



## The Impact of Auditor Qualifications on Earnings Management of Companies Listed on the Borsa Istanbul Industrial Index\*

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**Abstract:** *This research aims to reveal whether independent auditor's (as the real person and the legal entity) qualifications (audit firm size, audit opinion, audit gender, audit firm specialization, audit firm rotation, geographical difference) have any effect on earnings management via discretionary accruals and real activities manipulations by using a panel data regression analyses of 162 units over 5 years (2011-2015). According to the results, independent auditor qualifications (audit firm and engagement partner) has no impact on the real activities manipulation. The results show that an independent audit by Big-4 firms has a decreasing effect on discretionary accruals. Earnings management via discretionary accruals increases when the local audit firms conduct the audit. The audit firms with diversified expertise decrease the earnings management via accruals. The results also confirm that disclaimer of opinion signals an increase in the discretionary accruals in Borsa Istanbul.*

**Keywords:** Independent Audit, Discretionary Accruals, Business Activity Manipulation, Earnings Management, Manufacturing Companies, Panel Data Analysis

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### 1. Introduction

Audit quality depends on the corporate governance of the reporting entity and auditor. Auditor signals two different bodies in this context: the audit firm and engagement partner. Audit firm's effect depends on its size, client portfolio, staff, and training programs. On the engagement partner side, knowledge of the profession, client, and industry are critical inputs to the auditor's ability to detect material misstatements. Auditors maintain their qualifications with education, training, examination, and experience (Allen & Woodland, 2010; Johnson, Khurana, & Reynolds, 2002). For industries having specialized contracts and accounting technologies, auditor industry specialization will lead to a higher level of audit assurance compared to audits performed in those industries by non-specialist auditors (Craswell, Francis, & Taylor, 1995). The auditor can have expertise in a specific industry, and it will create an upper-hand for the auditors to detect the misstatements specific to the client's industry (Moroney, 2007).

The audit is a business that serves the public interest. Commercial concerns create a competition among the accounting firms. Behn, Carcello, Hermanson, & Hermanson (1999) define the audit profession's intense and increasing competition as a *Darwinian jungle* (emphasis added). Audit conducted by a Big-4 build insurance coverage on litigation and a diversified portfolio that comprises a power to push back pressure to the client's management on aggressive accounting practices while smaller audit firms can face pressure from

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individual clients because they depend on some important clients (Boone, Khurana, & Raman, 2010; Ding & Jia, 2012; Kim, Chung, & Firth, 2003). Big-4 provide globally consistent audit service among its clients because their auditors gain extensive expertise by knowledge from information technology supported training, standardized audits, and firm-wide knowledge sharing practices performing in large and complex clients (Francis & Wang, 2008; Francis & Yu, 2009; Zerni, 2012).

An audit report is a firm-specific letterhead as the audit firm the monolithic entity and the auditor's opinion and signature in the case of litigation (Chow & Rice, 1982; Reichelt & Wang, 2010; Taylor, 2011). The opinion provides the assurance for the interested parties to evaluate the financial statements in conformity with their benefits (Braiotta, 2005; Zhu & Sun, 2012; Knechel, 2013). Firm size, financial condition and internal control related findings can cause a going-concern (GC) modified opinion (Vermeer, Raghunandan, & Forgione, 2013). Significant differences exist in the discretionary accruals of going-concern and non-GC firms (Arnedo, Lizarraga, & Sánchez, 2008). Explanatory paragraphs in the audit reports may not be a point of interest for non-professional investors (Christensen, Glover, & Wolfe, 2014) and they result as a restatement (Czerney, Schmidt, & Thompson, 2014). In a regulatory system when shareholders' rights protections are high, auditors act more conservatively (Firth, Mo, & Wong, 2014) and issuing a modified opinion can protect the auditors from legal actions (Mong & Roebuck, 2005).

Gender effect on the reporting quality attracts the accounting literature. Gender discrimination exists in accounting textbooks via the homework items, pictures, and stories (Tietz & State, 2007). Female auditors' tenure in the accounting firm, performance ratings and depend on their academic background (Chi, Huguen, Lin, & Lisic, 2013). Accounting firms' partner gender composition and ethical climates reduce gender discrimination in the firm (Dalton, Cohen, Harp, & McMillan, 2014). Female auditors (Breesch & Branson, 2009; Ittonen, Vähämaa, & Vähämaa, 2013) and female executives (Peni & Vähämaa, 2010) are more risk-averse than their male counterparts, and they have a constraining effect on earnings management.

In many countries, regulators consider mandatory audit partner rotation as a mechanism to enhance auditor independence by reducing partner-client familiarity and bringing in fresh perspectives (Firth, Rui, & Wu, 2012). Regulators see the mandatory rotations as a precaution against a close relationship between the auditor and the client that might damage the integrity of the financial statements (Chi, Huang, Liao, & Xie, 2009). Marnet (2008) claims mandatory rotation of audit firm would reduce the potential conflicts of interest by escalating a commitment to the reporting entity before making a prior judgment. Mandatory partner rotation may increase independence, but the auditor loses client-specific experience and will results as a client-specific knowledge loss if the audit firm is rotated (Daugherty, Dickins, Hatfield, & Higgs, 2012; Firth, Rui, & Wu, 2012). There is another issue about studies based on rotation; it is not clear whether the problem of the audit quality and auditor tenure relationship can be solved with mandatory rotation due to most of the evidence in the accounting literature on the effects of audit firm rotation (Bamber & Bamber, 2009; Johnson et al., 2002).

The objective of the research is to reveal the relationship between Turkish auditor qualifications and earnings management practices of manufacturing companies listed in Borsa İstanbul. The primary auditor qualifications are two bodies as the real person (gender, audit opinion) and the legal entity (audit firm size, geographical difference, rotation and industry specialization). To my knowledge, this is the first research that evaluates engagement partner gender, audit firms except for Big4, audit opinions except for unqualified, geographical differences and audit expertise in Turkey's context. The auditor qualifications are dummy variables, and they constitute the independent variables of the research. Earnings management via discretionary accruals and real activities manipulations are the dependent variables of the research. Discretionary accruals are the absolute estimation of Kothari, Leone, & Wasley's (2005) (KLW hereafter) "Performance Matched Discretionary Accruals" model. Real activities manipulations are the estimations of Roychowdhury's (2006) five-step model. This research uses a sample of Turkish listed manufacturing companies for a period between 2011 and 2015.

This research contributes to the global accounting literature by providing insights from an emerging market. The results also highlight the apparent difference in discretionary accruals between Big-4 and other

audit firms. According to the statistical analysis, Big-4 have a decreasing effect on earnings management via discretionary accruals. The results also reveal that an audit by a local audit firm signals upward discretionary accruals. Disclaimer of opinion also signals earnings management upwards via accruals for Turkish listed manufacturing companies. According to the results, no statistical differences exist between male and female auditors concerning the discretionary accruals. The results also confirm that none of the auditor qualifications affects earnings management.

This research begins with the definition of the theoretical background of the audit quality and continues with Turkey's audit setting in the second section. Literature review and hypothesis development are in the third section. Methodology, sample, and model design are in the fourth section. The fifth section provides insights into descriptive statistics, correlation matrix, and econometric analyses. The sixth section concludes the results of this research.

## 2. Turkey's Audit Setting

Turkish law is a civil system originated from Italian, Swiss, French and German law systems. Turkey does not have a national GAAP, and Turkish tax law is the bookkeeping framework for the private companies. Public interest entities are subject to audit, and they use two-book (tax law and Turkish Financial Reporting Standards, TFRS hereafter) system. Turkey is a membership candidate in the European Union, and due to the Union's regulations, Turkish listed companies have been preparing their financial statements following International Financial Reporting Standards (IFRS) since 2005. IFRS were translated to Turkish as TFRS by Public Oversight, Accounting and Auditing Standards Authority (POAASA, KGK in Turkish). Capital Markets Board (CMB, SPK in Turkish) is responsible for enforcing the laws and regulating other activities in the capital markets. Listed companies' audit and corporate governance are under the authorization of CMB. Listed companies and investment funds disclose their notifications through the Public Disclosure Platform (PDP, KAP in Turkish). Listed companies and authorized audit firms are available on PDP's website ([www.kap.gov.tr/en](http://www.kap.gov.tr/en)).

There are two types of the accounting profession in Turkey: Certified Public Accountant (CPA) and Sworn-in Certified Public Accountant. Law numbered 3568 define the requirements of the accounting profession. The one must meet the general, and special conditions specified articles 4 and 5 to be a CPA and article 9 to be a Sworn-in CPA. Professional certification is under the authorization of Union of Chambers of Certified Public Accountants and Sworn-In Certified Public Accountants of Turkey (TURMOB in Turkish). Holding the CPA title is not enough to audit the companies. Independent audit authorization is subject to different bodies' regulations in Turkey. CMB Communiqué Serial X, No: 22 identifies the authorization for auditing listed companies and a similar regulation by POAASA dated 25.01.2013 (Official Gazette number 28539) is for the authorization of auditing public interest entities. Financial institutions' audit is subject to Ministry of Treasury and Banking Regulation and Supervision Agency (BRSA, BDDK in Turkish). Accounting firms can provide tax advisory service to their audit clients and bookkeeping and consulting services to their non-audit clients.

KGK issued a resolution on December 26, 2012, that defines the independent audit requirements for Turkish public interest entities. According to the Resolution, listed companies, banks, insurance companies, brokerage houses, financial institutions (factoring, leasing, financing and rating companies), investment funds and companies that are recognized as a public interest entity by KGK. The number of employees, total assets and revenue are the criteria to recognize a company as a public interest entity. KGK recognizes the company as a public interest entity, if a company meets two of three criteria during two consecutive financial years. KGK decrease the threshold of each criterion over the years to increase the number of companies subject to the independent audit. The number of employees was 500 or more in 2013, in 2018, KGK reduced the criteria to 250 or more. Total asset was 150 million ₺ or greater in 2013, decreased to 40 million ₺ or greater in 2018. Revenue was 200 million ₺ or greater in 2013, lessened to 80 million ₺ or greater in 2018.

### 3. Literature Review and Hypothesis Development

Big-4 firms have always been subject to appraisal and criticism in the accounting literature. Their financial strength, variety of clients, diversity in industry specialization, global networks and in-firm education are assumed to create a constant incline in audit quality (Bishop, Hermanson, & Houston, 2013; Boone, Khurana, & Raman, 2015; Cassell, Giroux, Myers, & Omer, 2013; Chen, Hsu, Huang, & Yang, 2013; Doukakis, 2014; Francis, Michas, & Yu, 2013; Karaibrahimoğlu, 2010; López, Rich, & Smith, 2013; Ocak, 2012; Reheul, Van Caneghem, & Verbruggen, 2013; Whitworth & Lambert, 2014). Accounting scholars criticize equalizing the audit firm name to the high quality of the audit. Knechel, Naiker, & Pacheco (2007) criticize using the audit firm brand name as an audit quality proxy, Che-Ahmad & Houghton (1996) state price differences is the evidence of the Big N's oligopoly instead of the higher quality of the audit. Marnet, (2008) criticizes the "reputation" term that substitutes Big-4 for the success or the purpose that creates the "reputation."

H1<sub>0</sub>: Audit firm brand name does not affect earnings management via accruals.

H1A<sub>0</sub>: Big4 audit firms do not affect earnings management via accruals.

H1B<sub>0</sub>: Audit firms with international memberships do not affect earnings management via accruals.

H1C<sub>0</sub>: Audit firms without international memberships do not affect earnings management via accruals.

Subject to audit opinion type, it provides assurance for the decision makers. The main concern about the unqualified opinion is outsiders do not have any options to evaluate the auditor and her/his audit process in order to express opinions about the financial statements (Arnedo et al., 2008; Firth et al., 2014; García Blandón & Argilés Bosch, 2013; Mong & Roebuck, 2005; Vermeer et al., 2013).

H2<sub>0</sub>: Audit opinion type does not signal earnings management via accruals.

H2A<sub>0</sub>: Unqualified audit opinion does not signal earnings management via accruals.

H2B<sub>0</sub>: Qualified audit opinion does not signal earnings management via accruals.

H2C<sub>0</sub>: Disclaimer of opinion does not signal earnings management via accruals

Geographical differences are not investigated frequently in the accounting literature, and in this research, I assume that any locational difference between the client and the auditor will damage the quality of the audit service. Two studies investigated the geographical distances in auditing. Hanes (2013) put forward that in geographically distributed work arrangements, motivational and relational features of work are likely to be altered by the audit team members' work practices and social identity. His evidence showed that work performed in geographically distributed audits is likely different than in traditional work arrangements. Choi, Kim, Qiu, & Zang (2012) proved that geographic proximity has a positive impact on audit quality.

H3<sub>0</sub>: Geographical difference between the auditor and the client does not affect earnings management via accruals.

Auditor's gender effect has always attracted accounting scholars, and female auditors are assumed to be more conservative and risk than male counters. Auditors go through the same process to earn the title and there are different studies focusing on the gender-related issue, such as discrimination (Chi et al., 2013; Dalton et al., 2014; Tietz & State, 2007) and risk-aversion (Breesch & Branson, 2009; Ittonen et al., 2013; Peni & Vähämaa, 2010).

H4<sub>0</sub>: Auditor's gender does not affect earnings management via accruals.

A general belief is that shorter tenure will protect the auditors' independence and help them issue the opinion they want without any economic hesitation (Choi, Choi, Gul, & Lee, 2015; González-Díaz, García-Fernández, & López-Díaz, 2015; Lennox, Wu, & Zhang, 2014). Auditor's understanding of a client will take time and it may result in the favor of the client, while the auditor might not be able to discover potential misstatements caused by auditor's adjustment to the client (Bandyopadhyay, Chen, & Yu, 2014; Cameran,

Francis, Marra, & Pettinicchio, 2015; Ewelt-Knauer, Gold, & Pott, 2013; Jenkins & Velury, 2012; Kwon, Lim, & Simnett, 2014).

H5<sub>0</sub>: Audit firm rotation does not signal earnings management via accruals.

Auditor's industry specialization increases the value of the financial statements and provides a higher assurance for the financial statement users (Habib & Bhuiyan, 2011; Zerni, 2012).

H6<sub>0</sub>: Audit firm industry specialization does not affect earnings management via accruals.

Company's earnings management via business activities are not under the auditor's responsibility on the financial statements. The auditor evaluates the evidence to determine and report the fairness of the stated data's confirmation with the predetermined criteria, which means the auditor has no right to interfere with the management styles or marketing strategies of the reporting entity. Visvanathan (2008) showed that board or committee characteristics have no significant effect on constraining real activity manipulations. Ocak (2012), in his real activities manipulation model, used the audit firm brand and the tenure period as the independent variables among others, and his results showed that there is no relationship between these qualities and real activities manipulation. Different than these two studies, Kim & Park (2014) researched a correlation between auditor resignations and real activities manipulation and the results indicate that auditor resignations' prospects are positively associated with the clients' opportunistic operating decisions, apart from overproduction.

H7<sub>0</sub>: Auditor qualifications do not affect earnings management via real activity manipulations.

#### **4. Methodology**

The research attempts to explain the independent auditor's qualifications impact on Turkish listed manufacturing companies' earnings management (via discretionary accruals and real activities manipulation). Discretionary accruals are the estimation of K LW (2005) "Performance Matched Discretionary Accruals" model. Real activities manipulation is the sum of Roychowdhury's (2006) models' estimations. Both estimations are the magnitudes of the earnings management and dependent variables of the research. Independent auditor is subject to two bodies. As a real person, she/he is the engagement partner. The audit firm is the legal entity. The qualifications are the selected explanatory variables to reveal whether these qualities have any impact on earnings management. Audit-based independent variables are dummy variables. More than two categories exist for audit firm (Big4, Second-Tier, Audit Firm with International Membership and Local Audit Firms) brand and audit opinion (Unqualified, Qualified, Adverse and Disclaimer of Opinion). The qualifications of the legal entity are brand, city difference with the client, in-or-out-rotation, and specialization statement on industries. Qualifications for the real person are opinion expressed and engagement partner's gender.

##### **4.1. Research Sample**

The data obtained in this research have two dimensions; units are collected for their qualifications at a specific time, and these qualifications vary over time. Qualifications, marked as the independent variables, were collected from different resources and their effect on the dependent variables was tested. This section covers the research's sample and models. This study consists of testing earnings management models for all manufacturing companies listed in Borsa İstanbul for the period between 2011 and 2015. I obtained data required for research hypotheses from different resources. Finnet Financial Analysis software was used to download financial data. Independent audit data was hand-collected from the companies' annual reports. Due to the trading ban or bankruptcy of some companies, required data were not available neither in their official websites nor in the Public Disclosure Platform. I visited audit firms' websites and downloaded the transparency reports for their expertise disclosures. Also, some audit firms were dissolved, and their data were not available in the sample. Required data were found for 162 companies. The dataset is unbalanced, and it covers 721 observations.

**Table 1.** Research Sample

	N
Maximum Firm*Year Observations	810
Less: Missing Data	89
Total of Firm*Year Observations	721

## 4.2. Model Design

Two models are used to estimate the independent auditor's impact on the earnings management via discretionary accruals. The first model (Equation 1) tests auditor's qualifications with discretionary accruals as the dependent variable (*YDA*). Real activities manipulation (*YRAM*) replaces discretionary accruals (*YDA*) in the second model (Equation 2). Details about the variables can be found in Appendix 1. To retain the model from the dummy variable trap, I removed "second-tier global audit firms" and "adverse opinion" from their categories because they have the least firm\*year observations in their categories.

$$YDA_t = \alpha_0 + \alpha_1 BIG4_t + \alpha_2 NETW_t + \alpha_3 LOC_t + \alpha_4 UNQ_t + \alpha_5 QUAL_t + \alpha_6 DISC_t + \alpha_7 CDIFF_t + \alpha_8 GEN_t + \alpha_9 ROTA_t + \alpha_{10} SPEC_t + \beta_1 CVOCF_{it} + \beta_2 CVLEV_{it} + \beta_3 CVBTM_{it} + \beta_4 CVROE_{it} + \beta_5 CVROA_{it} + \varepsilon_t \quad (1)$$

$$YRAM_t = \alpha_0 + \alpha_1 BIG4_t + \alpha_2 NETW_t + \alpha_3 LOC_t + \alpha_4 UNQ_t + \alpha_5 QUAL_t + \alpha_6 DISC_t + \alpha_7 CDIFF_t + \alpha_8 GEN_t + \alpha_9 ROTA_t + \alpha_{10} SPEC_t + \beta_1 CVOCF_{it} + \beta_2 CVLEV_{it} + \beta_3 CVBTM_{it} + \beta_4 CVROE_{it} + \beta_5 CVROA_{it} + \varepsilon_t \quad (2)$$

## 5. Data Analysis and Results

The fifth section reports the descriptive statistics, correlation matrixes and regression analyses of the models.

### 5.1. Descriptive Results

Table 2 summarizes the descriptive statistics of the financial variables. Discretionary accruals (*YDA*) are the absolute of the KLV model's estimations. *YRAM* is the absolute of Roychowdhury (2006) model's estimations. *YRAM* observations are less than *YDA* due to the model requirements of Roychowdhury (2006). Except for book-to-market (*CVBTM*), standard deviation floats between 0.11 (for Return on Asset, *CVROA*) and 0.22 (for Leverage, *CVLEV*). Compared to the other variables, standard deviation and mean are higher for book-to-market (*CVBTM*) than other variables due to its nature. Absolute of discretionary accruals (*YDA*) and real activities manipulations (*YRAM*) do not report negative observations because absolute values are used. Negative observations are only available for operating cash flow (*CVOCF*), return on equity (*CVROE*) and return on asset (*CVROA*). Minimum values for *CVOCF* (-1.14) and *CVROA* (-1.11) belong to the same company (Dardanel, 2011) for which the auditor expressed a disclaimer of opinion.

Table 3 reveals a perspective on the Turkish audit market. In the total of 721 audits over 5 years, market leadership belongs to the Big-4, as they audited 55% of the listed manufacturing companies in Turkey. During 2011 to 2015, 85% of audit reports were issued with an unqualified opinion, and disclaimer opinion was observed in 6 firms. Of audits, 282 of 721 (39%) were executed by female auditors. Of the total audits, 59% were conducted in the same city. Audit firms rotated 258 times in 5 years. Of the audits, 60% were completed by audit firms who stated their variety of expertise on their websites.

**Table 2.** Descriptive Results for Financial Variables

Variable	N	Min	1Q	Mean	3Q	Max	StDev
YDA	721	0.00	0.04	0.12	0.14	1.77	0.16
YRAM	715	0.00	0.12	0.24	0.31	0.92	0.15
CVOCF	721	-1.14	-0.03	0.07	0.17	1.00	0.33
CVLEV	721	0.02	0.28	0.44	0.61	0.95	0.22
CVBTM	721	0.17	0.84	1.77	2.20	6.94	1.31
CVROE	721	-0.89	0.00	0.06	0.16	1.60	0.21
CVROA	721	-1.11	-0.01	0.03	0.09	0.84	0.11

**Table 3.** Frequencies of Dichotomous Variables in Audit Firm Rotation Model

	BIG4	NETW	LOC	UNQ	QUAL	DISC	CDIFF	GEN	ROTA	SPEC
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1Q	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	0.55	0.30	0.09	0.87	0.12	0.01	0.41	0.39	0.36	0.60
3Q	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
MAX	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
STDEV	0.50	0.46	0.28	0.34	0.33	0.09	0.49	0.49	0.48	0.49
N	721	721	721	721	721	721	721	721	721	721

## 5.2. Correlation Matrix

Table 4 reports the correlation matrix for the independent variables. According to the table, there are highly correlated two couple of variables. Big-4 variable (BIG4) is highly correlated with audit firm industry specialization (SPEC). Unqualified (UNQ) and qualified (QUAL) opinions are highly negatively correlated. Although UNQ and QUAL belong to the opinion category, BIG4 and SPEC do not belong to the same category. In other words, if the auditor does not express an unqualified opinion, a qualified opinion is one of the three possibilities for the financial statements. On the other hand, the audit firm's industry specialization depends on the partners' expertise in a specific industry, and it is not directly related with audit firm size. Also, the audit firm's industry specialization is crucial for the earnings management practices and financial statements' value relevance (Habib & Bhuiyan, 2011; Moroney, 2007; Zerni, 2012). Auditor's specialization helps her/him to detect the material misstatements specific to the industry. As mentioned earlier, the audit firm's industry specialization and its effect on the earnings management did not take attention in the Turkish accounting literature. It was highly important for this study to observe the effect of the audit firms' industry specialization expertise diversification. Regarding the importance of the industry specialization, I run models with keeping SPEC but eliminating QUAL.

Table 4. Correlation Table for Independent and Control Variables

	BIG4	NETW	LOC	UNQ	QUAL	DISC	CDIFF	GEN	ROTA	SPEC	CVBTM	CVLEV	CVOCF	CVROA	CVROE
<b>BIG4</b>	1.00														
<b>NETW</b>	-0.64	1.00													
<b>LOC</b>	-0.43	-0.23	1.00												
<b>UNQ</b>	0.15	-0.15	-0.04	1.00											
<b>QUAL</b>	-0.13	0.14	0.03	-0.97	1.00										
<b>DISC</b>	-0.08	0.06	0.05	-0.23	-0.02	1.00									
<b>CDIFF</b>	0.09	-0.11	0.04	0.05	-0.04	-0.02	1.00								
<b>GEN</b>	0.09	-0.05	-0.13	-0.04	0.04	0.03	-0.12	1.00							
<b>ROTA</b>	-0.14	0.13	0.04	-0.11	0.10	0.07	-0.06	0.08	1.00						
<b>SPEC</b>	0.82	-0.53	-0.41	0.18	-0.17	-0.06	0.06	0.03	-0.15	1.00					
<b>CVBTM</b>	0.18	-0.13	-0.07	0.06	-0.04	-0.08	-0.01	0.07	-0.02	0.18	1.00				
<b>CVLEV</b>	0.03	0.01	-0.06	-0.06	0.05	0.03	-0.08	0.06	0.04	-0.02	0.13	1.00			
<b>CVOCF</b>	0.15	-0.11	-0.09	0.08	-0.06	-0.07	0.03	0.04	-0.04	0.14	0.01	-0.12	1.00		
<b>CVROA</b>	0.13	-0.05	-0.13	0.09	-0.09	-0.01	-0.03	0.05	-0.03	0.16	0.05	-0.26	0.12	1.00	
<b>CVROE</b>	0.09	-0.05	-0.06	0.10	-0.10	-0.02	-0.02	0.02	-0.03	0.12	-0.02	-0.33	0.15	0.43	1.00

**Note 1:** BIG4: Big-4 Audit Firms, NETW: Audit Firms w/ Int. Membership, LOC: Local Audit Firms, DISC: Disclaimer of Opinion, UNQ: Unqualified Opinion, CDIFF: City Difference, GEN: Auditor Gender, ROTA: Audit Firm Rotation, SPEC: Specialist Auditor, CVBTM: Book-to-Market Ratio, CVLEV: Leverage, CVOCF: Operating Cash Flow, CVROA: Return on Assets, CVROE: Return on Equity



### 5.3. Regression Results

Discretionary accruals model comprises 721 observations. Real activities manipulation model contains 715 observations. Both models are for 5 years and 162 units. I tested both models for the effects verdict. I ran LM Breusch-Pagan test for the choice between pooled or random effects. The probability values of the tests were less than 0.05. I ran Hausman test for the choice between pooled and fixed effects. The tests' probability values were less than 0.05. I ran the models with fixed effects depending on the results of the Hausman test. After the effect verdict, heteroskedasticity was in the models. I didn't utilize the Pasaran test for cross-section correlation because years multiplied with cross-section units ( $5 \times 162 = 810$  observations) is greater than the number of observations (721 and 715) calculated in the models. Independent variables with p-values between 0.01 and 0.10 reject the null hypothesis. When qualified opinion (*QUAL*) replaces unqualified opinion (*UNQ*), *QUAL* resulted insignificantly, but other variables didn't result differently.

Table 5 reports the results statistical results for the models run. The results show that discretionary accruals decrease when the audit is conducted by Big-4 (*BIG4*). On the other hand, earnings management via discretionary accruals increases when local audit firms (*LOC*) conduct the audit. As expected, disclaimer of opinion (*DISC*) signals an increase in earnings management via discretionary accruals. Compared to the other variables, it has the highest coefficient. Audit firms with expertise statement (*SPEC*) also decrease the earnings management via discretionary accruals. Although second-tier audit firms are not available as an independent variable, they exist in the observations due to *SPEC* variable. Their audit specialization is available on their website and transparency reports. *SPEC* variable also contains observations from audit firms with international membership and local audit firms. When the real activities manipulation (*YRAM*) replaces the discretionary accruals (*YDA*) as the dependent variable, audit-based variables result insignificant.

**Table 5.** Regression Analyses

DV=YDA	Coeff	t-Statistic	DV=YRAM	Coeff	t-Statistic
BIG4	-0.03	-1.86*	BIG4	0.02	0.45
NETW	0.01	1.00	NETW	0.03	0.96
LOC	0.03	1.67*	LOC	0.00	0.11
UNQ	-0.01	-1.08	UNQ	0.01	0.37
DISC	0.12	2.42**	DISC	0.08	1.38
CDIFF	0.01	0.81	CDIFF	0.02	1.59
GEND	0.00	0.42	GEND	0.00	-0.44
ROTA	0.00	-0.32	ROTA	0.02	1.44
SPEC	-0.05	-3.57***	SPEC	0.01	0.39
CVBTM	0.01	2.18**	CVBTM	0.02	3.04***
CVLEV	0.01	0.70	CVLEV	0.05	1.51
CVOCF	-0.02	-1.33*	CVOCF	0.01	0.39
CVROA	0.03	0.15	CVROA	-0.05	-0.59
CVROE	0.00	-0.12	CVROE	0.03	1.02
T		5	T		5
n		162	n		162
N		721	N		715
Years Fixed		Yes	Years Fixed		Yes
Firms Fixed		Yes	Firms Fixed		Yes
p-value		0.00	p-value		0.09
Adjusted R-sq		0.06	Adjusted R-sq		0.01

Addition to the audit-based variables, financial variables are also reported in the table. According to Table 5, Turkish listed manufacturing companies use discretionary accruals and real activities manipulations to increase their market value (*CVBTM*). In the real activities manipulation model, other financial variables are insignificant. According to the results, discretionary accruals decrease when the operating cash flow (*CVOCF*) increases.

## 6. Conclusion

The main section of this research ends with the conclusion. This research aims to reveal whether the auditor qualifications decrease the earnings management practices in Turkish listed manufacturing companies. I measured earnings management via discretionary accruals and real activities manipulations. This paper evaluates auditor qualification as two bodies: a real person (engagement auditor) and legal entity. Real person qualifications are gender and the expressed opinion. Legal entity qualifications are audit firm size, the geographical difference with the client, rotation and industry specialization. These qualifications constitute the hypotheses and independent variables of the research. Independent variables are dummy variable that has two more categories. Except for the audit firm size and opinion, each qualification has two categories. Four qualifications exist for audit firm and opinion. I did not use the categories with the least observations (second-tier audit firms and adverse opinion) to protect the model from the dummy variable trap.

I utilized K LW's (2005) "Performance Matched Discretionary Accruals" and Roychowdhury's (2006) "Real Activities Manipulation" models to measure earnings management of manufacturing companies in Borsa İstanbul. Absolute estimation of both models are the dependent variables of this research. I developed the research hypotheses regarding on the auditor's responsibility on the financial statements' fair presentation. Audit process helps the auditor to detect material misstatements and reduce the client's earnings management practices. In other words, the financial reporting entity's business strategies will be not auditor's concern. Seven hypotheses construct a relationship between auditor qualifications and discretionary accruals. The eighth hypothesis claims the relationship between the real activities manipulation is non-existent. Correlation matrix reported that "unqualified" & "qualified" and "Big4 accounting firms" & "industry specialization statement" are highly correlated. Regarding the correlation in the audit opinion category, I eliminated the qualified opinion (*QUAL*) from the model.

In the discretionary accruals model (dependent variable is *YDA*) there are 721 firm\*year observations. Real activities manipulation model (dependent variable is *YRAM*) contains 715 firm\*year observations due to the model requirements. Before analyzing the regression model, I ran LM Breusch-Pagan test for both models on pooled or random effect verdict. Regarding the probability values of the tests were less than 0.05. To choose over between pooled and fixed effect, I ran Hausman test. The tests' probability values were less than 0.05, and I analyzed the models with fixed effects depending on the results of the Hausman test. There are nine audit-based and five financial variables in the regression model.

Results disclose the clear difference between Big-4 and local audit firms in detecting and preventing earnings management via discretionary accruals. The results show that an independent audit by Big-4 (*BIG4*) firms has a decreasing effect on discretionary accruals. Earnings management via discretionary accruals increases when the local audit firms (*LOC*) conduct the audit. The results also affirm unqualified opinion (*UNQ*) decreases the earnings management via discretionary accruals. As expected, disclaimer of opinion signals an increase in discretionary accruals. The analyses also concluded that audit firms' industry specialization statement (*SPEC*) verifies their difference in auditing. Industry specialization diversification among partners creates a value addition. Results report that risk aversion does not vary among gender; based on the results I found no statistical difference between male and female auditors (*GEN*). According to the results firm rotation (*ROTA*) does not signal any an earnings management purpose in Turkish listed manufacturing companies. Geographical difference between the client and the audit firm does not affect the discretionary accruals. Results show that real activities manipulations model is statistically significant, but none of the audit-based variables are statistically significant. When qualified opinion (*QUAL*) replaces

unqualified opinion (UNQ), QUAL resulted insignificantly, but other variables did not result materially different.

This research contributes to the accounting literature by providing a perspective from an emerging market. To my knowledge, this is the first research that evaluates engagement partner gender, audit firms except for Big4, audit opinions except for unqualified, geographical differences and audit expertise in Turkey's context. For future research, the number of client's facilities and their location, company-specific qualities (corporate governance, board composition and committee qualifications) and reporting lag can be subject to the researchers' interest.

## End Notes

\* This is research derived from Ph.D dissertation with the same title presented on Feb, 7 2017 under the advisory of Dr. Tuba Dumlu in Marmara University, Social Sciences Institute, Accounting-Finance (Eng) Ph.D Programme.

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### **Appendix 1. Research Variables**

*YDA* is “Discretionary Accruals estimated with KLW’s Performance Matched Accruals Model”. Please see Appendix 2 for calculation steps.

*YRAM* is “Real Activities Manipulations estimated with Roychowdhury (2006)”. Please see Appendix 3 for calculation steps.

*BIG4* is 1 if the reporting entity was audited by a Big-4 audit firm, otherwise 0.

*NETW* is 1 if an audit firm with an international audit membership audits the reporting entity, otherwise 0.

*LOCAL*: 1 if the reporting entity was audited by a local audit firm, otherwise 0. *AO* stands for Audit Opinion Group.

*UNQ* is 1 if the auditor expressed “unqualified opinion” for the client, otherwise 0.

*QUAL* is 1 if the auditor expressed for “qualified opinion” for the client, otherwise 0.

*DISC* is 1 if the auditor expressed for “disclaimer of opinion” for the client, otherwise 0.

*CDIFF* is 1 if the headquarters of the client and auditor were in different cities, 0 otherwise.

*GEN* is 1 if the auditor is male, 0 otherwise.

*ROTA* is 1 if the reporting entity’s audit firm was changed, 0 otherwise.

*SPEC* is 1 if audit firm states its industry specialization on the website, 0 otherwise.

*CVOCF* is Operating Cash Flow over Total Assets

*CVLEV* is Total Liabilities over Total Assets.

*CVBTM* is Market Capitalization over Total Assets.

*CVROA* is Net Income over Average Assets

*CVROE* is Net Income over Equity.

## Appendix 2. Measuring the Earnings Management via Discretionary Accruals

KLW (2005) applied the ROA (performance-matching measure) variable to the Jones and Modified Jones Model in a linear regression to make a comparison, and they showed that using a performance-matched variable in a linear regression fixes the misspecification problem. KLW (2005) showed that using a performance-matched accruals measure is useful in rejecting a correct null hypothesis (the company did not manage the earnings), but the model may increase the possibility of rejecting a false null hypothesis (the company managed the earnings) due to its approach. They claim that their measurement of earnings management should attribute to the “normal” earnings management that classifies the firms in the average level earnings management as “not managed earnings.”

1. Total accruals from period t-1 to t is the difference between discretionary and non-discretionary accruals' changes from period t-1 to t.

$$\Delta TA = (TA_t - TA_{t-1}) = (DA_t - DA_{t-1}) - (NDA_t - NDA_{t-1}) \quad (3)$$

2. The average change in non-discretionary accruals would be approximately zero, so the change in total accruals would equal the change in discretionary accruals.

$$\frac{TA_{it}}{A_{it-1}} = \frac{NDA_{it}}{A_{it-1}} \quad (4)$$

3. Jones calculated total accruals for every firm with the balance sheet approach.

$$\frac{TA_{it}}{A_{it-1}} = \frac{(\Delta CA_{it} - \Delta Cash_{it}) - (\Delta CL_{it} - \Delta CMLTD_{it}) - Dep_{it}}{A_{it-1}} \quad (5)$$

4. The model uses a performance-matching measure for the estimation process in which KLW (2005) estimate discretionary accruals by adding ROA, without parameter estimation, as a performance matching proxy to the Modified Jones Model.

$$\frac{TA_{it}}{A_{it-1}} = \alpha_i \left[ \frac{1}{A_{ti-1}} \right] + \beta_{1i} \left[ \frac{\Delta REV}{A_{ti-1}} \right] + \beta_{2i} \left[ \frac{PPE}{A_{it-1}} \right] + \beta_{3i} ROA_{it-1} + \varepsilon_{it} \quad (6)$$

5. Kothari et al. (2005) used the same prediction model from the Modified Jones Model and ROA measure in the prediction process.

$$u_{ip} = \frac{TA_{ip}}{A_{ip-1}} - a_i \left[ \frac{1}{A_{ip-1}} \right] + b_{1i} \left[ \frac{\Delta REV - \Delta REC}{A_{ip-1}} \right] + b_{2i} \left[ \frac{PPE}{A_{ip-1}} \right] + b_{3i} ROA_{it-1} + \varepsilon_{it} \quad (7)$$



### Appendix 3. Measuring the Earnings Management via Real Activities Manipulations

Roychowdhury (2006) assumes using real activities variables can detect manipulations better than accruals, and he used cash flow from operations, production costs, and discretionary expenses as real activity manipulation activity variables to detect real activities manipulation around the zero earnings threshold. His sample excludes transportation, communications, electric, gas and sanitary service companies, banks and financial institutions and it consists of the period between 1987 and 2001 with 36 industries, 4,252 individual firms with 21,758 firm-years observation. Roychowdhury (2006) mentions that he required 15 observations for each-industry grouping. He uses five steps to predict and estimate the real activities manipulation using the coefficient from the year-model.

1. He calculates abnormal cash flows for each firm as the difference of actual Operating Cash Flow (OCF).

Prediction Model

$$\frac{OCF_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \beta_1 \left( \frac{S_t}{A_{t-1}} \right) + \beta_2 \left( \frac{\Delta S_t}{A_{t-1}} \right) + \varepsilon_t \quad (8)$$

Estimation Model

$$\frac{\widehat{OCF}_t}{A_{t-1}} = \alpha_0 + \widehat{\alpha}_1 \left( \frac{1}{A_{t-1}} \right) + \widehat{\beta}_1 \left( \frac{S_t}{A_{t-1}} \right) + \widehat{\beta}_2 \left( \frac{\Delta S_t}{A_{t-1}} \right) + \varepsilon_t \quad (9)$$

2. He estimates the Cost of Goods Sold (COGS) with the following model which assumes COGS is a linear function of sales.

Prediction Model

$$\frac{COGS_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \beta_1 \left( \frac{S_t}{A_{t-1}} \right) + \varepsilon_t \quad (10)$$

Estimation Model

$$\frac{\widehat{COGS}_t}{A_{t-1}} = \alpha_0 + \widehat{\alpha}_1 \left( \frac{1}{A_{t-1}} \right) + \widehat{\beta}_1 \left( \frac{S_t}{A_{t-1}} \right) + \varepsilon_t \quad (11)$$

3. He estimates the 'normal' inventory growth using the following regression

Prediction Model

$$\frac{\Delta INV_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \beta_1 \left( \frac{\Delta S_t}{A_{t-1}} \right) + \beta_2 \left( \frac{\Delta S_{t-1}}{A_{t-1}} \right) + \varepsilon_t \quad (12)$$

Estimation Model

$$\frac{\widehat{\Delta INV}_t}{A_{t-1}} = \alpha_0 + \widehat{\alpha}_1 \left( \frac{1}{A_{t-1}} \right) + \widehat{\beta}_1 \left( \frac{\Delta S_t}{A_{t-1}} \right) + \widehat{\beta}_2 \left( \frac{\Delta S_{t-1}}{A_{t-1}} \right) + \varepsilon_t \quad (13)$$

4. Roychowdhury defines "production costs" as a sum of "COGS and growth of inventory" and estimates normal production costs from the following industry-year regression.

Prediction Model

$$\frac{PROD_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \beta_1 \left( \frac{S_t}{A_{t-1}} \right) + \beta_2 \left( \frac{\Delta S_t}{A_{t-1}} \right) + \beta_3 \left( \frac{\Delta S_{t-1}}{A_{t-1}} \right) + \varepsilon_t \quad (14)$$

Estimation Model

$$\frac{\widehat{PROD}_t}{A_{t-1}} = \alpha_0 + \widehat{\alpha}_1 \left( \frac{1}{A_{t-1}} \right) + \widehat{\beta}_1 \left( \frac{S_t}{A_{t-1}} \right) + \widehat{\beta}_2 \left( \frac{\Delta S_t}{A_{t-1}} \right) + \widehat{\beta}_3 \left( \frac{\Delta S_{t-1}}{A_{t-1}} \right) + \varepsilon_t \quad (15)$$

5. According to Roychowdhury's model, discretionary expenses are a linear function of sales, like the COGS model estimated in the second step.

Prediction Model

$$\frac{OPEXP_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \beta_1 \left( \frac{S_t}{A_{t-1}} \right) + \varepsilon_t \quad (16)$$

Estimation Model

$$\frac{\widehat{OPEXP}_t}{A_{t-1}} = \alpha_0 + \widehat{\alpha}_1 \left( \frac{1}{A_{t-1}} \right) + \widehat{\beta}_1 \left( \frac{S_t}{A_{t-1}} \right) + \varepsilon_t \quad (17)$$

6. EM using real activities manipulation is calculated as the absolute difference between the prediction and the estimation of the models. To calculate the production-based earnings management, the sum of COGS and Inventory Change models is subtracted from the Production Cost model.

$$RAM_{it} = \left| \frac{OCF_t}{A_{t-1}} - \frac{\widehat{OCF}_t}{A_{t-1}} \right| + \left| \frac{OPEXP_t}{A_{t-1}} - \frac{\widehat{OPEXP}_t}{A_{t-1}} \right| + \left| \frac{PROD_t}{A_{t-1}} - \frac{\widehat{PROD}_t}{A_{t-1}} - \left( \frac{COGS_t}{A_{t-1}} - \frac{\widehat{COGS}_t}{A_{t-1}} + \frac{\Delta INV_t}{A_{t-1}} - \frac{\widehat{\Delta INV}_t}{A_{t-1}} \right) \right| \quad (18)$$

$$RAM_{it} = |DOCF| + |DOPEXP| + |DPCOST| \quad (19)$$