

Differentiation in the Quality of the Financial Audit Service in Mexico

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Abstract

The objective of this paper of investigation tries to demonstrate empirically the reason that the existence of a high concentration in the market for financial auditing services in Mexico can be explained by the hypothesis of differentiation in the quality of service, concluding that the election of an auditor with reputation may be a determining factor of decision for certain companies that demand financial audit services with a quality that is higher than the legally required by auditing standards, a high quality of the service which provides accuracy, certainty and credibility on its financial statements and that is perceptible by third party interested users.

KEYWORDS: Differentiation of the audit quality service, auditor with reputation, the concentration of financial audit market in Mexico.

INTRODUCTION

The analysis of the structure of the audited financial market in the world and the empirical evidence demonstrate the existence of a high concentration of professional auditing services for largest international firms, better known as The Big 4, which has generated great interest in accounting doctrine to explain the reasons for the concentration of this market (Zeff and Fossum, 1967; Bavishi and Wyman, 1983; Craswell and Taylor, 1991; Walker and Johnson, 1996; Garcia-Benau et al, 1998 ; Wolk et al., 2001; Beattie et al., 2003; American Assembly Report, 2005; Abidin, et al, 2006, 2007; Ballas and Fafaliou, 2008).

This economic concentration has certainly produced harmful effects in the professional practices of the world, which today are evident and that affect the very essence of the auditing profession. The authors Nieves Carrera et al., (2005; p. 425) commented that, after the exit from the market of the firm Arthur Andersen for its involvement in the financial scandal of Enron, the market for audit services in the world has convulsed again by the effects of mergers that occurred between the major international audit firms, which without doubt will produce a greater economic concentration in the market of the financial audit than that, which already existed and also exacerbate the competition with the other audit firms (Beattie et al., 2003; Asthana et al., 2004; Feldman, 2006; Oxley, 2007; Ballas and Fafaliou, 2008; Kohlbeck et al., 2008; Abidin et al., 2010).

Now, from the analytical point of view it is interesting to put under study the reasons for which this concentrated structure occurs in the market of audit, i.e. the factors that may explain why large international firms, seem to have some competitive advantage over the rest of the active audit firms.

One of the reasons that have been stated in the international literature, in regard to the provision of the service of audit, is that these market leader firms enjoy differences in quality and reputation, i.e. they offer audit services with a higher level of quality than the minimum quality legally required by auditing standards, thereby providing credibility to the financial statements of enterprises audited, same that is detectable by third parties (Who Audit America, 2003; Lawrence et al., 2011; Velte and Stiglhaber, 2012; Gao et al. 2013; Eshleman and Guo, 2014).

If the audit market allows for differences in the service, then the audit firms with higher quality and reputation will get a higher market share, that is, in those markets where there are significant differences in quality and reputation among the various participating firms, they will tend to be concentrated (Barton, 2005).

In Mexico, the arrival of the large international audit firms, better known as the Big 4, is recorded over the first five decades of the last century, so that like in other countries in the world, the Mexican audit market has also been resenting the high concentration as a result of the successive mergers between these large international audit firms. For all these reasons, the implementation of this research work is designed to provide empirical evidence that the reason for the concentrated structure of the audit market in Mexico can come to be explained by the hypothesis of the differentiation of the audit service. The data that we use is published in the web page of the Mexican Stock Exchange (BMV) and it corresponds to the period from 2000 to 2005.

This article is structured in the following way. After this brief introduction, the second paragraph stresses the review of the previous literature which gives substance to the study. The following section describes the sample and methodology used. The fourth paragraph shows the results of the empirical analysis and finally, the fifth section presents the main conclusions of this work investigation.

REVIEW OF THE LITERATURE

The accounting literature has been holding an argument conceptually consistent and with the passage of time it has been empirically proven, in the sense that the concentrated structure of the audit market can come to be explained by the hypothesis of the differentiation of service, i.e. the audit service allows differentiation, therefore, the audit is not a homogeneous service (Dopuch and Simunic, 1982; Beattie and Fearnley, 1994; Craswell et al., 1995; Garcia-Benau et al., 1998, Carlin et al., 2008; Lawrence et al., 2011).

To deepen on this issue, attention should be given to determining the attributes of the audit service that enable its heterogeneity. In this sense, given that the audit service is attempting to give credibility to the accounting information, the heterogeneity of the service involves the assumption that the level of credibility given to the various providers of the service may not be similar (Carlin et al., 2008; Hamilton and Stokes, 2008).

One of the reasons that have been stated in the international literature, in regard to the provision of the service of audit, is that these market leader firms enjoy differences in quality and reputation, i.e. they offer audit services with a higher level of quality than the minimum quality legally required by accounting standards, thereby providing credibility to the financial statements of enterprises audited, same that is detectable by third parties (Simunic and Stein, 1987; Garcia Benau et al., 1999; Lawrence et al., 2011).

In this regard, the accounting literature highlights that it has to be kept in mind that given the important contribution that the financial audit makes to society, the self-regulation must be exacting to ensure quality, so that one can speak of a legally required quality that must be fulfilled by all suppliers on the market.

This implies that there is a differentiation of the quality above the minimum, which has led researchers in accounting to consider another important issue, which is that since the quality is costly to achieve, the auditors should specialize in providing a differential level of quality in the market.

The contestation to this question only seems only to be able to find an answer on the demand side, i.e. the own demand for different qualities of the audit service explains the differentiated offer of it. In this regard, Simunic and Stein (1987) argue that the auditors choose to specialize in granting levels of credibility above the legal minimum when there is a perceived need not covered in the market.

Therefore, if the audit market allows the existence of differences in the service, then the firms with higher quality will get a higher market share and, consequently, those markets in which there are significant differences of qualities among the participating companies, will tend to be concentrated.

However, the quality of the work of the auditor is not observable externally, and for this reason the accounting researchers have resorted to the use of surrogates. Since the seminal work of DeAngelo (1981), a widespread assumption in research on the financial audit, is that the quality of the auditor is an attribute that can be defined in terms of reputation, i.e. that the prestige of a particular auditor indicates your level of professional quality (Moizer, 1997; Krishnamurthy et al., 2002; Gao et al., 2013).

In this regard, the service differentiation based on reputation, considers that incentives exist for audit firms to specialize in offering a specific level of credibility when they issue an opinion, incurring substantial fixed costs in the creation of an image or brand name serving as an objective indicator perceptible by third parties (Beattie, 1989; Craswell et al., 1995; Tomczyk, 1996; Fargher et al., 2001). In a market such as that of the financial auditing services, where there is a strong informational asymmetry between buyers and sellers and therefore an additional difficulty to assess the quality of the service offered, the brand name is an essential attribute on which to base the differentiation of the auditor (DeAngelo, 1981; Dopuch and Simunic, 1982; Palmrose, 1986; Simunic and Stein, 1987; Craswell et al., 1995; Financial Reporting Council, 2006).

Thus, if we look at the definition of reputation by accounting researchers DeFond et al., (2002), as the skill that consists in obtaining new customers at the same time that existing ones are retained, it is then that the audit firms with greater participation in the market of financial audit will be the most reputable, and therefore, will also be associated with a higher level of quality as auditors (Francis, 2004). It is for this reason that the audit firms of larger size, i.e., the large international firms, better known as the Big 4, are considered in the accounting literature as the highest quality and reputation. Because hiring a quality auditor according to the literature can provide significant benefits, it is therefore not surprising that the managers of the companies consider the reputation as a key factor in the choice of auditor (Beattie, 1989; O'Keefe et al., 1994; Abbot and Susan, 2000; Sarbanes-Oxley Act, 2002; GAO, 2003; Barton, 2005; Monterrey and Sanchez, 2008).

SAMPLE AND METHODOLOGY

To demonstrate in an empirical manner the reason that the concentrated structure of the market for Mexican financial audit can be explained by the hypothesis of the differentiation of the audit service, we have used a sample composed of 639 audit reports of companies listed on the capital market of the Mexican Stock Exchange and their statements have been subjected to the external audit. The study we have carried out corresponds to the period from 2001 to 2005. The financial information that integrates the sample analyzed has been obtained directly from the database that is published in the web page of the capital market of the Mexican Stock Exchange (<http://www.bmv.com.mx>). Table 1, shows the number of audited companies in each of the five years, as well as the number of audit firms participating in this period of study. The number of companies audited in each of years ranges between 120 and 130, while the number of external auditors to undertake the audit of such companies is situated between 17 and 21.

Table 1. Description of the sample

Concepts	2001	2002	2003	2004	2005
Number of companies audited by an external auditor	122	125	128	132	132
Number of audit firms that have offered the service of external audit	17	17	18	21	21

The methodology used to analyze if the market concentration of Mexican audit can be explained by the service differentiation based on the quality and reputation perceptible by third parties, parts from the need to study first the market concentration of Mexican audit, to then analyze the audit firm contracted by the audited companies on the basis of the Auditor chosen and its degree of specialization, recognizing the group of audit firms composed of the major international audit firms, better known as The Big 4, as a reputable auditor and highly specialized. Therefore, to know the market concentration of Mexican audit, we have used various indicators in order to be able to determine the position they occupy among the audit firms active in this market. It should be noted that, as in other countries, in Mexico there is no public information available on fees for audit services invoiced to companies. For this reason we have used as subrogate of size, the annual turnover of the audited companies of the sample analyzed in our empirical study (Moizer and Turley, 1987).

The method that we have followed to know the distribution of the activity of the market has been the calculation of Indices of Concentration of order n and the Herfindahl Hirschman Index, validated by the industrial economics (Bueno and Morcillo, 1993). The analytical representation of the levels of concentration of order n, is the next:

$$C_n = \sum_{i=1}^n \frac{F_n}{F}$$

where:

C_n = Market share of the n largest audit firms

n = Number of largest audit firms analyzed (1, 2, 4, etc.)

F_n = Fees for audit services or subrogated

(Turnover of the audited companies in the market)

F = Turnover / Number of total audited companies in the market

The levels of concentration of order n to the level for example, C1 and C4 express the proportion of the market of audit that can be attributed to one or four audit firms (the largest). We understand that knowing C4, will be of great significance to refine the market power held

by the four audit firms with higher market share and, which usually, usually coincide with The Big 4. However, the use of these indices of concentration of order n, carries with it a series of drawbacks, as for example, does not take into consideration the full distribution of the size of the market, since it does not reflect the input and output processes in the industry, or changes in the relative positions of the n largest companies. For this reason, we have been using in addition other indices, among which it the Herfindahl Hirschman Index prevails and whose determination is as follows:

$$HH = \sum_{i=1}^n Z_i^2$$

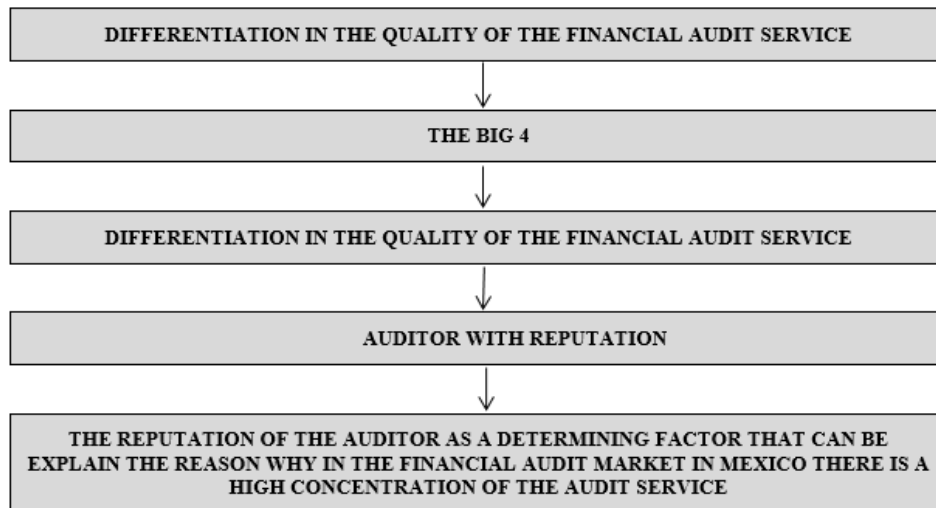
where:

HH = Herfindahl Hirschman Index

Z_i = market share absorbed by the companies in the sample

n = number of audit firms active in the market

The Herfindahl Hirschman Index is a weighted sum of the market shares, where the weight given to each firm is determined by its own quota reached. This means that small firms have less influence on the result of the calculation of the index that the influence on the part of larger audit firms, so that the Herfindahl Hirschman Index can be understood as a measure of the dispersion of the market share between the various companies that operate in the same (Eichenseher and Danos, 1981). This Herfindahl Hirschman Index can reach values ranging between 0 and 1. The value 0 means that the concentration in the market is almost zero, that is, almost minimal. Therefore, the market is divided more or less equally between all the active audit firms given that they provide the audit service. The value of 1 means the market is fully controlled by a single audit firm. If for example, the Herfindahl Hirschman Index is equal to 0.25, the degree of market concentration is equivalent to the presence of four audit firms of equal size. As can be seen the Herfindahl Hirschman Index is susceptible to the number of companies active in the market, giving a more appropriate idea of the level of actual concentration (Minyard and Tabor, 1991; Nieves Carrera et al., 2005). The application of the methodology described so far will serve us to know the level of market concentration of Mexican audit. From that moment on we will try to explain that one of the reasons for the concentration of Mexican audit market can be explained by the hypothesis of the differentiation of the audit service based on the quality and reputation, that is, that the election of an reputable auditor reputed, i.e. an audit firm of the large international firms, better known as The Big 4, is a determining factor for certain companies that demand audit services of superior quality to the minimum quality legally required, to give credibility to its financial statements and that is perceptible by third parties (Danos and Eichenseher, 1986; Francis and Wilson, 1988).

Graphic 1. Methodology used

As can be seen in Graphic 1., the analysis of the differentiation of the service will focus in knowing if the concentration of the audit market is due to the fact that the audited companies of the sample chose preferably the major international audit firms, better known as The Big 4 who according to the international literature are considered to be the most reputable and highly specialized to provide businesses with the services of audit with a quality above the legally enforceable. To check if the hypothesis of the service differentiation based on the quality and reputation, we shall proceed to divide the sample of the auditors participating in the Mexican audit market in two groups: The group of the large international audit firms better known as The Big 4 and the group from the rest of the audit firms.

EMPIRICAL RESULTS

The concentration of the financial audit market in Mexico

To carry out this research audit firms in the sample have been classified into two segments: the first group is formed by The Big 4 and a second group formed by the rest of the financial audit firms participating in the Mexican audit market. The Table 2 shows the results of the calculation of indices of concentration. Since there is no public information of the fees for audit, we have used the subrogate volume of sales of the audited company as an indirect measure of the concentration of the Mexican audit market.

Tabla 2. Concentration Indices by sales turnover of the companies audited

Concentration Index	2001	2002	2003	2004	2005
C1	0.26	0.31	0.31	0.32	0.33
C2	0.52	0.61	0.62	0.59	0.58
C4	0.86	0.96	0.96	0.94	0.95
C5	0.96	-	-	-	-

As shown in the Table 2, for the years 2002 to 2005 Mexican audit market is highly concentrated and dominated by four large firms whose market power is at very similar values (see, C4). Such firms are, KPMG, Deloitte, Price Waterhouse Coopers and Ernst & Young, that is, they are the largest international audit firms better known as The Big 4. The change occurred between 2001 and 2002 is due to the effect of the Enron scandal resulted in the firm Arthur Andersen, which disappeared after being involved in it. The following Table 3 shows a detail of the audit firms that have more market power in Mexico.

Table 3. Market share of The Big 4 according to the analyzed sample

Large Audit Firms	2001	2002	2003	2004	2005
Ernst & Young	0.26 (1)	0.31 (1)	0.31 (1)	0.32 (1)	0.33 (1)
Price Waterhouse Coopers	0.26 (1)	0.31 (1)	0.31 (1)	0.28 (2)	0.24 (3)
Deloitte Touche Tohmatsu	0.13 (4)	0.27 (3)	0.27 (3)	0.23 (3)	0.25 (2)
KPMG	0.07 (5)	0.07 (4)	0.07 (4)	0.12 (4)	0.13 (4)
Arthur Andersen	0.23 (3)	-	-	-	-

The number in parentheses expresses the position of each company in an annual ranking of one to four year except 2001 where Arthur Andersen still part of the large international audit firms.

According to the data in the Table 3 shows that Ernst & Young for our test sample has the market leadership of Mexican audit but for the years 2001 to 2003 shares leadership with Price Waterhouse Coopers with equal market share of the annual ranking, having these two companies nearly 60% market share. However, this position for Price Waterhouse Coopers not maintained throughout the period since in 2004 and 2005 seems to have lost some competitiveness. In 2005, Deloitte and Price Waterhouse Coopers are both with a very similar market share. Moreover, KPMG despite occupying last place in the group of The Big 4 achieves a steady improvement in its market share. From the results obtained so far, we can infer that the audit market in Mexico is highly concentrated and dominated by The Big 4 considered them by the international literature as audit firms most reputable and distinguished quality in audit markets in the world, situation that also allows us to infer that indeed the companies audited sample preferably decide to hire The Big 4 for the reason that these large accounting firms offer their customers a higher reputation and quality audit services above the legally required, determining key factors that provide their financial statements more credibility with third parties. The following Table 4 shows the dispersion market.

Table 4. Herfindahl Hirschman Index by turnover of the audited companies

Herfindahl Hirschman Index	2001	2002	2003	2004	2005
Turnover of sales audited companies	0.21	0.27	0.27	0.25	0.25

Table 4 shows the results from the calculation of the Herfindahl Hirschman Index by using the turnover of sales audited companies as an indirect surrogate are presented. As can be seen, the level of market concentration Mexican audit increased from 21% to 27% for the years 2002 and 2003 compared to 2001 and then descend this level of concentration up to 25% for the years 2004 and 2005, a situation that allows us to infer the importance of the level of competition in the Mexican market audit but especially among The Big 4. With the desire to further deepen our empirical study on the hypothesis service differentiation financial audit, below is an analysis of the specialization of large international audit firms, better known as The Big 4 by economic sector the size of the audited companies in the sample. In this regard, the literature indicates that some of the explanatory factors of market concentration that most interest aroused among accounting researchers have been the specialization of The Big 4 by the activity of the audited business sector and specialization by size of the audited companies as it arises by accounting researchers the possibility that there is an accounting technology specific sector of activity, because in some cases the application and selection of accounting policies have unique character for particular sector of activity (Eichenseher and Danos, 1981; Danos and Eichenseher, 1982; Schockely and Menon, 1983; DeFond et al., 2000; Balsam et al., 2003).

The specialization of the Big 4 by sector of the audited company

As to the demand for specialization of audit firms based on the activity of the audited business sector, literature highlights that large international firms better auditing known as The Big 4 in order to meet this demand, will perform certain behaviors such as investment in expertise, ie, acquiring a skill and experience above average experience required in the audit market, such as recruiting and training staff, opening offices, software development and tools sophisticated decision, among others, which allows them to these specialized at lower cost than could offer other firms competing audit auditing firms enjoy economies of scope to provide audit services in specific market segments, ie services. Accounting researchers have concluded that the audit market can be segmented and allow therefore specialization depending on the nature of the audited company, one of the fundamental aspects of the behavior of large audit firms with respect to the activity that belongs to the audited company (Simunic and Stein, 1987; Turpen, 1990; Craswell et al., 1995). To analyze the possible existence in the market of Mexican audit of a specialization of The Big 4 in response to the economic activity of the audited company sector, we have segmented the total sample of our study but now based on the classification of the seven sectors of the capital market of the Mexican Stock Exchange has made in this regard. Then we collect in Table 5 involving two groups of audit firms: on the one hand are The Big 4 and on the other hand the rest of auditing firms active in the Mexican market audit (Hogan and Jeter, 1999).

Table 5. Participation by sector audit firms active in the Mexican market audit

Sectors from activity according classification of the capital market of Mexican stock exchange	2001		2002		2003		2004		2005	
	Percentage of companies audited by		Percentage of companies audited by		Percentage of companies audited by		Percentage of companies audited by		Percentage of companies audited by	
	The Big 5	Other Audit Firms	The Big 4	Other Audit Firms	The Big 4	Other Audit Firms	The Big 4	Other Audit Firms	The Big 4	Other Audit Firms
Extractive industry	100	0	100	0	100	0	100	0	100	0
Transformation	95	5	95	5	95	0	96	4	97	3
Construction	99	1	100	0	98	2	99	1	99	1
Communications and Transport	99	1	99	1	99	1	95	5	96	4
Commerce	85	15	87	13	87	13	82	18	82	18
Services	99	1	99	1	97	3	98	2	97	3
Various	99	1	100	0	100	0	100	0	100	0

From the results in Table 5 we see that there is a majority share of The Big 4 in each of the sectors from the rest of the audit firms. This allows us to assume the possibility that to successfully participate in the audit market requires that the audit firms have a high degree of specialization in certain sectors and in this regard The Big 4 are those that apparently have greater capacity to specialize their knowledge (Tonge and Wootton, 1991; Moizer, 1992; Abidin et al, 2010, Velte and Stiglhaber, 2012). This leads us to study the specialization effect based on the number of active auditing firms in a particular sector and the dispersion of market shares between themselves, using the Herfindahl Hirschman Index (HHI) that allow us to measure the level market concentration Mexican audit based on the number of audit firms participating in a specific sector as the difference in their market shares (Palmrose, 1986; Moizer, 1992; Schaen and Maijoor, 1997; Garcia Benau et al., 1998; DeFond et al., 2000; Balsam et al., 2003).

Table 6. Level of concentration by sector of activity

Sectors of activity	2001		2002		2003		2004		2005	
	Number Audit Firms	HHI	Number Audit Firms	HHI	Number Audit Firms	HHI	Number Audit Firms	HHI	Number Audit Firms	HHI
Extractive industry	2	0.60	3	0.52	2	0.54	2	0.63	2	0.61
Transformation	12	0.28	12	0.43	11	0.43	12	0.44	12	0.43
Construction	5	0.51	4	0.49	5	0.45	5	0.42	5	0.52
Communications and Transport	3	0.59	3	0.62	3	0.65	6	0.67	6	0.70
Commerce	10	0.22	8	0.25	9	0.25	10	0.26	10	0.26
Services	8	0.32	9	0.32	10	0.39	10	0.30	9	0.37
Various	5	0.43	5	0.40	5	0.40	5	0.41	5	0.43
TOTAL	17	0.21	17	0.27	18	0.27	21	0.25	21	0.25

From the results shown in Table 6, one can see different behaviors of the audit firms based on their level of concentration. We note that the sector Extractive Industry requires a more highly specialized than other sectors of economic activity for being dominated its market for only two audit firms and also have a higher Herfindahl Hirschman Index that which corresponds of the total market (Moizer and Turley, 1987). Also we observe the communications-Transport, Miscellaneous, and Construction as specialized for having a high Herfindahl Hirschman Index and found these controlled by an average of four audit firms sectors. Then we try to consider that The Big 4 seek to be successful in the Mexican market audit by implementing certain behaviors aimed towards specialization, considering this course, that this kind of behavior occur when there are significant differences between the market shares of the auditing firms participating in each of the economic sectors considered specialized (Simon, 1985; Danos and Eichenseher, 1986; Tonge and Wootton, 1991; Hogan y Jeter, 1999; Yardley et al., 1992; Abidin et al., 2010).

From the results in Table 7, we infer that there is a significant specialization in the Mexican market audit by the Big 4 due to behavior implemented to fill the demand that requires a specific economic sector in that market. In summary, the results indicate that The Big 4 in Mexico apply highly specialized knowledge by sectors of the audited companies to gain competitive advantage and thereby achieve high market shares of Mexican audit. Specifically, Ernst & Young holds the exclusive leadership in the specialized sector of transport and communications throughout the period. Price Waterhouse Coopers participates in three specialized sectors, occupying two of them "Extractive Industry and Miscellaneous" absolute leadership over the years from 2003 to 2005 and 2002 to 2005 respectively. KPMG holds the exclusive leadership in the specialized construction sector throughout the period of our study. Deloitte does not develop very intensively such strategies because even participates in three specialized sectors like Price Waterhouse Coopers, the total accumulated share of the niche

market is much smaller than that obtained by both KPMG and Price Waterhouse Coopers, occupying therefore the fourth instead of our ranking as the best total accumulated specialized market share is concerned (Hogan and Jeter, 1999; DeFond et al., 2000).

Table 7. Participation of The Big 4 in the specialized sectors

Economic Sector	2001		2002		2003		2004		2005	
	Audited Firms	Share	Audited Firms	Share	Audited Firms	Share	Audited Firms	Share	Audited Firms	Share
Extractive Industry	AA EY	0.72 0.28	DTT EY PWC	0.63 0.35 0.02	PWC EY	0.63 0.37	PWC EY	0.75 0.25	PWC EY	0.74 0.26
Communications and Transports	EY PWC	0.72 0.28	EY PWC	0.74 0.25	EY PWC	0.78 0.22	EY PWC	0.81 0.13	EY PWC	0.83 0.12
Varios	AA PWC DTT	0.55 0.24 0.13	PWC DTT EY	0.56 0.23 0.18	PWC DTT EY	0.56 0.24 0.17	PWC DTT EY	0.57 0.26 0.14	PWC DTT EY	0.58 0.25 0.14
Construction	KPMG DTT	0.68 0.19	KPMG DTT	0.67 0.20	KPMG DTT	0.62 0.23	KPMG DTT EY	0.58 0.26 0.11	KPMG DTT	0.68 0.23

**AA=Arthur Andersen PWC=Price Waterhouse Coopers DTT=Deloitte Touche Tohmatsu
EY=Ernst and Young y KPMG=Kpmg**

Specialization of Big 4 firm size of the audited company

As to the demand for specialization of audit firms based on the size of the audited company, the international literature emphasizes that the demand for it is clear from the actual size of the audited company, as features like; planning the audit, compliance testing of internal control, and audit program they are dependent on the size of the audited company. However, in practice it is difficult for a particular firm follow one of these strategic behaviors identified in pure sense, either as a distinct specialization or cost leadership, there is rather a conjunction of both behaviors (DeAngelo, 1981; Dopuch and Simunic, 1982; Garcia-Benau et al., 1998).

To test the effect specialization size of the audited company, we have divided the total sample of our study in seven sections according to their measured it in terms of the turnover of the audited company size. First we have identified the relative share of the Big 4 and other firms active in the Mexican market audit in each of these seven sections of the size of the audited company.

Table 8. Participation of audit firms of the simple sections activity of the audited company

Size of the audited company (Billing sales) in millions of Mexican pesos	2001		2002		2003		2004		2005	
	Percentage of companies audited by		Percentage of companies audited by		Percentage of companies audited by		Percentage of companies audited by		Percentage of companies audited by	
	The Big 5	Other auditing Firms	The Big 4	Other auditing Firms	The Big 4	Other auditing Firms	The Big 4	Other auditing Firms	The Big 4	Other auditing Firms
(1) Less than 50.	2	98	2	98	2	98	24	76	05	95
(2) 50 to 500.	60	40	59	41	34	66	35	65	34	66
(3) 500.01 to 5,000.	85	15	90	10	82	18	78	22	74	26
(4) 5,000.01 to 25,000.	89	11	88	12	89	11	84	16	83	17
(5) 25'000.01 a 50,000.	100	-	100	-	100	-	95	5	95	5
(6) 50,000.01 a 100,000.	100	-	100	-	100	-	100	-	100	-
(7) More than 100,000.	100	-	100	-	100	-	100	-	100	-

Sections of the size of the audited company = (1), (2), (3), (4), (5), (6) y (7)

The results in Table 8, demonstrate certain behaviors conditioned by the audit firms. In the first part, we see how the group called the rest of the audit firms dominates the stretch one of the audited company activity throughout the study period. On the contrary, we note that The Big 4 become more competitive as the size of the audited company, especially from three sections as with regard to section two the market is more or less balanced between the two groups auditing firms participating. Therefore, we can conclude that with the exception of one section, there is a barrier to market entry for Mexican audit classified as the rest of the audit firms based on the size of the audited company group (DeAngelo, 1981; Palmrose, 1986). The results in Table 9 we have calculated the Herfindahl Hirschman Index (HHI) to measure the concentration by the size of the audited company, assuming that as the size of the audited increases there are fewer active auditing firms and, therefore, the higher the concentration in the Mexican market audit.

Table 9. Concentration level size of the audited company

Size of the audited company (Billing) in millions of Mexican pesos	2001		2002		2003		2004		2005	
	Number of Audit Firms	HHI	Number of Audit Firms	HHI	Number of Audit Firms	HHI	Number of Audit Firms	HHI	Number of Audit Firms	HHI
(1) Less than 50	4	0.35	6	0.26	5	0.33	4	0.37	2	0.91
(2) 50 to 500	10	0.15	11	0.14	12	0.11	12	0.13	12	0.12
(3) 500.01 to 5,000.	9	0.18	6	0.25	9	0.20	11	0.18	10	0.17
(4) 5,000.01 to 25,000.	8	0.24	7	0.29	7	0.29	8	0.21	8	0.23
(5) 25,000.01 to 50,000	4	0.30	3	0.41	3	0.41	4	0.41	4	0.38
(6) 50,000.01 to 100,000.	4	0.26	4	0.26	4	0.27	3	0.36	2	0.51
(7) More than 100,000.	1	1.00	1	1.00	1	1.00	2	0.73	3	0.48
TOTAL	17	0.21	17	0.27	18	0.27	21	0.25	21	0.25

Sections of the size of the audited company = (1), (2), (3), (4), (5), (6) y (7)

For the data in Table 9 observe, first, that stretch one size of the audited company, the market for Mexican audit is concentrated on four active auditing firms on average throughout the period of our empirical study. Second we appreciate that from section two to section five of activity of the audited company, the level of market concentration remains on a steady increase throughout the study period and which is reflected by the continued reduction in the number active to the extent that the size increases audited companies accounting firms.

Thirdly, we note that for the section six of activity of the audited company, the level of concentration reached by the audit firms by the Herfindahl Hirschman Index, declined compared with Fourthly, we note in Table 9 for the seventh installment of activity of the audited company, the concentration level increased exponentially with respect to the section previous six for the years from 2001 to 2003 and also a significant increase for 2004, but not being thus for the year 2005 in which reflected a decrease of the concentration index, concluding with respect to this part of the market that our earlier hypothesis proposed shows a greater tendency to be fulfilled. Notably for the years 2001 to 2003 the existing absolute control for this part of the audit market by one of the Big 4. However for 2005 shows that the market for Mexican audit was already dominated by three audit firms which demonstrates the existence in the market for Mexican audit of real competition between The Big 4. From the results obtained so far we conclude that as the size of the audited company that extent the audit firms smaller lose competitive strength, with the exception of section one of activity of the audited company which we assume by the results in table 8 above, that that section one it is dominated by the rest of the audit firms. Therefore, we can conclude that in the market for Mexican audit if there is a barrier to entry for smaller audit firms serving the size of the audited company, also adding that the level of efficiency of the Big 4 in Mexico increased by the same proportion as the size of the audited company.

CONCLUSIONS

This study analyzes the service differentiation as an explanatory factor of market concentration financial audit in Mexico. To do this, we first demonstrated the existence of a high concentration of the audit market in Mexico. After preparing the study, we reached the following conclusions:

FIRST: The results of our empirical study indicate that the market for Mexican audit is dominated and controlled by large international audit firms, better known as The Big 4. This allows us to accept the hypothesis that service differentiation based on quality and reputation of The Big 4 may be an explanatory factor of market concentration for Mexican audits, stemming from the fact that that most companies in the sample audited decided to choose one of The Big 4. In this regard, the literature states that a market like the financial auditing services where there is a strong informational asymmetry between supply and demand and therefore an additional difficulty in assessing the quality of service provided, the brand name constitutes an essential attribute on which to base differentiation auditor. Therefore, if the audit market allows the existence of differences in the service, then firms with higher quality and reputation gain greater market share and, consequently, those markets where there are significant differences in quality between bidders they tend to be concentrated.

SECOND: The results of our empirical study indicate that the Big 4 apply differentiation auditing service focused on high specialization in response to the economic activity of the audited company sector in order to achieve high market shares of Mexican audit. The study reveals that there is a specialization of the Big 4 in certain sectors: These include the transport

and communications sector where the firm Ernst & Young is the most specialized throughout the study period. As for the Extractive Industry sector auditing firms have greater specialization are Deloitte and Price Waterhouse Coopers firms for the period from 2001 to 2002 and from 2003 to 2005 respectively. In regards to the Construction sector, KPMG achieves greater specialization throughout the study period. On the Various sector, the firms Price Waterhouse Coopers and Deloitte were the most specialized accounting firms during the study period. This allows us to accept the hypothesis that service differentiation based on quality and reputation "understood the quality and the high specialization of the Big 4 in response to the audited company sector" may be an explanatory factor of the concentration of the audit market Mexican, derived from most of the "segmented by the audited company sector" companies in the sample audited decided to choose a firm of the group of The Big 4.

THIRD: The results of our study indicate that The Big 4 in the Mexican market can capture audits of large companies. So, Ernst & Young tends to specialize in larger companies, but also has a presence in all sections of the sample with one exception of the section is to lower billing companies. KPMG aims to develop greater specialization among companies in the stretch six not participating between companies belonging to section five. Deloitte and Price Waterhouse Coopers distribute their turnover in the sections four, five and six on the size of the audited company, not so for both firms in stage seven, except for Deloitte in the year 2005. With the exposure of these findings we completed our empirical study on the differentiation of the audit service as an explanatory factor of market concentration financial audit in Mexico.

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