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## Article

# The determinants of auditor selection in terms of firm and IPO characteristics

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## **The Determinants of Auditor Selection in Terms of Firm and IPO Characteristics: Evidence from BIST**

**Ertan Aslan<sup>1</sup>, Banu Esra Aslanertik<sup>2</sup>**

**Abstract:** This study mainly aims at measuring the impact of firm characteristics and IPO characteristics on external auditor selection, by examining a sample from BIST firms over the period 2009 to 2013. It was investigated that the firm age, firm size, foreign ownership, international diversification, market to book and total asset turnover are positively associated with auditor selection in terms of Big 4-Non Big 4 diversification. The empirical evidence contradicts the hypothesis that sales growth, loss, ROA, leverage and liquidity have an impact on external auditor selection. Also it was determined that the firms which are in the corporate governance index prefer work with Big 4, but watch list companies don't. The IPO characteristics such as; IPO age, issue size, prestigious underwriter are positively associated with auditor selection (Big 4/Non-Big 4). The results of this research indicate that there is a high correlation between firm age and IPO age. In addition to all, our results suggest that some of firm characteristics and IPO characteristics serve as a signaling device that enhances auditor selection.

**Keywords:** External Audit; Auditor Selection; Firm Characteristics; Initial Public Offering

**JEL Classification:** M41; M42

### **1. Introduction**

The growing need for more transparent and fairly presented financial reports enhances the importance of external auditing and audit quality. Audit quality is a concept that is structured by various factors such as audit firm leadership, knowledge/experience/tenure of the auditor, variety of services offered by the audit company, size in terms of being a big 4 or non-big 4 and reporting quality (both financial reports and auditor reports). After Enron and related collapse of Arthur Andersen, audit quality became a characteristic of the audit company that needs to be criticized. DeAngelo (1981) defines the audit quality as the ability of the auditor in determining and reporting of a breach in the accounting system of the client. Also, Watts and Zimmerman (1981) argues that the ex-ante value of an audit depends on the auditor's incentives to disclose selectively ex post.

There is a strong relationship between audit quality and auditor selection. The demanded audit quality forces the companies to work with Big 4, which means that they prefer big audit firms because of their reputation. In recent years, due to the changes in the capital market environment auditor selection began to play a significant role especially in IPOs in terms of underpricing.

The main aim of this study to measure the impact of firm characteristics and IPO characteristics on external auditor selection, by examining a sample from BIST firms over the period 2009 to 2013. The paper concentrates on determining the level of association between the client characteristics, IPO characteristics and auditor selection. It is the first study that highlights the interaction between audit quality, client characteristics, auditor selection and IPO characteristics in Turkey.

The first part of the study gives a background of the above relationship within a detailed literature

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review. Also, the study seeks to analyze both the client characteristics and IPO characteristics in one analysis, at the same time by comparing the big 4 – non big 4 selection. In the second part, the sample, research design, the methodology of the analysis are described and the findings are discussed. Finally, the meaning of the results and their effect were discussed.

## **2. Literature Review**

In the literature, the discussions about the audit quality are structured around the four main topics (Defond & Zhang, 2014):

1. The definition of audit quality;
2. The drivers of the client demand for audit quality;
3. The drivers of the auditor supply of audit quality;
4. The concerns of the regulators about audit quality.

Audit quality directly affects the various decisions of the users of audited financial statements in terms of the degree of determining GAAP violations and nearly all definitions of audit quality are set around this belief. (DeAngelo, 1981; Watts & Zimmermann, 1977; Fuerman, 2003). In contrast to this belief, DeFond and Zhang (2014) argues that besides GAAP violations, auditors are responsible from providing assurance of financial reporting quality as a result of professional auditing standards. In February 2014 IAASB issued a framework for audit quality. In this framework IAASB also stated that auditors are required to comply with relevant auditing standards and at the same time standards of quality control through ethics and regulatory requirements. In addition, IAASB claimed that an open and constructive relationship between auditors and management also helps create an environment in which management can benefit from auditors' observations on matters such as:

- Possible improvements to the entity's financial reporting practices;
- Possible improvements in internal control over financial reporting;
- New financial reporting requirements;
- Perspectives on industry issues;
- Observations on legal and regulatory matters.

The requirement of a strong relationship between the auditor and the management emphasizes the importance of auditor selection process. As the companies grow in size and developed in organizational structure, they need more finance and may want to be a part of capital markets. This complexity increases the need for high quality financial reporting and corporate governance processes began to evolve. The effects of these factors on the nature and quality of the financial reporting directly will have an impact on audit quality. In their paper, Newton and Ashton (1989) stated that clients want to work with audit firms which have similar organizational structure and management style as their own form.

The demand for high quality audit stimulates the selection of the auditors through different factors but especially size, tenure, reputation, concentration and price. Various studies mainly uses the size as a proxy (DeAngelo, 1981; Teoh et al., 1993; Francis et al., 1999; Lee et al., 2003; Lennox, 2005; Lin & Liu, 2009) but selection is a two-sided process between the audit firm and the client. Most of the studies skip the importance of the client characteristics in the selection process and most of them use

only one or two proxies. Some of these studies found that audit firm size is positively associated with audit quality (Palmrose, 1988; Krishnan & Schauer, 2000; Khurana & Raman, 2004).

Cravens et al. (1994) combined reputation, concentration and structure in one analysis. They also emphasized that clients may provide a positive signal for investors through the auditor selection process so investors may assume that companies audited by big audit firms receive higher quality audits and report more reliable financial information.

Pratt and Stice (1994) investigated the relation between client characteristics in terms of financial condition and auditor judgments of litigation risk. Their results indicate that the clients' financial condition is the primary consideration in the auditors' assessment of litigation risk. There are many different firm financial characteristics used in the literature as independent variables such as age, assets, leverage, return on assets, loss, market to book and also firm characteristics such as international diversification, foreign ownership, being a watch list company and being in corporate governance index. This study is the first study that combined both financial and other general characteristics of the firm in one analysis. Firm characteristics variables are taken from prior studies (Wallace et al., 1994; Zarzeski, 1996; Alseed, 2006; McDougal, 2011; DeFond et al., 2014). In general, most of the previous studies achieved the result that companies with better financial conditions prefer Big 4 companies and non big 4 companies have client characteristics significantly different than Big 4 companies' clients. Önder, Aksu and Balcı (2004) determined several financial characteristics and firm characteristics in order to test the characteristics for auditor selection in Istanbul Stock Exchange. They determined that firm size and foreign ownership are significantly associated with auditor selection (in that time Big 5 and Non Big 5).

### 3. Empirical Methodology

#### 3.1. Sample Selection

The sample for the study consists of all firms listed on the Istanbul Stock Exchange BIST, excluding firms in financial industry. The sample period is from 2009–2013. For the sample, firms are selected which are listed in BIST from 2009–2013. The data for the variables used are available for each year in the sample period. Financial institutions are excluded because of their own financial characteristics. Firms listed before 1990 are excluded because there is no data availability for those firms. Finally the firms that don't have information for the sample period are excluded.

The selected sample is summarized in Table 1. After excluding the firms mentioned above, the final sample consists of 149 firms and 745 observations.

**Table 1. Summary of the Sample Selection**

<b>Total number of firms listed in the BIST 2009-2013</b>	<b>445</b>
Financial institutions (-)	151
Date of Listing before 1990 (-)	62
No information for 5 years (-)	83
Total sample firms (=)	149
Total observations for 5 years (=149*5)	745

### 3.2. Research Model

In this research, auditor selection is chosen as dependent variable, while the firm characteristics and IPO characteristics are independent variables. First, we used firm age as one of the independent variables. Then we used IPO age instead of firm age in the same model to see if any different results can be achieved or not. Proceeds, market to book, foreign ownership and prestige variables gave different results in case of using IPO age.

Data is obtained from BIST database, BIST database on the Internet, Public Disclosure Platform (PDP) database on the internet, Corporate Governance Association of Turkey (TKYD) for the years 1990 to 2013.

We provided the predicted probability of the selection of Big 4 in terms of firm age by estimating the Probit model below:

$$\text{Big } 4_i = \beta_1 + \beta_2 \text{Age} + \beta_3 \text{Assets} + \beta_4 \text{Proceeds} + \beta_5 \text{Current} + \beta_6 \text{Leverage} + \beta_7 \text{Stdret} + \beta_8 \text{ROA} + \beta_9 \text{Loss} + \beta_{10} \text{Prestige} + \beta_{11} \text{Corgov} + \beta_{12} \text{Forownership} + \beta_{13} \text{Growth} + \beta_{14} \text{Intdiversification} + \beta_{15} \text{Watchlist} + \beta_{16} \text{Markettobook} + \beta_{17} \text{TAT} + \sum_i \text{Year} + \varepsilon_i$$

**Table 2. Description of variables for auditor choice with firm age**

Variables	Description
BIG4 (Dependent variable)	Equals one if the auditor is in the high quality group (Big4) and zero otherwise.
AGE	The log of company age at the time of registration.
ASSETS	The log of total assets.
PROCEEDS	The log of the issue size.
CURRENT	Current assets divided by current liabilities.
LEVERAGE	The ratio of total liability to total assets.
STDRET	The standard deviation of the first 12 month post-IPO stock returns.
ROA	Earnings before interest and taxes divided by total assets.
LOSS	Equals one when a firm's net income is negative, and zero otherwise.
PRESTIGE	Equals one if the IPO is underwriter by a prestigious underwriter and zero otherwise.
MARKETTOBOOK	Market value of equity scaled by book value of equity.
GROWTH	Year percentage growth in sales.
TAT	Ratio of sales to total assets.
WATCHLIST	Equals one when a firm BIST watch list company, and zero otherwise.
CORGOV	Equals one when a firm in Corporate Governance Index, and zero otherwise.
INTDIVERSIFICATION	Ratio of export sales to total sales.
FOROWNERSHIP	One when a firm has foreign ownership, and zero otherwise.

The year dummies are included but not reported. The estimations correct the error structure for heteroscedasticity.

We provided the predicted probability of the selection of Big 4 by estimating the Probit model below. In this model, IPO age was used instead of firm age:

$$Big4_i = \beta_1 + \beta_2 Ipoage + \beta_3 Assets + \beta_4 Proceeds + \beta_5 Current + \beta_6 Leverage + \beta_7 Stdret + \beta_8 ROA + \beta_9 Loss + \beta_{10} Prestige + \beta_{11} Corgov + \beta_{12} Forownership + \beta_{13} Growth + \beta_{14} Intdiversification + \beta_{15} Watchlist + \beta_{16} Markettobook + \beta_{17} TAT + \sum_t Year + \varepsilon_i$$

**Table 3. Description of Variables for Auditor Choice with IPO Age**

Variables	Description
BIG4 (Dependent variable)	Equals one if the auditor is in the high quality group (Big4) and zero otherwise.
IPOAGE	The log of company IPO age at the time of listing.
ASSETS	The log of total assets.
PROCEEDS	The log of the issue size.
CURRENT	Current assets divided by current liabilities.
LEVERAGE	The ratio of total liability to total assets.
STDRET	The standard deviation of the first 12 month post-IPO stock returns.
ROA	Earnings before interest and taxes divided by total assets.
LOSS	Equals one when a firm's net income is negative, and zero otherwise.
PRESTIGE	Equals one if the IPO is underwriter by a prestigious underwriter and zero otherwise.
MARKETTOBOOK	Market value of equity scaled by book value of equity.
GROWTH	Year percentage growth in sales.
TAT	Ratio of sales to total assets.
WATCHLIST	Equals one when a firm BIST watch list company, and zero otherwise.
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INTDIVERSIFICATION	Ratio of export sales to total sales.
FOROWNERSHIP	One when a firm has foreign ownership, and zero otherwise.

The year dummies are included but not reported. The estimations correct the error structure for heteroscedasticity.

In this research, in the data set the value "1" is given for the Big4 and "0" for the non-Big4. Due to this binary classification of the dependent variable, the Probit model is used.

### 3.2.1. Definition of Variables

The variables used in this research can be classified into three main groups. The first group of variables are the variables for audit quality, the second group is for firm characteristics and the third group is for IPO characteristics.

#### Audit Quality

Audit quality proxies that were provided by the literature are size, price and tenure. Generally accepted measure of audit quality is auditor size. Regarding this, also in this research the auditor size is used as a proxy to determine the quality of auditors. According to this, Big4 audit firms are assumed to provide higher quality audit services compared to Non-Big4. The probability of Big4 versus non-Big4 auditor selection can be effected by various firm characteristics and IPO characteristics.

Our audit quality measure is derived from prior studies (DeAngelo, 1981; Teoh et al., 1993; Francis et

al., 1999; Lee et al., 2003; Lennox, 2005; Lin & Liu, 2009).

### Firm Characteristics

Firm age, IPO age, firm size, liquidity, leverage, ROA, loss, corporate governance, foreign ownership, growth, international diversification, watch list, market to book, total asset turnover were used as firm characteristics in this study.

There are lots of empirical studies that research relationship between firm characteristics and other financial variables. Despite a wide variety of measures of firms characteristics, there is a consensus in the literature for the measurement criteria for each characteristic.

Our firm characteristics variables are taken from prior studies (Wallace et al. 1994; Zarzeski 1996; Alseed, 2006; McDougal, 2011; DeFond et al. 2014).

### IPO Characteristics

Proceeds, standard return, prestige were used as IPO characteristics in this study. As an IPO characteristic, underwriter prestige is measured by number of issuing firms each underwriter brings to the IPO market. The most preferred underwriters by firms are accepted prestigious underwriter. For empirically testing the effects of IPO standard return on audit selection, 12 month post-IPO stock return measures was used in this study.

Our IPO characteristics measures are derived from (Beatty, 1989; Willenborg, 1999; Chang et al. 2008; Firth, 2012).

## 4. Findings

In this section, the results for the interactions between audit quality, firm characteristics and IPO characteristics were briefly given.

### 4.1. Auditor Choice with Firm Age

Table 4 presents the probit results estimated for the sample period from 2009 to 2013. The findings for the predicted probability of the selection of Big 4 in terms of firm age are given.

Probabilities are shown in parentheses. Year dummies are included but not reported. Probabilities that are significant at, 5% and 1% levels are marked with \*, \*\* respectively.

**Table 4. Auditor Choice Probit Model with Firm Age**

Control Variables	Expected sign	Coefficient (Prob.)
AGE	+	0.558 (0.000)**
ASSETS	+	0.214 (0.000)**
PROCEEDS	+	0.112 (0.050)
CURRENT	+	-0.015 (0.338)
LEVERAGE	-	-0.002

		(0.263)
STDRET	+	0.382 (0.333)
ROA	+	0.000 (0.920)
LOSS	-	-0.008 (0.953)
PRESTIGE	+	0.294 (0.007)**
CORGOV	+	0.642 (0.005)**
FOROWNERSHIP	+	0.328 (0.008)**
GROWTH	+	-0.001 (0.209)
INTDIVERSIFICATION	+	-0.540 (0.017)*
M3WATCHLIST	-	-1.384 (0.004)**
MARKETTOBOOK	+	0.024 (0.024)*
TAT	+	0.003 (0.000)**
McFadden R-squared	0.21	

Table 4 shows the key characteristics in the auditor selection. This Probit regression indicates that older and larger firms are more likely to be audited by Big 4 auditors. Also, the firms underwritten by prestigious underwriters are more likely to choose Big 4 auditors. In addition, possibility of being audited by Big 4 auditors is higher for the companies in corporate governance index than the others. In contrast, the possibility of watch list companies being audited by Big 4 auditors is lower than the others. It was also found that firms which have foreign ownership are more likely to be audited by Big 4 auditors, supporting our prediction that foreign ownership affects auditor selection. Regarding the international diversification variable, it was investigated that firms experiencing greater foreign sales are more likely to be audited Big 4 auditors. Firms with higher market to book and higher total asset turnover are more likely to be audited by Big 4 auditors.

#### 4.2. Auditor Choice with IPO Age

Table 5 presents the probit results estimated for the sample period from 2009 to 2013. The predicted probability of the selection of Big 4 in terms of IPO age was determined.

Probabilities are shown in parentheses. Year dummies are included but not reported. Probabilities that are significant at, 5% and 1% levels are marked with \*, \*\* respectively.



**Table 5. Auditor Choice Probit Model with IPO Age**

Control Variables	Expected sign	Coefficient (Prob.)
IPOAGE	+	1.141 (0.000)**
ASSETS	+	0.203 (0.000)**
PROCEEDS	+	0.200 (0.001)**
CURRENT	+	-0.025 (0.156)
LEVERAGE	-	-0.002 (0.151)
STDRET	+	0.197 (0.629)
ROA	+	-0.001 (0.801)
LOSS	-	-0.070 (0.593)
PRESTIGE	+	0.178 (0.112)
CORGOV	+	0.573 (0.008)**
FOROWNERSHIP	+	0.214 (0.090)
GROWTH	+	-0.001 (0.162)
INTDIVERSIFICATION	+	-0.666 (0.004)**
M3WATCHLIST	-	-1.329 (0.006)**
MARKETTOBOOK	+	0.021 (0.514)
TAT	+	0.004 (0.000)**
McFadden R-squared	0.22	

Table 5 indicates the key characteristics of firms in auditor selection. In this model firm age variable is changed to IPO age. Results of the two tables are very similar. Older and larger firms and the firms in corporate governance index are more likely to be audited by Big 4 auditors. Again similarly, non-watch list companies and firms that have higher foreign sales are more likely to be audited Big 4 auditors. Firms with higher total asset turnover are more likely to be audited by Big 4 auditors.

Unlike Table 4, underwriting by prestigious underwriters, having foreign ownership and market-to-book ratio are not determined as the key characteristics of firms while selecting auditors. In addition, firms with larger issue size are more likely to be audited Big 4 auditors.

Comparing Table 4 and Table 5; proceeds, market to book, foreign ownership and prestige variables

gave different results for auditor choice. Besides analysis shows that liquidity, leverage, the first 12 month post IPO stock returns, ROA, loss and sales growth are not effective characteristics in case of using both firm age and IPO age.

#### 4.3. Firm Age and IPO Age in Terms of Auditor Choice

Table 6 presents the Panel Least Squares results estimated for the sample period from 2009 to 2013. Probabilities are shown in parentheses. Year dummies are included but not reported. Probabilities that are significant at, 5% and 1% levels are marked with \*, \*\* respectively.

**Table 6: Correlation Coefficient between Firm Age and IPO Age**

Control Variables	Expected sign	Coefficient (Prob.)
IPOAGE		0.812 (0.000)**
R-squared	0.41	

There is a high correlation between age and IPO age as it can be seen in table 6.

## 5. Conclusion

The paper concentrates on determining the level of association between the client characteristics, IPO characteristics and auditor selection. It is the first study that examines the interaction between audit quality, client characteristics, auditor selection and IPO characteristics in one model for Turkey.

The results of this study indicate that firm age, IPO age and firm size are positively associated with audit quality. The companies that sell goods or serve abroad are more likely to be audited by Big 4 auditors. Also, results indicate that firms in the corporate governance index and non-watch list companies are more likely to work with Big 4 auditors. In addition, issue size, prestigious underwriter and foreign ownership and market to book ratio are significant firm characteristics that impacts auditor choice. Liquidity, leverage, the first 12 month post IPO stock returns, ROA, loss and sales growth are not effective characteristics for auditor choice.

This paper extends the literature by taking into account of firm characteristics and IPO characteristics together in terms of auditor selection. This study could be extended by examining other audit quality determinants such as audit tenure and audit fee, for BIST.

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