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## The Impact of Firm Characteristics on the Level of Voluntary Disclosure: Evidence from Listed Banks in Borsa Istanbul

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### Abstract

*This study aims to examine the impact of some bank characteristics (age, size, profitability and leverage) on the extent of voluntary disclosure in annual reports of listed banks in Borsa Istanbul. All (13) listed banks represent the sample of the study. The study adopted the deductive approach by developing hypotheses based on the relevant theories and results of prior studies. The study also applied the panel data strategy to analyze the collected data from annual reports across five years (2013-2017). The results indicated that there is a positive relationship between each bank characteristic (age, size, profitability and leverage) and the level of voluntary disclosure. The results also show that profitability has a big impact on the level of voluntary disclosure followed by leverage, whereas, age and size have a small effect. There are a few studies on the extent of voluntary disclosure and its relationship with firm characteristics during a number of years (longitudinally) especially in the banking sector of developing countries, hence, it is expected that this study will provide evidence to clarify such relationship in Turkish banking sector. Therefore, the research in this field is required to confirm or disprove the findings of prior studies.*

**Keywords:** *Voluntary Disclosure; Firm Characteristics; Feasible Generalized Least Squares (FGLS) Regression*

**JEL Classifications:** *M4; M41*

## **Introduction**

As a result of financial scandals and crises, firms have been asked for a higher level of disclosure and transparency. Transparency will increase by disclosing more voluntary information in the annual reports. Voluntary disclosure refers to the additional information in the annual reports presented by firms that exceeding the mandatory disclosure (Hasan & Hosain, 2015). Voluntary disclosure is needed to mitigate the conflict of interests between management and shareholders. Through voluntary disclosure, asymmetry and opportunistic behaviors will decrease, as well as managers will not be able to hold important information for their interest. With the increase of globalization in the world's financial markets in recent years, voluntary disclosure has gotten much attention in the accounting literature. In the related literature, there are several theories that attempted to interpret the practices of voluntary disclosure, including agency theory, capital need theory, signaling theory and legitimacy theory (Shehata, 2014).

The agency theory implies that there is a conflict of interests between the principal and agent because principals often do not have better information about the firm activities as much as agents have (Kivisto, 2008). This conflict leads to the information asymmetry problem (Jensen & Meckling, 1976). Lev & Penman (1990) reported that the presence of the conflict of interests between the management and shareholders denotes to the absence of full disclosure. Barako, Hancock, & Izan (2006) point out that revealing more voluntary information decreases the agency costs. Also, managers disclose more information to try decreasing users' uncertainty which reducing the cost of capital, as well as for convincing the external users they are running in a perfect way (Watson, Shrivies, & Marston, 2002).

According to capital need theory, firms with growth opportunities seek for external capital to finance their activities. In this state, mandatory disclosure is not enough to get capital as cheap as possible (Core, 2001). The capital need theory suggests that managers have a stimulus to reveal additional information for increasing capital on the best possible terms and lower cost (Meek, Roberts, & Gray, 1995). As a result of globalization and increasing the competition for capital, it is expected that long-term investors will focus on firms with high levels of disclosure to reducing their risks and costs of trading (Schuster & O'connell, 2006). Dye (1985) and Verrecchia (1983) indicate that firms who publish further information have a higher demand for their securities that leads to low the cost of capita.

Freedman & Jaggi (2010) indicated that signaling theory presents to firms a strategy for mitigating the information asymmetry between management and external stakeholders. This theory suggests that when the parties those who have more information signal to others, the information asymmetry problem can be reduced (Spence, 1973). Shehata (2014) documents that firms signal particular information to stakeholders to illustrate that they are the best in the market for the object of attracting investments and enhancing their reputation.

Suchman (1995) stated that legitimacy theory is deemed as another theoretical interpretation for the voluntary disclosure. This theory assumes that there is an expressed or implied social contract between existing firms and community (Campbell, 2000). Firms' survival and growth are dependent on their capability to divide economic, social, or political services to the groups that give them the power and to achieve desirable ends to the community (Shocker & Sethi, 1973). According to this theory, the disclosure is used by managers to shape stakeholders' views of the firm's role and responsibility, and to what extent the firm is fulfilling those responsibilities (Magness, 2006). Thus, managers are compelled to reveal information that would change the view of external users about their firm (Cormier & Gordon, 2001). Since the main source of legitimation is the annual reports (Dyball, 1998; O'Donovan, 2002), legitimization occurs through both mandatory and voluntary disclosures (Shehata, 2014). This theory would signal that voluntary disclosure could be used to narrow the legitimacy 'gap' between how the firms want to be viewed and how they are (Campbell, 2000). Consequently, voluntary disclosure is used by firms to present more information about them to the society to legitimize their continued activities.

Therefore, this study aims to investigate the effects of some of the bank characteristics (age, size, profitability and leverage) on the level of voluntary disclosure in the annual reports of listed banks in Borsa Istanbul. Also, it aims to discover which bank characteristics have big effect on the level of voluntary disclosure. To achieve

that, this study is structured as follows: introduction, literature review, research and Methodology, results and discussion, conclusion, and references.

## **Literature Review**

The voluntary disclosure level differs from one firm to another because of some factors that may influence the voluntary disclosure level (Abeywardana & Panditharathna, 2016). Firm characteristics are considered one of the important determinants of voluntary disclosure. The commonly firm characteristics that have been examined in the relevant literature are age, size, profitability, and leverage.

According to Owusu-Ansah (1998), the firm age may affect the extent of disclosure. Akhtaruddin (2005) supposes that firm age is a critical factor in determining the level of disclosure. Owusu-Ansah (1998) argues that older firms are likely to present much more information than younger. Older firms with more experience are probably to disclose more information in their annual reports to improve their image and reputation in the market (Akhtaruddin, 2005). Most of the results of the empirical study show that there is a positive relationship between firm age and voluntary or mandatory disclosure (Abeywardana & Panditharathna, 2016; Elfeky & Nasiri, 2017; Hossain & Hammami, 2009; Owusu-Ansah, 2005; Sehar, Bilal, & Tufail, 2013). However, Hossain & Reaz (2007) and Akhtaruddin (2005) found no significant relationship.

In the disclosure literature, firm size is deemed as an important explanatory variable in explaining variation in the level of disclosure. It is expected that there is a positive association between the firm size and the level of disclosure. Big firms are able to incur additional costs for gathering and reporting extra information (Hassan, 2014). Firth (1979) argues that large firms tend to be listed on the Stock Exchange and have a greater reliance on the financial market for financing that may find it in their benefit to reveal more in their annual reports. He also mentions that small firms may feel that extra information about their activities will place them at a competitive disadvantage with large firms in their industry. Thus, this may lead them to publish less information than larger firms to avert what may happen in competitive harms (Hassan, 2014). The results of a number of studies supported this perspective and show a positive association between firm size and voluntary disclosure. (Barako, 2007; Hossain & Hammami, 2009; Hossain & Reaz, 2007; Lan, Wang, & Zhang, 2013; Uyar, Kilic, & Bayyurt, 2013).

Agency theory implies that managers of very profitable firms are likely to disclose detailed information to obtain personal advantages that keep the continuity of their positions and compensation arrangements (Inchausti, 1997). Signaling theory indicates that when the firms have good performance, they will be more willing to signal their quality to investors (Watson et al., 2002). Since the high profit is an indicator of management success, the management will exploit this success to gain many benefits through voluntary disclosure (Elfeky & Nasiri, 2017). The results of prior studies that examined the relationship between profitability and the level of voluntary disclosure were mixed. Most of these studies found a positive relationship between profitability and the extent of voluntary disclosure (Abeywardana & Panditharathna, 2016; Elfeky & Nasiri, 2017; Raffournier, 1995; Rouf, 2011; Sehar et al., 2013). Whilst, Hossain & Taylor (2007), Hossain & Hammami, (2009) and Uyar et al. (2013) found that there is no significant relationship.

Watson et al. (2002) reported that agency theory would predict a positive relationship between leverage and disclosure. He mentions that when a firm borrows, it incurs further agency costs that may be decreased by managers through disclosing the relevant information voluntarily in the financial reports. It is believed that when the level of debt is high, the level of conflicts of interests among stakeholders (creditors, shareholders, and managers) will be high (Hieu & Lan, 2015). Therefore, firms will enhance information transparency through voluntary disclosure to gain the trust of creditors (Li & Zhao, 2011). However, the results of prior studies that investigated the relationship between leverage and voluntary disclosure were not consistent. Some studies found a positive and significant relationship between firm leverage and voluntary disclosure (Abeywardana & Panditharathna, 2016; Kolsi, 2012; Lan et al., 2013; Sharma & Davey, 2013; Xiao, Yang, & Chow, 2004), whereas a significant negative association between firm leverage and voluntary disclosure was found by other studies (Birjandi & Hakemi, 2015; Elfeky & Nasiri, 2017; Sehar et al., 2013). On the other hand, the studies were undertaken by Owusu-Ansah (1997), Alves, Rodrigues, & Canadas (2012), Uyar et

al., (2013) and Hieu & Lan (2015) found that no significant relationship between firm leverage and voluntary disclosure.

## Research and Methodology

The majority of voluntary disclosure studies have been undertaken in developed countries. A little attention has been given to the voluntary disclosure in Turkey, especially in the banking sector. The banking industry is considered as one of the most important sectors in most countries. It plays a major role in the growth of the economy. Therefore, the objective of this study is to examine the impacts of some bank characteristics (age, size, profitability, and leverage) on the voluntary disclosure level in the annual reports of listed banks in Borsa Istanbul, as well as to determine which bank characteristics have a big influence on the voluntary disclosure level. To attain that, the deductive approach was adopted by developing hypotheses based on the relevant theories and results of prior studies. The data was obtained from annual reports of listed banks in Borsa Istanbul across five years (2013-2017). Therefore, quantitative research design and longitudinal research (panel data) strategy were employed in the current study. In order to collect data, this study used the content analysis technique. All listed banks (13 banks) in Borsa Istanbul (BIST BANKS) represent the sample of the study until the end of 2017.

Based on the literature review in the previous section and the evidence and results of prior studies the hypotheses are formulated as follows:

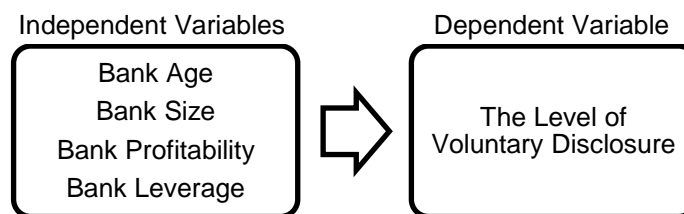
**H1:** The bank age impacts positively on the level of voluntary disclosure.

**H2:** The bank size impacts positively on the level of voluntary disclosure.

**H3:** The bank profitability impacts positively on the level of voluntary disclosure.

**H4:** The bank leverage impacts positively on the level of voluntary disclosure.

Baesd on the research hypotheses, the research framework was constructed to clarify the relationship among research variables as displayed in figure 1.



**Figure 1:** The Research Framework

The following model is formed to examine the impacts of the bank characteristics on the level of voluntary disclosure in the annual reports of listed banks in Borsa Istanbul, the model is represented in equation (2).

$$VDI = \beta_0 + \beta_1 BAGE + \beta_2 BSIZE + \beta_3 BPROF + \beta_4 BLEVE + \epsilon \dots\dots\dots(2)$$

Where:

- VDI = Voluntary Disclosure Index;
- $\beta_0$  = Intercept;
- $\beta_1$  to  $\beta_4$ = Coefficient of slope parameters;
- BAGE = Bank Age;
- BSIZE = Bank Size;
- BPROF = Bank Profitability;
- BLEVE = Bank Leverage;

- $\epsilon$  = Error term.

An unweighted voluntary disclosure index is used to measure the level of voluntary disclosure. The disclosure index has been widely used as a proxy measurement for measuring the level of both mandatory and voluntary information (Urquiza, Navarro, & Trombetta, 2009). A checklist was developed to evaluate the extent of voluntary disclosure and assigned a score of (1) if an item is disclosed and (0) if not. The checklist included 64 voluntary disclosure items classified into six categories according to their nature. The voluntary disclosure index score (VDI) for all annual reports of banks was calculated as a ratio of the actual voluntary disclosure score (AVD) to the maximum voluntary disclosure score, as shown below in equation (1).

$$VDI = \frac{\sum_{i=1}^n AVD}{MVD} \dots \dots \dots (1)$$

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.

Table 1 displays the detailed definitions and measurements of the independent variables.

**Table 1:** Measurements of the Independent Variables

<i>Independent Variable</i>	<i>Acronym</i>	<i>Measurement</i>	<i>Prior Studies Support the Measurement</i>
Bank Age	BAGE	Natural logarithm of the number of years from inception until 2017. Ln (bank age + 1)	(Ji, Lu, & Qu, 2017; Khan, Muttakin, & Siddiqui, 2013)
Bank Size	BSIZE	Natural logarithm of total assets	(Azatoru, Obinne, & Chinelo, 2017; Ji et al., 2017)
Bank Profitability	BPROF	ROA = Net income /average of total assets	(Azatoru et al., 2017; Ji et al., 2017)
Bank Leverage	BLEVE	Ratio of total debt to total assets.	(Ji et al., 2017; Khan et al., 2013)

## Results and Discussion

Two kinds of univariate analysis were adopted; the descriptive statistics and correlation analysis. Also, multivariate statistical analyses were applied to analyze the data and to test the research hypotheses.

The mean of the level of voluntary disclosure index (VDI) of all banks over the study period was about 77%. The mean of the natural logarithm of bank age (BAGE) of all banks until the end of 2017 was 4.010 (55 years); the minimum age was 3.260 (26 years) and the maximum was 4.530 (93 years). With respect to bank size (BSIZE), the average of the natural logarithm of total assets was 24.902 (65,333,450,443 TL) the minimum was 21.99 (3,549,242,000 TL) and the maximum was 26.62 (363,847,259,000 TL). The descriptive statistics for the dependent variable and all independent variables are displayed in Table 2.

**Table 2:** Descriptive Statistics

<i>Variable</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
VDI	0.766	0.09095	0.40	0.86
BAGE*	4.01	0.3950	3.260	4.530
BSIZE**	24.90	1.40798	21.99	26.62
BPROF	0.013	0.00556	-0.003	0.028
BLEVE	0.89	0.02345	0.83	0.93

\* Natural logarithm of bank age.

\*\* Natural logarithm of total assets.

From Table 3, it can be observed that there is a slight increase in the average of VDI during the study period. The trends of the averages of the dependent and independent variables for all banks during the five-year period from 2013 to 2017 are shown in Table 3.

**Table 3:** Trends of the Averages of the Research Variables during the Five-year Period.

<i>Variable</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>
VDI	0.75	0.75	0.77	0.78	0.78
BAGE*	3.97	3.99	4.01	4.03	4.05
BSIZE**	24.56	24.70	24.91	25.06	25.28
BPROF	0.015	0.013	0.011	0.013	0.014
BLEVE	0.88	0.88	0.89	0.90	0.90

\* Natural logarithm of bank age.

\*\* Natural logarithm of total assets.

Correlation analysis is used to detect any relationship between voluntary disclosure and each characteristic of the banks. Dancey & Reidy (2017) recommended that before implementing the multiple regression analysis, it is important to perform a correlation matrix. This study applied the Pearson correlation (parametric test) and the Spearman's Rank correlation (non-parametric test). Spearman correlation is applied to avoid the probability of existing the non-normality problem in some variables.

The results of the Pearson correlation displayed in Table 4 show that voluntary disclosure (VDI) is significantly and positively associated with all of the bank characteristics at a confidence level of 95%. The results also show that there are no high correlation coefficients between the independent variables. All correlation coefficients are less than (0.7) the minimum correlation proportion acceptable suggested by Tabachnick & Fidell (2013).

**Table 4:** Pearson Correlation Analysis.

	<i>VDI</i>	<i>BAGE</i>	<i>BSIZE</i>	<i>BPROF</i>	<i>BLEVE</i>
<i>VDI</i>	1				
<i>BAGE</i>	0.6873*	1			
<i>BSIZE</i>	0.7845*	0.6378*	1		
<i>BPROF</i>	0.4955*	0.4146*	0.3063*	1	
<i>BLEVE</i>	0.2666*	-0.0285	0.2985*	-0.3773*	1

\* Correlation is significant at the 0.05 level.

The results of the Spearman correlation support the results of the Pearson correlation, excepting the result of Bank Leverage (BLEVE). Spearman correlation results show no significant correlation between VDI and BLEVE as illustrated in Table 5. In consistent with the Pearson correlation, Spearman correlation results also show that the high correlation coefficients between independent variables do not exist.

**Table 5: Spearman Correlation Analysis**

	<i>VDI</i>	<i>BAGE</i>	<i>BSIZE</i>	<i>BPROF</i>	<i>BLEVE</i>
<i>VDI</i>	1				
<i>BAGE</i>	0.6873*	1			
<i>BSIZE</i>	0.7845*	0.6378*	1		
<i>BPROF</i>	0.4955*	0.4146*	0.3063*	1	
<i>BLEVE</i>	0.2666*	-0.0285	0.2985*	-0.3773*	1

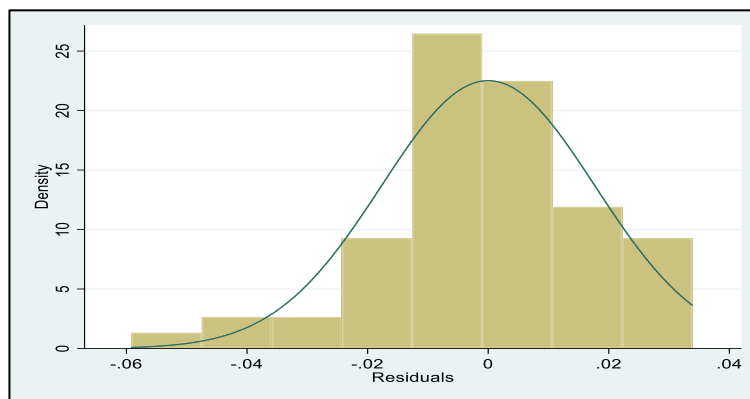
\* Correlation is significant at the 0.05 level.

The multivariate analysis is used to examine the influences of a collection of independent variables on one dependent variable. In this paper, multiple regression analysis was applied to investigate the impacts of bank characteristics on voluntary disclosure level. The first step before performing the multiple regression analysis is testing the regression assumptions. Aljandali & Tatahi (2018) identify four assumptions must be checked before running the regression model; the Normality of the Residuals, Multicollinearity, Homoskedasticity, and Autocorrelation. These assumptions were tested using STATA 15.1 software.

The result of the Shapiro-Wilk test illustrated in Table 6 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 6: The Shapiro-Wilk Test for Normality.**

<i>Variable</i>	<i>Obs</i>	<i>W</i>	<i>V</i>	<i>z</i>	<i>Prob&gt;z</i>
Residuals	65	0.96455	2.055	1.56	0.0594



**Figure 2: Histogram of the Residuals**

The Variance Inflation Factor (VIF) was applied to test multicollinearity. The rule is if the VIF of a variable is greater than 10, meaning that the variable is considered to be highly collinear (Gujarati & Porter, 2009; Sekaran & Bougie, 2016). As shown in Table 7 all the VIF values are very small compared to 10 including the mean of VIF. Therefore, the multicollinearity problem does not exist in the gathered data. These results

are consistent with the correlation results that indicate there are no high correlation coefficients between the independent variables.

**Table 7:** The VIF Results of the Independent Variables.

<i>Variable</i>	<i>VIF</i>	<i>1/VIF</i>
BSIZE	2.19	0.456963
BAGE	1.91	0.523501
BPROF	1.55	0.643926
BLEVE	1.54	0.647756
Mean VIF	1.8	

Homoskedasticity or constant variance refers to the extent to which data values of the variables have equal variances. The failure of homoskedasticity is called heteroskedasticity which refers to the variables have non-constant variance (Hutcheson & Sofroniou, 1999). To test heteroskedasticity, the Breusch-Pagan test is used. 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 8 indicated that the P-value was (0.0000), meaning that the null hypothesis is rejected.

**Table 8:** Breusch-Pagan test for Heteroskedasticity.

<i>H0: Constant variance</i>	
chi2(4)	94.56
Prob > chi2	0.0000

Also, the same results are found by applying White's test as shown in Table 9, which means that the null hypothesis is rejected and the variances are not constant and the heteroskedasticity problem exists.

**Table 9:** White's Test for Heteroskedasticity.

<i>Cameron &amp; Trivedi's decomposition of IM-test</i>			
<i>Source</i>	<i>chi2</i>	<i>df</i>	<i>p</i>
Heteroskedasticity	53.82	14	0.0000
Skewness	8.89	4	0.0640
Kurtosis	1.93	1	0.1647
Total	64.64	19	0.0000

For testing the autocorrelation, Wooldridge test for autocorrelation in panel data (first-order-autocorrelation) was used. The null hypothesis is that no serial correlation. From Table 10, it is observed that the P-value = (0.1606) implying that we failed to reject the null hypothesis and there is no autocorrelation among the observations.

**Table 10:** Wooldridge Test for Autocorrelation in Panel Data.

<i>H0: no first-order autocorrelation</i>	
F(1, 12)	2.237
Prob > F	0.1606



The results of testing the assumptions of linear regression show that the residuals seem to be normally distributed and the problems of multicollinearity and serial correlation do not exist. In contrast, the results indicate that the heteroskedasticity problem exists. It is agreed that when the heteroskedasticity exists, the OLS regression model becomes biased and fails to be the Best Linear Unbiased Estimator (BLUE) and thus the results would be unreliable and misleading (Bentes & Menezes, 2013; Ghasempour & MdYusof, 2014; Gourieroux & Monfort, 1997; Gujarati & Porter, 2009; O'Hara & Parmeter, 2013). When the problem of heteroskedasticity exists, the Generalized Least Squares (GLS) can be used as an alternative regression model (Aljandali & Tatahi, 2018; Boslaugh & Watters, 2008; Gourieroux & Monfort, 1997). It is, therefore, capable to provide the BLUE (Gujarati & Porter, 2009; O'Hara & Parmeter, 2013). To evade the inefficiency that occurs by heteroskedasticity, Cameron & Trivedi (2009) and Westerlund & Narayan (2012) recommended applying Feasible Generalized Least Squares model (FGLS). In the existence of heteroskedasticity, the FGLS works better than OLS (Bentes & Menezes, 2013) and provides efficient estimators (Cameron & Trivedi, 2009; Miller & Startz, 2018). Accordingly, we used the FGLS longitudinal panel regression as shown in Table 11.

**Table 11:** The Results of FGLS Regression for Panel Data.

<i>VDI</i>	<i>Coef.</i>	<i>Std. Err.</i>	<i>z</i>	<i>P&gt; z </i>	<i>[95% Conf. Interval]</i>	
BAGE	0.066492	0.018865	3.52	0.000	0.029517	0.103467
BSIZE	0.025970	0.005667	4.58	0.000	0.014864	0.037077
BPROF	5.931854	1.208452	4.91	0.000	3.563331	8.300377
BLEVE	1.131374	0.285743	3.96	0.000	0.571328	1.691421
_cons	-1.231174	0.229370	-5.37	0.000	-1.680732	-0.781617

The results of the FGLS regression model show that the Wald chi2 (4) = (219.40) and the log likelihood = (112.0729), as well as, the P-value of the whole model is highly significant with the value of (0.0000). The p-value for each explanatory variable tests the null hypothesis that the coefficient is equal to zero (no effect). A low p-value (< 0.05) implies that the slope is not zero, which meaning the null hypothesis can be rejected. In turn, this indicates that changes in the independent variables are associated with changes in the dependent variable. The findings in the Table 11 indicated that all bank characteristics examined (age, size, profitability, and leverage) affect positively and significantly on the level of voluntary disclosure. The P-value of each bank characteristic is highly significant with a very small value of (0.000). These results are consistent with the results of the correlation analyses illustrated above. Therefore, all research hypotheses are accepted. Bank age, bank size, bank profitability and bank leverage impact positively on the level of voluntary disclosure.

The results of the FGLS regression show that profitability has the biggest effect on the level of voluntary disclosure in the annual reports of the listed banks in Borsa Istanbul. The coefficient indicates that for every additional percentage point in profitability, the level of voluntary disclosure expects to increase by an average of 5.93 percentage points. The results also show that the second biggest effect on the level of voluntary disclosure achieved by leverage; where its coefficient was 1.31. In contrast, the age and the size have a small influence on the level of voluntary disclosure with coefficients of about 0.07 and 0.03 respectively.

## Conclusion

Most studies on voluntary disclosure have been undertaken in developed countries. Voluntary disclosure in Turkey has given a little interest, especially in the banking sector. Turkey is considered an important developing country and its banking sector plays a vital role to contribute to developing its economy. Thus, this study aims to measure the impact of firm characteristics (age, size, profitability and leverage) on 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 show that voluntary disclosure is significantly and positively associated with all of the bank characteristics at a confidence level of 95%. Also, the results of the Spearman correlation

support the results of the Pearson correlation, excepting the result of bank leverage. The FGLS regression was applied for panel data to avoid the effect of the heteroskedasticity problem. The FGLS results indicate that all bank characteristics impact on the level of voluntary disclosure. The results also show that profitability has a large influence on the level of voluntary disclosure followed by leverage, whilst age and size have a little effect.

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