

Do government-experienced auditors reduce audit quality?

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722

Received 31 December 2017
Revised 10 October 2018
Accepted 13 December 2018

Abstract

Purpose – Recent studies regarding auditor experience generally focus on auditor overall experience in accounting, auditing, finance and related fields (Hardies *et al.*, 2014), auditor sector and domain experience (Bedard and Biggs, 1991; Hammersley, 2006), auditor experience as CPA (Ye *et al.*, 2014; Sonu *et al.*, 2016) or big N experience (Chi and Huang, 2005; Gul *et al.*, 2013; Zimmerman, 2016) or auditors' international working experience (Chen *et al.*, 2017). But there is little attention paid to where auditors obtained their experience from? And how do auditors with government experience affect audit quality (AQ)? This paper aims to present the effect of auditors with government experience on AQ.

Design/methodology/approach – The authors used Turkish publicly traded firms in Borsa Istanbul between the year 2008 and 2015 to test the hypothesis. The sample comprises 1,067 observations and eight years. Two main proxies of government experience are used in this paper. The first proxy is auditor's government experience in the past. The second proxy is the continuous variable which is "the logarithmic value of the number of years of government experience". Further, auditor overall experience in auditing, accounting, finance and other related fields are also used as a control variable. Audit reporting aggressiveness, audit reporting lag and discretionary accruals are used as proxies of AQ. Besides this, the authors adopted the model to estimate the probability of selecting a government-experienced auditor, and they presented the regression results with the addition of inverse Mills ratio.

Findings – The main findings are consistent with conjecture. Government-experienced auditors do not enhance AQ. They are aggressive, and they complete audit work slowly and they cannot detect discretionary accruals effectively. Spending more time in a government agency makes them more aggressive and slow, and they do not detect earnings management practices. The Heckman estimation results regarding the variable of interest are also consistent with the main estimation results. In addition, the authors found in predicting government-experienced auditor choice that family firms, domestic firms and firms that reported losses (larger firms, older firms) are more (less) likely to choose government-experienced auditors.

Research limitations/implications – This study has some limitations. The authors used a small sample to test the impact of government-experienced auditors on AQ because of data access problems. Much data used in this study were collected manually. Earnings quality was calculated using only discretionary accruals. Real activities manipulation was not used as the proxy of AQ in this paper. The findings from emerging markets might not generalize to the developed countries because the Turkish audit market is developing compared to Continental Europe or USA.

Practical implications – The findings are considered for independent audit firms. Audit firms may employ new graduates and train them to offer more qualified audit work for their clients. The results do not mean that government-experienced auditors should not work in an audit firm, or that they should not establish an audit firm. It is clear that government-experienced auditors provide low AQ in terms of audit reporting aggressiveness, audit report lag and discretionary accruals. But as they operate more in the independent audit sector, they will become successful and provide qualified audit work. One other thing we can say is that it is perhaps better for government-experienced auditors to work in the tax department of independent audit firms.



Originality/value – This paper tries to fill the gap in the literature regarding the effect of auditor experience on AQ and concentrates on a different type of experience: Auditors with government experience.

Keywords Government-experienced auditors, Overall experience, Audit quality, Aggressiveness, Reporting lag, Discretionary accruals, Auditor characteristics, Turkey, Borsa Istanbul

Paper type Research paper

1. Introduction

Auditor[1] experience is an input of the audit process and at individual or office level. This attribute may affect audit quality (AQ) (Francis, 2011). Much research has investigated how this input affects AQ and the reason for this interaction. In these studies, while some researchers investigate the effect of auditors' overall experience in accounting, auditing, finance and other related fields on AQ, others investigate the effects of auditor experience in a specific industry, or the effect of experience with big 4 audit firms or the effect of international working experience on AQ-related issues.

The studies regarding auditor experience show us that experienced auditors have more knowledge about audit procedures, and they have more skills related to the audit process. When faced with complex audit tasks, they may easily and successfully overcome them (Abdolmohammadi and Wright, 1987; Wang *et al.*, 2015; Sonu *et al.*, 2016; Chen *et al.*, 2017; Zimmerman and Nagy, 2016). They have the ability to detect particular errors and material misstatement, and they are less likely to miss many kinds of errors (Libby and Frederick, 1990; Bédard and Biggs, 1991; Tubbs, 1992; Hammersley, 2006; Chen *et al.*, 2015; Chen *et al.*, 2017; Che *et al.*, 2017; Liu *et al.*, 2017). They are more confident, and this confidence makes them more accurate in judgment (Chung and Monroe, 2000) and more independent due to less influence by management (Chi *et al.*, 2016). These features let experienced auditors provide more qualified audit services.

Recent studies regarding auditor experience generally focus on auditor overall experience in accounting, auditing, finance and related fields (Hardies *et al.*, 2014), auditor sector and domain experience (Bédard and Biggs, 1991; Hammersley, 2006), auditor experience as CPA (Ye *et al.*, 2014; Sonu *et al.*, 2016) or big N experience (Chi and Huang, 2005; Gul *et al.*, 2013; Zimmerman, 2016) or auditors' international working experience (Chen *et al.*, 2017). But there is little attention paid to where auditors obtained their experience from? And how do auditors with government experience (AWGE) affect AQ? This paper tries to fill the gap in the literature regarding the effect of auditor experience on AQ and concentrates on a different type of experience: AWGE. Defond *et al.* (2000) present some evidence in their paper regarding government *affiliated* auditors. They found that the largest government affiliated auditors were more conservative when they issued an audit opinion after 1994. According to the authors, the reason for this is that these auditors were more independent and visible than the others, and they were monitored by the central government. As far as we know, this paper is the first paper discussing the effect of AWGE on AQ using emerging market firms. This is interesting because the effect of government-experienced auditors on AQ is unknown. But we propose that AWGE are experts in tax, tax audit and tax-related issues, they are less familiar with international financial reporting standards (IFRS) and independent audit processes because of having less (or no) experience of implementing IFRS and independent audit in practice when they worked in a government agency. On the other hand, government-experienced auditors generally work in non-big 4 audit firms in Turkey (Table III). Non-big 4 audit firms do not have deep pockets and enough resources to provide qualified audit work, reputation may not be important to them and single clients may be economically important to them; thus, government-experienced

auditors may act in accordance with their clients' demands compared with auditors in big 4 audit firms. Working in a small audit firm and having less (or no) experience of implementing IFRS and independent audits may be reasons why government-experienced auditors provide less qualified audit services.

The current study attempts to present the effect of AWGE on AQ. Two main proxies of government experience are used in this paper. The first proxy is auditor's government experience in the past. The second proxy is the continuous variable which is "the logarithmic value of the number of years of government experience". Further, auditor overall experience in auditing, accounting, finance and other related fields are also used as a control variable. Audit reporting aggressiveness, audit reporting lag and discretionary accruals are used as proxies of AQ. Besides this, we adopted the model to estimate the probability of selecting a government-experienced auditor, and we presented the regression results with the addition of inverse Mills ratio (IMR).

Our main findings are consistent with conjecture. Government-experienced auditors do not enhance AQ. They are aggressive, they complete audit work slowly, and they cannot detect discretionary accruals effectively. Spending more time in a government agency makes them more aggressive and slow, and they do not detect earnings management practices. Our Heckman estimation results regarding the variable of interest are also consistent with our main estimation results. In addition, we found in predicting government-experienced auditor choice that family firms, domestic firms and firms that reported losses (larger firms, older firms) are more (less) likely to choose government-experienced auditors. Our findings are considered for independent audit firms. Audit firms may employ new graduates and train them to offer more qualified audit work for their clients. The results do not mean that government-experienced auditors should not work in an audit firm, or that they should not establish an audit firm. It is clear that government-experienced auditors provide low AQ in terms of audit reporting aggressiveness, audit report lag and discretionary accruals. But as they operate more in the independent audit sector, they will become successful and provide qualified audit work. One other thing we can say is that it is perhaps better for government-experienced auditors to work in the tax department of independent audit firms.

This study has some limitations. We used a small sample to test the impact of government-experienced auditors on AQ because of data access problems. Much data used in this study were collected manually. Earnings quality was calculated using only discretionary accruals. Real activities manipulation was not used as the proxy of AQ in this paper. The findings from emerging markets might not generalize to the developed countries because the Turkish audit market is developing compared to Continental Europe or USA. In further research, the time interval can be improved to increase observations. In addition, real activities-based earnings management or different types of AQ (small profit, abnormal working capital, audit opinion, etc.) can be used as measures of AQ. Some different attributes regarding individual auditors such as auditor's age or client importance at individual auditor level can be employed in the regression model. Therefore, for each audit firm, the shares of total independent audit revenues or the shares of total tax revenues in total revenues can be used as the indicator of independent audit expertise or tax audit/ services expertise, then information will be gained about how firms with high percentage of tax services/audit in total revenues direct and manage independent AQ.

The remainder of the study is organized as follows. Section 2 explains the institutional settings regarding audit environment and structure in Turkey. Section 3 presents the recent studies regarding audit experience and hypothesis development. Section 4 summarizes the

research design. Section 5 presents the main results. Section 6 covers the conclusion and discussion.

2. Institutional settings

In Turkey, independent audit firms were established and started to operate in the 1960s and 1970s. In 1967, MUHAS was established by Touch Ross. Some partners of this audit firm were Turkish. In 1970, ARIS was established by some managers of the Expert Accountants Association of Turkey (TMUD) (Sanlı and Özbirecikli, 2012). Another document regarding the audit profession in Turkey which examines its historical development in Turkey also says that Arthur Anderson was the first independent audit firm in Turkey and was established in 1975 (Güvemli and Özbirecikli, 2011). With the development of the Turkish economy and the increasing foreign investment percentage within the Turkish economy, international audit firms such as Arthur Anderson, Price, Güven and Lybrand Co. Inc. opened branches in Turkey in the 1970s and 1980s (Uzay *et al.*, 2008; Sanlı and Özbirecikli, 2012). After the regulations of Capital Markets Board of Turkey in 1987, the number of authorized audit firms was 35. Eight of these firms were international audit firms, and twenty-seven of these firms were local audit firms (Uzay *et al.*, 2008).

According to Turkish Public Oversight, Accounting and Auditing Standards Authority (KGK) (2017)'s annual statistics, 246 audit firms were in operation in 2017, with 198 audit firms in 2016, 187 audit firms in 2015, 137 audit firms in 2014 and 100 audit firms in 2013 (by the year 2017, Public Disclosure Platform of Turkey –KAP (2017) reported that 93 audit firms are listed in Borsa İstanbul, most of them are not operative). As stated in the same statistics, 16,416 auditors were authorized for the year 2016 in 5,378 firms in 2016, 5,589 firms in 2015, 4,608 firms in 2014 and 3,396 firms in 2013 (including publicly traded firms-Borsa İstanbul firms) as a part of audit engagement. Total audit fees in the audit engagements were 235bn Turkish Lira in 2016 (approximately \$61bn), 245bn Turkish Liras in 2015 (approximately \$63bn), 193bn Turkish Liras in 2014 (approximately \$50bn) and 139bn Turkish Liras in 2013 (approximately \$36bn). The data show us that the Turkish audit market continues to develop.

According to 2017 Transparency reports for 93 audit firms, most of them are located in İstanbul and Ankara. Some of the founders and engagement partners of these audit firms are former tax auditors-specialist-controllers, revenue specialist-controllers, account experts or inspectors in government agencies. (For detailed information please see transparency reports of audit firms in KGK's corporate website www.kgk.gov.tr). There are many government-experienced auditors in Turkey (16.21 per cent of the firms in our sample, please see Table II).

Recently, firms in Turkey, except Borsa İstanbul-quoted firms, paid less (or no) attention to independent audits. With the recent regulations and obligations regarding independent audits in Turkey, many private firms became subject to independent audit[2]. Hereby, many people who have government experience established their own audit firms or started to work as engagement partners in independent audit firms. The reason why there are too many government-experienced auditors (ex-government auditors) is because the number of the people who wish to get their share of this newly developing independent audit market is quite high. Their close ties with firms which have developed during their government experience may be a reason to obtain independent audit work from the audit market. Other reasons why firms choose to work with these auditors may be gathered in several categories[3]. First, in Turkey, quoted firms use a two-book system for prepare their financial statements in accordance with both IFRS and Turkish tax regulations. Tax-based financial reports are subjected to tax audit and they are submitted to the Turkish tax

administration. Firms may choose these government-experienced auditors to adjust items which are subject to taxation and hire these auditors to minimize tax burden. According to [McGuire et al. \(2012\)](#), this is a knowledge spillover effect, and it suggests that knowledge generated in the tax practice area may benefit the audit practice area (or vice versa). In their study, findings show that the tax-specific expertise of an independent audit firm plays a significant role in its clients' tax avoidance. [Gleason and Mills \(2011\)](#) stated that auditors who provide tax services to audit clients may use their vast knowledge regarding tax issues by permitting firms to record tax reserves so as to increase or smooth net income; hence, this will inversely affect AQ. Second, [Comprix and Huang \(2015\)](#) asserted that firms may choose auditors who work in small audit firms because of lower audit fees. Government-experienced auditors work in small audit firms and lower audit fees may be a reason why firms prefer to hire government-experienced auditors. Third, government-experienced auditors who work in small audit firms may not resist the opportunistic managerial behavior of clients such as earnings management as their income might depend on them. Fourth, litigation risk is material in developed financial markets through strong shareholder protection. However, in the Turkish case, the litigation risk for the auditors and firms mainly stems from the government's strict enforcement on the tax regulations. Firms mainly refrain from tax authorities instead of shareholders. Firms in Turkey, – especially domestic, small and family firms – may see the independent audit function as a legal burden only, with no added value. These firms may choose government-experienced auditors to avoid the risk of tax-related litigation instead of the independent audit's value-addition for shareholders or other interest group of firms.

3. Literature review and hypothesis development

[Abdalmohammadi and Wright \(1987\)](#) stated that the auditor benefits from experience as the complexity of the audit task increases. Complex tasks in audits require extensive judgment which can be gained through experience. Besides, they reveal that experienced auditors are aggressive when they issue an audit opinion since experienced auditors are more sensitive to the potential bad consequences of this event. [Libby and Frederick \(1990\)](#) and [Tubbs \(1992\)](#) stated that auditors are not likely to miss this particular error because prior experience allows them to detect the existence of potential errors, when they encounter a particular error. [Bédard and Biggs \(1991\)](#) also stated that efficiency in detecting errors allows experienced auditors (especially experience in a specific sector and domain such as manufacturing or inventory) to produce correct performance. [Chung and Monroe \(2000\)](#) stated that the accuracy and confidence of decision makers are important in decision making and experienced auditors are more confident. The confident auditors make more accurate judgments. [Hammersley \(2006\)](#) asserted that they are more successful at detecting misstatements because they are able to evaluate and fill in partial cue patten; thus, experienced auditors (especially industry-experienced auditors) perform better than others.

According to [Ye et al. \(2014\)](#), education level and experience are the most important elements of auditors' efficiency and effectiveness. Experienced auditors perform audit tasks better than others, and they are less likely to be forced by an authority into failures. [Wang et al. \(2015\)](#) and [Sonu et al. \(2016\)](#) stated that more experienced auditors provide more qualified audit services because of their audit-related knowledge. Experienced auditors gain this knowledge through experience. [Chen et al. \(2015\)](#) stated that experienced auditors are more likely to detect a breach, and they are more prone to propose audit adjustment because they are more competent than inexperienced auditors. [Chi et al. \(2016\)](#) suggested that auditor's experience enhances his/her performance because prior experience of the auditor can be relevant to the tasks that they are working on. Experienced auditors are less affected

by management; thus, they are more independent and are less likely to trust irrelevant information. They found that auditor's experience has negative impact on discretionary accruals. [Liu et al. \(2017\)](#) found that auditors with specific industry experience may better understand the auditee's business cycle, and they are more prone to expose misstatements and irregularities in financial statements because of the spillover effects of industry specialization. [Zimmerman and Nagy \(2016\)](#) stated that experience leads to knowledge acquirement and knowledge to ability. This makes experienced auditors more competent than inexperienced auditors. As competency is a function of AQ, competent auditors provide more qualified audit services. [Che et al. \(2017\)](#) asserted that experienced auditors have more knowledge, so when they audit financial statements they are more successful in detecting material misstatements. More experienced auditors exert more effort. The knowledge and effort that experienced auditors possess and exert provides more qualified audit work.

Auditor experience is important element to provide qualified audit services as stated in recent studies, but what kind of experience auditors have or where the experience was obtained requires detailed research. As outlined in the "institutional settings" section, in Turkey, some of the founders and engagement partners of audit firms have government experience. In the past decade, with the adoption of IFRS in Borsa İstanbul and the increased importance of independent audits in Turkey, these auditors established their own independent audit firms or started to work in audit firms after retirement from a government agency or they quit their jobs before retirement and started to work in audit firms. When they worked in a government agency, they were affiliated with the collection of taxes and revenues at minimum cost, ensuring the voluntary compliance of taxpayers, the implementation of income policies in justice, the examination of accounts of taxpayers according to income taxes and the revision of taxpayers' ledger, journal and financial statements in accordance with tax and tax-related issues and local GAAP ([Ataman, 2010](#)).

In this study, we focus on the value-addition of government-experienced auditors on AQ. Government-experienced auditors may provide low qualified audit services because of only holding bachelor's degree or generally graduating with a non-business degree from university and being part of a male-dominant group. However, in this study, arguments other than these individual auditor-specific characteristics are constructed about some reasons for this inefficiency when they perform independent audit work: these include the differences between tax audit and independent audit and employment in non-big 4 audit firms (or audit firms that they own).

3.1 Differences between tax audit and independent audit

Experience provides opportunities to accumulate a wealth of task-related knowledge ([Libby and Luft, 1993](#)) and auditors' performance depends on the source of their knowledge ([Frey, 2017](#)). Government-experienced auditors have vast knowledge about the procedures and processes of tax audits which involves the examination of financial statements to determine whether they are prepared in accordance with the Tax Law of Turkey. It is an audit activity carried out according to the audit procedures and principles published by the Ministry of Finance of Turkey ([Türker, 2016](#)). On the other hand, independent audit in Turkey is an examination of financial statements to determine whether they are prepared and presented in accordance with IFRS. The principles of valuation, measurement and techniques in Tax Law are different from the principles of valuation, measurement and techniques in IFRS ([Güçlü, 2010](#); [Durmuş, 2017](#)). Government-experienced auditors spent most of their working life in a government agency after graduating from university. Spending more time in these positions (in a government agency) allows them to be more familiar and expert about the issues regarding tax law, local GAAP and tax audit and leads to less familiarity with IFRS

compared with auditors who work in an audit firm (especially big 4 audit firms) from junior position to senior position. The AQ difference in performing audit work may be accounted for by this familiarity difference.

McGuire *et al.* (2012) stated that tax-specific expertise differs from independent audit expertise because the independent auditing process covers backward reasoning from financial indicators and other information to determine the reasons for possible errors (Bonner *et al.*, 1992). Frey (2017) stated that tax-specific knowledge is a sub-field within the general domain of auditing knowledge. Tax auditors approach the audit function from a tax authorities' point of view, they focus solely on items that affect the tax burden (Durmug, 2017). Expressly, tax audit has a limited scope compared with independent audit. Independent auditors also concentrate on all of the items that affect stakeholders' decisions. Narrow perspectives gained from prior government experience and focus difference may lead to government-experienced auditors providing bad quality audits.

When we review the transparency reports of audit firms, big 4 audit firms attach more importance to IFRS-based continuous training than small audit firms in Turkey. Training investments and continuous training hours in big 4 audit firms are more than in small audit firms (Saglam and Orhan, 2016). Chen and Zhang (2010) stated that the professionals in developing countries may not fully understand IFRS and have less experience of implementing the standards in practice, this is caused by the lack of quality professionals in developing countries. They point out that IFRS-based financial reports must be audited by big 4 audit firms in China. Tax specialized government-experienced auditors who work in small audit firms might provide lower qualified audit services due to this situation discussed in Chen and Zhang (2010)'s paper. In recent years, even KGK began to test the auditors who will be performing independent audit activities in the capital market to prevent this situation.

3.2 Work in non-big 4 audit firms

Government-experienced auditors in Turkey generally work in non-big 4 audit firms and/or they are among the founders of non-big 4 audit firms (Table III) because big N audit firms (in Turkey) generally choose the best university graduates and new graduates to employ. Big N firms train new and better university graduates using their resources, opportunities and experience. According to Chi and Huang (2005), learning experience should be greater in Big N audit firms than in small audit firms in the initial period of engagement because big N audit firms have more auditing and different industry experience (Zimmerman, 2016). Gul *et al.* (2013) stated that the conservative environment in Big N audit firms may affect their auditors and auditors' professional judgment and conservative people are more likely to work in Big N audit firms. The conservative outcomes of Big N audit firms lead to better AQ. More to the point, big N audit firms provide more qualified audit services because they are more independent than non-big 4 audit firms. Single clients are not economically important for big N audit firms and big N audit firms do not want to lose their reputation by providing bad quality audit work. (DeAngelo, 1981; Gul *et al.*, 2013). Small audit firms charge lower audit fees compared with big N audit firms and the choice of small audit firms may be related to the magnitude of discretionary accruals and lower AQ (Compriz and Huang, 2015).

Taking prior research regarding big 4 audit firms (i.e. small audit firms) into account along with the fact that government-experienced auditors have less knowledge regarding independent auditing procedures and IFRS and less experience of implementing independent audit & IFRS, and are more familiar with tax law and local GAAP than with

IFRS, they provide low quality in independent audit services. Our unique hypothesis is as follows:

- H1.* There is a negative relationship between government-experienced auditors and AQ.

4. Research design

This section covers the procedures of sample selection and models which are used to test the hypotheses, and the definition of dependent, test and control variables.

4.1 Sample and data

We used Turkish publicly traded firms in Borsa İstanbul between the year 2008 and 2015 to test our hypothesis. Our sample comprises 1,067 observations and eight years. We excluded financial firms and extractive sector firms because of different regulations. Tourism firms are excluded because of different reporting periods. Some sectors such as transport and energy are excluded because the number of firms in these sectors is not enough to calculate the quantity of earnings quality. Our final sample covers three sectors which are manufacturing, trading and technology. We were not able to reach information regarding some independent and control variables of firms. Our final sample and sample distribution by year and sector are given in [Table I](#).

We manually collected information regarding dependent variables such as discretionary accruals, audit reporting lag and audit report aggressiveness from [Finnet Database \(2017\)](#), firm audit reports and firm financial statements. Audit firm names, engagement partners' names and the tenure information regarding the auditor were collected manually. This information was obtained from the firms' audited financial reports and [KAP's, \(2017\)](#) database. In Turkey, engagement partners' names and audit firms' name are disclosed in firms' audit reports. Information regarding the background of auditor experience was collected manually from their own CV or LinkedIn profile. We manually collected the attributes of auditors (Gender, Education Type, Education Level, Total Experience) from their own CV, KGK's official records and LinkedIn profiles. Duality and ownership structures (Family and Domestic) was manually obtained from firms' activity reports, financial statements disclosures and MKK (Central Securities Depository of Turkey) database (www.mkk.com.tr).

Firm-based characteristics such as firm size, leverage, performance, growth rate, market to book value, quick ratio, turnover, long-term debt percentage and firm age were obtained from [Finnet Database \(2017\)](#) and firm corporate websites.

Year/sector	2008	2009	2010	2011	2012	2013	2014	2015	Total
Manufacturing	105 11.4%	108 11.7%	114 12.4%	124 13.5%	125 13.6%	122 13.2%	112 12.2%	108 11.7%	918 100%
Technology	12 15.3%	12 15.3%	13 16.6%	14 17.9%	14 17.9%	13 16.6%	0 0%	0 0%	78 100%
Trading	10 14%	9 12.6%	11 15.4%	13 18.3%	15 21.1%	13 18.3%	0 0%	0 0%	71 100%
Total	127 11.9%	129 12%	138 12.9%	151 14.1%	154 14.4%	148 13.8%	112 10.4%	108 10.1%	1,067 100%

Table I.
Sample distribution
by sector and year

4.2 Model

Our OLS model is as follows and the model estimates the effects of AWGE on AQ.

$$\begin{aligned}
 AQ_{it} = & \beta_0 + \beta_1 \text{Government}_{it} (\text{or Government } Y_{it}) + \beta_2 \text{Big4}_{it} + \beta_3 \text{ROA}_{it} + \beta_4 \text{Leverage}_{it} \\
 & + \beta_5 \text{LogSize}_{it} + \beta_6 \text{Loss}_{it} + \beta_7 \text{Growth}_{it} + \beta_8 \text{MBV}_{it} + \beta_9 \text{Gender} \\
 & + \beta_{10} \text{EducationLevel} + \beta_{11} \text{EducationType} + \beta_{12} \text{MedianExperience} \\
 & + \beta_{13} \text{TenureA} + \text{Sector Fixed} + \text{Year Fixed} + \varepsilon_{it}
 \end{aligned}
 \tag{1}$$

If the hypothesis is supported, we expect the coefficient of β_1 (*Government* and *GovernmentY*) to be positive. *Government* and *GovernmentY* are expected to have positive association with the absolute value of discretionary accruals, audit reporting aggressiveness and audit report lag.

4.3 Dependent variables – audit quality

Audit reporting aggressiveness (*Aggressive*), audit reporting lag (*LogLag*) and discretionary accruals (*DA*) are used as dependent variables in this study. The reasons for the selection of these AQ measures and calculation of these measures are as follows.

4.3.1 *Audit reporting aggressiveness (aggressive)*. Our first measure of AQ is audit reporting aggressiveness (*Aggressive*). It is measured using [Defond et al. \(2000\)](#), [Gul et al. \(2013\)](#) and [Chen et al. \(2017\)](#)'s formulation. The formulation is as follows.

$$\begin{aligned}
 \text{Modified}_{it} = & \beta_0 + \beta_1 \text{Quick}_{it} + \beta_2 \text{Receivable, OtherReceivables, Inventories}_{it} / \text{TotalAssets}_{it} \\
 & + \beta_3 \text{ROA}_{it} + \beta_4 \text{Loss}_{it} + \beta_5 \text{Leverage}_{it} + \beta_6 \text{LogSize}_{it} + \beta_7 \text{LogAge}_{it} \\
 & + \text{SectorFixed} + \varepsilon_{it}
 \end{aligned}
 \tag{2}$$

Audit Report Aggressiveness = Predicted Opinion – Actual Opinion.

Logistic regression is used to estimate the predicted opinion. The dependent variable of the model is actual opinion which is coded 1 if the firm receives a modified opinion (Adverse, Qualified or Disclaimer), 0 otherwise. It is the difference between the predicted opinion which is the result of estimation of logistic regression and the actual audit opinion ([Gul et al., 2013](#); [Chen et al., 2017](#)). Audit report aggressiveness is an indicator of output-based AQ ([Chen et al., 2017](#)), and aggressive auditors (larger value of audit reporting aggressiveness) are more tolerant about earnings management practices ([Gul et al., 2013](#)); in other words, higher results obtained from [equation \(2\)](#) indicate higher degree of managed earnings. On the other hand, if the result of audit report aggressiveness (*Aggressive*) is higher, it shows that auditor tendency to issue a modified audit opinion is lower ([Gul et al., 2013](#); [Chen et al., 2017](#)). Higher value of audit report aggressiveness is an indicator of low AQ.

4.3.2 *Audit reporting lag (LogLag)*. Our second measure of AQ is audit reporting lag (*LogLag*). We calculated reporting lag (*LogLag*) as the total number of days following the fiscal year-end until the date of the audit report. We used the logarithmic form of audit reporting lag (*LogLag*). According to the regulation of the Capital Market Boards of Turkey (2017), firms quoted in Borsa İstanbul should present their audited separate financial statements within 60 days and should present their audited consolidated financial statements within 70 days following the end of the fiscal year. Longer audit report lag might

not be associated with the higher AQ because long audit time may be a signal of future reporting problems (Blankley *et al.*, 2015). On the other hand, auditors audit and present financial statements in timely manner and audit reporting lag decreases if financial reporting quality is higher than auditors' tolerance threshold (Asthana, 2014; Knechel and Payne, 2001). According to us, reporting lag may show the dominance of auditors within the independent audit process and IFRS. Because auditors who are familiar with the independent audit process and IFRS are more likely to complete audit work in timely manner. Longer audit report lag is an indicator of low AQ in this study.

4.3.3 *Discretionary accruals (DA)*. The third measure of AQ is discretionary accruals (DA). We used Kothari *et al.*'s (2005) model to determine the quantity of firms' discretionary accruals. The formulations are as follows.

$$TA_{it} = \alpha_1(1/Assets_{it-1}) + \alpha_2(\Delta Sales_{it}) + \alpha_3PPE_{it} + \varepsilon_{it} \quad (3)$$

$$\widehat{NA}_{it} = \hat{\alpha}_1(1/Assets_{it-1}) + \hat{\alpha}_2(\Delta Sales_{it} - \Delta AR_{it}) + \hat{\alpha}_3PPE_{it} + \hat{\alpha}_4ROA_{it} + \varepsilon_{it} \quad (4)$$

$$DA_{it} = TA_{it} - \widehat{NA}_{it} \quad (5)$$

In equation (3), total accruals (TA) are calculated using the balance sheet approach, then regressed with the change in sales ($\Delta Sales$) and property, plant, equipment (PPE). We obtained these coefficients. These coefficients are used in equation (4) to estimate nondiscretionary accruals (NA). Finally, the difference between total accruals (TA) and the estimated nondiscretionary accruals (NA) is used as discretionary accruals (DA) in our main model. In the main model, we used the absolute value of discretionary accruals (DA) as the measure of AQ. Discretionary accruals may reflect the auditor's enforcement of accounting standards (Lawrence *et al.*, 2011) and provide a metric for assessing the degree of bias tolerated by the auditor (Hoitash *et al.*, 2007). Auditors providing more qualified audit expend more effort to constrain managerial opportunistic behavior such as discretionary accruals (Chen *et al.*, 2011). Hence, higher value of discretionary accruals is an indicator of low AQ.

4.4 Test variables

We used two test variables to determine the effects of AWGE on AQ. First, *Government* is equal to 1 if the auditor recently worked as a tax auditor-specialist-controller, revenue specialist-controller, account expert or inspector in a government agency, 0 otherwise. Government experience in the past means that auditors worked in a government agency prior to working in an audit firm. To identify prior working experience in a government agency, we obtained auditors' curriculum vitae from audit firms' web site and LinkedIn. These resumes chronologically present auditors' working experience in a company, government agency or audit firm after they graduated from university. Government-experienced auditors started to work as a tax auditor-specialist-controller, revenue specialist-controller, account expert or inspector in a government agency and later they started to work in an audit firm. Non-government-experienced auditors in the sample includes auditors who started to work as an auditor assistant in an audit firm after they graduated from university or auditors who started to work as an accountant in a private firm and then started to work in an audit firm. Second, *GovernmentY* is the logarithmic

value of the number of years of government work experience. This variable indicates how many years these auditors (government-experienced auditors) worked in a government agency between the year the auditor graduated from university and the year he signed an audit report. The variable indicates their dominance and expertise on tax and tax-related issues.

4.5 Control variables

We used some control variables following the previous literature regarding AQ, and Defond and Zhang's (2014) study guided us in the choice of these control variables[4]. The reasons for the selection of these control variables are as follows. Big4 audit firms (*Big4*) provide more qualified audit services. Client pressure may not be a sufficient reason to provide low quality audit service for big4 audit firms. Moreover, big4 audit firms have enough staff resources and experience to ensure auditing of financial statements in timely manner. In general, large firms are less risky firms than small firms and they are audited by big4 audit firms (Ng and Tai, 1994; Imam *et al.*, 2001; Gul *et al.*, 2013). We expect that the variable *-big4* – negatively affects audit report aggressiveness, audit report lag and discretionary accruals. The financial structure of large firms (*LogSize*) is more healthy and stable than the financial structure of small firms and large firms are less likely to manipulate earnings and have strong internal control systems; thus, auditors spend less time to audit financial statements (Dopuch *et al.*, 1987; Monroe and Teh, 1993; Chen *et al.*, 2001; Carey and Simnett, 2006; Chan *et al.*, 2010; Owusu-Ansah, 2000). We expect that there is a negative association between firm size and AQ measures. Growth rate (*Growth*) may affect firm's earnings management and accruals behavior (AlNajjar and Riahi-Belkaoui, 2001; Madhogarhia *et al.*, 2009). Firms with poor performance (*ROA*), (*Loss*) or high leverage (*Leverage*) tend to manage earnings to avoid debt covenant violation or mask true performance. Firms experiencing losses are likely to declare bad news in time and the audit of debt may be more time consuming (Burgstahler and Dichev, 1997; Healy and Wahlen, 1999; Shukeri and Nelson, 2011; Carslaw and Kaplan, 1991). We expect that *Loss* and *Leverage* (*ROA*) are positively (negatively) associated with AQ measures.

Many respected papers emphasize that auditor characteristics may be more important to provide a qualified audit service than audit firm characteristics (Kilgore *et al.*, 2011; Prasad and Chand, 2017). The risk-averse nature of women (*Gender*) makes them more conservative than men, and they are more effective in detecting earnings management practices (Gul *et al.*, 2013; Ittonen *et al.*, 2013; Karjalainen *et al.*, 2013; Menezes Montenegro and Bras, 2015). Females are more efficient in information processing because they focus on more detail to process information (Meyers-Levy, 1989; Chung and Monroe, 1998; Chung and Monroe, 2001). Accounting irregularities, errors and earnings management practices may be easily detected by experienced auditors (*MedianExperience*) because experienced auditors tend to be more focused than their inexperienced counterparts (Bédard and Biggs, 1991; Jenkins *et al.*, 2006; Green, 2008). Formal education level (*EducationLevel*) and formal education type (*EducationType*) of the auditor may be important to enhance AQ. Auditors with master's or PhD degrees in the accounting and auditing related fields are more competent and have more knowledge than auditors with bachelor's degrees (Che *et al.*, 2017; Li *et al.*, 2017). Auditor tenure (*TenureA*) is checked in this paper. The main reason behind the use of this variable is that auditor independence is compromised in longer relationships between auditor and client (Chi and Huang, 2005; Ye *et al.*, 2011; Garcia-Blandon and Argiles-Bosch, 2017). Less independent auditors or audit firms may provide low-quality audit service. We expect that auditor attributes (*Gender*, *EducationLevel*, *EducationType* and *MedianExperience*) are negatively associated with AQ measures.

5. Results

The following section covers descriptive statistics, correlation matrix, estimation results and additional analysis.

5.1 Descriptive statistics and univariate analysis

Table II summarizes the descriptive statistics of all variables that are used in our estimation models.

As shown in Table II, the mean values of audit report aggressiveness (*Aggressive*), audit reporting lag (*LogLag*) and the absolute value of discretionary accruals (*DA*) are respectively -0.0054 , 70.041 and 0.1049 . On average, firms publish their audited financial statements within 70.041 days (logarithmic value of reporting lag- *LogLag* = 4.2211) after closure of the fiscal year. While the absolute value range of discretionary accruals (*DA*) varied from 0.0003 to 0.7548 , the value range of audit reporting aggressiveness (*Aggressive*) varied from -0.6330 to 0.9852 .

Of the firms, 16.21 per cent were audited by an auditor who recently worked as an account specialist, tax auditor, tax specialist, tax inspector, revenue specialist, revenue controller or account expert in a government agency (*Government*). The mean value of experience of AWGE (*GovernmentY*) is 2.1901 years. Table IV presents detailed information regarding government-experienced auditors. We observed that there are government-experienced auditors (*Government* = 1) in 173 observations. Mostly, they have experience in tax-related positions such as revenue specialist, revenue controller, tax specialist, tax

Variables	Obs.	Mean	SD	Minimum	Maximum
<i>Aggressive</i>	1,067	-0.0054	0.2452	-0.6330	0.9852
<i>Lag(Raw)</i>	1,067	70.041	16.545	30	151
<i>LogLag</i>	1,067	4.2211	0.2384	3.4011	5.0172
<i>DA</i>	1,067	0.1049	0.1126	0.0003	0.7548
<i>Government</i>	1,067	0.1621	0.3687	0	1
<i>GovernmentY</i>	1,067	2.1901	5.5671	0	32
<i>Big4</i>	1,067	0.6241	0.4845	0	1
<i>ROA</i>	1,067	0.0340	0.0905	-0.5302	0.5327
<i>Leverage</i>	1,067	0.4700	0.2156	0.0242	0.9815
<i>LogSize</i>	1,067	19.538	1.5084	15.63	23.96
<i>Loss</i>	1,067	0.2736	0.4460	0	1
<i>Growth</i>	1,067	0.3026	5.3288	-1	172.89
<i>MBV</i>	1,067	2.1511	4.1471	0	74.6
<i>Gender</i>	1,067	0.1827	0.3866	0	1
<i>EducationLevel</i>	1,067	0.2080	0.4061	0	1
<i>EducationType</i>	1,067	0.5285	0.4994	0	1
<i>Experience (Raw)</i>	1,067	20.631	7.7193	10	53
<i>LogExperience</i>	1,067	2.9667	0.3341	2.3025	3.9702
<i>MedianExperience</i>	1,067	0.4704	0.4993	0	1
<i>TenureA</i>	1,067	2.5407	1.8637	1	12
<i>SalesTurn</i>	1,067	1.0659	0.8104	0	5.86
<i>LongDebt</i>	1,067	0.1240	0.1182	0	0.61
<i>Quick</i>	1,067	1.3533	1.6626	0	18.45
<i>Age (Raw)</i>	1,067	38.368	13.542	5	104
<i>LogAge</i>	1,067	3.5698	0.4275	1.6094	4.6443
<i>Duality</i>	1,067	0.0993	0.2992	0	1
<i>Family</i>	1,067	0.3577	0.1879	0.0061	0.5999
<i>Domestic</i>	1,067	0.7773	0.2890	0.0210	1

Table II.
Descriptive statistics

auditor, tax inspector, account expert, inspector or auditor in the treasury or a government agency.

Auditor tenure (*TenureA*) has mean value of 2.5407 years. Of firms, 62.42 per cent were audited by big4 audit firms (*Big4*), 18.27 per cent of firms were audited by female auditors (*Gender*), 20.80 per cent of firms were audited by auditors with master's or PhD degrees (*EducationLevel*) and 52.85 per cent of firms were audited by auditors with bachelor's degree in business (*EducationType*). The mean value of auditor overall experience in accounting, auditing, finance and related issues is 20.631 years. Of auditors, 47.04 per cent have more experience than the sample median (*MedianExperience*) (sample median is equal to 19 years).

Table III also presents the univariate tests for subsamples (two test variables: *Government* and *Non-Government*). The subsample of government-experienced auditors (*Government* = 1) has higher values for the quantity of audit reporting aggressiveness (*Aggressive*), discretionary accruals (*DA*) and audit reporting lag (*LogLag*) than the subsample with non-government-experienced auditors (*Government* = 0). Government-experienced auditors (*Government* = 1) generally work in non-big4 audit firms. The percentages of gender (*Gender*), education level (*EducationLevel*) and education type (*EducationType*) of government-experienced auditors (*Government* = 1) are, respectively, 1.15, 15.60 and 36.41 per cent. These percentages are lower than the percentages for gender (*Gender*), education level (*EducationLevel*) and education type (*EducationType*) of non-government-experienced auditors (*Government* = 0). The percentages of family ownership and domestic ownership in the group of government-experienced auditors (44.63 per cent and 90.77 per cent) are higher than the percentages of family ownership and domestic

Variables	NonGovernment mean	Government mean	T-test	P-value
<i>Aggressive</i>	-0.0127	0.0322	-2.21	0.0135
<i>Lag(Raw)</i>	69.296	73.326	-3.35	0.0004
<i>LogLag</i>	4.2105	4.2759	-3.32	0.0005
<i>DA</i>	0.1020	0.1195	-1.87	0.0307
<i>Big4</i>	0.7438	0.0057	22.15	0.0000
<i>ROA</i>	0.0389	0.0083	4.10	0.0000
<i>Leverage</i>	0.4708	0.4657	0.28	0.3888
<i>LogSize</i>	19.711	18.647	8.78	0.0000
<i>Loss</i>	0.2427	0.4335	-5.21	0.0000
<i>Growth</i>	0.3274	0.1742	0.34	0.3647
<i>MBV</i>	2.2036	1.8796	0.94	0.1736
<i>Gender</i>	0.2158	0.0115	6.48	0.0000
<i>EducationLevel</i>	0.2181	0.1560	1.84	0.0329
<i>EducationType</i>	0.5604	0.3641	4.77	0.0000
<i>Experience (Raw)</i>	18.361	32.401	-28.97	0.0000
<i>LogExperience</i>	2.8751	3.4418	-25.53	0.0000
<i>MedianExperience</i>	0.3724	0.9768	-16.27	0.0000
<i>TenureA</i>	2.4642	2.9336	-3.06	0.0011
<i>Sales Turn</i>	1.1164	0.8045	4.67	0.0000
<i>LongDebt</i>	0.1251	0.1186	0.66	0.2538
<i>Quick</i>	1.3713	1.2599	0.80	0.2100
<i>LogAge</i>	3.6009	3.4089	5.48	0.0000
<i>Duality</i>	0.0845	0.1050	-1.01	0.1553
<i>Family</i>	0.3419	0.4463	-8.25	0.0000
<i>Domestic</i>	0.7571	0.9077	-7.74	0.0000
Univariate analysis	Observations	894	173	

Table III.

ownership in the group of non-government-experienced auditors (34.19 and 75.71 per cent). Government-experienced auditors (*Government* = 1) have more overall experience than non-government auditors (*Government* = 0), because they generally started to work in independent audit firms after retirement from a government agency. Non-government-experienced auditors (*Government* = 0) also started to work in a government agency after university graduation.

5.2 Correlation matrix

Table V presents correlation coefficients among the variables which were used in the model. We present the table of the correlation matrix to check the collinearity. Table V shows high collinearity exists among the variables. The correlation coefficients for *Government* and *GovernmentY* is 0.90. For this reason, we did not run these variables in the same model.

5.3 Main results

Table VI presents the main results of the model regarding the effects of AWGE (*GovernmentY*).

In Table VI, we test the effect of government-experienced auditors (*Government*) on audit reporting aggressiveness (*Aggressive*), audit reporting lag (*LogLag*) and discretionary accruals (*DA*). Three columns of Table VI (Column 1, 3 and 5) indicate that government-experienced auditors (*Government*) are positively and significantly associated with the measures of AQ, which are audit reporting aggressiveness (*Aggressive*) (0.0150), audit reporting lag (*LogLag*) (0.0837) and discretionary accruals (*DA*) (0.0448). First, these findings indicate that AWGE (*Government*) are more aggressive in audit reporting. Aggressive auditors are more tolerant about earnings management practices as Gul *et al.* (2013) mentioned. Government-experienced auditors (*Government*) provide lower AQ in terms of audit report aggressiveness. Second, AWGE (*Government*) do not complete audit work quickly and this indicates lower AQ in terms of audit reporting lag. Third, AWGE (*Government*) do not detect earnings management practices efficiently[5].

In Table VI, we examine the effect of the number of years of government experience (*GovernmentY*) on audit reporting aggressiveness (*Aggressive*), audit reporting lag (*LogLag*) and discretionary accruals (*DA*). Three columns of Table VI (Columns 2, 4 and 6) show that the number of years of government experience (*GovernmentY*) are positively and significantly related to audit reporting aggressiveness (*Aggressive*) (0.00349), audit reporting lag (*LogLag*) (0.00408) and discretionary accruals (*DA*) (0.00234). These findings indicate that higher number of years of government experience (*GovernmentY*) increases audit reporting aggressiveness and discretionary accruals. Auditors who have more years of government experience (*GovernmentY*) complete audit work slowly.

The possible reasons and explanations why government-experienced auditors (or the number of years of government experience) (*Government* and *GovernmentY*) provide low AQ in terms of audit report aggressiveness (*Aggressive*), audit report lag (*LogLag*) and discretionary accruals (*DA*) are as follows. Firstly, we may explain the negative effect of government-experienced auditors on these AQ measures using the control variable *-Big4*. The mean difference, the correlation coefficient and the classification of where they work in Tables III, IV and V show that government-experienced auditors (*Government*) work in non-big 4 audit firms for the most part. Non-Big N audit firms are less independent because they may be influenced by management (Chi *et al.*, 2016), and single clients may be important economically for non-big 4 audit firms (DeAngelo, 1981; Gul *et al.*, 2013). Hence, government-experienced auditors who work in small audit firms are more tolerant about earnings management practices, and they are more aggressive so as not to lose their clients. On the

Table IV.
Types of government
experience

Government	2008	2009	2010	2011	2012	2013	2014	2015	Total
<i>Panel A: Government experience</i>									
0	106 (11.85%)	104 (11.63%)	119 (13.31%)	128 (14.31)	126 (14.09%)	123 (13.75%)	95 (10.62%)	93 (10.40%)	894 (100%)
1	21 (2.13%)	25 (4.45%)	19 (0.98%)	23 (3.29%)	28 (6.18%)	25 (14.45%)	17 (9.8%)	15 (8.6%)	173 (100%)
Total	127 (11.90%)	129 (12.08%)	138 (12.93%)	151 (14.15%)	154 (14.43%)	148 (13.87%)	112 (10.49%)	108 (10.12%)	1.067 (100%)
<i>Panel B: Types of government work experience (Government = 1)</i>									
Revenue specialist, Revenue controller	2 (9.52%)	3 (14.28%)	2 (9.52%)	3 (14.28%)	5 (23.80%)	2 (9.52%)	2 (9.52%)	2 (9.52%)	21 (100%)
Tax auditor, Tax specialist, Tax inspector	8 (16%)	9 (18%)	7 (14%)	7 (14%)	6 (12%)	7 (14%)	3 (6%)	3 (6%)	50 (100%)
Account expert	7 (12.28%)	8 (14.03%)	5 (8.7%)	5 (8.7%)	8 (14.03%)	9 (15.78%)	8 (14.03%)	7 (12.28%)	57 (100%)
Auditor in the capital markets board of Turkey	1 (7.6%)	2 (15.38%)	2 (15.38%)	3 (23.07%)	1 (7.6%)	2 (15.38%)	1 (7.6%)	1 (7.6%)	13 (100%)
Inspector or auditor in Treasury or an Agency of Government	2 (8.3%)	2 (8.3%)	2 (8.3%)	4 (16.66%)	6 (25%)	3 (12.5%)	3 (12.5%)	2 (8.3%)	24 (100%)
Other	1 (12.5%)	1 (12.5%)	1 (12.5%)	1 (12.5%)	2 (25%)	2 (25%)	—	—	8 (100%)
<i>Panel C: Current audit firm where government-experienced auditors work and sign audit reports</i>									
Audit firm	75	76	87	93	94	95	73	72	665
Government = 0 Big4 = 1	11.28%	11.43%	13.08%	13.98%	14.14%	14.29%	10.98%	10.83%	100%
Government = 0 Big4 = 0	31	28	32	35	32	28	22	21	229
Government = 1 Big4 = 1	13.54%	12.23%	13.97%	15.28%	13.97%	12.23%	9.61%	9.17%	100%
Government = 1 Big4 = 0	0	0	0	0	0	0	1	0	1
Government = 1 Big4 = 0	21	25	19	23	28	25	16	15	172
	12.21%	14.53%	11.05%	13.37%	16.28%	14.53%	9.30%	8.72%	100%

	1	2	3	4	5	6	7	8	9	10	11	12
1	1											
2	0.13***	1										
3	0.13***	0.07**	1									
4	0.23***	0.09***	0.06**	1								
5	0.23***	0.09***	0.09***	0.90***	1							
6	-0.24***	-0.10***	-0.06**	-0.56***	-0.51***	1						
7	-0.04	0.01	0.005	0.02	0.002	-0.01	1					
8	-0.35***	-0.26***	-0.14***	-0.14***	-0.14***	0.13***	0.001	1				
9	0.07***	0.10***	0.15***	-0.005	-0.02	0.03	-0.01	-0.40***	1			
10	-0.49***	-0.08***	-0.08***	-0.26***	-0.24***	0.39***	0.04	0.28***	0.10***	1		
11	0.37***	0.19***	0.16***	0.16***	0.17***	-0.09***	-0.02	-0.69***	0.26***	-0.29***	1	
12	-0.02	0.01	0.01	-0.009	-0.009	0.02	0.05*	-0.04	0.02	-0.01	0.03	1
13	-0.02	-0.20***	0.12***	-0.10***	-0.11***	0.21***	-0.08***	0.11***	0.16***	0.005	0.00	0.05*
14	-0.09***	-0.03	-0.01	-0.19***	-0.16***	0.26***	-0.06*	0.12***	0.008	0.10***	-0.08***	-0.01
15	0.03	0.13***	-0.01	-0.06**	-0.07**	-0.19***	-0.01	-0.02	-0.02	-0.13***	-0.02	-0.01
16	0.03	0.00	0.03	-0.13***	-0.19***	0.07**	0.03	0.02	0.006	-0.04	-0.03	0.02
17	0.11***	-0.01	-0.03	0.44***	0.39***	-0.32***	-0.00	-0.11***	0.07**	-0.10***	0.10***	-0.03
18	-0.13***	-0.15***	-0.04	-0.02	-0.01	-0.02	-0.03	0.29***	-0.52***	-0.15***	-0.19***	-0.009
19	0.02	0.04	0.01	-0.01	-0.02	0.15***	-0.01	-0.24***	0.46***	0.27***	0.17***	-0.01
20	-0.22***	-0.03	-0.009	-0.13***	-0.13***	0.09***	0.06**	0.11***	0.26***	0.02	-0.08***	-0.03
21	-0.00	-0.20***	-0.06**	-0.16***	-0.18***	0.29***	-0.03	0.10***	-0.09***	0.27***	-0.06**	-0.01
22	0.07**	0.02	0.01	0.05*	0.07**	-0.14***	0.01	-0.05	-0.03	-0.09***	0.03	-0.01
23	0.25***	0.08***	0.05*	0.23***	0.20***	-0.38***	-0.05*	-0.25***	0.02	-0.53***	0.18***	0.03
24	0.27***	0.05*	0.05*	0.21***	0.20***	-0.33***	-0.04	-0.25***	-0.06**	-0.54***	0.20***	0.02

Notes: 1: Aggressive; 2: LogLag; 3: DA; 4: Government; 5: GovernmentY; 6: Big4; 7: TenureA; 8: ROA; 9: Leverage; 10: LogSize; 11: Loss; 12: Growth; 13: MBV; 14: Gender; 15: EducationLevel; 16: EducationType; 17: MedianExperience; 18: Quick; 19: LongDebt; 20: SalesTurn; 21: LogAge; 22: Duality; 23: Family; 24: Domestic. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

(continued)

Table V.
Correlation matrix

Table V.

	13	14	15	16	17	18	19	20	21	22	23	24
1	1											
2	0.11***											
3	-0.07**	-0.19***										
4	0.02	-0.02	1									
5	-0.07**	-0.19***	0.22***	1								
6	0.05*	0.05*	-0.04*	0.15***	1							
7	0.10***	0.11***	0.09***	0.01	-0.00	1						
8	0.15***	-0.03	-0.15***	-0.02	0.06**	-0.21***	1					
9	0.09***	0.17***	0.06**	0.04	-0.07**	-0.11***	-0.23***	1				
10	-0.05*	-0.00	-0.10***	0.00	-0.10***	-0.01	0.10***	-0.19***	1			
11	-0.19***	-0.06**	-0.00	-0.09***	0.05*	0.07**	0.00	-0.09***	-0.05*	1		
12	-0.21***	-0.13***	0.14***	0.05*	0.12***	0.04	-0.10***	-0.10***	-0.13***	0.00	1	
13				0.00	0.10***	0.09***	-0.10***	-0.12***	-0.09***	-0.06**	-0.68***	1

Variables	(1) Aggressive coefficient (Std. Err.)	(2) Aggressive coefficient (Std. Err.)	(3) LogLag coefficient (Std. Err.)	(4) LogLag coefficient (Std. Err.)	(5) DA coefficient (Std. Err.)	(6) DA coefficient (Std. Err.)
<i>Government</i>	0.0150** (0.00692)	-	0.0837*** (0.0259)	-	0.0448*** (0.0168)	-
<i>GovernmentY</i>	-	0.00349** (0.00165)	-	0.00408*** (0.00142)	-	0.00234** (0.00117)
<i>Big4</i>	-0.0139*** (0.00536)	-0.0398** (0.0170)	-0.00936 (0.0175)	-0.00565 (0.0168)	-0.0175* (0.0102)	-0.0167* (0.00937)
<i>ROA</i>	-0.0561 (0.0540)	-0.109 (0.100)	-0.455*** (0.102)	-0.431*** (0.102)	0.0206 (0.0605)	-0.0185 (0.0551)
<i>Leverage</i>	0.0446*** (0.0116)	0.0390 (0.0359)	0.143*** (0.0366)	0.128*** (0.0364)	0.0874*** (0.0217)	0.0695*** (0.0196)
<i>LogSize</i>	-0.0290*** (0.00178)	-0.0364*** (0.00563)	0.00154 (0.00569)	0.00350 (0.00565)	-0.00148 (0.00332)	-0.00201 (0.00309)
<i>Loss</i>	0.0309*** (0.00721)	0.0437** (0.0197)	0.0172 (0.0199)	0.0308 (0.0200)	0.0301** (0.0120)	0.0235** (0.0108)
<i>Growth</i>	-0.00700 (0.0129)	0.000208 (0.00115)	0.0818* (0.0419)	0.0967** (0.0415)	-0.000221 (0.000650)	-0.000179 (0.000632)
<i>MBV</i>	-0.00165 (0.00215)	-0.0166** (0.00675)	-0.0430*** (0.00682)	-0.0420*** (0.00679)	0.0153*** (0.00407)	0.0157*** (0.00370)
<i>Gender</i>	-0.00471 (0.00523)	-0.0134 (0.0164)	0.0278* (0.0166)	0.0231 (0.0167)	-0.00298 (0.00968)	-0.00245 (0.00911)
<i>EducationLevel</i>	0.000786 (0.00508)	0.00309 (0.0162)	0.0712*** (0.0164)	0.0749*** (0.0162)	-0.00703 (0.00950)	-0.00521 (0.00884)
<i>EducationType</i>	0.0116*** (0.00406)	0.0413*** (0.0132)	0.00609 (0.0131)	0.00382 (0.0132)	0.0136* (0.00787)	0.0156** (0.00715)
<i>MedianExperience</i>	-0.00410 (0.00450)	-0.00127 (0.00136)	-0.00483*** (0.00140)	-0.0473*** (0.0143)	-0.00214** (0.000989)	-0.0249*** (0.00784)
<i>TenureA</i>	-0.00272** (0.00108)	-0.00870** (0.00352)	0.00306 (0.00459)	0.00134 (0.00349)	0.00238 (0.00236)	-0.00004 (0.00191)
<i>Constant</i>	0.644*** (0.0343)	0.892*** (0.110)	4.336*** (0.111)	4.233*** (0.110)	0.1266*** (0.0648)	0.118** (0.0598)
<i>Year fixed</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Sector fixed</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Clustered by firm</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Observations</i>	1,067	1,067	1,067	1,067	1,067	1,067
<i>F value</i>	42.15***	43.23***	20.48***	20.93***	4.83***	5.14***
<i>R-squared</i>	0.460	0.492	0.299	0.300	0.104	0.097

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; Continuous variables are winsorized to control for outliers

Table VI.
Main results of the effect of government-experienced auditors and the number of years of government experience

Table VII.
Heckman two-stage
estimation results

Variables	(7) Aggressive coefficient (Std. Err.)	(8) Aggressive coefficient (Std. Err.)	(9) LogLag coefficient (Std. Err.)	(10) LogLag coefficient (Std. Err.)
<i>Government</i>	0.0127* (0.00693)	-	0.0805*** (0.0265)	-
<i>GovernmentY</i>	-	0.00104** (0.000456)	-	0.00477*** (0.00175)
<i>Big4</i>	-0.0101* (0.00539)	-0.0103* (0.00532)	-0.00694 (0.0178)	-0.0113 (0.0175)
<i>ROA</i>	-0.000791 (0.00543)	-0.00150 (0.00546)	-0.498*** (0.100)	-0.492*** (0.100)
<i>Leverage</i>	0.0129*** (0.00421)	0.0129*** (0.00423)	0.0434*** (0.0137)	0.0444*** (0.0138)
<i>LogSize</i>	-0.0221*** (0.00188)	-0.0218*** (0.00188)	0.0774*** (0.0183)	0.0755*** (0.0184)
<i>Loss</i>	0.0375*** (0.00605)	0.0368*** (0.00608)	0.0120 (0.0206)	0.0125 (0.0208)
<i>Growth</i>	-0.000286 (0.000364)	-0.000270 (0.000363)	-0.000403 (0.00117)	-0.000423 (0.00118)
<i>MBV</i>	0.000466 (0.00216)	0.000327 (0.00216)	-0.0337*** (0.00696)	-0.0333*** (0.00699)
<i>Gender</i>	-0.00301 (0.00517)	-0.00296 (0.00515)	0.0312* (0.0167)	0.0298* (0.0167)
<i>EducationLevel</i>	0.000967 (0.00505)	0.00137 (0.00506)	0.0786*** (0.0166)	0.0765*** (0.0167)
<i>EducationType</i>	0.0113*** (0.00406)	0.0119*** (0.00412)	0.00616 (0.0133)	0.00826 (0.0136)
<i>MedianExperience</i>	-0.00168 (0.00449)	-0.00194 (0.00446)	-0.0868*** (0.0255)	-0.0786*** (0.0251)
<i>TenureA</i>	-0.00008 (0.00409)	0.000204 (0.00408)	0.00905 (0.0135)	0.0106 (0.0135)
<i>IMR</i>	-0.0136** (0.00530)	-0.0132** (0.00530)	-0.0691*** (0.0183)	-0.0683*** (0.0184)
<i>Constant</i>	0.531*** (0.0323)	0.526*** (0.0323)	4.652*** (0.0778)	4.630*** (0.0771)
<i>Year fixed</i>	Yes	Yes	Yes	Yes
<i>Sector fixed</i>	Yes	Yes	Yes	Yes
<i>Clustered by firm</i>	Yes	Yes	Yes	Yes
<i>Observations</i>	1,067	1,067	1,067	1,067
<i>F value</i>	38.85***	38.77***	20.18***	19.93***
<i>R²/Pseudo R²</i>	0.457	0.459	0.312	0.311

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; Continuous variables are winsorized to control for outliers

(continued)

Variables	(11) DA coefficient (Std. Err.)	(12) DA coefficient (Std. Err.)	Variables	First Stage Government coefficient (Std. Err.)
<i>Government</i>	0.0254* (0.0144)	-	LogSize	-0.5493*** (0.1283)
<i>GovernmentY</i>	-	0.00305*** (0.000946)	ROA	1.4730* (0.7793)
<i>Big4</i>	-0.0172* (0.00987)	-0.0133 (0.00963)	Quick	-0.0696** (0.0335)
<i>ROA</i>	0.0129 (0.00986)	0.0126 (0.00988)	LongDebt	0.0281 (0.1132)
<i>Leverage</i>	0.0300*** (0.00743)	0.0305*** (0.00745)	SalesTurn	-0.3976*** (0.0961)
<i>LogSize</i>	-0.0164* (0.00954)	-0.0167* (0.00955)	LogAge	-0.5047*** (0.1347)
<i>Loss</i>	0.0398*** (0.0109)	0.0379*** (0.0110)	Loss	0.2942** (0.1477)
<i>Growth</i>	-0.000295 (0.000635)	-0.000313 (0.000635)	Duality	0.2196 (0.1591)
<i>MBV</i>	0.0162*** (0.00379)	0.0163*** (0.00379)	Family	0.7993** (0.4059)
<i>Gender</i>	-0.000936 (0.00916)	-0.000813 (0.00914)	Domestic	0.5253* (0.4059)
<i>EducationLevel</i>	-0.00451 (0.00908)	-0.00204 (0.00908)	Constant	0.5183 (0.5436)
<i>EducationType</i>	0.0160** (0.00727)	0.0187** (0.00740)		
<i>MedianExperience</i>	-0.0390*** (0.0140)	-0.0468*** (0.0137)		
<i>TenureA</i>	0.00746 (0.00736)	0.00775 (0.00737)		
<i>IMR</i>	-0.0183* (0.00960)	-0.0172* (0.00960)		
<i>Constant</i>	0.226*** (0.0444)	0.241*** (0.0439)		
<i>Year fixed</i>	Yes	Yes		Yes
<i>Sector fixed</i>	Yes	Yes		Yes
<i>Clustered by firm</i>	Yes	Yes		Yes
<i>Observations</i>	1,067	1,067		1,067
<i>F value</i>	5.04***	5.40***		147.12***
<i>R²/Pseudo R²</i>	0.104	0.111		0.1557

Table VII.

other hand, non-big 4 audit firms do not have enough staff resources compared with big4 audit firm; hence, government-experienced auditors may not audit clients' financial statements in timely manner, and this leads to audit report lag. Second, as stated in McGuire *et al.*'s (2012) and Bonner *et al.*'s (1992) studies, the independent audit process is different from tax audit process. Tax and tax-related expertise and experience of government-experienced auditors do not help to provide qualified independent audit services. As mentioned in hypothesis development, lack of implementing of IFRS may negatively affect their audit services quality.

In terms of auditor-specific control variables, we expected the negative association between auditor education level/type and AQ measures. But we found that education type (*EducationType*) is positively and significantly associated with audit report aggressiveness (*Aggressive*) (0.0116, 0.0413)/discretionary accruals (*DA*) (0.0136, 0.0156) and education level (*EducationLevel*) is also positively and significantly associated with audit report lag (*LogLag*) (0.0712, 0.0749). Although we do not have a definite idea about these outcomes, the reasons for these results may be that auditors with business degrees (*EducationType*) have more knowledge about limits and how much managed earnings are acceptable to avoid punishment or legal sanction than auditors with non-business degrees. On the other hand, auditors with master or PhD degrees (*EducationLevel*) do not audit financial statements in timely manner. The negative correlation coefficients (-0.04 , -0.19) between education level (*EducationLevel*) and experience (*MedianExperience*) and auditor gender (*Gender*) shows that auditors with master or PhD degrees and female auditors are less experienced than auditors with bachelor's degree and male auditors. This may be the reason why auditors with master or PhD degrees and female auditors do not audit financial statements in timely manner.

5.4 Additional analysis

Firm specific-characteristics may be decisive in the selection of auditors because auditor selection is not randomly distributed. We considered the auditor selection as a function of firm-specific characteristics. Following some papers (Chaney *et al.*, 2004; Choi and Lee, 2014), we adopted a model with some firm-specific characteristics as the determinants of government-experienced auditor choice, and a Heckman two-stage model is employed to robust our OLS estimation results. Hereby, we determined which firms are more likely to work with government-experienced auditors. Our selection model is as follows.

5.4.1 First stage of Heckman two-stage estimation model

$$\begin{aligned} \text{Government}_{it} = & \beta_0 + \beta_1 \text{LogSize}_{it} + \beta_2 \text{ROA}_{it} + \beta_3 \text{Quick}_{it} + \beta_4 \text{LongDebt}_{it} \\ & + \beta_5 \text{SalesTurn}_{it} + \beta_6 \text{LogAge}_{it} + \beta_7 \text{Loss}_{it} + \beta_8 \text{Duality} + \beta_9 \text{Family} \\ & + \beta_{10} \text{Domestic} + \text{Sector Fixed} + \text{Year Fixed} + \varepsilon_{it} \end{aligned} \quad (6)$$

We have already explained how firm size (*LogSize*), firm performance (*ROA*) and loss (*Loss*) are calculated in this study. Firm age (*LogAge*) is the natural logarithm of number of years since formation. Sales turnover (*SalesTurn*) is calculated as the total sales divided by total assets. Quick ratio (*Quick*) is calculated as the total amount of current assets minus inventory divided by current liabilities. Long-term debt (*LongDebt*) percentage is calculated as the long-term debt divided by total assets. In addition, we used some corporate governance-based variables in the selection model of government-experienced auditors. Family firms (*Family*), firms with CEO duality (*Duality*) and firms with a lot of domestic investors (*Domestic*) may be more likely to hire government-experienced auditors. CEO duality (*Duality*) is equal to 1 if CEO and the chairman of the board are the same person, 0 otherwise. Domestic investor percentage (*Domestic*) is calculated as the total domestic

shares divided by total shares. Family ownership (*Family*) is calculated as the percentage of total shares of firms held by families, including family members, family managers and family-controlled holding companies as stated in Al-Najjar and Kilincarslan's (2016) study. Domestic investors might be more tolerant about earnings management practices than foreign investors (Ryu and Ji, 2015), and family firms do engage in earnings management practices to secure the family's controlling interests (Prencipe and Bar-Yossef, 2011). Thus, they are more likely to hire auditors in small audit firms such as government-experienced auditors because these auditors might be more tolerant about earnings management practices. Besides, firms with CEO duality are prone to choose auditors in small audit firms so as to capture and sustain their gains (Lin and Liu, 2009).

5.4.2 Second stage of Heckman two-stage estimation model

$$\begin{aligned} \text{AQ}_{it} = & \beta_0 + \beta_1 \text{Government}_{it} (\text{or GovernmentY}_{it}) + \beta_2 \text{Big4}_{it} + \beta_3 \text{ROA}_{it} \\ & + \beta_4 \text{Leverage}_{it} + \beta_5 \text{LogSize}_{it} + \beta_6 \text{Loss}_{it} + \beta_7 \text{Growth}_{it} + \beta_8 \text{MBV}_{it} \\ & + \beta_9 \text{Gender} + \beta_{10} \text{EducationLevel} + \beta_{11} \text{EducationType} \\ & + \beta_{12} \text{MedianExperience} + \beta_{13} \text{TenureA} + \text{Sector Fixed} + \text{Year Fixed} + \varepsilon_{it} \end{aligned}$$

After calculating IMR, we re-ran our OLS model with the addition of the IMR. In the government-experienced auditor selection model, we found that firm size (*LogSize*) (-0.5493), firm age (*LogAge*) (-0.5047), turnover (*SalesTurn*) (-0.3976) and quick ratio (*Quick*) (-0.0696) are negatively and significantly associated with government-experienced auditors (*Government*). Larger and older firms are more likely to choose big 4 audit firms and their auditors, not auditors in small audit firms. On the other hand, family ownership (*Family*) (0.7993), domestic ownership (*Domestic*) (0.5253) and firms that reported a loss (*Loss*) (0.2942) are positively and significantly associated with the choice of government-experienced auditors. The signs of these variables are as expected. In the second stage of the Heckman estimation model, the significances and signs of our test variables, *Government* and *GovernmentY*, are consistent with our main OLS estimation results. The sign of the variable – Big4 – is the same as in the main estimation results.

6. Discussion and conclusion

Many papers have focused on the positive impact of auditors' experience on AQ. Recent studies regarding auditor experience generally focus on auditor overall experience in accounting, auditing, finance and related fields, auditor sector and domain experience, auditor experience as CPA, or big N experience, or auditors' international working experience. The situation discussed in this paper has not been addressed previously. The paper investigated the effects of government-experienced auditors (*Government* and *GovernmentY*) on AQ. Audit reporting aggressiveness (*Aggressive*), audit reporting lag (*LogLag*) and discretionary accruals (*DA*) were used as measures of AQ. We mainly used OLS estimation to test our hypothesis. Our findings indicate that 16.21 per cent of auditors have experience in a government agency (*Government*). Government-experienced auditors (*Government* and *GovernmentY*) provide low AQ. Our Heckman estimation results are consistent with our main estimation results. In the selection model, we found that small firms, younger firms, family firms and domestic firms are more likely to choose a government-experienced auditor.

This study has some limitations. We used a small sample to test the impact of government-experienced auditors on AQ because of data access problems. Limited AQ measures were used. In further research, different types of AQ measures and different

attributes regarding individual auditors can be used as dependent and independent variables. On the other hand, in the sample, AWGE work in non-big4 audit firms. For a further research, observations with government-experienced auditors working in Big4 audit firms can provide more powerful results if researchers have a similar objective and sufficient observations in different countries.

These results may be important for audit firms and interested parties. It does not mean that government-experienced auditors should not work in an audit firm, or that they should not establish an audit firm. It is clear that government-experienced auditors provide low AQ. But as they operate more in the independent audit sector, they will become successful and provide qualified audit work. These results may be important for audit firms. Audit firms may employ new graduates and train them to offer more qualified audit work for their clients. Other thing we can say is that it is perhaps better for government-experienced auditors to work in the tax department of independent audit firms.

Notes

1. In the study, the term “auditor & auditors” refers to engagement partner & partners.
2. The new Turkish Commercial Code entered into force as of 2011 and came into effect as of 2013. According to the new commercial code, many private firms are also subject to independent audit. Firms traded on the Turkish stock exchange were already subject to independent audit.
3. The reasons presented under these headings include some assumptions. It is difficult to prove these assumptions because audit fees are not disclosed in Turkey. But we argue, and audit firm transparency annual reports show, that independent audit revenues of non big4 audit firms are lower than independent audit revenues of big4 audit firms. Therefore, there is no database to explain and reveal their close ties with firms which have developed during their government experience.
4. They categorized commonly used audit quality models and model-specific variables in their study.
5. In our sample, auditors with government experience work in non-big4 audit firms. We excluded Big4 audit firms, and we re-ran the regression models using only non-big4 audit firms to more directly test the effect of the auditors with government experience on audit quality. Our results regarding the variables –Government and GovernmentY – did not change.

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