

The Pricing of Auditor Market Power: Evidence from Iran

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ABSTRACT

This study examines audit pricing in an emerging audit market characterized by increasing competition but segmented by the continued presence of a government audit firm, and the exclusion of international audit firms. Using traditional audit fee modeling, we find that: (1) despite the absence of international “brand names”, audit firm size or market power remains associated with audit fee premium; (2) companies precluded from switching to a private sector pay a fee premium to the quasi-monopolistic audit firm. This study extends the audit pricing literature by identifying the extent of discretionary pricing relative to variations in auditor competition.

Keywords: Audit fees, Audit fee premium, Auditor competition.

Introduction

This study is concerned with the audit pricing consequences of competition changes in both the demand for and supply of audit services. The audit competition literature generally emphasizes supply side effects in mature markets. While there has been some attention given to increased supplier competition arising from overcapacity in audit firms following corporate failures during the late 1980s (Beattie and Fearnley, 1998), most prior studies on auditor competition are concerned with impeded competition associated with market domination by BIG N audit firms

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(Gilling and Stanton, 1978; Pong, 1999; Wolk, Michelson and Wootton, 2001; Kohlbeck et al., 2008; Asthana, Balsam and Kim, 2009; Carson et al., 2012) or increased concentration in supply as a result of reductions in the number of Big N firms (e.g., Johnson and Lys, 1990; GAO, 2003; Wolosky, 2003; Bloom and Schirm, 2005; Carson et al., 2012). The audit pricing literature identifies significant variations in audit fees in relation to auditor and client characteristics in diverse markets. In most countries, irrespective of their development status, the market for audit services is led, if not dominated, by international audit firms or their affiliates. The audit pricing literature consistently reports that clients of BIG N audit firms pay proportionally higher audit fees than the clients of non-BIG N auditors. This effect is often attributed to buyers using auditor size to differentiate expected audit quality (e.g., Francis, 1984; Francis and Stokes, 1986; Palmrose, 1986; Ahmed and Houghton, 1996).

We extend the auditor competition and pricing literature by examining audit pricing in the Iranian market where international audit firms are excluded by regulation. This natural experiment allows us to examine the emergence of dominant domestic audit firms in an increasingly competitive market, and the distinct effects of competition on audit pricing. While prior studies argue that auditors will continuously assess their exposure to lawsuits and incorporate that assessment into their audit plan and pricing of audit services when litigation risk is high (e.g., Seetharaman, Gul and Lynn, 2002; Chaney, Jeter and Shivakumar, 2004), we can identify differentiated pricing as competition and reputation effects rather than risk pricing because Iranian auditors do not have any civil litigation risk (as we will explain in section 2).

The emerging Iranian audit market arose in early 2002 when a change in licensing laws led to a significant increase in the number of private sector audit firms licensed to operate as audit listed firms and most firms listed on the Tehran Stock Exchange (TSE) were also required to choose their auditors from both the government and private sectors. They were generally required to be merely audited by the governmental auditor (i.e. Iran Audit Organization) prior to this change. This change in licensing laws facilitated a rapid increase in both the supply of, and demands for audit firms (Bagherpour, Monroe and Shailer, 2014), while continuing to constrain some companies with respect to their auditor choice. Further, the IAO appears to have quasi-monopoly power for some strategic companies but faces competitive threats for companies that have the ability to switch

auditors as compared to their counterparts. While differences in the pricing power of a quasi-monopolistic government auditor for government agencies were examined by Shailer et al., (2004), there has been no prior study of such differentiated competition with respect to listed companies. The circumstances of the partially privatized Iranian audit and capital markets provide a valuable opportunity to examine how the dynamics of competition in emergent market affect audit pricing.

The main objectives of this study are: (1) to examine the pricing of audit fees in the Iranian audit market in order to investigate whether there is a fee premium for the market power or market share of the auditor; and (2) to investigate how the pricing of this market power is different for monopolistic and non-monopolistic clients. The exclusion of large international firms from the Iranian market allows us to examine audit pricing for the IAO. The IAO is the largest audit firm in Iran. It has a monopoly over certain clients that are required to be audited by the IAO because of national interest concerns (listed companies with government ownership of 50% or more). It has also to compete with private sector auditors for those clients which have the freedom to switch auditors.

The remainder of this paper is organized as follows. We next describe the Iranian audit market environment. We then review the prior literature on audit fees. The fourth section describes the research methodology and the sample. The findings are summarized in the fifth section. Finally, the research conclusions and its limitations are presented.

The Iranian audit market

While Iranian Auditing Standards are largely based on International Auditing Standards, the Iranian audit market is substantially different from those of other emerging economies, including those in the same region. Significant differences arise in both the demand for and the supply of audit services.

Article 144 of the Iranian Trade Law requires public companies to appoint a certified auditor that must be selected from those accredited auditors authorized by the Economic Ministry¹. The TSE had 105 listed companies at the time of the Islamic Revolution in February 1979, after which, the ownership of most companies were transferred to the government. Following the revolution, all banks and insurance companies

¹ The law requires the election of the auditor by the shareholders at the shareholders' annual general meeting.

and many heavy industry companies were fully nationalized. Other companies were nationalized when their owners abandoned or forfeited their interests or when government-owned banks acted on debt defaults. Accompanying the nationalization of companies after 1979, audit functions were transferred to government auditors, culminating in the establishment of the Iranian Auditing Organization (IAO) in 1987. This gave the IAO a monopoly over the audit of the nationalized companies and the partially privatized companies; however, there were a small number of non-government controlled, TSE-listed companies audited by private sector auditors and certified by the Economic Ministry (Bagherpour et al., 2014). After the revolution, international accounting firms were banned from operating and providing audit services in Iran, but some small private domestic audit firms certified by the Economic Ministry were allowed to provide audit services to non-government controlled firms.

Shortly after establishing the IAO, the Iranian government implemented a program to privatize the government controlled companies and stimulate the economy (Davani 2003). The first five-year plan (1989-1993) required the government to transfer the ownership of nationalized and State industrial units (excluding strategic industries) to private sector shareholders (Roudaki, 1996). Consequently, the number of companies listed on the TSE grew from less than 60 firms in 1990 to 201 by 1995. The privatization policies were continued in the second five-year plan (1995-1999), and the number of TSE listed companies reached 296 in 1999, at which stage the IAO was unable to provide adequate and timely audit services to government-controlled entities. This was evident in the growing number of audit report delays and consequently the IAO was considered to be ill-suited to audit the large number of privately controlled companies (Moulkarai, 2005).

The IAO experienced difficulties in auditing the variety of government-controlled entities and was not suited to audit the increasing number of profit-seeking companies in post-1989. To address this issue, the TSE listed firms were permitted to choose private sector auditors subsequent to the legislation passed by the Parliament entitled "Using services of Certified Public Accountants" in 1993, which allowed certified public accountants to provide audit services to the public sector; however, this was not rendered effective until the establishment of the IACPA in 2001. The establishment of the Iranian Certified Public Accountants (IACPA) professional body in late 2001 led to a large increase in the number of audit firms permitted to

provide audit services to the market. While most TSE companies could choose their auditor from either the members of the IACPA or the IAO, regardless of their ownership structure (Davani 2003), firms with at least 50% government ownership are required to be audited by the IAO. Consequently, the IAO may have different pricing power for companies that have the ability to switch auditors, as compared to their counterparts.

In 2001, following the establishment of the IACPA, the IACPA licensed 402 auditors, of which 309 auditors were sole practitioners and 93 were in partnerships (Bagherpour et al., 2014). The IACPA rules required audit firms to have at least three partners before they could accept new clients; therefore, we believe that there were no more than thirty potential competitors for the audits of listed companies. From 2001-2003, there was a 38% increase in the number of licensed private sector auditors who were principals in private sector audit firms (Bagherpour et al., 2014). With the apparent increase in competition for audit clients, the IAO domination declined from market share of 73% in 1998 to 24% in 2004 (Azizkhani, 2012). The Securities and Exchange Organization's (SEO) rule restricts the TSE listed firms' auditor choice "SEO' trusted auditors", which includes the IAO. For an IACPA member firm to be a "SEO's trusted auditor", it must meet all the requirements that have been set by the SEO¹. International accounting firms and their affiliates are still excluded from the Iranian audit market.

The Iranian audit market also differs in terms of the Iranian Code of Law as auditors are not exposed to civil litigation risk; their legal liability is limited to criminal prosecution by the State under the Iranian Trade Law and, to date, there are no reported prosecutions. Although the statutory requirements identify shareholders as the intended recipients of audit reports, Iranian law does not provide any civil action against auditors to recover damages. The only significant punishment imposed on auditors are penalties imposed by the IACPA quality control committee or revocation of the audit firm's license as an SEO "trusted auditor" by the peer review audit committee of the SEO².

1- Some of these requirements are: at least 3 partners who have signed at least 10 audit reports in the last 3 years in their nominated audit firm; 51% limitation for each partner's ownership in the audit firm; and minimum of 15 full time employee; meeting the IACPA's quality control requirement.

2- The SEO peer review audit committee reviews audit reports of TSE listed firms. The SEO penalty is less severe than it may seem because the audit firm member can re-apply to be listed as a "trusted auditor" after 1 year. The IACPA quality control committee monitors and reviews the quality of audits performed by IACPA members on a sample basis and at least one audit report of any member

While prior research indicates audit fees contain expected losses from imposition of legal liabilities (Beatty, 1993; Seetharaman et al., 2002; Venkataraman, Weber and Willenborg, 2008), we contend that the absence of legal liability eliminates this insurance hypothesis with respect to auditor behavior or fees in the Iranian audit market.

Literature review

Building on Simunic (1984), the extant literature examines many factors affecting the pricing of audit services in many markets. The majority of these studies emphasize client characteristics such as client size and complexity and both client-specific and environmental risk. It is well established that audit costs increase in line with client size (Simunic, 1984; Firth 1985; Pong and Whittington 1994; Simon 1995), and complexity (e.g., Simunic, 1984; Francis, 1984; Francis and Stokes, 1986; Maher et al., 1992; Carcello et al., 2002; Hay, Knechel and Wong 2006). With respect to risk factors, it is argued that auditors respond to increased audit risk by either increasing their audit effort to reduce detection risk (e.g., Palmrose, 1986; Camerman, 2005; Hay et al., 2006; Carson et al., 2012) or charging fee premium as compensation for the risk of audit failure (Brinn, Peel and Roberts 1994; Pratt and Stice, 1994; Seetharaman et al., 2002).

Prior studies also relate audit fees differences to auditor quality differences, arguing that clients will accept higher audit fees when they have incentives to seek higher quality audits (Hay et al., 2006).

Audit quality is most often proxied by auditor size, relying largely on BIG N indicator variables for large international accounting firms, although the BIG N premium of around 20% (Francis, 2004) is variously attributed to reputation or market power (Basioudis and Fifi, 2004). Some studies have found a negative association between audit fees and auditor size, which can be explained by market segmentation and diseconomies of scale (Palmrose, 1986; Carson et al., 2012).

A study of quasi-monopolistic government audit pricing in Australia reports evidence consistent with discretionary pricing, including fee discount when the auditor faces the greatest threat of competition (Shailer et

should be reviewed within a three-year period. The penalties applied to auditors with deficient audits are limited to banning the auditor from audit work for a number of years (at least 1 year). Under the IACPA's disciplinary rules, the only circumstance under which the license of the auditor could be revoked is to provide fraudulent documents in an application for registration when there is direct evidence that the auditor has a material economic interest in a client.

al., 2004).

The exclusion of the very large international firms from the Iranian market allows us to further investigate such issues by examining the emergence of potentially dominant firms. Particularly, given that the brand name (reputation effect) of BIG N auditors is absent in the Iranian audit market, we investigate whether there is a fee premium for audit firm size (auditor market power (share) hypothesis).

Research methodology and sample

Research design

We examine the competition effects on audit pricing using modified versions of the traditional cross-sectional audit fee levels model. To examine the pricing behavior of the IAO, relative to changes in its market dominance and segmented quasi-monopoly power, we augment the traditional fee model with alternative measures of the IAO's market power and a client-specific variable that indicates the imputed ability of an IAO client to switch auditors. To account for changes in audit fees additional to those attributable to general inflation, general yearly retail price indices are used to correct reported audit fees and other relevant variables for inflation during the study period. Specifically, we use the following research model (Model 1):

$$\ln \text{Fee} = f(\text{IAOPower}, \text{Size}, \text{Aturn}, \text{Leverage}, \text{New Client}, \text{Peak}, \text{Loss}, \text{Inv}, \text{Rec}, \text{ROA}, \text{GOVOWN}, \text{Year}, \text{Industry}) \quad \text{Model (1)}$$

Where:

$\ln \text{Fee}$ = natural logarithm of inflation-adjusted audit fees;

IAOPower = market power of the IAO measured as one of:

(1) auditor type, which equals 1 if the client is audited by IAO, 0 otherwise;

(2) the ratio of total assets of IAO's clients to all clients' total assets in each year;

(3) the ratio of IAO's number of clients in each year;

Size = natural logarithm of auditee's inflation-adjusted total assets at the end of fiscal year;

Aturn = total sales divided by inflation-adjusted total assets at the end of fiscal year;

Leverage = inflation-adjusted ratio of total debts to total assets at the end of fiscal year;

NewClient = 1 if it is the auditor's first year audit with the client, and 0

otherwise;

Peak = 1 if the client's balance sheet date is on 23 March, and 0 otherwise;

Loss = 1 if the firm reported a loss for year t-1, and 0 otherwise;

Inv = inflation-adjusted ratio of total inventory divided by total assets;

Rec = inflation-adjusted ratio of accounts receivables divided by total assets;

ROA = profit before tax divided by inflation-adjusted total assets;

GOVOWN = percentage of government ownership;

Year = dichotomous indicator variables to control for fiscal year fixed effects.

Industry = binominal indicator variables based on two-digit TSE codes (32 industries) to control for industry fixed effects.

Test variable

This study uses the variable IAOPower to examine the relation between auditor market power (market share) and audit fees. Greater market share may provide a firm the opportunity to charge premium prices (Craswell, Francis and Taylor, 1995). At the same time, it is likely that greater market share also provides production economies that lead to lower audit fees (Menon and Williams, 2001). Most prior studies have used the indicator variable of "BIG N" to proxy audits performed by large international accounting firms and provide evidence that audit fees are higher for these auditors (Simunic, 1984; Francis and Stokes 1986; Palmrose 1986; Carson et al. 2012). However, these studies attribute this premium fee to the "brand name reputation" or "market power (share)" of BIG N auditors (see Camerman, 2005 for an overview). Thus, the issue of whether it is the "brand name reputation" or the "market power (size)" of large international firms that drives their higher audit fee is an empirical question. As explained earlier, in the Iranian audit market, the large international accounting firms or their affiliated firms are not allowed to operate by law (that is, the brand name reputation is absent), and the IAO is the largest audit firm operating with a dominant share in the market. Therefore, we use four proxies to measure "market power (size)" for audits by the IAO to examine the relation between market power (share) and audit fees. These proxies are ;(1) an indicator variable for audits by the IAO; (2) the ratio of total assets of IAO's clients to all clients' total assets in each year; (3) the ratio of IAO's number of clients in each year; and (4) total sales of IAO's

clients. If it is the auditor's market power (market share) that derives auditor's higher fees, then we expect a positive association between IAO Power and audit fees.

Control variables

Following prior research, we control for individual client characteristics that have been shown to be associated with audit fees. For client size, this study uses the natural logarithm of the client's assets and asset turnover (ATurn). Prior research (e.g., Simunic, 1984; DeFond, Francis and Wong, 2000; Hay et al., 2006) argues that larger firms typically have more transactions and larger balances, which requires more audit work (giving rise to higher number of hours billed). It has also been argued that larger firms are more likely to be subject to public scrutiny, higher agency and political costs and therefore a higher risk for the auditor (Naser and Nuseibeh, 2007; Caneghem, 2009). Therefore, as suggested in Hay et al., (2006), this study uses the log of total assets to proxy for client size. It has been argued that for firms with high sales or transaction volume relative to assets (e.g., firms operating in service industries), total assets may not adequately capture the effort needed to conduct the audit (Caneghem, 2009; Chaney et al., 2004). Therefore, this study also controls for asset turnover (ATurn) to capture both effects. We expect positive associations between these variables and audit fees.

Hay et al., (2006) argue that as client complexity increases, its audit becomes more difficult and more time-consuming. The content and/or nature of some financial statement items may also add to the complexity of an audit engagement (Caneghem, 2009). The nature of transactions, the accounting criteria for recognition and measurement, and the degree of necessary professional judgment regarding the potential importance of the outcome of future events are all factors that may add to the complexity of an audit (Thinggaard and Kiertzner, 2008). Consistent with prior research (Hribar, Kravet and Wilson, 2014), we use INV (the ratio of inventory to total assets) and REC (the ratio of accounts receivable to total assets) to measure client complexity and expect a positive association between these variables and audit fees.

Prior research suggests controlling for audit risk when examining audit fees (Pratt and Stice, 1994; Jubb, Houghton and Butterworth, 1996; Seetharam et al., 2002; Carson et al., 2012). Despite the lack of litigation risk in the Iranian audit market, we control for business risk measures in our

model. Niemi (2002) shows that even where litigation risk is limited, a client's business risk does affect audit pricing. Following Niemi (2002), we use two measures to control for client-specific business risk. First, client profitability (Loss) is used as a proxy to measure the likelihood of the client's financial distress. Prior studies (mostly non-US ones) provide mixed results on the link between loss-making clients and audit fees. While some studies find a positive association between clients that report a loss and audit fees, supporting the client-specific business risk argument (Johnson, Walker and Westerguard, 1995; Hribar et al., 2014), other studies find that the client's poor financial condition may increase the fee pressure, and hence prevent the auditor from charging a higher audit fee (Craswell and Francis, 1999). Hay et al. (2006) also show a negative association between return on assets (ROA) and audit fee. Thus we expect a negative association between ROA and audit fees.

We also use client leverage, as an additional proxy for the probability of a client's financial distress. This measure has been employed in prior audit fee studies (i.e., Hay et al., 2006; Carson et al., 2012; Hribar et al., 2014). As with loss-reporting firms, the same arguments and evidence are applicable for the effect of client leverage on audit fees and therefore, we do not predict the same type of association between these variables (Loss and Leverage) and audit fees.

Peak is included in the model to account for the peak-season audit staff constraint. It could be expected that audit fees are higher during the busy season because of off-peak pricing during the remainder of the year (Chaney et al., 2004). As the vast majority of firms listed on the TSE have 23 March as their financial reporting date (ended (23 March), audits of these clients are considered as peak-season work, and they are expected to have higher audit fees. Therefore, we expect a positive association between Peak and audit fees.

Prior research suggests that, because of competition in the audit market, tendering for the audit engagement may lead to low-balling (DeAngelo, 1981; Coate and Leob, 1997; Camerman, 2005). In addition, a new client may be considered as a client with higher risk for the auditor and therefore, be charged a higher audit fee (Camerman, 2005). In a meta-analysis of audit fee studies, Hay et al., (2006) find some support for the assertion that audit fees are usually lower in audits where the auditor is relatively new to the engagement. Therefore, we control for new clients in the model with the variable NewClient and expect a negative relation with audit fees.

We also control for government ownership (GOVOWN). Chen, Zhen and Ln, (2011) argue that directors who are nominated by the government are easily in the position of controlling every aspect of decision making without proper monitoring, suggesting paying higher audit fees. However, Ben Ali and Lesage (2013) show a negative association between audit fees and government ownership in France. Given these mixed evidence, we predict a non-directional association between government ownership and audit fees.

Finally, it is also important to control for industry effects when examining audit fees, because of differences in regulations between industries or differences in their risk levels (Jubb et al., 1996). Also, because of inflation, audit fees may vary across different years for the same client. Therefore, to control for these effects, IND and Year are included in the regression model.

Sample selection and data

The sample for this study is selected from all Iranian companies listed on the TSE during 2000-2012, a period during which their audit fee data was voluntarily disclosed in financial reports¹. On average, 42% of TSE listed companies voluntarily disclosed their audit fees during our sample period. Data on audit fees were manually collected from annual reports. Other data were extracted from the Iranian Securities and Exchanges Organization database (RDIS)² and TADBIR PARDAZ database. This resulted in a sample of 2,084 firm-year observations.

Descriptive statistics

Table 1 reports the summary statistics of our sample. The dependent variable, Fee, has a mean of IR 305.99 (million) with a standard deviation of 289.38. The sample has a high asset turnover of 0.75 and is highly leveraged (mean 0.74). The IAO has an average market share of 66.4% (based on client assets), 28.6% (based of fee ratio); and 29.1% (number of clients ratio). On average, 18.4% of the sample companies reported a loss during the study period; 13.6% of firms switched to another audit firm; and 74% of the sample have their audit during the peak season.

Given that sample companies were not required to disclose their audit

1- Until recently (2013), there was no requirement for firms listed on the TSE to disclose audit fees in financial reports. Despite this, many companies voluntarily disclosed their audit fees. Due to unavailability of access to financial reports, we were not able to extend our study period before 2000.

2- This database is available at: www.rdis.ir

fees during our study period and our sample consists of companies that voluntarily disclose their audit fees, it is important to compare the characteristics of these firms with non-disclosure firms and examine for any systematic bias in the sample. Table 1 also reports descriptive information for the 2,980 firm-year observations whose audit fees were not disclosed. Univariate statistics shows that firms voluntarily disclosing audit fees tend to be smaller in size more leveraged and have a higher proportion of inventory and receivables in their assets. This result suggests that our sample seems to be biased in that it contains only firms that voluntarily disclose audit fees and it consists of 41% of total population of listed firms in the TSE during the study period.

We also report the descriptive statistics for the clients of the IAO and private audit firms in Table 1. On average, IAO clients pay higher audit fees (349.49 million compare to 292.56 million), are larger in size, more leveraged, have higher proportion of inventory and receivables in their assets, higher frequency of loss reporting (Loss) and lower auditor switching rate (NewClient). These descriptive statistics show that there are significant differences between the clients of IAO and private audit firms.

Table 2 reports the Pearson and Spearman correlation coefficients for the dependent and independent variables. Audit fees are significantly and positively correlated with Leverage, Peak, and Size. The correlation between our three measures for auditor market power (IAOAuditor, IAOMSHARE, IAOSalesSHARE and IAOACR) and Fee are significant and positive ($p = 0.000$), suggesting that higher market power (size) is associated with higher audit fees. Correlations among the independent variables are mostly below 0.40, with the highest correlation being 0.32 between Loss and Lev suggesting collinearity is not an issue with the variables in the model¹. The Spearman's Rho correlation between indicator variables and audit fees shows that while the correlations between Peak, IAOAuditor and Fee are positive and significant, the correlation between Loss and Fee is negative and significant.

1- The variance inflation factor (VIF) and condition index also indicate that multi-collinearity is not a problem in our data.

Table 1
Descriptive statistics

	Full sample (n = 2,980)		Non-disclosing firms (n = 2,384)		Sample of IAO clients (n = 706)		Sample of non-IAO clients (n = 2,274)		t-test of difference
	Mean or %	St. Dev	Mean or %	St. Dev	Mean or %	St. Dev	Mean or %	St. Dev	
Fee (IR million) ^a	404.54	2.017			342.85	449.18	295.19	312.51	3.151**
Atturn	0.694	0.480	0.647	0.583	0.688	0.426	0.723	0.481	-1.709*
Lev	0.690	0.287	0.689	0.286	0.756	0.547	0.740	0.440	0.779
Size (IR million)	730.871	4,643.6	1,034.057	5,430.1	811,792.5	5022.8	699,415.3	4581.2	2.220*
INV	0.223	0.158	0.203	0.165	0.224	0.163	0.226	0.158	-0.218
REC	0.204	0.159	0.203	0.168	0.183	0.150	0.205	0.159	-3.322**
ROA	0.101	0.155	0.098	0.185	0.088	0.207	0.091	0.180	-0.266
GOVOWN	0.384	0.868	0.513	0.866	0.381	0.109	0.40	0.117	-0.337
NewClient	15.1%	0.359	11.9%	0.324	13.95%	0.347	15.6%	0.363	-1.066
Peak	74%	0.441	79.3%	0.402	79	0.405	72%	0.448	3.794**
Loss	16.4%	0.366	15.1%	0.352	20.1%	0.401	0.174	0.379	17.85***
IAOAuditor	23.7%	0.424	27.8%	0.451	-	-	-	-	-
IAOMSHARE	0.658	0.109	0.689	0.139	-	-	-	-	-
IAOFeeRatio	0.286	0.139	-	-	-	-	-	-	-
IAOACR	0.291	0.183	0.375	0.252	-	-	-	-	-

*, **, *** indicate significance levels at 0.10, 0.05, and 0.000, respectively.
^a 1 million Riials = \$US527 in 2000 and \$US103 in 2011;

Table 2
Pearson/ Spearman Correlation Coefficients (n = 2,980)

	Fee	ATurn	Lev	NewClient	Peak	Loss	INV	REC	IAOAuditor	Size	IAOMSHAR E	IAOACR	IAOSSHARE	ROA
Fee	0.035 (0.103)	-0.055 (0.012)	-0.006 (0.798)	0.152 (0.000)	-0.118 (0.000)	-0.102 (0.000)	-0.061 (0.005)	0.048 (0.026)	0.537 (0.000)	0.337 (0.000)	0.544 (0.000)	0.467 (0.000)	0.007 (0.757)	
ATurn	0.056 (0.162)	0.084 (0.000)	0.016 (0.262)	0.092 (0.000)	-0.132 (0.000)	0.485 (0.000)	0.334 (0.000)	-0.018 (0.205)	-0.314 (0.000)	0.120 (0.000)	0.143 (0.000)	0.141 (0.000)	0.220 (0.000)	
Lev	0.017 (0.073)	-0.037 (0.076)	-0.051 (0.000)	0.075 (0.000)	0.499 (0.000)	0.287 (0.000)	0.143 (0.000)	0.009 (0.521)	-0.181 (0.000)	0.074 (0.000)	0.142 (0.000)	0.121 (0.000)	-0.619 (0.000)	
NewClient	0.029 (0.327)	-0.020 (0.164)	0.027 (0.026)	-0.027 (0.047)	-0.30 (0.029)	-0.001 (0.930)	-0.008 (0.561)	-0.007 (0.601)	0.010 (0.458)	-0.041 (0.003)	-0.047 (0.001)	-0.039 (0.005)	0.045 (0.001)	
Peak	0.154 (0.000)	-0.024 (0.133)	-0.018 (0.219)	0.035 (0.430)	-0.028 (0.042)	0.102 (0.000)	0.033 (0.019)	0.073 (0.000)	0.059 (0.000)	0.049 (0.000)	0.053 (0.000)	0.033 (0.017)	0.016 (0.239)	
Loss	-0.096 (0.003)	-0.271 (0.000)	0.264 (0.000)	0.118 (0.000)	0.035 (0.108)	0.166 (0.000)	0.000 (0.972)	0.003 (0.815)	-0.244 (0.000)	-0.018 (0.198)	-0.002 (0.897)	-0.010 (0.458)	-0.672 (0.000)	
Inv	-0.025 (0.004)	0.261 (0.000)	0.019 (0.250)	0.024 (0.366)	-0.102 (0.000)	0.024 (0.000)	0.257 (0.000)	0.011 (0.433)	-0.396 (0.000)	0.173 (0.000)	0.214 (0.000)	0.210 (0.000)	-0.149 (0.000)	
REC	-0.66 (0.001)	0.223 (0.000)	-0.037 (0.043)	0.008 (0.231)	-0.097 (0.000)	0.008 (0.154)	0.060 (0.003)	-0.047 (0.001)	-0.249 (0.000)	0.110 (0.000)	0.140 (0.000)	0.115 (0.000)	-0.020 (0.156)	
IAOAuditor	0.128 (0.000)	0.035 (0.036)	0.031 (0.135)	-0.213 (0.000)	0.151 (0.000)	-0.014 (0.304)	0.034 (0.110)	-0.058 (0.004)	0.078 (0.000)	-0.013 (0.339)	-0.038 (0.007)	-0.033 (0.018)	0.005 (0.710)	
Size	0.547 (0.000)	-0.146 (0.000)	0.048 (0.000)	0.070 (0.237)	-0.124 (0.000)	-0.176 (0.000)	-0.154 (0.000)	0.009 (0.000)	0.000 (0.000)	-0.273 (0.000)	-0.403 (0.000)	-0.348 (0.000)	0.140 (0.000)	
IAOMSHAR E	0.298 (0.000)	0.054 (0.038)	-0.004 (0.472)	-0.192 (0.000)	0.115 (0.027)	0.028 (0.000)	0.020 (0.423)	0.079 (0.000)	0.936 (0.000)	0.106 (0.000)	0.711 (0.000)	0.880 (0.000)	0.051 (0.000)	
IAOACR	0.483 (0.000)	0.068 (0.013)	-0.038 (0.018)	-0.063 (0.002)	0.093 (0.044)	0.182 (0.000)	0.105 (0.000)	0.360 (0.000)	0.360 (0.000)	0.760 (0.000)	0.849 (0.000)	0.870 (0.000)	0.065 (0.000)	
IAOSSHARE	0.416 (0.000)	0.090 (0.000)	0.017 (0.431)	-0.082 (0.000)	0.131 (0.556)	0.180 (0.000)	0.101 (0.000)	0.016 (0.458)	-0.281 (0.000)	0.905 (0.000)	0.849 (0.000)	0.849 (0.000)	0.061 (0.000)	
ROA	-0.074 (0.004)	0.287 (0.000)	-0.260 (0.000)	0.006 (0.407)	0.039 (0.123)	-0.060 (0.000)	0.054 (0.006)	0.072 (0.049)	0.051 (0.036)	-0.80 (0.001)	0.082 (0.000)	-0.064 (0.003)	0.000 (0.000)	

Fee: is the audit fee in millions of Rials; Aturn is the client's asset turnover measured as the ratio of total sales divided by the ending total assets; Lev is the ratio of total debts to total assets; Size is the client's ending total assets in year; INV is the ratio of total inventories to total assets; REC is the ratio of total receivables to total assets; profit before tax divided by inflation-adjusted total assets; GOVOWN is the percentage of government ownership; NewClient = 1 if it is the auditor's first year audit with the client, 0 otherwise; Peak = 1 if the client's balance sheet date is 29 Esfand, 0 otherwise; Loss = 1 if the client reported loss in year t-1, 0 otherwise; IAOAuditor = 1 if the auditor is the IAO, 0 otherwise; IAOFEE ratio: is the ratio of IAO's audit fees to total audit fees; IAOMSHARE is ratio of IAO's client's total assets to sample's total assets; ; IAOACR is the IAO's number of client ratio. The raw values for Fee and Size are shown for descriptive purposes only. Logarithmic transformations are used in the regression model.

P-values are in parentheses. Correlations are based on 2,084 firm-year observations over 2000-2011. Fee: is the audit fee in millions of Rials; Aturn is the client's asset turnover measured as the ratio of total sales divided by the ending total assets; Lev is the ratio of total debts to total assets; Size is the client's ending total assets in year; INV is the ratio of total inventories to total assets; REC is the ratio of total receivables to total assets; profit before tax divided by inflation-adjusted total assets; GOVOWN is the percentage of government ownership; NewClient = 1 if it is the auditor's first year audit with the client, 0 otherwise; Peak = 1 if the client's balance sheet date is 29 Esfand, 0 otherwise; Loss = 1 if the client reported loss in year t-1, 0 otherwise; IAOAuditor = 1 if the auditor is the IAO, 0 otherwise; IAOFEE ratio: is the ratio of IAO's audit fees to total audit fees. IAOACR is the IAO's number of client ratio; IAOMSHARE is ratio of IAO's client's total assets to sample's total assets; IAOSSHARE is the ratio of IAO's clients' total sales to sample's total sales

Results

We estimate Model 1 as a pooled cross-sectional model after controlling for industry and year fixed effects and for the full sample by using our measures for auditor market power (IAOPower) as: Auditor type (IAO = 1, 0 otherwise) and the IAO's market share using the proportion of the market's assets audited by the IAO (Asset Share), proportion of TSE listed firms audited by the IAO (Client Ratio) and the proportion of sales of all

TSE firms audited by the IAO (Sales Share). All OLS regressions are estimated using robust standard errors clustered by firm to alleviate serial correlation and heteroskedasticity issues arising from pooled data (Petersen 2009). The results are presented in Table 3.

Table 3. Regression results for IAO Power
Panel A: without Government ownership and audit opinion variables (n =2,980)

variable	Predicted sign	AuditorType		Asset Share		Client Ratio		Sales Share	
		β	P-value	β	P-value	β	P-value	β	P-value
constant		2.331	0.000	2.421	0.000	2.498	0.000	1.913	0.000
IAOPower	+	0.379	0.004	0.378	0.006	0.171	0.035	0.369	0.000
Size	+	0.242	0.000	0.245	0.000	0.249	0.000	0.251	0.000
ATurn	+	0.257	0.000	0.313	0.000	0.265	0.000	0.272	0.000
Lev	?	-	0.046	0.051	-	0.039	0.042	-	0.072
NewClient	-	-	0.079	0.001	-	0.077	0.001	-	0.045
Peak	+	0.194	0.000	0.193	0.000	0.091	0.050	0.092	0.046
INV	+	0.439	0.000	0.591	0.000	0.502	0.005	0.449	0.010
REC	+	0.231	0.045	0.225	0.145	0.247	0.055	0.222	0.071
Loss	?	-	0.000	0.561	-	0.021	0.660	-	0.477
ROA	-	-	0.288	0.034	-	0.265	0.043	-	0.063
GOWN		-	0.004	0.019	-	0.005	0.015	-	0.011
	Year fixed effects							included	
	Industry fixed effect							included	
	Adj. R ²		52.1%	52.4%	51.8%	51.9%			

Regressions are estimated using robust standard errors clustered by firm. Fee: is the natural logarithm of audit fee (million Rials); IAOPower is market power measured as: (1) Auditor Type = 1 if the client is audited by the IAO, 0 otherwise; (2) Asset Share is the IAO's clients' total assets to all firms' total assets; (3) Client Ratio is the proportion of companies listed on the TSE that are audited by the IAO; (4) Sales Share is the ratio of IAO's clients' total sales to all firms' total sales; Size is the natural logarithm of client's ending total assets in year t; ATurn is the client's asset turnover measured as the ratio of total sales divided by the ending total assets; Lev is the ratio of total debts to total assets; NewClient = 1 if it is the auditor's first year audit with the client, 0 otherwise; Peak = 1 if the client's balance sheet

date is 29 Esfand, 0 otherwise; INV is the ratio of total inventories to total assets; REC is the ratio of total receivables to total assets; Loss = 1 if the client reported loss in year t-1, 0 otherwise; ROA is the ratio of profit before tax to total assets; GOWN is the percentage of government ownership.

The models are all highly significant with adjusted R^2 ranging around 52%. With the exception of REC and Loss, all other fee determinant variables are generally significant in the predicted directions. These results are consistent with prior audit fee research (i.e., Hay et al. 2006; Carson et al. 2012)¹. Our results show that size in total assets (Size), asset turnover (ATurn), inventory as a percentage of total assets (INV) and balance sheet date in the peak season (Peak) are associated with higher audit fees. In contrast, leverage (Lev) and new audit engagements (NewClient) have a significant negative association with audit fees. The results for NewClient are consistent with the notion that clients use auditor switching as a means to reduce their audit costs (Hay et al. 2006). The results for the year indicator variables (not tabulated) are all significant and positive, indicating audit fees, on average, increased over time²

Our test variable (IAOPower) is positive and highly significant (p-value = 0.000) in all models. This indicates that the higher the IAO's market power, the higher is audit fees, suggesting that firms audited by the IAO pay higher audit fees relative to firms audited by smaller private audit firms. These results show that the IAO, as the audit firm with the higher market power (size) charges a fee premium for its audits. The fee premium on audits by BIG N auditors in prior research was attributed to the "brand name reputation" or the "market power (size)" of BIG N auditors (Basioudis and Fifi 2004). Our results show that when the BIG N brand name (reputation) is absent, there is also a fee premium for auditor market power. This is consistent with the market power hypothesis, which argues that large audit firms act as a cartel and impose higher prices on their clients (Palmrose 1986). Our results also provide support for the notion that the degree of market power exercised by large audit firms in the market could drive audit fee premiums (Carson et al. 2012).

Next we examine the audit pricing for the IAO clients that have the authority to switch to private audit firms (non-monopoly) clients. As

1 - Our results are unaffected by the exclusion of *REC* and *Loss* in our audit fee models.

2- The increase in audit fees during the study period is higher than the inflation rate over the period. The cumulative inflation rate over the study period is 163.4% and the average cumulative increase in audit fees during the study period is 249.9%.

explained earlier, after the establishment of the IACPA in late 2001, firms listed on the TSE were allowed to use the audit services of private audit firms who are members of the IACPA. However, the audits of certain listed firms (firms with government ownership over 50%) remain with the IAO. This indicates that the IAO has two different types of monopolistic and non-monopolistic clients, where the non-monopolistic clients have the authority to switch to other accounting firms. We searched the IAO's clients during the study period and identified firms that had a switch to / or from IAO and considered these firms as those that have the option to choose their own auditor. Then, we split IAO clients into monopolistic clients (IAOMP) and non-monopolistic clients (IAO-NonMP) and augmented our model 1 for these variables, and finally re-estimated this expanded model. If the choice to switch to another auditor affects the audit pricing, it is expected that there is a bargaining power for clients of IAO that have the authority to switch to other firms, which in turn, can influence their audit pricing. Thus, we expect these clients (IAO-NonMP) to pay lower fees relative to firms not having the authority to switch auditors. The results are reported in Table 4.

Table 4. Regression results for Audit Pricing of IAO's monopolistic and non-monopolistic clients (n= 2,980)

Variable	Predicted sign	β	p-value
constant		1.437	0.001
IAONonMP	?	0.243	0.000
IAOMP	+	0.438	0.000
Size	+	0.295	0.000
ATurn	+	0.447	0.000
Lev	?	-0.073	0.037
NewClient	-	-0.108	0.093
Peak	+	0.225	0.002
INV	+	0.607	0.005
REC	+	-0.023	0.462
Loss	?	0.112	0.113
ROA	-	-0.408	0.055
GOWN	?	-0.004	0.065
Industry fixed effect		Included	
Year fixed effect		Included	
Adj. R ²		55.8%	

Regressions are estimated using robust standard errors clustered by firm. Fee is the natural logarithm of audit fee (million Rials). IAONonMP = 1 if the IAO's client had the authority to switch to another auditor during the study period, 0 otherwise; IAOMP = 1 if the IAO has the monopoly audit of

the client, 0 otherwise; Size is the natural logarithm of client's ending total assets in year t ; ATurn is the client's asset turnover measured as the ratio of total sales divided by the ending total assets; Lev is the ratio of total debts to total assets; NewClient = 1 if it is the auditor's first year audit with the client, 0 otherwise; Peak = 1 if the client's balance sheet date is at 29 Esfand (23 March), 0 otherwise; INV is the ratio of total inventories to ending total assets; REC is the ratio of total accounts receivables to total assets; Loss = 1 if the client reported loss in year $t-1$, 0 otherwise; ROA is the ratio of profit before tax to total assets; GOWN is the percentage of government ownership.

As shown in Table 4, the model is significant and exhibits good explanatory powers (adjusted R² of 55%). With the exception of Loss, and REC, the control variables are significant and in the expected direction. The coefficient for IAOMP is positive and significant, indicating that the IAO charges a fee premium for its monopolistic clients. Meanwhile, the coefficient of IAONonMP is also positive and significant, but its value is smaller than the positive coefficient of IAOMP (their difference is significant at $p = 0.000$). This indicates that the IAO's market power enables it to charge an audit fee premium over its non-monopolistic clients as compared to private auditors.

Robustness and additional analyses

We performed the following additional analyses to check the robustness of the results (for brevity purposes, we do not tabulate the results). First, we consider the effect of inflation on our results. Iran experienced high inflation rates during our sample period with many years of double digit inflation rate. As a control for inflation, we re-estimate our Model 1 using the unadjusted audit fees and other variables in our model while controlling for the inflation rate (the official yearly inflation rate published by the Iranian Central Bank). The results show that while the coefficient for inflation rate is positive and significant, the results for our test variables are consistent with our results reported earlier, suggesting that the results are robust with respect to inflation.

Second, we consider the effect of BIG4 affiliation on audit fees. Although, international accounting firms are excluded from the market, there are 3 private audit firms that have had affiliations with three of the

BIG4 audit firms during the study period (except for 2011¹). These firms were not allowed to sign audit reports using the name of their affiliated BIG4 firm. However, they did attend overseas training courses hold by their affiliated BIG4 audit firms. We use an indicator variable to identify these firms and re-estimate the audit fee model for the inclusion of this variable. The result for this variable is not significant and our reported results are unchanged. This result suggests that BIG4 affiliation is not priced in the Iranian audit market.

Concluding remarks

We examine whether there is a fee premium for auditor market power of the Iranian Audit Organization (IAO) in the Iranian audit market where the brand name of BIG4 auditors is absent. We find that there is a fee premium for the auditor market power. This result suggests that it is the market power (size) of large firms that drives the audit fee premium. Prior research attributed the fee premium charged by BIG N auditors to either brand name reputation or their market power (e.g., Hay et al. 2006). We show that when the brand name of BIG N auditors is absent, it is the size (market power) of the audit firm that drives the fee premium. We also find that this fee premium also exists for the IAO's clients who have the authority to choose their auditors (non-monopolistic clients).

Our results are subject to several limitations. First, disclosure of audit fees was voluntary during the study period, which might lead to a self-selection bias in our sample. The second limitation is the ability to generalize our results to other countries with different market characteristics and regulatory regimes. The specific features of the Iranian audit market which include the existence of both public and private auditors and also the lack of BIG4 audit firms operating in the market limit the generalizability of our results. Nevertheless, the absence of BIG 4 audit firms does allow us to distinguish between auditor size and the brand effect of BIG 4 auditors.

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1 In 2011 and after the new wave of US sanctions, BIG 4 audit firms stopped their affiliations with the local audit firms in Iran.

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