



Does gender Diversity on Boards Influence Stock Market Liquidity? Empirical Evidence from the Tunisian Market

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ABSTRACT

The aim of this paper is to study the effect of the gender diversity in boardrooms on the liquidity of the shares. To do this, we selected a sample made up of Tunisian banks listed over the period 1998-2018, and we used the two-step least squares method (2SLS). The results of this work show a significant and positive relationship between the gender diversity on the boards of directors and the liquidity of the shares of Tunisian banks. However, the results of this investigation suggest that the presence of at least one woman on the board positively affect the liquidity of the shares. This relationship becomes more meaningful when there is more than one woman on the board, but their presence will be normalized if they occupy at least three positions.

Keywords: Corporate Governance, Gender Diversity, Stock Market Liquidity.

JEL Classifications: G10, G12, G34, J16.

1. INTRODUCTION

This research paper aims to test whether the diversity of gender on boards of directors affects the liquidity of the shares. Our reflection has risen on this line of research since previous works on the determinants of Tunisian banks' liquidity has ignored the liquidity of the shares. Indeed, the board's gender diversity has drawn the attention of several scholars, including Del Carmen et al. (2019), Nadeem et al. (2019), Bennouri et al. (2018), Bernile et al. (2018) and Khaw et al. (2016).

Del Carmen et al. (2019), Bennouri et al. (2018), Liu et al. (2014) and Joecks et al. (2013) focused on the performance of companies while Nadeem et al. (2019), Bernile et al. (2018) and Khaw et al. (2016) are interested in risk. The results of this work suggest that women improve the organizational and financial performance of firms. In contrast, Levi et al. (2014) Niederle and Vesterlund (2007) and Barber and Odean (2001) suggest that women are less confident than men hence a more diverse board is less confident.

However, Ahmed and Ali (2017) state that an inverted U-shaped relationship exists between women's representation on boards and the liquidity of stocks in Australia. This conclusion refers to the critical mass theory, which indicates that the increase in the number of women in the board of directors (BOD) does not necessarily lead to an improvement in the performance of companies (Chauhan and Dey, 2017). According to Apesteguia et al. (2012) and Konrad et al. (2008), if the number of women on the BOD exceeds three positions, their presence will be normalized (Fan et al., 2019). In the same vein, Schwartz-Ziv (2017) indicates that boards of directors with at least three female directors are more active and more engaged in monitoring, advising and limiting the management of bank revenues. Similarly, according to the theory of tokenism, the presence of at least 3 women, or about 30% of the total number of directors, reduces the information asymmetry between managers and investors.

In the Tunisian context, the rate of representation of women on boards of directors did not exceed 10%. This small proportion is justified by invisible cultural barriers. Although there is no

mandatory gender equality law, the presence of women on boards has been emphasized since the revolution. This stimulated our reflection to study the influence of the implementation of a compulsory law on women's representation on boards of directors. In this regard, and given the importance of the liquidity of shares in the financial markets, it is essential to consider the factors explaining the liquidity of the shares (Ahmed and Ali, 2017).

In this context, the intent of this paper is to verify whether the gender diversity, on the boards of directors, influences the liquidity of the shares of Tunisian banks. To this end, we use a sample made up of the 11 Tunisian banks listed during the period 1998-2018. To do this, we will use the two-stage least squares method (2SLS) to empirically study the governance of Tunisian banks and check the effect of women's participation on the BOD on the liquidity of shares.

This paper is organized as follows. The first section presents some previous empirical evidence on this topic and provides the theoretical framework that supports the research hypotheses. The second section describes the database, the variables and the methodology used. Finally, we present and discuss, in a final section, the results obtained.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Agency Theory and Information Asymmetry Theory

Agency problems are innate due to the separation of the power of control and ownership, and arise when managers maximize their personal interests to the detriment of shareholders' interests (Fama and Jensen, 1983; Jensen and Mackling, 1976). According to the agency's theory, the supervisory mechanisms of the BOD can mitigate this conflict of interest by reducing the opportunistic behavior of leaders (Park and Shin, 2004; Laux and Laux, 2009; Badolato et al., 2014; Fan et al., 2019). On the other hand, the resource dependency theory states that the characteristics of the BOD, its composition and its heterogeneity are key elements to the growth of the company's results. However, gender diversification is associated with more performance, more liquidity and less risk and fraud (Cumming et al., 2015; Lanis et al., 2017; Owen and Temesvary, 2018; Fan et al., 2019).

According to Adusei Michael (2019) and Jurkus et al. (2011), the increasing number of women in boardrooms reduces the information asymmetry between principal and agent. Thus, Beekes et al. (2015) suggest that women improve the quality and frequency of information provided to shareholders, which reduces agency conflicts. Otherwise, Ahmed and Ali (2017) suggest that women are more risk averse and less confident than men. They are more careful in their decision-making and seek compliance with regard to the publication of financial statements. Thus, women provide effective governance and improve financial transparency, which improves the liquidity of shares. Likewise, Jurkus et al. (2011) stipulate that mixed boards of directors are likely to boost share price informativity by providing accurate information and

reports to the public. In this regard, gender diversification and the growing number of women in boards of directors are effective mechanisms for mitigating agency conflicts, reducing associated costs and improving the company's performance. In another context, María del Carmen Valls Martínez and Salvador Cruz Rambaud (2019) showed that the presence of women is positively assessed by investors. In other words, the low representation of women in management positions is positively correlated with the conflicts engendered by information asymmetry. Hence, mixed boardrooms reduce the unobservability of the unalterable features of the company situation by producing quality information for investors and shareholders. Consequently, the presence of women has a significant impact on the capital flows and the liquidity of the shares (Levine and Zervos, 1996). Indeed, Ahmed and Ali (2017) explained this by the completeness of the financial information provided to the stakeholders and the good disclosure practices. In addition, the empirical results of this study suggest that women may affect the liquidity of the shares of a company, through the monitoring and supervision. In the same vein, Lei et al. (2013) found that women play a crucial role in the strategic decision-making system in listed companies in China. Thus, listed companies characterized by mixed boardrooms admit high market liquidity.

Furthermore, Chauhan.Y and Dey D.K (2017) argue that independent female managers are more important than executive directors. They bring more independence to the BOD and allow better monitoring, because the external directors are more independent than their insider counterparts, who have close links with managers. As a result, women's presence in boardrooms increases the boards' independence and efficiency since they provide better insight and closer monitoring. According to Michael Adusei (2019) and Terjesen, Couto and Francisco (2016) women are more involved in boards and are more prone to ask questions which their male counterparts are not asking. However, Earley and Mosalowski (2000) suggest that a homogeneous board allows for more fluid communication with less divergence of opinion and therefore, the process of decision-making will be shorter and more effective. By cons, when the groups are heterogeneous, relationship conflicts can arise. Also, Cox and Blake (1991) have shown that women have a higher rate of absenteeism than their male counterparts, which results in overwhelming costs for companies.

2.2. Tokenism and Critical Mass Theory

The tokenism is the fact of making nominal or symbolic acts to prevent charges of discrimination (Kanter, 1977). In practice, Tokenism is the act of giving the appearance of sexual equality on the BOD when the presence of women is only symbolic. Thus, women offer limited contributions because they are often treated as attendance fees or representatives of their category. They do not necessarily participate in decision-making and they are only hired to comply with legislative requirements (Michael Adusei, 2019). However, this conduct can have harmful effects on the BOD and decision-making mechanisms. In other words, the marginalization of women can isolate them and create interpersonal conflicts, which would lead to a lack of cohesion between the members of the BOD and therefore a delay in decision-making (Maria del

Carmen Valls Martínez and Salvador Cruz Rambaud, 2019). As a result, the performance of the company could be negatively affected.

According to the theory of critical mass, administrators of the minority sex cannot fully play their role in a group until a certain threshold or critical mass is reached (Kanter, 1977 a, b). As such, Ahmed and Ali (2017) note that an inverted U-shaped relationship exists between women's representation on boards and stock liquidity in Australia. Likewise, Fan et al. (2019) found that the presence of women on the BOD is an effective instrument in reducing the management of bank revenues. In addition, Fan et al. (2019) suggest that women are more effective if they sit on audit or nomination committees.

According to Apesteguia et al. (2012) and Konrad et al. (2008), once women occupy at least three positions in the group, their presence is normalized (Fan et al., 2019). In the same vein, Schwartz-Ziv (2017) indicates that boards of directors with at least three female members are more engaged in monitoring, advising and mitigating the management of bank revenues. In this regard, Ahmed and Ali (2017), in accordance with Liu et al. (2014), created three dummy variables that reflect the number of women on the BOD. The first variable takes the value of 1 if there is only one woman, the second variable takes the value of 1 if there are two women, and the third takes the value of 1 if there are more than three women. The empirical results suggest a significant and positive relationship between the first variable and the stock liquidity. However, this relationship has improved during the integration of the second and third variable. Likewise, Schwartz-Ziv (2017) has shown that women can only have a positive impact on the board unless the critical mass is reached. Thus, he claims that reaching the critical mass threshold leads to an improvement in the value of boards of directors while allowing women directors to play their full role (Joecks et al., 2013; Schwartz-Ziv, 2017; Fan et al., 2019).

2.3. Gender Diversity in the Boards of Directors and the Liquidity of Shares

Loukil and Yousfi (2012) tried to identify the relationship between corporate governance and the liquidity of shares of the 49 Tunisian companies listed among 1998-2007 period. To do this, they studied, initially, the effect of governance mechanisms on information asymmetry problems. Then, they examined the effect of this relationship on the liquidity of the shares. The results of this study show that the mechanisms of corporate governance have both direct and indirect effects on share liquidity. The direct effects can be summarized by the fact that liquidity strongly depends on the type of control (state control, family control and foreign control). On the other hand, the indirect effect comes down to the fact that corporate governance can indirectly improve the liquidity of shares by reducing the problems of information asymmetry. Similarly, the risk of expropriation of family shareholders and foreign shareholders hinders investment and therefore the trading of securities on the market. In the absence of effective regulation and protection of investors' rights, Tunisian investors prefer to invest in state-controlled companies because the state is an effective controller rather than a simple shareholder. Consequently, the

State's presence in Tunisian businesses is an optimistic indicator on the level of corporate governance.

In the French context, Loukil et al. (2019) examined the impact of board diversification on the stock market liquidity of companies listed on the Paris stock exchange during the period 2002 -2012. To do this, Loukil et al. (2019) have referred to two liquidity indicators namely; Amihud's illiquidity ratio and the volume of transactions. The results of this study show the existence of a significant and positive relationship between stock market liquidity and the presence of women directors. Similarly, the results indicate that the presence of women directors increases the volume of daily transactions. On the other hand, the presence of women independent directors reduces the participation of companies in sustainable development projects. Thus, the appointment of women encourages investors to trade more shares while their appointment as independent directors reduces transaction costs. In the same vein, Ahmed and Ali (2017) studied the relationship between mixed boards of directors and the liquidity of shares. To do so, they were interested in evaluating 944 Australian companies over the 2008-2013 period. The results of this study support the critical mass theory and suggest that there is a positive relationship between the gender diversity on boards and stock liquidity.

3. METHODOLOGY

3.1. Sample Presentation

Our sample consists of 11 banks listed on the Tunisian stock exchange between 1998 and 2018. Data on gender diversity and governance are collected from the annual reports of the banks in question. Thus, data on prices, transaction volumes and liquidity of shares are collected from the "IIBoursa" database. Financial data are collected from the "Thomson one banker" database.

3.2. Hypotheses

In several studies, gender diversity is seen as an effective governance tool to boost performance, improve monitoring and reduce risk and information asymmetry (Foo and Zain, 2010; Adams and Ferreira, 2009; Kanagaretnam et al., 2007; Attig et al., 2006; Cai et al., 2006).

According to the resource dependency theory, the appointment of women to the BOD brings new skills and qualifications to the company. In reality, investors rely on the signals sent by companies regarding their good governance practices and their performance. Thus, investors are likely to react to the appointment of female directors. As a result, we suspect that the mixed BOD admits an effect on the banks' liquidity. In this regard, we make the following assumption:

H1: A mixed board of directors (BOD) has a positive impact on bank liquidity.

The increase of the proportion of women in the boardroom is seen as a positive effect on decision-making mechanisms, as they provide better insight and closer monitoring. The percentage of women can also have a positive effect on the liquidity of the shares.

H2: The percentage of women on the board has a positive impact on the liquidity of the shares.

According to the theory of tokenism, women can only have a positive impact on the BOD if the critical mass is reached. Previous studies have shown an inverted U-shaped relationship between women's representation on boards of directors, companies' performance and dividends distribution.

Thus, we suspect the presence of effect between the number of women on the board and the liquidity of the shares.

H3: At least three women must sit on boards of directors.

Loukil et al. (2019), stipulate that the appointment of women independent directors increases the corporate social responsibility and therefore it improves the company's reputation on the market and especially among potential and current stakeholders.

Similarly, we support the idea that investors react positively with the appointment of women independent directors because they bring more independence to the BOD and allow better monitoring.

H4: There is a positive relationship between the appointment of women independent directors and the liquidity of the shares.

3.3. Econometric Model

Recall that the aim of this paper is to test the relationship between gender diversity on boards of directors and the liquidity of shares. To do this, we opted for the 2 SLS model. The choice of this method is justified by the fact that it can identify and resolve endogeneity and reverse causality problems, it can be aggregated for banks and that the resulting aggregate provides financial interpretation reasonable.

In this regard, the model is expressed as follows:

$$\text{Liquidity}_{it} = \beta_0 + \beta_1 \text{Gender}_{it} + \beta_2 \text{Governance}_{it} + \beta_j \sum \text{Control variables} + \varepsilon_{it}$$

3.4. Definition of Variables

3.4.1. Dependent variable

The dependent variable in our study is the liquidity of the shares that will be measured by three indicators.

In accordance with the work of Amihud (2002), Ahmed and Ali (2017), Loukil and Yousfi (2012) and Loukil et al. (2019), we will use Amihud's illiquidity estimate (ILLIQ), which tests the impact of a large volume of orders on price fluctuations. The index of Amihud (ILLIQ) is an indirect indicator of the liquidity of the shares and is measured by the absolute return of the security relative trading volume.

$$\text{ILLIQ}_{iy} = \frac{1}{D_{iy}} \sum_{d=1}^{D_{iy}} \frac{|R_{idy}|}{\text{VOLD}_{idy}}$$

Where:

R_{idy} is the absolute return on the shares of bank i on day d of year y . VOLD_{idy} is the trading volume of the shares of bank i on day d of year y .

D_{iy} is the number of days trading in shares of bank i in year y .

In addition, we will use the Amivest measure, noted (LR), which captures the amount of trading volume relative to the absolute return on the security. In accordance with Amihud et al. (1997), Berkman and Eleswarapu (1998), Rhee and Wang (2009) and Ahmed and Ali (2017), we measure the liquidity ratio (LR) as follows:

$$\text{LR}_{iy} = \frac{\sum_{d=1}^{D_{iy}} (\text{VOLD}_{idy})}{\sum_{d=1}^{D_{iy}} |R_{idy}|}$$

Where:

R_{idy} is the absolute return on the shares of bank i on day d of year y . VOLD_{idy} is the trading volume of the shares of bank i on day d of year y .

The third indicator is the ratio of the average trading volumes to the number of trading days. The MVOL ratio was used by Loukil et al. (2019) and it is noted as follows:

$$\text{MVOL} = \frac{\sum_{d=1}^{D_{iy}} \text{VOLD}_{idy}}{N_{iy}}$$

Where:

VOLD_{idy} is the trading volume of the shares of bank i on day d of year y .

N_{iy} is the number of trading days for shares in bank i in year y .

3.4.2. Explanatory and control variables

3.4.2.1. Gender diversity variables

Many studies on this topic have used the percentage of women (Pwomen) as an indicator of gender diversification on a board, including the work of Adams and Ferreira (2009), Liu et al. (2014), Isidro and Sobral (2015), Ben-Amar et al. (2017), Reguera- Alvarado et al. (2017) and Ward and Forker (2017).

3.4.2.2. Control Variables

According to Loukil et al. (2019), Ben-Amar et al. (2017), Ahmed and Ali (2017), Prommin et al. (2014), Gjerde et al. (2013), Lei et al. (2013), Loukil and Yousfi (2012), Foo and Zain (2010) and Chung et al. (2010), the control variables that can have an impact on liquidity are:

- Bank size (bsize): Since the large banks attract the attention of investors, the bank's size can improve its liquidity. This indicator is measured by the natural logarithm of total assets.
- The age of the company (LnAge): Recent literature shows that young banks are likely to present a high level of liquidity of the shares and profit opportunities for investors.
- Leverage (LEV): Recent works shown that the least indebted banks are likely to present a high level of liquidity of the shares. This indicator is measured by total liabilities divided by total assets.

3.4.2.3. Other characteristics of the board of directors (BOD)

In addition to the variables exposed above, we have used governance variables reflecting the characteristics of the BOD,

namely the size of the BOD, the governance structure, the number of independent, foreign, state and institutional administrators.

4. DISCUSSION OF RESULTS

The exploratory analysis, summarized in Table 1, reveals that the averages of Amihud's illiquidity (Lnilliq), the liquidity ratio (Lnlr) and the stock rotation (lnmvol) are respectively -10.746, 13.312 and 8.5. Thus, the descriptive results reveal that the average of the variables; independent female directors, female institutional directors, women subordinate to one of the three committees are respectively 0.00253, 0.0097 and 0.749.

Table 2, Panel A, B and C, presents the Pearson correlation matrix of the independent variables. The coefficient of correlation of the percentage of women on boards of directors (pwomen) with the estimate of illiquidity of Amihud (Lnilliq) is negative. However, the correlation coefficient is positive between the percentage of women on boards of directors (pwomen) and the variables; liquidity ratio (Lnlr) and inventory turnover rate (LnMvol). This suggests that gender diversity in boardrooms, a priori, improves the liquidity of the shares of Tunisian banks.

With regard to governance variables, Tunisian banks have an average of 11 directors, 15% of whom are independent, 21% are institutional and 13% are state and foreign. However, 55.84% of Tunisian banks admit dual governance structures. Moreover, Tunisian banks admit an average of total assets of 1945 million dollars and their total debt represents on average 87% of their equity. In particular, a significant difference in liquidity for banks that admit mixed boards of directors has been observed. We also observe that banks which adopted IFRS much earlier are more liquid than banks which did not adopt these standards or which adopted it late. Moreover, we observe that banks with mixed boards are larger, older and have higher leverage. In other words, women prefer debt financing than resorting to the financial market. Thus, these comparisons suggest that the financial and governance characteristics of Tunisian banks could influence the choice of appointment of women. Therefore, it is important to control

these characteristics in our multivariate analysis. However, the multivariate analysis, summarized in Table 2, suggests that our model does not present any problem of multicollinearity since the value of the correlation coefficients between the independent variables is less than 0.8. This was confirmed by the VIF test which proves the non-multicollinearity between the independent variables.

Table 3 presents the results of the pooled regression OLS. Through three models, we try to estimate the relationship between the liquidity of the shares and gender diversity in the board of Tunisian banks. The first model presents the estimation of Amihud's illiquidity (Lnilliq) as a function of the percentage of women on boards of directors (Pwomen), the control variables and the other variables related to bank governance. The estimation results of the first model suggest that gender diversity on boards of directors is significantly and negatively related to the illiquidity of the shares. The coefficient of the percentage of women on boards (Pwomen) is 3.332, which suggests that a 1% increase in the number of women on boards reduces the illiquidity of the shares by 3,332 points.

The second and third models show the relationship of the percentage of women on boards of directors (Pwomen) with the liquidity ratio (Lnlr) and stock turnover ratio (lnmvol) respectively. The results of both models show that gender diversity is associated significantly and positively with the liquidity of the shares. The coefficient for the percentage of women on boards (Pwomen) is 2,693 and 1,44, respectively. This suggests that a 1% increase in the number of women on boards of directors improves the liquidity ratio (Lnlr) and the share turnover ratio (lnmvol) by 2,693 and 1.44 points. Overall, these results confirm our hypothesis that states that gender diversity is associated significantly and positively with the liquidity of the shares. Similarly, they are consistent with the work of Adams and Ferreira (2009), Gul et al. (2011), Jurkus et al. (2011), Loukil and Yousfi (2012) and Ahmed and Ali (2017) which showed that the presence of women on boards has a significant and positive impact on the liquidity of the shares.

Likewise, the estimation results suggest that the characteristics of the board, its composition and heterogeneity are key elements in the growth of liquidity of the shares. Thus, the presence of women on the BOD leads to an improvement in the liquidity of shares through the implementation of a monitoring and supervision system, which leads to an improvement in the quality of information. In other words, the presence of the woman on the BOD reduces agency problems and therefore some improvement in the liquidity of shares.

However, previous works have assumed that the proportion of women on boards may not influence stock liquidity, but rather companies with higher stock liquidity are likely to attract and integrate more women in their boards of directors. Ignoring these endogenous problems can lead to biased estimates. To alleviate this problem, we have resorted to two techniques widely used in the literature namely, the lagged independent variables and the least squares in two stages (2SLS) (Wintoki et al., 2012; Ahmed and Ali, 2017). The results of the lagged independent variables confirm that the representation of women

Table 1: Descriptive statistics and univariate analysis

Variable	Obs	Mean	SD	Min	Max
lnilliq	231	-10.74587	2.061109	-16.39782	-2.073557
lnlr	231	13.31179	1.668657	-0.3848393	18.03545
lnmvol	231	8.499608	1.203875	6.015063	12.565
pwomen	231	0.0773566	0.0985841	0	0.3333333
lnbs	231	2.406055	0.1326683	1.609438	2.484907
dual	231	0.5584416	0.4976512	0	1
pind	231	0.152154	0.0909785	0	0.4
pinst	231	0.2165953	0.1706303	0	0.6363636
pforeign	231	0.1341037	0.1908487	0	0.6
pstate	231	0.13618	0.1878728	0	0.5
lev	231	0.879117	0.0802712	0.4739448	1.039448
Bsize	231	14.48061	0.7064448	12.67261	15.56924
lnage	231	3.686929	0.5066865	2.197225	4.89784
ifrs	231	0.3809524	0.4866755	0	1
pwind	231	0.0025253	0.0180477	0	0.1666667
pwcom	231	0.0065263	0.0284319	0	0.1666667
pwinst	231	0.0097403	0.0372046	0	0.1666667
educ	231	0.7489177	0.9496847	0	3

Table 2: The Pearson correlation matrix

Panel A															
	lnliq	pwomen	lnbs	dual	pind	pinst	pforeign	pstate	lev	Bsize	lnage	ifrs	pwind	pwcom	pwinst
lnliq	1.0000														
pwomen	-0.0814	1.0000													
lnbs	0.2862	-0.1325	1.0000												
dual	-0.0365	0.2372	-0.1662	1.0000											
pind	-0.1957	0.0134	-0.2421	0.0946	1.0000										
pinst	-0.2734	0.1441	0.1263	0.0946	-0.2158	1.0000									
pforeign	0.0816	0.1955	-0.3693	0.1514	0.1250	-0.1777	1.0000								
pstate	0.1417	-0.0668	0.2233	-0.0257	-0.0922	-0.2354	-0.5115	1.0000							
lev	-0.0488	0.1510	-0.0393	0.1156	0.0989	0.2442	0.1235	-0.2093	1.0000						
Bsize	-0.1848	0.0393	0.0693	0.1046	0.0513	0.1388	-0.1323	-0.0631	0.6448	1.0000					
lnage	-0.3635	-0.0292	-0.3530	0.1822	0.1070	0.1025	0.2186	-0.2952	0.0785	0.1778	1.0000				
ifrs	0.1897	-0.5486	0.0552	-0.2000	-0.0140	-0.1745	-0.1025	-0.0749	0.0879	0.3359	0.2720	1.0000			
pwind	-0.0140	0.3649	-0.0835	-0.1247	-0.0224	-0.0961	0.0987	0.1019	-0.0360	-0.1247	-0.0567	-0.1788	1.0000		
pwcom	-0.0778	0.4264	-0.1279	-0.0765	-0.0113	-0.0470	0.1620	0.0035	-0.1399	-0.2208	-0.1254	-0.2932	0.7915	1.0000	
pwinst	-0.0160	-0.5181	0.1563	-0.1972	0.0419	0.3321	-0.1848	-0.1906	0.0725	0.1390	-0.0895	0.2144	-0.2780	-0.2251	1.0000
Panel B															
	lnlr	pwomen	lnbs	dual	pind	pinst	pforeign	pstate	lev	Bsize	lnage	ifrs	pwind	pwcom	pwinst
lnlr	1.0000														
pwomen	0.0803	1.0000													
lnbs	-0.1748	-0.1325	1.0000												
dual	0.0335	0.2372	-0.1662	1.0000											
pind	0.1602	0.0134	-0.2421	0.0946	1.0000										
pinst	0.2810	0.1441	0.1263	0.0946	-0.2158	1.0000									
pforeign	0.0009	0.1955	-0.3693	0.1514	0.1250	-0.1777	1.0000								
pstate	-0.1307	-0.0668	0.2233	-0.0257	-0.0922	-0.2354	-0.5115	1.0000							
lev	0.1583	0.1510	-0.0393	0.1156	0.0989	0.2442	0.1235	-0.2093	1.0000						
Bsize	0.2608	0.0393	0.0693	0.1046	0.0513	0.1388	-0.1323	-0.0631	0.6448	1.0000					
lnage	-0.3465	-0.0292	-0.3530	0.1822	0.1070	0.1025	0.2186	-0.2952	0.0785	0.1778	1.0000				
ifrs	-0.1449	-0.5486	0.0552	-0.2000	-0.0140	-0.1745	-0.1025	-0.0749	0.0879	0.3359	0.2720	1.0000			
pwind	0.0594	0.3649	-0.0835	-0.1247	-0.0224	-0.0961	0.0987	0.1019	-0.0360	-0.1247	-0.0567	-0.1788	1.0000		
pwcom	0.0744	0.4264	-0.1279	-0.0765	-0.0113	-0.0470	0.1620	0.0035	-0.1399	-0.2208	-0.1254	-0.2932	0.7915	1.0000	
pwinst	0.0414	-0.5181	0.1563	-0.1972	0.0419	0.3321	-0.1848	-0.1906	0.0725	0.1390	-0.0895	0.2144	-0.2780	-0.2251	1.0000
Panel C															
	lnmvol	pwomen	lnbs	dual	pind	pinst	pforeign	pstate	lev	Bsize	lnage	ifrs	pwind	pwcom	pwinst
lnmvol	1.0000														
pwomen	0.1303	1.0000													
lnbs	-0.2291	-0.1325	1.0000												
dual	0.1132	0.2372	-0.1662	1.0000											
pind	0.2001	0.0134	-0.2421	0.0946	1.0000										
pinst	0.3367	0.1441	0.1263	0.0946	-0.2158	1.0000									
pforeign	-0.0699	0.1955	-0.3693	0.1514	0.1250	-0.1777	1.0000								
pstate	-0.1592	-0.0668	0.2233	-0.0257	-0.0922	-0.2354	-0.5115	1.0000							
lev	0.2946	0.1510	-0.0393	0.1156	0.0989	0.2442	0.1235	-0.2093	1.0000						
Bsize	0.4423	0.0393	0.0693	0.1046	0.0513	0.1388	-0.1323	-0.0631	0.6448	1.0000					
lnage	0.3836	-0.0292	-0.3530	0.1822	0.1070	0.1025	0.2186	-0.2952	0.0785	0.1778	1.0000				
ifrs	-0.1127	-0.5486	0.0552	-0.2000	-0.0140	-0.1745	-0.1025	-0.0749	0.0879	0.3359	0.2720	1.0000			
pwind	0.1054	0.3649	-0.0835	-0.1247	-0.0224	-0.0961	0.0987	0.1019	-0.0360	-0.1247	-0.0567	-0.1788	1.0000		
pwcom	0.0837	0.4264	-0.1279	-0.0765	-0.0113	-0.0470	0.1620	0.0035	-0.1399	-0.2208	-0.1254	-0.2932	0.7915	1.0000	
pwinst	0.0539	-0.5181	0.1563	-0.1972	0.0419	0.3321	-0.1848	-0.1906	0.0725	0.1390	-0.0895	0.2144	-0.2780	-0.2251	1.0000

on boards of directors affects the liquidity of the shares, but not vice versa. In accordance with the work of Ahmed and Ali (2017) and Adams and Ferreira (2009), we adopt the 2sls method which claims the prediction of an instrumental variable which has no direct relation with the dependent variables. This method reduces problems of endogeneity, omitted variables and reverses causation. To do this, we used the exogenous variable “education.” This variable takes the value of 1 if women sitting on the BOD admit a master, MBA or doctorate (PhD), and 0 if not.

In accordance with our hypotheses, the 2sls method, summarized in Table 4, suggests a significant and negative relationship with the variable Lnilliq and significant and positive with the two variables Lnlnr and Lnlnvol. This therefore confirms our previous results and suggests that they are not motivated by endogeneity. Unlike Loukil et al. (2019), the results of the 2sls method, presented in Table 5, suggest that the adoption of IFRS has a significant effect on the three measures of stocks liquidity. In addition, we observe a significant and positive relationship between the age, and the size of the banks and the liquidity of the shares.

Table 3: OLS Gender diversity and stock liquidity (Pooled OLS regression)

	lnilliq	lnlnr	lnlnvol
pwomen	-3.33232** (-2.48)	2.693475** (2.29)	1.440654** (1.99)
lnbs	3.980732*** (4.36)	-1.330744* (-1.66)	-1.740347*** (-3.54)
dual	0.568102** (2.52)	-4.946053** (-2.51)	-2.028643* (-1.67)
pind	-3.381376*** (-2.77)	2.437653** (2.28)	2.0447*** (3.11)
pinst	-2.271012*** (-2.96)	2.151851*** (3.20)	1.534094*** (3.71)
pforeign	-2.262478*** (-2.98)	0.0789228 (0.12)	0.9151506** (2.24)
pstate	1.106471 (1.52)	0.082261 (0.13)	-0.34745 (-0.89)
lev	5.64449*** (3.04)	-2.669957 (-1.64)	-1.384273 (-1.38)
Bsize	-1.168763*** (-5.26)	0.9921825*** (5.09)	0.9432752*** (7.87)
lnage	-1.444664*** (-5.82)	1.169077*** (5.37)	0.7850373*** (5.86)
ifrs	-2.102116*** (-6.80)	1.515995*** (5.59)	1.064052*** (6.38)
Constant	-3.34311 (-0.98)	-0.0091037 (-0.00)	-2.71581 (-1.47)
R ²	0.4539	0.3590	0.5349
Obs	231	231	231

Superscripts ***, **, * indicate statistical significance at 1%, 5%, and 10% respectively

Table 4: Gender diversity and stock liquidity (Lagged independent variables)

	lnilliq	lnlnr	lnlnvol
pwomen	-2.969683** (-2.00)	1.861379* (1.93)	1.438403* (1.79)
lnbs	3.484537*** (3.59)	-0.8379183 (-1.33)	-0.8086239 (-1.54)
Dual	0.5585927** (2.29)	-0.2915492* (-1.84)	-0.1613031 (-1.23)
pind	-2.714163** (-2.08)	3.406582*** (4.02)	2.362307*** (3.35)
pinst	-2.351767*** (-2.82)	1.874169*** (3.46)	1.681205*** (3.73)
pforeign	2.222446*** (2.74)	-5.897794 (-1.12)	-5.185541 (-1.18)
pstate	1.055398 (1.35)	-0.4464034 (-0.88)	-1.193397 (-0.28)
lev	1.991381 (0.98)	-0.8224543 (-0.62)	0.4251105 (0.39)
Bsize	-0.8588463*** (-3.49)	0.6441342*** (4.03)	0.729005*** (5.49)
lnage	-1.428041*** (-5.36)	1.072988*** (6.19)	0.8269521*** (5.74)
ifrs	-1.994199*** (-5.98)	1.334854*** (6.16)	1.062726*** (5.90)
Constant	-3.497756 (-0.95)	2.552961 (1.07)	-3.764533 (-1.90)
R ²	0.4024	0.4423	0.4887
Obs	220	220	220

Superscripts ***, **, * indicate statistical significance at 1%, 5%, and 10% respectively

Table 5: Gender diversity and stock liquidity (two-stage least squares)

	Model 1 lnilliq	Model 2 lnlnr	Model 3 lnlnvol
Fitted_pwomen=ppwomen	-3.956689*** (-2.80)	3.545633*** (2.87)	2.024552*** (2.67)
lnbs	4.006054*** (4.40)	-1.365304** (-1.72)	-1.764028*** (-3.61)
dual	0.5620063** (2.51)	-0.4862857** (-2.48)	-0.1971637 (-1.64)
pind	-3.353075*** (-2.76)	2.399028** (2.26)	2.018234*** (3.09)
pinst	-2.274353*** (-2.98)	2.156412*** (3.23)	1.537219*** (3.75)
pforeign	-2.220413*** (-2.93)	0.021511 (0.03)	0.8758121** (2.15)
pstate	1.107213 (1.53)	0.0812478 (0.13)	-0.3481443 (-0.89)
lev	5.625114*** (3.04)	-2.643512 (-1.63)	-1.366153 (-1.37)
Bsize	-1.189588*** (-5.36)	1.020606*** (5.26)	0.9627506*** (8.07)
lnage	-1.449477*** (-5.86)	1.175647*** (5.43)	0.7895386*** (5.94)
ifrs	-2.179874*** (-6.96)	1.622121*** (5.92)	1.13677*** (6.75)
Constant	-3.043655 (-0.89)	-0.4178096 (-0.14)	-2.995855 (-1.63)
R ²	0.4579	0.3674	0.5413
Obs	231	231	231

Superscripts ***, **, * indicate statistical significance at 1%, 5%, and 10% respectively

Moreover, the existence of independent, institutional and foreign members improves the liquidity of Tunisian banks. However, these three variables admit a negative relationship with the liquidity Amihud (Lnlliq) and a positive relationship with the liquidity ratio (Lnlr) and stock turnover ratio (lnmvol). This comes down to the fact that greater diversity in board members improves the supervisory mechanism and the efficiency of banks (Ramly et al., 2015; Andrieş et al., 2017).

Consistent with the results of Adams and Ferreira (2009) and Peterson and Philpot (2007), we find that women are more likely to be appointed to certain committees. Thus, we assume that they are likely to influence the liquidity of companies whether they are independent or institutional members. To answer these questions, we included three variables reflecting the percentage of women as institutional administrators, independent administrators and membership of committees. As shown in Table 6, this study found that women's participation is important if they are institutional members or part of the risk management, management or audit committee. On the other hand, the presence of women as an independent director has a significant effect on the variable share turnover ratio (lnmvol).

According to critical mass theory, women are likely to influence the decision-making process of the BOD when there is more than one woman on the board. Farrell and Hersch (2005) postulate that women directors are more likely to be part of the boards as tokens. In the same vein, Kristie (2011) states that a woman is a “token,” two women a “presence” and three or more women a “voice.” In accordance with Loukil et al. (2019), Ahmed and Ali (2017) and Liu et al. (2014), we seek to determine whether the presence of more than one woman on the board improves the liquidity of Tunisian banks. To do this, we integrated into our regression model three dummy variables, namely Women1, Women2 and Mwomen3. The variable Women1 takes the value of “1” if the company has only one woman on the BOD and “0” otherwise. Women2 takes the value of “1” if the company has two women on the BOD and “0” otherwise. Women3 takes the value of “1” if the company has three or more women on the BOD and “0” otherwise.

The results of this estimate, reported in Table 7, support the critical mass theory and suggest that the presence of at least one woman on the BOD has a positive impact on the liquidity of the shares.

Table 6: Gender diversity and stock liquidity (two-stage least squares).

	Pooled OLS regression			Two-stage least squares		
	lnlliq	lnlr	lnmvol	lnlliq	lnlr	lnmvol
pwomen	-7.312787*** (-4.22)	5.54047*** (3.61)	4.00605*** (4.41)			
Fitted_pwomen				-8.594673*** (-4.58)	7.131704*** (4.31)	5.050232*** (5.17)
lnbs	3.720722*** (4.15)	-1.119476 (-1.41)	-1.557506*** (-3.32)	3.731071*** (4.19)	-1.132322 (-1.44)	-1.565935*** (-3.39)
Dual	0.5557393** (2.45)	-0.4255197** (-2.12)	-0.1046908 (-0.88)	0.5467203** (2.43)	-0.4143242** (-2.09)	-0.0973443 (-0.83)
pind	-4.025884*** (-3.33)	2.863897*** (2.67)	2.428798*** (3.83)	-4.09747*** (-3.40)	2.952758*** (2.79)	2.48711*** (3.98)
pinst	-3.161588*** (-3.83)	2.688625*** (3.67)	1.99178*** (4.60)	-3.3138*** (-4.01)	2.877569*** (3.96)	2.115767*** (4.93)
pforeign	-2.529043*** (-3.40)	0.2907483 (0.44)	1.108882*** (2.84)	-2.509588*** (-3.40)	0.2665983 (0.41)	1.093035*** (2.84)
pstate	1.54208** (2.08)	-0.2735696 (-0.42)	-0.7280044* (-1.88)	1.628444** (2.21)	-0.380774 (-0.59)	-0.7983529** (-2.08)
lev	5.334457*** (2.88)	-2.541249 (-1.55)	-1.432877 (-1.48)	5.350402*** (2.91)	-2.561041 (-1.58)	-1.445865 (-1.51)
Bsize	-1.334903*** (-5.98)	1.111133*** (5.62)	1.053706*** (9.01)	-1.384651*** (-6.19)	1.172887*** (5.96)	1.09423*** (9.42)
lnage	-1.373071*** (-5.43)	1.128909*** (5.04)	0.7403693*** (5.58)	-1.357591*** (-5.40)	1.109692*** (5.01)	0.7277591*** (5.57)
ifrs	-2.182877*** (-7.19)	1.580048*** (5.88)	1.130905*** (7.10)	-2.289034*** (-7.43)	1.711823*** (6.31)	1.217377*** (7.60)
pwind	9.687902 (1.00)	1.348361 (0.16)	8.381999 (1.65)	9.343651 (0.97)	1.775688 (0.21)	8.662415* (1.73)
pwcom	-16.24751** (-2.54)	9.731139* (1.71)	5.917167* (1.76)	-17.20887*** (-2.69)	10.9245* (1.94)	6.700262** (2.02)
pwinst	-11.05757*** (-2.75)	6.045463* (1.70)	4.531039** (2.15)	-12.72986*** (-3.09)	8.121306** (2.24)	5.893226*** (2.75)
Constant	-0.0124449 (-0.00)	-2.417819 (-0.79)	-4.751092*** (-2.62)	0.6869847 (0.20)	-3.286036 (-1.08)	-5.320824*** (-2.96)
R ²	0.4885	0.3878	0.5876	0.4952	0.4023	0.6001
Obs	231	231	231	231	231	231

Superscripts ***, **, * indicate statistical significance at 1%, 5%, and 10% respectively

Table 7: Comparison means: critical mass theory

	Women0 Mean difference	women1 Mean difference	women2 Mean difference	Mwomen3 Mean difference
ILLIQ	0,00126	-0,00312	0,0006887	0,00044
LR	-2216378,6955**	1293591,2441*	1696049,09202***	1217956,57007*
MVOL	-6193,9965**	3435,3473	4368,28612**	4313,052413*
lnbs	0,020369	0,07606**	-0,068521***	-0,066563301***
DUAL	-0,265***	0,056	0,304***	0,137
pind	-0,005079	-0,00832	0,02856**	-0,01977542***
pinst	-0,10327***	0,08414***	0,12164998***	-0,052828
pforeign	-0,04085	-0,094192**	0,0973261***	0,10504***
pstate	0,056128**	-0,020082	-0,0899511***	0,0264996
LEV	-0,02963***	0,027465	-0,0071172	0,049142**
Bsize	-0,17265*	0,34697***	-0,161795	0,1816603
lnage	-0,0854	0,17574*	0,1148249	-0,2402533*
IFRS	0,447***	-0,011	-0,349***	-0,639***
Obs	125	41	42	23

Superscripts ***, **, * indicate statistical significance at 1%, 5%, and 10% respectively

This relationship becomes more significant when there is more than one woman on the BOD. In other words, at this level of presence they will be treated as individuals rather than tokens, which will allow them to fully play their role. In other words, the presence of more than one woman on the BOD allows them to play their roles fully and to intervene in decision-making. This indicates that boards of directors with three female directors are more engaged in monitoring and reducing opportunistic managerial behaviors. This leads to an improvement, in an indirect way, of the liquidity of Tunisian banks. Likewise, we note that once women occupy at least three positions on the BOD, their presence is normalized. This therefore shows the existence of an inverted U-shaped relationship between the presence of women on boards of directors and the liquidity of the shares of Tunisian banks.

5. CONCLUSION

Gender equality and the proportion of women on boards of directors are of major interest in works on corporate governance. However, works on the contribution of women in the management of the liquidity of the shares of financial intermediaries are rare and their results remain mixed. Indeed, the majority of previous works has focused on samples from developed countries while ignoring the banking sector in emerging countries such as Tunisia.

In Tunisia, the proportion of women on the BOD has not exceeded 10%. This low representation is justified by invisible cultural barriers. Although there is no mandatory gender equality law, the presence of women on the board has been emphasized since the revolution. This has stimulated our thinking to study the influence of a mandatory law on the presence of women in boardrooms.

As part of this research paper, we are interested in analyzing the liquidity of shares. Our reflection is oriented on this line of research since the analysis of the liquidity of the shares has been neglected by the majority of works relating to the identification of the determinants of the liquidity of Tunisian banks. As a result, our contribution enriches financial theory in terms of analyzing banks' liquidity. To answer this question, we used a sample composed of the 11 Tunisian banks listed on the BVMT during the period 1998-2018. Thus, we opted to use the two-stage least squares (2SLS) method in order to empirically study the impact of the governance of Tunisian banks and specifically the impact of the presence of women on the BOD on the liquidity of shares on the Tunisian financial market.

To do this, we used three regression models to estimate the relationship between the liquidity of the shares and gender diversity on the BOD of Tunisian banks.

The results of the pooled regression OLS reveal a significant and negative relationship between gender diversity on boards of directors and the illiquidity of the shares of Tunisian banks. In contrast, the second and third models show a significant and positive relationship between the percentage of women on boards of directors (Pwomen), and the liquidity ratio (Lnlr) and the share turnover ratio (Inmvol). This suggests that the presence of women on the BOD has a significant impact on capital flows, the volume of

daily transactions and therefore on the liquidity of shares. Overall, these results are consistent with our hypothesis and the results of Adams and Ferreira (2009), Gul et al. (2011), Jurkus et al. (2011), Loukil and Yousfi (2012) and Ahmed and Ali (2017) who showed that women on boards of directors are significantly and positively linked to the liquidity of shares.

In addition, our results suggest that women on the board may affect the liquidity of shares, through the monitoring and supervision.

Moreover, the 2SLS method exhibited the existence of a significant and negative relationship between the variable (Pwomen) and variable (Lnliqu). By cons, this relationship is significant and positive between the variable (Pwomen) and the two variables (Lnlnr) and (Inmvol). This confirms our previous findings and suggests that they are not motivated by endogeneity. Furthermore, the results of this investigation suggest that the adoption of IFRS has a significant effect on the three measures of liquidity of the shares. In addition, we observe a significant and positive relationship between the age and size of banks, and the liquidity of stocks. In addition, we observe a significant and positive relationship between the age and the size of banks, and the liquidity of the shares. According to critical mass theory, women are likely to influence the decision-making process of the BOD when there is more than one woman on the board. Farrell and Hersch (2005) postulate that female directors are more likely to serve on boards as tokens. In the same vein, Kristie (2011) states that a woman is a "token," two women a "presence" and three or more women a "voice."

In accordance with Loukil et al. (2019), Ahmed and Ali (2017) and Liu et al. (2014) we tried to check whether the presence of more than one woman on the board improves the liquidity of Tunisian banks. To do this, we have integrated three dummy variables into our regression model to analyze the contribution of the presence of more than one woman on the board in improving the liquidity of Tunisian banks. These variables are Women1, Women2 and women3. The variable Women1 takes the value of "1" if the company has only one woman on the BOD and "0" otherwise. Women2 takes the value of "1" if the company has two women on the BOD and "0" otherwise. Women3 takes the value of "1" if the company has three or more women on the BOD and "0" otherwise.

The results of this investigation support the critical mass theory and suggest that the presence of at least one woman on the BOD has a positive impact on the liquidity of the shares. This relationship becomes more significant when there is more than one woman on the BOD. In other words, at this level of presence they will be treated as individuals rather than tokens, which will allow them to fully play their role. However, we note that once women occupy at least three positions in the board, their presence is normalized. This therefore shows the existence of a U-shaped inverted relationship between the presence of women on boards of directors and the liquidity of the shares of Tunisian banks.

In conclusion, the results of this study affirm that the gender diversity on the boards of directors is significantly and positively associated with the liquidity of the actions of Tunisian banks.

Likewise, the change in the proportion of women on boards of directors is associated with the change in the liquidity of shares. Thus, this empirical study contributes to the current debate on the implications of the presence of women on the BOD while providing theoretical and empirical evidence as to the significant and positive relationship between the presence of women on the boards of directors and the liquidity of the shares of Tunisian banks. Looking forward, it would be interesting to examine the relationship between gender diversity on the boards and liquidity of insurance companies. Likewise, it would be desirable to carry out transnational analyzes in future research.

REFERENCES

- Adams, R.B., Ferreira, D (2009), Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2), 291-309.
- Adusei, M. (2019), Board gender diversity and the technical efficiency of microfinance institutions: Does size matter? *International Review of Economics and Finance*, 64, 393-411.
- Ahmed, A., Ali, S. (2017), Boardroom gender diversity and stock liquidity: Evidence from Australia. *Journal of Contemporary Accounting and Economics*, 13(2), 148-165.
- Amihud, Y. (2002), Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets*, 5(1), 31-56.
- Amihud, Y., Mendelson, H., Lauterbach, B. (1997), Market microstructure and securities values: Evidence from the Tel Aviv Stock Exchange. *Journal of Financial Economics*, 45(3), 365-390.
- Andrieş, A.M., Apraru, C.B., Mínguez-Vera, A., Nistor, S. (2017), Gender Diversity on Boards and Bank Efficiency Across Emerging Europe. Available from: <https://www.ssrn.com/abstract/4304147>
- Apesteguia, J., Azmat, G., Iriberry, N. (2012), The impact of gender composition on team performance and decision making: Evidence from the field. *Management Science*, 58(1), 78-93.
- Attig, N., Fong, W.M., Gadhoun, Y., Lang, L.H. (2006), Effects of large shareholding on information asymmetry and stock liquidity. *Journal of Banking and Finance*, 30(10), 2875-2892.
- Badolato, P.G., Donelson, D.C., Ege, M. (2014), Audit committee financial expertise and earnings management: The role of status. *Journal of Accounting and Economics*, 58(2-3), 208-230.
- Barber, B.M., Odean, T. (2001), Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, 116(1), 261-292.
- Beekes, W., Brown, P., Zhang, Q. (2015), Corporate governance and the informativeness of disclosures in Australia: A re-examination. *Accounting Financial*, 55(4), 931-963.
- Ben-Amar, W., Chang, M., McKelkeny, P. (2017), Board gender diversity and corporate response to sustainability initiatives: Evidence from the carbon disclosure project. *Journal of Business Ethics*, 142, 369-383.
- Bennouri, M., Chtioui, T., Nagati, H., Nekhili, M. (2018), Female board directorship and firm performance: What really matters? *Journal of Banking and Finance*, 88, 267-291.
- Berkman, H., Eleswarapu, V.R. (1998), Short-term traders and liquidity: A test using Bombay stock exchange. *Journal of Financial Economics*, 47(3), 339-355.
- Bernile, G., Bhagwat, V., Yonker, S. (2018), Board diversity, firm risk, and corporate policies *Journal of Financial Economics*, 127, 588-612.
- Cai, X., Keasey, K., Short, H. (2006), Corporate governance and information efficiency in security markets. *European Financial Management*, 12(5), 763-787.
- Chung, K.H, Elder, J., Kim, J.C. (2010), Corporate governance and liquidity. *Journal of Financial and Quantitative Analysis*, 45(2), 265-291.
- Cox, T.H., Blake, S. (1991), Managing cultural diversity: Implications for organizational competitiveness. *Academy of Management Executive*, 5, 45-56.
- Cumming, D., Leung, T.Y., Rui, O. (2015), Gender diversity and securities fraud. *Academy of Management Journal*, 58(5), 1572-1593.
- del Carmen Valls Martínez, M., Rambaud, S.C. (2019), Women on corporate boards and firm's financial performance. *Womens Stud Int Forum*, 76, 102251.
- Earley, P.C., Mosalowski, E. (2000), Creating hybrid team cultures: An empirical test of transnational team functioning. *Academy of Management Journal*, 43, 26-49.
- Fama, E.F., Jensen, M.C. (1983), Separation of ownership and control. *The Journal of Law and Economics*, 26(2), 301-325.
- Fan, Y., Jiang, Y., Zhang, X., Zhou, Y. (2019), Women on boards and bank earnings management: From zero to hero. *Journal of Banking and Finance*, 107, 105607.
- Farrell, K.A., Hersch, P.L. (2005), Additions to corporate boards: The effect of gender. *Journal of Corporate Finance*, 11(1), 85-106.
- Foo, Y.B., Zain, M.M. (2010), Board independence, board diligence and liquidity in Malaysia: A research note. *Journal of Contemporary Accounting and Economics*, 6(2), 92-100.
- Gjerde, T., Mahenthiran, S., Cademartori, D. (2013), Effect of ownership, governance, and transparency on liquidity-Chilean evidence. *Journal of Contemporary Accounting and Economics*, 9(2), 183-202.
- Gul, F.A., Srinidhi, B., Ng, A.C. (2011), Does board gender diversity improve the informativeness of stock prices? *Journal of Contemporary Accounting and Economics*, 51(3), 314-338.
- Isidro, H., Sobral, M. (2015), The effects of women on corporate boards on firm value, financial performance, and ethical and social compliance. *Journal of Business Ethics*, 132, 1-19.
- Jensen, M.C., Meckling, W.H. (1976), Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Joecks, J., Pull, K., Vetter, K. (2013), Gender diversity in the boardroom and firm performance: What exactly constitutes a critical mass? *Journal of Business Ethics*, 118(1), 61-72.
- Jurkus, A.F., Park, J.C., Woodard, L.S. (2011), Women in top management and agency costs. *Journal of Business Research*, 64(2), 180-186.
- Kanagaretnam, K., Lobo, G.J., Whalen, D.J. (2007), Does good corporate governance reduce information asymmetry around quarterly earnings announcements? *Journal of Accounting and Public Policy*, 26(4), 497-522.
- Kanter, R.M. (1977), *Men and Women of the Corporation*. New York: Basic Books.
- Kanter, R.M. (1977), Some effects of proportions on group life: Skewed sex ratios and responses to token women. *American Journal of Sociology*, 82, 965-990.
- Khaw, K.L., Liao, J., Tripe, D., Wongchoti, U. (2016), Gender diversity, state control, and corporate risk-taking: Evidence from China. *Pacific-Basin Finance Journal*, 39, 141-158.
- Konrad, A., Kramer, V., Erkut, S. (2008), Critical mass: The impact of three or more women on corporate boards. *Organizational Dynamics*, 3, 145-164.
- Kristie, J. (2011), The power of three. *DIR Boards*, 35(5), 22-32.
- Lanis, R., Richardson, G., Taylor, G. (2017), Board of director gender and corporate tax aggressiveness: An empirical analysis. *Journal of Business Ethics*, 144(3), 577-596.
- Laux, C., Laux, L. (2009), Board committees, CEO compensation, and earnings management. *The Accounting Review*, 84(3), 869-891.
- Lei, Q., Lin, B., Wei, M. (2013), Types of agency cost, corporate governance and liquidity. *Journal of Accounting and Public Policy*, 32(3), 147-172.
- Levi, M., Li, K., Zhang, F. (2014), Director gender and mergers and acquisitions. *Journal of Corporate Finance*, 28, 185-200.

- Levine, R., Zervos, S. (1996), Stock market development and long-run growth. *The World Bank Economic Review*, 10(2), 323-339.
- Liu, Y., Wei, Z., Xie, F. (2014), Do women directors improve firm performance in China? *Journal of Corporate Finance*, 28, 169-184.
- Loukil, N., Yerbanga, R., Yousfi, O. (2019), Does gender diversity on boards influence stock market liquidity? Empirical evidence from the French market Corporate Governance *International Journal of Business in Society*, 19(4), 1-55.
- Loukil, N., Yousfi O. (2013), Does corporate governance affect stock liquidity in the Tunisian Stock Market ? *Bankers, Markets and Investors*, 125, 35-53.
- Nadeem, M., Zaman, R., Saleem, I. (2017), Boardroom gender diversity and corporate sustainability practices: Evidence from Australian Securities Exchange listed firms. *Journal of Cleaner Production*, 149, 874-885.
- Niederle, M., Vesterlund, L. (2007), Do women shy away from competition? Do men compete too much? *Quarterly Journal of Economics*, 122, 1067-1101.
- Owen, A.L., Temesvary, J. (2018), The performance effects of gender diversity on bank boards. *Journal of Banking and Finance*, 90, 50-63.
- Park, Y.W., Shin, H.H. (2004), Board composition and earnings management in Canada. *Journal of Corporate Finance*, 10(3), 431-457.
- Peterson, C.A., Philpot, J. (2007), Women's roles on U.S. fortune 500 boards: Director expertise and committee memberships. *Journal of Business Ethics*, 72(2), 177-196.
- Prommin, P., Jumreornvong, S., Jiraporn, P. (2014), The effect of corporate governance on stock liquidity: The case of Thailand. *International Review of Economics and Finance*, 32, 132-142.
- Ramly, Z., Chan, S., Mustapha, M.Z., Sapiei, N.S. (2015), Women on boards and bank efficiency in ASEAN-5: The moderating role of the independent directors. *Review of Management Science*, 11, 225-250.
- Reguera-Alvarado, N., De Fuentes, P., Laffarga, J. (2017), Does board gender diversity influence financial performance? Evidence from Spain. *Journal of Business Ethics*, 141, 337-350.
- Rhee, S.G., Wang, J. (2009), Foreign institutional ownership and stock market liquidity: Evidence from Indonesia. *Journal of Banking and Finance*, 33(7), 1-37.
- Schwartz-Ziv, M. (2017), Gender and board activeness: The role of a critical mass. *Journal of Financial and Quantitative Analysis*, 52(2), 751-780.
- Terjesen, S., Couto, E.B., Francisco, P.M. (2016), Does the presence of independent and female directors impact firm performance? A multi-country study of board diversity. *Journal of Management and Governance*, 20(3), 447-483.
- Ward, A.M., Forker, J. (2017), Financial management effectiveness and board gender diversity in member-governed, community financial institutions. *Journal of Business Ethics*, 141, 351-366.
- Wintoki, M.B., Linck, J.S., Netter, J.M. (2012), Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, 105(3), 581-606.
- Yogesh, C., Dipanjan, K.D. (2017), Do female directors really add value in Indian firms? *Journal of Multinational Financial Management*, 42-43, 24-36.