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Audit Firm Ranking, Audit Quality and Audit Fees: Examining Conflicting Price Discrimination Views

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ABSTRACT

In this study, we examine whether highly ranked audit firms in Iran, as determined by the Securities and Exchange Organization (SEO), earn a fee premium, firstly, by providing superior quality audit services or, secondly, due to reputation created by the ranking system implemented by the SEO. We employ price discrimination theory, and we test quality discrimination versus brand reputation explanations in the context of a unique institutional setting (where international audit firms are not allowed to operate). The data are derived from firms listed on the Tehran Stock Exchange (TSE) for the period 2006 to 2015. Our results show that the quality of audit services (using all of our measures) provided by the highest ranked audit firms is not superior to that of the non-highest ranked firms. In addition, the audit fee models suggest that the highest ranked firms charge significantly more audit fees compared to lower ranked firms. We employ several sensitivity tests and the results do not change materially. Such findings go against the “quality-based price discrimination” view but support the reputation-based view, and make a significant contribution towards understanding the economic consequences of state-determined ranking of audit firms rather than allowing the market to determine quality differentiation.

1. Introduction

Over the last two and half decades, Iran, the second largest economy in the Middle East and North Africa (MENA) region, has been trying to attract international investment in order to rejuvenate its stagnant economy caused by continued international sanctions. Since the early 1990s, in fact, the government has commenced implementing liberal economic policies, privatizing nationalized industries and initiating many structural reforms. As part of the Iranian government's structural reform programs, among many other measures, international accounting standards with modifications have been introduced. These allow local private audit firms to verify financial statements of listed companies (previously restricted to the government audit department) to improve financial reporting quality and credibility. However, unlike other emerging countries, Iran has not allowed international accounting firms (such as Big 4 and non-Big 4 firms) to operate in the country. Instead, it has classified local private audit firms into four categories (high ranked to low ranked) to differentiate audit firms.

In this paper, we examine empirically whether such ranking of audit firms has been successful in providing high-quality work by highly ranked firms, or whether such firms charge higher fees without providing superior services in Iran. Iran provides a unique setting for this study because government-initiated ranking mechanisms for audit firms do not exist in other developed and emerging

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countries. Furthermore, the audit market in Iran is characterized by weak demand for high-quality audit services,¹ low litigation risk, and weak corporate governance mechanisms (Bagherpour, Monroe, & Shailer, 2014; Mashayekhi & Bazaz, 2008; MohammadRezaei, Mohd-Saleh, & Ali, 2015). MohammadRezaei et al. (2015) argue that the demand for assurance by auditors is mostly driven by the legal requirements in Iran, reflected in legislation such as the Security Market Act (1967), the Iran Audit Organization (IAO) Establishment Act (1983), and the Using Services of Certified Public Accountants Act (USCPAA) (1993). It is worth noting that the absence of international audit firms operating in Iran and a lack of obvious domestic substitutes have had a negative effect on the country's auditing profession (Bagherpour et al., 2014; Shubita, 2015). This situation diminishes the capacity of auditors to understand international firms' systems, procedures and structures, industry specialization, and the overall knowledge management and expertise that are associated with internationally reputed firms.

Although privatization policies were implemented by the government more than 25 years ago, the state still owns the majority of companies in Iran. At the end of 2016, there were 350 firms listed on the Tehran Stock Exchange (TSE), and approximately two-thirds of firms listed were state-owned or semi-state-owned enterprises (SOEs) and one-third non-state-owned enterprises. The concentration of ownership is also prevalent in non-state-owned enterprises where concentrated shareholders occupy positions on the boards of directors including chief executive officer of their own firms. Alternatively, such shareholders may maintain close relationships with the firms and control them through strategically aligned directors and chief executive officers (see Mashayekhi & Mashayekh, 2008; Roudaki, 2008). Consistent with prior studies (e.g., Leuz, Nanda, & Wysocki, 2003), concentrated shareholders do not perceive corporate auditing as a necessity, due to type II agency problems (information asymmetry). Furthermore, minority shareholders in Iran mostly act as speculators and pursue short-term benefits; consequently, they do not demand high-quality financial and auditing services (Yeganeh, 2006).

We extend the accounting literature by drawing on the “label-based price discrimination” view and applying this to explain the behavior of Iranian auditors with reference to the quality and fees of audit services. Prior studies find that, as quality-differentiated auditors, large international audit firms earn audit fee premiums resulting in price discrimination in the market (Ireland & Lennox, 2002). Marketing literature also suggests that, in addition to quality, higher price (i.e., audit fee premiums in the present study) can also be attributable to brand value (Anselmsson, Bondesson, & Johansson, 2014) or firm reputation, especially when the product or service quality is difficult to observe ex-ante (Allen, 1984).

A number of studies attribute the fee premium of large international auditors to audit firms' reputation resulting from product differentiation and industry specialization (e.g., Palmrose, 1986; Peel & Robert, 2003). For example, Craswell, Francis, and Taylor (1996) found that Big 6 (now Big 4) audit fee premiums represent brand name reputation rather than monopoly/oligopoly rents. However, Chaney, Jeter, and Shivakumar (2004) suggest that small client firms deem that Big 5 auditors are not better in terms of perceived quality of services offered; and the audit price thus may reflect reputation-based pricing. Similarly, Boon, Inder, Khurana, and Raman (2010) and Lawrence, Minutti-Meza, and Zhang (2011) detect no significant audit quality difference between Big 4 and second-tier auditors.

We thus examine this important audit pricing issue, of reputation versus quality of audit services, in the context of Iran. Although most prior studies have investigated audit quality and audit fee differences between large international audit firms in many developed and emerging countries, our analysis is the first to investigate the effect of a government-implemented ranking of audit firms on audit quality and audit fees.

In 2013, the Securities and Exchange Organization (SEO) of Iran disclosed a list of audit firms, ranking them into four categories based on a set of evaluation criteria to differentiate the quality of audit firms. The ranking resulted in determination of the type of clients that audit firms can have, and it created firm reputation or a “label” that can influence price, i.e., audit fee. However, the consequences of such ranking on audit quality and audit fees created two probable situations. Firstly, audit firms in the first-ranked group (supposedly the best-quality audit firm according to the evaluation criteria) provide high-quality audit services and earn fee premiums. If this is the case, the fee premium can be explained in line with the “quality-based price discrimination” view. Employing this perspective, prior studies document that, as quality-differentiated auditors, large international audit firms (such as Big 4) can earn fee premiums and are perceived to be more independent due to their large number of client firms. They are also viewed as being more competent in that they possess greater expertise and proper quality control systems (see Craswell, Francis, & Taylor, 1995; Francis, Maydew, & Sparks, 1999). In line with the characteristics of quality-differentiated auditors, the evaluation criteria of audit firms in Iran indicate that the first category of ranked audit firms are more likely to have a larger number of audit partners, audit staff and clients, more experienced audit partners and staff, proper quality control systems, and greater diversity in audit services. Hence, in accordance with the “quality-based price discrimination” view, audit firms in the first category of ranked audit firms are more likely to provide high-quality audit services and earn fee premiums.

Secondly, in a market where the quality of services cannot be easily observable, it is possible that ranked audit firms charge higher fees without providing superior audit services. This is consistent with Klein & Leffler's (1981) argument, in which the seller firms may

¹ Although MohammadRezaei et al. (2015) report much anecdotal evidence about the lack of demand for high-quality services in Iran, there is no empirical evidence in this area. To examine whether there is demand for high-quality audit services, we have applied a set of tests. Firstly, we test the effect of type II audit failure in the previous year on the current year of auditor switch. The findings employing the auditor switch model applied by Bagherpour et al. (2014) indicate that audit failure type II in the current year is less likely to result in auditor switch in the next year. In addition, we re-estimate the model by including audit failure in firm-level audit measured as year-by-year for each audit firm. Our findings show that audit failure in firm-level audit is less likely to be taken into account by client firms in auditor switching decision making. Overall, such results suggest that demand for high-quality audit service is weak in Iran.

continue to charge a premium price for an average product or services due to their reputation. In this study, we assume that the rank could become a reputation benchmark for price discrimination. As such, when there is less demand for high-quality audit services and there is a captured market, i.e., a non-free entry scenario, auditors are less motivated to provide significantly differentiated quality audit (Jeong & Rho, 2004). The argument on the captured market stems from a standard requirement documented in the Trustee Audit Firms (TAFs) Guidelines that, for example, only the first category of ranked audit firm can audit the largest listed companies (see Appendix 1 for a summary of the requirements). In contrast, Allen (1984) suggests that firms cannot maintain selling low-quality products or services at a premium price. Consumers may observe the quality, verify the price charged, and subsequently refuse to buy the products or services, in which case there should be product differentiation. This is evident from competition among audit firms following liberalization of the audit market in Iran in 2001. Since there are two contradictory arguments, it is interesting to test empirically which effect is more dominant in an emerging market economy such as Iran.

Using data from all listed firms on the TSE between 2006 and 2015, we find that audit quality as measured by three proxies—audit failure, audit opinions, and discretionary accruals of clients of the first group of ranked audit firms (which represent the highest ranked audit firm)—is not superior to that exhibited for firms employing lower-ranked audit firms. The results reveal that clients of the first-ranked audit firms pay higher audit fees than clients of lower-ranked audit firms. Taken together, our findings indicate that the first group, although labeled by the government to be the best-quality audit firms, earn fee premiums without actually providing premium audit quality. Such findings contest the “quality-based price discrimination” view and support the “reputation-based price discrimination” perspective. The results also suggest that a government regulatory body's ranking of the whole process has not brought about improved audit quality. Instead, it has generated economic problems that have negative consequences for client firms as reflected in higher audit fees.

The remainder of the present paper proceeds as follows. A brief review of the Iranian audit market is provided in Section 2. Research hypotheses are developed in Section 3. The sampling design and model specification are presented in Section 4. Section 5 presents the findings of the descriptive analysis, univariate analysis, and multivariate analysis, as well as the results from several robustness tests. The conclusions and final remarks are provided in Section 6.

2. Institutional background

2.1. The Iranian audit market

Prior to the Islamic Revolution in 1979, both national and international audit firms² operated in Iran. Following the Revolution, the demand for the services of privately owned audit firms dramatically decreased due to the nationalization program. Following nationalization, three semi-state audit firms were established to audit newly nationalized and confiscated businesses. Later in 1987, the Iran Audit Organization (IAO) was established as a state body by merging the three audit firms. Following the end of the war between Iran and Iraq in 1988, Iran's economy suffered significantly, and in order to promote economic growth the government adopted privatization policies. As a result, the IAO, as a state entity, experienced an increasing and insurmountable workload due to its responsibility for auditing a large number of state-owned enterprises as well as an increasing number of private firms (Mashayekhi & Mashayekhi, 2008; Roudaki, 2008).

To respond to the new needs, the Using Services of Certified Public Accountants Act was ratified by the Iranian Parliament in 1993. The Act, implemented in 2001, allows certified public accountants to provide audit services to the public sector entities. Audit market liberalization actually began with the founding of the Iranian Association of Certified Public Accountants (IACPA) in accordance with the Act. Following its establishment, many private audit firms registered as members of the IACPA (Bagherpour et al., 2014). As of July 2016, 265 private audit firms were listed as members of the IACPA.³ Before its formation, the IAO dominated the audit market of firms listed on the TSE from 1993 to 2001. Later in 2005, the New Securities Market Act (the Act) of the Islamic Republic of Iran, 40 years after the establishment of the TSE, was ratified, firstly, to respond to a new financial environment and, secondly, to provide a more advanced capital market. Based on this new law, the supervision and administration function was assigned to two separate bodies, i.e., the SEO and TSE.

In Iran, the National Accounting Standards are based on the International Accounting Standards (IAS), and similarly, national auditing standards are based on the International Auditing and Assurance Standards (IAAS). Since 1992, some standards have been modified to take into account Iran's socio-economic and cultural factors (Pourheydari & Abousaiedi, 2011). The corporate governance system in Iran is still beset by weak internal and external control mechanisms (Bagherpour et al., 2014; Mashayekhi & Bazaz, 2008). Major shareholders, including institutional investors, exercise their supervision by controlling management decisions and by appointing executives according to their preference. Although the first edition of The Iranian Code of Corporate Governance was published in 2004, it is not mandatory, so many firms have not implemented its provisions (Mashayekhi & Bazaz, 2008).

2.2. Audit firm ranking

Given that international audit firms have not been operating in Iran since the Islamic Revolution in 1979, there have been no mechanisms for client firms to differentiate between high-quality auditors and low-quality auditors. To redress this problem, the SEO

² International audit firms were banned from operating in Iran's audit market following the Islamic Revolution in 1979.

³ See www.iacpa.ir.

in 2006 accepted a number of private audit firms from the IACPA as Trustee Audit Firms (TAFs) and allowed them to provide audit services for firms listed on the TSE. There were 95 audit firms listed as TAF in 2015. This implies that less than half of private audit firms as members of the IACPA have passed the quality requirements of the SEO in an effort to become TAFs.⁴

The SEO developed and published the Guidelines for TAF ranking in 2012. Based on the Guidelines, the audit firms are ranked into four categories: “First,” “Second,” “Third,” and “Fourth.” According to these Guidelines, a “First” ranking implies high quality. The ranking is based on the total scores of TAFs with reference to the audit quality criteria included in the Guidelines for TAF ranking. The criteria include bases for evaluating audit partners, audit staff, structure of audit firm, audit services, audit quality, and any violations carried out by audit firms and partners. More details about the Guidelines are presented in Appendix A. Based on the Guidelines for TAF ranking, the categories of TAFs were published for the first time by the SEO in early 2013. Table 1 shows the number of TAFs since 2006 and TAF rankings since 2013. The SEO re-evaluates TAF Guidelines and publishes new categories of TAFs on a yearly basis.

In addition, like TAFs, note 5 of the Guidelines for TAF ranking categorizes listed firms on the TSE, or Iran Fara Bourse (OTC), into four groups: “First” (client firms with 5000 or more employees); “Second” (client firms with 2000 to 5000 employees); “Third” (client firms with 500 to 2000 employees); and “Fourth” (client firms with < 500 employees). Based on note 6 of the Guidelines, client firms are required to choose an auditor based on their category. In other words, a listed firm on the TSE or Iran Fara Bourse that is categorized under the “Second” category can only choose a TAF ranking from “Second” or “First” but not from the “Third” and “Fourth” categories.

3. Hypotheses development

We develop our hypotheses based on price discrimination theory as applied in accounting and other cognate disciplines. A firm can adopt a price discrimination strategy to present a pricing system for its products that is more diversified than that of its competitors by differentiating its goods or services on the basis of quality, label, time of sale, design, etc., or by offering different goods or services (Li & Dinlersoz, 2012; Scherer & Ross, 1990). “Quality-based price discrimination” and “reputation-based price discrimination” are two types of product price discrimination. Next, we introduce these price discrimination views in the accounting and economics literature, and develop hypotheses.

3.1. Quality-based price discrimination

Quality-based price discrimination refers to a pricing strategy whereby producers offer goods or services in somewhat differentiated grades, providing buyers with choices. According to Machlup (1955), the services to the buyer who pays the higher price are really superior in quality, even if their short-run marginal cost to the seller is not higher than that of the services sold at a lower price. Similarly, Shaked and Sutton (1982) argue that competing firms differentiating their goods or services are likely to set prices higher than marginal costs without losing their market share. However, Allen (1984) suggests that, in a competitive market, firms cannot maintain selling low-quality products or services at a premium price. Consumers may observe the quality, verify the price charged, and subsequently refuse to buy the products or services.

In the accounting domain, prior studies attribute the fee premium of large international (Big 4) auditors to, among other factors, reputation, product differentiation, and industry specialization (e.g., Palmrose, 1986; Peel & Robert, 2003). According to the quality differentiation view, large international auditors earn fee premiums because auditors conduct high-quality audits by investing greater resources (Palmrose, 1986) and utilizing highly experienced audit staff (Chan, Ezzamel, & Gwilliam, 1993). This is supported by Lee (1996), who examined the Hong Kong audit market to determine whether the audit fee premium reflects superior audit service or monopoly pricing. He found that Big 6 firms enjoy a price premium over the large local firms with a similar market share, and this premium is a result of product differentiation rather than monopoly pricing.

For our setting, a review of the criteria as depicted in Panel A of Table I (Appendix A) indicates that first-ranked TAFs are more likely to have a larger number of audit partners, audit staff and clients, more experienced audit partners and staff, well-organized systems, diversity in audit services, and proper quality control systems. As per the criteria used to classify Iranian TAFs based on the Guidelines, a first-ranked TAF is expected to provide higher quality audit services. Based on the “quality-based price discrimination” view, first-ranked TAFs are likely to earn fee premiums by providing high-quality audit services.

3.2. Reputation-based price discrimination

Reputation-based price discrimination to a great extent is determined by brand reputation or class, which is closely related to the perceived quality of the product or service (Aaker & Keller, 1990; Anselmsson et al., 2014; Shapiro, 1982).

The contemporary research findings in marketing correlate higher brand reputation with higher prices, if the latter are based on high quality and differentiation (e.g., Sriram, Balachander, & Kalwani, 2007; Stiglitz, 1987). Klein & Leffler (1981) suggest that seller firms may continue to charge a premium price for average products or services due to their reputation when the entry to the market is restricted. Shapiro (1983), on the other hand, suggests that such a strategy is not feasible in the long term, because the price premium obtained is just enough to recover initial investment in creating the reputation.

⁴ By December 2015, 267 private audit firms were listed as IACPA members.

Table 1
TAF ranking.

Year	First-ranked	Second-ranked	Third-ranked	Fourth-ranked	Total number
2006	–	–	–	–	78
2007	–	–	–	–	80
2008	–	–	–	–	84
2009	–	–	–	–	95
2010	–	–	–	–	102
2011	–	–	–	–	109
2012	–	–	–	–	112
2013	16	38	41	15	112
2014	20	35	31	26	108
2015	26	29	36	4	95

An extension to these arguments is that quality of goods is related to firm reputation—i.e., low-quality goods, although realized ex-post, could tarnish firm reputation, and this subsequently stops or discourages the firm from charging the premium price (Allen, 1984). Consumers may adopt a boycott strategy and consequently choose other firms. However, restriction on entry to the market (due to costs or regulations) for other firms wanting to enter into arrangements with a specific clientele segment limits such a possibility. As such, price premiums could exist. In line with this accounting literature and with reference to privately owned U.S. firms, Chaney et al. (2004) have provided evidence that such firms do not generally pay a premium audit fee. They find that client firms choosing Big 4 auditors overall would have faced higher fees had they selected non-Big 5 auditors, given their firm-specific characteristics. Furthermore, their results suggest that private firms do not, on average, view Big 5 auditors as superior in terms of the perceived quality of the services provided to a degree significant enough to warrant a fee premium, which may reflect reputation-based pricing.

According to the “reputation-based price discrimination” view, first-ranked TAFs may engage in price discrimination, i.e., fee premiums, based solely on the label (as first-ranked TAFs or large audit firms). Although the rank is implemented by the SEO, such price discrimination can occur ex-post—i.e., the price can be increased due to the new image, ceteris paribus. Since audit quality is costly to evaluate (DeAngelo, 1981) and large international audit firms have not operated in Iran, first-ranked TAFs are likely to be able to apply “reputation-based price discrimination” as a strategy. This is the case because the SEO ranked TAFs and labeled first-ranked TAFs as high-quality auditors, and required large clients to receive audit work from them. In short, in accordance with the “reputation-based price discrimination” view, first-ranked TAFs are likely to earn fee premiums by not providing superior audit services compared with lower-ranked audit firms.

3.3. Hypotheses

In light of the two opposing price discrimination views, two contradictory arguments are developed regarding the possible effects of audit firm ranking on audit quality and audit fees. Although the first-ranked TAFs will in all likelihood have the ability to provide high-quality audit services, the audit quality of first-ranked TAFs is less likely to be higher and audit fees more likely to be higher than those of non-first-ranked TAFs, given the factors discussed above. Hence, two hypotheses are developed, without determining the direction, as follows:

Hypothesis 1. (H₁): There is a significant association between audit firm rank (first-ranked vs. non-first-ranked) and audit quality.

Hypothesis 2. (H₂): There is a significant association between audit firm rank (first-ranked vs. non-first-ranked) and audit fees.

4. Model development and data

4.1. Model specification

4.1.1. Audit quality models

To test the first hypothesis, the following regression models are utilized. Model (1) and Model (2) test the relationship between first-ranked private TAFs and audit quality measured by audit failure, modified audit opinions and discretionary accruals (H₁), as follows:

$$\begin{aligned}
 \text{AudFail or AudOpn}_{it} = & \beta_0 + \beta_1 \text{FirstRankAud}_{it} + \beta_2 \text{AudChg}_{it} + \beta_3 \text{Size}_{it} + \beta_4 \text{Lev}_{it} \\
 & + \beta_5 \text{InvRe}_{it} + \beta_6 \text{Loss}_{it} + \beta_7 \text{Subs}_{it} + \beta_8 \text{FYEnd}_{it} + \beta_9 \text{Age}_{it} + \beta_{10} \text{ConOwn}_{it} + \beta_{11} \text{NStOwn}_{it} \\
 & + \sum \beta_j \text{IndustryDum} + \sum \beta_k \text{YearDum} + \varepsilon_{it}
 \end{aligned} \quad (1)$$

where

$\text{AudFail} = 1$ if the audit opinion is unqualified in the prior year but financial statements were restated in the current year to correct the last year errors, and 0 otherwise;

AudOpn = 1 if the audit opinion is qualified and 0 for unqualified audit opinion;
FirstRankAud = 1 if the auditor is a private TAF and ranked as “First” (first-ranked), and 0 if it is other TAF ranked such as “Second”, “Third” and “Fourth” (non-first-ranked);
AudChg = 1 if auditor switched, and 0 otherwise;
Size = is the natural log of the total assets for a firm;
Lev = total debt divided by the book value of the total assets;
InvRec = proportion of inventory and receivables to total assets;
Loss = 1 if a client has negative net income, and 0 otherwise;
Subs = the number of a firm's subsidiaries;
FYEnd = 1 if the fiscal year-end of a firm is 20 March, and 0 otherwise;
Age = natural log of the number of years from the establishment of a client firm;
Conown = percentage of a firm's outstanding shares that are owned by the largest shareholder;
NStOwn = 1 if more than 50% of a firm's shares are owned by private shareholders, and 0 otherwise (if more than 50% of a firm's shares are owned by the state or semi-state firms);
IndustryDum = the dummies for 8 industry groups;
YearDum = the dummies for fiscal years;
 ε = error term.

The principal coefficient of interest is β_1 in Model (1). The effects of a subset of firm-specific and auditor-related factors on audit opinions are controlled in Model (1), which have been developed following prior studies (e.g., Barnes & Renart, 2013; Su & Wu, 2016).⁵

There are three main reasons why auditors may make a “Type II error”: (i) a lack of ability of auditors to detect breaches in a client's financial statements (the “incompetence hypothesis”); (ii) a lack of ability of auditors to report the detected breaches (the “lack of independence hypothesis”); and (iii) the chance of error (see Barnes & Renart, 2013). Type II error can be applied as one of the more direct measures of audit quality with low measurement error, and refers to no audit report qualification in the previous year but a restatement of financial statements in the current year (Barnes & Renart, 2013; DeFond & Zhang, 2014).⁶

The issuance of a modified audit opinion implies that auditor independence and audit quality are higher (see DeFond, Raghunandan, & Subramanyam, 2002). Many studies apply modified audit opinions, in general, and going concern audit opinions, in particular, as indicators of audit quality (e.g., Basioudis, Papakonstantinou, & Geiger, 2008; Knechel & Vanstraelen, 2007). Since there are insufficient cases of going concerns issued in the period, we use modified audit opinion as a measure of audit quality, following prior studies (e.g., Chan, Lin, & Mo, 2006; Chen, Tang, Jiang, & Lin, 2010). Given that auditing standards in Iran are modelled on the International Auditing and Assurance Standards (IAASB), four types of opinions can be issued, namely, unqualified, qualified, disclaimer, and adverse. *AudOpn* equals 1 if the client receives a modified audit opinion (qualified, disclaimer, and adverse) from the auditor, and 0 otherwise (unqualified).

Many studies apply a dummy variable of large international auditors vs. non-large international auditors to examine the effect of quality-differentiated auditors on audit fees (e.g., Chen, Su, & Wu, 2007; Palmrose, 1986; Peel & Robert, 2003). Since large international audit firms have not operated in Iran since the Islamic Revolution, the only available reliable criterion to discriminate high-quality auditors from others is the ranking of TAFs published by the SEO. Hence, *FirstRankAud* is defined as a dummy variable equal to 1 if the auditor is a private TAF and ranked as “First,” and equal to 0 if it is a non-first-ranked TAF (ranked as “Second,” “Third,” or “Fourth”). We differentiate audit firms for observations before 2013 based on audit firm ranking in 2014. This is the case because 20 of the first-ranked TAFs in 2014 are audit firms regarded as high quality due to their size (large) and history.

Model (2) is developed to test the relationship between first-ranked private TAFs and the discretionary accruals of client firms (our third measure of audit quality). The regression model is as follows:

$$\begin{aligned}
 AbsDisAcc_{it} = & \beta_0 + \beta_1 FirstRankAud_{it} + \beta_2 AudChg_{it} + \beta_3 Size_{it} + \beta_4 Lev_{it} + \beta_5 Loss_{it} \\
 & + \beta_6 SaleGrowth_{it} + \beta_7 Issue_{it} + \beta_8 Subs_{it} + \beta_9 FYEnd_{it} + \beta_{10} Age_{it} + \beta_{11} ConOwn_{it} + \beta_{12} \\
 & NStOwn_{it} + \sum \beta_j IndustryDum + \beta_k YearDum + \varepsilon_{it}
 \end{aligned} \quad (2)$$

where *AbsDisAcc* denotes absolute discretionary accruals, as measured by the model developed by Kothari, Leone, and Wasley (2005). *Salegrowth* is defined as the one-year growth rate in sales. *Issue* is a dummy variable equal to 1 if a firm issued common or preferred stocks, and 0 otherwise. All other variables in Model (2) have been defined earlier (see Appendix B).

Kothari et al. (2005) developed a performance-matched discretionary accruals model to allay misspecification problems when used for samples experiencing non-random performance:

⁵ Some variables are not included in the models employed in the present study, such as foreign investors, non-audit fees, and audit committee. Although the effects of these variables are examined by several other studies, such variables cannot be included here as a result of the unique circumstances of auditing and financial reporting in Iran. Since the Islamic Revolution, the level of foreign investment is negligible. Non-audit fees of businesses and governance systems in Iran are not common. The formation of an audit committee is newly enforced for listed firms.

⁶ In the Iranian audit market, *AudFail* seems to be a more accurate indicator than restatement of financial statements. This is the case because the ratio of audit report modification is high in Iran (MohammadRezaei, Mohd-Saleh, Jaffar, & Sabri, 2016). In this type of situation, if we use the restatements of financial statements in the next year as a measure of audit quality, this would result in misleading inferences.

$$TA_t = \alpha_0 + \alpha_1(\Delta REV_t - \Delta AR_t) + \alpha_2 PPE_t + \alpha_3 ROA_{t-1} + \varepsilon_t \quad (3)$$

All variables, except ROA, are scaled by lagged total assets. *TA* is the total accruals, calculated as the difference between net income before extraordinary items and cash flow from operations. ΔREV is the change in revenue between year *t* and *t-1*. ΔAR is the change in accounts receivable between year *t* and *t-1*. *PPE* refers to a company's gross property, plant, and equipment.

To obtain industry-specific parameters to compute the non-discretionary components of total accruals, Model (3) is applied for firms in the same industry (based on the SEO's industry classification) in each year. Discretionary accruals are residuals obtained from Model (3).

4.1.2. Audit fees model

To test the second hypothesis, we employ the following regression model. Model (4) tests the effect of audit firm ranking on audit fees (H_2), and is as follows:

$$\begin{aligned} \text{AudFee}_{it} = & \beta_0 + \beta_1 \text{FirstRankAud}_{it} + \beta_2 \text{AudOpn}_{it} + \beta_3 \text{AudChg}_{it} + \beta_4 \text{Size}_{it} + \beta_5 \text{Lev}_{it} + \beta_6 \text{InvRec}_{it} + \beta_7 \\ & \text{Loss}_{it} + \beta_8 \text{ATurn}_{it} + \beta_9 \text{Subs}_{it} + \beta_{10} \text{Issue}_{it} + \beta_{11} \text{FYEnd}_{it} + \beta_{12} \text{Age}_{it} + \beta_{13} \text{ConOwn}_{it} + \beta_{14} \\ & \text{NStOwn}_{it} + \sum \beta_j \text{IndustryDum} + \beta_k \text{YearDum} + \varepsilon_{it} \end{aligned} \quad (4)$$

The principal coefficient of interest is β_7 in Model (4), and it is expected to be positive. The effects of a subset of firms' specific factors and auditor-related factors on audit fees are controlled for in Model (4). Consistent with prior studies, the natural logarithm of total audit fees (*AudFee*) is applied to test the hypothesis (e.g., Blankley, Hurtt, & MacGregor, 2012; Sundgren & Svanström, 2014). *ATurn* is asset turnover, computed as sales divided by total assets.

4.2. Control variables for models (1), (2), and (4)

We include several control variables in the regression models. Consistent with Chan et al. (2006), we include auditor change (*AudChg*) in Model (1) and predict it to have a positive (negative) effect on the occurrence of a Type II error (issuance of a modified audit opinion). We include client firm size (*Size*), Leverage (*Lev*), and (*InvRec*) and (*Subs*) to control for client's size, financial risk, and complexity effect (DeFond, Wong, & Li, 2000). Negative financial performance (*Loss*) of client firms is more likely to result in Type II error and modified audit opinions (see Chan et al., 2006). We include firm age (*Age*) and expect it to have a negative relationship with Type II error and modified audit opinions. Type II audit failure (audit report modification) is more likely to be high (low) for client firms with fiscal-year-end (*FYEnd*) in a busy auditing season.⁷ To capture the effect of ownership structure, we include non-state ownership (*NStOwn*) and ownership concentration (*ConOwn*) in Model (1).

For Model (2), we include *AudChg*, because Johnson, Davies, and Freeman (2002) find that larger discretionary accruals occur during the first three years of an auditor engagement than after four or more years. *Lev* and *Size* are included following Badolato, Donelson, and Matthew (2014). Clients raising capital (*Issue*) tend to manage earnings more aggressively (Teoh, Welch, & Wong, 1998). Firms with higher growth (*SaleGrowth*) enjoy a propensity to record higher amounts of discretionary accruals (McNichols, 2000). Dechow and Dichev (2002) provide evidence that poor performance (*Loss*) is associated with lower-quality earnings. We also include subsidiaries (*Subs*)⁸ and fiscal-year-end (*FYEnd*) to control for client complexity and auditor busyness. Total accruals are expected to be high for firms in growth stages (*Age*) than firms in stagnant stages (Anthony & Ramesh, 1992). Given that ownership types such as state ownership and concentrated ownership are documented in other studies as effective factors in earnings management (e.g., Ding, Zhang, & Zhang, 2007), we include the types of ownership (*NStOwn* and *ConOwn*) in the model. Ding et al. (2007) find that state ownership yields a higher entrenchment influence on earnings management. Leuz (2006) detects a positive relationship between concentrated ownership and earnings management.

In Model (4), we control for several variables found to be significant determinants of audit fees in prior studies (e.g., Blankley et al., 2012; Johl, Subramaniam, & Zain, 2012). Client complexity is controlled for by including client size (*Size*) and client subsidiaries (*Subs*) in the audit fee models. Prior studies (e.g., Whisenant, Sankaraguruswamy, & Raghunandan, 2003) suggest that audit fees should be lower during the initial engagement (*AudChg*). The possible influence of client risk on audit fees is controlled for by asset turnover (*ATurn*), profitability (*Loss*), and leverage (*Lev*). Auditors must spend more time examining the following: receivable confirmation, inventories (*InvRec*), equity issues (*Issue*), and the issuance of modified audit opinions (*AudOpn*). Audit fees are expected to be higher for clients with a fiscal-year-end during the busy season (*FYEnd*). We include *Age* to control for possible effects of client firm age on audit fees.

⁷ A large percentage of firms listed on the TSE report in accordance with the Iranian calendar year (Hijri Shamsi). Hence, the busy season for audit firms falls around March 20, as this is typically the end of the fiscal year.

⁸ Kallapur, Sankaraguruswamy, and Zang (2010) apply two variables to capture the effect of client complexity on earnings management, including: (i) dummy variable of foreign subsidiary; and (ii) the square root of the number of business and geographic segments disclosed. It is important to note that almost all listed firms on the TSE are local (non-international). In addition, listed firms on the TSE do not comply with the segment reporting standards' requirements. Hence, data are not available regarding the number of business and geographic segments for listed firms on the TSE.

4.3. Endogenous auditor choice

Since client firms select their auditors, endogeneity issues should be considered in our analysis (see Chaney et al., 2004; Titman & Trueman, 1986). In the presence of endogeneity problems, ordinary least squares (OLS) methods yield inconsistent estimates (Chaney et al., 2004). Models (1), (2), and (4) do not take into account that client firms self-select their auditors. In the present study, large client firms are likely to choose first-ranked TAFs, while small client firms select non-first-ranked TAFs. Such situations may raise the concern whether our findings regarding audit quality and audit fee differences between first-ranked TAFs and non-first-ranked TAFs are attributable to different desires and characteristics of different types of client firms. To control for self-selection bias, we employ propensity-score matching models developed by Rosenbaum and Rubin (1983), partition the research sample into two (large and small), and run Models (1), (2), and (4). Although the Inverse Mills Ratio has been widely used in accounting and auditing studies, it has been criticized (e.g., Lennox, Francis, & Wang, 2012) because of its weaknesses in controlling for self-selection bias.

Consistent with prior studies in the accounting field (e.g., Lawrence et al., 2011), we employ Model (5) to estimate the probability of selecting a first-ranked private TAF (*FirstRankAud*). Then, we match—without replacement—a first-ranked TAF client with a non-first-ranked TAF client using the “nearest neighbor matching” procedure. In other words, client firms of first-ranked TAFs with different characteristics (e.g., very large clients) do not match with client firms of non-first-ranked TAFs and are removed from the matched sample. Finally, we estimate Models (1), (2) and (4) based on this propensity-score matched sample (PSMS) and present the results in Tables 4 and 5 along with the OLS estimates:

$$\begin{aligned} \text{FirstRankAud}_{it} = & \lambda + \gamma_1 \text{NStOwn}_{it} + \gamma_2 \text{ConOwn}_{it} + \gamma_3 \text{AudOpn}_{it} + \gamma_4 \text{Lev}_{it} + \gamma_5 \text{InvRec}_{it} + \gamma_6 \text{Loss}_{it} \\ & + \gamma_7 \text{Subs}_{it} + \gamma_8 \text{FYEnd}_{it} + \gamma_9 \text{Age}_{it} + \gamma_{10} \text{SaleGrowth}_{it} + \gamma_{11} \text{Aturn}_{it} + \sum \beta_j \text{IndustryDum} \\ & + \beta_k \text{YearDum} + \delta_{it} \end{aligned} \quad (5)$$

where

All variables included in Model (5) are as defined in previous sections.

4.4. Data collection

We collect data regarding restatements, audit opinions, auditor types, audit fees, and other characteristics of client firms from the annual reports of firms listed on the TSE between 2006 and 2015.⁹ The annual reports are available on the website of Research, Development and Islamic Studies (RDIS)¹⁰ of the SEO and on the website of the Comprehensive Information System of listed firms (CODAL).¹¹ We investigate only private TAFs because the IAO, as a state audit firm, has a monopolistic market share regarding state-owned enterprises, thus we exclude client firms audited by the IAO (825 firm-year observations). Furthermore, we exclude 156 firm-year observations due to delisting, 323 firm-year observations from financial institutions, and 143 observations for missing information, leading to the final sample of 918 firm-year observations audited by private TAFs that voluntarily disclosed audit fees during the years 2006 to 2015. The data collection process is presented in Table 2.

5. Results

5.1. Descriptive statistics

The descriptive statistics of the research variables are shown in Panels A and B of Table 3. Panel A presents the descriptive statistics of all variables. To mitigate the effect of outliers, all continuous variables are winsorized at the 1% and 99% levels. Panel A of Table 3 shows that the mean of *AudOpn* is 61% and the mean of *AudFail* is 30%. In addition, Panel A of Table 3 reveals that 57% clients in the research sample were audited by first-ranked TAFs. The mean of *AbsDisAcc* is 7.1%. This is consistent with the mean *AbsDisAcc* of 7.6% and 5% obtained for French and Spanish listed firms, respectively (Rodriguez-Perez & Hemmen, 2010; Zeghal, Chtourou, & Sellami, 2011). The mean of leverage (*Lev*) is 67%, which is consistent with Moayed and Aminfarid (2012), who note that the finance system in Iran is dominated by creditors (credit-insider system).¹² The average ownership concentration (where the firm's owner holds the largest portion of a firm's shares) is 53%, which demonstrates a high level of ownership concentration.¹³

Univariate analysis of the difference between the audit failure, audit opinions, discretionary accruals, and audit fees of first-ranked and non-first-ranked TAFs is shown in Panel B of Table 3. The table indicates that the mean of *AbsDisAcc* is not lower for first-ranked TAFs compared with non-first-ranked TAFs. However, the mean *AudFee* is higher for firms audited by first-ranked TAFs compared to non-first-ranked TAFs. Panel B of Table 3 indicates that, in contrast with the recommendation of SEO, first-ranked TAFs

⁹ Given that the SEO was founded in 2006, data before that date were not available.

¹⁰ <http://www.rdis.ir/CompaniesReports.asp>.

¹¹ <http://www.codal.ir/Search.aspx>.

¹² In the “credit-insider” system, financing is obtained primarily from the banks and the state. However, in an “equity-outsider” system, financing is principally obtained from the public and capital markets (see Nobes, 1988).

¹³ Because of weak investor protection laws, concentrated ownership is prevalent in Iran. Surveys conducted by TSE managers and the Parliament Research and Development Center during the first decade of the twenty-first century reveal that foundation groups and the Iranian government are the controlling shareholders of most firms listed on the TSE (see Mashayekhi & Mashayekh, 2008).

Table 2
Data collection.

Data collection process	Total Sample
Initial observations (from 2006 to 2015)	3807
Less: observations audit by state auditors (IAO)	825
Less: firms delisted	156
Less: financial institutions	323
Less: observations with missing value on financial information or other control variables to be adopted in the present study	143
Subtotal: number of observations with available data	2360
Less: observations with no audit fees data	1442
Observations in final analysis	918

Table 3
Descriptive statistics.

Panel A: Descriptive statistics of variables					
Variables	Mean	Median	SD	Maximum	Minimum
<i>AudFail</i>	0.298	0.000	0.458	1.000	0.000
<i>AudOpn</i>	0.606	1.000	0.489	1.000	0.000
<i>FirstRankAud</i>	0.568	1.000	0.495	1.000	0.000
<i>AbsDisAcc</i>	0.073	0.050	0.051	0.489	0.000
<i>Audfee</i>	5.921	5.886	0.726	7.604	4.201
<i>AudChg</i>	0.254	0.000	0.435	1.000	0.000
<i>Size</i>	12.892	12.784	1.229	15.610	10.121
<i>Lev</i>	0.673	0.648	0.289	1.985	0.170
<i>InvRec</i>	0.511	0.534	0.203	0.852	0.055
<i>Loss</i>	0.149	0.000	0.357	1.000	0.000
<i>Subs</i>	0.223	0.000	0.416	1.000	0.000
<i>FYEnd</i>	0.741	1.000	0.438	1.000	0.000
<i>Issue</i>	0.166	0.000	0.373	1.000	0.000
<i>Age</i>	3.465	3.611	0.607	7.203	1.386
<i>ConOwn</i>	0.529	0.520	0.231	0.990	0.020
<i>NStOwn</i>	0.368	0.000	0.482	1.000	0.000
<i>SaleGrowth</i>	0.202	0.142	0.419	1.506	-0.603
<i>ATurn</i>	0.863	0.792	0.516	2.612	0.051

Panel B: Univariate test of differences							
Continuous variables-(t-Test)				Dichotomous variables-(Chi-Square test)			
Variables	First-ranked TAF (n = 518)	Non-first-ranked TAF (n = 400)	t-stat	Variables	First-ranked TAF (n = 518)	Non-first-ranked TAF (n = 400)	Chi-Square
<i>DisAcc</i>	0.074	0.072	0.30	<i>AudOpn</i>	288	262	9.08***
<i>AudFee</i>	6.019	5.794	4.71***	%	56	66	
<i>Size</i>	12.989	12.765	2.75***	<i>AudFail</i>	155	95	5.62***
<i>Lev</i>	0.630	0.729	-5.19***	%	19	11	
<i>InvRec</i>	0.513	0.509	0.32	<i>AudChg</i>	121	112	2.98*
<i>Age</i>	3.476	3.451	0.59	%	23	28	
<i>ConOwn</i>	0.538	0.519	1.22	<i>Subs</i>	115	88	0.65
<i>SaleGrowth</i>	0.189	0.219	-1.07	%	22	22	
<i>ATurn</i>	0.905	0.808	2.81**	<i>Issue</i>	100	65	0.24
				%	19	16	
				<i>FYEnd</i>	391	289	0.14
				%	75	72	
				<i>NStOwn</i>	188	154	0.76
				%	36	38	

Note: *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

compared to non-first-ranked TAFs issued fewer modified audit opinions and experienced higher audit failure. Furthermore, the client firms of first-ranked TAFs are larger (*Size*) than clients of non-first-ranked TAFs. Such a finding is consistent with the Guidelines for TAF ranking enacted by the SEO. In addition, leverage (*Lev*) is lower for client firms audited by first-ranked TAFs.

The correlation coefficient tables (untabulated) for Model (1), Model (2), and Model (4) show that the highest pairwise correlation of coefficient is -0.488 between *Lev* and *Loss*, followed by 0.245 between *Lev* and *InvRec*, and none of the other correlations

are above 0.21. This suggests that multicollinearity is not a problem in the multiple regression analyses, since the highest Variance Inflation Factor (VIF) in all models is 2.23, which is well below the acceptable threshold of 10 (Field, 2013).

5.2. Multivariate analysis

5.2.1. Audit quality models results

Panel A of Table 4 presents the results of the multivariate analyses for the audit failure model. It shows that the coefficient on *FirstRankAud* is 0.426, which is significantly ($P \leq 0.05$) positively associated with *AudFailB*. Suggested here is that, compared to the non-first-ranked TAFs, Type II error is higher for first-ranked TAFs. Such a finding not only does not support the claim of SEO, but also goes against the claim that first-ranked TAFs are high-quality auditors. Thus, our first hypothesis that first-ranked audit firms do not provide higher quality audit service is supported. The propensity score matched sample (PSMS) results reveal consistent results. The coefficient on *FirstRankAud* is 0.065 and is significant ($p < 0.05$), suggesting that the findings are not affected by self-selection bias.

Regarding the control variables, *Size*, *Lev*, and *NStOwn* are negatively associated with Type II error, but Type II error is higher for client firms with fiscal-year-end in a busy season (*FYEnd*). The PSMS also indicates similar results.

Panel B of Table 4 shows the results of the multivariate analyses for the audit opinions model. The coefficient on *FirstRankAud* is -0.588 , which is negatively ($P < .001$) associated with *AudOpn*, and this is consistent with the first hypothesis (H_1). This finding indicates that first-ranked TAFs are less likely to issue modified audit opinions for client firms. Based on the Guidelines for TAF ranking published by the SEO, it is expected that first-ranked TAFs are more likely to issue modified audit reports for their client firms. However, in contrast with this expectation and the quality-based price discrimination view, our findings reveal that, compared to non-first-ranked TAFs, first-ranked TAFs issue significantly less modified audit opinions for client firms.

Referring to control variables, *Size* is positively associated with modified audit opinions, which is consistent with the arguments of Abdel-Khalik (1993). Panel B of Table 4 also reveals that client firms with high leverage (*Lev*), weak financial performance (*Loss*), and non-state ownership (*NStOwn*) are more likely to receive modified audit opinions. Client firm age (*Age*) is positively associated with issuance of modified audit opinions. In addition, audit report modification is lower for client firms with fiscal-year-end (*FYEnd*) in a busy season of auditing. Furthermore, the results of the audit opinions model based on the PSMS are consistent with the main findings, since the coefficient on *FirstRankAud* is -0.09 , which is significant ($p < 0.05$).

Panel C of Table 4 shows that *FirstRankAud* has an insignificant relationship with *AbsDisAcc* (coeff = 0.004, t value = 0.76). This demonstrates that discretionary accruals are not lower for clients audited by first-ranked TAFs than those of client firms of non-first-ranked TAFs. Consistent with the findings regarding audit report modification and audit failure, this outcome indicates that first-ranked TAFs do not provide significantly higher-quality audit services compared to other firms, as measured by a client firm's discretionary accruals. The PSMS results also reveal that *AbsDisAcc* is not significantly associated with *FirstRankAud*, suggesting that selection bias has not affected the main findings. Our findings, based on three measures—audit quality, audit report modification, and discretionary accruals—do not support the quality-based price discrimination view or the claim by the SEO in relation to the higher quality of first-ranked TAFs. They do, however, support the reputation-based price discrimination view.

With reference to control variables, *SaleGrowth* is positive and non-state ownership (*NStOwn*) is negatively associated with discretionary accruals. As well, the results of the discretionary accruals model based on the PSMS are consistent with the main findings. These findings indicate that self-selection bias is not an issue in model development. In the next section we test whether first-ranked TAFs where quality is not differentiated actually earn fee premiums.

5.2.2. Audit fee model results

Table 5 shows the results of the multivariate analyses for the audit fee model. Consistent with the second hypothesis (H_2), *FirstRankAud* is positively associated (coeff = 0.174, $t = 5.02$) with *AudFee*. This finding indicates that first-ranked TAFs labeled as high-quality auditors are more likely to charge audit fees larger than the fees charged by non-first-ranked TAFs. Such a result means that client firms rely on the TAF ranking list published by the SEO and pay premium fees to first-ranked TAFs for their audit services. The earlier findings regarding the audit quality of the first-ranked TAFs (in Table 4) reveal that they do not provide higher-quality audit services compared to non-first-ranked TAFs, yet they do charge a fee premium. Such findings are in contrast to the quality-based price discrimination view and support the reputation-based price discrimination view, in which first-ranked TAFs earn fee premiums based on reputation but not quality differentiation. The PSMS model also shows very consistent results in that *FirstRankAud* has a coefficient of 0.144, which is significant at the 1% level.

Commenting on control variables, Table 5 reveals that client firms receiving modified audit opinions (*AudOpn*) pay lower audit fees. This is inconsistent with the notion that auditors expressing modified opinions need to bargain with their client firms and provide sufficient documentation to support their opinion (Xie, Cai, & Ye, 2010). Audit fee is higher for large clients (*Size*), complexity (*InvRec*), firm performance (*Loss*), and firm age (*Age*), which is consistent with prior studies (Blankley et al., 2012; Doa, Raghunandan, & Rama, 2012). Furthermore, *ATurn* and *Subs* are positively associated with *AudFee*. These findings imply that auditors charge higher fees for engagements where more audit work is required. The table also shows that *ConOwn* is positively associated with *AudFee*. This finding is in contrast with the notion that a dispersed ownership structure increases the likelihood of audit risk because a large number of investors rely on audited financial statements. All models are highly significant ($p < 0.01$), and White's heteroskedasticity-corrected T and Z statistics are reported in Tables 4 and 5.

Table 4
Regression results for audit failure, audit opinions, and discretionary accruals models.

Panel A: Audit Failure Model.					
Variable	Expected Sign	Model (1)		Model (1)- Propensity score matched sample (N = 648)	
		(N = 835)			
		Coefficient	Z-Stat	Coefficient	Z-Stat
<i>Intercept</i>		4.571***	-3.14	0.979***	3.96
<i>FirstRankAud</i>	?	0.426**	2.37	0.065**	2.02
<i>AudChg</i>	+	0.193	0.98	0.039	1.05
<i>Size</i>	?	-0.427***	-4.63	-0.064***	-3.72
<i>Lev</i>	+	-0.942*	-1.85	-0.147**	-2.11
<i>InvRec</i>	+	-0.826	-1.39	-0.056	-0.52
<i>Loss</i>	+	0.675*	1.88	0.073	1.33
<i>Subs</i>	+	-0.095	-0.37	0.008	0.20
<i>FYEnd</i>	+	0.654***	2.67	0.083**	2.03
<i>Age</i>	+	-0.166	-1.07	-0.031	-1.13
<i>ConOwn</i>	-	0.510	1.29	0.009	0.11
<i>NStOwn</i>	?	-0.740***	-3.82	-0.136***	-3.90
<i>Pseudo R²</i>		0.19		0.18	
<i>Wald Chi2</i>		134.87***		6.52***	

Panel B: Audit Opinions Model.					
Variable	Expected Sign	Model (1)		Model (1)- Propensity score matched sample (N = 796)	
		(N = 918)			
		Coefficient	Z-Stat	Coefficient	Z-Stat
<i>Intercept</i>		-4.770***	-3.66	-0.172	-0.70
<i>FirstRankAud</i>	?	-0.588***	-3.42	-0.090***	-3.00
<i>AudChg</i>	-	-0.340*	-1.80	-0.044	-1.23
<i>Size</i>	?	0.313***	3.84	0.048***	3.03
<i>Lev</i>	+	1.402**	2.48	0.201***	3.20
<i>InvRec</i>	+	0.180	0.32	0.047	0.47
<i>Loss</i>	+	1.014***	2.95	0.125***	2.60
<i>Subs</i>	+	0.370	1.45	0.005	0.13
<i>FYEnd</i>	-	-0.811***	-3.71	-0.138***	-3.58
<i>Age</i>	?	0.501***	3.17	0.068**	2.51
<i>ConOwn</i>	-	0.023	0.06	0.059	0.80
<i>NStOwn</i>	+	1.007***	5.54	0.184***	5.55
<i>Pseudo R²</i>		0.25		0.26	
<i>Wald Chi2</i>		206.10***		11.55***	

Panel C: Discretionary Accruals Model.					
Variable	Expected Sign	Model (2)		Model (2)- Propensity score matched sample (N = 796)	
		(N = 918)			
		Coefficient	Z-Stat	Coefficient	Z-Stat
<i>Intercept</i>		0.082**	2.11	0.102**	2.51
<i>FirstRankAud</i>	?	0.004	0.76	0.002	0.30
<i>AudChg</i>	+	0.002	0.38	0.004	0.62
<i>Size</i>	?	0.004*	1.71	0.003	0.97
<i>Lev</i>	+	-0.004	-0.38	0.006	0.54
<i>Loss</i>	+	0.004	0.49	0.008	1.01
<i>SaleGrowth</i>	+	0.009*	1.75	0.013**	2.03
<i>Issue</i>	+	-0.006	-1.02	-0.008	-1.08
<i>Subs</i>	+	-0.005	-0.79	-0.007	-1.11
<i>FYEnd</i>	+	-0.004	-0.67	-0.005	-0.82
<i>Age</i>	-	-0.001	0.07	-0.001	-0.24
<i>ConOwn</i>	+	-0.013	-1.20	-0.017	-1.32
<i>NStOwn</i>	-	-0.013**	-2.45	-0.015***	-2.62
<i>R²</i>		0.18		0.16	
<i>F-stat</i>		7.31***		6.51***	

Note: * **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. *IndustryDum* and *YearDum* included in all models.

Table 5
Regression estimates for audit fees.

Variables	Expected Sign	Model (4)		Model (4)- Propensity score matched sample (N = 796)	
		(N = 918)			
		Coefficient	T-Stat	Coefficient	T-Stat
<i>Intercept</i>		1.285***	5.10	1.849***	6.61
<i>FirstRankAud</i>	?	0.174***	5.02	0.144***	4.27
<i>Audopn</i>	+	-0.065*	-1.66	-0.086**	-2.17
<i>Audchg</i>	-	0.018	0.47	0.013	0.35
<i>Size</i>	+	0.289***	16.49	0.244***	13.60
<i>Lev</i>	+	0.097	1.36	0.161**	2.29
<i>InvRec</i>	+	0.463***	4.52	0.419***	3.75
<i>Loss</i>	+	0.120**	2.33	0.118**	2.19
<i>Aturn</i>	+	0.152***	4.20	0.131***	3.01
<i>Subs</i>	+	0.087**	2.00	0.076*	1.68
<i>Issue</i>	+	0.042	0.91	0.027	0.57
<i>FYEnd</i>	+	0.022	0.47	0.038	0.88
<i>Age</i>	?	0.099***	3.80	0.113***	3.78
<i>Conown</i>	-	0.317***	4.22	0.319***	3.92
<i>NStown</i>	-	-0.054	-1.53	-0.026	-0.69
<i>IndustryDum</i>		Yes		Yes	
<i>YearDum</i>		Yes		Yes	
<i>R²</i>		0.59		0.59	
<i>F-stat</i>		50.54***		37.09***	
<i>N</i>		918		796	

Note: * ** and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

5.3. Additional tests

5.3.1. Audit firm ranking

Our main results demonstrate that first-ranked TAFs obtain fee premiums without providing significantly higher quality audit services than those of their lower ranked counterparts. Such findings raise a question whether the SEO has had properly formulated Guidelines for TAF ranking in the first place. To address this concern, we calculate (not tabulated) descriptive statistics based on the data about the characteristics of TAFs as disclosed by IACPA for 2011 and 2012 (since this information is made available). Based on 218 firm-year observations for the 2 years, the means of audit firm income (*AudFIncom*), engagement (*AudFEngag*), and staff (*AudFStaff*) show that audit firms in Iran are small in size. The median of audit partner for each audit firm (*AudFPartn*) indicates that most TAFs have only 3 partners, which is the minimum number required to establish an audit firm under the IACPA's licensing system (see IACPA's website). The T statistics show that the first-ranked TAF audit firms have significantly higher income (*AudFIncom*) (US \$823,816 versus US\$278,700) and higher engagement (*AudFEngag*); employed more staff (*AudFStaff*), audit partners (*AudFParten*), certified public accountants (*AudFCPA*), and audit managers; and were established earlier than their lower-ranked counterparts. Similarly, audit supervisors (*AudFSuper*) and senior auditors (*AudFSen*) of first-ranked TAFs are almost three-fold more than those of non-first-ranked TAFs. It can, therefore, be concluded that the ranking has been appropriately implemented by the SEO in accordance with its Guidelines.

5.3.2. Audit firms' resources deficiency

However, the unanswered question is why first-ranked TAFs do not provide discriminated quality audit services, when SEO has properly employed the TAF Guidelines as per our analysis in the earlier section. One potential explanation is limited resources and time allocated by the first-ranked audit firms to collect and evaluate audit evidence when firms have more audit engagements. Recent studies find that audit failure in issuing going concern audit opinion is higher when audit partners are busy and when the number of audit engagements is high (Goodwin & Wu, 2016; Sundgren & Svanström, 2014).

To test this conjecture, we define some variables following prior studies (e.g., Caramanis & Lennox, 2008; Goodwin & Wu, 2016) that take into account both audit firms' resources and assignments. We obtain the ratio of audit supervisor and senior auditor to the number of audit engagement (*SupSenEngag*), the ratio of audit supervisor and senior auditor to total audit income (*SupSenIncom*), the ratio of audit engagement to audit staff (*EngagStaff*), the ratio of total audit income to audit staff (*IncomStaff*), the ratio of audit engagement to audit partner (*EngagPartner*), the ratio of total audit income to audit partner (*IncomPartner*), the ratio of audit staff to audit partner (*staffPartner*), and the ratio of audit staff to the sum of audit supervisors and managers (*StaffSupMang*), for each audit firm for the years 2011 and 2012. We then compare between the first-ranked TAFs and non-ranked TAFs.

Table 6 shows that three variables—*SupSenIncom*, *IncomStaff*, and *IncomPartner*—are based on audit firms' total income, and it also reveals that first-ranked TAFs with low audit resources earned more income. Furthermore, *EngagPartner* is significantly higher for first-ranked TAFs compared with non-ranked TAFs. The variables *SupSenEngag* and *EngagStaff*, based on the number of audit

Table 6
Univariate tests for audit firm resources.

Univariate test of differences			
Variable	First-ranked TAF (n = 283)	Non-first-ranked TAF (n = 221)	T-stats
<i>SupSenEngag</i>	0.1070	0.088	4.26***
<i>SupSenIncom</i>	0.001	0.001	-7.14***
<i>EngagStaff</i>	3.765	4.291	-3.62***
<i>IncomStaff (\$)</i>	11,700.000	7800.000	10.72***
<i>EngagPartner</i>	58.866	48.435	4.32***
<i>IncomPartner(\$)</i>	182,267.000	98,533.000	18.25***
<i>StaffSupMang</i>	3.162	3.827	-3.50***

Note: *, ** and *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively.

engagements, however, are not significantly different between the two groups. This is the case because first-ranked (non-first-ranked) TAFs carry out the audit work of large (small) client firms and earn a high (low) audit fee.

5.3.3. Alternative definition of first-ranked auditors

In the primary models (reported in Tables 4 and 5), we define *FirstRankAud* as 1 if the auditor is a private TAF and ranked in the “First” rank, and 0 if TAF is ranked as “Second,” “Third,” or “Fourth.” Alternatively, we re-define *FirstRankAud* and assign 1 if the auditor is a private TAF and ranked in the “First” rank, and 0 if it is a “Third” or “Fourth” ranked TAF, and re-estimate Models (1), (2), and (4). The untabulated results reveal that the coefficient on *FirstRankAud* is 0.911 ($z = 3.52$, $p < 0.01$), -1.027 ($z = -3.74$, $p < 0.01$), 0.014 ($t = 2.26$, $p < 0.05$), and 0.146 ($t = 3.01$, $p < 0.01$) in the *AudFail*, *AudOpn*, *AbsDisAcc*, and *AudFee* models, respectively. These results are consistent with those presented in Tables 4 and 5. First-ranked TAFs do not provide better quality audit services compared to third- and fourth-ranked TAFs based on the three proxies for audit quality. Nonetheless, such auditing firms earn higher fees, and consequently these results indicate that our main findings are not sensitive to different definitions of first-ranked TAFs.

5.3.4. Audit fee premium and client firm size

Prior studies suggest that competition among auditors is higher in the small-client market (Chaney et al., 2004). This suggests that large audit firms are less likely to charge significant fee premiums in a small-client market such as Iran. To determine whether the fee premiums of first-ranked TAFs can be attributed to the size of the clients, we partition the sample into two groups: *Small* clients (firms with total assets less than the median, $N = 459$), and *Large* clients (firms with total assets more than the median, $N = 459$), and re-estimate Model (4) (audit fee model). Such a procedure also mitigates for the existence of self-selection bias. The results of the re-estimations for the *Small* and *Large* client sub-samples are shown in Table 7.

The results show that the first-ranked TAFs are positively associated with audit fees for both the large and small client groups. These findings not only corroborate the main findings but also support the notion that the fee premium of the first-ranked TAFs is less likely to be determined by client size.

5.3.5. Alternative estimation approaches

Although at first glance the audit quality and audit fee equations seem unrelated, they are likely to be associated through a correlation in the errors. We re-estimate the research models using a seemingly unrelated regression (SUR) system. We re-estimate Model (2) and Model (4) using a SUR system. Before re-estimating, we include *AbsDisAcc* in Model (4) and *AudFee* in Model (2) as an additional explanatory variable. Untabulated results indicate that the coefficient on *FirstRankAud* is 0.005 ($z = 0.92$, $p > 0.10$) and 0.174 ($t = 5.34$, $p < 0.01$) in the discretionary accruals model and audit fees model, respectively. Furthermore, *AudFee* and *AbsDisAcc*, as additional explanatory variables in Model (2) and Model (4), do not have a significant relationship with the dependent variable in the regression models.

We also re-estimate audit failure, audit opinion model and audit fees model using a SUR system. Untabulated results indicate that the effect of first-ranked TAFs based on the SUR system is consistent with the main findings reported in Tables 4 and 5. Moreover, we re-estimate Model (1), Model (2), and Model (4) with standard errors clustered by firm to remove both heteroskedasticity and auto-correlations (simultaneously) if present in the sample. The results (untabulated) suggest that the effect of *FirstRankAud* on *AudFail*, *AudOpn*, and *AbsDisAcc* is consistent with the main findings depicted in Tables 4 and 5 and robust to utilizing Model (1), Model (2), and Model (4), which clustered standard errors. Furthermore, we re-estimate Model (1), Model (2), and Model (4) using firm-fixed effects. Results are consistent with the main findings reported in Tables 4 and 5 and robust to the inclusion of firm-fixed effects.

5.3.6. Does voluntary disclosure of audit fees affect the results?

Since the disclosure of audit fees is voluntary in Iran, our main analyses are based on data about firms that voluntarily disclosed audit fees (918 firm-year observations). This may raise concerns that the audit quality and audit fees of first-ranked TAFs differ

Table 7
Coefficient estimates for audit fees.

Variables	Expected sign	Model (4)- The Large clients sub-sample		Model (4)- The Small clients sub-sample	
		Coefficient	T-Stat	Coefficient	T-Stat
Intercept		1.934***	3.57	1.271***	2.76
FirstRankAud	?	0.233***	4.59	0.122**	2.54
Audopn	+	0.009	0.16	-0.105*	-1.93
Audchg	-	0.024	0.45	0.008	0.15
Size	+	0.262***	7.02	0.274***	8.07
Lev	+	0.162	1.40	0.102	1.22
InvRec	+	0.340**	2.30	0.427***	2.85
Loss	+	0.100	1.03	0.144**	2.28
ATurn	+	0.104	1.59	0.130***	2.78
Subs	+	0.017	0.28	0.187**	2.59
Issue	+	0.063	1.12	0.048	0.64
FYEnd	+	0.016	0.22	0.017	0.29
LogAge	?	0.085*	1.81	0.112***	3.79
Conown	-	0.273***	2.52	0.261**	2.54
NStown	-	-0.149***	-2.76	0.011	0.21
IndustryDum		Yes		Yes	
YearDum		Yes		Yes	
R ²		0.56		0.53	
F-stat		23.11***		21.52***	
N		459		459	

Note: *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

among client firms with and without voluntary audit fees disclosure. To address this potential concern, we employ a set of additional tests with new samples. This time we include firm-year observations without audit fees disclosure (1442 firm-year observations) and compare firm attributes between this group (a *t*-test and chi-square test) and one with disclosed audit fees (918 firm-year observations), following the models in prior studies (e.g., Bedard, Falsetta, Krishnamoorthy, & Omer, 2010; Lennox, 1999).¹⁴ The results show that there are not many significant differences in attributes between these two groups other than firm size and number of subsidiaries. Furthermore, we re-estimate all models using 2360 (1442 + 918) firm-year observations. The results show that the effects of *FirstRankAud*, *AudFail*, *AudOpn*, and *AbsDisAcc* are robust, which confirms that voluntary disclosure of audit fees has not affected the main findings.

6. Summary and conclusions

In this study we examine two competing explanations for audit fee, i.e., whether the fee is driven mainly by quality of audit services or more related to audit firm reputation. It has been generally accepted that large audit firms earn their premiums because they provide superior audit services to their clients, because they are better resourced and operate more efficiently. By contrast, there are arguments that large audit firms obtain premium fees because of their reputation and brand name without significantly providing superior audit services (Boon et al., 2010; Chaney et al., 2004; Craswell et al., 1996; Ireland & Lennox, 2002; Palmrose, 1986). Using price discrimination theory as applied in accounting and other related disciplines, we empirically test audit pricing in the context of Iran, which has a unique institutional setting characterized by weak demand for high-quality audit services, low litigation risk and weak corporate governance mechanisms, and the absence of international Big 4 audit firms.

Following the adoption of privatization policies in the 1990s, the government of Iran established the Iran Audit Organization (IAO), and in 2001, the Iranian Association of Certified Public Accountants (IACPA) was formed to provide audit services to the public sector entities. To improve the standard of audit services, the Securities and Exchange Organization (SEO) of Iran disclosed a list of audit firms in 2013, ranking them into four categories based on a set of evaluation criteria to differentiate the quality of audit firms. The impact of this ranking is not yet apparent due largely to the absence of international Big 4 audit firms operating in the country. Under the guidelines, the ranked audit firms can audit companies that meet certain criteria, which allows them the privilege of auditing large client firms. This system of ranking has created a dilemma with respect to the pricing of audit services. Firstly, the first-ranked audit (expected to be the best quality audit firms according to the evaluation criteria) firms provide high-quality audit services and earn fee premiums. If this is the case, the fee premium can be explained in line with the “quality-based price discrimination” view. Secondly, by determining the type of client that audit firms can have, it created firm reputation (brand) which can

¹⁴ The model of effective factors in the voluntary disclosure of audit fees is developed as follows:

$$Disclose_{it} = \alpha_0 + \alpha_1 FirstRankAud_{it} + \alpha_2 AudOpn_{it} + \alpha_3 AudChg_{it} + \alpha_4 Size_{it} + \alpha_5 Lev_{it} + \alpha_6 Loss_{it} + \alpha_7 Liq_{it} + \alpha_8 Age_{it} + \alpha_9 Subs_{it} + \alpha_{10} ConOwn_{it} + \alpha_{11} NStOwn_{it} + \sum \beta_j IndustryDum + \beta_k YearDum + \varepsilon_{it}$$

influence price—i.e., the highest-ranked audit firms can charge fee premiums without necessarily providing superior quality audit services compared with their lower-ranked counterparts.

We use these conflicting arguments and examine this question empirically using data from firms listed on the Tehran Stock Exchange (TSE) from 2006 to 2015. To measure audit quality, we employ multiple measures such as audit failure, audit opinion type and discretionary accruals. Multiple regression results show that the quality of audit services (by all of our measures) provided by the highest-ranked audit firms was not better than that of non-first-ranked firms. For example, for the highest-ranked firms: audit failure is significantly higher; they offer significantly less qualified opinions; and there is no difference in discretionary accruals compared with lower ranked audit firms. Audit fee models reveal that the highest-ranked firms charge significantly more audit fees compared with lower-ranked firms. The propensity matched score analysis also reveals similar results, suggesting that the main findings are not affected by sample selection bias. Such findings go against the “quality-based price discrimination” view.

Our results suggest that a number of large and first-ranked auditors engage in price discrimination—i.e., they earn fee premiums without providing clearly differentiated quality audit services. Hence, the present study provides empirical evidence supporting the “reputation-based price discrimination” view. This outcome extends our understanding that price for an audit can be differentiated using a non-price competition dimension such as firm reputation under certain conditions.

The findings of the study have implications for policy-makers. Since our findings reveal that first-ranked TAFs earn fee premiums due to firm reputation, it is suggested that the SEO should include some other audit quality output measures such as the type of audit opinions, audit failure, and discretionary accruals of client firms in the evaluation criteria. Moreover, it is suggested that the SEO should pay more attention to both audit firms' resources and assignments in ranking TAFs. In addition, in improving audit quality, policy-makers should provide opportunities for Big 4 audit firms to operate in Iran. This study suggests that policy-makers pay more attention to drivers that could improve demand for high-quality auditing. The suggestions made in relation to policy-makers in Iran can also be generalized to regulators in countries with audit markets that are highly regulated but where the demand for high-quality audit services is weak.

The present study opens a rich avenue for future studies in this domain. The present research only examines the effect of audit firm ranking on audit quality and audit fees. Hence, future studies can examine the effect of audit firm ranking and hence reputation on other factors, such as auditor-client realignment. Since most prior analyses utilize a dummy representing large international audit firms as a surrogate to investigate the effect of quality-differentiated auditors on audit fees, future research can examine whether a number of non-large international audit firms can apply quality- or reputation-based price discrimination strategies.

Our study has certain limitations. Firstly, we examine the effect of audit firm ranking on audit quality and audit fees with a sample of firms that voluntarily disclose audit fees. Although we applied several robustness tests to alleviate this research issue, the findings of this study should be interpreted cautiously because the audit quality and audit fees of non-disclosed clients can differ, although we did not find a significant difference in the sensitivity test. In addition, although the SEO has ranked TAFs since 2013, due to the lack of sufficient data, our research period encompasses the years 2006 to 2015. While additional robustness tests are applied to address this potential issue, it is also acknowledged as a limitation of the present study. Although we fail to find that first-ranked TAFs provide significantly higher-quality audit services, perhaps the auditors provide higher quality services in other ways such as providing more useful advice in their management letters. Since these management letters are not publicly available, we were unable to assess this item. Our findings regarding audit firms' resource deficiencies and audit quality are constrained by limited data availability. Finally, while we could examine the economic consequences of government-initiated ranking of audit firms in Iran, we could not determine the motivation (whether financial or political) behind such ranking and not allowing international audit firms to operate in the country as other emerging countries in the region are doing.¹⁵ Future research could take up this important issue.

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Appendix A. The guidelines of trustee audit firm ranking

The Guidelines of TAF ranking were ratified and operationalized by the Board of Directors of the SEO on 18 February 2012. Note 2 of the Guidelines requires that TAFs must be evaluated every year based on the following criteria, and the results of the evaluation must be made publicly available.

¹⁵ If the decision was politically motivated, then replacing ranked audit firms by internationally reputed audit firms is unlikely. However, if it was based on a financial audit motive, then substituting Big 4 firms for ranked firms is reasonable. We thank an anonymous referee for highlighting this issue.

Table A1
The criteria of TAF ranking.

Panel A: Common criteria	
Criteria	Scores
Criteria to evaluate audit partners	300
Criteria to evaluate audit firm's staff	200
Criteria to evaluate structure and organization of audit firm	200
Criteria to evaluate diversity in offering audit services and position in audit market	100
Criteria to evaluate audit quality	200
Total scores of common criteria	1000
Panel B: Violation criteria	
Criteria	Scores
Violation background of an audit firm within last 5 years	– 200
Violation background of an audit partner within last 5 years	– 100
Total scores of violation criteria	– 300

The final scores of each audit firm are equal to the sum of total “common scores” and total “violation scores.” That is, final scores of each audit firm derive from the total “common scores” minus total “violation scores.” Based on note 3 of the Guidelines of TAF ranking, total scores of audit firms based on evaluation criteria determined by note 2 of the Guidelines are the foundation for determining TAF rank.

TAFs based on gained scores are ranked in four categories, these being “First,” “Second,” “Third,” and “Fourth.” The threshold score for each rank is depicted in Table A2 below.

Table A2
Scores for TAF ranking.

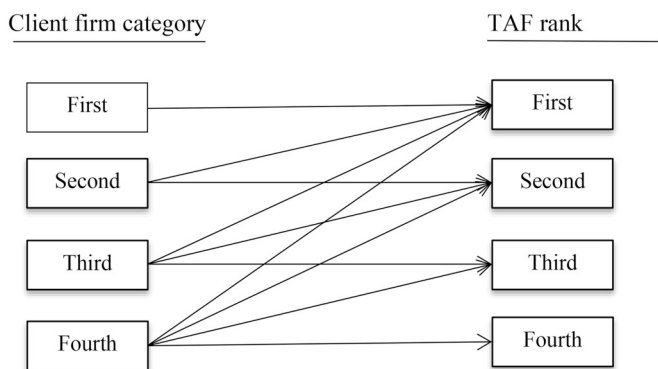
Rank	Scores of each rank
First	Equal to or > 700 scores
Second	Equal to or > 600 scores and < 700 scores
Third	Equal to or > 500 scores and < 600 scores
Fourth	< 500 scores

Note 5 of the Guidelines of TAF ranking categorizes listed firms on the TSE and “Iran Fara Bourse” (OTC) into four groups: “First,” “Second,” “Third,” and “Fourth.”

Table A3
Categorization criteria of listed firms on the TSE and Iran Fara Bourse.

Category	Criteria for each category		
	Mean of assets and sales	Market value	The number of employees
	(Million\$)	(Million\$)	
First	with 1667 or more	with 1667 or more	with 5000 or more
Second	with 667 to 1667	with 667 to 1667	with 2000 to 5000
Third	with 167 to 667	with 167 to 667	with 500 to 2000
Fourth	< 167	< 167	< 500

Note 6 of the Guidelines of TAF ranking requires that listed firms on the TSE and Iran Fara Bourse, firstly, determine their category based on Table A3. Secondly, the client firms must choose audit firms based on their own category as determined in line with Table A3. For example, a client firm categorized as Second category based on Table A3 criteria can choose its auditor from second- or first-ranked TAFs depicted in Table A2. On this subject, note 7 of the Guidelines of TAF ranking requires that TAFs cannot carry out audit services of client firms (i.e. those listed on the TSE and Iran Fara Bourse) that are ranked higher than the TAF rank. The following graph reveals how client firms (listed firms on the TSE and Iran Fara Bourse) can choose TAFs.



To score TAFs, each group of criteria depicted in Table AI contains several detailed descriptions. In this section we only present detailed criteria to evaluate an audit firm's staff.

Table A4
Detailed criteria to evaluate an audit firm's staff.

Criterion	Maximum score	How to score
The number of CPAs other than audit partners	30	5 scores for a CPA
The number of audit supervisors	30	5 scores for an audit supervisor
The number of senior auditors and auditors with > 2 year-experience after obtaining Bachelor degree	40	2 scores for each one
Educational background	30	The average scores of audit staff (scores of each level: Bachelor in Accounting 15, Master's and PhD in accounting 20)
Work experience of audit staff after graduation (after getting Bachelor degree)	40	For 2 year-experience of an audit staff after getting Bachelor 0.5 scores
Professional (training background of audit staff)	10	Scores determined by IACPA
Total scores	200	

Table A5 presents the name of first-ranked TAFs in 2014. Most of these firms are large audit firms with a long history compared to non-first-ranked TAFs. Almost all of the non-first-ranked TAFs were established after audit market liberalization in 2001. Descriptive statistics provided by Golchereh (2016) reveal that the mean of audit work (projects) for each audit firm is 180 for private TAFs between 2011 and 2012.

Appendix B. Definitions of variables

Variables tested in robustness and additional tests sections	
Variables	Definition
<i>AudFEngag</i>	The number of an audit firm's engagement
<i>AudFStaff</i>	The number of an audit firm's staff
<i>AudFIncom</i>	The total income of an audit firm
<i>AudFPartner</i>	The number of audit partners for an audit firm partner
<i>AudFCPA</i>	The number of certified public accountants employed by an audit firm
<i>AudFSuper</i>	The number of audit supervisors employed by an audit firm
<i>AudFSen</i>	The number of senior auditors employed by an audit firm
<i>SupSenEngag</i>	The ratio of audit supervisors and senior auditors to audit engagements of an audit firm
<i>EngagStaff</i>	The ratio of audit engagements to audit staff for an audit firm
<i>SupSenIncom</i>	The ratio of audit supervisors and senior auditors to total income of an audit firm
<i>IncomStaff</i>	The ratio of total income to audit staff for an audit firm
<i>EngagPartner</i>	The ratio of audit engagement to audit partners for an audit firm
<i>IncomPartner</i>	The ratio of total income to audit partners for an audit firm
<i>StaffPartner</i>	The ratio of audit staff to audit partner for an audit firm
<i>StaffSupMang</i>	The ratio of audit staff to audit supervisors and managers for an audit firm
<i>Disclose</i>	A dummy variable equal to 1 if a firm disclosed audit fees voluntarily, and 0 otherwise
<i>Liq</i>	ratio of total current assets to total current debts

References

- Aaker, D., & Keller, K. L. (1990). Consumer evaluation of brand extension. *Journal of Marketing*, 54(1), 27–41.
- Abdel-Khalik, A. R. (1993). Why do private companies demand auditing? The case for loss control. *Journal of Accounting, Auditing and Finance*, 8(1), 31–52.
- Allen, F. (1984). Reputation and product quality. *The Rand Journal of Economics*, 15(3), 311–327.
- Anselmsson, J., Bondesson, V. N., & Johansson, U. (2014). Brand image and customers' willingness to pay a price premium for food brands. *Journal of Product and Brand Management*, 23(2), 90–102.
- Anthony, J. H., & Ramesh, K. (1992). Association between accounting performance measures and stock prices: A test of the life cycle hypothesis. *Journal of Accounting and Economics*, 15, 203–227.
- Badolato, P. G., Donelson, D. C., & Matthew, E. (2014). Audit committee financial expertise and earnings management: The role of status. *Journal of Accounting and Economics*, 58(2–3), 208–230.
- Bagherpour, M., Monroe, G., & Shailer, G. (2014). Government and managerial influence on auditor switching under partial privatization. *Journal of Accounting and Public Policy*, 33, 372–390.
- Barnes, P., & Renart, M. A. (2013). Auditor independence and auditor bargaining power: Some Spanish evidence concerning audit error in the going concern decision. *International Journal of Auditing*, 17(3), 265–287.
- Basioudis, I. G., Papakonstantinou, E., & Geiger, M. A. (2008). Audit fees, non-audit fees and auditor going-concern reporting decisions in the United Kingdom. *Abacus*, 44, 284–309.
- Bedard, J. C., Falsetta, D., Krishnamoorthy, G., & Omer, T. C. (2010). Voluntary disclosure of auditor-provided tax service fees. *The Journal of the American Taxation Association*, 32(1), 59–77.
- Blankley, A. I., Hurtt, D. N., & MacGregor, J. E. (2012). Abnormal audit fees and restatements. *Auditing: A Journal of Practice & Theory*, 31, 79–96.
- Boon, J. P., Inder, K., Khurana, I. K., & Raman, K. (2010). Do the Big 4 and the Second-tier firms provide audits of similar quality? *Journal of Accounting and Public Policy*, 29, 330–352.
- Caramanis, C., & Lennox, C. (2008). Audit effort and earnings management. *Journal of Accounting and Economics*, 45, 116–138.
- Chan, K. H., Lin, K. Z., & Mo, P. L.-l. (2006). A political-economic analysis of auditor reporting and auditor switches. *Review of Accounting Studies*, 11, 21–48.
- Chan, P., Ezzamel, M., & Gwilliam, D. (1993). Determinants of audit fees for quoted UK companies. *Journal of Business Finance and Accounting*, 20, 765–786.
- Chaney, P. K., Jeter, D. C., & Shivakumar, L. (2004). Self-selection of auditors and audit pricing in private firms. *The Accounting Review*, 79, 51–72.
- Chen, C. J. P., Su, X., & Wu, X. (2007). Market competitiveness and Big 5 pricing: Evidence from China's binary market. *The International Journal of Accounting*, 42(1), 1–24.
- Chen, H., Tang, Q., Jiang, Y., & Lin, Z. (2010). The role of International Financial Reporting Standards in accounting quality: Evidence from the European Union. *Journal of International Financial Management & Accounting*, 21, 220–278.
- Craswell, A. T., Francis, J. R., & Taylor, S. L. (1995). Auditor brand name reputations and industry specializations. *Journal of Accounting and Economics*, 20, 297–322.
- Craswell, A.T, Francis, J.R & Taylor, Stephen L. (1996). The effect of audit market deregulation on the pricing of brand name reputation. (Available at SSRN: <https://ssrn.com/abstract=1812> or [10.2139/ssrn.1812](https://ssrn.com/abstract=10.2139/ssrn.1812)).
- DeAngelo, L. (1981). Auditor independence, "lowballing" and disclosure regulation. *Journal of Accounting and Economics*, 3, 113–127.
- Dechow, P., & Dichev, I. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review*, 77, 35–59.
- DeFond, M., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics*, 58(2–3), 275–326.
- DeFond, M. L., Raghunandan, K., & Subramanyam, K. R. (2002). Do nonaudit service fees impair auditor independence? Evidence from going-concern audit opinions. *Journal of Accounting Research*, 40, 1247–1274.
- DeFond, M. L., Wong, T. J., & Li, S. H. (2000). The impact of improved auditor independence on audit market concentration in China. *Journal of Accounting and Economics*, 28, 269–305.
- Ding, Y., Zhang, H., & Zhang, J. (2007). Private vs. state ownership and earnings management: Evidence from Chinese listed companies. *Corporate Governance*, 15, 223–238.
- Doa, M., Raghunandan, K., & Rama, D. V. (2012). Shareholder voting on auditor selection, audit fees, and audit quality. *The Accounting Review*, 87, 149–171.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.
- Francis, J., Maydew, L. E., & Sparks, H. C. (1999). The role of big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice & Theory*, 18(2), 17–34.
- Golchehreh, M. (2016). *Audit partner busyness and audit quality*. Working paper. Iran: Takestan Higher Education Institute (in Persian).
- Goodwin, J., & Wu, D. (2016). What is the relationship between audit partner busyness and audit quality? *Contemporary Accounting Research*, 33(1), 341–377.
- Ireland, J. C., & Lennox, C. S. (2002). The large audit firm fee premium: A case of selectivity bias? *Journal of Accounting, Auditing and Finance*, 17(1), 73–91.
- Jeong, S. W., & Rho, J. (2004). Big 6 auditors and audit quality: The Korean evidence. *The International Journal of Accounting*, 39, 175–196.
- Johl, S., Subramaniam, N., & Zain, M. (2012). Audit committee and CEO ethnicity and audit fees: Some Malaysian evidence. *The International Journal of Accounting*, 47(3), 302–332.
- Johnson, L. E., Davies, S. P., & Freeman, R. J. (2002). The effect of seasonal variations in auditor workload on local government audit fees and audit delay. *Journal of Accounting and Public Policy*, 21, 395–422.
- Kallapur, S., Sankaraguruswamy, S., & Zang, Y. (2010). *Audit market concentration and audit quality*. Working Paper Indian School of Business, National University of Singapore and Singapore Management University.
- Klein, B., & Leffler, K. B. (1981). The role of market forces in assuring contractual performance. *J. Political Econ.* 89, 615–641.
- Knechel, W. R., & Vanstraelen, A. (2007). The relationship between auditor tenure and audit quality implied by going concern opinions. *Auditing: A Journal of Practice & Theory*, 26, 113–131.
- Kothari, S., Leone, A., & Wasley, C. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39, 163–197.
- Lawrence, A., Minutti-Meza, M., & Zhang, P. (2011). Can Big 4 versus non-Big 4 differences in audit quality proxies be attributed to client characteristics? *Accounting Review*, 86, 259–286.
- Lee, D. S. (1996). Auditor market share, product differentiation and audit fees. *Accounting and Business Research*, 26(4), 315–324.
- Lennox, C. S. (1999). Non-audit fees, disclosure and audit quality. *The European Accounting Review*, 8, 239–252.
- Lennox, C. S., Francis, J. R., & Wang, Z. (2012). Selection models in accounting research. *Accounting Review*, 87, 589–616.
- Leuz, C. (2006). Cross listing, bonding and firms' reporting incentives: A discussion of Lang, Raedy and Wilson. *Journal of Accounting and Economics*, 42(1), 285–299.
- Leuz, C., Nanda, D., & Wysocki, P. D. (2003). Earnings management and investor protection: An international comparison. *Journal of Financial Economics*, 69, 505–527.
- Li, H., & Dinersoz, E. (2012). Quality-based price discrimination: Evidence from internet retailers. *Journal of Retailing*, 88, 276–290.
- Machlup, F. (1955). *Characteristics and types of price discrimination*. Princeton University Press.
- Mashayekhi, B., & Bazaz, M. S. (2008). Corporate governance and firm performance in Iran. *Journal of Contemporary Accounting and Economics*, 4(2), 156–172.
- Mashayekhi, B., & Mashayekh, S. (2008). Development of accounting in Iran. *The International Journal of Accounting*, 43(1), 66–86.
- McNichols, M. F. (2000). Research design issues in earnings management studies. *Journal of Accounting and Public Policy*, 19, 313–345.
- Moayed, V., & Aminfard, M. (2012). Iran's post-war financial system. *International Journal of Islamic Middle Eastern Financing and Management*, 5, 264–281.
- Mohammadrezaei, F., Mohd-Saleh, N., & Ali, M. J. (2015). Increased competition in an unfavourable audit market following audit privatisation: The Iranian experience. *Asian Journal of Business and Accounting*, 8, 115–149.
- Mohammadrezaei, F., Mohd-Saleh, N., Jaffar, R., & Sabri, M. S. (2016). The effects of audit market liberalisation and auditor type on audit opinions: The Iranian experience. *International Journal of Auditing*, 20(1), 87–100.
- Nobes, C. W. (1988). The causes of financial reporting differences. In C. W. Nobes, & R. H. Parker (Eds.), *Issues in multinational accounting* Oxford: Philip Allan chapter 2.
- Palmrose, Z. (1986). Audit fees and auditor size: Further evidence. *Journal of Accounting Research*, 24, 405–411.
- Peel, M. J., & Robert, R. (2003). Audit fee determinants and auditor premiums: Evidence from the micro-firm sub-market. *Accounting and Business Research*, 33(3),

- 207–233.
- Pourheydari, O., & Abousaiedi, M. (2011). An empirical investigation of the audit expectations gap in Iran. *Journal of Islamic Accounting and Business Research*, 2(1), 63–76.
- Rodriguez-Perez, G., & Hemmen, S. V. (2010). Debt, diversification and earnings management. *Journal of Accounting and Public Policy*, 29, 138–159.
- Rosenbaum, P., & Rubin, D. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70, 41–55.
- Roudaki, J. (2008). Accounting profession and evolution of standard setting in Iran. *Journal of Accounting and Business Management*, 15, 33–52.
- Scherer, F., & Ross, D. (1990). *Industrial market structure and economic performance* (3rd ed.). United States: Houghton Mifflin Company.
- Shaked, A., & Sutton, J. (1982). Relaxing price competition through product differentiation. *Review of Economic Studies*, 49, 3–13.
- Shapiro, C. (1982). Consumer information, product quality, and seller reputation. *Bell J. Econ.* 13, 20–35.
- Shubita, M. F. (2015). The impact of income smoothing on earnings quality in emerging markets. *Journal of Accounting in Emerging Economies*, 5(3), 299–324.
- Sriram, S., Balachander, S., & Kalwani, M. (2007). Monitoring the dynamics of brand equity using store-level data. *Journal of Marketing*, 71(2), 61–78.
- Stiglitz, J. E. (1987). The cause and consequences of the dependence of quality on price. *Journal of Economic Literature*, 25(1), 1–48.
- Su, X., & Wu, X. (2016). Client following former audit partners and audit quality: Evidence from unforced audit firm changes in China. *The International Journal of Accounting*, 51(1), 1–22.
- Sundgren, S., & Svanström, T. (2014). Auditor-in-charge characteristics and going concern reporting. *Contemporary Accounting Research*, 31(2), 531–550.
- Teoh, S. H., Welch, I., & Wong, T. J. (1998). Earnings management and the long-run market performance of initial public offerings. *Journal of Finance*, 53(December), 1935–1974.
- Titman, S., & Trueman, B. (1986). Information quality and valuation of new issues. *Journal of Accounting and Economics*, 8(2), 159–172.
- Whisenant, S., Sankaragurusuvamy, S., & Raghunandan, K. (2003). Evidence on the joint determination of audit and non-audit fees. *Journal of Accounting Research*, 41, 721–744.
- Xie, Z., Cai, C., & Ye, J. (2010). Abnormal audit fees and audit opinion – Further evidence from China's capital market. *China Journal of Accounting Research*, 3, 51–70.
- Yeganeh, Y. H. (2006). Corporate governance in Iran. *Hesabdar*, 32, 32–39 (In Persian).
- Zeghal, D., Chtourou, S., & Sellami, Y. M. (2011). An analysis of the effect of mandatory adoption of IAS/IFRS on earnings management. *Journal of International Accounting, Auditing and Taxation*, 20(1), 61–72.

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