The Association between Board of Directors Characteristics and the Level of Voluntary Disclosure: Evidence from Listed Banks in Borsa Istanbul

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Abstract:

The main aim of this study is to investigate the association between some board of directors characteristics (board independence, board size, board meetings and role duality) and the level of voluntary disclosure in annual reports of listed banks in Borsa Istanbul.

The deductive approach was adopted by developing hypotheses based on the relevant theories and findings of previous studies. Also, the panel data strategy was applied to analyze the collected data from annual reports across five years (2013-2017). The univariate statistical analysis and the multivariate Feasible Generalized Least Squares regression model are used in this study.

The results showed that board independence, board size and board meetings were positively and significantly associated with the level of voluntary disclosure, whilst role duality was negatively but no significantly associated with the level of voluntary disclosure. The results also indicated that all bank characteristics were positively and significantly associated with the level of voluntary disclosure.

Most prior studies on voluntary disclosure practices have been
undertaken in the developed countries and a few of them have focused on voluntary disclosure practices in the banking sector during a number of years (longitudinally). There is a requirement for more empirical studies in this area to confirm or disprove the previous results. This study will add value to the knowledge in the disclosure literature by clarifying the relationship between the board of directors' characteristics and voluntary disclosure in the banking sector of developing countries.

**Keywords**: Board of Directors Characteristics, Borsa Istanbul, Voluntary Disclosure.

**JEL Classification**: M4, M41.

1. **Introduction**

With the increase of globalization in the world’s financial markets in recent years, voluntary disclosure has gotten much attention in the accounting literature. Voluntary disclosure is required to decrease the conflict of interests between management and shareholders because it increases transparency which means that managers will not be able to hold important information for their interest. Therefore, asymmetry problem and managers’ opportunistic behaviors will decrease.

Agency theory assumes that the presence of the conflict of interests between managers and shareholders denotes to the absence of full disclosure (Lev & Penman, 1990). Barako, Hancock, & Izan (2006) indicate that publishing more voluntary information reduces agency costs. Also, signaling theory suggests that managers who have more information signal to stakeholders, the information asymmetry problem can be diminished (Spence, 1973). Therefore, managers reveal more information to attempt diminishing users’ uncertainty which decrease the capital cost, and convince the external users that they are working in a perfect way (Watson, Shrives, & Marston, 2002).

Mandatory disclosure is not enough to get capital as cheap as possible. The capital need theory infers that managers have a motive to disclose further information for raising capital on the best possible terms and lower cost (Meek, Roberts, & Gray, 1995). Consequently, voluntary disclosure leads to higher demand for securities which leads to low cost of capita (Dye, 1985; Verrecchia, 1983).

The level of voluntary disclosure varies from one firm to another because of some factors (Abeywardana & Panditharathna, 2016). One of these factors is the board of directors which is viewed as an effective and important corporate governance mechanism. The board of directors has the
responsibility of disclosing the financial and non-financial information through preparing and publishing the annual reports to the related parties. Agency theory suggests that the board needs to be effective in order to protect the interests of shareholders (Ramadhan, 2014). The board effectiveness is influenced by some board characteristics such as composition, size, the duality of CEO and board diversity (Brennan, 2006). Therefore, the characteristics of the board are expected to impact voluntary disclosure decisions.

This study aims to examine the relationship between some board of directors characteristics (board independence, board size, board meetings and role duality) and the level of voluntary disclosure in the annual reports of listed banks in Borsa Istanbul.

2. Literature Review and Hypothesis

Board of directors characteristics are viewed as one of the important determinants of voluntary disclosure. The commonly board of directors characteristics that have been tested in the relevant literature are the board independence, board size, board meetings and role duality).

2.1. Board Independence and Voluntary Disclosure

Independent directors system can play many positive roles such as developing the scientific, efficient, safety of the decision-making process, strengthening the competitiveness of the company, and preventing the president and other internal directors in the company from doing whatever they want (Zhang, Li, & Zhang, 2011). Resource dependence theory indicates that independent directors have the expertise, prestige, and communications that allow them to link companies to the external environment (Carpenter & Westphal, 2001; Hillman, Cannella, & Paetzold, 2000). Agency theory infers that independent directors play a vital role in overseeing the managers' performance and limiting their opportunism (Fama & Jensen, 1983). Therefore, it is expected that independent directors are to be more effective in satisfying shareholders' interests for accountability and transparency, and hence more relevant disclosure is expected (Moumen, Ben Othman, & Hussainey, 2016).

The results of previous studies were not consistent in relation to the association between the percentage of independent directors and the voluntary disclosure level. Several studies found a positive significant relationship between these two variables (Akhtaruddin, Hossain, Hossain, & Yao, 2009; Babío Arcay &Muiño Vázquez, 2005; Cerbioni & Parbonetti, 2007; Cheng & Courtenay, 2006; Donnelly & Mulcahy, 2008; Gisbert &
Navallas, 2013; Grassa & Chakroun, 2016; Huafang & Jianguo, 2007; Uyar, Kilic, & Bayyurt, 2013) and some studies found a negative relationship (Abeywardana & Panditharathna, 2016; Eng & Mak, 2003; Habbash, Hussainey, & Awad, 2016; Matoussi & Chakroun, 2009; Rouf, 2011), and others found no significant relationship (Al-Najjar & Abed, 2014; Allegrini & Greco, 2013; Hieu & Lan, 2015; Khodadadi, Khazami, & Aflatooni, 2010; Zhang et al., 2011). Accordingly, it is expected that board independence will improve voluntary disclosure as predicted by agency theory. Hence, the hypothesis is developed as follows:

\[ H_1: \text{The level of voluntary disclosure is positively associated with the proportion of independent directors on the board.} \]

### 2.2. Board Size and Voluntary Disclosure

The optimum size of the board of directors is a critical matter for any firm. The board with a big size is difficult to coordinate; the small is a favorable field of coordination, but the members may suffer from a shortage of experience and competence (Matoussi & Chakroun, 2009). There is no superiority of theory or empirical evidence to suggest a relationship between board size and the level of voluntary disclosure, and it is still an empirical issue (Cheng & Courtenay, 2006). However, Yermack (1996) discusses that the large number of directors assist to improve the expertise in the company which may lead to increasing the quality of the disclosure. Some previous empirical studies found that firms with large board size were more likely to disclose more information voluntarily compared to companies with small boards (Akhtaruddin et al., 2009; Allegrini & Greco, 2013; Htay, 2012; Rouf, 2011). Based on the results of these studies, the following hypothesis is developed:

\[ H_2: \text{The level of voluntary disclosure is positively associated with the number of the board of directors.} \]

### 2.3. Board Meetings and Voluntary Disclosure

Recurrence of the board of directors meetings represents the board activity which influences the ability of the board to work as an effective overseeing mechanism in decreasing agency conflicts (Xie, Davidson III, & Dadalt, 2003). Agency theory suggests that the board meetings frequency influence the strength of the component of corporate governance (Khanchel, 2007). Man et al. (2013) point out that the board meetings numbers are considered as a good proxy to evaluate the effectiveness of board performance and internal corporate governance. It is expected that increasing the oversight leads to decreasing information asymmetry and
lower agency costs, thereby increasing disclosures (Nelson, Gallery, & Percy, 2010).

Empirically, there is not enough evidence on the nature of the association between voluntary disclosure and board meetings. For example, Allegrini & Greco (2013) found that there is a significant positive relationship between the meeting frequency and the voluntary disclosure level. Whilst, the results of the study of Albawwat & Basah (2015) showed that the frequency of board meetings has an insignificant influence on voluntary disclosure of interim financial reporting in Jordan. Hence, based on the above discussion, it is expected that voluntary disclosure is to be related positively with the number of board meetings. Consequently, the study hypothesized that:

\[ H_3: \text{The level of voluntary disclosure is positively associated with the number of board meetings.} \]

2.4. Role Duality and Voluntary Disclosure

According to agency theory, the role duality limits the directors' ability to oversee CEO which may affect on board independence and increase agency problem (Haniffa & Cooke, 2002). Therefore, it is necessary to separate between CEO and chairman in order to allow the board to put the CEO and management under the pressure of disclosing more information (Ramadhan, 2014).

Most empirical studies found that role duality is negatively associated with voluntary disclosure (Allegrini & Greco, 2013; Forker, 1992; Gisbert & Navallas, 2013; Gul & Leung, 2004; Huafang & Jianguo, 2007; Samaha, Khelif, & Hussainey, 2015). On the other hand, results of some studies showed that there is no significant association between role duality and voluntary disclosure (Al-Shammari & Al-Sultan, 2010; Cheng & Courtenay, 2006; Haniffa & Cooke, 2002; Hieu & Lan, 2015; Khodadadi et al., 2010; Ramadhan, 2014; Yuen, Liu, Zhang, & Lu, 2009). Accordingly, the hypothesis is formulated as follows:

\[ H_4: \text{The level of voluntary disclosure is negatively associated with role duality.} \]

3. Methodology

The deductive approach was adopted by developing hypotheses based on the relevant theories and findings of previous empirical studies. The data was collected from annual reports of listed banks in Borsa Istanbul across five years (2013-2017). Also, quantitative research design and longitudinal research (panel data) strategy were applied. The study used the
content analysis technique in order to gather data. The sample of the study is represented by all listed banks (13 banks) in Borsa Istanbul (BIST BANKS) until the end of 2017.

3.1. Measuring the Dependent Variable

To measure the level of voluntary disclosure, an unweighted voluntary disclosure index is used by developing a checklist contains 64 voluntary disclosure items split into six categories according to their nature (Appendix No.(1)). Then, giving a score of (1) if an item is disclosed and (0) if not. The voluntary disclosure index score (VDI) for all annual reports of banks was calculated as a proportion of the actual voluntary disclosure score (AVD) to the maximum voluntary disclosure score (MVD) as noted below in equation (1).

\[ VDI = \frac{\sum_{i=1}^{n} AVD}{MVD} \]

Where:
- VDI = Voluntary Disclosure Index,
- AVD = Actual Voluntary Disclosure score \((i = 1\) if the item is disclosed; \(i = 0\) if the item is not disclosed),
- MVD = Maximum applicable Voluntary Disclosure score,
- \(n\) = number of items disclosed.

3.2. Measurements of Independent and Control Variables

The definitions and measurements of the independent and control variables are displayed in Table (1).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Acronym</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board Independence</td>
<td>BOIND</td>
<td>Proportion of independent (non-executive) directors on the board</td>
</tr>
<tr>
<td>Board Size</td>
<td>BOSIZE</td>
<td>The number of board members.</td>
</tr>
<tr>
<td>Board Meetings</td>
<td>BOMEET</td>
<td>Total number of board meetings per year</td>
</tr>
<tr>
<td>Role Duality</td>
<td>ROLDU</td>
<td>Dummy variable; (1) if bank's CEO serves as a board chairman, (0) otherwise.</td>
</tr>
<tr>
<td>Bank Age</td>
<td>BAGE</td>
<td>Natural logarithm of the number of years from inception until 2017. (\ln) ((\text{bank age} + 1))</td>
</tr>
<tr>
<td>Bank Size</td>
<td>BSIZE</td>
<td>Natural logarithm of total assets</td>
</tr>
</tbody>
</table>
The Association between Board of Directors Characteristics and the Level of Voluntary Disclosure: Evidence from Listed Banks in Borsa Istanbul

<table>
<thead>
<tr>
<th>Bank Profitability</th>
<th>BPROF</th>
<th>ROA = Net income /average of total assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Leverage</td>
<td>BLEVE</td>
<td>Ratio of total debt to total assets.</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors based on prior studies

The research framework and the relationship among research variables are shown in figure (1).

Figure (1): The research framework

Independent Variables
- Board Independence
- Board Size
- Board Meetings
- Role Duality

Dependent Variable
- The Extent of Voluntary Disclosure

Control Variables
- Bank Age
- Bank Size
- Bank Profitability
- Bank Leverage

Source: Prepared by the authors.

3.2. Model Development

To investigate the relationship between the board of directors characteristics and the level of voluntary disclosure in the annual reports of listed banks in Borsa Istanbul, the following model is formed in equation (2).

\[
VDI_{it} = \beta_0 + \beta_1 BOIND_{it} + \beta_2 BOSIZE_{it} + \beta_3 BOMEET_{it} + \beta_4 ROLDU_{it} + \beta_5 BAGE_{it} + \beta_6 BSIZE_{it} + \beta_7 BPROF_{it} + \beta_8 BLEVE_{it} + \epsilon_{it} \quad \ldots \ldots \ldots (2)
\]

Where:
- \( VDI \) = Voluntary Disclosure Index;
- \( i = 13 \) Banks
- \( t = 5 \) Time Periods (2013-2017)
- \( \beta_0 = \) Intercept;
- \( \beta_1 \) to \( \beta_8 = \) Coefficient of slope parameters;
- \( BOIND = \) Board Independence;
4. Analysis and Results

Univariate and multivariate statistical analyses were applied to analyze the data and to test the research hypotheses.

4.1. Univariate Analysis

Two kinds of univariate analysis were adopted; the descriptive statistics and correlation analysis.

4.1.1. Descriptive Statistics

The average of the level of voluntary disclosure index (VDI) of all banks over the study period was about 77%. The proportion of (BOIND) ranges between 14% and 43% with an average of about 28%. This percentage is less than the recommended proportion from Turkish corporate governance principles (33%) (CMB, 2003), which implies that the proportion of independent directors in some banks is less than one-third. The average of (BOSIZE) was 10, this means that most board sizes are large. The average of (BOMEET) was about 20 meetings per year. The average of (ROLDU) was 0.06, indicating that most banks separated between the roles of CEO and chairman. The descriptive statistics for the research variables are displayed in Table (2).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDI</td>
<td>0.766</td>
<td>0.09095</td>
<td>0.40</td>
<td>0.86</td>
</tr>
<tr>
<td>BOIND</td>
<td>0.279</td>
<td>0.07153</td>
<td>0.14</td>
<td>0.43</td>
</tr>
<tr>
<td>BOSIZE</td>
<td>10.31</td>
<td>2.243</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>BOMEET</td>
<td>20.48</td>
<td>13.686</td>
<td>4</td>
<td>89</td>
</tr>
<tr>
<td>ROLDU</td>
<td>0.06</td>
<td>0.242</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>BAGE*</td>
<td>4.01</td>
<td>0.3950</td>
<td>3.260</td>
<td>4.530</td>
</tr>
<tr>
<td>BSIZE**</td>
<td>24.90</td>
<td>1.40798</td>
<td>21.99</td>
<td>26.62</td>
</tr>
<tr>
<td>BPROF</td>
<td>0.013</td>
<td>0.00556</td>
<td>-0.003</td>
<td>0.028</td>
</tr>
<tr>
<td>BLEVE</td>
<td>0.89</td>
<td>0.02345</td>
<td>0.83</td>
<td>0.93</td>
</tr>
</tbody>
</table>

* Natural logarithm of bank age.
** Natural logarithm of total assets

Source: by the authors based on the study data and STATA software output

It can be seen that, from Table (3), there is a slight growth in the
average of VDI during the study period. Table (3) displays the trends of the averages of the research variables for all banks during the five-year period from 2013 to 2017.

Table (3): Trends of the averages of the research variables during the five-year period.

<table>
<thead>
<tr>
<th>Variable</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDI</td>
<td>0.75</td>
<td>0.75</td>
<td>0.77</td>
<td>0.78</td>
<td>0.78</td>
</tr>
<tr>
<td>BOIND</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td>0.27</td>
</tr>
<tr>
<td>BOSIZE</td>
<td>10.38</td>
<td>10.38</td>
<td>10.23</td>
<td>10.31</td>
<td>10.23</td>
</tr>
<tr>
<td>ROLDU</td>
<td>0.00</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>BAGE*</td>
<td>3.97</td>
<td>3.99</td>
<td>4.01</td>
<td>4.03</td>
<td>4.05</td>
</tr>
<tr>
<td>BSIZE**</td>
<td>24.56</td>
<td>24.70</td>
<td>24.91</td>
<td>25.06</td>
<td>25.28</td>
</tr>
<tr>
<td>BPROF</td>
<td>0.015</td>
<td>0.013</td>
<td>0.011</td>
<td>0.013</td>
<td>0.014</td>
</tr>
<tr>
<td>BLEVE</td>
<td>0.88</td>
<td>0.88</td>
<td>0.89</td>
<td>0.90</td>
<td>0.90</td>
</tr>
</tbody>
</table>

* Natural logarithm of bank age.
** Natural logarithm of total assets

Source: Prepared by the authors based on the study data and STATA software output

4.1.2. Correlation Analysis

Dancey & Reidy (2017) recommended that before performing the multiple regression analysis, it is important to apply a correlation matrix to discover any relationship between voluntary disclosure and each board of directors and bank characteristic. The results of the Pearson correlation displayed in Table (4) show that voluntary disclosure (VDI) is significantly and negatively associated with BOIND and has a positive relationship with BOSIZE at a confidence level of 95%. With respect to the other two independent variables, the results indicated that no significant relationships between them and voluntary disclosure. The results also reveals that all bank characteristics have significant and positive relationships with voluntary disclosure (VDI).

Table (4): Pearson Correlation Analysis.

<table>
<thead>
<tr>
<th></th>
<th>VDI</th>
<th>BOIND</th>
<th>BOSIZE</th>
<th>BOMEET</th>
<th>ROLDU</th>
<th>BAGE</th>
<th>BSIZE</th>
<th>BPROF</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDI</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOIND</td>
<td>-0.262*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOSIZE</td>
<td>0.457*</td>
<td>-0.791*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOMEET</td>
<td>0.163</td>
<td>0.542*</td>
<td>-0.362*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROLDU</td>
<td>-0.153</td>
<td>0.420*</td>
<td>-0.380*</td>
<td>0.088</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAGE</td>
<td>0.687*</td>
<td>-0.230</td>
<td>0.272*</td>
<td>0.270*</td>
<td>-0.202</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSIZE</td>
<td>0.784*</td>
<td>-0.331*</td>
<td>0.383*</td>
<td>0.036</td>
<td>-0.441*</td>
<td>0.637*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>BPROF</td>
<td>0.495*</td>
<td>-0.059</td>
<td>0.132</td>
<td>0.325*</td>
<td>-0.037</td>
<td>0.414*</td>
<td>0.306*</td>
<td>1</td>
</tr>
<tr>
<td>BLEVE</td>
<td>0.266*</td>
<td>-0.242</td>
<td>0.309*</td>
<td>-0.092</td>
<td>-0.330*</td>
<td>-0.028</td>
<td>0.298*</td>
<td>-0.377*</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level

Source: Prepared by the authors based on the study data and STATA software output
4.2. Multivariate Analysis

The multivariate analysis is applied to investigate the impacts of a number of independent variables on one dependent variable. In this paper, multiple regression analysis was used to examine the influences of board of directors characteristics on the level of voluntary disclosure. In panel data analysis, it is necessary to test the regression assumptions before running the multiple regression analysis. Aljandali & Tatahi (2018) recommended four assumptions which must be checked before applying the regression model; the Normality of the Residuals, Multicollinearity, Homoskedasticity, and Autocorrelation. These assumptions were checked using STATA 15.1 software.

4.2.1. Testing the Normality of Residuals

The result of the Shapiro-Wilk test illustrated in Table (5) shows that the P-values is greater than 0.05, as well as it can be observed that from the histogram in Figure (2) the model residuals seem to be normally distributed.

![Table (5): The Shapiro-Wilk test for normality](image)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>W</th>
<th>V</th>
<th>z</th>
<th>Prob&gt;z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residuals</td>
<td>65</td>
<td>0.96672</td>
<td>1.929</td>
<td>1.423</td>
<td>0.07739</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors based on the study data and STATA software output

![Figure (2): Histogram of the residuals](image)

Source: Prepared by the authors based on the study data and STATA software output

4.2.2. Checking for Multicollinearity

The rule is if the Variance Inflation Factor (VIF) of a variable is more than 10, the variable is considered to be highly collinear (Gujarati & Porter, 2009; Sekaran & Bougie, 2016). From Table (6), it can be observed that all the VIF numbers are smaller than 10 including the mean of VIF.
Hence, the multicollinearity problem does not exist in the data.

Table (6): The (VIF) Results of the independent variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOIND</td>
<td>3.9</td>
<td>0.256135</td>
</tr>
<tr>
<td>BOSIZE</td>
<td>2.99</td>
<td>0.333968</td>
</tr>
<tr>
<td>BSIZE</td>
<td>2.55</td>
<td>0.39189</td>
</tr>
<tr>
<td>BAGE</td>
<td>2.33</td>
<td>0.428628</td>
</tr>
<tr>
<td>BOMEET</td>
<td>2.28</td>
<td>0.437814</td>
</tr>
<tr>
<td>BPROF</td>
<td>1.9</td>
<td>0.525133</td>
</tr>
<tr>
<td>BLEVE</td>
<td>1.87</td>
<td>0.534932</td>
</tr>
<tr>
<td>ROLDU</td>
<td>1.49</td>
<td>0.672518</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>2.42</td>
<td></td>
</tr>
</tbody>
</table>

Source: Prepared by the authors based on the study data and STATA software output

4.2.3. Homoskedasticity Assumption

The Breusch-Pagan test is used to test heteroskedasticity. This test is reliable, especially if the assumption of normality is met (Gujarati & Porter, 2009). The null hypothesis is that the variance of the residuals is homogenous. The results of the Breusch-Pagan test shown in Table (7) indicated that the P-value was (0.0000), meaning that the null hypothesis is rejected.

Table (7): Breusch-Pagan test for Heteroskedasticity

<table>
<thead>
<tr>
<th>H0: Constant variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>chi2(8)</td>
</tr>
<tr>
<td>Prob &gt; chi2</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors based on the study data and STATA software output

Also, the results of White's test show the same results of the Breusch-Pagan test as displayed in Table (8), which means that the heteroskedasticity problem exists.
Table (8): White's test for Heteroskedasticity

<table>
<thead>
<tr>
<th>Source</th>
<th>chi2</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heteroskedasticity</td>
<td>63.70</td>
<td>39</td>
<td>0.0075</td>
</tr>
<tr>
<td>Skewness</td>
<td>9.15</td>
<td>8</td>
<td>0.3296</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.39</td>
<td>1</td>
<td>0.1225</td>
</tr>
<tr>
<td>Total</td>
<td>75.23</td>
<td>48</td>
<td>0.0072</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors based on the study data and STATA software output

4.2.4. Checking for Autocorrelation

Wooldridge test for autocorrelation in panel data (first-order-autocorrelation) was applied. It can be seen that in Table (9) the P-value = (0.1130) meaning that the null hypothesis is rejected and there is no autocorrelation among the observations.

Table (9): Wooldridge test for autocorrelation in panel data

<table>
<thead>
<tr>
<th>H0: no first-order autocorrelation</th>
</tr>
</thead>
<tbody>
<tr>
<td>F(1, 12)</td>
</tr>
<tr>
<td>Prob &gt; F</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors based on the study data and STATA software output

4.2.5. Multiple Regression Analysis

As mention above, the residuals are normally distributed and there is no multicollinearity and serial correlation. However, the heteroskedasticity problem exists. The OLS regression model will be biased and will fail to be the Best Linear Unbiased Estimator (BLUE) when the heteroskedasticity exists. Hence, the results would be unreliable and misleading (Bentes & Menezes, 2013; Ghasempour & MdYusof, 2014; Gourieroux & Monfort, 1997; Gujarati & Porter, 2009; O’Hara & Parmeter, 2013). Therefore, the Generalized Least Squares (GLS) can be applied instead of OLS as an alternative regression model (Aljandali & Tatahi, 2018; Boslaugh & Watters, 2008; Gourieroux & Monfort, 1997) because it can be the BLUE (Gujarati & Porter, 2009; O’Hara & Parmeter, 2013). When the heteroskedasticity problem exists, Cameron & Trivedi (2009) and Westerlund & Narayan (2012) suggested using Feasible Generalized Least Squares model (FGLS) because it works better than OLS (Bentes & Menezes, 2013) and gives efficient estimators (Cameron & Trivedi, 2009; Miller & Startz, 2018). Consequently, the FGLS longitudinal panel regression was applied by using STATA software 15.1 as displayed in Table (10).
The Association between Board of Directors Characteristics and the Level of Voluntary Disclosure: Evidence from Listed Banks in Borsa Istanbul

Table (10): The results of FGLS regression for panel data.

|        | Coef.  | Std. Err. | z     | P>|z|  | [95% Conf. Interval] |
|--------|--------|-----------|-------|------|----------------------|
| VDI    | 0.266038 | 0.118341  | 2.25  | 0.025 | 0.034094 to 0.497983 |
| BOIND  | 0.012893 | 0.003306  | 3.9   | 0.000 | 0.006414 to 0.019372 |
| BOFSIZE| 0.097684 | 0.021570  | 4.53  | 0.000 | 0.055407 to 0.13996  |
| BOMEET | -0.00019 | 0.000473  | -0.41 | 0.680 | -0.00112 to 0.000732 |
| ROLDU  | 0.061744 | 0.016560  | 3.73  | 0.000 | 0.029287 to 0.094202 |
| BAGE   | 0.031505 | 0.004860  | 6.48  | 0.000 | 0.021978 to 0.041031 |
| BSIZE  | 5.463571 | 1.062919  | 5.14  | 0.000 | 3.380287 to 7.546854 |
| BPROF  | 1.12608  | 0.249758  | 4.51  | 0.000 | 0.636563 to 1.615598 |
| BLEVE  | -1.5483  | 0.217244  | -7.13 | 0.000 | -1.97409 to -1.12251 |

Source: Prepared by the authors based on the study data and STATA software output.

The results of the FGLS regression model in the table (10) show that the Wald chi2 (8) = (385.76) and the log likelihood = (127.0415), as well as, the P-value of the whole model is highly significant with the value of (0.0000). The FGLS results in Table 10 show that board independence, board size and board meetings are positively and significantly associated with the level of voluntary disclosure, whilst role duality has a negative and nonsignificant relationship with the level of voluntary disclosure. The findings also indicate that the p-value of all control variables (bank characteristics: age, size, profitability, and leverage) is highly significant with a very small value of (0.000) which meaning that they are positively and significantly related with the level of voluntary disclosure.

5. Conclusion

Voluntary disclosures are the focus of accounting literature in recent years. Voluntary disclosure improves transparency and helps to minimize the conflict of interests between managers and shareholders which leads to decreasing asymmetry problem and managers’ opportunistic behaviors. Board of directors is viewed as an effective corporate governance mechanism, and also as one of the important factors impacting the level of voluntary disclosure. Thus, this study aims to examine the relationship between board characteristics (board independence, board size, board meetings and role duality) and the level of voluntary disclosure in annual reports of listed banks in Borsa Istanbul during the period from 2013 to 2017.

The results of the Pearson correlation indicate that voluntary disclosure is negatively and significantly related with board independence and positively associated with board size, whilst board meetings and role duality have nonsignificant relationship with the level of voluntary disclosure. The results of Pearson correlation also reveal that control
variables have significant and positive relationships with voluntary disclosure.

The FGLS regression was applied for panel data to avoid the effect of the heteroskedasticity problem. The FGLS results indicate that board independence, board size and board meetings have positive and significant association with the level of voluntary disclosure, whilst role duality is negatively and no significantly associated with the level of voluntary disclosure. FGLS regression results also show that all bank characteristics are positively and significantly associated with the level of voluntary disclosure.

References


Disclosure in Spain. *Advances in Accounting, 21*(05), 299–331. https://doi.org/10.1016/S0882-6110(05)21013-1


Cameron, A. C., & Trivedi, P. K. (2009). *Microeconometrics using stata*. Texas: StataCorp LP.


A. General and Strategic Information (17):
- A brief narrative history of the bank
- General information about the economic environment
- Information about the banking sector
- Year of listing at Borsa Istanbul
- Description of major services
- Address of bank/telephone/fax
- Bank website address
- Email address
- Date and details of establishment
- General outlook of business activities
- Number of branches
- List of branches location
- Dividend policy
- Information on ATM
- Statement of overall strategies and objectives
- Future strategy
- Information about market share

B. Directors and Managers Information (15):
- Chairman of the board identified
- List of board members
- Disclosure information on board members’ qualifications and experience
- Duties of board of members
- List of senior managers (not on the board of members) / senior management structure

D. Financial Performance (15):
- Brief discussion of the bank’s operating results
- Analysis of bank’s liquidity position
- Return on assets
- Share price at the year-end
- Return on equity
- Liquidity coverage ratio
- Earnings per share
- Capital adequacy ratio
- Loan to deposit ratio
- Total dividends
- Dividend per share for the period
- Comparative Income statement for 2 years
- Comparative balance sheet for 2 years
- Comparative current year and previous year figures
- Inflation effects

E. Accounting Policies (7):
- Accounting Valuation of fixed assets (e.g., fair value or historical cost)
- The depreciation methods used
- Foreign currency transactions, translation and differences treatment
- Disclosure of accounting standards uses for
- Disclosure information on senior managers’ qualifications and experience
- Managers’ engagement/directorship of other companies
- Picture of all senior managers
- Picture of chairperson
- Information about changes in board members
- Classification of managers as executive or outsider
- Details of senior managers and board of members remuneration
- Shares held by directors
- Chairman’s statement
- Number of board meetings held and date

C. Social Responsibility Information (6):
- Environmental and social policies
- its accounts
- Statements of compliance with approved IFRS/IASs
- Treatment of Tax
- Treatment of contingent liabilities.

F. Other Information (4):
- Statement of percentage of total shareholder of 20 largest shareholders
- A review of shareholders by type (for example, institutions, individuals, ..., etc)
- Number of shareholders
- Dividend declared

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