THE EFFECT OF VOLUNTARY AUDIT FIRM SWITCH ON AUDIT QUALITY*

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ABSTRACT

The purpose of this study is to examine the effects of voluntary audit firm switches on audit quality. The study, which used discretionary accruals as a measure of audit quality, was conducted using the least square regression method in the sample of manufacturing industry companies traded in Istanbul Stock Exchange (ISE) between 2011-2016. The main result of the study shows that audit quality is negatively affected by voluntary audit firm switches. In addition, after voluntary audit firm changes, positive discretionary accruals and hence audit quality decreased in companies both the companies audited by big four and non-big four audit firms. On the other hand, we find that increase in audit quality in the case of voluntary audit firm change among the big four audit firms; decrease in audit quality in the case of voluntary audit firm change from non-big four audit firms to big four audit firms.

Keywords: Audit quality, Voluntary audit firm switch, Big fours.

JEL Classification: M40, M41, M48.

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GÖNÜLLÜ DENETİM FİRMASI DEĞİŞİKLİĞİNİN DENETİM KALİTESİNE ETKİSİ

ÖZ

Bu çalışmanın amacı, gönüllü denetim kuruluşu değişikliklerinin bağımsız denetim kalitesi üzerindeki etkilerini incelemektir. Bağımsız denetim kalitesinin göstergesi olarak ihtiyari tahakkukların kullanıldığı çalışma, 2011-2016 yılları arasında Borsa İstanbul'da (BİST) işlem gören imalat sanayi şirketleri örnekleminde en küçük kareler regresyon yöntemi kullanılarak gerçekleştirilmiştir. Araştırmanın temel sonucu, gönüllü denetim kuruluşu değişikliğinin denetim kalitesini negatif olarak etkilediğini göstermiştir. Ayrıca, gönüllü değişiklik sonrasında, hem 4 büyüklerce hem de 4 büyükler dışındakilerce denetlenen şirketlerde, pozitif ihtiyari tahakkuklarda artış ve dolayısıyla denetim kalitesinde düşüş gerçekleşmiştir. Diğer taraftan, 4 büyüklerden 4 büyüklere gönüllü denetim kuruluşu değişikliğinde, denetim kalitesinde artış; diğer denetim kuruluşlarından 4 büyüklere gönüllü denetim kuruluşu değişikliği durumunda ise denetim kalitesinde azalış görülmüştür.

Anahtar Kelimeler: Denetim kalitesi, Gönüllü denetim firması değişikliği, Dört büyükler.

JEL Sınıflandırması: M40, M41, M48.

1. INTRODUCTION

As is known, the presence of asymmetry of information between company management and financial information users requires financial reports that one of the significant tools in forwarding the financial information to information users out of the company to be audited by an auditor. This circumstance dictated to assign a function to independent audit in terms of increasing financial reports quality and decreasing financial information risk, so that financial reports quality almost identified with audit quality. It is assumed in this context that a quality independent audit will prevent misleading financial information users by earnings management practices. The accuracy and reliability of the financial reports, and thus the quality of the independent audit, depends on the auditor's independence, which is believed to be independent, against the company's management. However, it is not always possible to maintain the independence of the auditor against the company's management. Hudaib and Cooke (2005, 1704) stated that being selected the auditor, the extension or termination of the contract with the auditor and the role of client business management in determining the audit fee are the potential problems in being unable to keep independence. Especially, there may occur differences in auditor independence and audit quality based on the factors that are effective on the client firm's decisions about not extend the contract or finishing the audit [1].

In literature, the following items are accepted as the prominent factors in voluntary audit

[1] In this context, there was imposed an obligation to inform the reasons (i.e.audit opinion shopping, relationship of board of directors with controversial decision and other problems) for voluntary audit firm switches in public companies in US by Form 8-K. And so, it was endeavored to inform on the structure and effect of the conflicts between auditor and the client firm (Dhaliwal et al. 1993, 22)

firm switches out of the mandatory rotation; opinion shopping that means finding an audit firm that will issue an unqualified opinion; desire to apply earnings management to increase or decrease the profit; dissatisfactions with the quality of audit. Moreover, the factors such as financial failure, size of an enterprise, change in management, mergers, company growth, audit fee, sectoral expertise of the audit firm can also be shown as the reasons for the audit firm switch (Yaşar 2016, 1-2). However, without noticing any reason, in particular, determining voluntary audit firm switches have an effect on the audit quality is important when it is considered that voluntary audit firm switches can be conducted to increase the profit or have audit opinion shopping. In this context, this paper analyzed whether voluntary audit firm switches and voluntary audit firm switches for big fours have an effect on audit quality by using least squares regression method in BIST-traded manufacturing industry companies in the years between 2011 and 2016. For this purpose, it is expected that our study which put the model to regression by using normal (marked), absolute, positive and negative values of discretionary accruals as the indicator of audit quality will contribute to the literature.

Within this framework, the second section of this study expressed the research hypotheses and literature review towards the relationship between voluntary audit firm switch and audit quality. Data and sample selection of the research and research model is explained in the third part of the study. The fourth part shows the findings; the final section reveals the results of the study and makes suggestions relating to the future.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESES

The audit firm rotation is possible to be performed within the scope of mandatory rotation or voluntarily. Literature has arguments which assume that mandatory audit firm rotations have either positive or negative effects on the audit quality. With reference to the arguments which argue that audit firm switches based on the mandatory rotation decrease the audit quality, the new auditor after rotation cannot provide an efficient audit because of having less information on the client; so, the audit quality is negatively affected (Johnson et al. 2002; Lennox 2014; Kwon et al. 2014; Kim et al. 2015; Mohrmann 2017). Since the new auditor after mandatory rotation is obliged to rely on estimations and declarations of customers because of the lack of knowledge on the operation of the business, accounting systems, and internal control structure; there may be seen a decrease in audit quality (Kwon et al. 2014, 173). There is an opinion which pointed out that placing a restriction to the long-dated relationship between audit firm and client firm will increase the auditor independence and audit quality (Chen et al. 2008, 416). Thus, the new auditor can perform a higher audit quality by applying professional skepticism for financial statements and keeping independence and objectivity (Kim et al. 2015, 1092).

In the audit firm switches within the scope of voluntary rotation, there may be observed a decrease in audit quality based on audit firm switch to manage the earnings rather than the information loss peculiar to the client. Mohrmann (2017) described the decision of voluntarily switch the audit firm and the decision of selecting the new audit firm as ‘strategical auditor selection’.

It is found in the study which reviewed the effect of audit firm switch within the scope of the voluntary audit firm and mandatory rotation on the audit quality that voluntary audit firm switches are positively associated with discretionary accruals; mandatory rotation is not associated with the discretionary accruals at the same time. Mohrmann (2017) concluded that the decrease in financial reporting quality is rooted in strategic auditor selection decision, but not due to the loss of company specific information. On the other hand, Carcello and Nagy (2014) found that fraudulent financial reporting is more likely to occur in the first year of the auditor-customer relationship. Similarly, Cameran et al., (2014) found that the earning quality is less for the first three years following the mandatory rotation. In this context, in our study, the effect of the first year of voluntary audit firm switch on audit quality was analyzed by using discretionary accruals.

In literature, a remarkable part of the studies within the scope of mandatory audit firm rotation are the studies that review the audit firm tenure in countries without mandatory rotation application (Geiger and Raghunandan 2002; Johnson et al. 2002; Myers et al. 2003; Carcello and Nagy 2004; Mansi et al. 2004; Ghosh and Moon 2005; Jackson et al. 2008; Davis et al. 2009). It was found in some of those studies (i.e; Johnson et al. 2002; Myers et al. 2003; Ghosh and Moon 2005) which used discretionary accruals that mandatory rotation decreased the earnings quality and audit quality based on the increase in discretionary accruals. For example; Johnson et al. (2002) argued that the short working period (two or three years) between the audit firm and the client company is more related to lower financial reporting quality than those with medium (4-8 years) and longer (9 or more). Similarly, Myers et al., (2003) found a positive relationship between audit quality and audit firm tenure. Both studies are based on customer-specific knowledge and experience associated with the length of the audit firm's tenure, which is important for the auditor to ensure the quality of the audit (Chi et al. 2009, 375). In some studies other than such studies, the quality of audit was examined by comparing discretionary accruals of voluntary rotation and mandatory rotation firms (Chi et al. 2009; Kim and Yi 2009; Noh 2009; Kim et al. 2015). For instance, Chi et al., (2009) found no significant difference between audit quality of companies in voluntary rotation sample and audit quality of companies in mandatory rotation sample. Kim and Yi (2009) find that discretionary accruals in mandatory rotation companies are low; mandatory rotation has no effect on the audit quality in comparison with the voluntary rotation. Kim et al., (2015) argued that the discretionary accruals are low and so, audit quality are low in companies that are audited by new audit firm after mandatory rotation in comparison with companies that are audited by new auditors after the voluntary switch.

In this context, this research expected that discretionary accruals are higher in the first years of the companies with voluntary audit firm switch to test the relationship between voluntary audit firm switch and audit quality. Thus, the first hypothesis (null hypothesis) of this study is as follows:

H1: *Voluntary audit firm switch has no effect on audit quality.*

Literature has findings that the companies which are audited by the big four audit firms apply fewer earnings management and provide audit at high quality in comparison with the companies that are audited by other audit firms (i.e; Becker et al. 1998; Francis et al. 1999; Cai

et al. 2005). However, some of the other investigations proved that big four may not restrict earnings management applications; accordingly there is no difference between big four and other audit firms in terms of the audit quality (Kim et al. 2003; Jeong and Rho 2004; Tsipouridou and Spathis 2012; Yaşar 2013). In this context, it is necessary to examine whether voluntary audit firm changes to big four audit firms differ in terms of audit quality compared to voluntary changes to other audit firms. Myers et al., (2003) obtained mixed results related to big four. Their research findings pointed out that big four audit firms report more conservatively than other audit firms when the absolute and normal discretionary accruals are used as the measure; big four less restrict reporting selections of clients in comparison with other audit firms when positive and negative discretionary accruals are used as the measure. Cameran et al., (2015) reviewed the sample includes companies that are audited by big four in Italy and found no significant relationship between mandatory audit firm rotation and audit quality. Corbella et al., (2015) found that the mandatory audit firm rotation is associated with the increase in audit quality for the companies that are audited by non-big four; mandatory audit firm rotation is not associated with the increase in audit quality for the companies that are audited by big four.

Within this framework, the second hypothesis (it was constituted as the null hypothesis) of the research is as follows;

H2: *There is no significant relationship between voluntary audit firm switch to big four and audit quality.*

3. RESEARCH METHOD

We analyzed the effect of voluntary audit firm switches on audit quality in the sample of BIST (Istanbul Stock Exchange) manufacturing industry companies between the years of 2011 and 2016 by using the least squares regression method used to tests the hypothesis. We firstly, obtained data relating to dependent and independent variables by reviewing annual activity and independent audit reports of companies that establish the sample. Secondly, we determined the companies who do not change their audit firm and the companies which change their audit firm by voluntarily. Thirdly, discretionary accruals of companies in the sample were estimated by Kothari, Leone, and Wasley (2005) model. Then, the normal (signed), absolute, positive and negative values of the estimated discretionary accruals were regressed separately using the least squares method together with the control variables.

3.1. Data and Sample Selection

The data in this research were obtained from annual financial reports of BIST-traded manufacturing industry companies in Public Disclosure Platform in the years between 2011 and 2016 (2010 year for some of the variables).

Financial companies were excluded from the research sample because of the differences in financial statement structures; holdings were also excluded from the research sample because of their relations with the group companies. Within this framework, 124 manufacturing industry

companies which are continuously active between the years of 2011 and 2016 were specified. Table 1 summarizes the method that was followed in sample selection. As shown in Table 1, 139 company-year data that changed the audit firm between the years of 2011 and 2016 were obtained from manufacturing industry companies. 605 company-year data were obtained from manufacturing industry companies that do not change the audit firm. 105 company-year data were determined from the companies that voluntarily switch their audit firms (by the reasons without mandatory rotation) to test the research hypotheses. Thus, the final sample of the study consists of 710 company-year data, of which 105 are voluntary audit firm changes, of which 605 are non-audit firm switch.

Table 1. Sample Selection

Panel A. Audit Firm Switch Sample Selection

	2011	2012	2013	2014	2015	2016	Total
Companies on Manufactuing Industr	173	185	191	195	193	182	**1119**
Audit Firm Switch	21	16	42	17	15	28	**139**
Mandatory Switch	4	2	12	4	4	8	**34**
Voluntary Switch	17	14	30	13	11	20	**105**
Non-Audit Firm Switch	103	108	82	107	109	96	**605**

Panel B. Final Sample

	2011	2012	2013	2014	2015	2016	Total
Voluntary Audit Firm Switch	17	14	30	13	11	20	**105**
Non-Audit Firm Switch	103	108	82	107	109	96	**605**
Total	**120**	**122**	**112**	**120**	**120**	**116**	**710**

3.2. Research Model

First of all, discretionary accruals were estimated by Kothari, Leone, and Wasley (2005) model in Model (1) that investigated whether voluntary audit firm switches have an effect on the audit quality. Afterward, the predicted discretionary accruals in Model 1 were regressed separately with the control variables in Model 2, using the normal (signed), absolute, income-increasing (positive) and income-decreasing (negative) values as the dependent variable. Explanations relating to the measurement of audit quality and the model established can be seen in the following parts.

3.2.1. Measuring Audit Quality Based on Accruals

The difficulties in directly measuring the audit quality necessitated conducting studies on indirectly measuring the audit quality and also concentrate on measures such as the size of audit firm, level of discretionary accruals, audit fees, hours assigned to auditing as the indicator of the audit quality. It is seen that the size of the audit firm is generally used as the indirect indicator of the audit quality; however, there are also findings that there is no audit quality difference between big audit firms and other audit firms in developing countries (i.e; Kim et al. 2003; Jeong and Rho 2004; Yaşar 2013).

Level of discretionary accruals is one of the indicators that is still used as the indirect indicator of the audit quality in the literature. Discretionary accruals that are also expressed as abnormal accruals are the accruals which emerge based on discretion of the managers (Bartov et al. 2002, 196). The high level of discretionary accruals that are not about the normal activities of the company is perceived as a sign that the management which wants to take audit opinion fit for the desires of themselves may want to use its force on the auditor (Jackson et al. 2008, 425). When the quality of the audit is low, it is possible for the financial statements to contain elements that would conceal the entity's actual operating results and financial status. Therefore, earning quality reflects the audit quality. In addition to this, the probability of having low earning quality to cause audit failures and litigation against the auditor will be higher (Myers et al. 2003, 782-783; Chen et al. 2008, 421). Accordingly, low (high) level of discretionary accruals can be considered as an indicator of high (low) earnings quality and thus audit quality when income-increasing or income-decreasing earnings management applications of the company manager (i.e; Myers et al. 2003; Chen et al. 2008; Jackson et al. 2008; Chi et al. 2009).

In this context, the frequent use of discretionary accruals as the indicator of audit quality in literature proves that the indicator in question maintains its importance. Therefore, as is in previous studies (i.e; Johnson et al. 2002; Myers et al. 2003; Carey and Simmnett 2006; Chen et al. 2008; Jackson et al. 2008; Chi et al. 2009) estimated values of discretionary accruals was utilized in this research as the earnings quality and thus audit quality.

Since discretionary accruals cannot be directly observed, previous studies used total accruals that are composed of normal and abnormal accruals to estimate the discretionary accruals. Total accruals are computed at first by the method of balance-sheet and/or cash flow statement. Afterward, the non-discretionary (normal) accruals are calculated by regression models (Jones Model 1991; Dechow, Sloan and Sweeney-Corrected Jones Model 1995; Benesih Model 1997; Kothari Model 2005) used in the estimation of normal parts of total accruals and then discretionary accruals are calculated by subtracting estimated normal accruals from total accruals.

As in previous studies, discretionary accruals that used indicator of audit quality were measured by using the performance-matched model of Kothari, Leone and Wasley (2005), as it reflects company performance better in estimating profit management than Corrected Jones Model (1995) as follows:

$$DA_{it} = TA_{it}/A_{it-1} - (\alpha_i[1/A_{it-1}] + \beta_{1i}[\Delta REV_{it} - \Delta REC_{it}/A_{it-1}] + \beta_{2i}[PPE_{it}/A_{it-1}] + \beta_{3i}[ROA_{it-1}])$$ **Model (1)**

Discretionary accruals were estimated by Kothari, Leone, and Wasley (2005) model in Model (1). Discretionary accruals of companies which voluntarily changed the audit firm and also the companies which do not change the audit firm was separately analyzed as normal (marked), income-increasing (positive), income-decreasing (negative) and absolute value (0) to review the effect of voluntary audit firm switch on discretionary accruals.

3.2.2. Multivariate Regression and Control Variables

In order to test the research hypotheses, the model of the research was formed by using the estimated discretionary accruals in Model (1) as the dependent variable. As in previous studies (i.e; Myers et al. 2003; Chen et al. 2008; Chi et al. 2009; Corbella et al. 2015; Cameran et al. 2016), in order to analyze the effects of discretionary accruals on income-increasing and decreasing effects in detail, the normal (sign), absolute, positive and negative values of discretionary accruals are used as dependent variables. In this context, discretionary accruals were regressed with the variables in the following Model (2):

$$DA_{it} = \beta_0 + \beta_1 VROT_{it} + \beta_2 PREV\_B4 +_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 LOSS_{it-1} + \beta_6 OCF_{it} + \beta_7 GRW_{it} + e_{it}$$

Model (2)

Where:

DA = Normal (signed), absolute, positive and negative values measured by discretionary accruals obtained from Kothari Model (2005) regression;

VROT = 1 for the voluntary audit firm switch; and 0 otherwise;

PREV_B4 = 1 for companies that the audit firm is one of the big four auditors before the voluntary audit firm switch, 0 otherwise;

SIZE = Company size (measured by the natural logarithm of total assets);

LEV = Financial leverage (total liabilities/total assets);

LOSS = Net Loss (1 for companies that reported loss in the previous year; 0 otherwise);

OCF = Operating cash flows (scaled with total assets at the end of t-1 year);

GRW = Sales growth ([Net Salest – Net Salest-1/ Net Salest-1])

The relationship between voluntary audit firm switch (VROT) and audit quality was tested for the whole sample in Model (2). After being Model (2) was applied for the whole model, it was tested whether VROT from big four to big four and non-big four auditors has an effect on the audit quality. For this purpose, in a similar manner to the study of Corbella et al., (2015), Model (2) was applied by dividing research sample into two sub-samples as the companies audited by big fours and the companies audited by non-big fours. Moreover, the effect of voluntary switches from big four to big four and other non-big four auditors in subsample was analyzed by PREV_B4 (1 for for companies that the audit firm is one of the big four auditors before the voluntary audit firm switch, 0 otherwise) variable if the audit firm before voluntary switch is one of the big four aditors. Accordingly, it was tested whether there is an audit quality (measured by earnings quality) difference in companies with voluntary audit firm switch in comparison with the companies without audit firm switch by separately operating Model (2) for the changes to big four and non-big four auditors.

Various control variables that are frequently used and known as the determinants of discretionary accruals were inserted in Model (2) in this research that investigated the effect of audit firm switch on the audit quality. In Model (2), SIZE variable that was frequently used in previous studies (Chi et al. 2009; Yaşar 2011; Kim et al. 2015; Corbella 2015; Ocak 2016) was used in this research to control the effect of the size of an company. With reference to Dechow and Dichev (2002, 47), since the big companies have more stable and predictable activities, their error of estimation and level of accruals will be lower in comparison with the small companies. However, some of the other studies (i.e; Myers et al. 2003; Cameran et al. 2015) used the company size as the control variable with reference to the idea that big companies may make for higher positive accruals and lower negative accruals. Thus, SIZE variable that is measured by the natural logarithm of total assets was utilized because of the tendency of big companies to have lower discretionary accruals than the small companies. Secondly, similar to previous studies (ie; Kim et al. 2015; Corbella et al. 2015), LEV (financial leverage) variable that is measured as the ratio of total liabilities to the assets in t year was used as an indicator for financial failure possibility. Previous studies (DeFond and Jiambalvo 1994; Corbella et al. 2015; Cameran et al. 2016) argued that companies apply an earnings management via discretionary accruals to fulfill the conditions of loan contract; accordingly, financial leverage has a positive impact on discretionary accruals. On the other hand, some of the studies (Becker et al. 1998; DeAngelo et al. 1994; Francis and Wang 2008) concluded that the financial leverage may be negatively marked because of the possibility of financial failure to cause loan contract renewals that provide incentives to decrease the income. In this context, the variable in question can be used as an indicator for the financial failure (Corbella et al. 2015, 52), we have no priority expectation on the sign of the LEV control variable in this research (Yaşar 2011; Cameran et al. 2016). According to Francis and Wang (2008, 171), loss declaration in preceding year will be able to direct companies to earnings management to increase the reported profit in the following year. Therefore, ZRR (1 for the companies that reported period loss in previous year; otherwise is 0) as another control variable to control the financial failure risk was utilized (Francis and Wang 2008; Kim et al. 2015; Corbella et al. 2015; Cameran et al. 2016; Ocak 2016).[2] Much as LOSS control variable is expected to be positively signed, it is possible for

[2] While the loss variable was considered as being zero in profit before extraordinary items by the studies of Francis and Wang (2008) with Cameran et al., (2016); Kim et al., (2015), Corbella et al., (2015), Ocak (2016) used the same variables as the period loss.

LOSS to actualize as negative marked because of 'big-bath accounting' instead of increasing the income immediately after the loss (Cameran et al. 2016: 49). OCF (Operating Cash Flow From / Previous Total Assets) control variable that was used as another control variable in previous studies (Dechow 1994; Sloan 1996; Jackson et al. 2008; Chi et al. 2009; Cameran et al. 2016; Corbella et al. 2015) to control the negative relationship between cash flows arising from the transaction was used in this study as well. Finally, GRW (percentage growth in net sales compared to the previous year) variable that is positive associated with accruals in literature was used to control the potential effect of company growth on the accruals of the company (Chen et al. 2008; Chi et al. 2009; Kim et al. 2016). Since the growing companies will be more likely to invest in working capital such as trade receivables and stock to support the growth in current and/or future sales, GRW is expected to be positively associated with discretionary accruals (Kim et al. 2015, 1094).

4. RESEARCH FINDINGS

The hypothesis that was established to test whether voluntary audit firm switches have an effect on audit quality was tested by OLS multiple regression model. Descriptive statistics and univariate-multivariate analysis results of the research are presented below.

4.1. Descriptive Statistics

Table 2 shows the descriptive statistics of the variables in the analysis. In Table 2, mean of DA variable that represents the normal (marked) values of discretionary accruals as the indicator of audit quality was found as 0.0115. The median value of the same variable was found as 0.0007; sample mean showed the positive discretionary accruals.

Table 2. Descriptive Statistics

Değişkenler	N	Mean	Median	Std. Deviation	Minimum	Maximum
DA	710	0.0115	0.0007	0.1092	-0.649	0.8935
|DA|	710	0.0631	0.0359	0.0897	0.0001	0.8935
DA^+	361	0.0734	0.0383	0.1076	0.0001	0.8935
DA^-	349	-0.0525	-0.0349	0.0649	-0.6490	-0.0002
SIZE	710	19.6683	19.5397	1.5822	14.0526	24.1643
LEV	710	0.5181	0.4645	0.5152	0.0431	8.6743
LOSS	710	0.2400	0.0000	0.4290	0.0000	1.0000
OCF	710	0.0649	0.0589	0.2494	-1.4858	5.4352
GRW	710	0.3082	0.0926	4.8433	-0.9778	128.8923

As seen in Table 2, income-increasing positive discretionary accruals (N=361) and income-decreasing negative discretionary accruals (N=349) in sample balancedly occured. (DA+) mean (median) values of positive discretionary accruals actualized as 0.0734 (0.0383); (DA-) mean (median) values of negative discretionary accruals actualized as -0.0525 (-0.0349). Mean of LEV variable actualized as 0.5181; this circumstance shows that companies are financed by debt by more than 50%.Table 3 shows univariate analysis results relating to comparing the normal (marked), absolute value, positive and negative discretionary accruals of companies with voluntary audit firm switch (VROT) (the first year in working with the new audit firm after the switch) and also the companies without audit firm switch (NROT). Panel (A) in Table 3 represents the parametric t-test results compared the mean difference between the groups with voluntary audit firm switch and without audit firm switch in the whole sample (both big four and non-big four audit firms). Panel (B) represents the parametric t-test results compared the mean difference between the groups with VROT and NROT that are audited by big four auditors in the first year of the switch. Panel (C) represents the parametric t-test results than compared the mean difference between the groups with voluntary audit firm switch and without audit firm switch in the companies that are audited by non-big four auditors in the first year of the voluntary switch.

Table 3. Univariate Analysis Results

Panel A: Full Sample (N=710)

Variables		N	Mean	t-statistic	p-value
DA	VROT	105	0.071	-6.243***	0.000
	NROT	605	0.001		
|DA|	VROT	105	0.109	-5.758***	0.000
	NROT	605	0.055		
DA^+	VROT	79	0.120	-4.430***	0.000
	NROT	282	0.061		
DA^-	VROT	26	-0.075	1.875*	0.062
	NROT	323	-0.051		

Panel B: Sample of Companies audited by big four (N=466)

Variables		N	Mean	t-statistic	p-value
DA	VROT	57	0.052	-5.503***	0.000
	NROT	409	-0.007		
|DA|	VROT	57	0.081	-8.633***	0.000
	NROT	409	-0.007		

DA^+	VROT	42	0.090	-3.304***	0.001
	NROT	170	0.051		
DA^-	VROT	15	-0.056	0.721	0.472
	NROT	239	-0.048		

Panel C: Sample of Companies Audited by Non-Big Four (N=244)

Variables		N	Mean	t-statistic	p-value
DA	VROT	48	0.095	-3.225***	0.001
	NROT	196	0.018		
|DA|	VROT	48	0.141	-5.482***	0.000
	NROT	196	0.018		
DA^+	VROT	37	0.153	-2.956**	0.004
	NROT	112	0.075		
DA^-	VROT	11	-0.102	1.318	0.191
	NROT	84	-0.058		

Results in Panel (A), Panel (B) and Panel C confirm that there is a significant difference between voluntary audit firm switch and audit quality in terms of the mean values of normal (DA), absolute (|DA|) and positive (DA+) discretionary accruals except negative discretionary accruals. Thus, discretionary accruals in the first year of voluntary audit firm switch increased more in comparison with the discretionary accruals of companies non-audit firm switch; so, there was a lower audit quality. Panel (B) and Panel C confirm there is not a significant difference in terms of negative discretionary accruals (DA-) when the companies whose audit firm is big four and the companies whose audit firm is non-big four; however, there is a significant difference in terms of the other accruals (normal, absolute value and positive). In other words, there occurred an increase in positive discretionary accruals and a decrease in audit quality because of income-increasing earning management application in companies whose audit firm is big four and also the companies whose audit firm is non-big four in the first year of the voluntary audit firm switch. Much as the univariate analysis results in Table 3 prove that voluntary audit firm switch has statistically significant effects on audit quality, the statistical relationship in question needs to be evaluated by analyzing with additional control variables that may have effects on discretionary accruals, namely, the audit quality.

Table 4 shows Pearson and Spearman correlation matrix between the variables used in the model. Pearson correlations in Table 4 refers to a positive significant relationship between discretionary accruals and voluntary audit firm switch. Accordingly, the possibility of income-increasing discretionary accruals is higher in the first audit of new audit firms after the voluntary switch; audit quality may be lower based on the higher discretionary accruals. Moreover, with reference to Pearson correlations in Table 4, there is a negative and significant relationship between discretionary accruals, size of the company (SIZE) and net cash flow from the transaction (OCF); the positive and significant relationship between discretionary accruals and growth in sales (GRW).

Table 4. Correlation Matrix

	DA	VROT	SIZE	LEV	LOSS	OCF	GRW
DA	1	,228***	-,120**	-,001	,052	-,571**	,173**
VROT	,240**	1	-,116**	,060	,052	-,058	-,015
SIZE	-,120**	-,098**	1	-,075*	-,340**	,077*	-,084*
LEV	,035	,077*	,025	1	,239	,227**	,001
LOSS	,017	,052	-,356**	,295**	1	-,164**	,066
OCF	-,689**	-,055	,272**	-,159**	-,264**	1	-,146**
GRW	,155**	-,008	,023	,032	-,032	,010	1

The numbers on the diagonal (below) indicate Pearson (Spearman) correlation coefficients.

***, ** and * significant at %1, %5 ve %10 level, respectively.

4.3. Findings Relating to Multivariate Regression Analysis

Normal (signed), absolute, positive and negative values of discretionary accruals with control variables that are explained in 3.2.2. part of the study was separately subjected to the regression in this study that analyzed the relationship between voluntary audit firm switch and audit quality (measured by discretionary accruals). Similar to the study of Corbella et al., (2015), after the whole sample of research was subjected to the regression, OLS multiple regression model was applied for both two sub-samples as big fours and non-big fours to test whether voluntary audit firm switches from big four to big four and non-big four auditors have an effect on the audit quality. In addition, if the audit firm prior to the voluntary change was one of the big four ones, the effect of voluntary changes to the big four and non-big four in the sub-sample was also analyzed.

Thus, the impact of the voluntary audit firm change on the audit quality (measured by the earnings quality) compared to the companies that did not change the audit firm was tested for the entire sample and separately for the changes to the big four and non-big four audit firms and the results are shown in the tables in the following parts.

4.3.1. Findings Relating to the Realtionship Between Voluntary Audit Firm Switch and Discretionary Accruals

Model (2) in which the relationship between voluntary audit firm switch (VROT) and audit quality (measured by discretionary accruals) was separately subjected to regression by using normal (signed), absolute, positive and negative values of discretionary accruals for the whole sample (for both big four and non-big four audit firms); Table 5 summarizes the results.

Table 5. OLS Regression Results of Discretionary Accruals

Variable	DA	|DA|	DA^+	DA^-
Constant	0.113***	0.22***	0.12**	-0.134***
	(2.591)	(5.345)	(2.377)	(-3.511)
VROT	0.057***	0.043***	0.061***	-0.019*
	(6.228)	(5.002)	(7.253)	(-1.733)
SIZE	-0.005**	-0.009***	-0.003	0.006***
	(-2.396)	(-4.648)	(-1.318)	(2.933)
LEV	0.031***	0.055***	0.018**	-0.017***
	(4.650)	(8.760)	(2.025)	(-2.914)
LOSS	-0.031***	-0.010	-0.033***	-0.008
	(-3.727)	(-1.326)	(-3.747)	(-1.005)
OCF	-0.260***	-0.051***	-0.537***	-0.073***
	(-19.060)	(-3.986)	(-20.274)	(-6.132)
GRW	0.002***	0.003***	0.000	-0.057***
	(3.059)	(4.865)	(-0.535)	(-3.888)
Observations (N)	710	710	361	349
Adjusted R^2	0.395	0,201	0.630	0.308
Significance of F-test	0.000	0,000	0.000	0.000

Values in parantheses show t-satistics.
*, ** and *** significant level of %10, %5 ve %1 respectively.

The first column of Table 5 gives regression results for the whole sample by using normal values of discretionary accruals. The coefficient of VROT variable was found as positive (0.057) and statistically significant (at 0.01 significance level); this situation means that voluntary audit firm switches have a significant effect on the normal (signed) values of the discretionary accruals. After the variables in Model (2) was controlled, this circumstance proves us that there is a significant difference between companies with voluntary audit firm switches and the companies without audit firm switch in terms of discretionary accruals and audit quality. Moreover, positive marked discretionary accruals refer to the income-increasing

earnings management application in the first year of voluntary switches.

The absolute value of discretionary accruals is accepted as a good indicator to see the combined effect of income-increasing and income-decreasing earnings management applications (Warfield et al.,1995). In addition, the absolute value of discretionary accruals has a place in showing what amount the profit is managed (January 2016). Therefore, Table 5 also shows the multivariate regression results of absolute values (|DA|) of discretionary accruals. The coefficient of VROT variable was found as positive (0.043) and statistically significant (at 0.01 significance level) on the column of Table 5 relating to the absolute value of the discretionary accruals. With reference to this outcome, there is an increase in discretionary accruals and a decrease in audit quality when the companies with voluntary audit firm switch and the companies without audit firm switch are compared.

Similar to the investigations in auditing literature (Myers et al. 2003; Chi et al. 2009; Corbella et al. 2015), income-increasing (positive) and income-decreasing (negative) discretionary accruals (as the indicator of audit quality) were subjected to regression in Model (2) as the dependent variable; the third and fourth columns of Table 5 show the results obtained. As is seen in the third column of Table 5, the coefficient of VROT variable is positive (0.061) and significant at 0.01 significance level for positive discretionary accruals (DA+); the companies with voluntary audit firm switch have higher positive discretionary accruals than the companies without audit firm switch. And so, the audit quality of companies with voluntary audit firm switch actualized lower based on positive (income-increasing) discretionary accruals.

The last column gives the regression results for negative discretionary accruals (DA-). The coefficient of VROT variable actualized as negative and significant at 0.10 significance level. Significance level actualized lower based on the positive discretionary accruals as well as audit quality actualized lower as well based on the income-decreasing earnings management in the first year of the voluntary switch.

In brief, there are three remarkable findings in Table 5. The first of the findings is that there is a significant difference between companies with voluntary audit firm switch (VROT) and companies without audit firm switch (NROT) in terms of discretionary accruals (marked and absolute value) and audit quality. The second of the findings is that the companies with voluntary audit firm switch have higher positive discretionary values (income-increasing) and lower audit quality in comparison with the companies without audit firm switch. Thirdly, much as the significance level is lower than the positive discretionary accruals, there is seen a lower audit quality and income-decreasing earnings management applications via discretionary accruals in the first year of the voluntary switch.

4.3.2. Findings Relating to Discretionary Accruals Based on the Type of Audit Firm in the First Year of Voluntary Audit Firm Switch

Similar to the study of Corbella et al., (2015), after the whole sample of research was subjected to the regression, OLS multiple regression model (Model 2) was applied for both two sub-samples as big four and non-big four audit firms to test whether voluntary audit firm switches from big four to big four and non-big four audit firms differ. Moreover, the effect of

voluntary switches on big four and non-big four audit firms was also analyzed if the audit firm before the voluntary switch is one of the big four auditors. Thus, the effect of voluntary audit firm switch on audit quality (measured by earnings quality) compared to companies without

Table 6. Regression Results of Discretionary Accruals According to the Direction of Voluntary Switch

Variable	DA		|DA|		DA^+		DA^-	
	BIG_4	*NON_B4*	*BIG_4*	*NON_B4*	*BIG_4*	*NON_B4*	*BIG_4*	*NON_B4*
Constatnt	0.093***	0.035	0.065**	0.132	0.081*	0.142	-0.013	-0.613***
	(2.992)	(0.268)	(2.114)	(1.068)	(1.729)	(1.259)	(-0.414)	(-4.507)
VROT	0.083***	0.066***	0.105***	0.123***	0.087***	0.081***	0.006	-0.051**
	(8.129)	(3.089)	(10.549)	(6.163)	(7.601)	(4.892)	(0.365)	(-2.058)
PREV_B4	-0.056***	-0.000	-0.042***	-0.052	-0.055***	-0.028	-0.015	0005
	(-4.330)	(-0.008)	(-3.371)	(-1.282)	(-3.805)	(-0.967)	(-0.803)	(0.059)
SIZE	-0.002	-0.001	(-0.001)	-0.006	-0.001	-0.005	0.001	0.031***
	(-1.470)	(-0.120)	(-0.859)	(-0.966)	(-0.522)	(-0.778)	(0.616)	(4.428)
LEV	-0.037***	0.029***	-0.028***	0.032***	-0.024	0.024**	-0.037***	-0.022**
	(-3.375)	(2.776)	(-2.664)	(3.275)	(-1.587)	(1.994)	(-3.351)	(-2.593)
LOSS	-0.029***	-0.027	-0.019***	-0.018	-0.010	-0.045***	-0.020***	0.012
	(-4.644)	(-1.411)	(-3.122)	(-1.014)	(-1.128)	(-2.983)	(-3.022)	(0.595)
OCF	-0.490***	-0.226***	-0.453***	-0.215***	-0.419***	-0.568***	-0.276***	-0.033*
	(-22.962)	(-10.645)	(-21.686)	(-10.822)	(-11.933)	(-14.950)	(-10.527)	(-1.845)
GRW	0.072***	0.002**	0.074***	0.002**	0.068***	-0.001	0.039***	-0.122***
	(10.380)	(2.218)	(10.832)	(2.273)	(9.326)	(-0.944)	(2.581)	(-4.661)
Observ. (N)	466	244	466	244	212	149	254	95
Adjusted R^2	0.624	0.364	0.638	0.425	0.584	0.700	0.303	0.500
*F-test (p*value)	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

Values in parantheses show t-statistics.

*, ** and *** significant level of %10, %5 ve %1 respectively.

audit firm switch (NROT) was tested by separately operating Model (2) for the changes to big four and non-big four audit firms; Table 6 shows the results.

The first column of Table 6 shows the regression results that were obtained by using normal values of discretionary accruals (DA) as the dependent variable for the voluntary changes to big four and non-big four audit firms. According to this, the coefficient (0.083) of VROT variable relating to voluntary changes to big four audit firms was found as positive and statistically significant (at 0.01 significance level). Similarly, the coefficient of VROT variable relating to the voluntary changes to non-big four audit firms occured positive (0,066) and statistically significant. This result proves us that there is applied earnings management via discretionary accruals in the first year of voluntary switches to both big four and non-big four audit firms; accordingly, we can talk about the low audit quality at the same time. On the other hand, being higher the VROT coefficient (0,083) in switches from big four to big four than VROT coefficient (0,066) in switches from big four to non-big four audit firms refer that the discretionary accruals in switches are higher and the audit quality is lower. In addition to this, the effect based on the direction of the switch was analyzed by using PREV_B4 variable because of the probability of actualizing the voluntary audit firm switches from big four to big four ones were carried out from big four to big four ones or from non-big four audit firms to big four ones. Table 6 shows the results relating to the effect of voluntary switches for big four and non-big four audit firms on the audit quality via discretionary accruals in case of the previous audit firm is one of the big fours. The coefficient of the PREV-B4 variable on the first column of Table 6 is negative and significant for switches from big four to big four; insignificant for the switches from big four to non-big four audit firms. This result means that prior to the change, the audit firm is one of the big four ones, discretionary accruals are restricted in companies audited by big four audit firms in the first year of the change in the audit firm, and so, the audit quality improves. In other words, while there is an increase in audit quality for voluntary audit firm switches from big four to big four; the changes from big four to non-big four audit firms have no effect on the discretionary accruals and the audit quality. This result can be commented as there occurs an increase in audit quality in the switches from big four to big four; there occurs a decrease in audit quality in the switches from non-big four to big four.

The second column of Table 6 gives the regression results that were obtained by using absolute values of discretionary accruals (|DA|) as the dependent variable for the voluntary switches from big four to big four and non-big four audit firms. The coefficient of VROT variable relating to voluntary switches to both big four and non-big four audit firms was relatively found as 0.105 and 0.123; the coefficient is positive and statistically significant at 0.01 significance level. This result shows us there is applied earnings management via discretionary accruals in the first year or voluntary switches from big four to big four and non-big four audit firms; accordingly, a low audit quality is observed. Moreover, Table 6 also gives the results relating to the effect of voluntary switches from big four to big four and non-big four audit firms on the audit quality by subjecting the voluntary switches with the absolute value of discretionary accruals to the regression. As is seen in the second column of Table 6, the coefficient of PREV_B4 variable was found as negative (-0.042) and significant for the switches from big four to big four; the relevant coefficient actualized as insignificant (-0.052) for the switches to non-big four audit firms. According to this result, discretionary values with absolute value are restricted

in companies that are audited by big four audit firms in the first year of audit firm switch if the audit firm before the switch is one of the big four; so, the audit quality improves. While there is observed an increase in audit quality in voluntary audit firm switches from big four to big four, there is no significant effect on discretionary accruals and audit quality in audit firm switches from big four to non-big four audit institutions. It can be said when the coefficient of VROT variable and its significance are evaluated together that the switches from big four to big four increase the audit quality; the switches from non-big four to 4 big four audit firms decrease the audit quality.

The third column of Table 6 gives the regression results that were obtained by using positive discretionary accruals (DA+) as the dependent variable for voluntary switches from big four to big four and other audit firms. The coefficient of VROT variable relating to voluntary switches to big four for positive discretionary accruals was found as positive (0.087) and statistically significant at 0.01 significance level. Similarly, the coefficient of VROT variable relating to voluntary switches to other audit firms was found as positive (0.081) and statistically significant. This result shows that earnings management is implemented through discretionary accruals in the first year of voluntary changes to both big four and non-big four audit firms; accordingly, there is also observed the low audit quality at the same time. On the other hand, VROT coefficient (0.087) relating to switches from big four to big four actualized as higher than VROT coefficient (0.081) relating to switches from big four to non-big four audit organizations. This result emphasizes that discretionary accruals actualize as higher and the audit quality actualizes as lower in switches from big four to big four audit firms. In addition to all these, the third column of Table 6 gives the results relating to the effect of voluntary switches on the audit quality via positive discretionary accruals in case of the audit firm before the switch is one of the big four auditors. In this context, the coefficient of PREV_B4 variable actualized as negative (-0.055) and significant for the switches from big four to big four; the relevant coefficient actualized as insignificant for the switches from big four to non-big four audit firms. According to this result, income-increasing discretionary values are restricted in companies that are audited by big fours in the first year of audit firm switch if the audit firm before the switch is one of the big four; so, the audit quality improves. In another saying, while there is seen an increase in audit quality for voluntary audit firm switches from big four to big four, the changes from big four to non-big four audit firms have no effect on the positive discretionary accruals and the audit quality. This result can be evaluated as there occurs an increase in audit quality in the switches from big four to big four; there occurs a decrease in audit quality in the switches from non-big four audit firms to big fours.

The fourth column of Table 6 gives the regression results that were obtained by using negative discretionary accruals (DA-) as the dependent variable for voluntary switches to big four and non-big four audit firms. The coefficient of VROT variable relating to voluntary switches from big four to big four for negative discretionary accruals was found as insignificant (0.006); coefficient of VROT variable relating to voluntary switches from big four to non-big four audit organizations actualized as negative (-0.051) and significant at 0.05 significance level. This result suggests that there is not a significant relationship between audit firm switches from big four to big four and negative discretionary accruals; however, there is a significant relationship between voluntary switches from big four to non-big four audit firms and the audit quality.

Thus, audit quality occured as lower based on the income-decreasing earnings management applications in the first year of the voluntary switch. Furthermore, the fourth column of Table 6 gives the results relating to the effect of voluntary switches from big four to big four and other audit firms on the audit quality via negative discretionary accruals in case of the audit organization before the switch is one of the big fours. The coefficient of PREV_B4 variable was found as statistically insignificant for the switches to both big four and non-big four audit firms. In other words, voluntary changes both from big four to big four and from big four to non-big four audit institutions have no significant effect on the audit quality and income-decreasing negative discretionary accruals.

In brief, there are four remarkable findings in Table 6. The first of the findings is that the voluntary switches from big four to both big four and non-big four audit firms have a significant effect on normal (marked), absolute value and positive discretionary accruals. The second of the findings is that the audit firm switches from big four to big four more increased the positive discretionary accruals and decreased the audit quality in comparison with the switches from big four to non-big four audit firms. The third of the findings is that discretionary accruals (normal, absolute and positive) are restricted in the first year of voluntary audit firm switches from big four to big four; so, audit firm switches have a positive effect on the audit quality. There is no significant effect on discretionary accruals and audit quality for the switches from big four to non-big four audit switches. The fourth of the findings is that there is an increase in negative discretionary accruals (income-decreasing) and a decrease in audit quality for voluntary switches from big four to non-big four audit firms.

5. CONCLUSION

Audit firm switches can take place as mandatory and voluntary; there also may occur effects of those changes on the audit quality. It is important to analyze the effects of such switches on the audit quality when we consider that voluntary audit firm switches may actualize within the scope of audit opinion shopping or toward to manage the earnings for a variety of reasons. Therefore, this paper investigated whether the voluntary audit firm switches have an effect on audit quality in the sample of manufacturing industry companies that are traded in BIST between the years of 2011 and 2016.

Regression results show that there is a significant difference between companies with voluntary audit firm switch and companies without audit firm switch in terms of discretionary accruals and audit quality. Thus, it is observed that there are higher positive (income-increasing) discretionary accruals of companies with voluntary audit firm switch compared to the companies non-audit firm switch. Moreover, the significance level is lower in comparison with positive discretionary accruals as well as there are lower audit quality and income-decreasing earnings management in the first year of the switch via the discretionary accruals. With reference to these findings above, there is an increase in earnings management and a decrease in audit quality via income-increasing discretionary accruals in the first year of voluntary audit firm switches.

In order to determine the effect of the type of audit firm on the increase in the discretionary

accruals in the first year of the voluntary audit firm change and the decrease in audit quality, discretionary accruals (normal, absolute, positive and negative) in the first year of voluntary changes to big four and non-big four audit firms were separately regressed. The regression results show that voluntary switches to both big four and non-big four audit firms have an significant effect on normal (marked), absolute value and positive discretionary accruals, and consequently on the quality of audit.

The effect based on the direction of the switch was also analyzed to increase the reliability of the research results because of the probability of realizing the voluntary audit firm switches for big four audit firms from big four to big four or from non-big four to big four auditors. Thus, in the case where the previous audit firms is big four audit firms, the impact of voluntary changes to big four and non-big four audit firms on audit quality were also examined. Within this framework, we can say that discretionary accruals are restricted in the first year of voluntary audit firm switches from big four to big four; there is also a positive effect on the audit quality. However, there is no significant effect on discretionary accruals and audit quality in switches from big four to non-big four audit firms.

This research has limitations in terms of the following reasons; only the voluntary audit firm switches in manufacturing industry companies that are traded in BIST were analyzed in this paper; only the income table approach and Kothari Model were used in computing the discretionary accruals; it is contradictive that whether discretionary accruals which are accepted as proper for income earnings measurement are the reliable measurement. However, since this paper only analyzed the relationship between voluntary audit firm switches and audit quality and also discretionary accruals were used as the indicator of the audit quality, it is possible for future studies to perform analyses by using alternative measures that can be used as the indicator of audit quality. Moreover, the future studies should also perform analyses to compare the discretionary accruals of companies with voluntary audit firm switches and companies without audit firm switches.

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