Do executive women avoid financial problems in Brazil?

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Resumo

Purpose: We investigate whether women in top management positions decrease the likelihood of firms' financial problems.

Method: Our sample comprises Brazilian companies listed on B3, from 2010 to 2018. Altman et al.'s (1979) financial problems prediction model was used, and thus the variables of interest related to diversity were regressed of gender in senior management positions via the econometric logit model. To ensure robust results, a recent technique was used to balance companies that had women in top management with their peers via entropy balancing, as well as PSM.

Results: We find that women avoid financial problems only when women take over as chair of the company board two years before the company experiences financial problems.

Contributions: To better understand how gender diversity can contribute to the management of Brazilian companies, mostly family companies or with high shareholding concentration, in situations of crisis and financial difficulties, given the recurrent political and health crises that impacted the Brazilian economy in this last decade. In addition, we contribute to the international literature documenting the real effect of women when analyzed if, before assuming a top management team position, the company already had financial problems. We recommend that future studies be mindful of the situation of the company before analyzing the effects of gender diversity on the company's performance.

Keywords: Woman, Executive Officers, Woman as Chair of the Board of Directors, Financial Problems.

Introduction

Over the years, women have been gaining ground in the labor market, assuming leadership positions in companies, however, the pay gap and the propensity to be chosen for such positions compared to men still persists (Merlino, Parrotta, & Pozzoli, 2018; Segovia-Pérez, Figueroa-Domecq, Fuentes-Moraleda, & Muñoz-Mazón, 2019; Maume, Heymann, & Ruppanner, 2019; Fernando, Jain & Tripathy, 2020; Prudêncio, Forte, Crisóstomo, & Vasconcelos, 2021).

In developed markets, several studies have been carried out on whether the presence of women in senior management positions impacts market and performance measures such as stock return, market value, profitability, and others (Martín-Ugedo, Mínguez-Vera & Palma-Martos, 2018; Bennouri, Chtioui, Nagati & Nekhili, 2018; Ward & Forker, 2017; Conyon & He, 2017; Reguera-Alvarado, Fuentes & Laffarga, 2017).

In developing markets, however, the scenario seems to be no different, but it needs further investigation, since women, on the board or as Chief Executive Officer (CEO), also drive companies towards better performance, just like in developed markets (Liu, Wei & Xie, 2014; Ullah Fang & Jebran, 2019; Cunha, De Moura & Bastos, 2022).

Despite the debate related to the gender of the CEO, management, or board, there are few studies in the international literature addressing whether the female presence is related to financial problems. Among these, Elsaid (2014) examined the impact of succession from a female CEO to a male and company performance and the likelihood of bankruptcy in the United States, and concluded that in male management, there is a reduced probability of bankruptcy. Palvia, Vähämaa and Vähämaa (2015) show that the probability of bank failure during the financial crisis, revealing that behavioral differences affect corporate decisions and, when the woman is CEO or President of the institution, the probability of bankruptcy is lower. Adhikari, Agrawal and Malm (2019) also conclude that in the United States, women in top management positions try to avoid the amount of litigation related to the company's operational processes.

Given that in the Brazilian scenario there is a high concentration of family companies, with a developing capital market, corporate governance, enforcement and investor protection weaker (De Moura & Gupta, 2019), we expect that the results may be different from those already found in the international literature. Given this motivation and the few studies in the international literature on the subject and the lack of studies in the Brazilian market, the objective of this paper is to investigate whether women in top management positions decrease the probability of financial problems in Brazilian companies.

In summary, comprehensively, the literature points out that female management is more risk averse, in addition to being ethical, thus avoiding operational disputes and reducing the likelihood of fraud or errors (Francis, Hasan, Park & Wu, 2015; Adhikari, Agrawal & Malm, 2019). And even though, when they are in hierarchical positions, the company's performance is increased, and there are more reliable information disclosures (Li & Zeng, 2019). In addition, Martín-Ugedo et al. (2018) observed that the levels of financial leverage are lower in companies that have, on the board of directors or management, gender diversity. Therefore, we expect that companies with women in top management positions are less likely to have financial problems.

Data from non-financial companies were collected in Economática and in the Corporate Information System - SinC, in the period from 2010 to 2018. Altman's (1979) financial problems prediction model was used to measure whether the company is prone to having financial problems or not, adding, later, the presence of women when they work in high management positions (executive officers, CEO, member of the board of directors and chair of the board of directors) as 1, otherwise as zero. To mitigate the bias of comparisons between companies with women in top management, versus companies without women in top management, we use propensity score matching (PSM) and a more recent group balancing technique known as entropy (Hainmuller, 2012). Results via PSM are not tabulated due to space constraints, but are consistent with those presented in the paper via entropy. The entropy technique works by balancing the groups (with women, versus without women) by assigning weights to the distributions of each variable to be balanced according to the first three moments of the distribution

(mean, variance and skewness). Thus, several controls were used such as size, performance, indebtedness, industry and year, to try to isolate the effect of only women in top management and thus be able to infer a causal relationship with greater assertiveness. Thus, the probability of bankruptcy was used as a dichotomous dependent variable (yes versus no) and regressing via logit the variables of interest (women in one of the four groups of senior management) and various controls.

The results suggest that there is generally no difference between men and women in management positions and the likelihood of the company having financial problems. However, initial results seem to suggest that when a woman is CEO, companies are more likely to have financial problems. However, we found that these companies were already having financial problems before the entry of the woman as CEO. Therefore, we show that the woman avoids financial problems only when the woman assumes the chair of the board of directors two years before the company presents financial problems.

The research contributes to the international literature, complementing the studies by Elsaid (2014), Palvia et al. (2015), and Adhikari et al. (2019) with Brazilian evidence on whether gender diversity makes a difference in the management of companies in developing countries with regard to financial problems. The results indicate that women assume the position when companies already have financial problems. We expect that these results serve as a basis for decisions regarding the appointment of gender diversity for senior management positions in the management of companies in emerging countries, especially in Brazil.

2. Development of the Hypothesis

In this section, we discuss the literature on the risk aversion of women in senior management positions, segregating them into two sections. The first is in relation to executive management positions of an executive nature (the woman as executive officer and CEO), and the second is in positions on the board of directors of a strategic nature (as a member or president). Hypotheses are developed accordingly for these scenarios.

2.1 Risk aversion and women in the position of executive officers

Women, in the corporate world, have a gender barrier to reach the highest positions in the company (Gao, Lin & Ma, 2016). However, when there are women on the board of directors, the probability of appointing a woman as CEO increases (Gupta & Raman, 2014). What can be seen is that the financial reports, when prepared by women who work in the position of Chief Financial Officer - CFO, are more conservative (Francis, Hasan, Park & Wu, 2015). They also demonstrate more transparency with the financial market, by disclosing bad news more timely (Li & Zeng, 2019).

With them being in top management, they try to avoid the amount of litigation related to the company's operational processes (Adhikari, Agrawal & Malm, 2019). Especially when these processes are related to environmental awareness, there are indications that female management adopts more policies to reduce problems related to environmental exposure, which is different when capturing the presence of men like the CEO (Liu, 2018). This signals, therefore, more ethical behavior of female management (Cumming, Leung & Rui, 2015). They also reduce the complexity of the information covered in the corporate sustainability report and demonstrate quantitative information with less optimism, thus providing greater assurance of the statements contained in these reports (García-Sánchez, Suárez-Fernández & Martínez-Ferrero, 2019; Loch, Silva, Bueno, & Marcon, 2020).

When in management, women also affect investment and financing decisions, as they prefer to make less risky decisions (Faccio, Marchica & Mura, 2016). Third-party capital, for example, when granted to companies that have women in senior management positions, generally has a higher cost, which is different in a company with a man at the helm, with a substantial improvement in financing conditions, especially in relation to interest rates (Mascia & Rossi, 2017). Therefore, it is clear that this makes it difficult to obtain capital in companies that have women in top management positions (Bui, Nguyen, Pham & Phung, 2019).

Women usually prefer to work with a larger amount of short-term third-party capital, because they use this capital structure as a financial monitoring tool (Li & Zhang, 2019), which reduces the possibility of the company in the policies of taking financial risks and, on the other hand, increases efficiency in activities related to innovation, increasing business performance (Bernile, Bhagwat & Yonker, 2018).

On the other hand, we noticed that the resources applied to high-quality investments in female management are relatively weak, unlike male CEOs, who prefer to have the opportunity to invest resources in higher-quality investments (Faccio et al., 2016). As a general rule, it is evident that CEOs are more likely to be risk-averse. Conversely, male CEOs are the ones who take more risks in their financial decisions (Belot & Serve, 2018).

These risk mitigations are a mechanism that can demonstrate whether financial performance is appropriate (Jeong & Harrison, 2017). Since, in general, nonfamily companies with women as CEOs perform better (Nekhili, Chakroun & Chtioui, 2018; Hoobler, Masterson, Nkomo & Michel, 2018). Although financial performance comes in the long term, risks are taken more strategically by women (Jeong & Harrison, 2017).

We have observed that, in some cases, the appointment of women to the position of CEO is carried out in companies that have good performances and a stable or growing financial capacity, with this, even if the appointment of the female CEO affects the company, they will bear the impact, whether positive or negative (Knippen, Palar & Gentry, 2018). This differs from companies that do not have good performance and financial capacity to withstand the impact that will be caused by the appointment of the CEO, in which case men are appointed (Knippen, Palar & Gentry, 2018).

In short, the literature indicates that women executive officer positions have better performance, always aiming for more lasting long-term projects. Therefore, the first research hypothesis is:

H1a – Companies are less likely to have financial problems when women are CEOs.

H1b – Companies are less likely to have financial problems when women assume the roles of executive officers.

2.2 Risk aversion, and women on the board of directors

Gender diversity and the composition of new boards are determining factors for the success or failure of newly formed companies (Wilson, Wright & Altanlar, 2014). However, forcing the addition of female directors will decrease the value of the company and increase the independence of the board of directors (Bøhren & Staubo, 2016).

What is usually observed is that men tend to be predominantly in management positions, however, there has been strong external pressure from the market for gender diversity in the seats of the board of directors (Knippen, Shen, & Zhu, 2019).
In developed or emerging economies, what can be seen is that the more directors there are, the lower the risk of the company (Saeed, Belghitar & Yousaf, 2016).

Since this board of directors has women and they occupy most of the seats on the board, there is a preference for them to work with short-term third-party capital (Li & Zhang, 2019). Considering that the greater the number of directors, the greater the negative impact on the credit risk to be taken by the company (Lu & Boateng, 2018).

It is also important to highlight that, normally, when there are directors, the financial reports have fewer errors, and the chance of fraud is also lower (Wahid, 2018). In addition, in relation to auditing, women choose to pay a higher fee, an average of 6% (six percent) to 8% (eight percent), higher than when there is only the presence of men on the board, which demonstrates that women demand more quality in the work performed by auditors (Lai, Srinidhi, Gul & Tsui, 2017; Da Silva, Silva, Pinheiro & Francisco, 2020).

There is also evidence that when there is female representation on the board of directors, there is a positive relationship in the company's performance (Conyon & He, 2017). In addition, when there is no representation, or there is little female representation on the board of directors, there tends to be a reduction in the company's performance, contrary to contrary to those boards that have greater representations of gender diversity (Chen, Leung, Song & Goergen, 2019).

Directors are positively related to two responsibilities; the first is monitoring and the second is strategy, when they are matters related to financial performance and the work carried out by the board of directors (Post & Byron, 2015). It is also reported that this gender diversity, on the board of directors, has a direct impact on increasing the company's value. However, when there is a financial crisis in the company, it is associated with the lack of restructuring of the board of directors (Gyapong, Monem & Hu, 2016).

In normal scenarios, directors tend to increase dividend payments to shareholders, except in cases where there is a large shareholding concentration (Gyapong, Ahmed, Ntim & Nadeem, 2019). Therefore, effective corporate governance is necessary in order to avoid conflicts between agents (Gyapong et al., 2019).

In general, directors are always positively linked to environmental performance practices, mainly in the industrial sectors, as these are the ones that cause the greatest impacts (Lu & Herremans, 2019). In addition, gender diversity on the board increases the directing of resources to social projects, in addition to increasing the legitimacy of corporate sustainability reports (Jizi, 2017).

In companies that have only men on the board, investment is greater in riskier research and development practices, conversely, if there are directors, there is less investment in research and development, however, they disclose more reliable results to the market (Luo, Huang Li & Lin, 2018). Thus, strategically, women can make less risky decisions, which would avoid future financial problems. In this focus, the second research hypothesis is:

H2a – Companies are less likely to have financial problems when women are on the Board of Directors.

H2b – Companies are less likely to have financial problems when women hold the position of Chair of the Board of Directors.

The next section presents the methodology for testing the hypotheses H1a, H1b, H2a, and H2b.

3. Research Methodology
3.1 Sample

To achieve the research objective, we used data from publicly traded, non-financial Brazilian companies listed on Brazil's stock exchange (B3), in the period from January 2010 to December 2018. By excluding companies without data, the final sample is composed of 276 (two hundred and seventy-six) companies and 1,800 (one thousand and eight hundred) observations. We use data from Economática on the financial information of listed Brazilian companies and data from the reference form available in the Corporate Information System – SinC, to capture the presence of women on the board of directors, board of directors, CEO and as Chairperson of the company's board of directors. Data were winsorized at 1% to account for outliers.

3.2 Entropy balance analysis

In the accounting literature, the use of treatment effect is still incipient to try to better compare a treatment group (with women in top management, either as CEO, Executive Officers, Member of the Board of Directors, or as Chair of the Board of Directors) with a controlling group (no women in senior management).

The most used model in the accounting literature is the propensity score matching model (PSM), which was also implemented in this work. However, recently Hainmueller (2012) proposed another model that is a generalization of propensity score matching that is called entropy balancing. This entropy analysis consists of balancing the first 03 (three) moments of a distribution (mean, variance and skewness), between the treatment group and control group.

In this sense, as in the analysis carried out by Shroff et al. (2017), an entropy analysis was performed using the entire sample considering all years and industries, and then controlling for the fixed effects of year and industry in our regressions.

3.3 Econometric model and procedures

In order to classify whether or not companies have financial problems, the model by Altman et al. (1979), with the objective of predicting financial problems of companies in Brazil, using several indicators in a discriminant multivariate analysis method, called Z-Score. Altman's Z-Score uses equity, total assets, earnings before interest and taxes, as well as total liabilities and revenue. These measures are used to

compute measures of profitability, leverage, and asset turnover, which are represented in equation 1:

Where:

$$Z = -1,44 + 4,03X_2 + 2,25X_3 + 0,14X_4 + 0,42X_5$$

$$-1,44 = CONSTANT$$

$$X_2 = \frac{NET\ WORTH - SHARE\ CAPITAL}{TOTAL\ ASSETS}$$

$$X_3 = \frac{EARNINGS\ BEFORE\ INTEREST\ AND\ TAXES}{TOTAL\ ASSETS}$$

$$X_4 = \frac{NET\ WORTH}{TOTAL\ LIABILITY}$$

$$X_5 = \frac{SALES}{TOTAL\ ASSETS}$$

The Z-score has a scale to define when a company is likely to have financial problems and when it is not, around 0. We consider that a company is not likely to have financial problems if Z is greater than 0.00 (zero), (P_FINANCIAL is equal to 0) and in financial problems when the value of Z is equal to or less than 0.00 (zero) (P_FINANCIAL is equal to 1).

To address H1a and H1b, we estimated the following models:

$$P\_FINANCIAL_{it} = B_0 + B_1 F\_CEO_{it} + B_2 ROA_{it} + B_3 SIZE_{it} + B_4 LEV_{it} +$$
$$B_5 MVTBV_{it} + B_6 AGE_{it} + B_7 NGOV_{it} + B_8 AUD_{it} + \sum_{d=1}^{19} \beta_{d+g} IND_i +$$
$$\sum_{e=1}^{9} \beta_{e+27} YEAR_t + \varepsilon_{it}$$

$$P\_FINANCIAL_{it} = B_0 + B_1 F\_EXEOFFIC_{it} + B_2 ROA_{it} + B_3 SIZE_{it} + B_4 LEV_{it} +$$
$$B_5 MVTBV_{it} + B_6 AGE_{it} + B_7 NGOV_{it} + B_8 AUD_{it} + \sum_{d=1}^{19} \beta_{d+g} IND_i +$$
$$\sum_{e=1}^{9} \beta_{e+27} YEAR_t + \varepsilon_{it}$$

The model variables are defined in Appendix A.

We observed the value of the coefficient calculated in B1 (woman in the position of CEO), to answer (H1a), indicating whether the woman in the position of CEO avoids financial problems in the company led by her, in case B_1, was positive and significant, we considered that the woman does not avoid financial problems and, if not, we considered that the woman avoids the company's financial problems.

Likewise, the value of the coefficient calculated in B1 (woman in the position of director or percentage of w as executive officers) to answer (H1b), indicating whether the woman in the position of director avoids the financial problems in the company led by her, if B1, is positive and significant, we considered that the woman does not avoid financial problems and if not, we considered that the woman avoids the financial problems of the company.

To address the second hypothesis H2a and H2b, we used the following estimation models:

$$P\_FINANCIAL_{it} = B_0 + B_1 F\_BOARD_{it} + B_2 ROA_{it} + B_3 SIZE_{it} + B_4 LEV_{it} +$$
$$B_5 MVTBV_{it} + B_6 AGE_{it} + B_7 NGOV_{it} + B_8 AUD_{it} + \sum_{d=1}^{19} \beta_{d+g} IND_i +$$
$$\sum_{e=1}^{9} \beta_{e+27} YEAR_t + \varepsilon_{it}$$

(4)

$$P\_FINANCIAL_{it} = B_0 + B_1 F\_PRESBOARD_{it} + B_2 ROA_{it} + B_3 SIZE_{it} + B_4 LEV_{it} +$$
$$B_5 MVTBV_{it} + B_6 AGE_{it} + B_7 NGOV_{it} + B_8 AUD_{it} + \sum_{d=1}^{19} \beta_{d+g} IND_i +$$
$$\sum_{e=1}^{9} \beta_{e+27} YEAR_t + \varepsilon_{it}$$

(5)

Using the same metrics as the previous estimation models, the value of the coefficient calculated in B1 (women on the board of directors and the percentage of women on the board of directors) to answer (H2a). Therefore, if B1 was positive and significant, we considered that the woman does not avoid financial problems and if not, we considered that the woman avoids the company's financial problems. Likewise, the value of the coefficient calculated in B1 (women as chair of the board of directors and women as CEO and chair of the board simultaneously) to answer (H2b), demonstrating whether the woman, as chair of the board of directors, avoids financial problems in companies.

We also assessed whether companies were already in financial trouble up to two years before the woman took over the top management position. For this analysis, we considered the period from 2011 to 2018 for the analysis of a period before (when P_FINANCIAL in the previous year is equal to 1), and the period from 2012 to 2018 for the analysis of two years before (when P_FINANCIAL in the previous year and two years before, both are equal to 1).

4. Results

In this chapter, we present all the results obtained through the data, such as: descriptive statistics, correlation analysis, and logistic regression via entropy balancing.

4.1 Descriptive statistics

In Table 1, we demonstrate the descriptive statistics on the variables of control and interest, in which there are 1,800 (one thousand and eight hundred) observations from 276 (two hundred and seventy-six) companies.

Table 1 – Descriptive statistics

VARIABLES	N	MEAN	MEDIAN	STANDARD DEVIATION
Test Variable P_FINANCIAL	1.800	0,709	1,000	0,454
Control Variables				
LEV	1.800	0,678	0,590	0,542
SIZE	1.800	14,941	15,020	1,739
AGE	1.800	37,588	33,000	28,743
NGOV	1.800	0,554	1,000	0,497
MVTBV	1.800	2,085	1,300	2,745
AUD	1.800	0,797	1,000	0,401
F_BOARD	1.800	0,402	0,000	0,490
F_EXEOFFIC	1.800	0,330	0,000	0,470
F_PRESBOARD	1.800	0,026	0,000	0,161
F_CEO	1.800	0,028	0,000	0,165
F_CEO_PRES	1.800	0,006	0,000	0,077
PF%_EXEOFFIC	1.800	8,149	0,000	13,839
PF%_BOARD	1.800	7,270	0,000	11,113
ROA	1.800	0,007	0,032	0,1603

This table presents the descriptive statistics of the variables. P_FINANCIAL is a variable that predicts whether or not the company is in serious financial problems company i at time t; F_EXEOFFIC is equal to 1 if there is a woman as an executive officer and 0 otherwise; ROA It is calculated as net income divided by total assets; SIZE = represents the natural logarithm of the assets; LEV is equal to current liabilities plus non-current liabilities divided into equity; MVTBV It is a variable that represents the market value of the shares divided by the book value of the shares in equity; AGE is equal to the number of years a company has been in business; NGOV is equal to 1 if a company adheres to a higher level of corporate governance practices (if it is listed in New Market Mercado segment, Level 1 and Level 2) and is 0 otherwise; AUD is a dummy variable that represents whether the company contracts auditing services from one of the big four auditing companies, they are: Deloitte, Price, KPMG and Ernst, being 01 (one) when hiring and 0 (zero) when not; F_CEO is equal to 1 if there is a female CEO and 0 otherwise.; F_PRESBOARD is equal to 1 if there is a woman as chair of the board of directors and 0 otherwise; F_BOARD is equal to 1 if there is at least one female member of the board of directors and 0 otherwise; PF%_EXEOFFIC is a variable that represents the percentage of women that exist in the position of executive officers in the company; PF%_BOARD is a variable that represents the percentage of women who exist as a member of the company's board of directors; F_CEO_PRES is a variable of interaction between women as CEOs (F_CEO) and woman in the position of chair of the board of directors (F_PRESBOARD).

It is possible to observe that, on average, more than half of the companies have signs of serious financial problems, which can be represented by the long period of crisis and recession that the country is going through. On the other hand, we found that, on average, only 2.60% and 2.80% of the companies that are listed on B3 stock exchange, in Brazil, have a woman in the highest position in the hierarchy, either in the role of Chair of the Board of Directors and CEO respectively, being different when there is the presence of women in positions of executive officers or on the board of directors, since it can be seen in almost 33.00% and 40.20% of the companies have at least 01 (one) woman in these positions. These findings highlight the disparity between men and women in senior management positions, regarding the positions of Chair of the Board and CEO, and are even more pronounced than those found in the international literature (Segovia-Pérez et al., 2019; Fernando, Jain & Tripathy, 2020). However, they are similar to the national literature (Prudêncio et al., 2021; Cunha et al. 2022). In addition, in non-tabulated analyses, there was no significant increase over the years, the percentage hit its maximum of 4% in 2012, and later dropped, ending 2018 with around 2.6%, well in line with the average for the period. Regarding women as executive officers, there was a peak in 2016, with almost 38.5% of the positions with at least one woman, but it fell again in 2017 to 33%, and in 2018 it rose to 35%. There is still no clear upward trend. Bill no. 7179 of 2017, pending in Congress that determines a quota system for the participation of women in publicly traded companies, may increase these numbers in the near future.

Going on to analyze the other variables, it should be noted that even with a high indicator of financial problems, we can see that the leverage level of companies has been on average 0.678, which, in general, demonstrates a controlled indebtedness of companies.

Regarding the market value of equity in relation to the book value of equity, it is 2.085, which indicates that the market is valuing companies, and this may demonstrate greater investment by external agents. Another relevant factor is the return on assets of these companies, which, on average, is positive, which can justify the interest of investors in Brazilian companies.

4.2 Entropy balancing analyses

We present in Table 2 in their respective panels the results of entropy balancing. It allows us to compare the treatment group, which are equal to one if the woman works as CEO (F_CEO), as executive officer (F_EXEOFFIC), as a member of the board of directors (F_BOARD), as chair of the board of directors (F_PRESBOARD) and the control group, which do not have women in top management positions.

Table 2 – Companies without women vs. companies with women in senior management positions

Table 2A: After entropy balancing: corresponding sample						
	Companies with a female CEO (F_CEO = 1) (N = 51)			Companies without a female CEO (F_CEO = 0) (N = 1,749)		
Dependent variable	Mean	Variance	Skewness	Mean	Variance	Skewness
P_FINANCIAL Combined Variables	0,7254	0,2031	-1,0105	0,7089	0,2064	-0,9201
LEV	0,796	0,5507	2,769	0,7959	0,543	3,194
SIZE	15,12	4,735	-0,3467	15,11	3,443	-0,1801
AGE	37,22	605,10	-0,0277	37,22	779,40	0,9035
NGOV	0,5294	0,2541	-0,1179	0,5295	0,2493	-0,118
MVTBV	1,816	9,459	4,178	1,816	9,459	4,178
AUD	0,6863	0,2196	-0,8029	0,6865	0,2154	-0,8068
ROA	0,0073	0,0282	-3,823	0,0073	0,0250	-3,117

In this table, we use entropy balancing on the variables.

In Table 2A, after performing entropy balancing, descriptive statistics show similarity between the means of the treatment group (companies with a female CEO) and control (companies without a female CEO). What makes the data comparable for our analysis of the effect of women in the CEO role (F_CEO).

Table 2B: After entropy balancing: corresponding sample						
	Companies with a woman as executive officers (F_EXEOFFIC = 1) (N = 595)			Companies without women as executive officers (F_EXEOFFIC = 0) (N = 1,205)		
Dependent variable	Mean	Variance	Skewness	Mean	Variance	Skewness
P_FINANCIAL Combined Variables	0,6823	0,2171	-0,7833	0,7228	0,2005	-0,9956
LEV	0,618	0,1598	4,664	0,6185	0,1613	4,671
SIZE	15,16	2,88	-0,1566	15,16	2,881	-0,1533
AGE	36,04	689,10	0,7429	36,05	690,00	0,7458
NGOV	0,5882	0,2426	-0,3586	0,5879	0,2425	-0,3572
MVTBV	2,357	8,025	2,926	2,356	8,023	2,926
AUD	0,8588	0,1214	-2,061	0,8584	0,1216	-2,057
ROA	0,0282	0,0171	-3,933	0,0281	0,0172	-3,932

In this table, we use entropy balancing on the variables.

Table 2B differentiates companies that have a woman in the position of an executive officer from those that do not. After performing entropy balancing, the means, variances and asymmetries are similar between the treatment and control groups. This makes the data comparable to our analysis of the effect of women as executive officers (F_EXEOFFIC).

Table 2C: After entropy balancing: corresponding sample						
	Companies with a woman in the position of Director (F_BOARD = 1) (N = 725)			Companies without a woman in the position of Director (F_BOARD = 0) (N = 1,075)		
Dependent variable	Mean	Variance	Skewness	Mean	Variance	Skewness
P_FINANCIAL Combined Variables	0,6786	0,2183	-0,7649	0,7302	0,1971	-1,0374
LEV	0,6645	0,246	4,618	0,6645	0,2461	4,618
SIZE	15,21	3,098	-0,387	15,20	3,098	-0,3854
AGE	41,56	786,60	0,6839	41,56	786,60	0,6839
NGOV	0,5214	0,2499	-0,0856	0,5214	0,2499	-0,0856
MVTBV	2,495	9,155	2,869	2,494	9,154	2,869
AUD	0,8317	0,1402	-1,773	0,8316	0,1402	-1,772
ROA	0,0316	0,0133	-3,212	0,0316	0,0133	-3,215

In this table, we use entropy balancing on the variables.

In Table 2C similar to Table 2B, identifying companies that have a woman as a member of the board of directors and those that do not have, after performing entropy balancing, the averages, variances and skewness are similar between the treatment and control groups. That makes the data comparable for the purpose of our analysis of the effect of women as board members (F_BOARD).

Table 2D: After entropy balancing: corresponding sample						
	Companies with a woman as the Chair of the Board of Directors (F_PRESBOARD = 1) (N = 48)			Companies without a woman as the Chair of the Board of Directors (F_PRESBOARD = 0) (N = 1,752)		
Dependent variable	Mean	Variance	Skewness	Mean	Variance	Skewness
P_FINANCIAL Combined Variables	0,5416	0,2535	-0,1672	0,7140	0,2043	-0,9473
LEV	0,5858	0,3275	4,823	0,5845	0,3268	4,835
SIZE	14,56	4,244	-0,3991	14,53	4,233	-0,3507
AGE	50,79	556,30	0,0401	50,67	555,00	0,0550
NGOV	0,3958	0,2442	0,426	0,4003	0,2402	0,4069
MVTBV	2,815	12,65	2,431	2,808	12,62	2,439
AUD	0,5833	0,2482	-0,3381	0,5793	0,2439	-0,3212
ROA	0,0212	0,0307	-3,548	0,0212	0,0306	-3,551

In this table, we use entropy balancing on the variables.

In Table 2D, similar to Table 2C, the means, variances and skewness are also similar between the treatment group (companies that have a woman as Chair of the Board of Directors) and control (they do not have a woman as Chair of the Board of Directors). That makes the data comparable to our analysis of the effect of women as Chair of the Board of Directors (F_PRESBOARD). In Table 3A, we present the results of our logit regression of women in senior management positions.

Table 3 Results of the hypotheses

Table 3A: regression results for women in senior management positions

VARIABLES	Expected Sign	P_FINANCIAL			
		(1)	(2)	(3)	(4)
F_CEO	-	1,089*** (2,673)			
F_EXEOFFIC	-		0,222 (1,226)		
F_BOARD	-			-0,255 (-1,383)	
F_PRESBOARD	-				-0,441 (-1,088)
ROA	-	-27,485*** (-7,726)	-24,173*** (-12,391)	-22,467*** (-9,320)	-40,188*** (-9,165)
SIZE	+	-0,048 (-0,365)	0,094 (1,221)	0,128 (1,619)	-0,115 (-0,825)
LEV	+	12,673*** (12,385)	9,476*** (14,990)	10,264*** (13,209)	9,418*** (7,474)
MVTBV	-	0,014 (0,232)	0,016 (0,408)	0,005 (0,110)	0,365*** (4,115)
AGE	+	-0,033*** (-5,911)	-0,030*** (-6,964)	-0,021*** (-4,818)	-0,023*** (-3,337)
NGOV	-	0,188 (0,632)	0,002 (0,010)	0,076 (0,328)	0,160 (0,435)
AUD	-	-0,411 (-0,858)	-0,595* (-1,703)	-0,369 (-1,000)	0,218 (0,529)
		-3,089 Constant	-3,279*** (-2,635)	-5,764*** (-4,687)	-2,470 (-1,337)
Fixed Effect		Sim	Sim	Sim	Sim
Year		Sim	Sim	Sim	Sim
Industry		1.800	1.800	1.800	1.800
Observations		0,6717	0,5086	0,5094	0,6769
Pseudo R2					

Robust t statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In this table, we use the logit model after entropy balancing on the variables.

We show that the only statistically significant coefficient for women in senior management positions is that of CEO (F_CEO), column (1), being positive and significant at 1%, indicating that the woman is harming the company, thus being able to conclude that she would be worsening the financial problems. This analysis deviates from the theory proposed by the literature, in which women are more risk-averse, ethical, and cautious (Francis, Hasan, Park & Wu, 2015; Adhikari, Agrawal & Malm, 2019; Li & Zeng, 2019; Martín-Ugedo et al., 2018; Cunha et al. 2022). However, it is worth mentioning that this result may be a reflection of the woman having already taken over the company in a more delicate situation and with pre-existing financial problems. As described in the methodology, to analyze this possibility of the woman having taken over the company already with financial problems, we considered companies that were already in financial trouble up to two years before the woman took on top management positions, which is represented in Table 4.

Table 4 presents the results after entropy balancing for cases in which the company was already in financial problems 01 (one) year before which is represented in Table 4A and Table 4B, is represented if the company was already in financial problems 02 (two) years before.

Table 4 Companies with women and companies without women in top management positions – analysis of up to two previous years

Table 4A: Analysis of companies with an indication of financial problems in the previous year

VARIABLES	Expected Sign	P_FINANCIAL			
		(1)	(2)	(3)	(4)
F_CEO	-	-1,112 (-0,482)			
F_EXEOFFIC	-		0,536 (1,146)		
F_BOARD	-			0,202 (0,420)	
F_PRESBOARD	-				-0,717 (-0,640)
ROA	-	-113,895*** (-3,934)	-34,656*** (-6,353)	-32,353*** (-5,386)	-59,751*** (-4,305)
SIZE	+	-0,144 (-0,338)	-0,012 (-0,065)	0,054 (0,251)	-0,558 (-1,356)
LEV	+	31,326*** (3,019)	11,805*** (5,929)	11,532*** (5,734)	23,511*** (4,789)
MVTBV	-	0,941 (1,112)	0,083 (0,718)	-0,030 (-0,239)	0,136 (0,723)
AGE	+	-0,015 (-0,278)	-0,037*** (-3,670)	-0,036*** (-3,196)	-0,027 (-1,207)
NGOV	-	0,182 (0,062)	-0,183 (-0,268)	-0,253 (-0,389)	-0,371 (-0,362)
AUD	-	-5,276 (-1,189)	-3,970** (-2,263)	-2,969** (-1,986)	-3,999 (-1,484)
		6,580 Constant	4,175 (1,403)	1,111 (0,357)	7,806* (1,827)
Fixed Effect		Sim	Sim	Sim	Sim
Year		Sim	Sim	Sim	Sim
Industry		1.004	1.004	1.004	1.004
Observations		0,7401	0,5143	0,5110	0,7425
Pseudo R²					

Robust t statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Balancing data was omitted for space reasons. In this table, we use the logit model after balancing by entropy in the variables, in the previous year.

Table 4A presents the results of our regression considering companies that are in financial problems 01 (one) year before the woman assumes top management positions. From the analysis of Table 4A, it appears that none of the variables of interest is statistically significant, which differs from our result in Table 3, where we find that the woman in the position of CEO (F_CEO), harms the company. There is no evidence in this table that this actually occurs. To address this, we analyzed when the woman took over the company up to two years before, and the company was already in financial problems. This result is found in Table 4B.

VARIABLES	Expected Sign	P_FINANCIAL			
		(1)	(2)	(3)	(4)
F_CEO	-	2,423 (0,891)			
F_EXEOFFIC	-		0,436 (0,762)		
F_BOARD	-			-0,034 (-0,040)	
F_PRESBOARD	-				-2,622** (-1,978)
ROA	-	-159,794*** (-3,267)	-50,380 *** (-3,888)	-55,409 *** (-3,265)	-70,970 *** (-2,606)
SIZE	+	-0,734 (-0,493)	0,029 (0,091)	-0,197 (-0,527)	-0,168 (-0,378)
LEV	+	37,495** (1,963)	13,572*** (3,971)	20,129*** (4,479)	19,617*** (2,703)
MVTBV	-	4,002 (1,342)	0,134 (0,645)	-0,195 (-0,930)	0,303 (1,371)
AGE	+	-0,210*** (-2,774)	-0,057*** (-3,688)	-0,057*** (-3,215)	-0,032 (-1,094)
NGOV	-	-13,430** (-2,328)	-1,465 (-1,346)	-1,352 (-1,175)	-0,623 (-0,469)
AUD	-	-20,076** (-2,185)	-9,114* (-1,793)	-7,311** (-2,522)	-8,690 (-1,291)
Constant		45,974*** (Constant)	9,243 (1,338)	7,347 (1,214)	6,902 (0,873)
Fixed Effect		Sim	Sim	Sim	Sim
Year		Sim	Sim	Sim	Sim
Industry		661	661	661	661
Observations		0,8634	0,5800	0,6113	0,7429
Pseudo R²					

Robust t statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Balance data omitted for space reasons. In this table, we use the logit model after balancing by entropy in the variables, in two previous years.

From Table 4B, it can be seen again that when the woman is in the position of CEO, as shown in column (1), the coefficient is not statistically significant. Therefore, this result differs from our previous result presented in Table 3, which indicated that the woman, upon assuming the position of CEO, increases the company's financial problems. This is the reality, as women are already assuming the position of CEO in companies that are in financial problems. This leads us to reject hypothesis H1a. In addition, no significant evidence was found for women as executive officers (F_EXEOFFIC) and woman as a member of the board of directors (F_BOARD), which leads us to reject hypotheses H1b and H2a.

However, we found evidence that when the woman assumes the chair of the board of directors and this company already has financial problems up to 02 (two) years before she assumes the position, as shown in column (4), the coefficient is -2.622, statistically significant at 5%, which shows that in the position of chair of the board it helps to reduce the probability of the company having financial problems. This result can partially confirm the H2b hypothesis (Companies are less likely to have financial problems when women occupy the position of Chair of the Board of Directors). This result is in line with international results by Palvia et al. (2015) and Adhikari et al. (2019). However, it differs from Elsaid (2014), which investigated only whether men decreased the likelihood of bankruptcy when they joined after a woman's management, therefore not directly comparable.

5. Final Considerations

We investigated whether the participation of women in positions as CEO, executive officers, member of the board of directors, and chair of the board of directors decreases the likelihood of financial problems. The results initially seem to suggest that when a woman is in the role of CEO, the company tends to have a propensity to financial problems, but when it is investigated up to 02 (two) years before the company already has indications of financial problems, there is no significant result in which the woman harms the company, thus being a flawed result, as they are taking over companies already with serious financial problems.

As for the woman in the position of executive officer and on the board of directors, there are no statistically significant results and therefore cannot say whether she helps to mitigate financial problems. However, when she assumed the position of chair of the board of directors two years before, the woman seemed to reduce the likelihood of financial problems, thus confirming the research hypothesis and consistent with international studies by Palvia et al. (2015) and Adhikari et al. (2019).

The research mainly contributes to highlighting the relationship between financial problems and the presence of women in senior management positions in developing markets, mainly in Brazil. Unlike the international literature, the most important analysis is to investigate the existence of financial problems prior to the entry of women into senior management positions. We recommend that future studies also consider this cutout to bring out the real financial impact of women in these positions.

The participation of women in senior management positions is still scarce in Brazil, mainly in the positions of CEO and Chair of the Board, with no clear trend of increase in the investigated period. There are ongoing projects trying to increase the participation of women in these senior management positions. For example, Bill no.7179 of 2017, which determines a quota system for the participation of women in public companies (Cunha

et al. 2022). As a suggestion for future research, it is necessary to understand what happens between the years that a woman takes on key senior management positions and the respective probability of financial problems during that period. We emphasize that other factors may be responsible for these problems than those not observed in this study, such as management change and mergers and acquisitions, which should be further investigated.

References

Adhikari, B. K., Agrawal, A., & Malm, J. (2019). Do women managers keep firms out of trouble? Evidence from corporate litigation and policies. Journal of Accounting and Economics, 67(1), 202-225. https://doi.org/10.1016/j.jacceco.2018.09.004

Altman, E. I., Baidya, T. K., & Dias, L. M. R. (1979). Previsão de problemas financeiros em empresas. Revista de Administração de Empresas, 19(1), 17-28. https://doi.org/10.1590/S0034-75901979000100002

Belot, F., & Serve, S. (2018). Earnings Quality in Private SMEs: Do CEO Demographics Matter?. Journal of Small Business Management, 56, 323-344. https://doi.org/10.1111/jsbm.12375

Bennouri, M., Chtioui, T., Nagati, H., & Nekhili, M. (2018). Female board directorship and firm performance: What really matters?. Journal of Banking & Finance, 88, 267-291. https://doi.org/10.1016/j.jbankfin.2017.12.010

Bernile, G., Bhagwat, V., & Yonker, S. (2018). Board diversity, firm risk, and corporate policies. Journal of Financial Economics, 127(3), 588-612. https://doi.org/10.1016/j.jfineco.2017.12.009

Bøhren, Ø., & Staubo, S. (2016). Mandatory gender balance and board independence. European Financial Management, 22(1), 3-30. https://doi.org/10.1111/eufm.12060

Bui, A. T., Nguyen, C. V., Pham, T. P., & Phung, D. T. (2022). Female leadership and borrowing constraints: Evidence from an emerging economy. International Review of Financial Analysis, 81, 101332. https://doi.org/10.1016/j.irfa.2019.01.012

Chen, J., Leung, W. S., Song, W., & Goergen, M. (2019). Why female board representation matters: The role of female directors in reducing male CEO overconfidence. Journal of Empirical Finance, 53, 70-90. http://dx.doi.org/10.1016/j.jempfin.2019.06.002

Chen, L. H., Gramlich, J., & Houser, K. A. (2019). The effects of board gender diversity on a firm's risk strategies. Accounting & Finance, 59(2), 991-1031. https://doi.org/10.1111/acfi.12283

Conyon, M. J., & He, L. (2017). Firm performance and boardroom gender diversity: A quantile regression approach. Journal of Business Research, 79, 198-211. https://doi.org/10.1016/j.jbusres.2017.02.006

Cumming, D., Leung, T. Y., & Rui, O. (2015). Gender diversity and securities fraud. Academy of management Journal, 58(5), 1572-1593. https://doi.org/10.5465/amj.2013.0750

Cunha, D. R. D. S., De Moura, A. A. F., & Cruz, P. B. D. (2022). Impact of women and ethics committees on firms' value and financial performance. The International Journal of Human Resource Management, 33 (20), 4034-4057. https://doi.org/10.1080/09585192.2021.2013923

De Moura, A. A. F., & Gupta, J. (2019). Mandatory adoption of IFRS in Latin America: A boon or a bias. Journal of International Financial Markets Institutions and Money, 60, 111–133. https://doi.org/10.1016/j.intfin.2018.12.016F

Elsaid, E. (2014). Examining the effect of change in CEO gender, functional and educational background on firm performance and risk. Journal of Applied Business Research (JABR), 30(6), 1605-1614. https://doi.org/10.19030/jabr.v30i6.8878

Faccio, M., Marchica, M. T., & Mura, R. (2016). CEO gender, corporate risk-taking, and the efficiency of capital allocation. Journal of Corporate Finance, 39, 193-209. https://doi.org/10.1016/j.jcorpfin.2016.02.008

Fernando, G. D., Jain, S. S., & Tripathy, A. (2020). This cloud has a silver lining: Gender diversity, managerial ability, and firm performance. Journal of Business Research, 117, 484–496. https://doi.org/10.1016/j.jbusres.2020.05.042

Francis, B., Hasan, I., Park, J. C., & Wu, Q. (2015). Gender differences in financial reporting decision making: Evidence from accounting conservatism. Contemporary Accounting Research, 32(3), 1285-1318. https://doi.org/10.1111/1911-3846.12098

Gao, H., Lin, Y., & Ma, Y. (2016). Sex discrimination and female top managers: Evidence from China. Journal of business ethics, 138(4), 683-702. https://doi.org/10.1007/s10551-015-2892-x

García-Sánchez, I. M., Suárez-Fernández, O., & Martínez-Ferrero, J. (2019). Female directors and impression management in sustainability reporting. International Business Review, 28(2), 359-374. https://doi.org/10.1016/j.ibusrev.2018.10.007

Gupta, A., & Raman, K. (2014). Board diversity and CEO selection. Journal of Financial Research, 37(4), 495-518. https://doi.org/10.1111/jfir.12044

Gyapong, E., Ahmed, A., Ntim, C. G., & Nadeem, M. (2021). Board gender diversity and dividend policy in Australian listed firms: the effect of ownership concentration. Asia Pacific Journal of Management, 38, 603-643. https://doi.org/10.1007/s10490-019-09672-2

Gyapong, E., Monem, R. M., & Hu, F. (2016). Do women and ethnic minority directors influence firm value? Evidence from post-apartheid South Africa. Journal of Business Finance & Accounting, 43(3-4), 370-413. https://doi.org/10.1111/jbfa.12175

Haat, M. H. C., Rahman, A. R., & Mahenthiran, S. (2008). Corporate governance, transparency and performance of Malaysian companies. Managerial Auditing Journal, 23(8), 744-778. https://doi.org/10.1108/02686900810899518

Hainmueller, J. (2012). Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. Political analysis, 20 (1), 25-46. https://doi.org/10.1093/pan/mpr025

Hoobler, J. M., Masterson, C. R., Nkomo, S. M., & Michel, E. J. (2018). The business case for women leaders: Meta-analysis, research critique, and path forward. Journal of Management, 44(6), 2473-2499.

https://doi.org/10.1177/0149206316628643

Jeong, S. H., & Harrison, D. A. (2017). Glass breaking, strategy making, and value creating: Meta-analytic outcomes of women as CEOs and TMT members. Academy of Management Journal, 60(4), 1219-1252. https://doi.org/10.5465/amj.2014.0716

Jizi, M. (2017). The influence of board composition on sustainable development disclosure. Business Strategy and the Environment, 26(5), 640-655. https://doi.org/10.1002/bse.1943

Knippen, J. M., Palar, J., & Gentry, R. J. (2018). Breaking the mold: An examination of board discretion in female CEO appointments. Journal of Business Research, 84, 11-23. https://doi.org/10.1016/j.jbusres.2017.10.057

Knippen, J. M., Shen, W., & Zhu, Q. (2019). Limited progress? The effect of external pressure for board gender diversity on the increase of female directors. Strategic Management Journal, 40(7), 1123-1150. https://doi.org/10.1002/smj.3014

Lai, K. M., Srinidhi, B., Gul, F. A., & Tsui, J. S. (2017). Board gender diversity, auditor fees, and auditor choice. Contemporary Accounting Research, 34(3), 1681-1714. https://doi.org/10.1111/1911-3846.12313

Li, Y., & Zeng, Y. (2019). The impact of top executive gender on asset prices: Evidence from stock price crash risk. Journal of Corporate Finance, 58, 528-550. https://doi.org/10.1016/j.jcorpfin.2019.07.005

Li, Y., & Zhang, X. Y. (2019). Impact of board gender composition on corporate debt maturity structures. European Financial Management, 25 (5), 1286-1320. https://doi.org/10.1111/eufm.12214

Liu, C. (2018). Are women greener? Corporate gender diversity and environmental violations. Journal of Corporate Finance, 52, 118-142. https://doi.org/10.1016/j.jcorpfin.2018.08.004

Liu, Y., Wei, Z., & Xie, F. (2014). Do women directors improve firm performance in China?. Journal of Corporate Finance, 28, 169-184. https://doi.org/10.1016/j.jcorpfin.2013.11.016

Loch, M., Silva, J. C., Bueno, G., & Marcon, R. (2020). The Government as Shareholder and Principal-Principal Conflicts in the Brazilian Electric Power Industry. Brazilian Business Review, 17(1), 24–45. https://doi.org/10.15728/bbr.2020.17.1.2

Lu, J., & Boateng, A. (2018). Board composition, monitoring and credit risk: evidence from the UK banking industry. Review of Quantitative Finance and Accounting, 51(4), 1107-1128. https://doi.org/10.1007/s11156-017-0698-x

Lu, J., & Herremans, I. M. (2019). Board gender diversity and environmental performance: An industries perspective. Business Strategy and the Environment, 28(7), 1449-1464. https://doi.org/10.1002/bse.2326

Luo, J. H., Huang, Z., Li, X., & Lin, X. (2018). Are women CEOs valuable in terms of bank loan costs? Evidence from China. Journal of Business Ethics, 153(2), 337-355. https://doi.org/10.1007/s10551-016-3369-2

Martín-Ugedo, J. F., Mínguez-Vera, A., & Palma-Martos, L. (2018). Female CEOs, returns and risk in Spanish publishing firms. European Management Review, 15(1), 111-120. https://doi.org/10.1111/emre.12132

Mascia, D. V., & Rossi, S. P. (2017). Is there a gender effect on the cost of bank financing?. Journal of Financial Stability, 31, 136-153. https://doi.org/10.1016/j.jfs.2017.07.002

Maume, D. J., Heymann, O., & Ruppanner, L. (2019). National Board Quotas and the Gender Pay Gap among European Managers. Work, Employment and Society, 33(6), 1002-1019. https://doi.org/10.1177/0950017019864509

Merlino, L. P., Parrotta, P., & Pozzoli, D. (2018). Gender differences in sorting. Industrial Relations: A Journal of Economy and Society, 57(4), 671-709. https://doi.org/10.1111/irel.12216Nekhili, M., Chakroun, H., & Chtioui, T. (2018). Women's leadership and firm performance: family versus nonfamily firms. Journal of Business Ethics, 153(2), 291-316. https://doi.org/10.1007/s10551-016-3340-2

Palvia, A., Vähämaa, E., & Vähämaa, S. (2015). Are female CEOs and chairwomen more conservative and risk averse? Evidence from the banking industry during the financial crisis. Journal of Business Ethics, 131 (3), 577-594. https://doi.org/10.1007/s10551-014-2288-3

Post, C., & Byron, K. (2015). Women on boards and firm financial performance: A meta-analysis. Academy of Management Journal, 58(5), 1546-1571. https://doi.org/10.5465/amj.2013.0319

Prudêncio, P., Forte, H., Crisóstomo, V., & Vasconcelos, A. (2021). Effect of Diversity in the Board of Directors and Top Management Team on Corporate Social Responsibility. Brazilian Business Review, 18(2), 118–139. https://doi.org/10.15728/bbr.2021.18.2.1

Reguera-Alvarado, N., de Fuentes, P., & Laffarga, J. (2017). Does board gender diversity influence financial performance? Evidence from Spain. Journal of Business Ethics, 141(2), 337-350. https://doi.org/10.1007/s10551-015-2735-9

Saeed, A., Belghitar, Y., & Yousaf, A. (2016). Firm-level determinants of gender diversity in the boardrooms: Evidence from some emerging markets. International Business Review, 25(5), 1076-1088. https://doi.org/10.1016/j.ibusrev.2016.01.002

Segovia-Perez, M., Figueroa-Domecq, C., Fuentes-Moraleda, L., & Munoz-Mazon, A. (2019). Incorporating a gender approach in the hospitality industry: Female executives' perceptions. International Journal of Hospitality Management, 76, 184-193. https://doi.org/10.1016/j.ijhm.2018.05.008

Shroff, N., Verdi, R. S., & Yost, B. P. (2017). When does the peer information environment matter?. Journal of Accounting and Economics, 64(2-3), 183-214. https://doi.org/10.1016/j.jacceco.2017.03.005

Silva, B. S., Silva, D. G., Pinheiro, L. E. T., & Francisco, J. R. D. S. (2020). Efeito do gênero na qualidade do serviço de auditoria. Revista de Auditoria, Governança e Contabilidade, 8(37), 18-36. https://revistas.fucamp.edu.br/index.php/ragc/article/view/2178

Sirqueira, A. B., Kalatzis, A. E. G., & Toledo, F. M. B. (2007). Boas práticas de governança corporativa e otimização de portfólio: Uma análise comparativa. Economia, 8(2), 521-544.

Ullah, I., Fang, H., & Jebran, K. (2019). Do gender diversity and CEO gender enhance firm's value? Evidence from an emerging economy. Corporate Governance: The International Journal of Business in Society, 20(1), 44–66. https://doi.org/10.1108/ CG-03-2019-0085

Wahid, A. S. (2019). The effects and the mechanisms of board gender diversity: Evidence from financial manipulation. Journal of Business Ethics, 159, 705-725. https://doi.org/10.1007/s10551-018-3785-6

Ward, A. M., & Forker, J. (2017). Financial management effectiveness and board gender diversity in member-governed, community financial institutions. Journal of Business Ethics, 141(2), 351-366. https://doi.org/10.1007/s10551-015-2699-9

Wilson, N., Wright, M., & Altanlar, A. (2014). The survival of newly-incorporated companies and founding director characteristics. International Small Business Journal, 32(7), 733-758. https://doi.org/10.1177/0266242613476317

Appendix A. Data Definition

Variables	Definition
Dependent variables	
P_ FINANCIAL	It is a variable that predicts whether the company is in serious financial problems, being 01 (one) when there are financial problems and 0 (zero) otherwise (Altman et al., 1979).
Variables of interest	
F_CEO	It is a dummy variable that represents whether the woman as executive officer as CEO of the company, being 01 (one) when you are the CEO and 0 (zero) when otherwise.
F_EXEOFFIC	It is a dummy variable that represents if there is a woman in the position of director in the company, being 01 (one) when there is and 0 (zero) otherwise.
F_BOARD	It is a dummy variable that represents whether there is a woman on the company's board of directors, being 01 (one) when there is a woman and 0 (zero) when otherwise.
F_PRESBOARD	It is a dummy variable that represents whether the woman is the president of the company's board of directors, being 01 (one) when there is a woman in the position of president and 0 (zero) when otherwise.
Control variables	
ROA	It is a variable that represents the company's profitability through its assets. We measure as the ratio between Net Income and Total Assets; (Faccio et al., 2016).
SIZE	It is a variable that represents the size of the company, where larger companies have less risk than smaller companies and was measured through the logarithm of the asset (Faccio et al., 2016).
LEV	It is a variable that measures the company's leverage level. This variable was calculated by dividing total debt by total assets, as it demonstrates the size of the company's debt in relation to its equity (García-Sánchez et al., 2019).
MVTBV	It is a variable that represents the market value of the shares divided by the book value of the shares in equity. This variable demonstrates the company's growth opportunity. (Chen, Gramlich, & Hoser, 2019).

AGE	It is a variable that represents the number of years that the company has been in the market, thus demonstrating the company's lifetime (Faccio et al., 2016).
NGOV	It is a dummy variable that equals one if the company is listed in the corporate governance segment at B3 of Level 1, 2, and New Market, and 0 (zero) otherwise. This is because, in addition to being the three largest indices on the B3, it also brings greater appreciation and visibility in the stock market, as it meets the requirements for guaranteeing the information that is disclosed (Sirqueira, Kalatzis & Toledo, 2007).
AUD	It is a dummy variable that represents whether the company hires auditing services from one of the big four auditing companies, which are: Deloitte, Price, KPMG, and Ernst, being 01 (one) when hiring and 0 (zero) when not hiring, as companies audited by the four largest have fewer lawsuits and more credibility in the accounting information (Haat, Rahman & Mahenthiran, 2008).