparency and performance, making broader empirical investigations necessary. As a contribution to the current debate, we evaluated how female participation in the board of directors influences the relationship between accounting information transparency and corporate performance in a sample of Brazilian public firms.

The empirical evidence gathered in this study regarding the influence of female participation on the relationship between transparency and performance represents a valuable subsidy for the development of strategies promoting female involvement in top corporate management. The study provides new insights into the role of women in key corporate positions in large Brazilian public firms and specifically into the importance of female board membership for economic and market performance in firms with shares traded on the Brazilian capital market.

2 Review of the literature and development of hypothesis

Based on the assumption that profit and value creation are core objectives of all business enterprises, firms must have mechanisms capable of assessing decision-making processes, balancing resources and obligations, and monitoring economic development (Leite & Silva, 2019). According to Silveira (2002) the positive relationship between good corporate governance and economic performance is a matter of common sense. Leite and Silva (2019, p. 18) added to this that a satisfactory economic performance is necessarily reflected in the sustainability and perpetuity of the organization.

Large firms are increasingly aware of the relevance of corporate governance, a strategy now practically demanded by the global market and by stakeholders in view of its ability to boost corporate performance. Healthy governance practices help balance the interests of contract parties through legal business mechanisms and establish guidelines to safeguard the interests of capital providers (Shleifer & Vishny, 1997; Styhre, 2018).

Within the framework of corporate governance, transparency is the product of a multifaceted system, whose components collect, generate, validate and disclose information collectively (Bushman, Piotroski & Smith, 2004). In fact, good governance requires organizations to provide visible and inferable information; thus, disclosure is strongly encouraged (Michener & Bersch, 2013) to allow others to adequately assess and measure performance, both retrospectively and prospectively, and make informed decisions (Assaf, 2012; Perez & Famá, 2003).

In the eyes of the public, the adoption of strategies for greater transparency and information quality is viewed as a positive sign, eventually aggregating value to the firm (Berle & Means, 1932; Ripley, 1927). Solomon and Solomon (2006) see transparency and the implementation of good management practices as strategic actions which convey a culture of responsibility with regard to control and resource use, with a potential for attracting investors and boosting financial performance.

Ferreira (2010) believes the board of directors is one of the most important components of corporate governance and that a transparent and efficient board favors organizational results. According to Paniagua, Rivelles and Sapena (2018), the board of directors and ownership structure have a direct impact on corporate performance. However, board composition depends on factors pertaining to the organizational and institutional environment (Tonello, 2010).

Carter *et al.* (2003) tested the hypothesis that firms benefit from greater board diversity and, more recently, Dezsö and Ross (2012) and Lazzaretti and Godoi (2012) concluded that behavioral traits traditionally attributed to women (communication, empathy, risk aversion, consensus seeking, democratic disposition) tend to improve board dynamics, benefiting the firm. In some European countries (e.g., Norway, Spain and Sweden), firms are legally required to have women on the board of directors (Luo, Xiang, & Huang, 2017).

Empirical studies on the top management of Brazilian firms (Carvalho, Tanure & Andrade, 2010; Silva & Martins, 2017) have shown that the higher the rank of management, the smaller the female participation (Brazil has no gender quota laws for corporations). Nevertheless, some internal and external agents have for some time been promoting the appointment of female directors in response to the growing debate on gender diversity in the top management of large firms (Costa *et al.*, 2019).

An increase in female board membership can affect several aspects of corporate activity, as illustrated by the almost immediate and positive reaction of the Spanish capital market to the appointment of female board members (Campbell & Vera, 2010). According to these authors, investors believed the presence of women aggregated value. Fitzsimmons (2012) lists among the possible benefits of female board membership gender parity, better corporate governance and greater diversity of ideas, although the latter may not be directly connected with improvements in governance.

In a study on how the presence of women in key corporate positions affects economic performance, Lazzaretti and Godoi (2012) observed that no women sat on the boards of 63% of the firms traded on BM&FBovespa in 2011, possibly as a result of cultural and social factors. The average proportion of women on the boards of the firms sampled by Lazzaretti and Godoi (2012) was 7.3%. In comparison, the IBGC reported a percentage of 7.1% for the year 2010 and 7.71% for the year 2011. The average figure calculated by Lazzaretti *et al.* (2013) for the most liquid firms traded on BM&FBovespa in 2011 was 5.4%.

In their analysis of French firms listed in the stock market index SBF 120 between 2009 and 2011, Boubaker, Dang and Nguyen (2014) estimated the average female participation in top management to be 12.98%. In comparison, Dang, Bender and Scotto (2014) reported the figure of 7.2% for 2007 and observed a moderate rise in the representation of female directors, from 6% in 1998 to 10% in 2009.

Silva and Martins (2017) found the average female participation in the board of directors to be low (5.6%), possibly as a result of the so-called ‘glass ceiling syndrome’, an invisible barrier preventing women from rising in the hierarchy and devaluing their achievements.

Research results show that board membership in corporations around the globe remains overwhelmingly male (IBGC, 2019). Nonetheless, Adams and Funk (2012) believe women have shattered the ‘glass ceiling’ and are now adjusting to a culture formerly dominated by men. In view of the growing pressure towards the appointment of women to key corporate positions, Adams and Ferreira (2009) believe future governance reforms will stress the need for female participation in decision making.

Luo *et al.* (2017) concluded that, as a mechanism of corporate governance, female participation in Chinese boards efficiently inhibited manipulation, ensuring more transparent

disclosure. This was attributed to the notion that women are less tolerant of opportunistic behaviors and more risk averse, active and effective at monitoring, favoring corporate control. Indeed, some studies on psychology and economics have found that, under experimental conditions, men are more prone than women to risk-taking behaviors (Sila, Gonzalez, & Hagendorff, 2016).

In a study on the factors predictive of corporate transparency in Latin American firms, Turrent (2014) assigns very little importance to female board membership. In contrast, Gul, Srinidhi and Ng (2011) believe a greater female representation is likely to improve the quality of internal debates and the ability of the board to supervise transparency in the annual disclosure of accounting figures.

Although the role of women in corporate life is extensively discussed in academic circles, no consensus exists regarding the possible economic and financial benefits of the presence of female directors on the board (Costa *et al.*, 2019). In some Brazilian states, firms with female board members displayed greater value and financial performance than firms with all-male boards (Costa *et al.*, 2019; Silva & Margem, 2015; Silva & Martins, 2017). Also, in their evaluation of the influence of female participation on organizational performance, Silva and Martins (2017) found corporate performance (proxied by Tobin's Q and return on assets) to be significantly better in firms with women directors to the board.

Abdullah, Ismail and Nachum (2016) concluded female board membership was predictive of higher economic performance and lower market value (proxied by Tobin's Q) in Malaysian firms. Since both effects were statistically significant, the authors hypothesized that the presence of female directors created economic value, but the market discounted their impact (Abdullah *et al.*, 2016).

Others have shown that firms with women on the board are better monitored, with positive impacts on transparency (Nisiyama & Nakamura, 2018). Likewise, Ahmadi, Nakaa and Bouri (2018) found that gender diversity in top management aggregated value to the firms in their sample.

Based on our review of the literature, the following hypothesis was formulated:

H₁: The participation of women on the board of directors influences the relationship between accounting information transparency and corporate performance in Brazilian public firms.

3 Methods

3.1 Research strategy and methods

The approach adopted for this study was hypothetico-deductive. As explained by Marconi and Lakatos (2010, p. 110), the point of departure in hypothetico-deductive research is the perception of a knowledge gap about which a hypothesis is formulated. The predictive power of the hypothesis is then tested for a given set of phenomena using deductive inference.

The study was conducted empirically and analytically, using strictly quantitative techniques of data sampling, management and analysis, with emphasis on the detection of causal relationships between variables (Martins, 2002, p. 33).

3.2 Sample and database

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Our sample consisted of 297 non-financial firms traded on B3 S.A – Brasil, Bolsa, Balcão, for which economic and financial data were available on the Compustat platform for the period 2015-2019. Following the example of several authors (Ghani, Martelanc, & Kayo, 2015; Kammler; Alves, 2005), financial institutions such as banks, insurance companies and investment funds were excluded from the sample: pooling organizations with different accounting regulations might have biased our results.

Information on board composition was retrieved from reference forms, sections 12.1 (description of administrative structure), 12. 5/6 and 12. 6/8 (assemblage and professional background of board members and supervisors). Accounting information transparency was defined as being a recipient of the ‘Transparency Trophy’, an award conferred by ANEFAC/FIPECAFI/SERASA EXPERIAN annually since 1997 with the objective of publicly acknowledging firms with high standards of transparency in accounting. The award committee estimates a firm’s level of transparency based on seven vectors (Table 1).

Table 1

Vectors of transparency used in the classification of firms

- | | |
|---|--|
| 1 | Quality and amount of information disclosed in financial reports and explanatory notes |
| 2 | Level of transparency of disclosed information |
| 3 | Clarity of management report and consistency with disclosed information |
| 4 | Full compliance with accounting regulations |
| 5 | Number of modifications made by independent auditors |
| 6 | Presentation of information in terms of layout, readability, concision, clarity, etc. |
| 7 | Disclosure of aspects not mandatory but relevant to the business |

Source: Adapted from ANEFAC, 2020 (National Association of Executives in Finance, Administration and Accounting).

In order to evaluate the influence of female board membership on the relationship between accounting information transparency and corporate performance, we adopted two performance variables: economic performance and market performance. The former was proxied by return on assets (ROA), while the latter was represented by the logarithm of the firms’s market value (MV).

3.3 Description of the model and definition of variables

The study hypothesis was tested with the ordinary least squares method, as shown in Equation 1, in which *PERF* is the performance of a given firm *i* in a given year *t*.

$$PERF_{i,t} = \beta_0 + \beta_1 TRANS_{i,t} + \beta_2 FEMBM_{i,t} + \beta_3 TRANS_{i,t} \times FEMBM_{i,t} + \beta_n Controls_{i,t} + \varepsilon_{it} \quad (\text{Equation 1})$$

The model was initially estimated using ROA as proxy for economic performance. Then ROA was replaced with the logarithm of MV. Table 2 shows the study variables with their respective definitions and theoretical references.

Table 2*Study variables*

	Variable	Proxy	Definition	Reference
Dependent	Economic performance	Return on assets (ROA)	Net earnings divided by assets	Silva Júnior & Martins (2017)
	Market performance	Market value (MV)	Natural logarithm of market value	Carnevale, Mazzuca & Venturini (2012)
Independent	Transparency of accounting information	Winners of the Transparency Trophy award (TRANS)	<i>Dummy</i> assigned the value 1 if recipient of the Transparency Trophy; and 0 otherwise	Espejo & Daciê (2016) Marques, Silva, Louzada, Amaral & Souza (2015)
	Female participation	Female board membership (FEMBM)	Percentage of women on the board of directors	Boulouta (2013) Costa et al. (2019) Silva Júnior & Martins (2017)

Source: *The authors.*

For a better analysis of the effects of female board membership and accounting information transparency, three control variables were included which might have an influence on performance (Table 3).

Table 3*Control variables*

Variable	Expected sign	Proxy	Definition	Reference
Firm size	+	Assets (SIZ)	Natural logarithm of assets	Martins et al. (2012) Silva Júnior & Martins (2017)
Leverage	-	Total leverage (LEV)	Total leverage divided by assets	Martins et al. (2012) Silva Júnior & Martins (2017)
Growth	+	Sales growth (GROW)	Percentage variation in sales	Costa <i>et al.</i> (2019)

Source: *The authors.*

3.4 Technique of data analysis

In order to define and apply the techniques of analysis, we first observed the behavior of the variables (dependent, independent and controls). To do so, measures of central tendency were calculated (mean, standard deviation, median, minimum and maximum values). Having ascertained the normality of distribution of the data, we used Student's *t*-test and the Mann-Whitney test to verify the existence of significant differences in performance between firms with and without women on the board and between firms with and without transparency awards.

Using regression analysis on panel data with year and industry fixed effects, we separately evaluated the influence of female board membership and accounting information transparency while controlling for firm size (SIZ), leverage (LEV) and sales growth (GROW). Finally, to test the hypothesis that the participation of women on the board of directors (FEMBM) influences the relationship between accounting transparency (TRANS) and

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performance (ROA or MV) in Brazilian public firms, we included the interaction variable TRANS \times FEMBM in the regression model.

Before running the regression analysis on panel data, we submitted the data to the Breusch-Pagan Lagrange multiplier test, followed by the Hausman test. The result of the tests indicated fixed effects as the best model.

4 Results and analyses

Our analysis was based on a sample of 297 public firms, covering the period 2015-2019. However, the number of firm-year observations used in the regressions depended on which proxy was used for corporate performance (ROA=1,177; MV=568).

Table 4 presents the results of the descriptive statistics. The mean ROA value (-0.0037) suggests that economic performance was generally poor, possibly due to inefficient asset management. On the other hand, the median ROA value (0.0221) indicates that at least half the sampled firms registered some level of profit. The mean MV value (6.3398 ± 1.1547 ; range: 3.1801-11.7368) shows that market performance was generally positive, despite the great variation.

Table 4
Descriptive statistics

Variable	Number of observations	Mean	Standard deviation	Median	Minimum	Maximum
ROA	1,177	-0.0037	0.5598	0.0221	-11.1885	14.2096
MV	568	6.3398	1.1547	6.3932	3.1801	11.7368
TRANS	1,177	0.0835	-	-	0	1
FEMBM	1,177	0.0688	0.1520	0	0	1
TRANS \times FEMBM	1,177	0.0089	0.0444	0	0	0,5
SIZ	1,177	3.4566	0.8182	3.5178	0.6678	5.9666
LEV	1,177	0.3944	0.6499	0.3114	0	9.7488
GROW	1,177	0.0670	0.6458	0.0491	-7.2557	8.7246

Source: *The authors.*

In our sample the mean percentage of women on the board of directors was 6.9% (0.0688). This may at first sight seem low compared to the percentages reported by Boubaker *et al.* (2014) for French firms in the period 2009-2011 (12.98%) and by Dang *et al.* (2014) for the years 2007 (7.2%) and 2009 (9.37%), but it is slightly higher than the percentages observed in Brazilian studies from 2011 (5.4%) (Lazzaretti *et al.*, 2013) and 2010-2013 (5.6%) (Silva & Martins, 2017). Thus, the representation of women in key corporate positions appears to have increased moderately in the period 2015-2019. According to the IBGC (2019), change has been slow due to women's difficulty in rising in the hierarchy and the devaluation of their achievements (Silva & Martins, 2017) and/or due to an array of sociocultural factors (Lazzaretti & Godoi, 2012).

On the average, 8.35% of the firms in a given year were classified as transparent. Only 35 of the 297 sampled firms were recipients of the Transparency Trophy, the 23rd edition of which was held in 2019. All public firms were eligible for the award, regardless of having registered with the committee.

The analysis of the interaction variable TRANS \times FEMBM revealed that not all awardees featured women on the board of directors (the minimum and median values were both

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zero). As for the control variables, mean SIZ was 3.456, mean LEV was 0.3944, and mean GROW was 0.0670. In order to evaluate the effect of FEMBM and TRANS on corporate performance (ROA or MV), the data were submitted to analysis with Student's *t*-test and the Mann-Whitney test (Table 5).

Table 5

Results of analysis with Student's t-test and the Mann-Whitney test

	ROA			MV		
	Number of observations	Mean	Median	Number of observations	Mean	Median
Recipient of the Transparency Trophy?	Yes (81)	0.0014	0.0170	Yes (68)	7.2044	7.1667
	No (1,096)	- 0.0041	0.0223	No (500)	6.2223	6.2540
Student's <i>t</i> -test		- 0.0860			-6.8417(***)	
Mann-Whitney test			0.270			- 8.007(***)
Does firm have women on the board of directors?	Yes (418)	0.0468	0.0236	Yes (284)	6.5857	6.6140
	No (759)	- 0.0315	0.0218	No (284)	6.0940	6.1702
Student's <i>t</i> -test		- 2.3004			-5.1900(***)	
Mann-Whitney test			-1.452			- 5.193(***)
Number of observations	1,177			568		

(***)=significant at the level of 1%.

Source: *The authors.*

As shown in Table 5, when performance was expressed as ROA, no significant difference was found between firms with and without female board membership or between firms with and without transparency awards (i.e., the coefficients were non-significant with Student's *t*-test and the Mann-Whitney test). This is supported by Adams and Ferreira (2009) who concluded economic performance did not improve in firms appointing women to the board, but not by Silva and Martins (2017) who reported higher ROA values for firms with female directors.

Nevertheless, when performance was expressed as MV, firms with and without female board membership and firms with and without transparency awards differed significantly (i.e., the coefficients were significant with Student's *t*-test and the Mann-Whitney test). This finding matches the results of Campbell and Vera (2010) who used parametric and nonparametric tests to analyze data from Spanish firms and found female board membership to have a positive effect on market value. This is evidence that the Brazilian capital market views the appointment of women to the board of directors with favorable eyes and as capable of aggregating market value.

Finally, to test the hypothesis that the participation of women on the board of directors influences the relationship between accounting information transparency and corporate performance (ROA or MV) in Brazilian public firms, we performed regressions on panel data with year and industry fixed effects (Table 6).

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Table 6
Regressions on panel data

Variable	ROA	ROA	MV	MV	VIF
TRANS	-0.0204	-0.0107	0.8306	0.6596	2.23
FEMBM	0.0143	0.0173	0.0289	0.0779	1.06
TRANS x FEMBM	-	-0.0753	-	1.4164	2.30
SIZ	0.0144	0.0143	-0.1681(***)	-0.1672(***)	1.01
LEV	-.2536(***)	-0.2536(***)	-0.0868	-0.0854	1.01
GROW	0.0431(*)	0.0430(*)	-0.0238	-0.0202	1.00
Intercept	-0.0078	-0.0071	6.5912	6.5788	-
Fixed effects - year	Yes	Yes	Yes	Yes	-
Fixed effects - sector	Yes	Yes	Yes	Yes	
Prob > F	9.54(***)	8.80(***)	8.55(***)	7.99(***)	
Within	0.0916	0.0916	0.1570	0.1589	
Between	0.1180	0.1210	0.7024	0.6591	
Overall	0.0909	0.0909	0.1585	0.1607	
Number of observations	1,177		568		

(*), (**), (***)=significant at the level of 10%, 5% and 1%, respectively. VIF=variance inflation factor.

Source: *The authors.*

The non-significance of the coefficients of the variable FEMBM at the level of 1%, 5% and 10% in all regressions makes it impossible to infer that the presence of female board members influences corporate performance, whether expressed as ROA or MV. Likewise, the coefficients for the relationship between TRANS and ROA or MV were non-significant. In short, higher levels of accounting information transparency were not reflected in better corporate performance.

The interaction variable (TRANS x FEMBM) also yielded non-significant coefficients, suggesting that the presence of female directors on the boards of firms on the Brazilian capital market had no measurable influence on the relationship between TRANS and ROA or MV. In other words, the study hypothesis (H_1) was rejected.

Our results disagree with those of Belghiti-Mahut and Lafont (2010) for the French capital market and those of Lückérath-Rovers (2013) for Dutch firms, which showed increased financial performance in firms with female directors. Our results also disagree with those of Martins *et al.* (2012), according to whom female board membership had a negative and significant effect on the financial performance (proxied by ROA and ROE) of Brazilian banks in 2008-2009, and with those of Silva and Martins (2017) who evaluated the most liquid firms listed on BMF&Bovespa in the period 2010-2013 using Tobin's Q and ROA as metrics and found gender diversity on corporate boards to have improved performance.

Matching the observations of Silva and Martins (2017), the control variable LEV was negatively and significantly associated with ROA, meaning that the more leveraged the firm, the smaller the economic performance. The observed positive and significant association between GROW and ROA indicates that sales growth was clearly reflected in economic performance.

Company size was negatively correlated with market value. Likewise, Silva and Martins (2017) reported a negative and significant association between firm size and performance proxied by Tobin's Q. It should be added that the variance inflation factors calculated for the regression models confirmed the absence of problems of multicollinearity.

5 Final considerations

In this study we investigated the influence of the presence of female directors on the relationship between accounting information transparency and corporate performance in Brazilian public firms. The percentage of women on the board was calculated for firms traded on B3 and for recipients of the Transparency Trophy.

Our results show that although female representation in the top management of firms on the Brazilian capital market has increased in relation to the percentages reported over the past decade (Martins *et al.* 2012; Silva & Martins, 2017), it remains conspicuously low, possibly due to cultural and social factors (Lazzaretti *et al.*, 2013).

The divergence between our results and those of studies from other countries (Belghiti-Mahut & Lafont, 2010; Boubaker *et al.*, 2014; Carter *et al.*, 2003; Khan & Vieito, 2013) may be explained by differences in the institutional and cultural environment. Moreover, the presence of a small minority of women on corporate boards may not have significantly lessened male dominance or attained a large enough proportion to produce a measurable impact on corporate performance (Silva and Martins, 2017).

Our hypothesis that the participation of women on the board of directors influences the relationship between accounting information transparency and corporate performance in Brazilian public firms was not confirmed by the regression analysis. In addition to finding that firms with publicly recognized accounting transparency performed no better than firms without transparency awards—contrasting with the claim of Price, Román and Routreen (2011) that the adoption of good governance practices (including transparency) increases investors' returns, we also failed to demonstrate a positive effect of female membership on board dynamics, contradicting Dezsö and Ross (2012) and Lazzaretti and Godoi (2012).

The panorama of gender diversity shown in this study warrants the adoption of strategies promoting the appointment of women to key corporate positions in Brazilian public firms. Assuming gender diversity in top management promotes more effective global relationships (Carter *et al.*, 2003) and improves communication with stakeholders (Dezsö & Ross, 2012; Lazzaretti & Godoi, 2012), such strategies are likely to favor both corporate performance and transparency.

The limitations of this study include the sampling universe (restricted to firms on the Brazilian capital market) and the choice of proxy for accounting information transparency (receipt of award for transparency). Future investigations into the factors determining gender diversity in top management might evaluate the influence of the institutional, economic and cultural traits of different countries and the influence of national transparency on the proportion of female board membership and organizational performance.

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