Auditor Switches and Emerging Markets: The Case of Iran

Mohammad Ali Bagherpour Velashani

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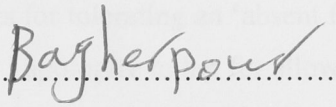
I certify that this thesis is the result of my own original research. It has not been previously submitted for a degree or diploma in any university or institution. Apart from due reference, the thesis does not contain any material published or written by others.



Mohammad Ali Bagherpour Velashani
Canberra

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To my Lovely Wife Nayerehsadat and Beautiful Daughter

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Abstract

Recent government policy and regulatory changes in Iran have resulted in a rapid increase in competition in the audit and capital markets of that country. These changes have produced conditions enabling a natural experiment to examine the effects of increased auditor competition, changes in agency risks and privatisation incentives and other factors on auditor selection. This study investigates the potential association between factors related to client and auditor characteristics and auditor switches by companies listed on the Tehran Stock Exchange (TSE). These factors include: the privatisation of public sector controlled companies; auditor-client alignment; ownership concentration; changes in leverage; issues of new debt; issues of new equity; changes in management, including the chief executive officer (CEO); earnings management; qualified audit opinions; and increased competition in the audit market. These factors are important because of their potential implications for auditor independence and audit quality, especially in emerging markets, such as Iran's, which have weak capital and audit institutions, where shareholders and creditors are not well protected.

The regulatory changes in Iran, which occurred in 2001, brought about significant changes in the audit market leading to a substantial increase in the number of both audit firms auditing listed companies and auditor switches. The *Economic, Social, and Cultural Development Plan for 2000–04* generated growth in the number of listed companies from 296 in 1999 to 386 in 2003. There were also substantial transfers of stock in Iranian companies from the public to the private sector, resulting in a greater diffusion of shareholders and increased information asymmetry. These changes in ownership from government to private investors altered shareholders' incentives and the mandates given to managers, which may have significant implications for auditor choice. As a part of the privatisation policy-Third Plan, private banks were established, which provided opportunities for companies to change their capital structure by using private sector debt. The increased agency risks arising from changes in ownership and the emergence of private sector debtholders may have affected incentives for signalling quality through the choice of higher quality auditors to reduce agency costs.

Auditor switching has negative connotations. It has been linked to managerial opportunism, reduced auditor independence and audit quality and a reduction in public confidence in the audit function, which may decrease the flow of capital into capital

markets and increase the cost of capital for companies. Increased competition among auditors negatively impacts on the opportunities and incentives for companies to change auditors.

The sample used in this study comprised 736 firm-year observations for the period 1999 to 2003, which represents 44.5 per cent of all the companies listed on the TSE. Logit regression analysis was used to analyse the data because the dependent variable (auditor switching) is binary. The results indicate that auditor-client alignment decreased the likelihood of auditor switching while changes in the management-CEO increased the likelihood of auditor switching. Companies with income-decreasing earnings management were more likely to switch auditors and this likelihood increased with the magnitude of negative earnings management. Audit qualifications that reflect conflicts between management and auditors due to GAAP violations or client imposed scope limitations were more likely to result in auditor switching. Increased competition in the audit market increased the likelihood of auditor switches. Smaller firms were more likely to switch auditors while different industries tended to have different effects on the likelihood of auditor switching. In general, the findings support the premise that increased competition in the audit market increases auditor switching. Given that prior research has examined conditions of decreasing competition only in the audit market, this study makes a valuable contribution to identifying the effects of increasing competition.

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Chapter 1 – Introduction

This study investigates the association between the factors related to client and auditor characteristics and auditor switches by companies listed on the Tehran Stock Exchange (TSE). These factors include: privatisation of public sector controlled companies; auditor-client alignment; ownership concentration; changes in leverage; issues of new debt; issues of equity; changes in management; earnings management; qualified audit opinions; and increased competition in the audit market. The following section will discuss why auditor switching is examined in Iran.

1.1 Justification for Doing Research in Iran

Auditor switching in Iran is examined because recent government policy and regulatory changes in that country created significant changes in the capital and audit markets, leading to a substantial increase in the number of auditor switches by TSE listed companies. In particular, these regulatory changes resulted in a rapid increase in the level of competition in the audit and capital markets. The changes provide an ideal opportunity to examine the effects of increased competition in the audit market, changes in agency risks and signalling incentives, which are the result of privatisation, and other factors that affect auditor selection. It is expected that these changes resulted in increased agency costs and signalling incentives for TSE listed companies. This study examines whether these changes are associated with auditor switching.

Regulatory changes in 2001 resulted in a significant, rapid increase in the number of private sector audit firms and the elimination of the public sector auditor monopoly over the audit of TSE listed companies controlled by the government. They created significant changes in the audit market, which have led to a considerable increase in the number of audit firms engaged in auditing TSE listed companies and auditor switches.

The third Economics, Social and Cultural Development Plan for 2000-04 significantly changed the ownership structure of TSE listed companies. A considerable number of companies transferred their shares from the government to private sector shareholders, which resulted in a greater diffusion of ownership and increased information asymmetry. This increased the level of agency costs created by the conflict of interests between shareholders and managers. The increased agency risks may have created incentives for selecting higher quality auditors to reduce agency costs.

The changes in ownership from government to private shareholders significantly changed shareholders' incentives and the mandates given to managers. Before the changes, public sector companies in Iran had several objectives, including implementing government policies (e.g., providing employment, cheaper goods and services) as well as earnings profits. The privatised companies no longer had this range of complex objectives and were therefore free to concentrate on earning profits (Komijani, 2003). In addition, public sector companies were known to be inefficient and mismanaged (EghtesadeIran, 2002). This may have provided incentives to the privatised companies to switch their auditors as a means of signalling their privatisation, implying that they no longer have such problems and their increased emphasis is on shareholders' interests as well as quality. Privatisation may also change companies' needs and create a demand for different types of audit and non-audit services, therefore leading to auditor switching. Privatisation may also have brought about significant changes in the management of some TSE listed companies. This may happen because previous managers were affiliated with government and new shareholders may prefer to associate with familiar managers.

As a part of the privatisation policy-Third Plan, some private banks were established. This provided opportunities for companies to change their capital structure by using private sector debt. Prior to the implementation of the plan, banks were owned and controlled by the government and government owned companies had to borrow from them. Because of the common ownership and control over the companies and debtholders (banks), the risk of transferring wealth from debtholders to shareholders was low.[1] After the privatisation policy was implemented and new private shareholders and debtholders emerged, the risk of transferring wealth from debtholders to shareholders increased, producing increases in conflicts of interest. Such a situation could lead to a demand for a higher level of audit quality, resulting in an increased rate of auditor switching in TSE listed companies.

The greater diffusion of ownership and the emergence of private sector debtholders increased agency costs. This may have created incentives for signalling quality, where higher quality auditors would be selected in order to reduce agency costs. Prior research on auditor switches has not addressed the effects of such momentous government policy

[1] The Plan authorised the establishment of the private banks in 2000 (Anonymous, 2000a).

changes on auditor switching. Therefore, the Iranian government policy changes provide a unique opportunity to do so.

Auditor switching can have negative implications. It may be motivated by managerial opportunism (DeFond and Subramanyam, 1998, Lennox, 2000), impair auditor independence and audit quality (Beams and Killough, 1970, Shockley, 1981, Beattie and Fearnley, 1998a) and reduce public confidence in the audit function. This can decrease the flow of capital into capital markets and increase the cost of capital for companies (Knapp and Elikai, 1988). Shockley (1981) and Beattie and Fearnley (1998b) argue that increased competition in the audit market impacts on opportunities and incentives for companies to change auditors because it results in tendering, audit fee discounting, low-balling and opinion shopping. Increased competition may also reduce auditors' independence as they know that there are other audit firms willing to accept the client if a client becomes dissatisfied (Beams and Killough, 1970). However, to the best knowledge of the author, no study has examined how changes in competition in the audit market affect auditor switching.

1.2 Theoretical Justification for this Research

Prior research on auditor switches has mainly focused on mature markets such as the United States (US), United Kingdom (UK) and Australia (Woo and Koh, 2001). Competition in these markets is characterised by relatively stable levels of competition but increasing concentration (and implied potential reduced competition) in the large client sector that is dominated by big international accounting firms (Gilling and Stanton, 1978, Pong, 1999, Wolk et al., 2001). For example, in the US, the Big 4 concentration ratio measured by total sales of audited large public clients increased from 71 per cent in 1997 to 99 per cent in 2002 (Bloom and Schirm, 2005). The audit concentration in these markets provides fewer options to companies for auditor choice (GAO, 2003, Wolosky, 2003, Bloom and Schirm, 2005, Oxera, 2006). The Iranian audit market is different as it is an emerging market with limited shareholder protection. Iranian auditors are not affiliated with international audit firms and there has been a significant, rapid growth in audit market competition, which provides increased opportunities for auditor selection. The research sample data indicates that for the period 2000 to 2003 there was a 100 per cent growth in the number of auditors engaged by TSE listed companies.

Research into auditor switching relies on three theories to examine or explain why companies switch auditors. They include: agency theory (e.g., Francis and Wilson, 1988, DeFond, 1992); signalling theory (e.g., Titman and Trueman, 1986, Wallace, 1987, Balvers et al., 1988, Menon and Williams, 1991); and insurance theory or hypothesis (e.g., Wallace, 1985, Kothari et al., 1988, Schipper, 1991). Agency theory is used when the reason for switching to a higher quality auditor is agency-related, such as a diffusion of ownership (e.g., Francis and Wilson, 1988). Signalling theory is mainly used to explain the reasons for auditor switching before or at the time of initial public offerings (IPO) and the issuing of new shares (e.g., Carpenter and Strawser, 1971, Beaty, 1989). Insurance theory holds that some companies may switch their auditors in order to share risk (Wallace, 1985) and because they consider auditors as having 'deep pockets' (e.g., Kothari et al., 1988, Schipper, 1991). However, according to the Iranian code law, auditors are not subject to litigation risk. Instead, they can be prosecuted by the state under criminal provisions if they provide misleading reports. This eliminates the insurance hypothesis as an explanation for auditor switching by TSE listed companies.

Emerging markets often have less protection for shareholders and creditors (LaPorta et al., 1998) and are less efficient than developed markets (Walczak, 1999). As a consequence, the type and level of conflicts of interest are different from those in developed markets and, thus, the reasons for auditor switches may be different (Williams, 1988a).[2] For example, in emerging markets, the risk of expropriation of minority shareholders by large shareholders is higher than in developed markets (Claessens et al., 2000 and 2002). Therefore, in an emerging market such as the TSE, the role of the auditor as a means of reducing conflicts of interest is more important than in developed markets. Consequently, investigating the factors that affect auditor switches in such a market, which can impair auditor independence and ultimately audit quality, becomes very important.

[2] Gul and Qiu (2002) stated that in the countries with weak legal protection, enforcement and corporate governance agency conflicts are higher.

1.3 Research Contributions

Although researchers have provided theoretical arguments regarding the effects of increased audit competition on companies' incentives to switch auditors, no study has empirically examined the effects of increased audit competition on auditor switches. This research will contribute to the literature on auditor switching by empirically examining the association between increased auditor competition and auditor switching in an emerging market.

The study reported in this thesis also contributes to the literature by extending research on auditor switching to an emerging market with unique characteristics. These include a rapid increase in audit competition and a substantial, rapid increase in agency risks and signalling incentives resulting from significant changes in ownership and management as well as new debtholders. This research provides empirical evidence of the effects of simultaneous changes in the audit and capital markets on auditor switching, which have not been examined by previous research.

The current research also contributes to the literature by directly studying the association provided by discretionary accruals between the levels and types of (income-increasing and income-decreasing) earnings management and auditor switching. This topic has also not been considered in previous research. Different types of earnings management may have different effects on companies' decisions with regard to auditor switches. Managers are more likely to engage in income-increasing earnings management (e.g., DeFond and Jiambalvo, 1993). There is evidence that auditors are sued when there are earnings overstatements but not when there are earnings understatements (Pierre and Anderson, 1984). Therefore, auditors are more likely to object to income-increasing earnings management, as preferred by managers, compared with income-decreasing earnings management because of their conservatism and desire to avoid litigation risk. This may increase the risk of their replacement. The research findings will provide evidence of the association between accruals and auditor switching in an emerging market where there is no litigation risk for auditors. In this market, auditors can face other risks, such as having their licence suspended and losing their reputation. This study will reveal whether other factors, with the exception of litigation risk, are considered by auditors in constraining income-increasing earnings management.

The results of this study may have implications for regulators of other emerging markets where similar structural changes are considered. In particular, it is likely to be of interest to those concerned with the effects of increased competition in such audit markets. Auditor switching can affect audit quality and, therefore, public confidence in the audit profession in emerging markets, where shareholders and creditors are less protected and the market is less efficient. The relationship between auditor switching and ownership and management changes, incentives for managerial opportunism and signalling is of potential interest to policymakers and researchers interested in the role of auditors in capital markets. The policy and regulatory changes in Iran are described in the following section and the changes in the Iranian capital and audit markets will be presented in the next chapter.

1.4 Government Policy and Regulatory Changes

Between 1989 and 2004, the Iranian government implemented a privatisation policy to transfer the ownership of public sector companies to the private sector. The reasons for this new policy included concerns regarding weaknesses in the performance of public sector companies, inefficiencies, mismanagement and the squandering of finances, the creation of monopolies and a lack of competition in public sector companies (EghtesadeIran, 2002). The privatisation policy—i.e., the Third Plan (2000-04)—created significant changes in the TSE. For example, the number of TSE listed companies increased from 296 in 1999 to 386 in 2003. This increase came from the listing of public sector companies subject to privatisation and the listing of new private sector companies. This government policy change and its effects on the capital market are discussed in the next chapter.

As a result of regulatory changes in 1993, certified public accountants were legally allowed to practise in the public sector audit market. However, this was ineffective because the designated certifying agency, the Iranian Association of Certified Public Accountants (IACPA), was not established until 2001.[3] This market had previously been monopolised by the Iranian Audit Organization (Moulkaraei, 2005). The change encouraged the public sector to use the specialist and professional services of certified

[3] The public sector includes: ministries, government-owned firms, nationalised industries, banks, insurance companies and companies belonging to the Mostazafan Foundation and the Shahid Foundation.

accountants.[4] The Iranian Audit Organization (IAO), as a public sector auditor, was the only qualified auditor permitted to provide audit and non-audit services to the public sector and those companies in which the public sector had more than 50 per cent of the ownership (directly or indirectly). This included most of the TSE listed companies (IAO, 1994). However, although the market was dominated by the IAO, there were other practising auditors selected by some private sector controlled companies.[5]

In 1995, according to regulatory changes implemented in 1993, the government approved an article called *Identification of Accredited Certified Accountants and How to Select Them*. It specified the minimum educational and professional qualifications for certified accountants and their selection process. According to the article, certified accountants were required to have a bachelor's degree in accounting or related areas (e.g., management) and six years of professional accounting practice (IACPA, 2005). A committee was required to be established to: a) examine accredit candidates; b) certify successful candidates; and c) conduct quality control of certified accountants. Thus, the Iranian Association of Certified Public Accountants (IACPA) was established in 2001 with emerging intense competition. This in turn resulted in an increased number of auditor switches in the TSE. The main objectives of the IACPA were to develop the accounting and auditing professions and to supervise the professional activities of certified public accountants in Iran. This issue will be discussed in some detail in Chapter 2.

1.5 Thesis Outline

The thesis contains seven chapters, the remainder of which are structured as follows. Chapter 2 provides insights into the Iranian context. Chapter 3 outlines the theoretical framework of the research, including the literature related to the auditor-client relationship, and the hypotheses derived from it. Chapter 4 describes the research design. Chapter 5 presents data and descriptive statistics. Chapter 6 presents the research results and discussions. Chapter 7 summarises the findings of the research and provides suggestions for further research in the area.

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[4] This legislation is called: "The law allowing the use of the professional and specialist services of eligible accountants as certified accountants".

[5] The data presented in Chapter 5 indicates that about 57.9 per cent of TSE listed companies included in the research sample were audited by the IAO before the establishment of the IACPA in 2001. There were some auditor switches between private sector auditors those who audited private sector controlled companies at that time.

Chapter 2 - Understanding the Iranian Context

2.1 Introduction

This chapter provides insights into the Iranian context. It contains a brief history of the Tehran Stock Exchange (TSE), including the implementation of the privatisation policy and the structure of TSE listed companies, and the development of the accounting profession in Iran after the 1979 Islamic Revolution together with the establishment of the IACPA. The TSE is an emerging institution in the early stages of its development and, as such, is different from stock exchanges in developed markets. The structure of TSE listed companies is outlined, including the role of the shareholders, board of directors (management components) and auditors. This helps identify the possible effects that different shareholders and management components could have on auditor switches in TSE listed companies. A brief history of the accounting profession in Iran after the 1979 Islamic Revolution illustrates that the audit profession in Iran is not as well regulated or well established as its equivalent in more developed countries. Generally, a description of the regulatory changes (the privatisation and the establishment of the IACPA) affecting both capital and audit markets will show that these changes may be the main reasons for auditor switches in TSE listed companies.

2.2 The Tehran Stock Exchange: A Brief History

The TSE was established in 1967, when six companies were listed. Government bonds and state-backed certificates were traded later (Davani, 2003, TSE, 2003). The number of listed companies reached 105 in 1979 (Mirshekary, 1999, TSE, 2003). After the Islamic Revolution in February 1979, public sector control over the Iranian economy was extended and the demand for private sector capital decreased (Mirshekary, 1999). All banks and insurance companies were nationalised in the same year (Davani, 2003, TSE, 2003).[6] These changes resulted in a steep decline and uncertainty about the future of trading on the TSE because the shares of private banks were an important and popular component of stocks traded on the TSE (Davani, 2003, TSE, 2003).

[6] This legislation is called: "Nationalisation Law of the Banks and Insurance Companies".

New legislation was implemented in July 1979 which brought a further decline in stocks traded on the TSE.[7] According to the new legislation, a number of heavy industrial sectors, such as the automotive sector, were put under perpetual state ownership (Mirshekary, 1999, Davani, 2003).[8] As a result of the new legislation, 24 TSE listed companies had their shares removed or their trading suspended. All of these regulatory changes resulted in transferred demand for accounting and auditing services from the private sector to the government and semigovernment sectors. Therefore, between 1980 and 1982, a small number of government audit firms were established to fulfil the increased demand of the nationalised companies. More detailed information about these developments is provided in the following paragraphs.

The TSE continued its operation with limited trading in the shares of 56 companies. In the three years following the enactment of the nationalisation legislation, the major market trading was in government bonds. This situation did not last long because of the passing of the *Law on Usury-Free Banking* in 1983. According to this law, all interest on securities was considered as *rabavi* (usury). Consequently, debt securities transactions were omitted from the TSE (Mirshekary, 1999, Davani, 2003). The TSE was forced into a period of near inaction for a decade. Because of the war between Iran and Iraq from 1980 to 1988, the Iranian economy was put on a wartime footing. There was little chance for TSE development during this period (TSE, 2003, Amuzegar, 2005).

At the end of the war in 1988, there were some signs of recovery in the TSE (Mirshekary, 1999, Davani, 2003, TSE, 2003). The first post-war *Budget Act*, effective from March 1989, and the first five-year (1989-93) *Economic, Social, and Cultural Development Plan* approved by Parliament in 1989 highlighted the role of the private sector in economic recovery (Davani, 2003, TSE, 2003). For the first time after the 1979 Revolution, the plan highlighted the need for privatisation. The plan required the government to transfer all nationalised and state industrial units except strategic industries to the public (Abadi, 1995, Roudaki, 1996). This declaration gave the TSE new responsibilities and growth prospects. The first responsibility was to establish an efficient, reliable and fair form of privatisation of public sector companies. Directing the

[7] This legislation is called: "Industries Development and Protection Law".
[8] Some of these companies include: Goroh Sanati Khavar, Iran Khodroo, Navard Iran, Folad sazi Iran, Keshtirani Iran, Navard va Loleh Ahwaz and Maftolsazi Iran.

liquidity of the private sector into productive activities was the other responsibility given to the TSE (TSE, 2003). During this period, the TSE continued to expand. The number of companies listed on the TSE reached 201 by 1995 and the number of shares traded increased significantly. However, there was a high volatility in share prices trends during this period (Davani, 2003).

The implementation of the plan increased the demand for accounting and auditing services. To fulfil this, the law allowing the use of the professional and specialist services of eligible accountants as certified accountants was approved in 1993 (Roudaki, 1996). According to this law, the Iranian government was required to use the services of certified accountants after the establishment of the Iranian Association of Certified Accountants (AICPA). The approval of this law highlighted the role of the private sector auditors in the Iranian audit market and the prospect of increased audit competition in the TSE, which was dominated by the Iranian Audit Organization (IAO).

The second five-years (1995-99) *Economic, Social, and Cultural Development Plan,* as Mas'ud Rowghani Zangani, director of Iran's Plan and Budget Organization, stated, was a continuation of the first plan (Amirahmadi, 1996). As a result of the implementation of this plan, the number of TSE listed companies increased from 201 in 1995 to 296 in 1999. This increased the demand for audit and non-audit services in the TSE. The second plan was aimed at the development and strengthening of the stock market through the reform of the relevant laws; the improvement and expansion of the information service network; the provision of up-to-date information on the status of TSE listed companies (paying due attention to the principle of auctioning and the primacy of the supply and demand mechanism); and the creation of a safe and favourable climate for financial investment by the general public. Generally, the plan aimed to increase market efficiency and the participation of the private sector in the market, which requires reliable financial information. Therefore, the need for audit services, which increases the reliability of audited financial reports, also increased.

In the third five-years (2000-04) *Economic, Social, and Cultural Development Plan*, the privatisation of public sector companies received much more attention. In particular, profit making entities affiliated with government and other companies with more than 50 per cent of their equity and/or shares in total or in part owned by ministries, public entities or state-owned enterprises (except banks, credit institutions and insurance

companies) were subject to privatisation. The plan significantly affected TSE listed companies because most of them had been affiliated with the public sector, with more than 50 per cent of their equity and/or their shares owned in total or in part. In addition, for the first time after the 1979 Islamic Revolution, the plan permitted the establishment of private banks. This permission increased competition in the financial sector, which was monopolised by public sector (nationalised) banks (Anonymous, 2000a).

Generally, the privatisation policy starting from 1989, particularly the Third Plan (2000-04), created significant changes in the TSE. The number and mixture of shareholders in the TSE changed radically. For example, 547 million shares of public sector companies were sold to the private sector in 1998, which represented a 247 per cent increase over the preceding year (TSE, 1998). The number of shares traded on the TSE increased from 50 million in 1992 to 1,681 million in 2000 (TSE, 2002). Because of the privatisation policy, the number of TSE listed companies increased from 108 in 1991 to 386 in 2003. This represented a 257 per cent increase in the number of listed companies during this period.

The implementation of the plan also changed the ownership structure of TSE listed companies. Such changes can increase agency costs in TSE listed companies, which may require a higher level of audit quality, thus leading to auditor switches.[9] In addition, emerging new debtholders (private banks) and new shareholders (private) in the TSE can increase conflicts of interest between shareholders and debtholders.[10] Before the implementation of this plan, because of the common control (public sector) over the shareholders (companies) and debtholders (public banks), the risk of transferring wealth from debtholders to shareholders was low. All of these changes indicate an increase in agency risks in TSE listed companies, which may require a higher level of audit quality and lead to auditor changes. The agency theory literature indicates that there is a positive association between the level of agency costs and the level of audit quality demanded by clients. The demand for a change in audit quality

[9] Ang et al. (2000) found a significant association between ownership structure and agency costs. For example, agency costs increase as the number of non-manager shareholders increases.

[10] Three private banks were established in 2001, including Egtesad Novin, Parsian and Kar Afarin. Another bank, Saman, was established in 2002.

from the current level may lead to auditor switches (e.g., Francis and Wilson, 1988, DeFond, 1992).[11]

Overall, it can be said that the TSE experienced significant changes from economic reform after the 1979 revolution and from the privatisation policy. Because these significant changes are relatively recent, the TSE is an emerging market that may be less efficient and regulated than developed markets. As a result of the expected effects of the privatisation policy—i.e., the Third Plan—on the level of agency costs (conflicts of interest) in TSE listed companies preceding the increased auditor switches, it is likely that the privatisation policy has contributed to an increased number of auditor switches per se.

2.3 The Structure of TSE Listed Companies

This section provides information about the type and structure of TSE listed companies, including shareholders, boards of directors and auditors.

2.3.1 Definition and Types of Companies

TSE listed companies are joint stock companies. According to Iranian Commerce Laws (ICL), a joint stock company is a company whose capital is divided into shares and the liability of shareholders is limited to the par value of their shares (Article 1). A joint stock company (Article 2) may be either a general joint stock company (*Sherkat Sahami Am*) or a specific joint stock company (*Sherkat Sahami Khass*). The main difference between them is that the general company may offer its shares and debt securities to the public while the specific company may not (Article 4). As such, TSE listed companies are general joint stock companies.

[11] DeAngelo (1981a, p.187) stated that: "Auditors have incentives to specialize in a uniform quality level because they can capture higher fees by doing so. However, when differential agency costs across clients imply a heterogeneous demand for audit quality, different auditors will specialize in different (albeit uniform) quality levels. When auditors specialize in a given quality level, clients wishing to change the level of audit quality purchased will find it necessary to change auditors".

2.3.2 Shareholders

A joint stock company must have a minimum of three shareholders (Article 3). The shareholders participate in the ownership, profit and losses and distribution of assets on liquidation in proportion to the shares held (Article 37). The shareholders possess the usual shareholder rights, including, in general, the right to attend shareholder meetings, receive financial reports, elect and replace the board of directors and vote on major decisions of the company (Article 70). Financial reports and the audit report are presented for approval, dividends have to be approved (Article 90), directors are elected and auditors are appointed by the shareholders in their general meeting (Article 88). [12] Based on this, it can be said that shareholders play a significant role in selecting directors and auditors. Therefore, significant changes in the shareholders (ownership structure) may result in director and auditor changes.

A general joint stock company may issue both ordinary and preferred shares in either bearer or registered form (Article 24). While the law does not specifically state what privileges may be assigned to preferred shares, it is understood that priorities as to dividends, the distribution of assets on liquidation and multiple voting powers will be honoured under the law. The main differences between registered and bearer shares is the manner of transfer and the tax implications. Bearer shares are transferred by physical delivery while the transfer of registered shares is not complete until the transfer is recorded in the share register of the company. In the case of registered shares, restrictions on transfer may be written into the articles of association (Articles 39 and 40).

2.3.3 The Board of Directors

The board of directors of a general joint stock company must have a minimum of five members (Article 107). The tenure of directors has to be identified in the Articles of Association, but tenure may not be for more than two years (Article 109). Directors are eligible for re-election. Directors are required to possess a number of registered shares specified by the articles of association. Each director must place the required number of shares into the custody of the company for the duration of his or her term of office to

[12] The board of directors recommends auditors and dividends at the company annual general meeting.

serve as security against company losses that may result from failings in his or her duties as director (Article 114).

The law specifically provides the board of directors with all the necessary authority for the management of the company within the limits of the company's objectives and as stated in the articles of association (Article 118). Directors are not only subject to the ordinary rules of fair play with respect to the company, its shareholders and third parties dealing with the company, and thus liable for any violation of these rules; they may also, individually and jointly, be subject to criminal prosecution for specified acts and/or omissions (Articles 142 and 258).

The board is required to elect a chairman and a vice-chairman (Article 119). The chairman is responsible for calling and managing board meetings. The chairman is also responsible for inviting the shareholders to the ordinary general meeting (Article 120). A meeting of the board is required to have a quorum of a majority of the directors (Article 121). The manner of calling board meetings, including any advice of meeting notice requirements, should be specified in the articles of association (Article 122). Minutes of each meeting must be kept and signed by a majority of the directors who attended that meeting (Article 123). The law requires that at least one person be appointed by the board as the chief executive officer to manage the daily operations of the company (Article 124). The scope of the chief executive officer's authority should be specified by the board at the time of his or her appointment. He or she is then considered to be the company's legal representative with authority to sign on behalf of the company (Article 125).

Members of the board of directors will be paid by the company for attending meetings according to the time and number of meetings attended. Participants at the annual general meeting decide the amount that should be paid to the directors. If it is identified in the articles of association, the participants at the annual general meeting can approve a specific percentage of the annual net income to be paid as a bonus to the members of the board (Article 134). The bonus cannot be more than five per cent of dividends paid to shareholders in each year (Article 241). This bonus provides an important incentive for earnings management in TSE listed companies, which may result in auditor switches. Managers try to manipulate accounting earnings in order to maximise their compensation (Healy, 1985, Holthausen et al., 1995). An association has been found

between managerial manipulation of financial information and auditor changes (Kluger and Shields, 1989).

2.3.4 Auditors

The law requires the election by the shareholders of an auditor once a year at the annual general meeting (Article 144). The auditor is required to provide a professional opinion on the fairness of the financial statements. The auditor is also required to report whether required data or documents for his or her examination were provided by the board (Article 242). Particular categories of persons, such as criminals, the directors and their relatives are not eligible for serving in this position (Article 147). According to the law, the auditor must be selected from the accredited auditors identified by the Economic Ministry. Following the establishment of the Iranian Association of Certified Public Accountants (IACPA) in 2001, TSE listed companies have to be audited by members of the IACPA (Davani, 2003).

According to Iranian trade laws, auditors can be jailed (between three months and two years) for providing misleading financial reports (Article 267). In addition, the activities of these auditors can be suspended for less or more than a year or their licences may be cancelled by the IACPA. These penalties could potentially result in auditor switches. They may persuade auditors to force managers into accepting conservative accounting choices, which could ultimately result in auditor switching (DeFond and Subramanyam, 1998).

In summary, the company decision-making process, including the selection of directors and auditors, is significantly affected by shareholders, especially large ones.[13] As a result, agency problems may be created by conflicts of interest between large and minority shareholders as well as outside shareholders and managers. Although large shareholders may have some influence on the directors, there is an important incentive (bonus as a percentage of the annual net income) for them to engage in earnings management. The different risk concerns for auditors may result in auditor switches. In addition, directors can affect the selection of auditors because they recommend auditors to the shareholders.

[13] The collected data indicates that large shareholders exist in almost all TSE listed companies.

2.4 The Development of the Accounting Profession in Iran after the Revolution

As a result of nationalisation in 1979, requests for accounting and auditing services were transferred from the private sector to the government and semi-government sectors. Consequently, the role of private independent accounting and auditing firms in the audit market contracted. In this situation, the Iran Audit Firm, a division of the Ministry of Finance, faced a massive demand for auditing services from recently nationalised companies. Since the Iran Audit Firm was unable to render all required services, a small number of government audit firms were established between 1980 and 1982 in order to fulfil the increasing demand of the nationalised companies for auditing services. These new auditing organisations included the Budget, Planning and National Industries Organization, Bonyad Mostazafan and Bonyad Shahid (Roudaki, 1996, Mirshekary, 1999).

Because there were no national accounting and auditing standards in Iran, there was a lack of uniformity in the operations of these new audit firms. The Iranian Auditing Organization (IAO) was set up in 1987 to remove this problem. The above auditing organisations were also merged with the IAO. The IAO, as a public sector auditor, was the only legitimate auditor to provide audit and non-audit services to the public sector including ministries, government-owned firms, the nationalised industries, banks, insurance companies and companies belonging to the Mostazafan Foundation and the Shahid Foundation. The IAO was also the only legitimate auditor for providing services to companies in which the public sector had more than 50 per cent ownership directly or indirectly, like most TSE listed companies. Because of this legal requirement, most TSE listed companies were audited by the IAO before the establishment of the IACPA in 2001.[14] In other words, the TSE was dominated by the IAO.

The establishment of the Iranian Auditing Organization (IAO) in 1987 did not meet the expected objectives of auditing companies and profit seeking organisations, the establishment of a professional accounting system or the domain of auditing activities in the private sector (Moulkaraei, 2005). In order to fulfil these objectives, the law allowing the use of the professional and specialist services of eligible accountants as

[14] The data presented in Chapter 5 indicates that about 66 per cent of TSE listed companies included in the research sample were audited by the IAO before the establishment of the IACPA in 2001. There were some auditor switches between private sector auditors at that time.

certified accountants was approved by parliament in 1993. According to this law, in order to have supervisory control over productive, commercial and service companies, to ensure the reliability and fairness of financial statements and to protect the interests of the public, shareholders and interested parties, the Iranian government was required to use the services of certified accountants in the following matters after the establishment of the IACPA:

- audit and legal inspection of TSE listed companies
- audit and legal inspection of joint stock companies
- audit of companies other than corporations and profit and non-for-profit organisations
- audit and legal inspection of ministries and other public sector companies
- audit of all economic entities and sole proprietorships for tax purposes

The approval of the law was a significant legislative change toward developing an independent accounting profession in Iran (Roudaki, 1996). As a consequence of the legislation, the Iranian Association of Certified Public Accountants (IACPA) was established in 2001, creating intense competition in the audit market. This resulted from a significant increase in the number of private sector audit firms and the removal of the public sector auditor monopoly over the audit of TSE listed companies controlled by the government. The intense competition resulted in increased auditor switching. There is a positive association between the level of competition among auditors and the opportunities and incentives for clients to switch their auditors (Shockley, 1981) because increased competition results in tendering, audit fee discounting, low-balling and opinion-shopping (Beattie and Fearnley, 1998a).

In summary, the audit market in Iran, similar to the capital market, has experienced many changes, including reforms following the 1979 revolution and the establishment of the IACPA. Despite these changes, the audit profession in Iran is not as well regulated as its equivalents in developed countries. This suggests that auditor independence and audit quality may be at high risk in the new competitive market.[15] Consequently, investigating the factors that affect auditor switches, which can impair auditor independence and ultimately audit quality, becomes very important. The

[15] Shockley (1981), in a study of CPAs, loan officers and financial analysts in the US, found that competition was perceived as the most important factor affecting the independence of auditors.

increased number of auditor switches after the establishment of the IACPA suggests that intense competition is one of the main reasons for the auditor switches in the TSE.

2.5 Conclusion

Iran has undergone many changes since the 1979 Islamic Revolution, including economic reform and privatisation, which have had different effects on the financial market and audit environment. The implementation of the privatisation policy—i.e., the Third Plan—has increased agency costs and signalling incentives by changing the ownership structure of TSE listed companies as well as emerging new debtholders (private banks) in the TSE. The increased agency risks and signalling incentives may have resulted in a demand for a higher level of audit quality, leading to auditor switches. The establishment of the IACPA increased competition among auditors of TSE listed companies, which has resulted in an increased number of auditor switches.

The case of Iran enables a naturalistic investigation into the effects on auditor switches of government policy and regulatory changes in both capital and audit markets. As a result of these changes, the competitive auditor and capital markets that have arisen in Iran are different from those in well-developed markets in terms of their market development and efficiency as well as regulation. The next chapter presents arguments underlying the selection of factors associated with auditor switches in TSE listed companies. Hypotheses for the proposed study will be developed based on the TSE context and the related theoretical arguments provided in the research literature.

Chapter 3 – Theoretical Framework and Hypotheses Development

3.1 Introduction

This chapter outlines how auditor switching by companies listed on the Tehran Stock Exchange (TSE) may be related to client and auditor characteristics developed in the context of the regulatory changes in Iran. It develops a research framework in which regulatory compliance, regulatory changes, agency and signalling theories can explain changes in the demand for audit services in TSE listed companies. The influence of regulatory compliance, regulatory changes, agency and signalling theories are interwoven. Arguments about possible causes of auditor switches in the TSE are presented and related to prior research findings, and research hypotheses are developed accordingly. The following section demonstrates how regulatory arrangements are a main source of demand for audit services.

3.2 Regulatory Compliance

Iranian trade law requires companies to appoint a certified auditor (Article 144). The auditor has to be selected annually from the accredited auditors identified by the Economic Ministry. Following the establishment of the IACPA in 2001, TSE listed companies have had to be audited by members of the IACPA (Davani, 2003). Compliance with this regulatory requirement is one of the main sources of demand for audit services by TSE listed companies. TSE listed companies can switch their auditor. Their choice of auditors increased considerably after the regulatory changes.

3.3 Regulatory Changes

As discussed in Chapter 2, two regulatory changes in Iran had significant effects on the capital and audit markets in Iran. The first was the implementation of the privatisation policy-Third Plan for 2000-04. The second was the establishment of the IACPA in 2001. The privatisation policy changed the characteristics of affected TSE listed companies, including ownership and capital structure as well as management. These changes also had implications for a company's financial status and accounting practices (including earnings management activities). It is argued that these changes provided various incentives for auditor switching in TSE listed companies. Changes in client characteristics increased agency costs created by conflicts of interest between managers

and shareholders, small and large shareholders, and shareholders and debtholders. These agency costs are one of the main sources of a company's demand for external auditing (Jensen and Meckling, 1976, Watts and Zimmerman, 1983). The increased agency costs may have generated a demand for a higher level of audit quality as a means of reducing agency risks, resulting in increased auditor switching (Francis and Wilson, 1988, DeFond, 1992).

The privatisation policy also affected incentives for signalling quality. Companies could select higher quality auditors to attract higher prices for the shares to be transferred from the government and for the issuing of new shares or debt to the public (thus lowering the cost of capital). Companies could also engage in auditor switching as a means of signalling their privatisation and their increased emphasis on private shareholder interests. The signalling theory literature suggests that companies with more favourable expectations select higher quality auditors to disclose these prospects (Weets, 1999).

The establishment of the IACPA in 2001 resulted in a rapid increase in competition in the audit market. This provided companies with more opportunities to select an auditor who was a better match for their needs as well as opportunities to opinion-shop, which may have resulted in increased auditor switching. In the following section, agency and signalling theory arguments are used to explain changes in demand for audit services in TSE listed companies leading to auditor switching.

3.4 Agency and Signalling Theories and Demand for Different Levels of Audit Quality Leading to Auditor Switches

The institutional and audit market changes in Iran provided incentives for companies to switch auditors. These incentives included reducing agency conflicts in the companies (Jensen and Meckling, 1976, Chow, 1982) and signalling quality by adding credibility to company financial statements (Ng, 1978, Williams, 1988b).[16]

The agency theory literature indicates that agency costs are one of the main sources of a company's demand for external auditing (e.g., Jensen and Meckling, 1976, Chow,

[16] Insurance theory is not relevant in the TSE context as shareholders do not have the legal right to retrieve from auditors any losses they suffer by relying on audited financial statements that were misleading. In other words, there is no litigation risk for auditors.

1982).[17] Auditing is a means of reducing agency costs created by conflicts of interest between managers and shareholders (Jensen and Meckling, 1976, Watts and Zimmerman, 1986), small and large shareholders (Claessens and Fan, 2002, Fan and Wong, 2005) and shareholders and debtholders (Jensen and Meckling, 1976, Chow, 1982, Watts and Zimmerman, 1983). Auditing reduces agency costs by increasing the credibility of financial statements provided by management. Credible financial statements reduce information asymmetry between shareholders and managers (Healy and Palepu, 2001) and may affect debts contracts (Smith and Warner, 1979). Therefore, the nature and extent of potential benefits are contingent on capital structure and ownership. This can include the proportion of debt versus equity funding, decisions to raise additional funds, ownership concentration and the extent of insider ownership.

As a result of the separation between ownership and management, there is information asymmetry in which one party, management, has an information advantage over the principal (Jensen and Meckling, 1976, Ng, 1978). Management may use its superior information opportunistically to maximise its interests. This problem can be reduced by increasing the disclosure requirements of companies (Healy and Palepu, 1993 and 2001, Leuz and Verrecchia, 2000) and improving the quality or reliability of monitoring. This increases demand for "auditing services since shareholders require independent monitoring to assure the 'fairness' of the financial statement disclosures" (Williams, 1988a, p.246).

In companies with large shareholders, who have significant influence or control over the company, agency problems may arise between large and minority shareholders (Shleifer and Vishny, 1997, Fan and Wong, 2002). The agency problem emerges because large shareholders are able to increase their interests or extract benefits without bearing the full cost of their actions (Lemmon and Lins, 2003). Minority shareholders may anticipate this influence and price-protect themselves by lowering the share price or by buying fewer shares (Johnson et al., 2000a, LaPorta et al., 2002). This provides incentives for large shareholders to introduce monitoring mechanisms, such as using a higher level of audit quality. This reduces their ability to expropriate the wealth of minority shareholders and, therefore, mitigates agency costs (Fan and Wong, 2005).

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[17] Jensen (1983, p.331) defined agency costs as "the sum of the costs of structuring, bonding, and monitoring contracts between agents. Agency costs also include the costs stemming from the fact that it doesn't pay to enforce all contracts perfectly".

In the TSE context, public sector agencies are the major shareholders in most companies and they have significant influence or control over the companies. As a result, the agency problems that may arise between large and minority shareholders (Shleifer and Vishny, 1997, Fan and Wong, 2002) may have different characteristics compared with those that arise when the dominant shareholder is more strictly profit-oriented.[18] According to Claessens et al. (2000, p.109), "...the direct participation by government officials in the control of a large part of the corporate sector opens up the possibility of widespread conflicts between public and private interests..." For example, public sector shareholders may apply the company's resources to the provision of cheaper goods and services, which may impair profit-seeking private sector shareholder interests. The conflict of interest between public and private sector shareholders and its effects on companies' cost of capital provides incentives for large public shareholders to demand a higher level of audit quality to mitigate the agency costs, although they may prefer lower quality auditors to hide what they are doing.

Signalling theory assumes that managers have much more information than outside investors (Watts and Zimmerman, 1986, Brennan, 1990, Thakor, 1991, Gibbons, 1992, Osborne and Rubinstein, 1994). Information asymmetry in the market leads to adverse selection problems because buyers cannot differentiate the quality of certain products (Akerlof, 1970). This problem can also happen in the capital market as uninformed potential investors lack information about firms' future cash flow, which may lead to a 'lemons problem' (Michaely and Shaw, 1994). This provides signalling incentives to high quality firms to convey their private information to the market and reduce the underpricing of their securities (Thakor, 1993, Healy and Palepu, 1993, Copley and Douthett, 2002). Investors can infer private information from some action(s) or decision(s) of management (Noe, 1988, Thakor, 1991). Companies can exploit this by deliberate signalling, which adjusts the market's value (Watts, 1973, Ross, 1977, Titman and Trueman, 1986). Companies may use auditor selection as a means of signalling (Wallace, 1987), implying that companies with more favourable expectations select higher quality auditors to disclose these prospects (Titman and Trueman, 1986, Weets, 1999).

[18] The collected data presented in Chapter 5 indicates that there are large shareholders in most TSE listed companies.

There is an incentive for companies with more favourable expectations to pay the (presumably higher) fee of a higher quality auditor because the information provided to shareholders by the auditor is expected to be favourable. In contrast, it is not worthwhile for companies with less favourable expectations to pay the higher cost of a higher quality auditor because the auditor's information is likely to be unfavourable (Titman and Trueman, 1986). Prior research (e.g., Firth and Smith, 1995, Raghunandan and Rama, 1999) also suggests that, because of different risk concerns (e.g., loss of reputation), high quality auditors usually accept less risky clients. This may also prevent companies with unfavourable expectations selecting higher quality auditors. Therefore, the selection of a higher quality auditor can be a sign of good prospects for companies.

In the following sections, the factors that may affect TSE listed companies' demand for different levels of audit quality leading to auditor switching are discussed and research hypotheses are developed accordingly. The research hypotheses are limited to auditor switching rather than switching between auditors of different quality. There are no Big 4 firms in the Iranian audit market, and the size of the audit firms changed rapidly during the sample period (1999-2003). This means that no audit firms clearly dominated the market. Therefore, studies that switched between auditors of different quality, such as those of Francis and Wilson (1988) and Woo and Koh (2001), could not be replicated. Regardless of the direction of auditor switches (switching to higher or lower quality auditors), the arguments provided in the following sections present companies' potential incentives to switch auditors.

3.5 Potential Factors Associated with Auditor Switching by Companies listed on the TSE

With regard to the effects of the regulatory changes on TSE listed companies in the capital and audit markets, it is expected that auditor switching in the TSE is associated with the privatisation of public sector controlled companies, auditor-client alignment, ownership concentration, changes in leverage, issued new debt, issued new shares, changes in management, earnings management, qualified audit opinions and increased competition in the audit market.

3.5.1 Privatisation

A component of the Third Plan was to transfer the public sector's shares in TSE listed companies to private sector shareholders. The implementation of the plan may have changed the level of agency costs by changing the ownership structure of the affected companies. In particular, the implementation of the plan increased the number of small shareholders in the privatised companies. Consequently, the shareholders had less control and monitoring over management's activities, and information asymmetry between knowledgeable managers and small shareholders increased. This most likely increased the agency conflicts (costs) between shareholders and managers in the privatised companies.[19] To protect their own interests, new and small shareholders may demand a higher level of audit quality, leading to auditor switches. Prior studies (Palmrose, 1984, Francis and Wilson, 1988) indicate that diffusion of ownership is significantly associated with switching to higher quality auditors. A higher level of audit quality may improve the ability of small shareholders to monitor and control management actions (Francis and Wilson, 1988).

Government controlled companies in Iran, as well as profit seeking, had the objective of implementing some government policy, such as providing employment or cheaper goods and services. The new private sector shareholders do not have this range of complex objectives because they are mainly profit-seeking (Komijani, 2003). This significant change in the objectives of privatised companies may create signalling incentives for auditor switching. The privatised companies may switch to private sector auditors to signal their increased emphasis on shareholders' interests.

Some government controlled companies were known to be mismanaged and poor performers (EghtesadeIran, 2002) and they had to be audited by the Iranian Audit Organization (IAO). Privatised companies may switch auditors to signal that they are no longer public sector companies, implying that they no longer have these problems. Privatised companies may also want to signal their improvements (quality) or add more credibility to the financial statements by switching auditors.

Privatisation may also change a company's needs and create a demand for a different type of audit, leading to auditor switching. Changes in the company's ownership and

[19] There is a positive association between the level of agency costs in a firm and the level of ownership diffusion (Ang et al., 2000, Fosberg and Rosenberg, 2003).

objectives will change what it require from outsiders, especially auditors. For example, privatised companies have less need for compliance and probity audits. Although the acquisition of non-audit services is not disclosed by many TSE listed companies, privatisation may change the demand for non-audit services, increasing the likelihood of auditor switching.[20] Changes in client needs and a demand for additional services increase the possibility of auditor switching (Carpenter and Strawser, 1971, Schwartz and Menon, 1985) by making the resource requirements of companies to be higher than the capacity of incumbent auditors (Seabright et al., 1992) or eroding the competitive advantage of the auditors (Johnson and Lys, 1990). Burton and Roberts (1967) found that the need for additional services is the second most frequent reason for auditor changes. The main reason for a change from small-firm to large-firm auditors is the need for additional services. In the case of changes between firms of a similar size, the need for additional services is usually a specialised need, such as the need for particular overseas expertise or services in a special geographical location. Based on the above discussion, the privatisation hypothesis is:

H1 Companies are more likely to switch auditors after privatisation.

3.5.2 Auditor-Client Alignment

Companies tend to select or retain auditors that meet their needs (Burton and Roberts, 1967, Shockley, 1981, Schwartz and Menon, 1985, Seabright et al., 1992, Beattie and Fearnley, 1998b). Addams and Davis (1994) found that meeting a client's needs is the most important issue in either obtaining or retaining a client. Johnson and Lys (1990) also argue that competition in the audit market induces clients and audit firms to align themselves to achieve the efficient use of specialised resources and 'brand name' investments. Small audit firms are not able to provide services to large clients at a competitive price because they do not have the capacity while large audit firms may not be willing to allocate their productive resources to audit small clients (at a competitive price) unless they have idle capacity.[21] Therefore, alignment between clients and auditors allows companies to obtain their required services at a lower price, which reduces the likelihood of auditor switching.

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[20] Audit fees data is not provided by many TSE listed companies. This is why audit fees are not examined as a factor affecting auditor switching in the study.

[21] "The capabilities of an audit firm consist of both general auditing expertise and knowledge of issues pertaining to a particular institutional setting" (Seabright et al., 1992, p.134).

Accordingly, it is argued that alignment between auditor type and client type reduces the likelihood of auditor switching in TSE listed companies because those companies are more likely to have an auditor that meets their needs. Alignment exists when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor. Public sector auditors are best suited to auditing public sector entities because of their government accounting framework orientation and experience with such entities. Government controlled TSE listed companies may prefer to stay with a public sector auditor because they better meet their needs. Private sector auditors are more specialised in auditing private sector companies, in which financial reporting is mainly affected by accounting standards, whereas in the public sector the financial reporting is mainly affected by stated government rules and regulations (Moulkaraei, 2005). Private sector auditors may have also developed economies in regulatory compliance and established relationships with brokers and investment bankers. Therefore, privatised companies can take advantage of private auditors' experience and reputation. If a privatised company has a public sector auditor, it may switch to private sector auditors because public sector auditors are less suited to auditing a private sector entity. Where there is alignment, auditor switching is less likely to occur. The auditor-client alignment hypothesis is:

H2 Companies with auditor-client alignment are less likely to switch auditors.

3.5.3 Ownership

The separation of ownership and control in corporations and the decision-making authority vested in management generates information asymmetry between knowledgeable managers and outside shareholders. This results in agency costs. These costs arise because of the possibility that management applies the resources of the company to fulfil its own interests at the expense of shareholder interests. This is known as the moral hazard problem (Jensen and Meckling, 1976, Ng, 1978).[22] However, when ownership is highly concentrated, large shareholders have greater incentives and an ability to monitor management activities (Jensen and Meckling, 1976, Demsetz, 1983, Shleifer and Vishny, 1986, Jensen, 1993, Bolton and Thadden, 1998), which provides large shareholders with private information (Maug, 1998). Large shareholders can also pressure managers to act in the shareholders' interest and to improve performance

[22] This problem is also referred to as managerial opportunism.

(Kahn and Winton, 1998). This reduces management's opportunistic behaviour, leading to a lower demand for switching to higher quality auditors.

Shleifer and Vishny (1997) argue that when ownership is concentrated in the hands of a few shareholders, concerted action by shareholders is much easier than when ownership is diffuse. In this case, large shareholders have incentives to collect information and monitor managers, thus avoiding the free rider problem. Piot (2001) also argues that, in companies with concentrated ownership, management discretion over accounting policy choice is more constrained and their tendency to manipulate the financial reports is lower. Ownership concentration also increases the power of shareholders to modify managerial policies or replace current managers if necessary (Alchian and Demsetz, 1972).

In general, ownership concentration reduces conflicts of interest between shareholders and managers by decreasing information asymmetry (Francis and Wilson, 1988), which results in a lower level of agency costs (Fosberg and Rosenberg, 2003). This suggests that companies with large shareholders are less likely to demand a higher level of audit quality. Earlier studies (Francis and Wilson, 1988, Woo and Koh, 2001) indicate that highly concentrated ownership is negatively associated with switching to a higher quality auditor. Therefore, the ownership concentration hypothesis is:

H3 Concentrated ownership is negatively associated with auditor switching.

3.5.4 Changes in Leverage

The demand for different levels of audit quality is affected by the agency costs created by the conflict of interests between shareholders and debtholders. According to the agency theory literature, there is a positive association between the levels of company's debt and shareholders' incentives to transfer wealth from debtholders (Jensen and Meckling, 1976, Watts, 1977, Chow, 1982). Therefore, highly levered companies are more likely to demand a higher level of audit quality to reduce the possibility of wealth transfers, which can affect the availability and cost of debt.

Shareholders may undertake investment, financing and production activities that benefit them at the expense of debtholders or reduce the firm's value (Jensen and Meckling,

1976, Watts and Zimmerman, 1986). The main sources of conflict between shareholders and debtholders include dividend policy; claim dilution (issuing new debt of the same or higher priority); asset substitution (e.g., engaging in higher risk projects than the ones at the time of issuing debt); and underinvestment (e.g., ignoring projects where benefits may accrue to bondholders) (Smith and Warner, 1979). As debtholders anticipate the risk of ex post wealth transfers, they may consider this when pricing debt. Consequently, shareholders sustain the cost of their likely wealth removals from debtholders (Jensen and Meckling, 1976, Watts, 1977, Smith and Warner, 1979, Chow, 1982).

There is an incentive for shareholders to contract to limit the possibility of wealth transfers and reduce the cost of debt (Jensen and Meckling, 1976, Chow, 1982). Debt covenants can be used to reduce or eliminate the shareholder-debtholder conflict of interests.[23] Accounting numbers play a key role in many of these covenants (Smith and Warner, 1979). The role of accounting numbers creates a demand for a higher level of audit quality to increase the credibility of the provided financial reports as a basis for the debt contracts. The increased credibility will reduce agency costs created by the conflict of interests between shareholders and debtholders (Palmrose, 1984).

However, in relation to auditor switching, Healy and Lys (1986) and Johnson and Lys (1990) differentiate between the incentives for auditor selection in relation to leverage at the time of auditor switching and motivations related to potential debt issues after an auditor change. Switching to a lower quality auditor after a debt issue decreases the value of current debt claims. As a result, the value of shareholders' residual claims will increase. This leads to wealth transfer from debtholders to shareholders (Francis and Wilson, 1988).

Previous studies that examine the effect of leverage on auditor switching use different approaches with inconsistent results. Woo and Koh (2001) found a positive association between leverage and auditor switching in Singapore while Hudaib and Cooke (2005), using UK data, did not. With regard to leverage and switching to a higher level of audit quality, Francis and Wilson (1988) found a significant negative relation, Firth and Smith (1992) found a significant positive association and Woo and Koh (2001) did not find any significant association. Focusing on changes in leverage, both DeFond (1992) and

[23] For a detailed list and analysis of these covenants, refer to Smith and Warner (1979).

Francis and Wilson (1988) reported a significant positive association with switching to a higher level of audit quality.

The risk of wealth transfer from debtholders to shareholders increased in TSE listed companies after privatisation because of new debtholders (private banks) and new shareholders (private). Before privatisation, because of public sector ownership and control over the companies and debtholders (banks), the risk of transferring wealth from debtholders to shareholders was low as the wealth transfer would have been between government entities. The new private shareholders have incentives to transfer wealth from both public and private debtholders (banks). Public sector shareholders have incentives to transfer wealth from the new private debtholders (banks). The potential for wealth transfer increases as the level of debt increases, thus providing shareholder incentives to switch to a lower level of audit quality and debtholder incentives to demand a higher quality audit. Therefore, the leverage hypothesis follows:

H4 Changes in leverage are positively associated with auditor switching.

3.5.5 Issuing New Debt

Healy and Lys (1986) and Johnson and Lys (1990) argue that companies intending to issue debt are better off with higher quality auditors because they can take advantage of their quality (reputation). This reduces debtholders' information and auditor quality assessment costs, thus reducing the cost of debt. It also provides incentives to companies to switch to a higher quality auditor in advance of a debt offering. Francis and Wilson (1988) also argue that companies may switch to higher quality auditors in advance of a debt offering to increase the marketability of the new securities. Therefore, the issuance of a new security can be either an incentive for auditor switching or an indication of the type of switching itself. Pittman and Fortin (2004) examined the association between auditor selection and debt pricing for newly public companies when they are less known. They found that selecting a higher quality auditor, which can decrease debt-monitoring costs by increasing the credibility of audited financial statements, reduces borrowing costs (interest rates) for young companies.

Higher audit quality can also help companies signal their private information or add credibility to their financial statements (Teoh and Wong, 1993, Francis et al., 1999).

Capital markets react more positively when a company switches to a higher quality auditor (Teoh and Wong, 1993, Gul et al., 2003a). Therefore, companies have an incentive to switch to higher quality auditors in advance of a debt offering to get a higher price or reduce their borrowing costs. Johnson and Lys (1990) and Francis and Wilson (1988) found a significant association between selecting a higher quality auditor and the issuance of new debt after the auditor switch. Therefore, the debt offering hypothesis is:

H5 Companies are more likely to switch auditors before the issuance of new debt.

3.5.6 Issuing New Shares

Akerlof (1970) argues that information asymmetry in the market leads to an adverse selection problem because buyers cannot differentiate the quality of certain products. This problem may also happen in the market with new issues because uninformed potential investors lack special information about a firm's future cash flows. This may lead to a 'lemons problem' (Michaely and Shaw, 1994) that gives signalling incentives to high quality firms to convey their private information to the market and reduce their securities underpricing (Copley and Douthett, 2002). Firms with more available and higher quality information, on average, are less underpriced. The quality of auditors affects the quality of information provided, which, in turn, reduces ex ante uncertainty and consequently the extent of underpricing of the new shares (How et al., 1995). Specifically, the higher the quality of auditor selected by the issuer, the lower the extent of underpricing. Because of different risk concerns (e.g., loss of reputation), high quality auditors usually accept less risky clients (Firth and Smith, 1995, Raghunandan and Rama, 1999). Therefore, selecting a higher quality auditor can be a positive signal of better prospects, which leads to a higher market price.

Titman and Trueman (1986) state that there is an association between an entrepreneur's private information and the quality of the selected auditor. Entrepreneurs with more positive private information about the value of their firms choose a higher quality auditor than entrepreneurs with less positive private information. Companies with more positive information are willing to pay the (presumably higher) fee of a higher quality auditor as the information provided to investors by the auditor is expected to be favourable. In contrast, it is not worthwhile for companies with less positive information

to pay the higher cost of a higher quality auditor because the auditor's information is likely to be unfavourable. Informed investors are able to infer the nature of the companies' information from their choice of auditors. The higher the quality of the auditor, the more favourably investors infer the information and the higher the price of the new issue.

Downes and Heinkel (1982) and Francis et al. (1992) argue that companies issuing shares have incentives to switch to higher quality auditors as a means of signalling their private information to add more credibility to the financial statements. The presence of a higher quality auditor also reduces uncertainty about future cash flows (Beatty, 1989, Firth and Smith, 1992, Copley and Douthett, 2002), which decreases the cost of equity capital.[24]

Prior studies (Francis and Wilson, 1988, Johnson and Lys, 1990) found a significant association between selecting a higher quality auditor and the issuance of new shares after the auditor switch. There is also evidence that higher quality auditors are associated with less underpricing for initial public offerings (Carpenter and Strawser, 1971, Beatty, 1989, Michaely and Shaw, 1995, How et al., 1995). Therefore, the share issuing hypothesis is:

H6 Companies issuing new shares are more likely to switch auditors before the issuance.

3.5.7 Changes in Management

Changes in management may result in auditor switching because new managers try to dissociate themselves from previous relationships and associate with familiar parties (Hudaib and Cooke, 2005). The relationships between managers and auditors affect management decisions to select a particular auditor (Levinthal and Fichman, 1988). New managers may bring a new auditor with whom they have a preferred working relationship (Williams, 1988a, Courtney and Jubb, 2005, Hudaib and Cooke, 2005).

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[24] Although there are no Big 4 firms in the Iranian audit market and the size of the audit firms changed rapidly during the sample period (1999-2003), there may be other criteria that companies consider in identifying high quality auditors, such as the reputation and specialisation of audit firms' partners. Unfortunately, these types of data are not publicly available and the author's attempt to collect them from different sources was not successful.

New managers may also select a particular auditor with whom they have a personal relationship. Beattie and Fearnley (1998b) found that in the process of selecting new auditors, the chemistry of the relationship with senior audit firm personnel, a behavioural consideration, is more important than the range and level of services offered. Seabright et al. (1992), in a study of auditor-client relationships, found that personal connections between auditors and clients—i.e., individuals primarily responsible for the exchange relationship—reduce the possibility of auditor changes while changes in the client's needs increase the possibility of auditor changes. Courtney and Jubb (2005) investigated the impact of director-auditor relationships (a personal connection where interlocking directors employed the same audit firm across their company directorships) on audit tenure. They found a positive association between director-auditor relationships and auditor tenure. These findings support the findings of Seabright et al. (1992).

Aside from a relationship with specific auditors, new management may be unsatisfied with the quality of former services provided by the previous auditor as well as with the audit fee. New management may prefer reporting methods facilitating the presentation of a more favourable picture of the company. This may encourage the new management to switch to an auditor who is more accommodating in their choice and application of accounting policies (Schwartz and Menon, 1985). For example, when new management is appointed, a write-down of assets commonly occurs (Burton and Roberts, 1967). Management wants to do the write-down after the new auditor has been appointed as the incumbent auditor may constrain that treatment. The incumbent auditor may constrain the treatment because it results in issuing understated financial reports in the current year and overstated financial reports in the following years. This diminishes the fairness of the financial reports as well as increases the different risks to auditors (e.g., loss of reputation or licence suspension) in the following years.

The results of prior studies on the association between management changes and auditor switches are inconsistent. Some studies (Burton and Roberts, 1967, Carpenter and Strawser, 1971, Beattie and Fearnley, 1995 and 1998b, Woo and Koh, 2001) have found that management changes are one of the main reasons for auditor switches by companies while others (Chow and Rice, 1982, Schwartz and Menon, 1985, Williams, 1988a) have not found any significant association. This inconsistency may be caused by different methodological approaches and proxies as well as different contexts. For

example, some studies (Burton and Roberts, 1967, Carpenter and Strawser, 1971, Beattie and Fearnley, 1995 and 1998b) used a questionnaire to collect the required data while the others used different databases (Chow and Rice, 1982, Schwartz and Menon, 1985, Williams, 1988a, Woo and Koh, 2001). William (1988a) used changes in the president, chief executive officer, chief financial officer or treasurer as a proxy to examine the association between management changes and auditor switching in the US while Woo and Koh (2001) used changes in directors as a proxy in Singapore. Schwartz and Menon (1985) examined the association between auditor switches and management changes in failing companies while the other studies examined the association in healthy companies.

Iran is a country where inherited relationships have existed for many years (Shardad and Miller, 2001) that may affect management decisions with regard to auditor selection. For example, primary and personal relationships are far stronger than contractual and merely economic relationships (Jones, 1981). As such, changes in the management of TSE listed companies may increase the likelihood of auditor switches because new managers may prefer to associate with familiar auditors with whom they have a specific relationship (e.g., a personal relationship). Therefore, the changes in management hypothesis is:

H7 Changes in management are positively associated with auditor switching.

3.5.8 Earnings Management

Management may engage in earnings management because of self-interest or to enhance the firm's value (Healy, 1985, Holthausen, 1990, Watts and Zimmerman, 1990, Christie and Zimmerman, 1994, DeFond and Jiambalvo, 1994, Holthausen et al., 1995, Gaver et al., 1995, Dechow et al., 1996, Beneish and Vargus, 2002, Gul et al., 2003b, Bergstresser and Philippon, 2006).[25] This may provide incentives to managers to switch auditors who constrain their willingness to manage earnings favourably.

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[25] Accounting-based contracts such as management compensation (Healy, 1985, Holthausen et al., 1995, Gaver et al., 1995, Gul et al., 2003b, Bergstresser and Philippon, 2006) and debt contracts (Watts and Zimmerman, 1986, DeFond and Jiambalvo, 1993, DeFond and Jiambalvo, 1994) create incentives for earnings management. Management may also engage in earnings management to reduce risk of their replacement for poor performance (Christie and Zimmerman, 1994, Kaplan and Minton, 1994, Kang and Shivdasani, 1995), to signal their private information about future prospects (Healy and Palepu, 1993, Chaney and Lewis, 1995) and to increase share prices (Teoh et al., 1998a and 1998b, Dechow and

Because of different risk concerns, auditors may constrain income-increasing earnings management and force managers to accept conservative accounting choices and methods. DeFond and Subramanyam (1998) examined discretionary accruals for a sample of 503 companies that switched their auditors between 1990 and 1993. They measured discretionary accruals using a variation of the model proposed by Jones (1991), which was also used by DeFond and Jiambalvo (1994). The study was based on the assumption that the auditors' preference for conservative accounting choices, because of litigation risk, may increase the likelihood of auditor switching. The extent of conservatism is likely to be different across auditors based on different factors, such as individual assessment of client risk and relative risk tendencies. If management believes that the incumbent auditor is more conservative than an average auditor, management has an incentive to switch auditors in the hope of hiring a more reasonable auditor.

DeFond and Subramanyam (1998) found that discretionary accruals are significantly income decreasing during the last year of an auditor's tenure. This result shows that although the discretionary accruals are negative during the first year with the successor auditor, the extent is much lower. The findings indicate that negative discretionary accruals are larger in companies subject to the greatest litigation risk. Generally, their findings suggest that auditors act as a constraint on managerial discretion with regard to accounting choices and that the income-decreasing choices preferred by the incumbent auditors because of the litigation risk increase the likelihood of auditor switches.

The study by DeFond and Subramanyam (1998) has two limitations. First, they investigated discretionary accruals only for a sample of firms that switched auditors. There may be an association between discretionary accruals and a company's decision to not switch auditors. Second, they used Jones's (1991) model to measure discretionary accruals. The modified Jones model eliminates the original model's conjectured tendency problem and determines erroneous discretionary accruals when discretion is applied over revenue recognition (Dechow et al., 1995, Bartov et al., 2001).

Skinner, 2000). Because the required data for examining these incentives is not available, they are not considered in this study.

Iranian auditors have incentives to prefer conservative accounting methods and choices because an Iranian auditor can be jailed for misleading financial reports (Iranian Trade Laws Article 267) or have his or her licence suspended or cancelled by the IACPA. However, the extent of conservatism is likely to be different across Iranian auditors based on different factors, such as the individual assessment of client risk and relative risk tendencies. It is argued that such outcomes are more likely when there are earnings overstatements rather than earnings understatements.[26] Income-decreasing accounting choices preferred by incumbent auditors (leading to income-decreasing accruals) increase the likelihood of auditor switching (DeFond and Subramanyam, 1998) because it negatively affects management compensation and market prices. It follows that TSE listed companies with negative discretionary accruals are more likely to switch their auditors than other TSE listed companies. Therefore, the earnings management hypothesis is:

H8 Discretionary accruals are negatively associated with auditor switching.

3.5.9 Qualified Audit Opinions

Companies wish to avoid a qualified audit opinion because it may affect both their share price and managers' compensation (Chow and Rice, 1982). It may also be considered by interested parties—i.e., shareholders—as a sign of bad stewardship of their interests (Williams, 1988a). Companies may switch auditors in order to avoid an unfavourable qualified opinion (Lennox, 2000) or after receiving a qualified opinion in the hope of receiving an unqualified opinion the following year (Teoh, 1992).

Chow and Rice (1982) found that companies have a tendency to switch auditors after receiving a qualified opinion. This may be related to differences in the percentage of qualified opinions issued by different auditors. They also found that qualified companies that switch auditors are not more likely to receive an unqualified opinion the following year than qualified firms that do not. Krishnan and Stephens (1995) examined the association between auditor switching and audit opinions before and after the switch. They found no significant difference in the treatment of switching and non-switching firms by predecessor and successor auditors. This implies that opinion-

[26] Pierre and Anderson (1984) presented evidence that auditors are sued when there are earnings overstatements, but not when there are earnings understatements.

shopping by companies is not successful, which supports the Chow and Rice (1982) findings.[27] One interpretation of this result is that measures to control opinion-shopping, such as an increased SEC examination of auditor switching and increased communication among auditors, have been effective.

Lennox (2000) argues that a company's decision to switch auditors depends on the likelihood of a qualified opinion being issued by the incumbent and successor auditor. If the incumbent auditor is more likely to issue a qualified opinion than the successor, the company will switch auditors. Otherwise it will stay with the incumbent auditor. Contrary to the results of prior studies (Chow and Rice, 1982, Krishnan and Stephens, 1995), Lennox found that the likelihood of a change in audit opinion increases after auditor switches, which implies that companies successfully engage in opinion shopping. Woo and Koh (2001) investigated the association between factors related to client and auditor characteristics and auditor switches by companies listed on the Stock Exchange of Singapore. In contrast to the results of earlier studies, they found a negative and significant association between receiving a qualified audit opinion and the likelihood of auditor switching. This means that companies receiving a qualified opinion are less likely to switch auditors. However, the inconsistency may have been caused by the limited number of companies (11) that received audit qualifications, which is too small to enable any general conclusion to be drawn.

The results of prior research into the effect of receiving a qualified audit opinion on auditor switches are inconsistent. Some studies (Chow and Rice, 1982, Teoh, 1992, Lennox, 2000, Hudaib and Cooke, 2005) have shown a positive significant association between auditor changes and receiving a qualified audit opinion and some a negative relationship (Woo and Koh, 2001) while others (Schwartz and Menon, 1985, Haskins and Williams, 1990) have not found any association. The inconsistency may be caused by different proxies and approaches as well as different research contexts. For example, Krishnan and Stephens (1995) classify audit opinions into three groups: unqualified, asset realisation, and going concern. Haskins and Williams (1990) classify audit opinions into four groups: unqualified, subject to, nonconsistency 'except for', and disclaimers. Others (Chow and Rice, 1982, Schwartz and Menon, 1985, Lennox,

[27] Opinion-shopping is defined by the SEC in FRR 31 (cited in Hendrickson and Espahbodi, 1991, p.27) as "the practice of seeking an auditor willing to support a proposed accounting treatment designed to help a company achieve its reporting objectives even though doing so might frustrate reliable reporting".

2000, Woo and Koh, 2001, Hudaib and Cooke, 2005) classify audit opinions into two groups: qualified and unqualified. Haskins and Williams (1990) applied a recursive partitioning algorithm approach to modelling auditor switches while Chow and Rice (1982), Woo and Koh (2001) and Hudaib and Cooke (2005) applied logistic regression. Some of these studies were done using specific types of companies. For example, Schwartz and Menon (1985) examined auditor switching in failing companies while Haskins and Williams (1990) examined companies that switched from using one Big 8 auditor to another Big 8 auditor (intra-Big 8 auditor switches).

Companies in Iran can receive audit opinions that are unqualified, 'except for', 'subject to', adverse or a disclaimer. Qualified opinions are issued for scope limitations, inherent uncertainties and disagreements with management over the choice and application of accounting policies. It is argued that opinions that reflect environmental conditions—i.e., inherent uncertainties or scope limitations not imposed by the client—do not increase the incentives for auditor switching. Because management have limited control or influence over their cause, this type of qualification may have fewer negative consequences for the company as well as managers.[28] Reasons for the qualification that reflect disagreements between management and the auditor—i.e., violations of GAAP and client imposed scope limitations—are more likely to result in auditor switching. This type of qualification may have more effects on share prices and management compensation as it may reflect managerial opportunism. Different auditors may also have different interpretations of GAAP and their applications. This may encourage disagreeing managers to switch auditors in the hope of having a more accommodating auditor. This is consistent with the argument that companies may switch auditors as a means of avoiding a qualified opinion or after receiving a qualified opinion in the hope of receiving an unqualified opinion in the following year. Having a more accommodating auditor may reduce auditor-client disagreements and the likelihood of receiving the related qualified audit opinion. Therefore, the qualified opinion hypothesis is:

H9 Qualified audit opinions resulting from violations of GAAP and client imposed scope limitations are positively associated with auditor switching.

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[28] However, to control for the potential effects of this type of qualification on auditor switching, a variable will be built and included in the main model as a control variable (Chapter 4).

3.5.10 Competition

Increased competition among auditors increases the opportunities and incentives for companies to switch auditors (Shockley, 1981, Beattie and Fearnley, 1998b) as it provides companies with more options to select an auditor who is better matched to their needs. When there is a range of services with different qualities in the audit market, companies are in a better position to compare different services and choose the one that best matches their needs. The increased competition may also induce auditors to compete for clients through investment in audit quality (e.g., Lyon, 1999). This investment increases their capabilities and competitive advantages. This will allow them to differentiate themselves from their competitors in the audit market by providing higher quality services at a lower price, leading to an increased market share. This also allows them to better match the various and variable needs of their clients, which decreases the likelihood of their replacement.

Quality competition in the market also affects customer switching behaviour as it provides an opportunity for customers to compare different levels of quality and to switch if they are not satisfied with the current level of quality received (Gans, 2002). Clients in the audit market have different preferences. Therefore, increased competition in the market, which results in quality variation, increases the clients' choice of auditors because they are better able to select their preferred auditors. This increases clients' opportunity and incentive to continuously search for the best auditor that matches their needs, which is likely to result in an increased rate of auditor switching.

The establishment of the IACPA in 2001 allowed a rapid increase in the number of auditors auditing TSE listed companies. This increased competition among auditors provided more opportunity for TSE listed companies to change auditors. The increased number of auditors also means that the audit market was changed from a market dominated by public sector auditors (the IAO) to a market with many private sector auditors.[29] If a wider range of quality and services are offered by private sector auditors, companies may be better able to select an auditor who is better matched to their needs, thus providing both opportunity and incentives to switch auditors. Increased competition also provides an opportunity for companies to opinion-shop (Shockley,

[29] The sample data indicate a 100 per cent growth in the number of auditors engaged by TSE listed companies after the establishment of the IACPA.

1981, Beattie and Fearnley, 1998b, Hendrickson and Espahbodi, 1991), which may result in increased auditor switching. Therefore, the competition hypothesis is:

H10 There was more auditor switching following the establishment of the IACPA in 2001.

3.6 Summary

The regulatory changes resulted in a rapid increase in competition in both the audit and capital markets. They also altered the characteristics of the affected companies. This has provided more opportunities and incentives for companies to switch auditors. The regulatory changes create a unique opportunity to examine the effects of increased competition in the audit market, changes in agency risks and signalling incentives as a result of privatisation and other factors that may affect auditor choice in TSE listed companies. In particular, it is argued that auditor switches in the TSE are associated with the privatisation of public sector controlled companies, auditor-client alignment, ownership concentration, changes in leverage, the issuing of new debt, the issuing of new shares, changes in management, earnings management, qualified audit opinions and increased competition in the audit market. Hypotheses related to each of these factors were developed accordingly. The next chapter presents the research design used to test them.

Chapter 4 - Research Design

4.1 Introduction

In this chapter, a model used to examine the association between the factors related to client and auditor characteristics and auditor switching is developed. This chapter presents the model, the variables selected and the required data.

4.2 Empirical Model

This section describes the model used to test the association between the selected factors presented in Chapter 3 and auditor switching by TSE listed companies. These factors include: the privatisation of public sector controlled companies; auditor-client alignment; ownership concentration; changes in leverage; the issuing of new debt; the issuing of new shares; changes in management; earnings management; qualified audit opinions; and increased competition in the audit market. To control for the possible effects of other factors that may affect companies' decision to switch auditors, three new variables were included in the model. These new variables are: qualified opinion for reasons other than disagreement; client size; and industry. Therefore, the model is:

$$\text{Auditor Switch} = \beta_0 + \beta_1\text{Privatisation} + \beta_2\text{Alignment} + \beta_3\text{Ownership} + \beta_4\Delta\text{Leverage} + \beta_5\text{Debt} + \beta_6\text{Shares} + \beta_7\Delta\text{Management} + \beta_8\text{EarnMgt} + \beta_9\text{QualDisagree} + \beta_{10}\text{Competition} + \beta_{11}\text{QualOther} + \beta_{12}\text{Size} + \Sigma\beta_i\text{Industry}_i + \varepsilon \quad (1)$$

Where:

Switch = dummy variable equal to 1 where a client changed auditor, 0 otherwise;

Privatisation = dummy variable equal to 1 if public sector ownership became less than 50% in the prior year; 0 otherwise;

Alignment = dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise;

Ownership = number of shareholders with more than 5% equity ownership in the prior year;

ΔLeverage = absolute value of changes in leverage (long-term debt divided by total assets) in the prior year;

Debt = dummy variable equal to 1 if there is more than a 5% increase in debt in the next year, 0 otherwise;

Shares = dummy variable equal to 1 if there is more than a 5% increase in the number of outstanding shares in the next year, 0 otherwise;

ΔManagement = dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise;

EarnMgt = discretionary accruals measured using the cross-sectional modified Jones model for the prior year;

QualDisagree = dummy variable equal to 1 if the prior year's audit opinion is qualified because of violations of GAAP or client imposed scope limitations, 0 otherwise;

Competition = dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise;

QualOther = dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than violations of GAAP or client imposed scope limitations, 0 otherwise;

Size = natural logarithm of total revenue for the previous year;

Industry = dummy variables for industries; and

ε = error term in the model.

This model assumes that the expected likelihood of auditor switching, given the independent variables, is a logistic function. As such, maximum likelihood estimation is applied to estimate the parameters of this function (e.g., Hosmer and Lemeshow, 1989, Menard, 1995, Kleinbaum and Klein, 2002).

Because the dependent variable (auditor switching) is binary, a logistic regression model was considered appropriate.[30] There were other reasons for selecting such a model. First, when the dependent variable is binary, applying a linear regression may result in predicted values greater than one and less than zero that are not acceptable theoretically. Second, the size of the independent variable affects the variability of the residuals; this is called heteroscedasticity. Because of heteroscedasticity, the ordinary

[30] A logistic regression model has also been used in previous studies (e.g., Williams, 1988a, Woo and Koh, 2001, Hudaib and Cooke, 2005).

least squares (OLS) estimates of parameters will not be efficient and the results of hypothesis testing based on OLS standard errors will be invalid. Third, with a binary independent variable, the assumption of normality of errors is obviously inappropriate. All of these reasons demonstrate that "the results of hypothesis testing or construction of confidence intervals for the regression coefficients will not be valid" (Menard, 1995, p.7). [31]

4.3 Dependent Variable

Given the emerging nature of the audit market in Iran and the fact that international audit firms are not operating there, it was not possible to use the traditional proxy for audit quality. Therefore, consistent with prior research (Chow and Rice, 1982, Williams, 1988a, Woo and Koh, 2001, Hudaib and Cooke, 2005), the dependent variable was auditor switching rather than switching between auditors of different quality. Although the traditional proxy for audit quality in the TSE context could not be used, an attempt was made to proxy it to enable an examination of the association between the independent variables and switching to different levels of audit quality as additional tests. Companies either switch or do not switch auditors. Therefore, a dummy variable was used to measure auditor switching. The variable assumed a value of 1 where a client switched auditor and 0 otherwise. The audit report for each year under investigation would reveal whether auditors had changed.

4.4 Test Variables

This section describes the test variables, required data, different proxies used for the variables and the reasons for using them. The test variables were: the privatisation of public sector controlled companies; auditor-client alignment; ownership concentration; changes in leverage; the issuing of new debt; the issuing of new shares; changes in management; earnings management; disagreement qualified audit opinions; and increased competition in the audit market.

[31] See also Greene (1993).

4.4.1 Privatisation

For the purpose of this study, privatisation was defined as the process of moving from a government controlled to a private controlled company. The Iranian trade law defines a government controlled company as a company in which the government has more than 50 per cent of the ownership directly or indirectly. Following this law and the fact that having more than 50 per cent ownership provides the shareholder with significant control over the company as well as government domination over TSE listed companies, a privatised company was defined as a company in which government control is less than 50 per cent. Based on this criterion, companies can be classified as privatised or government-controlled. As this study was about the effects of privatisation on auditor switching, which may take time to materialise, a dummy variable was used to identify whether companies were privatised in the prior year. The variable was coded as 1 if government ownership in the company's stock decreased to less than 50 per cent in the prior year and 0 otherwise.[32] In order to do this, data related to government ownership in the current and previous year for each year under examination was needed. Privatisation may change companies' incentives towards auditors, which may increase the likelihood of auditor switching. In addition to the abovementioned measure of privatisation, other measures (e.g., a 30% or greater decrease in government ownership in the prior year) were used as additional tests.

4.4.2 Auditor-Client Alignment

For the purpose of this study, auditor-client alignment was defined as the situation in which a government controlled entity had a public sector auditor or a private sector controlled company had a private sector auditor. According to this criterion, there either is or is not alignment between the auditor and the client. Therefore, a dummy variable was used to indicate auditor-client alignment. The dummy variable was equal to 1 when there was auditor-client alignment and 0 otherwise. Ownership data was used to identify the type of the company (government or private controlled) and the data related to auditors was used to identify the type of auditors (public or private sector).

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[32] To the best of the author's knowledge, this is the first study to examine the association between privatisation and the likelihood of auditor switching. Therefore, no specific measure of privatisation exists in the literature.

4.4.3 Ownership

Ownership concentration demonstrates the ability of large shareholders to monitor and control management actions. Different proxies have been used to measure ownership concentration. Demsetz and Lehn (1985) used the percentage of shares held by top five, top 20, top five families and individuals and institutional investors. Prowse (1992) and Hovey and Naughton (2003) used the percentage of shares held by the largest five shareholders. Claessens et al. (2002) used the percentage of stock held by the largest single shareholder. Brailsford et al. (2002) used the percentage of shares held by the largest two, five and 20 shareholders. Ashbaugh et al. (2004) used the number of blockholders that own five per cent or more of a firm's outstanding shares as a measure of ownership concentration.

Shleifer and Vishny (1997) and Earle et al. (2005) argue that when ownership is concentrated in the hands of a few large shareholders rather than several smaller ones, concerted actions by shareholders are much easier as they may have fewer conflicts of interest or conflicting views of corporate strategy. Accordingly, it is argued that the effect of ownership concentration on the company mainly depends on how large shareholders interact regardless of the percentage of shares they hold. The fewer large shareholders in the company there are, the more cooperative they may be in taking action. Based on this and following the findings of Ashbaugh et al. (2004), ownership concentration was measured by the number of shareholders with more than five per cent equity ownership. TSE listed companies are also required to disclose the names of shareholders who have more than five per cent equity. This requirement provided another justification for using five per cent or more as a measure of ownership concentration in this study; this data was readily available because regulators are interested in the effects of these shareholders on companies. Consistent with Claessens et al. (2002), the percentage of shares owned by the largest single shareholder was also used as an additional test in this study. Data related to proxies used in prior research—i.e., the percentage of shares held by the top five or top 20 shareholders—is not provided by TSE listed companies.

4.4.4 Changes in Leverage

Earlier research has reported different proxies for leverage. Chow (1982) used the ratio of book value of debt to size (market value of ownership plus book value of debt). Francis and Wilson (1988), Johnson and Lys (1990) and Woo and Koh (2001) used long-term debt divided by total assets. Francis and Wilson (1998) and DeFond (1992) used changes in the ratio of long-term debt to total assets. Firth and Smith (1992) used the ratio of book value of debt to gross assets after the new equity issue. Finally, Hudaib and Cooke (2005) used the ratio of long term debt to total equity. Consistent with the research hypothesis that changes in leverage are positively associated with the likelihood of auditor switching and following DeFond (1992) and Francis and Wilson (1988), the absolute value of changes in the ratio of long-term debt to total assets was used as a proxy for changes in leverage. It also seems that changes in leverage better represent changes in the incentives of shareholders and debtholders towards auditors, leading to auditor switching, than the level of leverage in each financial period. Similar to the approach of Francis and Wilson (1988), Johnson and Lys (1990) and Woo and Koh (2001), long-term debt divided by total assets was used as an additional test.

4.4.5 Issuing New Debt and New Shares

The research literature has mainly considered the issuance of new debt and shares as one variable (new issues) with different proxies. Chow and Rice (1982) used a dummy variable equal to 1 where there was new financing, 0 otherwise. Francis and Wilson (1988) used the dollar amount of publicly issued stock and debt for two fiscal years after a new auditor's initial engagement deflated by total assets in the year preceding the auditor change. Johnson and Lys (1990) used the change in average new financing (debt plus equity issued divided by total assets). Firth and Smith (1992) used the amount of cash raised via new issues. DeFond and Subramanyam (1998) used changes in new financing scaled by assets. Woo and Koh (2001) used the proceeds of stocks and debt issued to total assets as a proxy for new issues.

However, Healy and Lys (1986) considered separate variables and proxies for different issues. They used the percentage of change in long-term debt in three years following Big 8 mergers with non-Big 8 audit firms as a measure of issuing new debt and the percentage change in contributed capital in the three years following the merger as a

measure for new equity. This study also used separate variables for new issues (debt and shares) to examine whether either of them had an effect on auditor switching.

Some researchers (Chow and Rice, 1982, Haskins and Williams, 1990) have hypothesised that a five per cent or larger change in ownership of a company's stock may result in auditor switches as the company controls shifts to the new owners. Accordingly, it is argued that expected change of five per cent or larger of the company capital structure can create an incentive for signalling through switching to higher quality auditors. It may happen as companies try to signal their quality as well as increase the credibility of the audited financial statements to get higher prices for the new issues. The higher cost of having a high quality auditor compared with a low quality one (e.g., Titman and Trueman, 1986) may prevent companies with less than five per cent new issues (debt and shares) to switch to high quality auditors because the benefits may not overcome the cost. Based on this, companies in this study were classified as those with incentives (expected change of 5% or larger of the company capital structure) and those without incentives for signalling. Therefore, a dummy variable was used as a measure for the issuing each of new debt and new shares. The variable for new debt was coded as 1 if there was a five per cent or larger increase in debt. The variable for new shares was coded as 1 if there was a five per cent or larger increase in the number of outstanding shares in the next year.

With regard to debt, the only data available is the amount of debt provided in a company's financial statements. As such, increases in debt was used as a measure of issuing new debt. Data related to the dollar amount raised via new shares is also not available. Because of this, some proxies used in earlier research (e.g., proceeds of stocks and debt issued to total assets) could not be used in this study. Percentage changes in debt and shares (e.g., 10% or larger) were also considered as additional tests.

4.4.6 Changes in Management

Williams (1988a) used changes in the president, chief executive officer (CEO) and chief financial officer or treasurer as a proxy to examine the association between management changes and auditor switching. Woo and Koh (2001) used changes in directors. Shwartz and Menon (1985), DeFond and Subramanyam (1998) and Hudaib and Cooke (2005) used changes in the CEO. This study used the CEO as a proxy for management because

he or she is a full-time executive who may try to present a better picture of his or her performance. This may provide incentives to the CEO to associate with familiar auditors who may be more accommodating with respect to his or her choice and application of accounting policies. The audit report may also have more effects on CEO's interests in the company (compensation and position). Therefore, the CEO may be more concerned about the selected auditors than non-executive directors.[33] In contrast, a chairman may be a non-executive member of the board. Data related to the chief financial officer or treasurer is not provided by TSE listed companies. Companies either change or do not change managers. Therefore, a dummy variable was used as a measure for changes in management. The dummy variable was equal to 1 if there was a change in the CEO in the prior year and 0 otherwise. In order to identify management changes in each year, data related to management in the prior year and current year for each year under examination was required. A comparison of the data in both years would enable any changes in management to be identified. This data is usually provided as a part of a company's financial statements. In addition, TSE listed companies are required to disclose changes in their managers in a specific newspaper as well as in minutes of board meetings. These sources were also used to obtain the appropriate data.

4.4.7 Earnings Management (Discretionary Accruals)

Earnings management can be described as the application by managers of flexible accounting principles and methods that enable them to report earnings (income) differently from how they should (Davidson et al., 2004).[34] According to Dechow et al. (1995), earnings management is often based on the use of discretionary accruals by managers. In accordance with prior research (e.g., DeFond and Jiambalvo, 1994, Dechow et al., 1995, Teoh et al., 1998a and 1998b, Dechow et al., 2000), this study used discretionary accruals as a measure of earnings management.

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[33] Changes in the chairman were also considered, but the collected data indicated that changes in the CEO and chairman were the same. This implies that the positions of CEO and chairman were held by the same person in these companies. Therefore, including changes in the chairman in the main model would have provided the same result as changes in the CEO.

[34] "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999, p.368).

Two models of discretionary accruals were used. The first model is the Cross-Sectional Modified Jones Model and the second is the Forward-Looking Model of Dechow et al. (2003, p.359). Discretionary accruals measured using the Cross-Sectional Modified Jones Model were included in the main model (Model 1) and the results are presented as the main results. Discretionary accruals measured by using the Forward-Looking Model were also included in the main model but the results are presented as additional tests. A negative association between discretionary accruals and the likelihood that the company would switch its auditor was expected. If the company were not successful in manipulating earnings, the likelihood of that company switching its auditor would increase.

4.4.7.1 Cross-Sectional Modified Jones Model

Dechow et al. (1995), in an attempt to assess the ability of different models to detect earnings management, found that the modified Jones model presents the most reliable test of earnings management. Research by Bartov et al. (2001), in an audit qualification setting, also indicates that the Cross-Sectional Jones Model and the Cross-Sectional Modified Jones Model are superior to time-series models in identifying earnings management. Another advantage of cross-sectional models is that, unlike time-series models, they do not exclude samples of firms with a short history. The Jones model for non-discretionary accruals in the event period is:

$$NDA_t = \alpha_1 (1 / A_{t-1}) + \alpha_2 (\Delta REV_t / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1}) \qquad (2)$$

Where:

NDA_t = the non-discretionary accruals in year $_t$ (current year) divided by the previous year's total assets;

ΔREV_t = Revenue in year $_t$ less revenue in year $_{t-1}$ (previous year);

PPE_t = Gross property plant and equipment at the end of year $_t$;

A_{t-1} = Total assets at the end of year $_{t-1}$;

α_1, α_2 and α_3 are firm-specific parameters.

The following model is used to estimate the firm-specific parameters, α_1, α_2 and α_3, in the estimation period:

$$TA_t / A_{t-1} = \boldsymbol{\alpha_1} (1 / A_{t-1}) + \boldsymbol{\alpha_2} (\Delta REV_t / A_{t-1}) + \boldsymbol{\alpha_3} (PPE_t / A_{t-1}) + \varepsilon \qquad (3)$$

Where:

TA_t = total accruals in year $_t$, which is the difference between operating cash

flows and income before extraordinary items;

ε = the residual, which represents the firm-specific discretionary part of total accruals.

$\boldsymbol{\alpha_1}$, $\boldsymbol{\alpha_2}$ and $\boldsymbol{\alpha_3}$ represent the OLS estimates of α_1, α_2 and α_3.

Other variables are the same as the variables in equation (2).

The modified Jones model was designed to eliminate the Jones model's conjectured tendency problem and to determine erroneous discretionary accruals when discretion was applied over revenue recognition (Dechow et al., 1995, Bartov et al., 2001). The modified Jones model is presented below. In the modified Jones model, the "change in revenue is adjusted for the change in receivables in the event year (i.e., in the year earnings management is hypothesized)" (Bartov et al., 2001, p.426).[35] It should also be emphasised that the estimates of α_1, α_2 and α_3 are not obtained from the modified Jones model. They are obtained from the original Jones model.

$$NDA_t = \alpha_1 (1 / A_{t-1}) + \alpha_2 [(\Delta REV_t - \Delta REC_t) / A_{t-1}] + \alpha_3 (PPE_t / A_{t-1}) \qquad (4)$$

Where:

ΔREC_t = net receivables in year $_t$ less net receivables in year $_{t-1}$.

The other variables are the same as the variables in equation (2).

The Cross-Sectional Jones Model and the Cross-Sectional Modified Jones Model are like the Jones and modified Jones models, correspondingly, apart from the fact that they differ because the parameters of the models are estimated by applying cross-sectional rather than time-series data (DeFond and Jiambalvo, 1994). Therefore, the parameter estimates α_1, α_2 and α_3 of equation (2) are industry and year (or quarter) specific instead of firm specific. The parameters are obtained by applying equation (3) and using data from all firms matched by year and industry (Bartov et al., 2001).

[35] "This approach follows from the assumption (underlying all discretionary-accruals models) that during the estimation period there is no systematic earnings management" (Bartov et al., 2001, p.426).

4.4.7.2 Forward-Looking Model of Dechow, Richardson and Tuna (2003)

Dechow et al. (2003) had some concerns about the ability of different discretionary accrual models to correctly classify non-discretionary and discretionary accruals. They tried to provide some additional variables that were likely to diverge from non-discretionary accruals. They designed four accruals models that were built upon each other and based upon the Modified Cross-Sectional Jones Model. They estimated the modified Jones model for each two-digit SIC-year grouping as follows:

$$\textit{Total Accruals} = \alpha_1 + \alpha_2 (\Delta REV - \Delta REC) + \alpha_3 (PPE) + \varepsilon \qquad (5)$$

All variables are the same as discussed above except that all are scaled by average total assets rather than the previous year's total assets.

For the second model, they make an adjustment for the expected increase in credit sales. According to the modified Jones model, all credit sales in each period are discretionary. Because of that, the model assumes a positive correlation between discretionary accruals and current sales growth. It also estimates the subsequent regression for each two-digit SIC-year grouping as:

$$\Delta REC = \alpha + k\Delta Sales + \varepsilon \qquad (6a)$$

The expected change in accounts receivable for a particular change in sales is captured by the slope coefficient (k) of this regression model. The model only includes the unpredicted portion of changes in accounts receivable in the discretionary accruals. Therefore, the full amount of change is deducted and added back to the expected change (which is k multiplied by the change in sales). This model is estimated for each two-digit SIC-year group as follows:

$$\textit{Total Accruals} = \alpha_1 + \alpha_2 ((1+k) \Delta REV - \Delta REC) + \alpha_3 (PPE) + \varepsilon \qquad (6b)$$

Dechow et al. (2003) argue that some portion of accruals are knowable based on the previous year's accruals. Because of this, they include the lagged value of total accruals (*Lag TA*) to capture the predictable component. This lagged model is:

$$Total\ Accruals = \alpha_1 + \alpha_2 ((1+k)\ \Delta REV - \Delta REC) + \alpha_3 (PPE) + \alpha_4 (Lag\ TA) + \varepsilon \quad (7)$$

In the final stage, they incorporate future sales growth in the model. They argue that accruals by their nature are intended to soften the reporting of financial transactions. They give an example to support this argument, which is that an increase in inventory may be the result of expected growth in future sales. This increase is not a type of earnings management. The problem with the modified Jones model is that it does consider this increase as earnings management. They incorporate a measure of future sales growth, *GR-Sales*, to determine this portion of accruals. They estimate the Forward-Looking Model as follows:

$$Total\ Accruals = \alpha_1 + \alpha_2 ((1+k)\ \Delta REV - \Delta REC) + \alpha_3 (PPE) + \alpha_4 (Lag\ TA) + \alpha_4\ GR\text{-}Sales + \varepsilon (7)$$

Where:

$$GR\text{-}Sales = (Sales_t - Sales_{t-1}) / Sales_t.$$

All the variables in the above mentioned models are scaled by average total assets.

4.4.8 Qualified Disagreement

Researchers have used different measures and approaches with regard to audit opinion type. Krishnan and Stephens (1995) classified audit opinions into three groups—unqualified; asset realisation qualifications; and going concern qualifications—and coded this opinion variable 1, 2 and 3 respectively. Haskins and Williams (1990) classified audit opinions into four groups: unqualified, subject to, non-consistency 'except for', and disclaimers. They coded these groups from 1 to 4 respectively. Others studies (Chow and Rice, 1982, Schwartz and Menon, 1985, Williams, 1988a, Lennox, 2000, Woo and Koh, 2001, Hudaib and Cooke, 2005) classified audit opinions into two groups: qualified and unqualified. They used a dummy variable equal to 1 if the audit opinion was qualified and 0 otherwise. In light of these studies and the argument that the qualifications resulted from disagreement between managers and auditors—i.e., violation of GAAP or client imposed scope limitations are more likely to result in auditor switching—a dummy variable was used as a proxy for qualification disagreement. The dummy variable was equal to 1 if audit opinion was qualified, because of the violation of GAAP or client imposed scope limitations, and 0 otherwise.

4.4.9 Competition

The establishment of the IACPA in 2001 increased competition in the audit market and provided greater opportunity for TSE listed companies to select their auditor. A dummy variable was used to capture the effects of the increased competition. This dummy variable was 0 for the years 1999-2001 and 1 for years the 2002-03. The year of establishment, 2001, was considered as part of the years before the increased competition sub-period for the following reasons. First, the establishment took place after the annual general meetings of TSE listed companies, which means that companies had already selected their auditors. Second, 2001 may have been a year of bargaining between companies and auditors. During this year, companies may have attempted to convey what they expected from their auditors and tried to convince or threaten them to follow the company line, because auditor switching is costly. It also takes time for companies to know newcomers to the audit market. Because of this uncertainty; companies may have delayed switching decisions during the period of transition.

4.5 Control Variables

To control for the possible effects of other factors that may affect TSE listed companies' decision to switch auditors, three additional variables were included in the model. These variables are: qualified opinion other than for disagreement; client size; and industry.

4.5.1 Qualified Other than Disagreement

This variable was included to examine whether audit qualifications for reasons other than a violation of GAAP and client imposed scope limitations impacted on auditor switching. Although this type of qualification may have fewer negative effects on management compensation and market prices, it may be considered by shareholders and debtholders as a sign of potential risk to their interests in the company. With regard to the role of audit services as a means of increasing the reliability of audited financial statements, shareholders and debtholders may be less interested in associating with companies that have received a qualified audit opinion regardless of the reasons for the audit qualification. These companies may be considered less reliable with regard to their presented financial positions and performance compared with companies with an unqualified audit report. This may increase the cost of capital for these companies, encouraging them to switch auditors in the hope of receiving an unqualified audit report

in the following year. Similar to the qualification disagreement variable, a dummy variable was used as a proxy for qualification other than disagreement. The dummy variable was equal to 1 if the audit opinion was qualified due to reasons other than a violation of GAAP or client imposed scope limitations and 0 otherwise.

4.5.2 Client Size

Consistent with other studies on auditor switching (e.g., Francis and Wilson, 1988, DeFond, 1992), client size was included as a control variable. The literature (Healy and Lys, 1986, Piot, 2001) suggests that there is a positive correlation between auditor size and client size because auditors must reach a sufficient size (i.e., have available human and technical resources) to audit large clients. On the other hand, small auditors may do better auditing small clients because of their competitive advantage (e.g., lower fixed costs).

Studies examining the effects of size on auditor switching have used different approaches and proxies with inconsistent results. Some studies (Francis and Wilson, 1988, Johnson and Lys, 1990) investigated the association between client size and demand for differentiated audit quality. They used the natural logarithm of total assets as a proxy for size. Unlike Johnson and Lys (1990), Francis and Wilson (1988) did not find a significant association between client size and demand for different levels of audit quality leading to auditor switching. Other studies (Schwartz and Menon, 1985, Haskins and Williams, 1990) examined the association between client size and auditor switching only (regardless of whether there was a change in auditor). Sales revenue was used as a measure of size. Schwartz and Menon (1985) found a significant association between client size and auditor switches while Haskins and Williams (1990) did not. Woo and Koh (2001) examined the association between client size and auditor switches (regardless of whether there was a change in auditor) as well as demand for different levels of audit quality (the direction of auditor switches). The square root of assets (inflation-adjusted) was used as a proxy for size. They found a significant positive association between client size and switches to higher quality auditors only.

Piot (2001) argues that in studies examining the association between agency costs and audit quality, the size variable is used to proxy for differential audit efforts from one client to another. Therefore, size measures derived from market capitalisation are not

proper because they include a goodwill (or badwill) element, which is outside the scope of an audit. Therefore, traditional size proxies (e.g., total assets and sales) are more appropriate. Given this argument and the results of prior studies (Schwartz and Menon, 1985, Haskins and Williams, 1990), the natural logarithm of total revenue was used as a measure of size in this study.

4.5.3 Industry

Variations in operating conditions, legal requirements, firm features and industries can cause differences in the percentage of auditor switching among auditors, which in turn reflects audit industry differences (Chow and Rice, 1982). For example, complex companies may need complex accounting and reporting systems, which require advanced information systems. Auditing such complex systems requires specialisation or specific technical competence, which is provided by particular auditors (of high quality). The complexity of the company may affect auditor selection inasmuch as the company searches for an auditor who has the capacity to meet its needs (Piot, 2001). The DeAngelo (1982) findings also suggest that certain companies may be more likely to switch auditors because of pressure created by industry-specific environmental variables (e.g., the controversy surrounding accounting for oil and gas activities). Therefore, to control for the possible effects of the industry on auditor switching by TSE listed companies, industry dummy variables were included in the model. A dummy variable was used for each industry. This variable was coded as 1 for each related industry and 0 otherwise. The industries include: Equipment; Oil and Petrochemical; Investment; Medical and Chemical; Alimentary and Drinking; Basic Metals; Carton; Rubber and Plastic; Electric Machinery; Metal and Non-Metal Minerals; Textile; and Automotive. This industry classification is based on the TSE classification of listed companies.

Chapter 5 - Data and Descriptive Statistics

5.1 Introduction

This chapter describes the study period, the population of interest and the sample in terms of the dependent and independent variables. Its main purpose is to assess the reliability of the data and representativeness of the sample.

5.2 The Study Period

The study period is 1999 to 2003. This period was selected because it covers the two important regulatory changes that could have had significant effects on auditor changes in the TSE. These changes were the implementation of the privatisation policy-Third Plan (2000-04) and the establishment of the IACPA in 2001.

5.3 Population of Interest

The population of interest includes all the companies listed on the Tehran Stock Exchange (TSE) from 1999 to 2003, which totals 1,654 firm-years. It can be seen from Table 5.1 that the number of companies listed on the TSE increased from 296 in 1999 to 386 in 2003, which is a 30 per cent increase. The highest percentage (14%) was in 2003 and the lowest (4%) was in 2001. There were 13 industries registered on the TSE until 2000. From that time it increased to 18 as new companies operating in different industries listed on the TSE. The industry groups on the TSE include: Equipment; Oil and Petrochemical; Investment; Medical and Chemical; Alimentary and Drinking; Basic Metals; Carton; Rubber and Plastic; Electric Machinery; Metal and Non-Metal Minerals; Textile; Automotive; Communication Devices; Administrative and Accounting Machinery; Agricultural and Animal Husbandry; Informatics Services; Building; and Medical Equipment. The largest industry group was Metal and non-Metal Minerals, with 66 companies listed during the sample period. The smallest industry group until 2000 was Communication Devices, which had four companies listed. The data presented in Table 5.1, especially the percentage increase in the number of listed companies (30%) supports the idea that the implementation of the privatisation policy created significant changes in the TSE (capital market).

Table 5.1 TSE Listed Companies during the Research Period by Industry

Industries	*1999*	*2000*	*2001*	*2002*	*2003*	*Total*	*% Total*
Equipment	29	29	29	30	33	150	9%
Oil & Petrochemical	10	10	10	10	11	51	3%
Investment	18	19	20	20	28	105	6%
Medical & Chemical	38	41	43	47	50	219	13%
Alimentary & Drinking	41	42	43	44	45	215	13%
Basic Metals	29	31	32	32	37	161	10%
Carton	13	13	13	13	13	65	04%
Rubber & Plastic	13	13	13	14	16	69	04%
Electric Machinery	8	9	9	12	14	52	03%
Metal & Non-Metal Minerals	45	47	48	51	66	257	16%
Textiles	26	29	29	29	29	142	9%
Automotive	22	22	25	25	31	125	8%
Communication Devices	4	4	5	5	5	23	1.4%
Administrative & Accounting Machinery		1	1	1	1	4	0%
Agricultural & Animal Husbandry		1	1	1	1	4	0%
Informatics Services				1	1	2	0%
Building			2	3	4	9	.6%
Medical Equipment					1	1	0%
Total	296	311	323	338	386	1,654	
% Total	18%	19%	19.5 %	20.4 %	23%		1

5.4 Descriptive Statistics

Data had to be collected from 1998 to 2003 because data related to one year before the auditor switches was required. Although the population of interest includes all companies (1,654 firm-years) listed on the TSE for the period 1999 to 2003, the files of 1,455 (88%) firm-years of the TSE library were examined (Table 5.2).[36] The difference between the population and the number of companies examined (199) occurred because the files related to some firms were not available in the TSE library. Many of the available financial reports were also incomplete or had pages removed. After firms with missing data were eliminated, the final sample comprised 736 firm-year observations, which represents 44.5 per cent of the population (Table 5.3).

A comparison of the population (Table 5.1), the examined companies (Table 5.2) and the final sample (Table 5.3) indicates that the Metal and Non-Metal Minerals group has the highest percentage of companies included in all the Tables (16%, 15% and 16% respectively). The Medical and Chemical group and Alimentary and Drinking group have the second highest percentage (13%, nearly 14% and 15% respectively) and the Basic Metal group has the third highest percentage (10%). Administrative and Accounting Machinery group, Agricultural and Animal Husbandry group, Informatics Services group and Medical Equipment group have the lowest percentage (0%) in all the tables. With regard to time period, the figures also indicate that the highest percentage of companies included in the population (23%) relates to 2003, the highest percentage of companies included in the examined companies (20.5%) refers to 2001 and 2003 and the highest percentage of companies included in the final sample (23%) relates to 2001. The lowest percentage of companies included in the tables relates to 1999 (18%, 19% and 15% respectively). Generally, the figures presented in the tables indicate that the distribution of companies across the industries and years is nearly the same for all the tables.

Although the ratio of companies presented in the final sample to the population varies, there are no significant differences between industries and years (Table 5.3). For example, the ratio of companies presented in the final sample to the population related

[36] One of the main differences between this study and similar studies in developed countries such as the US and the UK with regard to the data collection process is that in developed countries this data is usually available online. Researchers of the TSE have to go to the TSE library and collect data manually rather than extract it from electronic databases.

to Medical and Chemical group, Alimentary and Drinking group, Carton group, Electric Machinery group and Automotive group varies from 52 per cent to 54 per cent. The ratio of companies presented in the final sample to the population related to Investment group, Basic Metals and Metal and Non-Metal Minerals group varies from 44 per cent to 46 per cent. With regard to years, the ratio of companies presented in the final sample to the population related to 2000, 2001 and 2002 varies from 49 per cent to 51 per cent. The other years (1999 and 2003) have nearly the same ratio (37% and 36% respectively). These years have the lowest percentage because their related files were not available in the TSE library. The variation in the ratio of companies presented in the final sample to the population is caused by the missing data.

5.4.1 Missing Data

Two tests were done to identify any sample bias that listwise deletion might cause. First, a chi-square test was run for each variable based on valid and missing data with regard to the dependent variable of auditor switches (Table 5.4). It can be seen from Table 5.4 that there is a systematic relationship between the missing data and the dependent variable for two of the independent variables: debt and shares. Given this problem, these variables were not included in the main model. Second, the main model was run with missing values replaced with mean values and with the cases included in the final sample (736). The missing data were replaced by the series mean and missing data were replaced by the mean of nearby points provided by the statistical software package SPSS. The results indicate no significant difference in the results of the model run with the replaced missing data and the model run with the cases in the final sample.[37] This suggests that no significant bias in the results was caused by the deletion of cases with missing data.

[37] There may be some concerns about applying the mean values as they may not be a good representative of the missing values.

Table 5.2 TSE Listed Companies with Available Data by Industry

Industries	*1999*	*2000*	*2001*	*2002*	*2003*	*Total*	*% Total*	*% Population*
Equipment	28	27	28	28	27	138	9%	92%
Oil & Petrochemical	10	10	9	10	10	49	3%	96%
Investment	17	18	18	19	20	92	6%	88%
Medical & Chemical	36	38	40	40	40	194	13.3%	89%
Alimentary & Drinking	39	42	42	42	41	206	14%	96%
Basic Metals	27	29	30	30	30	146	10%	91%
Carton	10	10	10	10	10	50	3.4%	97%
Rubber & Plastic	12	13	13	12	13	63	4%	91%
Electric Machinery	8	9	9	9	9	44	3%	85%
Metal & Non-Metal Minerals	39	42	46	46	46	219	15%	85%
Textiles	26	25	24	22	22	119	9%	84%
Automotive	22	22	23	22	23	112	8%	90%
Communication Devices	4	4	5	5	5	23	2%	100%
Administrative & Accounting Machinery	-	-	-	-	-	-	0%	0%
Agricultural & Animal Husbandry	-	-	-	-	-	-	0%	0%
Informatics Services	-	-	-	-	-	-	0%	0%
Building	-	-	-	-	-	-	0%	0%
Medical Equipment	-	-	-	-	-	-	0%	0%
Total	*278*	*289*	*297*	*295*	*296*	*1,455*		
% Total (1,455)	*19%*	*20%*	*20.5%*	*20%*	*20.5%*		*1*	*88%*
% Population	*94%*	*93%*	*92%*	*87%*	*77%*			

Table 5.3 TSE Listed Companies Included in the Final Sample (no Missing Data) by Industry

Industries	*1999*	*2000*	*2001*	*2002*	*2003*	*Total*	*% Total*	*% Population*
Equipment	11	11	7	12	11	52	7%	35%
Oil & Petrochemical	-	-	5	8	7	20	3%	39%
Investment	7	9	11	10	9	46	6%	44%
Medical & and Chemical	20	24	22	27	20	113	15%	52%
Alimentary & Drinking	21	23	25	26	18	113	15%	53%
Basic Metals	8	14	18	17	16	73	10%	45%
Carton	7	9	6	7	6	35	5%	54%
Rubber & Plastic	3	9	8	-	-	20	3%	29%
Electric Machinery	5	-	6	7	8	26	4%	50%
Metal & Non-Metal Minerals	18	26	25	25	24	118	16%	46%
Textiles	5	12	16	12	8	53	7%	37%
Automotive	5	17	16	16	13	67	9%	54%
Communication Devices	-	-	-	-	-	-	0%	0%
Administrative & Accounting Machinery	-	-	-	-	-	-	0%	0%
Agricultural & Animal Husbandry	-	-	-	-	-	-	0%	0%
Informatics Services	-	-	-	-	-	-	0%	0%
Building	-	-	-	-	-	-	0%	0%
Medical Equipment	-	-	-	-	-	-	0%	0%
Total	*110*	*154*	*165*	*167*	*140*	*736*		
% Total (736)	*15%*	*21%*	*22%*	*23%*	*19%*		*1*	*44.5%*
% Population	*37%*	*50%*	*51%*	*49%*	*36%*	*44.5%*		

Table 5.4 The Results of Chi-Square Test for Each Variable

Variables	*No auditor switches*		*Auditor switches*		*Chi-square*
	Valid	*Missing*	*Valid*	*Missing*	
Privatisation	1,076	139	121	15	.020
Alignment	1,146	69	131	5	.947
Ownership	1,151	64	131	5	.639
ΔLeverage	1,048	167	121	15	.774
Debt	974	241	74	62	46.62*
Shares	978	237	86	50	21.77*
ΔManagement	1,062	153	117	19	.209
EarnMgt-Jones	945	270	110	26	.689
EarnMgt-Dechow et al.	900	315	109	27	2.386
QualDisagree	958	257	110	26	.306
QualOther	958	257	110	26	.306
Size	1,151	64	131	5	.639

Note: For significance at the 5% level, the value of the chi-square statistic should be greater than or equal to 3.84.

* The hypothesis of independence of missing values and auditor changes is rejected at the 5% level of significance.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; Debt is a dummy variable equal to 1 if there is more than a 5% increase in the balance of debt in the next year, 0 otherwise; Share is a dummy variable equal to 1 if there is more than a 5% increase in the number of outstanding shares in the next year, 0 otherwise; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt-Jones is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; EarnMgt-Dechow et al. is discretionary accruals measured using the Dechow et al. model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

5.4.2 Auditor's Market Share

Most of the observations in the final sample (57.9%) were audited by public sector auditors during the research period. Table 5.5 indicates that the audit market was dominated by public sector auditors before the establishment of the IACPA in 2001. This coincides with significant rapid growth (98%) in the private sector auditors' market share after the establishment of the IACPA in 2001. The private sector auditors' market share increased from 32.1 per cent in 2001 to 63.6 per cent in 2003.[38] This supports the argument that the establishment of the IACPA created significant changes in the audit market.

Table 5.5 Auditors' Market Share by Auditor Type

Year	*Type of auditors*	
	Public sector	*Private sector*
1999	66.4%	33.6%
2000	66.2%	33.8%
2001	67.9%	32.1%
2002	52.7%	47.3%
2003	36.4%	63.6%
Total	*57.9%*	*42.1%*

Note: The presented percentages are based on the number of clients.

5.4.3 Dependent Variable: Auditor Switching

Auditor switches from 1999 to 2003 are listed in Table 5.6. There were 74 auditor switches during this period, which represents about 10.1 per cent of the sample cases. The largest percentages of companies switching auditors occurred in 2002 (15.6%) and 2003 (19.3%) after the establishment of the IACPA in 2001. This is consistent with the argument that increased competition in the audit market increased the likelihood of auditor switching by TSE listed companies.

The lowest percentage of changes (1.8%) was in the same year as the establishment of the IACPA (2001). There are three possible reasons for this. First, the IACPA was established after the annual general meetings of the companies, which means that they

[38] 98% = (63.6%-32.1%)/32.1%.

had already chosen their auditors before the establishment so they had fewer options to change auditors.[39] Second, 2001 may have been a year of bargaining between companies and auditors. Companies may have conveyed what they expected from auditors and tried to convince or threaten them to fulfil those expectations. If their auditors did not comply, they may have been replaced by new ones. Third, companies were waiting for the market to settle down. Companies may have delayed switching decisions during the period of transition as they may have had little information about newcomers to the market to make a logical auditor switching decision.[40] The results of this process may have been reflected in the following years (2002 and 2003), when there was a very significant increase (15.6% and 19.3% respectively) in auditor switches. These reasons support the argument for considering the year of the IACPA's establishment (2001) as part of the years before the establishment sub-period (1999-2000).

Table 5.6 also presents the distribution of auditor switching between different types of auditors (public versus private) during the research period. The aim of the examination was to identify different types of auditor switches and whether there were any differences among them. There are three possible directions for auditor switches: public to private, private to private and private to public. It can be seen from Table 5.4 that most of the auditor switches (64.9%) were from the public to the private sector and that 43 of the 48 changes occurred after the establishment of the IACPA in 2001. The table also shows that 29.7 per cent of switches occurred within the private sector. Three out of four switches from private to public sector auditors occurred before the establishment of the IACPA.

[39] The IACPA was established nearly two months after the annual general meetings of most companies.
[40] It may take time for companies to know the new auditors, which provides them with a basis for making decisions about auditor switches.

Table 5.6 Auditor Switches 1999-2003

		Auditor changes		*Type of auditor change*		
Year	n	Number	Percentage of companies switching auditors	Public to private	Private to private	Private to public
1999	110	7	6.4%	1	3	3
2000	154	11	7.1%	3	8	0
2001	165	3	1.8%	1	2	0
2002	167	26	15.6%	20	5	1
2003	140	27	19.3%	23	4	0
Total	*736*	*74*		*48*	*22*	*4*

The industry distribution of auditor switches is presented in Table 5.7. The main aim of this analysis was to identify whether there were any biases in auditor switches across the different industries. The largest percentage of auditor switches (35%) was in Oil and Petrochemical group. The Electric Machinery group had the second largest percentage (15.4%) of auditor switches. The investment group had 2.2% of auditor switches during the research period. In 1999, only companies in four industries switched auditors. These were: Equipment (1), Alimentary and Drinking (3), Basic Metals (1) and Metal and Non-Metal Minerals (2). In 2000, the largest number of auditor switches (4) related to Medical and Chemical group. In 2002, Oil and Petrochemical group had the largest number of auditor switches (5) while, in 2003, Medical and Chemical group had the largest number of auditor switches (8). A Kruskal-Wallis test revealed a significant difference (p=.005) among industries in relation to auditor switching.[41] This result suggests that different industries may have different effects on auditor switches. For example, the likelihood of auditor switching by companies operating in Oil and Petrochemical group may be high because of controversy surrounding accounting for oil and gas activities, as suggested by the DeAngelo (1982) findings.

[41] The p here refers to Asymp. Sig., which is provided in the SPSS output.

Table 5.7 Auditor Switches by Industry

Industries	*1999*		*2000*		*2001*		*2002*		*2003*		*Total*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Equipment	1	9.1	-	-	-	-	3	25	1	9.1	5	9.6
Oil & Petrochemical	-	-	-	-	2	40	5	62.5	-	-	7	35
Investment	-	-	-	-	-	-	-	-	1	11.1	1	2.2
Medical & Chemical	-	-	4	16.7	-	-	3	11.1	8	40	15	13.3
Alimentary & Drinking	3	14.3	-	-	-	-	3	11.5	1	5.6	7	6.2
Basic Metals	1	12.5	3	21.4	-	-	2	11.8	4	25	10	13.7
Carton	-	-	-	-	-	-	-	-	3	50	3	8.6
Rubber & Plastic	-	-	2	22.2	-	-	-	-	-	-	2	10
Electric Machinery	-	-	-	-	-	-	3	42.9	1	12.5	4	15.4
Metal & Non-Metal Minerals	2	11.1	1	3.8	-	-	3	12	6	25	12	10.2
Textiles	-	-	-	-	1	6.3	3	25	2	25	6	11.3
Automotive	-	-	1	5.9	-	-	1	6.3	-	-	2	3
Total	*7*	*6.4*	*11*	*7.1*	*3*	*1.8*	*26*	*15.6*	*27*	*19.3*	*74*	*10.1*

Note: N = number of auditor switching, % = percentage of auditor switching.

5.4.4 Privatisation

Table 5.8 shows that the percentage of companies privatised was only 2.3 per cent (17), suggesting that privatisation may not be a significant reason for auditor switching in TSE listed companies. However, the government's privatisation policy is progressing because the number and percentage of government controlled companies decreases over time. Based on the total population of TSE listed companies, in 1999, 35 per cent of TSE listed companies were government controlled (greater than 50% government ownership) while in 2003 it was 27 per cent. In 1999, the average government ownership percentage across all TSE listed companies was 36 per cent. By 2003, this had fallen to 26 per cent.

5.4.5 Auditor-Client Alignment

Table 5.8 shows that there is auditor-client alignment in most TSE listed companies (58.2%). This implies that government controlled companies tend to have public sector auditors and private sector controlled companies tend to have a private sector auditor.

5.4.6 Ownership

Ownership is measured using the number of shareholders with more than five per cent equity. Table 5.8 shows that the ownership variable has a mean of 2.61 and a standard deviation of 1.33. The minimum number of large shareholders in TSE listed companies is zero and the maximum number is 10.

5.4.7 Changes in Leverage

Table 5.8 shows that the changes in leverage variable has a mean of 6.9 per cent and a standard deviation of 13.6 per cent. This variable also a minimum of .00 and a maximum of 72 per cent.

5.4.8 Issuing New Debt

Although the number of companies with available data (553) for this variable is significantly less than for the other variables, most of these companies (69.3%) issued new debt during the sample period (Table 5.8).

5.4.9 Issuing New Shares

Similar to the debt variable, the available data for the shares variable (572) is significantly less than for the other variables. The data presented in Table 5.8 shows that only 31 per cent of the companies with available data issued new shares during the sample period.

Table 5.8 Descriptive Statistics

Variables	*N*	*Mean or %*	*Standard Deviation*
Privatisation	736	2.3%	
Alignment	736	58.2%	
Ownership	736	2.61	1.33
ΔLeverage	736	6.9%	13.6%
Debt	553	69.3%	
Shares	572	31%	
ΔManagement	736	27%	
EarnMgt-Jones	736	0.0	0.19
EarnMgt-Dechow et al.	703	0.0	0.15
QualDisagree	736	79.2%	
Competition	736	41.7%	
QualOther	736	9.2%	
Size	736	214,069	937,321

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; Debt is a dummy variable equal to 1 if there is more than a 5% increase in the balance of debt in the next year, 0 otherwise; Share is a dummy variable equal to 1 if there is more than a 5% increase in the number of outstanding shares in the next year, 0 otherwise; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt-Jones is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; EarnMgt-Dechow et al. is discretionary accruals measured using the Dechow et al. model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

5.4.10 Changes in Management

It can be seen from Table 5.8 that 27 per cent of the sample changed their CEO. This high rate of management changes may imply that this variable may be a significant reason for auditor switches by TSE listed companies.

5.4.11 Qualified Disagreement

Table 5.8 shows that the majority of the sample (79.2%) received a qualified disagreement audit opinion. It was apparent during the data collection period that differences in the interpretation of tax laws by companies, auditors and the tax office were a significant reason for many companies receiving qualified opinions. There were also long gaps between the submission of tax returns and their processing by the tax office. Tax returns are processed up to three months after the issuance of financial reports. Companies in Iran usually allocate a reserve or allowance for tax at the end of each financial year. The adequacy of this amount and uncertainty about whether the tax office will accept or reject the amount is the primary reason for qualified opinions being received by TSE listed companies. Therefore, disagreements between auditors and clients over the adequacy of the provision for tax payable and the interpretation of tax laws can increase the likelihood of auditor switching in TSE listed companies.[42]

5.4.12 Competition

It can be seen from Table 5.8 that 41.7 per cent of the observations are related to the period in which competition increased (2002-03). This high percentage provides a good opportunity to examine whether increased competition impacts on companies' decision to switch auditors.

5.4.13 Qualified other than Disagreement

Table 5.8 shows that only 9.2 per cent of TSE listed companies included in the sample received a qualified audit opinion caused by reasons other than a violation of GAAP or client imposed scope limitation. This low rate of qualification implies that this variable is not a significant reason for auditor switches by TSE listed companies.

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[42] According to the collected data, 76.5% of TSE listed companies received a qualified audit report because of the explained tax related issues.

5.4.14 Client Size

The data presented in Table 5.8 indicates that the size variable has a mean of 214,069 and a standard deviation of 937,321. The minimum size of the observations is 11 and the maximum is 18,797,213.

5.4.15 Earnings Management

Earnings management is measured as: discretionary accruals based on the modified Jones model; and discretionary accruals based on the Dechow et al. (2003) model. From Table 5.8, it can be seen that the discretionary accruals modified Jones model variable has a mean of 0.0 per cent and a standard deviation of 19 per cent. The discretionary accruals Dechow et al. variable has a mean of 0.0 per cent and a standard deviation of 15 per cent. The data indicate that earnings management existed in nearly all the companies (99%).

The descriptive statistics (means) related to the discretionary accruals modified Jones model variable are presented by industry in Table 5.9. These figures are calculated per year and per industry. It can be seen from Table 5.9 that the mean of the discretionary accruals are different in different industries as well as different years for both switching and non-switching companies. In 1999, the Basic Metals group, on average, had the largest level of negative discretionary accruals (-16.9%) in switching companies while in the same year the Automotive group had the largest level of negative discretionary accruals (-17.6%) in non-switching companies. The level of the discretionary accruals in the Investment group for non-switching companies was -5.4 per cent in 1999 while it became nine per cent in 2003.

The descriptive statistics (means) related to the discretionary accruals Dechow et al. (2003) model variable are presented by industry in Table 5.10. These figures are calculated per year and per industry. Similarly to the Jones model, the levels of the discretionary accruals estimated by the Dechow et al. model are different in different industries as well as different years for both switching and non-switching companies. Table 5.10 shows that, in 2001, the Textiles group had the largest level of negative discretionary accruals (-14.1%) in switching companies as well as the largest level of positive discretionary accruals (7.1%) in non-switching companies. In 2002, the Metal

and Non-Metal Minerals group had the largest level of negative discretionary accruals (-13.5%) in switching companies while, in 2003, the Alimentary and Drinking group had the largest (-13.4%).

The data presented in Table 5.9 and Table 5.10 indicates that, on average, auditor switching companies have mostly income-decreasing earnings management (negative discretionary accruals). This suggests that auditors' preference for conservative accounting choices may have increased the likelihood of auditor switching in these companies. The data also implies that the likelihood of auditor switching may be different in different industries and years with regard to earnings management. The tables show that earnings management became mainly income-increasing following the increased competition in the audit market (2001). Increased competition may have forced auditors to be more cooperative with their clients, resulting in a lower level of audit quality.

Table 5.9 Mean of Discretionary Accruals Using the Modified Jones Model: Industry by Industry

Industries	*1999*		*2000*		*2001*		*2002*		*2003*	
	Sw	*No-Sw*	*Sw*	*No-Sw*	*Sw*	*No-Sw*	*Sw*	*No-Sw*	*Sw*	*No-Sw*
Equipment	.137	-.031	-	-.078	-	-.001	.034	.001	.090	-.005
Oil & Petrochemical	-	-	-	-	-.181	.073	.006	.006	-	.042
Investment	-	-.054	-	-	-	.025	-	-.010	-.117	.090
Medical & Chemical	-	-.031	-.156	-.071	-	.043	-.021	.006	-.090	.093
Alimentary & Drinking	-.056	.022	-	-.049	-	-.023	-.029	.023	-.231	.022
Basic Metals	-.169	-.014	-.090	.140	-	-	.034	.020	-.009	.020
Carton	-	-.015	-	-	-	.027	-	-.009	.017	.057
Rubber & Plastic	-	.063	-.084	-.014	-	-.026	-	-	-	-
Electric Machinery	-	.002	-	-	-	.002	-.165	.125	-.111	.016
Metal & Non-Metal Minerals	-.088	.023	-.367	.085	-	.010	-.172	.035	.017	-.016
Textiles	-	.002	-	-.079	-.107	.051	-.056	-.022	-.048	-.008
Automotive	-	-.176	.408	-.005	-	-.023	.021	-.028	-	-.018
Total	*-.054*	*-.014*	*-.093*	*-.006*	*-.156*	*.009*	*-.043*	*.011*	*-.040*	*.021*

Note: Sw = auditor switching companies, No-Sw = non-auditor switching companies.

Table 5.10 Mean of Discretionary Accruals Using the Dechow et al. Model: Industry by Industry

Industries	*1999*		*2000*		*2001*		*2002*		*2003*	
	Sw	*No-Sw*	*Sw*	*No-Sw*	*Sw*	*No-Sw*	*Sw*	*No-Sw*	*Sw*	*No-Sw*
Equipment	.079	-.058	-	-.019	-	.017	.031	-.002	.202	-.007
Oil & Petrochemical	-	-	-	-	.031	.016	-.004	.010	-	-.026
Investment	-	-.077	-	.004	-	.006	-	-.006	.033	.059
Medical & Chemical	-	-.012	-.172	-.049	-	.031	.003	.001	-.095	.053
Alimentary & Drinking	-.118	.023	-	-.034	-	-.020	-.014	.039	-.134	.060
Basic Metals	-.127	-.034	-.185	.088	-	-.002	.006	.021	.007	.011
Carton	-	-.006	-	-	-	-.002	-	-.026	-	-
Rubber & Plastic	-	.058	-.061	.001	-	-.003	-	-	-	-
Electric Machinery	-	.029	-	-	-	.029	-.131	.034	-.30	.043
Metal & Non-Metal Minerals	-.153	-.060	-.215	.057	-	-.003	-.135	.030	.007	-.001
Textiles	-	-.046	-	-.082	-.141	.071	-.030	-.038	.089	.005
Automotive	-	-.037	.152	.021	-	-.006	-.065	-.034	-	.004
Total	*-.101*	*-.021*	*-.130*	*-.001*	*-.026*	*.009*	*-.037*	*.007*	*-.030*	*.022*

Note: Sw = auditor switching companies, No-Sw = non-auditor switching companies

Chapter 6 - Results and Discussion

6.1 Introduction

This chapter presents the results of estimating the logistic regression model described in Chapter 4. The chapter commences with an examination of the statistical power of the model. A discussion of the independent variables is then presented. The results show that Alignment, ΔManagement, EarnMgt-modified Jones model, QualDisagree, Competition, Size, and some industry specifications are significant auditor switching factors in TSE listed companies. Multicollinearity diagnostic statistics are then described. The results indicate no multicollinearity problem among the independent variables. Finally, the results of additional tests to examine the robustness of the main model and the results are discussed. The implications of the main results will be presented in Chapter 7.

6.2 Multivariate Analysis

The results for the logistic regression model are presented in Table 6.1. The logistic regression model is statistically significant (p = .000), indicating a good fit. The model correctly classifies 90.1 per cent of the sample. This percentage is higher than in previous studies. For example, Williams's (1988a) logistic regression model of auditor switching correctly predicted 66.1 per cent of the variance. The model used by Woo and Koh (2001) which examined the factors associated with auditor switching had an accuracy rate of 67.59 per cent. The results are presented in the following sections in accordance with the hypotheses detailed in Chapter 3. For the purpose of this study, the level of significance was set at 10 per cent. As discussed in Chapter 5, there is a systematic relationship between the missing data and the dependent variable for the debt and shares variables. Because of this problem and the fact that including these variables in the main model would reduce the sample size significantly (from 736 to 543), they were not included in the main model. However, they will be included in the main model along with other independent variables in further analyses following the presentation of the main results.

Table 6.1 Logistic Regression Estimates for the Main Model

(Dependent variable is change (1) or no change (0) in auditors)

Variables	*β*	*p value#*
Privatisation	-.988	.190
Alignment	-.688	.005
Ownership	.088	.180
ΔLeverage	.210	.409
ΔManagement	.809	.002
EarnMgt-modified Jones model	-1.707	.009
QualDisagree	.654	.076
Competition	1.605	.000
QualOther	.598	.335
Size	-.249	.023
Constant	-1.365	.307
Industry fixed effects	included	
Pseudo R Square	.197	
N	736	

Chi-square = 72.974; degrees of freedom = 13; probability = .000; -2 Log likelihood = 407.304.

These columns present one-tailed *p* values (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than the violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is a natural logarithm of total revenue for the previous year.

6.2.1 Privatisation

The coefficient for the privatisation dummy variable was not significant. Therefore, H1, which states that privatised companies are more likely to switch auditors in the year after privatisation, is not supported. It was hypothesised that privatised companies would have more incentives to switch auditors as a means of reducing their increased agency costs, signalling quality and alignment with auditors who better match their needs. Possible reasons for this result include the small number of cases involved and the appropriateness of the lag used. As discussed in Chapter 5, only a small number of companies (17) were privatised, so this may not be a sufficient number for any effect to be detected. This small number of privatised companies may imply that the privatisation policy was not so successful in achieving its objective of transferring government controlled companies to private sector shareholders. Anecdotal information supplied during the data collection process suggests that there were transfers of government ownership among different governmental agencies, such as banks, rather than transfers to private sector shareholders. Therefore, the objectives and ownership structure of many TSE listed companies may not have changed significantly and the new shareholders may have had the same preferences for auditors as the previous shareholders.

It may take longer than one year for the privatised companies to respond to the effects of the privatisation. For example, it may take more than one year for new shareholders to become familiar with a company's operations and for management to respond to new objectives and strategies. This may change company needs and create a demand for additional services, therefore leading to auditor switching. The lag may also be affected by switching costs and audit fees. Although data related to audit fees and non-audit services costs are not disclosed by many TSE listed companies, it may be economically necessary for the newly privatised companies to stay with their incumbent auditors.[43] Auditor switching may be costly. Some government controlled companies may also not have had a good financial position or performed well, and this situation would have continued after their privatisation for a time.[44]

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[43] Butterworth and Houghton (1995) found that audit fees and non-audit service costs increased after auditor switching in the Australian market.

[44] Villalonga (2000) argues that privatised companies may not demonstrate an efficiency improvement straight away after privatisation but they may show an increasing trend in the evolution of their post-privatisation efficiency.

6.2.2 Auditor-Client Alignment

Alignment is negative and significant (p=.005), which means that government controlled entities with a public sector auditor and private sector controlled companies with a private sector auditor are less likely to switch auditors. This result implies that the alignment between client type and auditor type in TSE listed companies reduces the likelihood of auditor switching. Conversely, corporations that do not have aligned auditors are more likely to switch.

This result is consistent with the argument that companies prefer auditors who can best match their needs. The finding is consistent with the Johnson and Lys (1990) argument that competition in the audit market induces clients and auditors to align themselves to achieve an efficient use of specialised resources investments. Alignment with a specialised auditor may allow management to obtain their required range of services at a lower price, which reduces the likelihood of auditor switching. This result is also consistent with other research (Burton and Roberts, 1967, Shockley, 1981, Addams and Davis, 1994, Beattie and Fearnley, 1998b) and suggests that companies are more likely to select or retain an auditor who better meets their needs.

6.2.3 Ownership

Ownership is not significant. Therefore, H3, which predicts a negative association between ownership concentration and auditor switching, is not supported. The result appears inconsistent with prior research, which has found a negative association between ownership concentration and switching (e.g., Woo and Koh, 2001 in Singapore). This inconsistency may be partly related to the fact that, in the TSE context, large shareholders include the government. Therefore, concerted actions by large shareholders is less likely because they may have less convergence of interests or views of corporate strategy compared with markets where all large shareholders are from the private sector. Large governmental shareholders in the company also have to appoint managers as a monitor to act on their behalf because they cannot directly participate in controlling and managing the investee companies as private sector large shareholders usually do. These managers will not do a good job of monitoring as owners (Admati et al., 1994, Hart, 1995), which increases the likelihood of opportunistic behaviour by management, leading to a greater demand for switching to higher quality auditors.

6.2.4 Changes in Leverage

ΔLeverage is not significant. Therefore, H4, which predicts a positive association between changes in leverage and auditor switching, is not supported. The result is inconsistent with prior US studies (Francis and Wilson, 1988, DeFond, 1992), which found a positive association between changes in leverage and switching to a higher level of auditor quality. The absence of a significant positive association here is consistent with the argument used by Anderson et al. (1993) that the existence of large shareholders (as is the case in many TSE listed companies) may mitigate conflicts of interest between large shareholders and debtholders. Large long-term shareholders, especially private sector shareholders, may be more concerned with mitigating conflicts of interest with debtholders than minority shareholders given the company's need to borrow in the future. The changes in leverage variable may be non-significant for TSE companies because many TSE listed companies may have relatively few conflicts of interest between shareholders and debtholders. Despite the implementation of the privatisation policy, the shareholders and debtholders (banks) in these companies are mainly controlled and owned by the government. This suggests a reduced agency risk (conflict) between shareholders and debtholders. As discussed in Chapter 5, the average change in leverage in TSE listed companies included in the sample was 6.9 per cent. This low rate of change in leverage may be one reason why ΔLeverage is not significant.

6.2.5 Changes in Management

ΔManagement is positive and significant (p=.002). This result is consistent with the hypothesis that changes in management (as reflected in changes in the CEO) increase the likelihood of auditor switching by TSE listed companies (H7). This result is consistent with prior research (Burton and Roberts, 1967 in the US, Carpenter and Strawser, 1971 in the US, Beattie and Fearnley, 1995 and 1998b in the UK, Woo and Koh, 2001 in Singapore), which has shown that changes in management increase the likelihood of auditor switching. The result is also consistent with the argument that new managers try to dissociate themselves from previous relationships and associate with familiar parties (Hudaib and Cooke, 2005) with whom they have a personal relationship (Seabright et al., 1992, Addams and Davis, 1994, Beattie and Fearnley, 1998b) or a preferred working relationship (Williams, 1988a, Courtney and Jubb, 2005).

In the Iranian context, where primary and personal relationships are far stronger than contractual and merely economic relationships (Jones, 1981), it is reasonable that new managers will try to dissociate themselves from previous relationships and associate with auditors with whom they have a preferred relationship. This result also suggests that, in TSE listed companies, the CEO plays a significant role in the auditor switching decision. This may signal a threat to auditors' independence; selected auditors may not perform as they should because of their relationships with the CEO and the CEO may use his or her role to threaten auditors (by switching) to comply with his or her wishes. This may affect audit quality and, eventually, public confidence in the audit profession. The policy implications of this finding for the Iranian regulators and the audit profession as well as other emerging markets are discussed in Chapter 7.

6.2.6 Earnings Management

The EarnMgt-modified Jones model variable is negative and significant (p=.009), which supports H8. TSE listed companies with income-decreasing earnings management (negative discretionary accruals) are more likely to switch auditors. Management's failure to manage earnings favourably appears to increase the likelihood of auditor switching. The finding implies that these managers switch auditors in the hope of hiring more cooperative auditors in the following year. The result is consistent with the findings by DeFond and Subramanyam (1998 in the US) that management failure to manipulate earnings upwards (income-increasing earnings management) increases the likelihood of auditor switching. The policy implications of this result are discussed in Chapter 7.

6.2.7 Qualified Audit Opinions

The QualDisagree variable is positive and significant (p=.076). This supports H9, which predicted that companies receiving a qualified audit opinion because of a GAAP violation(s) or client imposed scope limitations are more likely to switch auditors. This result is consistent with the argument established in prior studies (DeFond and Subramanyam, 1998, Antle and Nalebuff, 1991). It implies that disagreements between auditors and managers over the appropriate choice and application of GAAP increase the likelihood of auditor switching. Other studies (Chow and Rice, 1982, Teoh, 1992, Lennox, 2000, Hudaib and Cooke, 2005) have reported a positive significant association

between audit qualification in general and auditor switching. However, this more general relationship between qualification and switching is not supported here. The QualOther variable, which presents audit qualifications for reasons other than violations of GAAP and client imposed scope limitations, is not significant. As reported in Chapter 5, only 68 (9.2%) TSE listed companies included in the sample received this type of qualification. The low number that received this qualification, compared with the number for QualDisagree (583), may not be sufficient for detecting any relationship with switching. However, it is concluded that, for TSE listed companies, auditor switches are more likely to arise when qualifications reflect conflict between the auditor and management rather than inherent uncertainties or scope limitations not imposed by the client.

6.2.8 Competition

Competition is positive and significant (p=.000), which supports H10. Increased competition in the audit market, after the establishment of the IACPA in 2001, increased the likelihood of auditor switching. Increased competition is caused by the emergence of new private sector auditors who have different capacities and competitive advantages, which results in the provision of a range of services at different prices. This provides companies with more options to compare different services with different prices and select the one that matches their needs.

Clients in the audit market have different requirements. Therefore, increased competition in the market, which results in quality variation, increases the client's choice of auditors because they have more options for selecting auditors. This finding supports the Shockley (1981) and Beattie and Fearnley (1998b) argument that increased competition in the audit market increases the opportunities and incentives for companies to switch auditors. The policy implications of this result are discussed in Chapter 7.

6.2.9 Client Size

Size is negative and significant (p=.023). This result is consistent with prior UK research (Beattie and Fearnley, 1998b, Hudaib and Cooke, 2005), which found a negative and significant association between client size and the likelihood of auditor switches. This result indicates that the likelihood of auditor switching is greater for

smaller companies. There are various reasonable explanations for this result. This may happen because small TSE listed companies' auditor switching decisions may be more affected by third party capital providers, as suggested by Beattie and Fearnley (1998b) who may have different opinions regarding eligible auditors, leading to auditor switching. Smaller companies are more likely to receive a qualified audit report (Hudaib and Cooke, 2005), which increases their incentive to switch auditors. Large clients take advantage of their bargaining power over audit fees, which reduces their chance of being qualified by auditors (Firth, 1985).

Small companies are usually young and less well known to the public. They may depend mainly on obtaining external financing, although they are not well known to the market. Because of this they may try to engage a higher quality auditor who can increase the credibility of their financial statements, which decreases their borrowing and capital costs. This may result in smaller firms being more likely to switch auditors.

Auditing large clients requires more resources (i.e., human and technical), which are usually provided by a small number of large audit firms. This provides fewer choices of auditor for large companies. This result supports the argument that, when the association between agency costs and audit quality is examined, the size variable can be used to proxy for differential audit efforts from one client to another (Piot, 2001).[45]

6.2.10 Industry

Three of the industry dummy variables included in the main model are positive and significant. These industry dummy variables relate to the Oil and Petrochemical group (p=.001), the Medical and Chemical group (p =.049) and the Basic Metals group (p=.033). This result means that the likelihood of auditor switching varies across different industries and industry specifications may affect companies' decisions with regard to auditor switching. It also implies that the likelihood of auditor switching can be affected by factors that are less under the control of clients and auditors, such as different operating conditions, legal requirements and firm features across different industries (Chow and Rice, 1982). The result is also consistent with the suggestion by DeAngelo (1982) that particular companies (e.g., companies operating in the oil and gas

[45] Some large firms in Iran have to be audited by large auditors—i.e., the IAO.

industry) are more likely to switch auditors because of pressure created by industry-specific environmental variables.

6.3 Further Analysis

As mentioned earlier, because of the systematic relationship between the missing data and the dependent variable for the debt and shares variables as well as the high volume of missing data, these variables were not included in the main model (Table 6.1). To examine the association between these variables and auditor switching, they were included in the main model along with other independent variables in additional analyses. The results for the logistic model including these variables are presented in Table 6.2. The logistic regression model is statistically significant (p=.000), indicating a good fit. Debt is positive and significant (p=.086). This supports H5, which is that TSE listed companies willing to issue new debt are more likely to switch auditors before the issuance of new debt. This finding is consistent with prior US research (Francis and Wilson, 1988, Johnson and Lys, 1990).

The shares variable, which flags the issue of new shares in the subsequent year, is not significant. Therefore, H6, which predicts a positive association between issuing new shares and the likelihood of auditor switching before the issuance, is not supported. This result is inconsistent with US research (Francis and Wilson, 1988, Johnson and Lys, 1990), which has reported a significant association between the issuance of new shares and auditor switching. It is also inconsistent with the argument that companies raising equity capital have incentives to switch auditors as a means of signalling their private information to add more credibility to the financial statements (Downes and Heinkel, 1982, Francis et al., 1992). This inconsistency may be related to the data limitations and the time period (next year) considered. Companies may switch auditors two or three years in advance of any new shares being issued because it may take longer than one year for investors to fully respond to the effects of auditor switching. For example, investors may be interested to know the type of audit reports issued following the auditor switches and compare them to reports issued before the switch. This may give some assurance to the investors that the switch is not a means of opinion-shopping. Considering a longer time period (e.g., two years or more) in this study would have resulted in more missing data because of the unavailability of required data at the time of data collection.

The alignment variable is not significant. This is because including the new issues (debt and shares) in the model would have reduced the research period from five years (1999-2003) to four years (1999-2002) and because the required data was unavailable at the time of data collection. This would have meant the loss of data for one (2003) of the two years (2002-2003) following the increased competition in the audit market in 2001. It was predicted that increased competition in the audit market would induce clients and auditors to align themselves to achieve the efficient use of specialised resource investments. It may take longer than one year for clients and auditors to align. This may be the main reason why the alignment variable is not significant.

To examine the effects of the missing data on the validity of these results, the main sample (736) was divided into two sub-samples, including companies with data for new issues (543) and companies with a lack of data for new issues (193). A t-test was then run to compare the mean or percentage of variables in these sub-samples. The results are reported in Table 6.3. It can be seen from Table 6.3 that there is a statistically significant difference (at the 10% level, two-tailed) between the means of five variables (Privatisation, Alignment, QualDisagree, Competition and QualOther) in the two sub-samples. This indicates likely bias in the sub-sample, including companies with a lack of data for new issues. This sample bias may be one of the main reasons why there are differences in results between the main model and the model including the new issues.

Table 6.2 Logistic Regression Estimates for the Research Model: Further Analysis
(Dependent variable is change (1) or no change (0) in auditors)

Variables	*β*	*p value#*
Privatisation	-.237	.428
Alignment	.069	.425
Ownership	.117	.199
ΔLeverage	.445	.344
ΔManagement	.624	.053
EarnMgt-modified Jones model	-2.199	.013
QualDisagree	1.231	.068
Competition	1.465	.000
QualOther	.055	.960
Size	-.267	.068
Debt	.564	.086
Shares	-.193	.322
Constant	-2.376	.219
Industry fixed effects	included	
Pseudo R Square	.209	
N	543	

Chi-square = 49.259; degrees of freedom = 15; probability = .000; -2 Log likelihood = 241.414.

These columns present a one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; Size is the natural logarithm of total revenue for the previous year; Debt is a dummy variable equal to 1 if there is more than a 5% increase in the balance of debt in the next year, 0 otherwise; and Shares is a dummy variable equal to 1 if there is more than a 5% increase in the number of outstanding shares in the next year, 0 otherwise.

Table 6.3 Mean or Percentage Differences for Variables in the Samples

Variables	*Sample of companies with data for new issues (n = 543)*		*Sample of companies missing of data for new issues (n = 193)*		*t-test of difference*
	Mean or %	*Variance*	*Mean or %*	*Variance*	
Privatisation	2.8%	2.7%	1%	1%	2.424894**
Alignment	56.2%	24.7%	63.7%	23.2%	-2.71544**
Ownership	2.58	1.55	2.69	2.33	-1.37489
ΔLeverage	6.9%	2%	6.6%	1.5%	0.405264
ΔManagement	26%	19.3%	30.1%	21.1%	-1.60715
EarnMgt-Jones	-.0001	3.6%	-.0045	4%	0.397417
QualDisagree	82.7%	14.3%	69.4%	21.3%	5.491562**
Competition	24.9%	18.7%	89.1%	9.7%	-30.8628**
QualOther	8.3%	7.6%	11.9%	10.6%	-2.08377*
Size	11.31	1.34	11.38	1.87	-0.96471

* Significant at 10% level two-tailed.

** Significant at 1% level two-tailed.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

6.4 Multicollinearity Diagnostic Statistics

The purpose of this section is to examine whether there is a multicollinearity problem among the independent variables included in the models. The existence of multicollinearity may make model coefficients unreliable. It may also result in incorrect signs and magnitudes of regression coefficient estimates and, ultimately, inaccurate conclusions about the association between dependent and independent variables (Menard, 1995, Kleinbaum and Klein, 2002).

The Pearson correlation matrix for all variables included in the main model is presented in Table 6.4. It can be seen that the highest correlation (-.623) is between different types of qualification, including QualDisagree and QualOther. Each type of qualification reduces the chance of receiving the other type. The Pearson correlation matrix for all variables included in the further analysis model is presented in Table 6.5. Again, the highest correlation (-.657) is between the different types of qualification. However, the multicollinearity diagnostic statistics, including the variance inflation factors (VIF) and condition indices (CI), do not indicate a problem in either the main regression or the further analysis regression (Table 6.6).

The VIF shows "how the variance of an estimator is *inflated* by the presence of multicollinearity" (Gujarati, 2003, p.351). According to Mayers (1990), it is commonly supposed that if any VIF exceeds 10, there is a possible multicollinearity problem. The VIF figures for the independent variables included in the main model range between 1.008 and 1.723. The VIF figures for the independent variables included in the further analysis model range between 1.019 and 1.821.

A condition index greater than 15 indicates possible collinearity problems and an index over 30 may be an indication of a potentially serious problem (Rawlings, 1988). The highest condition index figure related to the main model's variables is 9.028 (Size variable) and the further analysis model's variables is 11.043 (Shares variable). These results do not indicate any multicollinearity concerns in the main and further analysis models.

Table 6.4 Pearson Correlation Matrix: Main Model

	Privatisation	Alignment	Ownership	ΔLeverage	ΔManagement	EarnMgt	QualDisagree	Competition	QualOther	Size
Privatisation	1									
Alignment	-.108 (.003)	1								
Ownership	-.003 (.942)	-.128 (.000)	1							
ΔLeverage	-.012 (.744)	-.007 (.856)	.078 (.033)	1						
ΔManagement	.008 (.824)	-.035 (.336)	.003 (.934)	.031 (.399)	1					
EarnMgt	-.021 (.574)	.035 (.341)	-.005 (.899)	-.083 (.024)	-.023 (.530)	1				
QualDisagree	-.033 (.376)	-.014 (.709)	-.026 (.474)	.008 (.820)	.056 (.132)	-.117 (.001)	1			
Competition	-.020 (.588)	.019 (.599)	.028 (.454)	-.031 (.403)	-.019 (.613)	.030 (.413)	-.137 (.000)	1		
QualOther	-.018 (.629)	.052 (.160)	.002 (.968)	.029 (.434)	-.057 (.123)	.061 (.098)	-.623 (.000)	-.013 (.725)	1	
Size	.082 (.025)	-.072 (.049)	-.006 (.862)	-.066 (.074)	-.047 (.208)	.049 (.188)	-.065 (.080)	.172 (.000)	-.012 (.750)	1

(Legend overleaf)

Correlations are based on 736 firm-years observations over the period 1999-2003. Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

Table 6.5 Pearson Correlation Matrix: Further Analysis Model

	Privatisation	Alignment	Ownership	ΔLeverage	ΔManagement	EarnMgt	Qual Disagree	Competition	QualOther	Size	Debt	Shares
Privatisation	1											
Alignment	-.123 (.004)	1										
Ownership	-.007 (.874)	-.122 (.004)	1									
ΔLeverage	-.014 (.750)	.003 (.950)	.050 (.245)	1								
ΔManagement	.003 (.950)	-.061 (.156)	.029 (.496)	.060 (.165)	1							
EarnMgt	-.011 (.803)	.013 (.761)	.020 (.641)	-.077 (.071)	.003 (.936)	1						
QualDisagree	-.071 (.097)	-.041 (.338)	-.012 (.777)	.003 (.937)	.038 (.379)	-.095 (.027)	1					
Competition	.033 (.442)	-.007 (.869)	.018 (.680)	-.011 (.792)	-.069 (.111)	.042 (.333)	-.052 (.225)	1				
QualOther	-.010 (.818)	.064 (.139)	-.034 (.434)	.024 (.578)	-.026 (.551)	.065 (.133)	-.657 (.000)	-.080 (.062)	1			
Size	.110 (.010)	-.068 (.112)	-.022 (.610)	-.031 (.474)	-.049 (.252)	.051 (.234)	.005 (.902)	.122 (.004)	-.037 (.384)	1		
Debt	-.033 (.442)	-.045 (.293)	-.057 (.182)	-.090 (.036)	-.031 (.476)	.065 (.131)	-.011 (.791)	-.104 (.016)	.028 (.518)	-.082 (.055)	1	
Shares	.032 (.463)	-.028 (.516)	.031 (.469)	-.006 (.884)	-.028 (.508)	.074 (.085)	.078 (.069)	-.048 (.260)	-.044 (.301)	.152 (.000)	-.038 (.379)	1

(Legend overleaf)

Correlations are based on 543 firm-years observations over the period 1999-2003. Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; Size is the natural logarithm of total revenue for the previous year; Debt is a dummy variable equal to 1 if there is more than a 5% increase in the balance of debt in the next year, 0 otherwise; and Shares is a dummy variable equal to 1 if there is more than a 5% increase in the number of outstanding shares in the next year, 0 otherwise.

Table 6.6 Multicollinearity Diagnostic Statistics

Variables	*Collinearity Statistics: Main Model*				*Collinearity Statistics: Further Analysis Model*			
	Tolerance	*VIF*	*Eigenvalue*	*CI*	*Tolerance*	*VIF*	*Eigenvalue*	*CI*
Privatisation	.978	1.023	5.377	1.000	.962	1.040	6.218	1.000
Alignment	.962	1.040	1.094	2.217	.955	1.047	1.084	2.395
Ownership	.975	1.025	.981	2.341	.972	1.029	1.002	2.491
ΔLeverage	.980	1.020	.955	2.373	.979	1.022	.974	2.527
ΔManagement	.992	1.008	.749	2.680	.982	1.019	.802	2.785
EarnMgt	.976	1.025	.702	2.768	.969	1.032	.761	2.858
QualDisagree	.580	1.723	.535	3.170	.545	1.834	.716	2.946
Competition	.937	1.067	.373	3.797	.942	1.061	.581	3.271
QualOther	.596	1.677	.164	5.732	.549	1.821	.409	3.899
Size	.949	1.054	.066	9.028	.937	1.067	.256	4.926
Debt	-	-	-	-	.961	1.041	.141	6.643
Shares	-	-	-	-	.957	1.045	.051	11.043

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; Size is the natural logarithm of total revenue for the previous year; Debt is a dummy variable equal to 1 if there is more than a 5% increase in the balance of debt in the next year, 0 otherwise; and Shares is a dummy variable equal to 1 if there is more than a 5% increase in the number of outstanding shares in the next year, 0 otherwise.

6.5 Model Specification and Sensitivity Tests

Additional tests were conducted to examine the robustness of the main model and the results. These aimed to reveal the sensitivity of the model to changes in measures of privatisation, ownership concentration, leverage, earnings management, increased competition and new issues of debt and shares. Auditor self-selection bias was controlled for to examine auditor switches between different levels of audit quality.

6.5.1 Measures of Privatisation

The reliability of the privatisation variable was tested by an examination of different percentages of decrease in the government ownership of TSE listed companies. It is plausible that different percentages of decrease in government ownership may have different effects on the likelihood of auditor switching by TSE listed companies. Different levels of privatisation may create different levels of agency costs, signalling and alignment incentives. For example, according to Ang et al. (2000) and Fosberg and Rosenberg (2003), there is a positive association between the level of ownership diffusion and the level of agency costs in a company.

The privatisation dummy variable was retested using decreases in government ownership of five per cent or greater, 10% or greater, 15% or greater, 20% or greater, 25% or greater and 30% or greater. The dummy variable was coded as 1 for a related percentage of decrease in government ownership and 0 otherwise. The results of these measure substitutions in the main model are reported in Table 6.7. The results are consistent with those found in the earlier test of the main model. Privatisation is not significantly related to auditor switching in TSE listed companies.

Table 6.7 Logistic Regression Estimates for the Research Model: Different Measures of Privatisation

Variables	*5% or greater*		*10% or greater*		*15% or greater*		*20% or greater*		*25% or greater*		*30% or greater*	
	β	*p #*	*β*	*p #*	*β*	*p #*	*β*	*p #*	*β*	*p #*	*β*	*p #*
Privatisation	-.334	.213	-.680	.117	-.731	.134	-.958	.120	-.919	.130	-1.374	.110
Alignment	-.663	.007	-.660	.007	-.671	.006	-.685	.006	-.682	.006	-.714	.004
Ownership	.092	.166	.090	.170	.094	.161	.096	.156	.095	.159	.089	.174
ΔLeverage	.273	.383	.317	.365	.330	.359	.378	.340	.374	.342	.338	.357
ΔManagement	.776	.002	.788	.002	.797	.002	.798	.002	.800	.002	.819	.002
EarnMgt-Jones model	-1.713	.009	-1.699	.009	-1.711	.009	-1.706	.009	-1.707	.009	-1.706	.009
QualDisagree	.696	.063	.664	.072	.690	.064	.669	.070	.676	.068	.687	.066
Competition	1.615	.000	1.603	.000	1.601	.000	1.596	.000	1.602	.000	1.591	.000
QualOther	.620	.316	.603	.328	.641	.299	.635	.303	.642	.298	.676	.257
Size	-.247	.024	-.243	.027	-.245	.024	-.247	.023	-.248	.023	-.247	.024
Constant	-1.422	.284	-1.431	.282	-1.449	.274	-1.413	.287	-1.421	.284	-1.403	.292
Industry fixed effects	included		included		included		included		included		included	
Pseudo R Square	.196		.199		.198		.199		.198		.200	
N	736		736		736		736		736		736	

(Legend overleaf)

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership decreased in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

6.5.2 Ownership Concentration

The measure of ownership concentration in the main model is the number of shareholders with more than five per cent equity ownership. Ownership concentration was also tested using the percentage of shares owned by the largest single shareholder in the prior year. The results are reported in Table 6.8. The logistic regression model is statistically significant (p=.000). The result indicates that the OwnCon variable is negative and significant (p=.056). This is not consistent with the earlier finding that ownership concentration is not related to auditor switching. This inconsistency is likely to be because the large single shareholder in many TSE listed companies is the government. Table 6.8 shows that the results for the other independent variables are the same as those in the earlier test of the main model.

Table 6.8 Logistic Regression Estimates for the Research Model: Different Measure of Ownership Concentration

(Dependent variable is change (1) or no change (0) in auditors)

Variables	*β*	*p value#*
Privatisation	-1.023	.184
Alignment	-.726	.004
OwnCon	-.936	.056
ΔLeverage	.275	.382
ΔManagement	.848	.001
EarnMgt-modified Jones model	-1.724	.008
QualDisagree	.666	.073
Competition	1.636	.000
QualOther	.639	.306
Size	-.245	.027
Constant	-.742	.573
Industry fixed effects	included	
Pseudo R Square	.201	
N	736	

Chi-square = 74.718; degrees of freedom = 13; probability = .000; -2 Log likelihood = 405.559.

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; OwnCon is the percentage of shares owned by the largest single shareholder in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

6.5.3 Leverage

The measure of leverage in the main model is the absolute value of changes in long-term debt divided by total assets. Leverage was also tested using the level of leverage in the prior year. The results are reported in Table 6.9. The logistic regression model is statistically significant (p=.000). The result is consistent with the earlier finding in section 6.2.4 that the absolute value of changes in leverage is not related to auditor switching in TSE listed companies. Table 6.9 shows that the results for the other independent variables are not significantly affected by the inclusion of the leverage variable.

Table 6.9 Logistic Regression Estimates for the Research Model: Different Measure of Leverage

(Dependent variable is change (1) or no change (0) in auditors)

Variables	*β*	*p value#*
Privatisation	-.992	.189
Alignment	-.687	.006
Ownership	.087	.179
Leverage	.250	.392
ΔManagement	.814	.002
EarnMgt-modified Jones model	-1.703	.009
QualDisagree	.653	.075
Competition	1.604	.000
QualOther	.603	.328
Size	-.248	.024
Constant	-1.392	.301
Industry fixed effects	included	
Pseudo R Square	.197	
N	736	

Chi-square = 72.996; degrees of freedom = 13; probability = .000; -2 Log likelihood = 407.282.

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; Leverage is the rate of long-term debt divided by total assets in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

6.5.4 Different Measures of Earnings Management

Dechow et al. (2003) argue that the Cross-Sectional Modified Jones Model misclassifies some nondiscretionary accruals as discretionary. They developed a 'forward-looking model' based on the Modified Cross-Sectional Jones Model discussed by DeFond and Subramanyam (1998) to overcome this problem. To control for the misclassification effect of the modified Jones model, the forward-looking model was also used to estimate discretionary accruals in TSE listed companies. The estimated discretionary accruals were then included in the main model. The results are reported in Table 6.10. The logistic regression model is statistically significant (p=.000), indicating a good fit.

The Dechow et al. measure of discretionary accruals variable is negative and significant (p=.001). This result is consistent with the main result using the Cross-Sectional Modified Jones Model. The substitution of the Dechow et al. measure of discretionary accruals variable does not significantly affect the results for the other independent variables. This suggests that the results for the other variables are the same as those found using the main model. The result suggests that the model is not sensitive to different methods of estimating discretionary accruals.

Table 6.10 Logistic Regression Estimates for the Research Model: Different Measure of Earnings Management

(Dependent variable is change (1) or no change (0) in auditors)

Variables	*β*	*p value#*
Privatisation	-1.032	.181
Alignment	-.572	.020
Ownership	.103	.152
ΔLeverage	.170	.429
ΔManagement	.822	.002
EarnMgt-Dechow et al.	-2.828	.001
QualDisagree	.833	.045
Competition	1.556	.000
QualOther	.624	.353
Size	-.246	.029
Constant	-1.634	.237
Industry fixed effects	included	
Pseudo R Square	.200	
N	703	

Chi-square = 70.468; degrees of freedom = 13; probability = .000; -2 Log likelihood = 385.279.

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Dechow et al. model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

6.5.5 Different Types of Earnings Management

It is expected that different types of earnings management may have different effects on companies' decisions to switch auditors. Because of different risk concerns, auditors may constrain income-increasing earnings management and force managers to accept conservative accounting methods and choices. Iranian auditors have incentives to prefer conservative accounting methods and choices because they can be jailed for providing misleading financial reports (Iranian Trade Laws Article 267) or have their licence suspended or cancelled by the IACPA. Such outcomes are more likely when there are earnings overstatements rather than earnings understatements.[46] Therefore, Iranian auditors are more likely to object to income-increasing compared with income-decreasing earnings management because of their conservatism and desire to avoid these risks. In this case, auditors expect to be replaced. To examine this potential association in the TSE context, different types as well as the absolute value of discretionary accruals measured using the modified Jones model were tested along with different types of discretionary accruals measured using the Dechow et al. model. This occurred as follows.

First, the sample was divided into two sub-samples:

- companies (n=379) with discretionary accruals (DA) less than zero (income-decreasing earnings management)
- companies (n=357) with DA greater than zero (income-increasing earnings management)

The results of running the main model for these sub-samples are reported in Table 6.11. The logistic regression models are statistically significant (p=.000). The EarnMgt-income-decreasing modified Jones model is positive and significant (p=.009), which means that companies with income-decreasing earnings management are more likely to switch auditors.[47] The likelihood of auditor switching increases with the magnitude of negative earnings management. It is plausible that larger values of negative earnings management reflect auditor influence on management's accounting choices. As a result, management may have more incentive to switch auditors. This result is consistent with

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[46] Pierre and Anderson (1984) presented evidence that auditors are sued when there are earnings overstatements but not when there are earnings understatements.

[47] To run this model, the absolute value of negatives DAs was used. Running the model with sign values (negative) gives the same result (except that in this case the sign of the coefficient for EarnMgt-income decreasing modified Jones model is negative).

prior research (DeFond and Subramanyam, 1998) suggesting that auditor preferences for income-decreasing accounting choices are an important reason for auditor switching and the argument that conservative treatment is the main reason for auditor switching, not the issuing of a qualified opinion (Krishnan, 1994).

The result presented in Table 6.11 also indicates that there is no significant association between the EarnMgt-income-increasing modified Jones model and auditor switching. The result implies that there is no statistically significant influence of the magnitude of positive earnings management on auditor switching.

The absolute value of earnings management (discretionary accruals) using the modified Jones model was included in the main model instead of signed values (positive/negative). The results are reported in Table 6.12. There is no significant association between the absolute value of earnings management and auditor switching. Different proxies for earnings management, using the Dechow et al. (2003) model, were also tested in the main model. The results reported in Table 6.13 support the previous results using the modified Jones model. These additional tests strengthen the argument that, for TSE listed companies, management failure to manage earnings favourably (income-increasing) increases the likelihood of auditor switching.

Table 6.11 Logistic Regression Estimates for the Research Model: Different Types of Earnings Management (EM) Using Jones Model

(Dependent variable is change (1) or no change (0) in auditors)

	Positive DA		*Negative DA*	
Variables	*β*	*p #*	*β*	*p #*
Privatisation	-19.156	.500	-.486	.345
Alignment	-.474	.139	-.895	.008
Ownership	.036	.413	.085	.253
ΔLeverage	-4.627	.080	1.773	.047
ΔManagement	1.054	.010	.695	.030
EarnMgt-income-increasing modified Jones model	-1.857	.163	-	-
EarnMgt-income-decreasing modified Jones model	-	-	3.173	.009
QualDisagree	.505	.223	1.224	.056
Competition	2.506	.000	1.243	.001
QualOther	.491	.622	1.282	.170
Size	-.829	.000	-.017	.908
Constant	4.899	.054	-4.727	.012
Industry fixed effects	included		included	
Pseudo R Square	.304		.215	
N	357		379	

Positive discretionary accruals (DA) model chi-square = 51.125; degrees of freedom = 13; probability = .000; -2 Log likelihood = 154.872.

Negative DA model chi-square = 44.304; degrees of freedom = 13; probability = .000; -2 Log likelihood = 227.872.

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

Table 6.12 Logistic Regression Estimates for the Research Model: Absolute Value of Discretionary Accruals Using Jones Model

(Dependent variable is change (1) or no change (0) in auditors)

Variables	*β*	*p value#*
Privatisation	-.951	.195
Alignment	-.723	.004
Ownership	.092	.165
ΔLeverage	.420	.321
ΔManagement	.836	.001
EarnMgt-modified Jones model absolute value	1.064	.132
QualDisagree	.742	.052
Competition	1.600	.000
QualOther	.605	.326
Size	-.259	.019
Constant	-1.445	.284
Industry fixed effects	included	
Pseudo R Square	.185	
N	736	

Chi-square = 68.273; degrees of freedom = 13; probability = .000; -2 Log likelihood = 412.004.

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

Table 6.13 Logistic Regression Estimates for the Research Model: Different Types of Earnings Management (EM) Using Dechow et al. Model

(Dependent variable is change (1) or no change (0) in auditors)

	Positive DA		*Negative DA*	
Variables	*β*	*p value #*	*β*	*p value #*
Privatisation	-18.649	.500	-.616	.305
Alignment	-.820	.041	-.616	.046
Ownership	-.262	.108	.218	.036
ΔLeverage	-1.192	.256	1.301	.124
ΔManagement	.851	.036	.806	.016
EarnMgt-income-increasing Dechow et al. model	-2.587	.163	-	-
EarnMgt-income-decreasing Dechow et al. model	-	-	3.774	.008
QualDisagree	.402	.301	1.302	.036
Competition	2.703	.000	1.154	.001
QualOther	-.533	.678	1.619	.079
Size	-.498	.006	-.132	.373
Constant	1.994	.389	-3.761	.045
Industry fixed effects	included		included	
Pseudo R Square	.311		.187	
N	344		359	

Positive discretionary accruals (DA) model chi-square = 48.618; degrees of freedom = 13; probability = .000; -2 Log likelihood = 140.625.

Negative DA model chi-square = 36.638.; degrees of freedom = 13; probability = .000; -2 Log likelihood = 226.495.

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Dechow et al. model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

6.5.6 Increased Competition

The sensitivity of the model to the measurement of increased competition was tested using four dummy variables instead of one competition dummy variable. For the research period (1999-2003), dummies were created for the years 2000, 2001, 2002 and 2003. The results are reported in Table 6.14. The logistic regression model is statistically significant (p=.000). Competition-2000 is not significant, Competition-2001 is negative and significant and Competition-2002 and Competition-2003 are significant and positive. The results indicate that the likelihood of auditor switching decreased in the year of establishment of the IACPA (2001). This result is consistent with descriptive statistics indicating the lowest percentage of auditor switching (1.8%) in 2001. The result for 2001 may be a consequence of uncertainty in the audit market. Companies may have delayed switching decisions during the period of transition. This is supported by the fact that, in the research sample, there were only three switches in 2001 followed by 27 switches in each of 2002 and 2003. The results for 2002 and 2003 support the main result of a positive association between increased competition in the audit market after establishment of the IACPA in 2001 and the likelihood of auditor switching. Table 6.14 also shows that the results for the other variables are the same as those found in earlier testing of the main model.

Table 6.14 Logistic Regression Estimates for the Research Model: Competition-Further Examination

(Dependent variable is change (1) or no change (0) in auditors)

Variables	*β*	*p value#*
Privatisation	-.809	.238
Alignment	-.723	.004
Ownership	.087	.181
ΔLeverage	.196	.417
ΔManagement	.795	.002
EarnMgt-modified Jones model	-1.695	.009
QualDisagree	.708	.067
Competition-2000	.143	.391
Competition-2001	-1.385	.029
Competition-2002	1.172	.007
Competition-2003	1.459	.001
QualOther	.650	.303
Size	-.240	.028
Constant	-1.217	.367
Industry fixed effects	included	
Pseudo R Square	.216	
N	736	

Chi-square = 80.420; degrees of freedom = 16; probability = .000; -2 Log likelihood = 399.858.

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition-dummies (2000-03) are a dummy variable equal to 1 for each related year, 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

6.5.7 Different Measures of New Issues (Debt and Shares)

It is possible that incentives for companies to switch to higher quality auditors may be sensitive to different percentages of new issues. Companies with higher percentages of new issues may have more incentives to switch to higher quality auditors as they may get more benefits compared with companies with lower percentages of new issues. The sensitivity of the model regarding the measurement of new issues (debt and shares) was tested by considering different threshold percentages of increases in debt and increases in the number of outstanding shares in the next year.

The percentage used in the main model was five per cent or greater. Six other threshold percentage increases in debt or the number of outstanding shares in the next year were tested: 10% or greater, 15% or greater, 20% or greater, 25% or greater, 30% or greater and 50% or greater. The results for the six regressions are reported in Table 6.15. All are statistically significant (p=.000).

None of the new variables considered for new debt is significant. This result in the main model indicates that companies that issue new debt of five per cent or greater are more likely to switch auditors. The results suggest that the model is sensitive to the measurement of the debt variable. A five per cent or greater increase in debt was considered in the main model as a measure of issuing new debt. The higher cost of having a higher quality auditor compared with a lower quality one (e.g., Titman and Trueman, 1986) may prevent companies with less than five per cent new debt from switching to higher quality auditors as the benefits may not overcome the cost. Higher percentages (e.g., 10% or 50%) may result in TSE listed companies ignoring some of the incentives that may exist for switching to higher quality auditors, as suggested by the main result. None of the alternative thresholds for new shares is significant (6.15).[48] This suggests that the model is not sensitive to the measurement of the shares variable.

[48] The model was run with different combinations of debt and shares (e.g., debt 10% or greater and shares 15% or greater). No variable was significant. Debt and shares were also combined into one (New Issues) and the model was run to test the different alternatives explored above and included in the main model (5% or greater). The results indicate that only when there was a five per cent or greater increase in new issues (both debt and shares) was the New Issues variable significant (p=.088).

Table 6.15 Logistic Regression Estimates for the Research Model: Different Measures of New Issues (Debt and Shares)

Variables	*10% or greater*		*15% or greater*		*20% or greater*		*25% or greater*		*30% or greater*		*50% or greater*	
	β	*p #*	*β*	*p #*	*β*	*p #*	*β*	*p #*	*β*	*p #*	*β*	*p #*
Privatisation	-.220	.431	-.212	.432	-.201	.435	-.204	.435	-.188	.440	-.076	.475
Alignment	.078	.416	.097	.395	.097	.395	.081	.412	.082	.411	.078	.415
Ownership	.096	.241	.086	.263	.086	.264	.093	.246	.092	.248	.095	.242
ΔLeverage	.345	.379	.249	.412	.259	.409	.313	.389	.301	.395	.294	.397
ΔManagement	.604	.059	.594	.062	.595	.062	.601	.060	.616	.056	.631	.051
EarnMgt-Jones model	-2.199	.013	-2.215	.013	-2.222	.013	-2.216	.013	-2.243	.012	-2.377	.010
QualDisagree	1.207	.070	1.220	.067	1.227	.067	1.209	.070	1.209	.069	1.233	.066
Competition	1.411	.000	1.386	.000	1.389	.000	1.410	.000	1.416	.000	1.452	.000
QualOther	-.004	.997	-.017	.988	-.017	.987	-.019	.986	-.040	.971	-.050	.963
Size	-.281	.053	-.296	.042	-.300	.040	-.292	.045	-.299	.040	-.314	.031
Debt	.089	.406	-.236	.256	-.227	.266	-.028	.470	-.109	.390	-.443	.175
Shares	-.183	.330	-.118	.389	-.072	.432	-.079	.429	.012	.490	.064	.446
Constant	-1.773	.348	-1.434	.443	-1.424	.447	-1.619	.386	-1.535	.410	-1.376	.459
Industry fixed effects	included		included		included		included		included		included	
Pseudo R Square	.201		.202		.202		.200		.201		.204	
N	543		543		543		543		543		543	

(Legend overleaf)

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; Size is the natural logarithm of total revenue for the previous year; Debt is a dummy variable equal to 1 if there is a related increase in the balance of debt in the next year, 0 otherwise; and Shares is a dummy variable equal to 1 if there is a related increase in the number of outstanding shares in the next year, 0 otherwise.

Where:

Top 4 = dummy variable equal to 1 if a firm has a Top 4 auditor, 0 otherwise;

TAssets = logarithm of year-end total assets;

Aturn = logarithm of asset turnover, calculated as sales divided by total assets;

DA = ratio of long-term debt to total assets;

Curr = current assets divided by total assets;

QR = quick ratio calculated as quick assets (current assets minus inventory) divided by current liabilities;

ROA = return on assets calculated as the ratio of earnings before interest and tax divided by total assets;

Loss = dummy variable equal to 1 if the firm had a loss in the previous year, otherwise 0.

ε = error term in the model.

Logistic regression was used to estimate Model 2 and calculate the inverse Mills ratio (IMR) based on Heckman (1979). The IMR, which is calculated from the residuals of the logistic regression, gives an individual IMR for each observation based on the observed residual of that observation in the selected equation. It should be considered that the IMR is a function of not only observed or measured variables that are included in the selection equation but also unobserved or unmeasured variables. These are captured through the error term or residual in the selection equation and included through the non-linear function used to estimate the IMR. As a result, adding the IMR into the outcome equation introduces a term that attempts to capture both observed and unobserved variables that affect selection model (Sales et al., 2004).

The IMR was then included, as a separate predictor variable, to correct for potential self-selection bias when Model 1 (auditor switching) was re-estimated. The results of the logistic regression to estimate Model 2 (the auditor self-selection model) and the re-estimated Model 1 are reported in Table 6.16. In the re-estimated model 1, the IMR ratio is not significant. This result suggests that the preceding logistic regressions are not biased by auditor self-selection.

6.5.8 Controlling for Auditor Self-Selection Bias

Prior research (Firth and Smith, 1995, Raghunandan and Rama, 1999) suggests that because of different risk concerns (e.g., losing reputation), high quality auditors usually accept less risky clients. This implies that higher quality auditors self-select their clients so that their client portfolio is less risky than the client portfolio of lower quality auditors. Therefore, higher quality auditor clients should have a lower likelihood of auditor switching than clients of lower quality auditors. Consistent with this expectation, prior research indicates that financial distress increases the likelihood of auditor switching (Hudaib and Cooke, 2005) and failing firms have a greater propensity to switch auditors than non-failing firms (Schwartz and Menon, 1985). Therefore, as argued by Khurana and Raman (2004), higher quality (Big 4) just becomes a proxy for some omitted auditor switching factors not explained by the auditor switching factors included in the main model (1).

Following Khurana and Raman (2004) and Mansi et al. (2004), to control for this potential concern, the auditor selection decision was modelled as a function of firm specific variables that have been found to affect the auditor selection decision. This requires the identification of higher quality auditors in the TSE. There are no big international audit firms (Big 4) in the Iranian audit market, and the size of the audit firms changed rapidly during the sample period. Following the approach of Francis and Wilson (1988), revenues of TSE listed companies audited by an audit firm during the research period were used as a proxy measure of auditor size. It is argued that larger companies are more likely to use larger auditors and that, consistent with DeAngelo (1981a), auditor size is a proxy for audit quality because these auditors have more to lose if they provide misleading reports. Based on this argument, the Iranian Top 4 auditors are identified as the Iran Audit Organisation (290,533,860), Behmand (11,039,940), Fater (10,075,192) and Faraz Moshaver (5,392,155). This allowed the use of the logistic regression model (Model 2) employed by Chaney et al. (2004).[49] This logistic regression model was adjusted (Top 4 instead of Big 4) and estimated as follows:

$$\text{Top 4} = f(\text{TAssets, Aturn, DA, Curr, QR, ROA, Loss}) + \varepsilon \qquad (2)$$

[49] These numbers represent the revenues of TSE listed companies audited by each auditor during the sample period.

Table 6.16 Logistic Regression Estimates for the Research Model: Self-Selection Bias
(Dependent variable is change (1) or no change (0) in auditors)

	Self-selection model		*Auditor switching model (Sw)*	
Variable	β	*p* #	β	*p* #
ATurn	.068	.419		
TAssets	1.023	.000		
QR	-.188	.185		
Curr	1.593	.001		
DA	1.447	.010		
ROA	1.759	.005		
ROA×Loss	-1.196	.143		
Privatisation			-.750	.258
Alignment			-.702	.006
Ownership			.065	.250
ΔLeverage			.352	.358
ΔManagement			.876	.001
EarnMgt-modified Jones model			-1.904	.006
QualDisagree			.817	.046
Competition			1.601	.000
QualOther			.632	.323
Size			-.326	.135
IMR			.213	.860
Constant	-6.261	.000	-.650	.839
Industry effects	included		included	
Pseudo R Square	12.9%		.214	
N	1134		665	

These columns present the one-tailed *p* value (except for QualOther, Size and IMR) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

The sample includes all firm-year observations available from 1999-2003. The logistic regression of auditor selection is based on Chaney et al. (2004), with Top 4 as the dependent variable (1 for Top 4 auditor, 0 otherwise). The explanatory variables are: ATurn is the logarithm of sales/ total assets; TAssets is the logarithm of total assets; QR is the quick ratio; Curr is current assets divided by total assets; DA is the ratio of long-term debt to total assets; ROA is earnings before interest and taxes divided by total assets; and Loss equals 1 if the client had loss in the prior year, 0 otherwise. In the auditor switching model, Sw is switch (1, 0) that a client did (1) or did not switch auditor; Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; Size is the natural logarithm of total revenue for the previous year; and IMR is the inverse Mills ratio obtained from the logistic regression for the auditor selection model and calculated based on the Heckman (1979) approach. To conserve space, the parameters results for industry fixed effect are not reported.

6.5.9 Examining Auditor Switches between Different Levels of Audit Quality

The association between the independent variables and switching to higher quality auditors was tested in order to identify the potential factors that may affect TSE listed companies' decisions to switch to higher quality auditors. The result would reveal any difference between the reasons for auditor switching in general and switching to higher quality auditors in the TSE context. A new dummy variable coded as 1 was used when a company switched to a higher quality auditor (Top 4) and 0 otherwise. The results are reported in Table 6.17.

The logistic regression model is statistically significant (p=.038). Privatisation is positive and significant (p = .007). This suggests that privatised companies are more likely to switch to higher quality auditors. This result is consistent with the argument that privatised companies switch to higher quality auditors as a means of easing their increased agency costs as a result of changes in their ownership structures, signalling quality as well as alignment with auditors who better match their needs.

Competition is negative and significant (p=.099), suggesting that increased competition in the audit market after the establishment of the IACPA in 2001 decreased the likelihood of switching to higher quality auditors. This result is consistent with descriptive statistics indicating that there were only two switches in 2002 and no switches to higher quality auditors in 2003. The result is also consistent with the argument that increased competition provides an opportunity for companies to opinion-shop (Shockley, 1981, Beattie and Fearnley, 1998b, Hendrickson and Espahbodi, 1991). It may encourage companies to switch to lower quality auditors as it may increase the chance of their success. It should be mentioned that only a limited number of companies switched to higher quality auditors (6) in this sample. This is too small to make any general conclusion. It may also be the main reason why most of the other variables were insignificant; the number may not be sufficient for detecting a relationship with switching to higher quality auditors.

Table 6.17 Logistic Regression Estimates for the Main Model
(Dependent variable is switching to (1) or no switching to a higher quality auditor (0))

Variables	*β*	*p value#*
Privatisation	3.626	.007
Alignment	1.700	.104
Ownership	.345	.131
ΔLeverage	.206	.469
ΔManagement	-.923	.233
EarnMgt-modified Jones model	-2.013	.160
QualDisagree	-.780	.207
Competition	-1.619	.099
QualOther	-17.475	.997
Size	-.276	.420
Constant	-3.903	.376
Industry fixed effects	included	
Pseudo R Square	.346	
N	736	

Chi-square = 23.343; degrees of freedom = 13; probability = .038; -2 Log likelihood = 46.322.

These columns present the one-tailed *p* value (except for QualOther and Size) applied in assessing the null hypothesis that all the coefficients (parameters) are zero.

Privatisation is a dummy variable equal to 1 if public sector ownership became less than 50% in the prior year, 0 otherwise; Alignment is a dummy variable equal to 1 when a government controlled entity has a public sector auditor or a private sector controlled company has a private sector auditor in the prior year, 0 otherwise; Ownership is the number of shareholders with more than 5% equity ownership in the prior year; ΔLeverage is the absolute value of changes in leverage (long-term debt divided by total assets) in the prior year; ΔManagement is a dummy variable equal to 1 if there is a change in the chief executive officer in the prior year, 0 otherwise; EarnMgt is discretionary accruals measured using the Cross-Sectional Modified Jones Model for the prior year; QualDisagree is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of a violation of GAAP or client imposed scope limitation, 0 otherwise; Competition is a dummy variable equal to 1 where there is increased competition in the audit market (for the period 2002-03), 0 otherwise; QualOther is a dummy variable equal to 1 if the prior year's audit opinion is qualified because of reasons other than a violation of GAAP or client imposed scope limitations, 0 otherwise; and Size is the natural logarithm of total revenue for the previous year.

6.6 Summary

The results of estimating the main model indicate that the model fitted the data well. The findings show that companies select auditors who better match their needs; new managers prefer to change auditors; management failure to manage earnings favourably increases the likelihood of auditor switching; audit qualifications that only reflect conflict between management and auditors increases the likelihood of auditor switching; increased competition in the audit market increases the rate of auditor switching; small companies are more likely to switch auditors; industry specifications may affect companies' decisions with regard to auditor switching; and companies willing to issue new debt (5% or greater) are more likely to switch auditors before the issuance of new debt. Tests for multicollinearity revealed no problems in this regard. This increases the reliability of the estimated association between the independent variables and auditor switching. The results of the additional tests support the robustness of the main model and the results. It also gives an assurance that the logistic regressions were not biased by auditor self-selection. The result of examining auditor switches between different levels of audit quality indicates that privatisation increases and increased competition reduce the likelihood of companies switching to higher quality auditors. The next chapter sums up the findings of the research and suggests further related research.

Chapter 7 - Summary and Conclusions

This research investigated factors potentially associated with auditor switching by companies listed on the TSE during a period of privatisation and the emergence of a competitive audit market. The importance of the associated factors arises from the potential implications for auditor independence and audit quality. This is especially so in emerging markets with weak institutions where shareholders and creditors are not well protected.

The recent regulatory changes in Iran created significant changes in both capital and audit markets as well as listed companies. It was hypothesised that these changes increase incentives and opportunities to switch auditors. The incentives include increased agency costs, signalling quality and alignment with auditors who better match company needs. Increased agency costs are created by increased conflicts of interest between managers and shareholders, small and large shareholders, and shareholders and debtholders. Increased agency costs may generate a demand for a higher level of audit quality, as a means of reducing increased agency risks, with the result of increased auditor switching. Companies may signal quality through the selection of higher quality auditors to attract higher prices for the shares to be transferred from the government and for new shares or debt to be issued to the public (thus lowering the cost of capital). Companies may also engage in auditor switching as a means of signalling their privatisation and their increased emphasis on private shareholder interests. Companies may have incentives to switch to private sector auditors to take advantage of their experience and reputation in auditing a private sector entity. This may also allow them to access their required range of services at a competitive price.

The establishment of the IACPA created competition in the audit market by significantly increasing the number of private sector auditors. This provided both opportunities and incentives for companies to switch auditors. Private sector auditors may have different levels of audit quality and competitive advantage, which would provide a superior opportunity to the companies to select auditors who are a better match for their needs as well as opportunities for opinion-shopping.

The results indicate that auditor-client alignment, ownership concentration, changes in CEO, earnings management, receiving a qualified audit opinion due to auditor-client conflicts over GAAP violation(s) or client imposed scope limitations, increased competition, client size, industry effects, and issuing new debt (5% or greater) are significantly associated with auditor switching by companies listed on the TSE. No significant relationship was found between privatisation and auditor switching. However, very few companies in the sample were transferred out of government control during the sample period. This study does not provide any evidence indicating a significant association between the likelihood of auditor switching and changes in leverage or audit qualifications due to environmental conditions. In general, the findings support the proposition that increased competition in the audit market increases auditor switching. Nine conclusions can be drawn from the research. They are represented in the following dot points.

- Companies have a propensity for selecting and retaining auditors who better match their needs. Meeting client needs decreases the likelihood of auditor switching. This implies that auditors' capacities and specialisation (in terms of public sector and private sector expertise) play a significant role in auditor-client relationships as well as their market share.

- Consistent with the literature on auditor switches which suggests that ownership concentration reduces the likelihood of switching to higher quality auditors, the existence of the government as a major shareholder in the company reduces the likelihood of auditor switching. This finding is supported by the significant association between the percentage of shares owned by the largest single shareholder and the likelihood of auditor switching. However, the existence of different types of large shareholders with different potential incentives in the company does not reduce the likelihood of auditor switching. This is supported by the non-significant association found between auditor switches and the number of shareholders with more than five per cent equity ownership, which includes different types of shareholders—i.e., the government and private sector. When there are different types of shareholders, concerted actions by large shareholders are less likely than when all the large shareholders belong to the same sector because there may be less convergence of interests or views of

corporate strategy. However, additional research is needed to identify potential conflicts of interest between the different types of shareholders in TSE listed companies.

- Changes in management, as reflected by changes in the CEO, increase the likelihood of auditor switching. This may be because new managers prefer to dissociate themselves from previous relationships or because new managers prefer auditors with whom they already have a personal or working relationship. However, further research is required to identify why new managers in TSE listed companies switch auditors and with whom they prefer to associate. Although new managers may have sound reasons for auditor switching (such as seeking a higher level of audit quality), the association between management changes and the likelihood of auditor switching may signal a threat to auditors' independence. Selected auditors may not perform as they should because of their relationships with the CEO. There is also the possibility that the CEO could apply his or her capacity to switch auditors as a means of threatening auditors to comply with his or her wishes. The association may pose a greater threat in the Iranian context, where personal relationships are far stronger than contractual or merely economic relationships. Research is also required to examine the effects of relationships (personal or working) between managers and auditors on audit quality.

- Companies with income-decreasing earnings management are more likely to switch auditors. The likelihood of auditor switches increases with the magnitude of negative earnings management. According to the literature on auditor switching, income-decreasing earnings management can be caused by both auditors' conservatism and companies' financial distress. Both these factors can increase the likelihood of auditor switching. Companies with more income-decreasing earnings management may consider incumbent auditors to be too conservative compared with other auditors. The extent of conservatism is also likely to be different across different auditors based on different factors, such as the individual assessment of client risk and relative risk tendencies. The hope of engaging a more compliant auditor in the following year gives an additional incentive to companies to switch auditors. Another possibility is that these

companies may be in financial trouble (reflected by negative earnings) and, because of that, management may engage in upwards earnings management to present a better picture of the company. Because the incumbent auditors do not cooperate with managers in this process, they may be replaced by new ones in the hope of having more cooperative auditors in the following year. However, additional research is required to identify whether income-decreasing earnings management leading to auditor switches by TSE listed companies is mainly caused by auditors' conservatism or companies' financial distress.

- Audit qualifications that reflect conflict between the auditor and management due to a GAAP violation or client imposed scope limitations are associated with auditor switching. However, qualifications due to environmental conditions, such as inherent uncertainties or scope limitations not imposed by the client, are not significantly associated with auditor switching. This may be because the former qualifications have more negative effects on management compensation as well as market prices. This result suggests that managers are more likely to switch auditors after receiving a qualified audit opinion, reflecting the conflict as a means of opinion-shopping. This may result in their receiving an unqualified audit opinion in the following year. However, additional research is required to identify why different qualifications have different effects on the likelihood of auditor switching and whether companies engage in opinion-shopping by switching auditors.

- Increased competition in the audit market increases the likelihood of auditor switches. Increased competition provides companies with more options to compare different services with different prices and choose one that better matches their needs. It also allows companies to compare different levels of audit quality and to switch auditors if they are not satisfied with the current level of audit quality. Increased competition between auditors may also encourage companies to shop for auditors who are more accommodating with regard to their selection and application of accounting policies. This may cause companies to switch to lower quality auditors. This conclusion is supported by the negative association between increased competition and the likelihood of switching to higher quality auditors. Switching to lower quality auditors may increase the

chance of company success in shopping for auditors. However, additional research is required to identify why increased competition in the audit market increases the likelihood of auditor switching by TSE listed companies.

- Smaller firms are more likely to switch auditors than large firms. This may be because small firms are more dependent on external financing and they are more likely to receive a qualified audit report. Third party capital providers may ask small companies to switch to specific auditors (e.g., higher quality). This may increase the rate of auditor switches among these companies because different capital providers may have different preferences with regard to auditors. Smaller firms have a greater likelihood of receiving a qualified audit report, which may contribute to the higher rate of auditor switches. Larger clients benefit from their bargaining power over fee levels. Consequently, they are less likely to receive a qualified audit report. Large clients may be less likely to switch auditors because there are fewer auditors who have the capacity to provide their required range of services. This provides them with fewer options for auditor choice. However, additional research is needed to identify why firms of different sizes are more or less likely to switch auditors in the TSE context.

- Different industries have different effects on the likelihood of auditor switching and industry specifications affect the rate of auditor switching across industries. This result implies that the likelihood of auditor switching can be affected by factors related to an industry-specific environment, which may be less under the control of auditors and clients, such as different operating conditions, legal requirements and firm features across different industries. However, additional research is required to identify why companies operating in specific industries are more or less likely to switch auditors.

- Companies willing to issue new debt (5% or greater) are more likely to switch auditors in advance of issuing new debt. Companies issuing debt may switch auditors as a means of signalling their private information to add more credibility to the financial statements, thus getting a higher price or reducing the cost of debt. However, additional research is needed to examine the possible

effects of auditor switches on market prices, including the price of new debt in the TSE.

Further progress on privatisation in Iran may result in different switching behaviour. It is expected that further progress on privatisation would increase the rate of auditor switches in the TSE by changing further companies' ownership and capital structures as well as creating new incentives (signalling quality and alignment with auditors who better match their needs) for auditor switching. It may also affect the association between the independent factors examined in this study and the likelihood of auditor switching by the listed companies. For example, at this stage, because the government is a major shareholder in many TSE listed companies, the likelihood of switching auditors in these companies is low. Progress on privatisation may result in an increased diffusion of ownership. This is expected to increase the likelihood of companies switching to higher quality auditors. The shareholders and debtholders (banks) in many TSE listed companies are mainly controlled and owned by the government, which reduces agency conflicts between shareholders and debtholders. Progress on privatisation would reduce government control over the shareholders and debtholders, which may result in increased agency conflicts and lead to a higher rate of auditors switching by TSE listed companies.

7.1 Contributions of this Research

Earlier research on auditor switching has mainly focused on developed markets such as the US, UK and Australia (Woo and Koh, 2001). Developed markets are characterised by relatively stable levels of audit competition or an increasing concentration (and implied potential reduced competition) in the large client sector, which is dominated by big international accounting firms. This research extends the literature on auditor switches to an emerging market where there are simultaneous regulatory changes in both capital and audit markets. The TSE is characterised by a significant, rapid increase in agency risks and signalling incentives as a result of changes in ownership and management as well as emerging new debtholders. In Iran, auditors are not affiliated with international audit firms and there has been a rapid increase in audit competition resulting from increased number of private sector auditors engaged by TSE listed companies. Other research has only examined conditions of decreasing competition in the audit market so this study makes a valuable contribution in this regard. This

empirical research provides the first available evidence of two characteristics of auditor switching in a developing market:

1. It indicates a significant association between the type of large shareholders (government versus private sector) in the company and the type of auditors selected (public versus private sector). This suggests that auditor-shareholder alignment reduces the likelihood of auditor switching. As a large shareholder, the government is more likely to select a public sector auditor, and large private sector shareholders are more likely to select a private sector auditor. The alignment between the government and public sector auditors may be less likely in other markets, especially in developed markets, because the shareholders and auditors are mainly related to the private sector.

2. It indicates a positive and significant association between the magnitude of income-decreasing (negative) earnings management and the likelihood of auditor switching. This is the first study to have examined the association between different types of earnings management (income decreasing and increasing) and the likelihood of auditor switching. The results indicate that different types of earnings management have different effects on auditor switching.

Generally, the significant variables identified in the research provide empirical evidence of the role of auditor-client alignment; ownership concentration (percentage of shares owned by the largest single shareholder); changes in management-CEO; earnings management; audit qualification because of auditor-management conflicts; increased competition in the audit market; client size; industry specifications; and issuing new debt in auditor switches decisions. Although no significant association was found between privatisation and the likelihood of auditor switching, this has been the first study to examine their association.

7.2 Implications of the Results for Auditors

The results of the study will enable auditors to identify the clients that are more likely to switch away from them and their reasons for doing so. This study also identifies potential clients that may end their present relationship with other audit firms. It can

also be useful for auditors who are establishing marketing policies. For example, given that auditor-client alignment is a factor in auditor switching, implying that companies associate with auditors who better match their needs, auditors should be aware of their clients' varying needs and be prepared (have capacities) to respond to them if they want to be successful in the market. This may require auditors to collect data related to changes in client objectives and operations that may lead to changes in their demand for audit and non-audit services. The results also suggest that incumbent auditors be aware of their competitors' capacities and try to overcome them. Otherwise companies may switch to the competitors because of their greater capacity to meet their needs.

The results indicate that new managers prefer to dissociate from prior relationships and associate with new auditors. According to the literature on auditor switching, new managers are more likely to associate with familiar parities with whom they already have a personal or working relationship. Iranian managers may have more incentives to dismiss incumbent auditors and associate with familiar parties because, in the Iranian context, personal relationships are far stronger than contractual or merely economic relationships. Auditors can use the relationship to market the audit firm to the companies with whom they have a current relationship or they can make relationships with potential clients in the hope of having more clients. Auditors should also be aware of future management changes (e.g., monitoring the term of managers in office) and associate with potential managers because they could be a new client.

The significant association between the likelihood of auditor switching and client size as well as some industries implies that some companies are more likely to switch auditors due to their size and the specifications of the industry in which they are operating. According to this result, auditors should associate with larger clients and companies operating in specific industries in which the risk of their switching is lower.

The results also suggest that different types of ownership structures (concentrated or diffuse) as well as different types of shareholders (the government and private sector) may have different effects on the likelihood of auditor switching. For example, concentrated ownership in the hands of a specific type of shareholder reduces the likelihood of auditor switching while the existence of different types of shareholders

(the government and private sector) does not. This information can help auditors identify more risky clients with regard to auditor switching.

In a competitive audit market, companies are more likely to switch auditors. The existence of different auditors with different capacities and competitive advantages allows companies to compare different services, qualities and prices and select an auditor that better matches their needs. Therefore, auditors should invest in audit quality to increase their capacities and competitive advantages. This will allow them to provide higher quality services at competitive prices, increasing the chance of their success against competitors and leading to a greater market share. Although the existence of competition in the audit market facilitates the entrance of new competitors to the market, having a competitive advantage can also reduce the chance of newcomers' success in the market. Conversely, if new competitors want to be successful, they should perform in areas in which they have a competitive advantage. Generally, competition in the audit market reduces market concentration, which induces auditors to improve the quality of their services and pushes the prices towards marginal costs. In this market, the quality and price of services play a significant role in client-auditor relationships. In the following section, the implications of the study for the TSE authorities are discussed.

7.3 Implications of this Study for TSE Authorities

The results of this study indicate that, although increased competition in the audit market may allow companies to select an auditor who is better matched to their needs and to signal quality, some auditor switches by TSE listed companies appear to be motivated by managerial opportunism. This can reduce audit quality and impair market efficiency. In view of the level of competition in the audit market and the role of the TSE as a protector of shareholder interests, it may be desirable for TSE authorities to improve the legal protection of shareholder and creditor interests.

For example, the significant association between changes in management and the likelihood of auditor switching suggests that managers prefer to dismiss incumbent auditors and associate with preferred auditors. This may signal potential problems regarding auditor independence. If this is the case, regulators may decide to require companies to disclose their reasons for auditor switching as well as any relationships

that may exist between management and new auditors. Based on this, the TSE regulators may decide to approve or disapprove the switch. Another policy implication is to reduce the executive managers' (CEO) influence over the auditor selection process. Regulators may decide to limit the auditor selection decision to non-executive directors. Although the existence of prior relationships between managers and auditors may reduce audit quality, it may be helpful in making an informed selection. This should also be considered by regulators.

The significant association between earnings management, especially income-decreasing earnings management and auditor switching, suggests that some auditor switches may be caused by disagreements between auditors and managers over the appropriate choice and application of GAAP as well as opportunistic earnings management. Regulators should provide a set of accounting methods and choices that are less subject to interpretation. This would lead to a reduced chance of disagreement between clients and auditors as well as opportunistic earnings managing. However, the provided set should be appropriate for all companies and not reduce the quality of the financial reports.

Auditors may be switched after a company has received a qualified audit opinion, particularly where there is a conflict between auditors and managers. This suggests that companies receiving a qualified opinion may use auditor switching as a means of opinion-shopping. They may switch auditors in the hope of receiving an unqualified audit opinion in the following year. Their chance of success may decrease if there is appropriate communication between independent auditors (replaced and successor). This will happen as replaced auditors can transfer their knowledge to new auditors and inform them about the matters that led to their replacement. This will put new auditors in a better position for planning the audit and providing their report.

Such laws and policies would help auditors to maintain their independence and a high standard of audit quality. They would also give some assurance to investors in TSE listed companies that their interests will be protected. This, in turn, should reduce the cost of capital for companies and accelerate the privatisation process. However, additional research is required to identify how TSE authorities can improve audit quality

and protect shareholder and creditor interests in the TSE. The implications of the study for other emerging markets are presented below.

7.4 Implications of this Study for Other Emerging Markets

In addition to the implications discussed in the previous section, the following suggestion would be particularly useful for other emerging markets. A competitive audit market provides more auditor choice for companies. This may allow them to select and retain an auditor who is better matched to their needs. It may also induce auditors to increase their capacities and specialisations to be able to meet current and potential clients' varying needs, which may result in more specialisations in the audit market. Schaen and Maijoor (1997) argue that, in a competitive audit market, the prices have a tendency towards marginal costs and auditors have incentives to improve the quality of their services, which finally maximises the social welfare. Therefore, regulators in emerging markets should establish a competitive audit market by increasing the level of audit competition.

7.5 Limitations of the Study

The results are subject to several limitations. First, because the findings may be dependent on the particular institutional setting in Iran, the results may be different in other emerging markets with different market structures and regulations. However, most of the results are consistent with findings in developed markets. Second, the research sample only includes two years following the regulatory changes. A longer period may reveal more insights into auditor switching behaviour in an emerging audit market.

Third, the research did not consider audit fees even though they are one of the reasons for auditor switches (Bedingfield and Loeb, 1974, Eichenseher and Shields, 1983, Beattie and Fearnley, 1995, 1998a and 1998b, Gregory and Collier, 1996). Audit fees were not included because of the difficulty in getting the data; not many TSE listed companies disclose their audit fee. The effect of not considering audit fee on the research result is unclear as the findings of prior research are inconsistent. Fourth, there was missing data, especially related to the issuing of new debt and shares. This problem significantly reduced the sample size (from 1,455 cases with available data to 736 cases included in the final sample and to 543 cases for the sample including new issues) and

prevented the inclusion of the debt and shares variables in the main model. The results of a chi-square test presented in Chapter 5 and a t-test presented in Chapter 6 support the exclusion of these variables from the main model because of the sample bias. Having the missing data for all the variables may have provided more insights into the companies' incentives for auditor switching, especially in advance of issuing new debt and shares. It may also have resulted in more available data for companies switching to higher quality auditors, which would allow a firmer conclusion about companies' incentives to switch to higher quality auditors in the TSE context. The current number of switches to higher quality auditors in the final sample is too small to allow any generalisations from the findings. However, the results of a chi-square test and the replacement of missing data with mean values presented in Chapter 5 suggest that missing data did not cause any significant bias in the results. Fifth, there was a problem identifying high quality auditors because of the lack of Big 4 firms in the Iranian audit market, the emerging nature of the audit market and rapid changes in the size of the audit firms during the sample period. However, the potential operation of Big 4 firms in Iran and more stability in the audit market will reduce this problem. The following section identifies avenues of future research.

7.6 Future Research

Taking into account the limitations discussed above, future research should examine auditor switches in different emerging markets. This will give new insights into the issue. A useful project would include an investigation of the effect of audit fees on auditor switching in such markets. In the case of Iran, this would only be possible if the data were obtained in one of two ways: (1) an examination of the annual reports of TSE listed companies that disclose this data; and (2) direct requests of companies that do not disclose the audit fee in their annual reports.

Another possible research area is the effects of auditor switches on subsequent audit fees. The results would provide more insight into companies' incentives to switch auditors—i.e., having a lower audit fee. This would also reveal whether auditor switching is affected by low-balling and provide more insight into auditors' marketing practices. These may have contributed to the higher rate of auditor switches after the increased competition in the audit market.

Another potentially fruitful area of research is the relationship between auditor switching and audit quality. In particular, this would include the effects of auditor switches on the types of earnings management and audit opinions (e.g., qualified) issued after auditor switches. The results of this research would provide direct evidence of the possible effects of auditor switching on audit quality. The findings would also reveal whether companies switch auditors as a means of opinion-shopping and the chance of their success.

Client satisfaction with auditors and its effect on auditor switches is another avenue of research. Investigating auditor switches from the point of view of auditors may also be valuable. Research in these areas would provide more insight into the reasons for auditor switches in the TSE. It would demonstrate how the both the clients and auditors are significant players in the auditor switching process. An exploration of the role of managers and shareholders in auditor switching decisions as well as stock market reaction to such switches will help policymakers identify whether there should be regulatory involvement in questionable auditor switches. Finally, an exploration of the auditor-manager (CEO) relationship and its effects on auditor selection would be fruitful.

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