

**AUDIT PRICING AND STRATEGIC GROUP ANALYSIS  
IN THE PUBLIC ACCOUNTING INDUSTRY**

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## ABSTRACT

Empirical analysis of the public accounting industry has been considerably limited due to lack of data availability. This dissertation proposal leverages a unique dataset of public accounting firms in Korea ranging from 1997 to 2011 to examine the industry's strategic groups and pricing decisions in light of considerable economic forces in a changing environment. I draw upon the theory of strategic groups (Hunt 1972; Caves and Porter 1977; Porter 1980) to distinctly identify strategic groups within the public accounting industry and how group membership explains performance differences. Further, I augment traditional audit fee models (Ferguson et al. 2003, Chaney et al. 2004, and Francis et al. 2005) by incorporating strategic group analysis to show that the relationships between audit fee determinants and audit fees are moderated by auditor strategic group membership.

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## CHAPTER 1

### MOTIVATION

Empirical analysis of the public accounting industry has been considerably limited due to lack of data availability. This dissertation proposal leverages a unique dataset of public accounting firms in Korea ranging from 1997 to 2011 to examine the industry's strategic groups and pricing decisions in light of considerable economic forces in a changing environment. I draw upon the theory of strategic groups (Hunt 1972; Caves and Porter 1977; Porter 1980) to distinctly identify strategic groups within the public accounting industry and how group membership explains performance differences. Further, I augment traditional audit fee models (Ferguson et al. 2003, Chaney et al. 2004, and Francis et al. 2005) by incorporating strategic group analysis to show that the relationships between audit fee determinants and audit fees are moderated by auditor strategic group membership.

The public accounting industry offers an exciting research setting due to accountants' critical role of advising and mitigating information asymmetries between corporations and investors. Aside from a few exceptions, this setting has surprisingly been left unexplored (Banker et al. 2003; Banker et al. 2005). This is largely a consequence of a lack of data availability for public accounting firms. The public accounting industry in Korea offers a perfect storm opportunity to carry out an analysis of how the strategic positioning of the various strategic groups within the industry evolves over time and how auditor strategic positioning is associated with audit fees. Beginning in fiscal year 1997,

the Korean CPA firms began publicly disclosing their business reports<sup>1</sup> as the CPA law was amended preceding the financial crisis in Korea<sup>2</sup>. Subsequently, the industry evolved very considerably due to changing regulatory and economic forces. These circumstances allow for a very rich setting that will provide research insights far beyond the public accounting industry and the Korean economy. Further, this grants access to important auditor level data that has previously been impossible to obtain for such a large panel.

As the regulatory environment in Korea evolved, so did the competitive landscape of the public accounting industry. The number of firms within the industry rose from 28 during 1997 to 125 during 2011 alongside the amendment of the Certified Public Accountant Act (Articles 26 and 27<sup>3</sup>). Firms within an industry have differential access to strategic resources which grant them a sustainable competitive advantage over competitors (Barney 1991, 2001). Groups of firms with similar relative access to these strategic resources respond similarly to economic forces as strategic groups and differently across strategic groups (Hunt 1972; Caves and Porter 1977; Porter 1980; Barnett 1993; Dranove

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<sup>1</sup> Public accounting firm business reports contained a vast amount of information. This information included an overview of the accounting firm, details regarding their main business, status of human resources (partners, directors, certified public accountants, and other employees), matters regarding finance (financial statements and accompanying statements), status of reserve for damages, results of supervision (supervision of audit reports), and status regarding current lawsuits.

<sup>2</sup> The financial crisis in Korea was sparked when Haetae business group announced its default on November 2, 1997. On November 6<sup>th</sup>, the Union Bank of Switzerland warned of a possible financial crisis in Korea. The International Monetary Fund (IMF), an organization of 188 countries working to foster global economic stability and growth, proposed a rescue fund as the Korean Stock Price index plunged below 500. More financial institutions in Korea announced default while Moody's and S&P downgraded the sovereign rating of Korea. The IMF and G-7 countries made \$US 10 billion available to Korea. By the end of the year, 13 of the world's major banks agreed to roll over Korea's short-term debt by an additional month.

<sup>3</sup> The amendments to the CPA Act relaxed requirements for a CPA firm to form. After the amendment, a CPA firm may form with a minimum of 3 directors who are CPAs (down from the prior requirement of 5), minimum of 10 CPAs in the firm (down from the prior requirement of 20), minimum of 3 partners all of whom must be CPAs (down from the prior requirement of 5), and a minimum of 500 million won paid in capital (down from the prior requirement of 1 billion won).



et al. 1998; DeSarbo et al. 2009). I classify firms within the public accounting industry in Korea into four strategic groups on the basis of reputation, brand name, human capital<sup>4</sup> and organizational capital<sup>5</sup> resources. Preliminary findings indicate that strategic group behavior and industry evolution is consistent with expectations derived from economic theory.

After identifying strategic groups in the public accounting industry, I examine how strategic group membership relates to performance differences across strategic group. Particularly, I isolate group-effects from individual-effects and document that group-effects dominate in explaining performance differences within the industry. This line of analysis adds evidence incremental to findings in industrial organization and strategic management literatures relating to rivalry within and across strategic groups. Strategic group analysis provides insights regarding the competitive nature of the industry and how groups of firms strategically position themselves in response to economic forces.

The resource based view of the firm suggests that resources are heterogeneously distributed within an industry and can be classified as human capital, organizational capital, physical capital, and financial capital resources (Barney 1991, 2001). Since human resources are the most important operational resource available to public accounting firms, I focus on strategic choices relating to firms' human capital. First, I examine how these strategic choices explain performance for the pooled industry. Next, I incorporate strategic groups to draw out implications of strategic group membership for firm performance.

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<sup>4</sup> Human capital resources include training, intelligence, experience, judgment, and relationships of professionals within the firm.

<sup>5</sup> Organizational capital resources include a firm's service programs, workflow, control structure, client relations, and planning initiatives.

While I document a statistically significant relationship between *CPAs* and charge-out rate, I find no such relationship between *CPAs* and revenue per partner. This suggests that although the *CPAs* allow firms to command a higher charge-out rate to clients, the rent is then paid out to firm personnel and does not lead to increases in revenue per partner. Additionally, I document that leveraging of partner time is positively associated with revenue per partner and negatively associated with charge-out rate. This is consistent with lower partner supervision yielding a diminished charge-out rate but generating higher revenue per partner. I further document that personnel costs are positively associated with both revenue per partner and charge-out rate. Additionally, I predict and find that the relationship between firm performance and its determinants varies systematically with strategic group membership. My findings shed light on what drives performance variation across strategic group in the public accounting industry.

Since mobility barriers insulate strategic group members, thus granting firms a sustainable competitive advantage by virtue of group membership, I separately examine the effects of group means (group-effects) and individual deviations from the group means (within-effects) of firm strategic choices on firm performance. I find that when I include group-effects and individual-effects of my strategic choice variables, I observe similar results for both as with my earlier pooled industry analysis. However, I document that group-effects dominate over individual-effects for all strategic choice variables in explaining revenue per partner. This is consistent with group membership playing an important role in determining overall firm performance as captured by revenue per partner. Contrastingly, I document that group-effects do not dominate for any strategic choice variables in explaining charge-out rate. This suggests that since firms compete directly with

other group members, group membership becomes relatively less important than exceeding group norms to differentiate services and command a premium charge-out rate.

In the next part of my dissertation, I connect strategic group analysis with the audit pricing literature by examining how strategic group membership moderates the relationship between audit pricing and its determinants. A large body of literature has examined determinants of audit fees starting with the seminal work of Simunic (1980). Audit fee studies not only help evaluate the competition across public accounting firms, but also examine issues of contracting and independence such as low balling and non-audit services (Hay et al. 2006). I apply traditional audit fee models drawn from recent studies (Ferguson et al. 2003, Chaney et al. 2004, and Francis et al. 2005) to the public accounting industry in Korea.

Traditional audit fee models rely heavily upon client characteristics as determinants of audit fees. Indicator variables are added for BigN firms and industry leaders but the analysis is unable to capture the rich heterogeneity across public accounting firms. I augment the traditional audit fee models by allowing the parameters describing the relationship between audit fees and its determinants to vary across strategic group. I also incorporate test variables of interest relating to the human capital resource decisions by the firms. Prior studies have been unable to fully examine the impact of auditor level variables on audit fees due to data constraints. Since strategic groups within each industry have different relative access to strategic resources, it gives rise to between group differences as well as within group differences. I incorporate strategic group analysis with the augmented audit fee model and examine these differences. Such an analysis provides insights relating

to within group as well as between group differences in the relationship between audit fee determinants and audit fees.

This proposal is organized as follows. The next section will review literature relating to both strategic groups and audit fees. This will lead into section 3, which will develop hypotheses, describe the research model, and showcase preliminary results for strategic group analysis and evolution of public accounting industry. Next, in section 4 I discuss traditional audit fees models used in accounting studies. I apply these models to the public accounting industry in Korea and show preliminary results. Section 5 will then augment traditional audit fees models by adding strategic groups as determinants, develop hypotheses relating to those determinants, and show the research design to carry out the testing. Expected contributions from this dissertation will be discussed in section 6. Finally, section 7 will provide a listing of the references used in this dissertation proposal.

## CHAPTER 2 LITERATURE REVIEW

### Background of Public Accounting Industry in Korea

Korea provides a rich context to exploit heterogeneity within the public accounting industry due to considerable variation in firm characteristics and the availability of rich and detail firm level data. Such a research setting allows for the examination of strategy employed by the strategic groups within the industry and study how the strategy changes over the years. Not only is there cross-sectional variation in firm characteristics, the regulatory and economic forces bring forth considerable time-series variation in firm strategic positioning across strategic groups. The 1990's marked a major reorganization of public accounting firms which resulted from regulation requiring a minimum number of partner, director, and professional CPAs along with the minimum amount of capital. Subsequent amendments relaxed these requirements and removed industry barriers to entry for new entrants. Such regulation was aimed to improve the quality of services provided by the firms.

According to the Act on External Audit of Stock Companies enacted in December 1980, Korean auditors were organized into three different types of audit organizations: (i) "accounting firms," (ii) "joint accounting offices," and (iii) "individual auditors." The amendment of the Act on External Audit of Stock Companies in December 1989 disallowed individual auditors from providing audits to companies that required external audits. Instead, "audit teams" replaced the "individual auditors" as one of the types of audit organizations subsequent to the 1989 amendment. This resulted in three different types of auditors: (i) "accounting firms," (ii) "joint accounting offices," and (iii) "audit teams." Since another amendment of the Act on External Audit of Stock Companies in

1996 abolished all existing "joint accounting offices," auditors currently prescribed by the Act on External Audit of Stock Companies have been composed of (i) "accounting firms" stipulated in Article 23 of the Certified Public Accountant Act and (ii) "audit teams" registered in accordance with Ordinance of the Prime Minister with the Korean Institute of Certified Public Accountants established under Article 41 of the Certified Public Accountant Act.<sup>6</sup>

### *Accounting Firms*

The advantage of accounting firms in performing external auditing duties is that they can maintain continuity of their operations, adhere to high levels of professional standards, and assume social responsibility according to liability for damage compensation stipulated in Article 17 (Liability of Damage) and Article 17-2 (Accumulation of Joint Fund for Damage, etc.) of the Act on External Audit of Stock Companies. Along with the rapidly changing accounting environment in Korea since the 1990s, the Korean government intended to strengthen audit organizations, and simultaneously took action to relax the requirements for establishment of accounting firms in order to induce practicing CPAs that belong to joint accounting offices, audit teams, and individual accounting offices to join accounting firms. That is, through the amendment of the CPA Act in 1997, all of the existing joint accounting offices were abolished, and the relaxation of requirement of establishment of accounting firms was intended to transform existing joint accounting offices into accounting firms.<sup>7</sup>

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<sup>6</sup> Act on External Audit of Stock Companies, Article 3

<sup>7</sup> In addition, the amendment of the CPA Act in 1997 introduced the limited liability system for accounting firms.

The CPA Act amended in 2001 prescribed that any accounting firm be established by filing a registration with the Financial Services Commission rather than obtaining an approval which had been previously required. Furthermore, the minimum capital requirement for accounting firms was reduced from 1 billion won to 500 million won. As a result of this amendment of the CPA Act of 2001, regulations on establishment of accounting firms were drastically relaxed and therefore accounting firms became much easier to establish.<sup>8</sup>

Previously, public accounting firms providing audit services were required to have a minimum number of CPAs.<sup>9</sup> However, this stipulation was removed in 2003. The removal of this restriction on audit engagements was intended to promote fair and free competition among auditors and to increase discretions of client companies in choosing and appointing their auditors.<sup>10</sup> This removed barriers to entry within the industry and encouraged new entrants.

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<sup>8</sup> As a result of this series of measures taken, the number of accounting firms increased from 34 as of the end of 2000 business year to 54 as of the end of 2001 business year. It has kept increasing over time, and is 113 as of the end of 2009 business year (i.e., March 31, 2010). For more details, see Table 2.

<sup>9</sup> In general, big accounting firms whose number of member CPAs was not less than 100 did not have any restriction on audit engagements with client firms, but medium-sized or small accounting firms and audit teams had restriction on the asset size of the client firms they were allowed to audit. For example, accounting firms whose number of CPAs employed was not less than 100 were allowed to audit any asset size of client companies. However, accounting firms whose number of CPAs employed was less than 100 were restricted to audit only those client companies with below 800 billion won in assets as of the end of the immediately preceding business year.

<sup>10</sup> However, since this removal of restriction on audit engagements, when auditors were designated for companies by the Securities and Futures Commission, some client companies filed complaints about the size of their designated auditors. In case that a big accounting firm was designated to a small-sized firm, this accounting firm was likely to require much higher audit fee than the client firm used to pay to predecessor auditors such as small or medium-sized accounting firms or audit teams. Thus, in order to improve quality of designated audit and rationality of method of auditor designation, in June 2005, the Financial Services Commission changed the method of auditor

## *Audit Teams*

Each audit team consists of no less than three certified public accountants<sup>11</sup> registered with the KICPA, and its legal form is a "temporary" association for auditing engagements.<sup>12</sup> As audit teams have limited continuity of operations, the Act on External Audit of Stock Companies imposes restriction on their performing auditing duties as follows. Audit teams are not allowed to audit (i) the financial statements of stock-listed corporations on the securities market,<sup>13</sup> (ii) the consolidated financial statements whose parent company and subsidiaries are stock-listed corporations on the securities market, (iii) the combined financial statements, and (iv) the financial statements of those companies whose auditors are designated by the Securities and Futures Commission. Each audit team

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designation, and considers both the asset size of companies subject to designation and the auditor's characteristics (including the number of CPAs belonging to an accounting firm, the number of years passed since its establishment, the size of its annual total revenues, its capacity for damage, and its status of membership with big international accounting firm) in assigning an auditor to a company. In addition, interestingly enough, any accounting firm with the capacity to audit companies with over 800 billion won in assets (i.e., a big accounting firm) cannot be designated as auditor to the companies with less than 50 billion won in assets that are very small client companies (Regulation on External Audit and Accounting, Article 13 & Appendix 3). This amended stipulation suggests that a big accounting firm be a designated auditor of big companies, not small companies, which improves equity or fairness among different types of auditors and resolves aforementioned audit fee problem in designated audits.

<sup>11</sup> Each of these certified public accountants operates his/her own individual accounting office. As a CPA who belongs to his/her individual accounting office is not eligible for a statutory audit, three or more certified public accountants who operate their own individual accounting offices should form an audit team for audit engagements.

<sup>12</sup> For an audit team to conduct an audit of companies subject to external audit in accordance with the Act on External Audit of Stock Companies, it must be registered to the KICPA by submitting an audit team registration form accompanied by each of the following documents to the KICPA: (i) operations rules of audit team, (ii) consent form of organizing an audit team, and (iii) other documents required by the KICPA.

<sup>13</sup> Audit teams can audit the financial statements of KOSDAQ-listed corporations and non-listed stock companies.



must have no less than 3 CPAs, and the financial statement information on audit teams are not been publicly available. Hence, my study focuses solely on accounting firms.

### *Asian Financial Crisis*

The South Korean economy experienced a period of significant growth beginning in the 1960s by shifting their focus on exports of a diversity of manufactured products and heavy government investment in the Chaebols. This was done in response to heavy inflation after the Korean War when the government was printing money to pay for the war. Chaebols were select family businesses that were given favorable treatment in terms of capital, raw resources, and regulation. Such treatment created barriers to entry by regulating industries in favor of Chaebols and allowed Chaebols to flourish and become large conglomerates that controlled multi-billion dollar businesses manufacturing products in all major growth industries. During the Asian financial crisis, the negativities hidden in the Chaebols became apparent when the corruption, bribery, and fraudulent financial accounting were unearthed. Many of the Chaebols had accumulated multibillion dollar debt and collapsed due to their inability to pay. Along with the collapse of those Chaebols, their subsidiaries and financiers also collapsed.

During the aftermath of the Asian financial crisis, the government put strict rules in place in order to improve the quality of services provided by public accounting firms. Newly enacted Article 3-2 of the Amendment of the Act on External Audit of Stock Companies prescribed that an auditor providing services for a publicly traded company shall submit a business report to the Securities and Futures Commission and the Korean Institute of Certified Public Accountants within three months after the end of each fiscal

year. These business reports included audit firm financial statements containing valuable data revealing firm performance, strategy, and other such information.

A series of amendments to the Certified Public Accountant Act set minimum requirements for practitioners to be recognized as public accounting firms. These minimum requirements set forth guidelines to have a minimum of 20 CPAs among its directors and employees, a minimum of 5 CPA directors, and requiring all partners to be CPAs. Further, a firm must have a minimum of 5 partners. From a financial capital standpoint, firms were required to have a minimum of 1 billion Korean Won in capital. A subsequent amendment in 2001 relaxed these requirements by requiring a minimum of 10 CPAs, 3 CPA directors, 3 CPA partners, and only 500 million Korean Won in capital. The initial requirements abolished a great many joint accounting practices and smaller firms leaving only the BigN and large incumbent firms. The later relaxing of requirements along with increased demand from growth after the financial crisis recovery spurred an increase in new entrants changing the competitive landscape of the industry.

### Review of Literature on Strategic Groups

After Hunt (1972) coined the term “strategic groups” in his seminal study, there has been a vast literature developing and extending the concepts derived from strategic group analysis. Most notably, prior studies focus on the theoretical framework underlying strategic groups (Hunt 1972, Porter 1980, Fiegenbaum and Thomas 1990), the empirical identification of strategic groups within various industries (Cool and Schendel 1987, Fiegenbaum and Thomas 1990, 1995), and the relationship between strategic group membership and performance (Porter 1976, 1979; Caves and Porter 1977, Fiegenbaum and

Thomas 1990, 1995). The public accounting industry serves as an ideal candidate for strategic group analysis due to its oligopolistic industry structure, which drives considerable cross-sectional variation in performance, and the pervasiveness of accounting services in virtually all sectors of an economy. However, use of strategic group analysis has been limited in the public accounting industry due to the lack of sufficient data availability.

In order to examine the public accounting industry in Korea, I first identify strategic groups among public accounting firms based on the resource based view (RBV) of the firm. I use a logit model including strategic variables relating to the dimensions of firm scope and resource deployment to validate my identification of strategic groups. Then, I examine how strategic group membership relates to performance differences within the industry. The late 1990s were marked with the financial crisis recovery and a MAS bubble in which managerial advisory services were highly demanded by recovering clients. Subsequently, the industry's barriers to entry were removed due to regulation, resulting in the industry becoming more competitive in accord with contestable markets theory (Baumol 1982). This creates an environment where new firms rapidly enter the industry in response to lowered industry barriers to entry. Considerable variation within the industry offers an ideal research opportunity to address research questions relating to strategic group membership.

In the interest of auditor independence, public pressure and policy forced accounting firms (especially BIGN and OLD) to exit from the business of providing certain non-audit services such as management advisory and accounting services (MAS) to audit

clients<sup>14</sup>. Audit failures at large companies such as Enron and Worldcom turned up the heat on the public accounting profession in the United States. There is a perception that audits have been “loss-leaders” in bringing in more lucrative MAS business. New legislation in Korea (in the same context of the Sarbanes-Oxley Act of 2002) prohibited accounting firms from designing financial information systems or providing accounting services for audit clients. While public debate has focused on the independence issue, little attention has been paid to the potential effects of divesting MAS on the performance of accounting firms.

A large part of NEW firms are smaller in size and have little or no long-term client relations. Their main source of revenue is from book-keeping services and compilation of financial statements for small companies (that are not subject to external audits) and individuals. In the revenue classification, this type of revenue is captured as a part of MAS and other revenues in the annual business reports of Korean accounting firms. Of course as a part of regulation similar to SOX, an accounting firm is prohibited from providing both auditing service and accounting service to the same client firm in Korea. However, in this case, many clients of small NEW firms are companies that are not subject to statutory audits. These clients need to have unaudited financial statements for tax reporting or other purposes. Fees from these services are not sufficient for large accounting firms to seek business from these prospective clients. These small NEW firms do not have any sustained competitive advantage compared to big firms. Therefore, they do a smaller number of audits for small firms (those firms not listed on the stock exchanges or not subject to

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<sup>14</sup> Services that were classified as non-audit services which were prohibited from being provided by auditors included record keeping, financial statement preparation, internal audit services, construction or operation of financial information systems, and other ‘interest conflicting’ non-audit services (such as asset inspection and valuation).

external audits), and their main source of revenue are from "so called" MAS and other services.

### *RBV and Strategic Groups*

The resource based view (RBV) of the firm acknowledges the heterogeneity across firms within an industry. Theories relating to RBV focus on a firm's internal strengths and weaknesses (Barney 1991, 2001). Specifically, RBV states that resources are distributed heterogeneously across firms within an industry and that these differences are long lasting. These differences allow certain firms or groups of firms to have a sustained competitive advantage over competitors. My study identifies such differences in resource distribution, and disaggregates the industry into strategic groups that have access to similar strategic resources. Firms within a particular strategic group use similar strategies to maximize performance based on resources that they have access to.

A firm's strategies are impacted by its internal strengths and weaknesses, as well as its external opportunities and threats. Classical studies in strategy focus heavily on a firm's external opportunities and threats to describe environmental conditions which favor firm performance and associated strategic behavior (Caves and Porter 1977, Porter 1980, Lamb 1984). For example, Porter's (1980) "five forces model" describes that an attractive industry will be one that is rich in opportunities and deprived of threats. Since these studies are interested in examining the impact of the environment on firm strategy and performance, they largely ignore firm idiosyncrasies. They assume that [1] firms within the industry are identical in terms of the resources they possess (Porter 1981, Rumelt 1984,

Scherer 1980) and [2] any resource heterogeneities are short lived because resources are highly mobile (Barney 1986, Hirshleifer 1980).

The resource based view of the firm is becoming increasingly popular in strategic management literature (Barney 1991, 2001). It eliminates the need to maintain those two critical assumptions held by prior studies in this area. The resource based view is interested in the connection between a firm's internal characteristics and performance (Barney 1991). Accordingly, it allows for firm heterogeneity within an industry with respect to the strategic resources they control and contends that since these resources may not be mobile, the heterogeneity may be long lasting.

Barney (1991) identifies three major classifications of firm resources that can be used to gain and maintain a competitive advantage: (1) physical capital resources, (2) human capital resources, and (3) organizational capital resources. In the context of a professional services industry such as public accounting, the most strategically relevant of these resources would be human capital and organizational capital resources. Human capital resources include the training, intelligence, experience, judgment, and relationships of professionals within the firm. Organizational capital resources include a firm's service programs, workflow, control structure, client relations, and planning initiatives.

Under the resource based view, firms within an industry are said to have a competitive advantage when they are implementing a value creating strategy that is not simultaneously implemented by competitors. It is considered a sustained competitive advantage when other firms are unable to duplicate its value creating strategy. If strategic resources were distributed homogeneously, or if there was perfect mobility of these

resources, then it would be impossible for firms to have a sustained competitive advantage. So Barney (1991) concludes that to explore the sources of sustained competitive advantage, one must examine the heterogeneous strategic resources which are immobile (or cannot be easily duplicated by competitors). In order for strategic resources to have the potential to give the firm a sustained competitive advantage, they must be (1) valuable – take advantage of opportunities while neutralizing threats, (2) rare among current and potential competitors, (3) imperfectly imitable, and (4) non-substitutable.

RBV points out that resources based differences allow certain firms or groups of firms to have a sustained competitive advantage over competitors. Strategy literature refers to these groups of firms as strategic groups. The concept of strategic groups has been well established in strategy literature and defines strategic groups as a collection of firms within the same industry that possess similar traits, temporal stability, and strategic homogeneity (Hunt 1972; Caves and Porter 1977; Newman 1978; Porter 1980; McGee and Thomas 1986; Hatten and Hatten 1987; Amel and Rhoades 1988; Fiegenbaum and Thomas 1990, 1995; Dranove et al. 1998; Nair and Kotha 2001; Klepper and Thompson 2006; DeSarbo et al. 2009). From this I deduce that firms with similar access to resources and that compete on similar strategies can be grouped together in their own strategic group.

Firms within the public accounting industry can be differentiated from one another based their access to strategic resources such as human capital resources and organizational capital resources. These resources can include quality of professionals, reputation, brand recognition, size, input mix, and service mix (Ferguson et al. 2001). A service mix that focuses on a high-end or differentiated service will likely require different strategies from a service mix that focuses on a low-cost service (Kumbhakar and Wang 2009).

Accordingly, firms within the strategic group will be strategically homogeneous, while firms across strategic groups may be strategically distinct. Making changes to these strategic variables such as service focus, inputs, and reputation requires changing strategies and imposes costs (Kumbhakar and Wang 2009). Accordingly, mobility barriers exist which administer temporal stability whereby strategic groups portray stability over time and firms tend to stay within their respective strategic group (Caves and Porter 1977; Hatten and Hatten 1987, Ferguson et al. 2001).

The theory of strategic groups has been applied to the banking industry (Amel and Rhoades 1988). Amel and Rhoades (1988) find that approximately six strategic groups exist in the banking industry and they are stable over time. They document that intra-industry profit differences may be driven by strategic groups rather than efficiency differences, markets may be defined too broadly, investigations for collusion should focus on homogeneous groups within an industry rather than an entire industry, and that strategic choices vary across different groups and markets based on the underlying conditions. Fiegenbaum and Thomas (1990) apply strategic group theory to the insurance industry. Their empirical findings suggest that performance varies considerably across strategic group and that groups may evolve over time. Further, they document that it is possible for a strategic group to gain or lose members, as well as the number of strategic groups to vary over time. Another similar study examines the strategic groups in the pharmaceutical industry (Cool and Dierickx 1993). They find that a significant decline in industry profitability is not explained by changes in the number and size distribution of firms. Rather, it is explained by the increasing rivalry, which is strongly associated with the changes in strategic group structure. The theory of strategic groups has never been applied



to the public accounting industry to examine how differences in the pricing of audits across auditors may be explained by strategic groups rather than efficiency differences.

### *Strategic Group Membership and Performance Differences*

Once I identify and validate my strategic groupings, I examine how strategic group membership explains performance differences within the industry. Particularly, I isolate group-effects from individual-effects and document that group-effects dominate over individual-effects in explaining the performance differences. Commonly used measures of firm performance for professional service include revenue per professional and revenue per partner. Revenue is used as a measure for performance rather than profits because profits exclude partner compensation which is treated as an expense. This makes the profit numbers sensitive to firm policies regarding partner compensation. I use both revenue per partner and revenue per professional to examine performance differences in the industry.

Revenue per partner (RPP) indicates how much revenue a firm generates scaled by the number of partners. It is a more general measure of performance than revenue per professional. Revenue per professional (RPPr) indicates how much revenue a firm generates scaled by the number of professionals. RPPr captures the charge-out rate that the firm employs for its services.

### Review of Literature on Audit Fees

A significant portion of service revenues are generated by public accounting firms by providing audit and assurance services to clients. On the supply side, auditors respond to higher risks of audit failure or material misstatements by charging higher audit fees (Zerni 2012, Gul and Tsui 1998). On the demand side, higher quality auditors signal higher

quality financial statements to external users and create a greater value for the client by mitigating the client's agency cost (Zerni 2012). Firm directors on audit committees may demand a higher quality audit to facilitate capital investments in the firm and maximize shareholder wealth by paying higher audit fees for a higher quality auditor (e.g., Carcello, Hermansson, Neal, and Riley 2002; Abbott, Parker, Peters, and Raghunandan 2003; Knechel and Willekens 2006). How audits are priced in light of supply and demand side forces has been of considerable interest since the seminal work of Simunic (1980).

Auditing literature has since developed and refined audit fee models by identifying important audit fee determinants and key factors associated with audit fees (e.g., Ferguson et al. 2003, Chaney et al. 2004, Francis and Wang 2005, Francis Reichelt and Wang 2005). Prior studies have had limitations in data availability since public accounting firm-level data is not publicly available. In this dissertation, I apply traditional audit fees models (Ferguson et al. 2003, Chaney et al. 2004, and Francis et al. 2005) to a panel of data ranging from 1997 to 2011 with engagement, auditor, and client level variables. Few studies have been able to capture the rich heterogeneity among strategic groups within the public accounting industry and how these differences impact the relationship between audit fee determinants and audit fees.

An important research question addressed in audit pricing studies relates to the pricing of audits at the onset of the auditor-auditee relationship. Considerable evidence has mounted suggesting that new clients are offered a steep audit fee discount by auditors in order to outbid competing auditors and gain client business (Walker and Casterella 2000). This discount is consistent with the idea of auditor low-balling, which suggests that auditors will price an initial engagement below market price to attract client business. As

the auditor-auditee relationship matures and auditor tenure increases, the discount has been documented to fade away (Simon and Francis 1988). Prior studies have found that audit quality or the quality of client financial statements may also increase with auditor tenure due to increased client-specific knowledge gained by performing financial statement audits (Ghosh and Moon 2005, Mansi et al. 2004, Carcello and Nagy 2004). However, as partner tenure increases, Carey and Simnett (2006) find some evidence consistent with deteriorating audit quality, potentially due to impaired partner independence. Increased audit quality has been linked with higher audit fees due to greater costs borne to auditors which are passed down to the client (Carcello et al. 2002). Clients paying relatively high audit fees are more likely to dismiss their auditor and replace them with a lower priced auditor (Ettredge et al. 2007).

Prior studies document that larger firms or firms associated with the Big 4 brand name provide a higher quality of services (Simunic 1980, DeAngelo 1981, Palmrose 1986, Moizer 1997, Francis and Krishnan 1999, DeFond et al. 2000, Ferguson et al. 2003). Subsequent studies find that BigN charge a price premium for their services through higher audit fees (Sarath and Xin 2012, Francis 1984). Subsequent studies show that industry specialist auditors provide a higher quality of audit (Balsam et al. 2003) and hence charge higher audit fees. Another stream of studies examine the relationship between non-audit services and audit fees and find a positive link between non-audit services and the pricing of audit services (Simunic 1984 and Palmrose 1986). These studies suggest that non-audit services provided along-side of audit services create knowledge spillover and can help auditors differentiate their services leading to a positive association between non-audit services and audit fees. Bell, Doogar, and Solomon (2007) document auditors who adopt

business risk audit approaches, which require more high level supervision, allocate a greater number of higher level audit personnel to engagements. Further, they find that fees per hour and total audit fees rise for assessed auditor business risk. Gul and Tsui (1998) find that higher inherent risk associated with free cash flows lead to increased audit effort and therefore higher audit fees. These studies signify the importance of acknowledging supply-side differences in auditor attributes that may lead to differences in auditor resources, audit quality, and bargaining power.

On the demand side, prior studies have shown clients to demand a higher quality audit which may signal higher quality financial statements to external users. Carcello et al. (2002) find a positive relationship between board of director characteristics (such as board expertise and independence) and audit fees. A company's board of directors has an interest in protecting company reputation, avoiding litigation, and promoting shareholder interest by procuring higher quality assurance from auditors, which requires increases in auditor costs that get passed down to the client. Hence, client side characteristics, such as client complexity, size, idiosyncratic risk, and board characteristics have been found to have a significant impact on audit fees.

The Sarbanes Oxley Act of 2002 was enacted in response to major corporate scandals in the early 2000s. A series of studies examine the impact of regulatory forces on audits and audit fees. Audit fees increased significantly after the enactment of SOX, particularly between 2003 and 2005, when auditing standard no. 2 (AS2) went into effect (Ciesielski and Weirich 2005). Krishnan et al. (2011) find that audit fees decline for clients adopting auditing standard no. 5 (AS5) due to the efficiencies created by AS5 over AS2. They focus on auditor-client relationships where the client adopted AS5 amidst the auditor

tenure to ensure that the auditor had prior AS2 experience with the client. Asthana and Boon (2012) use abnormal audit fees as a proxy for client bargaining power and find that audit quality declines with a greater magnitude of negative abnormal fees. However, SOX was able to mitigate the reduction in audit quality due to increased client bargaining power. Starting in the early 2000s, the SEC mandated public disclosure of audit and non-audit fees in order to achieve more precise audit pricing and present investors with a transparent view of the auditor-auditee relationship. Public disclosure has been documented to have improved the precision of audit pricing and provided insights about the relationship between the provision of non-audit services and auditor independence (Francis and Wang 2005).

As prior studies point out, auditors make strategic allocations of professional talent to offset risk and provide a standard of services which keeping input costs under control (Bell Doogar and Solomon (2007)). However, as strategic group theory and the resource based view of firms has ascertained, strategic resources are not uniformly distributed across firms within an industry (Hunt 1972; Caves and Porter 1977; Porter 1980; Barnett 1993; Dranove et al. 1998; DeSarbo et al. 2009). Prior literature has studied the size effect on audit quality and audit fees (Simunic 1980, DeAngelo 1981, Palmrose 1986, Moizer 1997, Francis and Krishnan 1999, DeFond et al. 2000, Ferguson et al. 2003) supporting the contention that certain auditors, due to their relative accessibility to strategic resources, can sustain a competitive advantage over competitors in the market for audits. Casterella et al. (2004) point out that Big N firms employ a differentiation strategy relative to non-Big N firms to gain a sustainable competitive advantage and justify premium fees. However, these premiums are only prominent for those Big N clients who have lower relative bargaining

power, highlighting the importance of acknowledging both demand-side as well as supply-side forces. Consistent with this notion, local and regional audit firms' audit practices were impacted detrimentally relative to larger firms after the more stringent regulatory environment established by SOX (Read et al. 2004).

In line with studies that consider the strategic decisions made by auditors (Bell et al. 2007), the relative differences in accessibility to strategic resources (Hunt 1972; Caves and Porter 1977; Porter 1980; Barnett 1993; Dranove et al. 1998; DeSarbo et al. 2009) may drive differential impact of audit fee determinants on audit fees or audit fee components.

## CHAPTER 3 STRATEGIC GROUP ANALYSIS OF THE PUBLIC ACCOUNTING INDUSTRY

### Identification of Strategic Groups

Theories relating to the resource based view focus on a firm's internal strengths and weaknesses. RBV posits that resources are distributed heterogeneously across firms within an industry and that these differences may be long lasting (Barney 1991, 2001). Firms with similar relative accessibility to strategic resources form a strategic group (Hunt 1972, Caves and Porter 1977, Newman 1978, McGee and Thomas 1986, Amel and Rhoades 1988, Fiegenbaum and Thomas 1990, 1995; Dranove et al. 1998; Nair and Kotha 2001; Klepper and Thompson 2006; DeSarbo et al. 2009). Mobility barriers, forming due to the lack of perfect mobility of resources, make it difficult for firms to move across strategic group (Caves and Porter 1977; Hatten and Hatten 1987, Ferguson et al. 2001). At the strategic group level, firms compete for scarce resources in order to gain a competitive advantage over other firms in the same strategic group. The value, scarcity, imitability, and substitutability of those resources determine the sustainability of competitive advantages (Barney 1991). My study identifies such differences in resource distribution, and classifies major strategic groups in the public accounting industry. Next I investigate strategic choices firms make relating to those resources to gain a sustainable competitive advantage within their strategic group to examine how group membership relates to performance differences.

A firm's strategies are impacted by its internal strengths and weaknesses, as well as its external opportunities and threats. Classical studies in strategy focus heavily on a firm's external opportunities and threats to describe environmental conditions which favor firm performance and associated strategic behavior (Caves and Porter 1977, Porter 1980,

Lamb 1984). For example, Porter's (1980) "five forces model" describes an attractive industry to be one that is rich in opportunities and deprived of threats. Since these studies are interested in examining the impact of the environment on firm strategy and performance, they largely ignore firm idiosyncrasies. They assume that [1] firms within the industry are identical in terms of the resources they possess (Porter 1981, Rumelt 1984, Scherer 1980) and [2] any resource heterogeneities are short lived because resources are highly mobile (Barney 1986, Hirshleifer 1980).

The resource based view of the firm is becoming increasingly popular in strategic management literature (Barney 1991, 2001). It eliminates the need to maintain those two critical assumptions held by prior studies in this area. The resource based view is interested in the connection between a firm's internal characteristics and performance (Barney 1991). Accordingly, it allows for firm heterogeneity within an industry with respect to the strategic resources they control and contends that since these resources may not be mobile, the heterogeneity may be long lasting.

Under the resource based view, firms can develop a competitive advantage when they are implementing a value creating strategy that is not simultaneously implemented by competitors. It is considered a sustained competitive advantage when other firms are unable to duplicate its value creating strategy. If strategic resources were distributed homogeneously, or if there was perfect mobility of these resources, then it would be impossible for firms to have a sustained competitive advantage. Hence Barney (1991) concludes that to explore the sources of sustained competitive advantage, one must examine the heterogeneous strategic resources which are immobile (or cannot be easily duplicated by competitors). In order for strategic resources to have the potential to give the



firm a sustained competitive advantage, they must be (1) valuable – take advantage of opportunities while neutralizing threats, (2) rare among current and potential competitors, (3) imperfectly imitable, and (4) non-substitutable.

RBV points out that resources based differences allow firms to have a sustained competitive advantage over competitors. Strategy literature refers to these groups of firms as strategic groups. The concept of strategic groups has been well established in strategy literature and defines strategic groups as a collection of firms within the same industry that poses similar traits, temporal stability, and strategic homogeneity (Hunt 1972; Caves and Porter 1977; Newman 1978; Porter 1980; McGee and Thomas 1986; Hatten and Hatten 1987; Amel and Rhoades 1988; Fiegenbaum and Thomas 1990, 1995; Dranove et al. 1998; Nair and Kotha 2001; Klepper and Thompson 2006; DeSarbo et al. 2009). Firms with similar access to resources and that compete with other firms for those resources can be grouped together as a strategic group.

Korea provides a rich context to investigate heterogeneity within the public accounting industry due to considerable variation in firm characteristics and the availability of detailed firm level data. The 1990's marked a major reorganization of public accounting firms along with the Asian Financial Crisis. Large South Korean conglomerates known as chaebols, who had risen in power over the past several decades leading up to the crisis, failed and brought the quality of public accounting services into question. As a result, a series of regulations were issued with the intent to improve the quality and transparency of services provided by public accounting firms. Article 3-2 of the Amendment of the External Audit Law prescribed that an auditor providing services for a publicly traded company submit an annual report to the Securities and Futures Commission and the Korean

Institute of Certified Public Accountants within three months of each fiscal year-end. These annual reports included public accounting firm financial statements.

Amendments to the Certified Public Accountant Act set forth minimum requirements for practitioners to be recognized as public accounting firms, requiring firms to have a minimum of 20 CPAs among its directors and employees, a minimum of 5 CPA directors, and requiring all partners to be CPAs. Further, a firm must have a minimum of 5 partners. Moreover, firms were required to have a minimum of 1 billion Korean Won in capital. A subsequent amendment in 2001 relaxed these requirements by requiring a minimum of 10 CPAs, 3 CPA directors, 3 CPA partners, and only 500 million Korean Won in capital. The initial requirements abolished a great many joint accounting practices and smaller firms leaving only the BigN and large incumbent firms. The later relaxing of requirements along with increased demand from economic growth after the financial crisis recovery spurred an increase in new entrants changing the competitive landscape of the industry.

#### *Strategic Groups in Public Accounting Industry in Korea*

I identify major strategic groups in the public accounting industry in Korea by exploring the heterogeneous distribution of strategic resources across CPA firms possessing the aforementioned attributes. The public accounting industry in Korea experienced broad regulatory changes during the sample period from 1997 to 2012, which ultimately reduced barriers to entry by relaxing requirements for the formation of a CPA firm. Incumbent firms that dominated the industry had to respond to these industrial changes as the competitive landscape evolved. Extant accounting literature has

established an association between the BigN firms and quality (Simunic 1980, DeAngelo 1981, Palmrose 1986, Moizer 1997, Francis and Krishnan 1999, DeFond et al. 2000, and Ferguson et al. 2003).

Palmrose (1986) links the size and quality of public accounting firms by documenting that BigN firms charge a fee premium relative to other firms in order to justify higher quality of services. BigN firms have been known to report more conservatively which is often perceived to coincide with quality (Francis and Krishnan 1999). As a result, prior studies have often used an indicator variable for BigN as a proxy for quality (DeAngelo 1981). Furthermore, BigN firms have a globally renowned reputation and brand name. If they provide a low quality of service, there is a greater downside for them relative to other firms that do not carry the same reputation (Moizer 1997). This reputation effect incentivizes the BigN firms to provide a consistently higher quality of service. Having been associated with higher quality, reputation, and a globally recognized brand name clearly sets the BigN<sup>15</sup> firms apart in their own strategic group.

The BigN firms have drastically different access to human capital and organizational capital resources compared to the other set of incumbent or OLD firms. BigN firms invest heavily in audit technology to improve efficiency and effectiveness of their professionals and differentiating themselves from other firms. They have an international scope and are associated with a globally recognized brand name. These attributes aid in attracting high quality professionals that can be used to leverage partner time. BigN firms also have deep pockets and are very large compared to other firms,

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<sup>15</sup> In South Korea, multiple audit firms could be affiliated with one BigN firm in a given year. For example, KPMG may have two affiliates during one of the years. Those affiliates are independent audit firms and are both classified as part of the BigN strategic group.

allowing them to benefit from economies of scale (Banker et al. 2003). Furthermore, BigN firms have well established service programs, control structure, and planning initiatives. They have a very effective workflow in place and have long lasting client relationships. These human capital and organizational capital resources are very immobile (difficult for others to duplicate) and so I expect the BigN firms to form a strategic group and compete for resources with other BigN firms.

However, the Korean public accounting industry was also dominated by another set of incumbent firms (OLD). These incumbents existed prior to the recent regulatory changes and had all been around for at least 10 years. The incumbent local firms (OLD) behaved markedly differently from the BigN firms. The OLD firms have the most experienced partners and personnel among all the strategic groups. They invest considerably less to train and develop professionals but experience the lowest rate of personnel turnover. Their strategy is to sustain the current level of business rather than to aggressively prospect new clients. They do not have the same globally recognized brand name and reputation possessed by BigN firms. However, they have established strong lasting relationships with clients and possess institutional knowledge<sup>16</sup> which considerably distinguishes them from the new entrants.

A new breed of firms (NEW\_TRAD and NEW\_ACCT) that were more dynamic and capable of catering to the evolving demands of the market began entering the industry. These firms were high growth, and experienced consistent growth in market share. The

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<sup>16</sup> By institutional knowledge, I refer to the local credibility that these ‘old’ firms possessed. Client firms recognized them, had developed a level of comfort with them, and relied upon them to provide a consistent level of service that they had grown accustomed to over the years.

new entrants are divided into two distinct groups based on their service scope. NEW\_TRAD firms are more traditional in their service mix, primarily generating revenue from providing audit and taxation services. NEW\_ACCT firms have a dominantly managerial advisory service<sup>17</sup> focus, primarily generating revenues from providing low level accounting services such as book-keeping and compilation of financial statements that were becoming increasingly important following the financial crisis.

Accordingly, I grouped the ‘new’ firms which entered the industry beginning in 1997 as either NEW\_TRAD or NEW\_ACCT based on their service mix. If the proportion of revenue generated from managerial advisory services (MAS\_MIX) exceeded the proportion of revenue generated from audit services (AUD\_MIX) and the proportion of revenue generated from taxation (TAX\_MIX) for each and every year in the sample period, then the ‘new’ firm is classified as NEW\_ACCT firms. Further, if firms satisfied the conditions for NEW\_ACCT for each year in the sample period except for a few disjoint deviations, then I also classified those firms as NEW\_ACCT. I classify ‘new’ firms as NEW\_TRAD when the service focus does not meet the aforementioned conditions. Additionally, I manually checked for firm switches, where a firm started out as belonging to one strategic group and then switched to another. Switches were only relevant for a minority of new entrants, and strategic group classification for new firms was stable for both NEW\_TRAD and NEW\_ACCT firms<sup>18</sup>.

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<sup>17</sup> Managerial advisory services include a spectrum of services from routine to complex. Examples of more complex managerial advisory services are consulting services relating to mergers and acquisitions and IPOs. Examples of more routine managerial advisory services are bookkeeping and compilations.

<sup>18</sup> I conducted stability analysis for NEW\_TRAD and NEW\_ACCT firms and found disjoint deviations as a proportion of total firm-year observations for a respective strategic group to be

Table 1 shows both groups of new entrants by year to illustrate their entry and Figure 1 illustrates the trend of number of firms for all strategic groups. In table 1, I also show the relative stability of each strategic group by taking the ratio of stable firms (total firms less deviations) to total firms for each group. Over the sample period from 1997 to 2012, NEW\_TRAD (NEW\_ACCT) firms comprise an average of 27% (73%) of new entrants and exhibit a 92% (93%) stability rate. The stability rate for new entrants is 93%. Further, NEW\_TRAD (NEW\_ACCT) firms increase from 8 (13) firms in 1997 to 28 (91) firms in 2012.

In general, the new entrants are smaller in size and have little or no long-term client relations compared to the incumbent BigN and OLD firms. The main source of revenue for the NEW\_ACCT firms is from book-keeping services and compilation of financial statements for small companies (that are not subject to external audits) and individuals. This type of revenue is classified as a part of managerial advisory services in the annual business reports of Korean accounting firms. Accounting firms in Korea are prohibited from providing both auditing service and accounting service to the same client firm in Korea. However, in this case, many clients of NEW\_ACCT firms are companies that are not subject to statutory audits. These clients need to have unaudited financial statements for tax reporting or other purposes. Fees from these services are not sufficient for large accounting firms to seek business from these prospective clients. The NEW\_ACCT firms do not have any sustained competitive advantage compared to big firms. Therefore, they do a smaller number of audits for small firms (those firms not listed on the stock exchanges

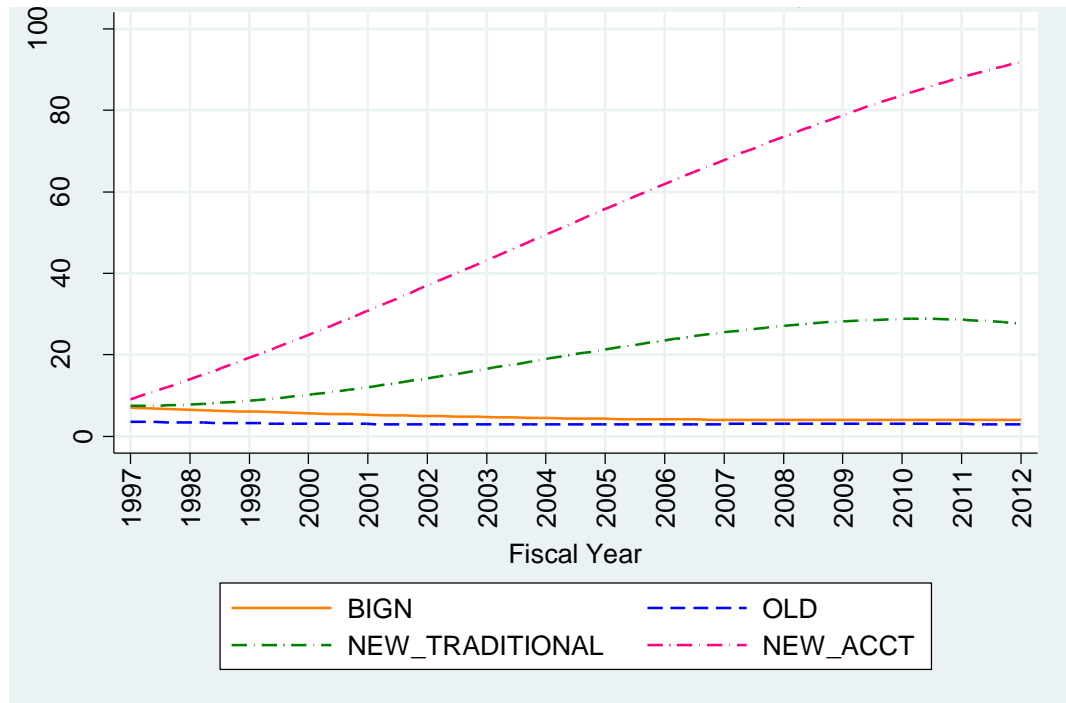
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less than 10% for both groups (or greater than 92% stability for NEW\_TRAD and 93% stability for NEW\_ACCT firms). Table 1 contains more details.

**Table 1**  
**Breakdown of New Entrants and Stability Analysis**

Fiscal Year	NEW_TRAD		NEW_ACCT		Total
	No. of firms	% of New	No. of firms	% of New	
<b>1997</b>	8	38%	13	62%	<b>21</b>
<b>1998</b>	8	36%	14	64%	<b>22</b>
<b>1999</b>	8	35%	15	65%	<b>23</b>
<b>2000</b>	9	36%	16	64%	<b>25</b>
<b>2001</b>	13	30%	31	70%	<b>44</b>
<b>2002</b>	13	25%	40	75%	<b>53</b>
<b>2003</b>	16	25%	47	75%	<b>63</b>
<b>2004</b>	21	30%	50	70%	<b>71</b>
<b>2005</b>	22	28%	56	72%	<b>78</b>
<b>2006</b>	22	27%	60	73%	<b>82</b>
<b>2007</b>	26	27%	69	73%	<b>95</b>
<b>2008</b>	26	27%	70	73%	<b>96</b>
<b>2009</b>	29	27%	78	73%	<b>107</b>
<b>2010</b>	29	25%	86	75%	<b>115</b>
<b>2011</b>	28	24%	89	76%	<b>117</b>
<b>2012</b>	28	24%	91	76%	<b>119</b>
<b>Total</b>	<b>306</b>	27%	<b>825</b>	73%	<b>1,131</b>
<i>Deviations</i>	23		56		79
<b>Stability</b>	<b>92%</b>		<b>93%</b>		<b>93%</b>

**Note:** NEW\_ACCT firms are defined as those new entrants who have higher proportion of revenues generated from managerial advisory services (bookkeeping and compilations during the early part of the sample) than from audit and tax. Further, I manually checked for switches and disjoint deviations. I allow for switches but classify firms with disjoint deviations as being part of the strategic group based on their dominant service over the entire sample period. The remaining new entrants are classified as NEW\_TRAD since they have a more traditional service focus. Deviations equals the number of firms classified as that group which deviate from the above conditions. Stability is the ratio of (total minus deviations) and total. This is to illustrate that both strategic groups are stable in their classifications.



**Figure 1 – Trend of Number of Firms by Strategic Group**

or not subject to external audits), and their main source of revenue are from "so called" MAS and other services. NEW\_TRAD firms are more directly comparable to the OLD firms in that both strategic groups focus heavily on audit and taxation services.

These strategic groups (BigN, OLD, NEW\_TRAD, and NEW\_ACCT) have relatively differential access to and are differentiated on the basis of various strategic resources such as size, quality, brand name, reputation, growth, service focus, and time of market entry. Classification of industry strategic group allows for the consideration of within-group competition to explain differences in the relationship between pricing of audits and its determinants. The following table describes the differences in characteristics across the identified strategic groups based on the analysis of data for those firms and based on discussions with Korean practitioners.



Under RBV, Barney (1991) identifies three major classifications of firm resources that firms compete for in order to gain a competitive advantage: (1) physical capital resources, (2) organizational capital resources, and (3) human capital resources. Physical capital resources include fixed assets such as office space, machinery, equipment, and hardware. Organizational capital resources include a firm's service programs, workflow, control structure, client relations, and planning initiatives. Human capital resources include the training, intelligence, experience, judgment, and relationships of professionals within the firm. Firm professionals are the most important resource for professional service firms (Maister 1997). The accountants charge billable hours to client engagements to generate revenue for firms. The organizational capital and physical capital resources support professionals' revenue generation activities. Accordingly, I identify strategic choices that auditors make relating to their professionals in order to gain a competitive advantage.

Prior studies in the strategic management and industrial organization literatures that conduct strategic group analysis assert that an important and necessary condition for the existence of strategic groups is that group membership must be linked to performance variations within the industry. Particularly, I isolate group effects from individual effects in explaining performance variations within the industry and hypothesize that since strategic groups represent considerable variation in accessibility to strategic resources and that firms within a group tend to be similar in terms of resources and strategic positioning, that group effects will dominate individual effects in explaining performance variations within the industry.

**Table 2**  
*Strategic Group Descriptions*

<b>Strategic Group</b>	<b>Description</b>
<b>BigN</b>	<i>Definition</i> Big4 or Big6 affiliated accounting firms.
	<i>Branding</i> BigN brand name. High level of reputation.
	<i>Partner</i> High quality background and experience. Under pressure to perform.
	<i>Risk Management</i> Conservative
	<i>Operations</i> Centralized single firms
	<i>Focus</i> AUD and MAS initially. Then AUD and TAX.
<b>OLD</b>	<i>Definition</i> Old accounting firms that had already been established and were in business before January 1997 when the Korean CPA Act was amended that are not classified as BigN.
	<i>Branding</i> Medium level of reputation.
	<i>Partner</i> Decent quality background and experience. Not strongly motivated. Older generation. Passive.
	<i>Risk Management</i> Conservative
	<i>Operations</i> Decentralized
	<i>Focus</i> Mainly AUD and some TAX.
<b>NEW_ACCT</b>	<i>Definition</i> New accounting firms that were established after the amendment of the Korean CPA Act in January 1997 and generated revenue from a service mix focusing on routine managerial advisory services.
	<i>Branding</i> Low level of reputation.
	<i>Partner</i> Less experience. Highly motivated to perform. May have moved from BigN
	<i>Risk Management</i> More risk neutral
	<i>Operations</i> Decentralized
	<i>Focus</i> Mainly the more routine and low level MAS – bookkeeping and compilations.
<b>NEW_TRAD</b>	<i>Definition</i> New accounting firms that were established after the amendment of the Korean CPA Act in January 1997 and generated revenue from a more balanced service mix relative to NEW_ACCT firms
	<i>Branding</i> Low level of reputation.
	<i>Partner</i> Less experience. Highly motivated to perform. May have moved from BigN
	<i>Risk Management</i> More risk neutral
	<i>Operations</i> Decentralized
	<i>Focus</i> AUD and TAX.

I examine variables relating particularly to human resources of the firm. The strategic variables that I focus on include: (1) CPA proportion, (2) Personnel Costs, and (3) Leverage. *CPA proportion* is computed as the proportion of licensed CPAs to total personnel at the firm. *Personnel Costs* is computed as the proportion of personnel costs to total personnel. *Leverage* is computed as the ratio of non-partner personnel to partners. These three variables capture resource deployment decisions relating to the most important strategic resource available to a CPA firm, its human resources. Firms across strategic group differ considerably and predictably in terms of these ratios. However, there are variations within group as well, though not as significant.

First, I examine how these strategic choices explain performance for the pooled industry. Next, I incorporate strategic groups to draw out implications of strategic group membership for firm performance.

Since mobility barriers insulate strategic group members, thus granting firms a sustainable competitive advantage by virtue of group membership, I separately examine the effects of group means (group-effects) and individual deviations from the group means (within-effects) of firm strategic choices on firm performance. When group-effects dominate over within-effects in explaining performance variation, this is consistent with group membership playing an important role in determining overall firm performance as captured by revenue per partner.

***H1: Relationship between human resource strategic choices and performance measures (RPP and charge-out rate) depend on strategic group membership.***

*H2: There is no significant difference between group-effects and within-effects in explaining performance variations.*

### Sample, Data, and Research Design

I use a unique hand collected dataset of audit firm-level data which is merged with hand collected engagement-level data and client firm-level data to comprise the total sample. The sample period ranges from 1997 to 2012. Prior studies with audit firm-level data have often relied on either cross-sectional data or data from a single firm. A large panel of data from the entire industry over sixteen years allows for considerable variation in test and control variables, and increases the power of my tests. Additionally, the data is officially disclosed by public accounting firms to the KICPA by filing annual reports which are subject to inspection. Hence, the data is more reliable than data obtained from surveys which are subject to response biases. Prior to merging with engagement-level and client firm-level data, the audit-firm level sample is made up of 1,257 firm-year observations. After merging the audit-firm level data with engagement-level and client firm-level data, the test sample is made up of 18,121 engagement-year observations.

Table 3 shows descriptive statistics for public accounting firm level variables by strategic group and for the pooled sample. The table exhibits descriptive statistics by strategic group and for the pooled sample to illustrate the major differences across strategic group. All monetary amounts are expressed in millions of Korean Won (KRW). *Size* is equal to the firm's total assets, *current ratio* is equal to the ratio of current assets to current liabilities, *financial leverage* is equal to the ratio of long-term liabilities to owners' equity,

**Table 3**  
**Summary Statistics by Strategic Group**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>25th percent</b>	<b>50th percent</b>	<b>75th percent</b>
<b><u>BigN</u></b>						
Size (Assets)	77	62,135	36,346	35,852	58,310	81,009
Current Ratio	77	1.523	0.322	1.332	1.449	1.693
Financial Leverage	77	0.591	0.667	0.147	0.349	0.770
Capacity for Damages	77	151,310	173,664	30,557	90,678	199,885
Capital (Property) Costs	77	14,186	10,531	6,915	11,236	18,818
Average Partner Experience	77	19.30	2.56	17.35	19.43	20.98
Personnel Turnover	77	51.42	35.95	29.50	43.60	68.70
Licenses (non-CPA)	77	0.139	0.069	0.076	0.138	0.195
Proportion of Listed Clients	77	0.277	0.069	0.243	0.268	0.301
Market Share	77	0.131	0.081	0.076	0.102	0.137
Audit Mix	77	0.469	0.150	0.371	0.455	0.537
Tax Mix	77	0.130	0.068	0.059	0.147	0.189
MAS Mix	77	0.400	0.163	0.317	0.387	0.474
<b><u>OLD</u></b>						
Size (Assets)	49	17,964	9,568	11,739	17,009	21,541
Current Ratio	49	1.161	0.203	1.051	1.121	1.182
Financial Leverage	49	0.232	0.227	0.076	0.162	0.342
Capacity for Damages	49	11,606	14,625	3,552	9,511	10,727
Capital (Property) Costs	49	2,569	1,437	1,478	2,208	2,807
Average Partner Experience	49	24.71	3.04	22.17	24.41	27.74
Personnel Turnover	49	27.63	20.25	15.40	19.90	29.90
Licenses (non-CPA)	49	0.036	0.058	0.013	0.020	0.027
Proportion of Listed Clients	49	0.171	0.054	0.122	0.165	0.207
Market Share	49	0.025	0.008	0.019	0.023	0.030
Audit Mix	49	0.623	0.123	0.505	0.626	0.718
Tax Mix	49	0.136	0.051	0.084	0.134	0.153
MAS Mix	49	0.240	0.114	0.184	0.228	0.351
<b><u>NEW TRAD</u></b>						
Size (Assets)	306	3,864	2,865	2,202	3,330	4,668
Current Ratio	306	2.082	2.748	1.252	1.528	1.970
Financial Leverage	306	0.351	0.434	0.071	0.195	0.450
Capacity for Damages	306	3,864	22,376	264	734	1,737
Capital (Property) Costs	306	676	575	303	549	949
Average Partner Experience	306	16.52	4.95	12.87	16.95	19.74
Personnel Turnover	306	36.54	33.11	12.20	28.60	52.20
Licenses (non-CPA)	306	0.044	0.052	0.000	0.032	0.063

Proportion of Listed Clients	306	0.111	0.078	0.042	0.107	0.167
Market Share	306	0.005	0.004	0.002	0.004	0.006
Audit Mix	306	0.435	0.163	0.373	0.462	0.537
Tax Mix	306	0.274	0.203	0.141	0.192	0.373
MAS Mix	306	0.291	0.111	0.217	0.291	0.370

**NEW ACCT**

Size (Assets)	825	3,261	2,420	1,694	2,703	4,056
Current Ratio	825	2.901	20.500	1.211	1.533	2.036
Financial Leverage	825	0.192	0.265	0.023	0.101	0.286
Capacity for Damages	825	794	1,265	136	381	877
Capital (Property) Costs	825	605	474	302	532	758
Average Partner Experience	825	12.732	4.383	9.530	12.430	15.275
Personnel Turnover	825	39.051	34.777	14.300	32.050	54.500
Licenses (non-CPA)	825	0.044	0.074	0.000	0.021	0.059
Proportion of Listed Clients	825	0.080	0.081	0.023	0.065	0.116
Market Share	825	0.004	0.003	0.002	0.003	0.005
Audit Mix	825	0.261	0.104	0.194	0.272	0.337
Tax Mix	825	0.187	0.116	0.119	0.170	0.230
MAS Mix	825	0.552	0.142	0.470	0.533	0.618

**Pooled**

Size (Assets)	1,257	7,641	17,176	1,952	3,065	4,904
Current Ratio	1,257	2.547	16.652	1.204	1.504	1.963
Financial Leverage	1,257	0.257	0.364	0.037	0.131	0.359
Capacity for Damages	1,257	11,205	57,014	190	560	1,470
Capital (Property) Costs	1,257	1,531	4,198	331	576	965
Average Partner Experience	1,257	14.543	5.281	10.583	14.142	18.130
Personnel Turnover	1,257	38.754	34.196	14.300	31.600	54.500
Licenses (non-CPA)	1,257	0.050	0.072	0.000	0.029	0.065
Proportion of Listed Clients	1,257	0.104	0.093	0.031	0.085	0.156
Market Share	1,257	0.013	0.037	0.002	0.004	0.007
Audit Mix	1,257	0.331	0.161	0.221	0.315	0.428
Tax Mix	1,257	0.202	0.145	0.121	0.170	0.232
MAS Mix	1,257	0.467	0.182	0.351	0.475	0.572

**Note:** This table shows summary statistics for accounting firm level variables to illustrate differences across strategic group. All monetary amounts are in millions of Korean Won. Size is equal to the firm's total assets, current ratio is equal to the ratio of current assets to current liabilities, financial leverage is equal to the ratio of long-term liabilities to owners' equity, capacity for damages is equal to the sum of [reserves for damage compensation, accumulated amount of joint fund for damages, and insurance for professional indemnity] and can be interpreted as a proxy for deep pockets, capital costs is equal to the sum of property related costs, average partner experience is equal to the average number of years of experience per partner in that year, personnel turnover is computed as  $[100 * (\text{new additions} + \text{quits}) / (\text{average personnel})]$  for each firm-year, licenses (non-CPA) is the number of licenses held by the firm aside from the CPA, proportion of listed clients is equal to the ratio of publicly listed clients (on KOSDAQ and

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KOSPI exchanges) to total clients, market share is equal to the ratio of total sales to industry sales in that year, and the service mix variables are equal to the ratio of sales generated from audit, tax, or managerial advisory services to total sales.

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*capacity for damages* is equal to the sum of [reserves for damage compensation, accumulated amount of joint fund for damages, and insurance for professional indemnity] and can be interpreted as a proxy for deep pockets, *capital costs* is equal to the sum of property related costs, *average partner experience* is equal to the average number of years of experience per partner in that year, *personnel turnover* is computed as  $[100 * (\text{new additions} + \text{quits}) / (\text{average personnel})]$  for each firm-year, *licenses (non-CPA)* is the number of licenses held by the firm aside from the CPA, *proportion of listed clients* is equal to the ratio of publicly listed clients (on KOSDAQ and KOSPI exchanges) to total clients, *market share* is equal to the ratio of total sales to industry sales in that year, and the service mix variables are equal to the ratio of sales generated from audit, tax, or managerial advisory services to total sales.

As per expectations, public accounting firm size, capital costs, capacity for damages, proportion of listed clients and market share are ranked in descending order across the BigN, OLD, NEW\_TRAD, and NEW\_ACCT firms respectively. Average partner experience is highest for the OLD firms at 24.7 years, followed by the BigN, NEW\_TRAD, and NEW\_ACCT firms at 19.3, 16.5, and 12.7 years respectively. The NEW\_ACCT firms have the highest average service mix for managerial advisory services at 55%, followed by BigN, NEW\_TRAD, and OLD at 40%, 29%, and 24% respectively. Moreover, the OLD firms have the highest average service mix for auditing services at 62%, followed by the BigN, NEW\_TRAD, and OLD at 47%, 44%, and 26% respectively. These service mix averages are consistent with expectations relating to those strategic

groups' primary areas of focus. The BigN are taking on the highest amount of financial leverage, followed by the NEW\_TRAD, OLD, and NEW\_ACCT firms respectively.

Table 4 exhibits descriptive statistics for the strategic choice variables separately by strategic group and also for the pooled sample. *CPAs* is equal to the number of licensed CPAs scaled by the number of personnel at the firm, *Personnel* is equal to the personnel related costs incurred by the firm in a year scaled by the number of personnel, and *Leverage* is equal to the ratio of number of non-partner personnel to number of partners. These variables are separately tabulated in order to highlight the differences in strategic choices across strategic group. On average, the BigN firms hold a higher proportion of CPAs, spend more on personnel costs, and leverage partner time more than all of the other strategic groups. Similarly, the OLD firms hold a higher proportion of CPAs, spend more on personnel costs, and leverage partner time more than both groups of new entrants. Among the new entrants, the NEW\_TRAD firms hold a higher proportion of CPAs and spend more on personnel costs than the NEW\_ACCT firms. However, the NEW\_TRAD firms are unable to leverage partner to the same extent as the NEW\_ACCT firms. These differences reflect the underlying economics driven by resource differences and differences in the type of services being provided which ultimately explain the respective strategic group formations.

My sample period ranges from 1997 to 2012, spanning over a 16 year period. Firms within a strategic group have resource based differences compared with firms from another strategic group and these differences may be long lasting. Further, there are mobility barriers that prevent firms from easily switching from one strategic group into another strategic group. The next set of graphs show the trends of average strategic choice variables



across strategic group to further illustrate the differences in strategic choices across strategic group.

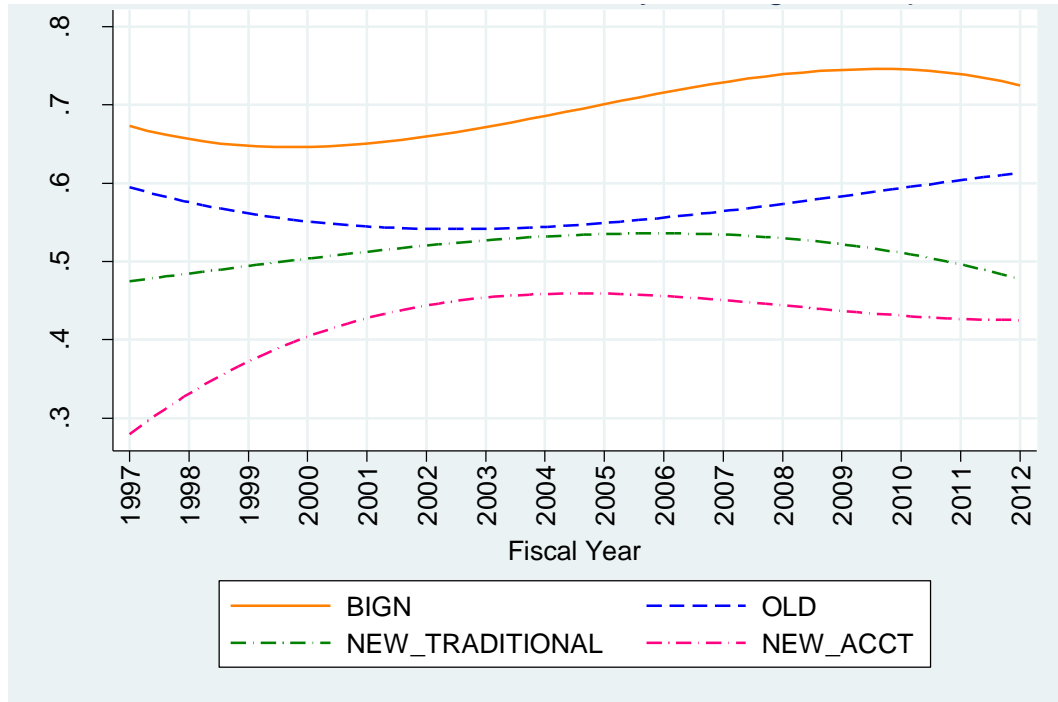
**Table 4**  
**Strategic Choice Variable Summary Statistics by Strategic Group**

Strategic Variable	Strategic Group	Mean	Std. Dev.	25th percentile	Median	75th percentile
<i>CPAs</i>	<i>BIGN</i>	0.690	0.090	0.635	0.684	0.749
	<i>OLD</i>	0.569	0.134	0.471	0.536	0.693
	<i>NEW_TRAD</i>	0.515	0.173	0.406	0.489	0.606
	<i>NEW_ACCT</i>	0.435	0.199	0.284	0.407	0.518
	<i>Pooled</i>	0.475	0.198	0.333	0.455	0.583
<i>Personnel</i>	<i>BIGN</i>	84.055	19.820	71.899	83.645	90.542
	<i>OLD</i>	69.166	13.876	60.352	69.698	78.362
	<i>NEW_TRAD</i>	64.643	24.296	51.135	63.941	77.812
	<i>NEW_ACCT</i>	54.177	25.399	42.297	52.581	62.783
	<i>Pooled</i>	58.669	25.542	45.107	56.370	69.536
<i>Leverage</i>	<i>BIGN</i>	17.240	4.653	14.950	16.902	20.180
	<i>OLD</i>	6.196	1.928	5.714	6.422	7.250
	<i>NEW_TRAD</i>	4.265	3.511	2.125	3.368	4.800
	<i>NEW_ACCT</i>	4.843	3.231	2.833	4.270	5.800
	<i>Pooled</i>	5.516	4.520	2.684	4.308	6.444

**Note:** This table exhibits the descriptive statistics for strategic variables across strategic group and for the pooled sample. The variables are computed as follows: *CPAs* = (number of CPAs) / (number of personnel), *Personnel* = (Personnel costs) / (number of personnel), *Leverage* = (number of non-partner personnel) / (number of partners).

Figure 2 shows the trend for the average proportion of CPAs across strategic group. The figure shows that the strategic groups' relative ranks for proportion of CPAs remain stable over the entire sample period. Interestingly, there is a consistent and steep increase in the proportion of CPAs for the NEW\_ACCT firms during the period between 1997 and 2004. This supports the NEW\_ACCT firms slowly transitioning toward more complex and

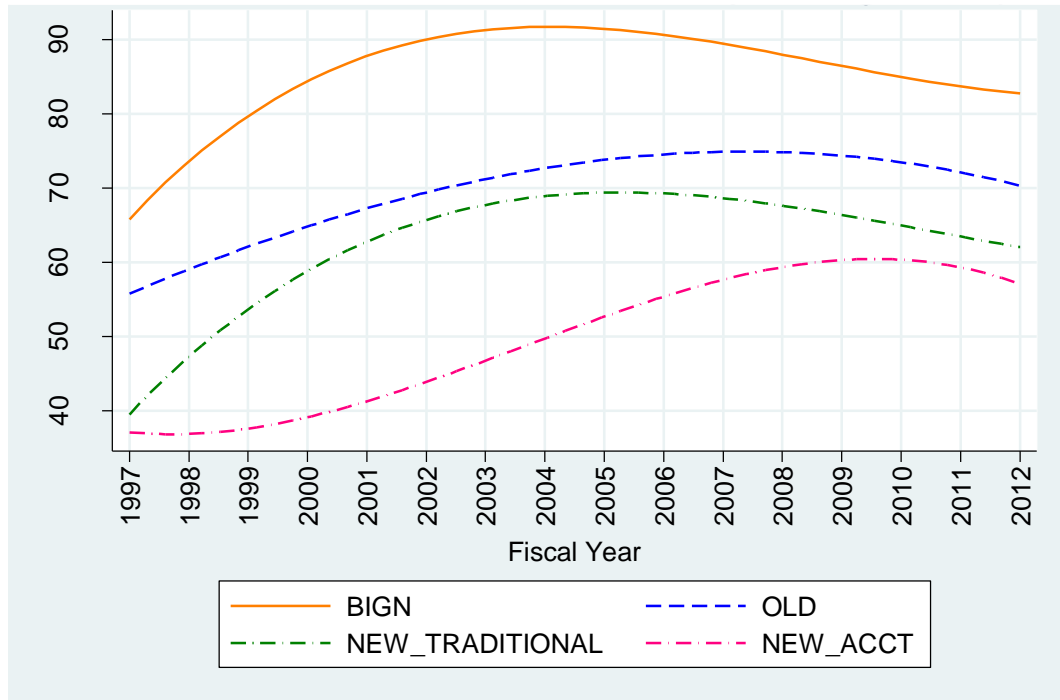
high level managerial advisory services soon after the financial crisis recovery period. These relative ranks also support my results from Table 3 – Panel C.



**Figure 2 – Smoothed CPAs Trend by Strategic Group**

Figure 3 shows the trend for the average personnel costs scaled by professionals across strategic group. The figure shows that the strategic groups’ relative ranks for personnel costs remain stable over the entire sample period. Interestingly, and similar to what is observed in figure 2, NEW\_ACCT firms narrow the gap between them and the NEW\_TRAD firms during the later years for personnel costs. This is consistent with NEW\_ACCT firms transitioning toward more complex managerial advisory services after the financial crisis recovery period. These relative ranks also support my results from Table 3 – Panel C.

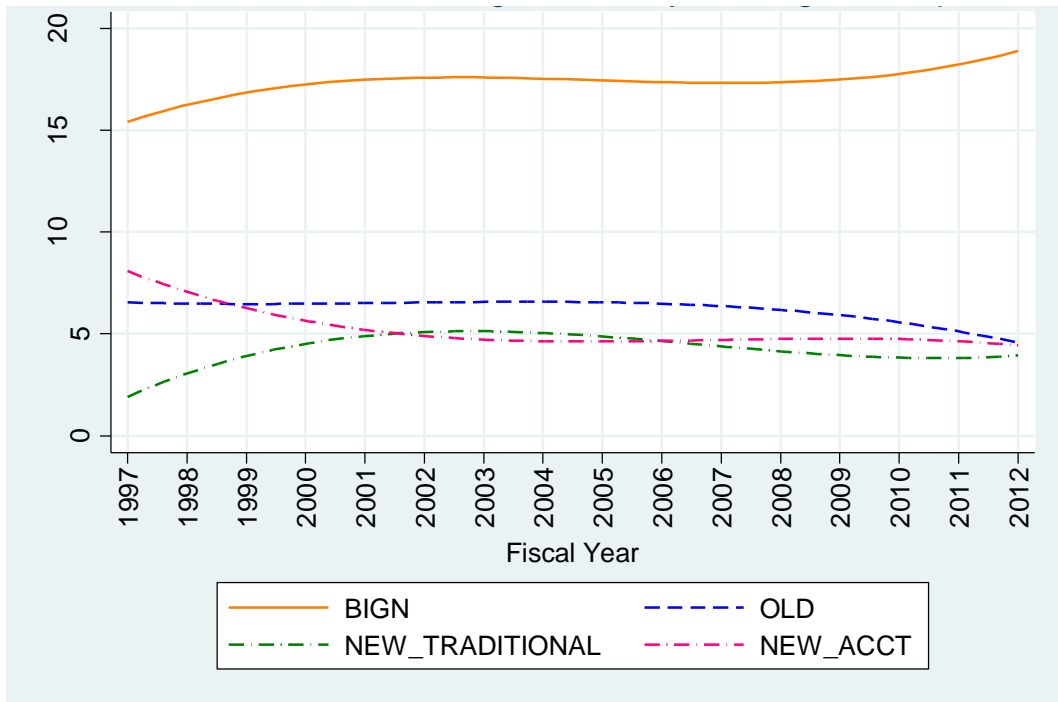
Figure 4 shows the trend for the average leverage across strategic group. The figure shows that the strategic groups' relative ranks for leverage remain mostly stable over the entire sample period. These relative ranks also support my results from Table 3 – Panel C. During the first few



**Figure 3 – Smoothed Personnel Costs Trend by Strategic Group**

years of the sample period, NEW\_ACCT firms start out leveraging partner time more than OLD firms. However, soon after, the NEW\_ACCT firms leverage drops below that of OLD firms and converges with that of NEW\_TRAD firms. This is consistent with the NEW\_ACCT firms transitioning toward more complex managerial advisory services during the period between 1997 and 2002. As they transition, their leverage drops below that of the experienced OLD firms but not below the NEW\_TRAD firms.

I conduct multivariate discriminant analysis (MDA) in order to validate the a priori strategic groups identified in this study. MDA is used to find a linear combination of features characterizing multiple classes of objects, where the dependent variable is a categorical variable, which in this case is strategic group classification. It reduces the differences between multiple variables in order to classify them into those groups.



**Figure 4 – Smoothed Leverage Trend by Strategic Group**

I use the audit firm-level characteristics summarized in table 3 to estimate the correlation coefficients, eigenvalues, and test discriminant dimensions. After reducing the dimensionality down to d-1 dimensions, where d = # of strategic groups, I show the predicted strategic groups based on the MDA parameters in Table 5. The results suggest that all 3 discriminant dimensions are needed to describe the differences across the four strategic groups and are found to be statistically significant at  $p < 0.01$ . Additionally, the

predicted classifications are 90% accurate for all strategic groups based on the a priori strategic group classifications. Specifically, 92% (71 out of 77) BIGN firm-year observations are correctly classified in the MDA analysis as their actual classification. Similarly, 98% (48 out of 49), 83% (255 out of 305), and 92% (755 out of 825) firm-year observations are correctly classified in the MDA analysis as their actual classification for the OLD, NEW\_TRAD, and NEW\_ACCT firms respectively. Table 5 shows results relating to this analysis.

**Table 5**  
**Multivariate Discriminant Analysis for Strategic Groups**

<b>Function</b>	<b>Canonical Correlation</b>	<b>Eigenvalue</b>	<b>Likelihood Ratio Test</b>	<b>F-test</b>	<b>p-value</b>
1	0.8937	3.96601	0.0783	118.18***	< 0.000
2	0.7188	1.06926	0.3888	57.466***	< 0.000
3	0.4422	0.243115	0.8044	25.262***	< 0.000

**Re-substitution Classification Summary**

<b>Classified</b> <b>Actual</b>					
	<i>BIGN</i>	<i>OLD</i>	<i>NEW_</i> <i>TRADITIONAL</i>	<i>NEW_</i> <i>ACCT</i>	<i>Total</i>
BIGN	71	1	2	3	77
OLD	0	48	1	0	49
NEW_TRAD	1	24	255	26	306
NEW_ACCT	0	9	61	755	825
% classified as actual	92%	98%	83%	92%	90%

**Note:** This table shows the tests relating to multivariate discriminant analysis for strategic groups. Panel A shows the correlation coefficients, eigenvalues, and tests for the discriminant dimensions (functions) which are all found to be statistically significant at  $p < 0.01$ . This suggests that all 3 dimensions are needed to describe the differences across the four strategic groups. Panel B shows that classification using MDA yields an overall accuracy of 90% validating the strategic groups.

## Empirical Results

My first-order empirical model analyzes how human resource strategic choices relate to performance variations for the pooled industry. Next, I allow the coefficients to vary based on strategic group membership to examine how the relationship between such choices and performance varies across strategic group. Finally, I include group-effects and within-effects to examine how group means and deviations from the group means affect performance – and how these relationships compare and relate to the first-order effects.

My empirical model isolates the group-effects from the within-effects and includes both in the model as explanatory variables for measures of firm performance. The dependent variables, which include measures of firm performance, include revenue per partner (RPP) and revenue per professional (RPPr). The following table provides evidence that the human resource variables such as CPA proportion, Personnel costs, and Leverage all play a significant role in firm performance. Furthermore, the group-effects associated with those variables dominate over individual effects. Group effects were computed by taking the difference between the firm-year variable and the group mean. The individual effects simply include the firm-year observations. The results in tables 6, 7, 8 and 9 support my predicted hypothesis about group-effects dominating over individual-effects. These results are also in harmony with the prior literature in the industrial organization and strategic management literatures.

<b>Table 6</b>					
<b>Strategic Groups and Performance - Revenue per partner</b>					
	Pooled	BIGN	OLD	NEW_TRAD	NEW_ACCT
VARIABLES	(1)	(2)	(3)	(4)	(5)
	RPP	RPP	RPP	RPP	RPP
CPA	14.67 (0.919)	-954.1* (0.0931)	58.06 (0.380)	137.8** (0.0169)	61.76 (0.301)
PERSONNEL	8.206*** (0.000)	19.67*** (0.000)	7.622*** (0.000)	6.023*** (0.000)	6.544*** (0.000)
LEVERAGE	100.9*** (0.000)	151.6*** (0.000)	81.26*** (0.000)	106.9*** (0.000)	79.48*** (0.000)
LN_ASSETS	7.643 (0.698)	-301.9 (0.152)	37.71*** (0.000)	-68.65** (0.0179)	11.14 (0.668)
CURR_RATIO	9.708 (0.138)	-251.9** (0.0335)	-33.47** (0.0344)	-3.041 (0.701)	3.425 (0.547)
FIN_LEVERAGE	-2.138 (0.918)	16.10 (0.789)	-29.28 (0.300)	-24.83 (0.300)	-26.66 (0.207)
DEEP_POCKETS	20.85 (0.201)	73.96*** (0.000)	6.603 (0.182)	32.14 (0.114)	17.81 (0.171)
LN_CAPITAL	-7.145 (0.651)	-193.0 (0.166)	48.49*** (0.000)	3.707 (0.864)	4.293 (0.813)
LN_PARTNER_EXP	-108.5** (0.0117)	303.7 (0.262)	200.6*** (0.000)	56.44 (0.160)	-38.05* (0.0790)
PROP_LISTED	-59.18 (0.682)	-147.8 (0.827)	171.6* (0.0577)	-30.91 (0.884)	-194.6* (0.0605)
MARKET_SHARE	2,442*** (0.000)	2,244 (0.244)	2,724*** (0.000)	3,399 (0.343)	7,209 (0.453)
AUD_MIX	17.14 (0.922)	-722.4 (0.307)	85.40 (0.271)	-244.6** (0.0294)	-16.07 (0.862)
MAS_MIX	95.01 (0.109)	-1,052** (0.0150)	178.9** (0.0199)	306.0* (0.0728)	212.4** (0.0224)
Constant	-390.3** (0.0134)	3,069 (0.267)	-2,015*** (0.000)	-256.0* (0.0962)	-527.2** (0.0297)
YEAR DUMMIES	Y	Y	Y	Y	Y
Observations	1,157	77	49	289	742
R-squared	0.918	0.936	0.997	0.946	0.832
Robust p-values in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

**Table 7**  
**Strategic Groups and Performance - Charge-out Rate**

	Pooled	BIGN	OLD	NEW_TRAD	NEW_ACCT
VARIABLES	(6) RPA	(7) RPA	(8) RPA	(9) RPA	(10) RPA
CPA	38.72*** (0.000)	-16.29 (0.548)	27.27 (0.428)	-29.62** (0.0404)	56.85*** (0.000)
PERSONNEL	1.691*** (0.000)	1.001*** (0.000)	1.321*** (0.000)	1.896*** (0.000)	1.688*** (0.000)
LEVERAGE	-3.199*** (0.000)	0.913*** (0.00314)	-9.596*** (0.000)	-3.210*** (0.000)	-3.522*** (0.001)
LN_ASSETS	-8.771** (0.0128)	-4.016 (0.689)	5.681* (0.0753)	-23.64*** (0.000)	-8.439* (0.0816)
CURR_RATIO	1.424 (0.129)	-9.124 (0.115)	-29.21*** (1.49e-05)	1.854** (0.0354)	1.075 (0.386)
FIN_LEVERAGE	0.00158 (1.000)	-0.0900 (0.978)	7.182 (0.122)	-9.415** (0.0494)	1.654 (0.603)
DEEP_POCKETS	3.431** (0.0101)	3.350*** (0.000495)	1.015 (0.569)	-0.866 (0.690)	3.307* (0.0566)
LN_CAPITAL	1.972 (0.506)	-6.995 (0.394)	-1.432 (0.796)	8.187* (0.0747)	1.369 (0.726)
LN_PARTNER_EXP	-13.84*** (0.000931)	11.95 (0.432)	-3.465 (0.867)	-5.359 (0.248)	-10.76** (0.0275)
PROP_LISTED	-8.300 (0.623)	-7.540 (0.818)	0.154 (0.996)	-0.569 (0.986)	-20.93 (0.228)
MARKET_SHARE	100.3* (0.0502)	20.59 (0.837)	562.9* (0.0984)	1,210*** (0.00661)	822.1 (0.276)
AUD_MIX	-0.846 (0.961)	-57.04 (0.129)	-145.5*** (0.00926)	60.27*** (0.00870)	-13.27 (0.511)
MAS_MIX	31.30** (0.0154)	-55.90** (0.0443)	-105.8** (0.0452)	50.38*** (0.00415)	23.05 (0.160)
Constant	73.04*** (0.000)	142.4 (0.354)	155.6 (0.116)	147.2*** (0.000)	66.75* (0.0793)
YEAR DUMMIES	Y	Y	Y	Y	Y
Observations	1,157	77	49	289	742
R-squared	0.796	0.793	0.968	0.856	0.813

Robust p-values in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



**Table 8 - Strategic Group Effects and Performance**

VARIABLES	(1) RPP	(2) dev_RPP	(3) RPA	(4) dev_RPA
GR_CPA	124.2 (0.350)		28.71*** (0.000)	
GR_PERSONNEL	11.78*** (0.000)		1.730*** (0.000)	
GR_LEVERAGE	114.9*** (0.000)		-2.303*** (0.000)	
DEV_CPA	-85.63 (0.335)	-38.84 (0.826)	36.59** (0.028)	41.48** (0.0244)
DEV_PERSONNEL	8.219*** (0.000)	8.066*** (0.000)	1.696*** (0.000)	1.684*** (0.000)
DEV_LEVERAGE	96.61*** (0.000)	97.31*** (0.000)	-3.363*** (0.000)	-3.360*** (0.000)
LN_ASSETS	-19.53 (0.609)	-2.195 (0.920)	-9.466*** (0.00203)	-6.266*** (0.000964)
CURR_RATIO	7.876*** (0.000822)	5.282* (0.0620)	1.336*** (0.000)	1.307*** (0.000)
FIN_LEVERAGE	-11.64 (0.652)	-3.030 (0.814)	-0.151 (0.966)	-1.777 (0.537)
DEEP_POCKETS	16.42*** (0.00284)	12.28** (0.0292)	3.205*** (0.000)	2.823*** (0.000)
LN_CAPITAL	-4.900 (0.755)	-10.86 (0.553)	1.893* (0.0736)	1.070 (0.114)
LN_PARTNER_EXP	-95.33** (0.0321)	-58.96 (0.101)	-13.15*** (0.000)	-10.39*** (0.000)
PROP_LISTED	-112.4* (0.0572)	-141.2* (0.0505)	-10.05 (0.253)	-10.02 (0.207)
MARKET_SHARE	1,431*** (0.000)	526.9 (0.361)	69.30*** (0.00356)	57.38* (0.0864)
AUD_MIX	39.30 (0.851)	58.25 (0.755)	1.043 (0.948)	11.07 (0.356)
MAS_MIX	194.8*** (0.000562)	111.4 (0.104)	30.97*** (0.000)	16.47*** (0.000)
Constant	-563.9* (0.0923)	86.99 (0.759)	76.85*** (0.000)	40.72*** (0.00404)
Year Dummies	Y	Y	Y	Y
Observations	1,157	1,157	1,157	1,157

R-squared	0.924	0.816	0.797	0.777
Robust pval in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

**Table 9 - Group vs. Individual Effects**

Tests of Group vs. Individual effects	Chi-Square	p-value
<b><u>RPP</u></b>		
GR_CPA > DEV_CPA	2.03*	0.0769
GR_PERSONNEL > DEV_PERSONNEL	5.16**	0.0116
GR_LEVERAGE > DEV_LEVERAGE	3.76**	0.0262
<b><u>RPA</u></b>		
GR_CPA > DEV_CPA	0.19	0.6697
GR_PERSONNEL > DEV_PERSONNEL	0.07	0.3985
GR_LEVERAGE > DEV_LEVERAGE	10.11***	0.0008

CHAPTER 4  
CLIENT CHARACTERISTICS AND AUDIT FEES

Estimation Models

I apply traditional audit fee models to the public accounting industry in Korea. The models that I use are those used in the following audit fee studies: (1) Ferguson et al. (2003), (2) Chaney et al. (2004), and (3) Francis et al. (2005). In this section, I present each model that I use and discuss how it is adapted for the panel data of the public accounting industry in Korea. The next section will discuss the expected direction of parameters in the audit fee models.

*Adapted version of Francis et al. (2005)<sup>19</sup>:*

$$\begin{aligned}LAF = & \alpha + \beta_1 LTA + \beta_2 CATA + \beta_3 QUICK + \beta_4 DE + \beta_5 ROI + \beta_6 FOREIGN \\ & + \beta_7 OPINION + \beta_8 YE + \beta_9 LOSS + \sum \beta_i INDUSTRYDUMMIES \\ & + \sum \beta_j YEARDUMMIES + \varepsilon\end{aligned}$$

Where LAF equals the natural log of audit fees, CATA equals the ratio of current assets to total assets, QUICK equals the ratio of current assets (less inventory) to current liabilities, DE equals the ratio of long term debt to total assets, ROI equals the ratio of earnings before interest and taxes to total assets, FOREIGN equals the ratio of foreign sales

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<sup>19</sup> Francis et al. (2005) test the impact of city-, national-, and joint-leadership on audit fees. Since the focus of this study is not only those test variables, they are omitted from the model. I include year dummies, which are not previously included in the model, in order to account for year fixed effects. Further, the original model included a control for the number of subsidiaries that a firm had. This acted as a proxy for firm complexity. Due to data constraints, I omit this variable but include another proxy for firm complexity, FOREIGN, which measures the proportion of foreign sales.

to total sales, OPINION is an indicator variable for qualified opinion, YE is an indicator variable for clients with a 12/31 year-end, LOSS is an indicator if the firm incurred a loss in the current year, INDUSTRYDUMMIES represent a series of dummy variables to control for industry fixed effects, and YEARDUMMIES represent a series of dummy variables to control for year fixed effects.

*Adapted version of Ferguson et al. (2003)<sup>20</sup>:*

$$\begin{aligned}
 LAF = & \alpha + \beta_1 LTA + \beta_2 CATA + \beta_3 QUICK + \beta_4 DE + \beta_5 ROI + \beta_6 FOREIGN \\
 & + \beta_7 OPINION + \beta_8 YE + \beta_9 LOSS + \beta_{10} INDLEADER1 \\
 & + \beta_{11} INDLEADER2 + \sum \beta_i INDUSTRYDUMMIES \\
 & + \sum \beta_j YEARDUMMIES + \varepsilon
 \end{aligned}$$

Where LAF equals the natural log of audit fees, CATA equals the ratio of current assets to total assets, QUICK equals the ratio of current assets (less inventory) to current liabilities, DE equals the ratio of long term debt to total assets, ROI equals the ratio of earnings before interest and taxes to total assets, FOREIGN equals the ratio of foreign sales to total sales, OPINION is an indicator variable for qualified opinion, YE is an indicator variable for clients with a 12/31 year-end, LOSS is an indicator if the firm incurred a loss in the current year, INDLEADER1 is an indicator for the top ranked auditor within the industry in that year, INDLEADER2 is an indicator for the second ranked auditor within

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<sup>20</sup> Ferguson et al. (2003) included a control for the number of subsidiaries that a firm had. This acted as a proxy for firm complexity. Due to data constraints, I omit this variable but include another proxy for firm complexity, FOREIGN, which measures the proportion of foreign sales. I include year dummies and industry dummies, which are not previously included in the model, in order to account for year fixed effects and industry fixed effects.

the industry in that year, INDUSTRYDUMMIES represent a series of dummy variables to control for industry fixed effects, and YEARDUMMIES represent a series of dummy variables to control for year fixed effects.

*Adapted version of Chaney et al. (2004) – single stage model<sup>21</sup>:*

$$\begin{aligned}
 LAF = & \alpha + \beta_1 LTA + \beta_2 CATA + \beta_3 QUICK + \beta_4 DE + \beta_5 ROI + \beta_6 FOREIGN + \beta_8 YE \\
 & + \beta_9 BIGN + \beta_{10} ATURN + \beta_{11} ROI * LOSS + \beta_{12} YE * LTA \\
 & + \sum \beta_i INDUSTRYDUMMIES + \sum \beta_j YEARDUMMIES + \varepsilon
 \end{aligned}$$

Where LAF equals the natural log of audit fees, CATA equals the ratio of current assets to total assets, QUICK equals the ratio of current assets (less inventory) to current liabilities, DE equals the ratio of long term debt to total assets, ROI equals the ratio of earnings before interest and taxes to total assets, FOREIGN equals the ratio of foreign sales to total sales, YE is an indicator variable for clients with a 12/31 year-end, BIGN is an indicator variable if the auditor is one of the Big 4 auditors in the industry, ATURN equals the ratio of sales to total assets, INDUSTRYDUMMIES represent a series of dummy variables to control for industry fixed effects, and YEARDUMMIES represent a series of dummy variables to control for year fixed effects.

*Adapted version of Chaney et al. (2004) – 2-stage self-selection Heckman model:*

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<sup>21</sup> Chaney et al. (2004) originally includes a London dummy variable, which is not applicable to this study and so it is omitted. It also includes a variable that equals the absolute value of extraordinary items included in earnings during that year divided by total assets. Due to data availability constraints, that variable is omitted from the adapted model. That variable captures market risk, which I control for using year dummies. Chaney et al. (2004) does not include year dummies or industry dummies. I control for both sets of dummies to control for year fixed and industry fixed effects respectively. These comments apply for the adapted Chaney et al. (2004) 2-stage self-selection Heckman model as well.

Following Chaney et al. (2004), in the first stage, I estimate consistent estimates from a probit regression of a *Big\_N* indicator variable on selection determinants based on the following equation:

$$BIGN = \alpha + \beta_1 LTA + \beta_2 CATA + \beta_3 QUICK + \beta_4 DE + \beta_5 ROI + \beta_6 ATURN + \beta_7 ROI * LOSS + \beta_8 FOREIGN + \varepsilon$$

These estimates are then used to compute the inverse mills ratio, which is included as an additional explanatory variable in the second stage model by regressing the natural logarithm of audit fees on explanatory variables:

$$LAF = \alpha + \beta_1 LTA + \beta_2 CATA + \beta_3 QUICK + \beta_4 DE + \beta_5 ROI + \beta_6 FOREIGN + \beta_8 YE + \beta_{10} ATURN + \beta_{11} ROI * LOSS + \beta_{12} YE * LTA + \beta_{13} \lambda + \sum \beta_i INDUSTRYDUMMIES + \sum \beta_j YEARDUMMIES + \varepsilon$$

Chaney et al. (2004) present results for both the single-stage model and the 2-stage self-selection Heckman model which simultaneously estimates parameters and addresses issues with self-selection bias from clients selecting auditors based on characteristics that may be associated with fees and lead to an endogenous relationship.

#### Expected Direction of Parameters

In this section, I will discuss the expected direction<sup>22</sup> of parameters estimated from the traditional audit fee models applied to the public accounting industry in Korea. Traditional models of audit fees use a set of variables that control for factors affecting audit

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<sup>22</sup> The expected direction of parameters follows prior audit literature, primarily, the audit studies that are replicated in this study: Ferguson et al. (2003), Chaney et al. (2004), and Francis et al. (2005).

fees such as the client size, audit complexity, and auditor-client risk sharing (Ferguson et al. 2003). The dependent variable is the natural logarithm of audit fees and is regressed on the set of control variables that may explain its variation. Variables such as audit fees and firm size (as proxied by total assets) are transformed using the natural logarithm of the original value in order to linearize them.

With respect to the control variables in the models used, higher fees are expected (positive signs) for larger clients (LTA), greater audit complexity (FOREIGN), and greater audit risk (DE and CATA). A positive sign is expected for OPINION as modified opinions require greater audit efforts to reconcile audit deviations and determining that a modification is justified. QUICK captures the liquidity of a company and since less liquid companies (lower quick ratio) pose a greater audit risk, it is expected to be negatively associated with audit fees. On the other hand, a higher ROI signifies a more profitable client and poses a lower risk to the auditor. Hence, ROI is negatively associated with audit fees. Prior studies have found LOSS to be negatively associated with audit fees since clients with operating losses may be unable to pay high fees for an audit. However, since the relationship between ROI (measure of profitability) and audit fees is likely to be more important for firms incurring a loss due to litigation claims following losses, the coefficient for ROI is allowed to differ across profitable and loss-making firms (Chaney et al. 2004).

Clients with off-peak financial year-ends<sup>23</sup> (YE) are expected to have lower fees and so YE is negatively associated with audit fees. However, since larger clients are audited throughout the year (interim procedures and quarterly reviews) the incremental work load

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<sup>23</sup> In this data, the peak year-end is 12/31 as is the case for U.S. firms. The model in Ferguson et al. (2003) uses Australian data and so it codes the variable YE using 6/30 as the peak year-end.

for these firms may be lower during year-end (Chaney et al. 2004). Accordingly, the coefficient for larger firms is allowed to vary with peak or off-peak year-ends. ATURN, or the asset turnover ratio, represents audit effort and is expected to be positively associated with audit fees. INDLEADER1 and INDLEADER2 represent firms specializing in an industry. Industry specialists are expected to charge higher fees for providing a differentiated and higher quality service; hence, both of these variables are expected to be positively associated with audit fees. Similarly, BIGN represents the 4 largest firms in the industry, which have been linked to higher quality services and higher fees. Accordingly, BIGN is expected to be positively associated with audit fees. The adapted models control for industry and year fixed effects by including industry and year dummies respectively.

### Descriptive Statistics

Table 6 shows the descriptive statistics for variables included in the audit fees models described in this section. Furthermore, the panels in table 6 separately compute the descriptive statistics for each strategic group in the industry to show the heterogeneity across strategic group. The graph after table 6 shows the average trend of audit fees in the public accounting industry over the years. The graph separately shows the average trend for each strategic group in the industry. As evidenced by the descriptive statistics, there are clear differences across strategic group with respect to their clientele characteristics, audit firm level characteristics, and auditor-client relationship level characteristics.



CHAPTER 5  
AUDIT FEES, STRATEGIC CHOICES, AND STRATEGIC GROUP MEMBERSHIP

Hypotheses Development

Agency theory posits that there exists an information problem between buyers and sellers (Stigler 1961). This information problem creates demand for the seller to signal the quality of the product or service and to distinguish the seller from other lower quality sellers (Spence 1973). The seller incurs a cost to signal, but higher quality sellers will be able to gain a sustainable competitive advantage over competitors and charge a premium price to offset the cost of signaling. In the public accounting context, the sellers are the auditors and they must signal their quality in order to gain a competitive advantage and charge a fee premium to the clients (buyers). One way that public accounting firms signal their quality is by holding a higher proportion of licensed CPAs. The CPA license is recognized around the world and professionals must pass a rigorous exam and satisfy the required education and experience requirements to become licensed. Prior research documents that CPAs are more accurate than non-CPAs in finding accounting-related errors (Galletta et al. 1993). CPAs can benefit public accounting firms by (1) allowing them to signal a higher quality of services and (2) yielding actual productivity improvements from licensed CPAs. Accordingly, I use the proportion of CPAs held by the public accounting firm as one of the strategic choice variables.

I expect that the choice of CPAs will vary across strategic group in a systematic way based on the type and complexity of services. The BigN firms, which serve the largest and most complex clients, should require the highest proportion of CPAs out of all strategic groups. Next, the other set of incumbent firms, the OLD firms should require a higher proportion of CPAs than the new entrants. Finally, the NEW\_TRAD firms should require

a higher proportion of CPAs than the NEW\_ACCT firms since they provide a more complex set of services than the NEW\_ACCT who focus on routine managerial advisory services. Ultimately, there is a minimum requirement for the number of CPAs to form a public accounting firm and provide audit services. Furthermore, all partners are required to be licensed CPAs. However, firms can influence the proportion of CPAs they hold through recruiting practices and incentives. For example, certain firms offer a generous bonus for professionals to pass the CPA exam within a certain period of time. Additionally, firms may require a CPA license for promotion to a certain position within the firm. On the other hand, firms may elect to hire only those who have already passed the CPA exam.

Firms that signal a higher quality of service by way of licensed CPAs will be able to gain a competitive advantage over other competing firms in the same strategic group. The extent to which this competitive advantage will translate to audit pricing depends on the extent to which a CPA license is valued by clients in that strategic group and the service focus of audit firms within the industry. The BigN firms that differentiate their service and develop industry expertise are able to charge a fee premium (Casterella et al. 2004). DeFond et al. (2000) show evidence that an industry specialization premium is present for BigN industry specialists but not for non-BigN industry specialists. Further, they point out that non-BigN industry specialists create scale economies from increased market share through lower fees for clients seeking lower-priced audits. Similarly, if the CPA license is used to signal a higher quality of service, then the signal will yield a price premium for the less price-sensitive clientele of BigN and OLD firms.

Compared to the incumbent BigN and OLD firms, the NEW\_TRAD firms cater to much smaller and more price sensitive clients. A smaller proportion of NEW\_TRAD firms'

clients are publicly listed and so they are less likely to appreciate a mere signal of quality without tangible quality improvements. NEW\_TRAD firms have less experienced CPAs than OLD firms. More than half of OLD firms' CPAs have excess of 15 years of CPA experience. Contrarily, approximately 36% of NEW\_TRAD firms' CPAs have more than 15 years of CPA experience. Furthermore, the ratio of apprentice CPAs to registered CPAs is 0.26 for NEW\_TRAD firms and 0.17 for OLD firms. Apprentice CPAs are professionals who are training to be CPAs, many of whom are recent graduates who have already passed the exam or are training for the exam. NEW\_TRAD firms have less experienced CPAs and a higher ratio of apprentice CPAs who are nearly licensed CPAs. For NEW\_TRAD firms, this diminishes the actual differences in productivity and quality between the CPA and non-CPA designations relative to OLD firms, rendering the CPA license as a less effective signal to command a price premium. Whether these forces will affect NEW\_TRAD firms' ability to command a higher audit fee premium with greater proportion of CPAs is an empirical question. This leads me to my first hypothesis in alternate form:

*H1: CPA firms command a higher audit fee premium with a greater proportion of CPAs*

One of the most important costs that professional service firms incur is those relating to firm professionals. A large proportion of public accounting firm expenses are comprised of personnel costs such as professionals' compensation, benefits, recruitment costs, and training and development costs. Firms that want to attract, retain, and develop high quality professionals must spend more per professional on these costs. This is in large part due to the information problem between the audit firm and its personnel (Stigler 1961). In order to screen out higher quality professionals, the firm must develop contracts which create a separating equilibrium whereby higher quality individuals who are more

productive earn a higher wage (Stiglitz 1975). Accordingly, I use personnel costs scaled by professionals as another strategic choice variable.

I expect that the choice to spend on personnel will vary systematically across strategic group based on type and complexity of services as did the choice for proportion of CPAs. BigN firms are known to make significant investments in recruiting, retaining, and developing personnel (Sirois et al. 2012). To attract highest quality talent, they must offer industry leading compensation. Hence, I expect the BigN firms to spend the most on personnel costs (scaled by personnel), followed by the OLD firms. Among the new entrants, I expect the NEW\_TRAD firms to spend more on personnel costs in order to recruit, retain, and develop talent to provide the more complex services relative to NEW\_ACCT firms.

Firms that are able to successfully recruit, retain, and develop high quality professionals by spending more per professional on personnel costs such as compensation, benefits, and training, will be able to differentiate their service and gain a competitive advantage over other firms in the same strategic group. The extent to which this competitive advantage allows those firms to charge an audit fee premium depends on the extent to which higher quality professionals, while holding CPAs fixed, allow auditors to provide a higher quality audit. Additionally, the strength of the relationship between personnel costs and productivity determines whether a firm can develop a competitive advantage at all. When higher personnel costs do not effectively lead to productivity gains, the firm may be unable to establish a competitive advantage and to command a price premium.

The OLD firms' partners have 24.7 years of experience on average. This is the highest of all strategic groups by a considerable margin. The BIGN, NEW\_TRAD, and NEW\_ACCT firms' partners have 19.3, 16.5, and 12.7 years of experience on average respectively. Additionally, OLD firms' CPAs are the most experienced of all strategic groups. It is well documented in labor economics literature that older more experienced personnel enter into an implicit contract with seniority wages which results in a steeper wage profile than productivity profile (Lazear 1979). As a result, long tenured professionals' compensation may exceed their marginal product. Along those lines, Topel (1991) documents wage gains which are attributable solely to tenure rather than productivity gains. Further, prior work has documented that seniority based pay and promotion prevail in Korea much more so than in other economies, thereby weakening the relationship between personnel costs and personnel output for an older labor force (Hwang 2006).

Prior economics studies generally accept that average tenure (mobility) increases (decreases) with age (e.g. Dustmann and Meghir 2005, Groot and Verberne 1997, Mincer 1962). Studies assert that long tenured older personnel have attachments to their employer, cohorts, and community which reduces their mobility. Further, they are more likely to consider non-financial forms of compensation (Groot and Verberne 1997). The OLD firms have the lowest turnover rate of all strategic groups at 28%. The BIGN, NEW\_TRAD, and NEW\_ACCT firms have an average turnover rate of 51%, 39%, and 37% respectively. These statistics support prior literature documenting that long tenured and experienced personnel, as held by the OLD firms, tend to have lower mobility. Considered together, these factors weaken the relationship between personnel costs and productivity for OLD

firms, which then reduces their ability to command a price premium for when they spend more on personnel costs.

Firms with high turnover face additional personnel related adjustment costs (Becker 1962). Professionals who leave must be replaced and new prospects must be recruited and trained. Firms who are able to bear these personnel costs will gain a competitive advantage over competitors who choose to spend less on personnel. In the South Korean public accounting industry, the BigN (NEW\_TRAD) firms have the highest (second highest) average rate of personnel turnover of all strategic groups. Further, these strategic groups have younger professionals with a higher proportion of apprentice and junior level CPAs than OLD firms. Accordingly, I expect that personnel costs (scaled by professionals) will be more informative of audit quality and hence allow the BigN and NEW\_TRAD firms to command an audit fee premium. Whether the relative experience, age, and turnover at OLD firms affect their ability to command a higher audit fee premium with greater personnel costs is an empirical question. This leads me to my second hypothesis in alternate form:

*H2: CPA firms command a higher audit fee premium with greater personnel costs per professional*

Finally, firms must make decisions relating to staff planning. Prior research points out that the decision maker for staff planning has the following objectives: (1) maximize profit, (2) accommodate projected bookings, (3) avoid unnecessarily increasing or decreasing audit staff, (4) minimize underutilization, and (5) achieve professional development goals (Balachandran and Steuer 1982). Keeping these objectives in mind, public accounting firms must properly leverage partner time and professional intellect

(Quinn et al. 1996, 2005). Quinn et al. (1996) point out that leveraging is particularly important in the professional services industries and requires a balancing act. Firms that can successfully leverage partner time and rely on high quality professionals will gain a competitive advantage by employing a low cost input mix. On the other hand, firms that under-supervise professionals and overly rely on under-qualified professionals will sacrifice their quality of services. Firm leveraging decisions will primarily depend on (1) the quality of professionals (firms are more likely to rely on high quality professionals more), (2) complexity of services (more complex services will require higher partner supervision), and (3) the need for leveraging partner time due to larger client engagements.

I expect leverage to vary systematically across strategic group based on group characteristics and complexity of services. BigN firms are able to attract the highest quality professionals relative to non-BigN firms. Accordingly, I expect them to leverage partner time more than non-BigN firms. Similarly, OLD firms have been around for many years and have well established service programs and checklists allowing professionals to efficiently provide services. Accordingly, I expect OLD firms to be more leveraged than the new entrants. Finally, I expect NEW\_ACCT firms to be more leveraged than the NEW\_TRAD firms since they provide less complex services requiring a lower level of partner supervision.

Firms that can successfully leverage partner time by relying on non-partner professionals will be able to achieve a low-cost input mix and gain a competitive advantage over other firms in the same strategic group. Whether a greater reliance on non-partner professionals leads to a competitive advantage depends on the quality of professionals, complexity of services being provided, and the need to leverage partner time due to larger

engagement sizes. BigN firms invest heavily in audit technology to improve the efficiency and effectiveness of professionals (Xin and Sarath 2012). BigN auditors tend to have much larger clientele than non-BigN auditors, and so they tend to have a relatively greater need for much larger engagement teams placing a greater reliance on non-partner professionals. In light of this critical need, those BigN firms that can successfully leverage partner time by relying on high quality personnel can gain a competitive advantage over other BigN auditors, and command an audit fee premium. This leads me to my third hypothesis in alternate form:

*H3: BigN firms command a higher audit fee premium with greater leveraging of partner time*

The NEW\_ACCT firms' primary service focus is managerial advisory services. More specifically, they rely on routine accounting services such as bookkeeping and compilations which are categorized as managerial advisory services. Since majority of their revenues are generated from providing these types of services, while a very small fraction of their revenues come from audit services (approximately 26%), I do not expect the strategic choices of NEW\_ACCT firms to have any significant relationship with the pricing of audits.

In sum, the three strategic choice variables that I focus on are (1) number of licensed CPAs (scaled by personnel), (2) personnel costs (scaled by personnel), and (3) the ratio of the number of non-partner professionals to the number of partners (leverage). These three strategic choices relate to the effective signaling, screening, and leveraging that auditing firms must do relating to firm professionals in order to gain a competitive advantage over



other firms. Further, these strategic choices will vary across strategic group based on underlying strategic group conditions, and their implementation should have a differential relationship with the pricing of audits.

### Research Design

In order to carry out the analysis of how strategic choices relate to the pricing of audits within-strategic group, I build on the Francis et al. (2005) model by incorporating strategic choice variables and allowing parameters to vary across strategic group. Allowing parameters to vary by strategic group allows parameter tests to examine competition within group and to interpret how strategic choices within a group relate to the pricing of audits within that particular strategic group. First, I carry out the base analysis without the strategic choice variables to validate the model in the Korean research setting. Next, I include the strategic choice variables to test the association between strategic choices and the pricing of audits. All models are estimated using ordinary least squares regression estimation with standard errors clustered by firm and year.

Adapted version of Francis et al. (2005)<sup>24</sup>:

$$(1) LAF_{it} = \alpha + \beta_1 LTA_{it} + \beta_2 CATA_{it} + \beta_3 QUICK_{it} + \beta_4 DE_{it} + \beta_5 ROI_{it} \\ + \beta_6 FOREIGN_{it} + \beta_7 OPINION_{it} + \beta_8 YE_{it} + \beta_9 LOSS_{it} \\ + \sum \beta_u INDUSTRYDUMMIES + \sum \beta_v YEARDUMMIES + \varepsilon$$

where  $i$ , and  $t$  index clients and fiscal years respectively,  $LAF$  equals the natural log of audit fees,  $LTA$  equals the natural log of total assets,  $CATA$  equals the ratio of current assets to total assets,  $QUICK$  equals the ratio of current assets (less inventory) to current liabilities,  $DE$  equals the ratio of long term debt to total assets,  $ROI$  equals the ratio of earnings before interest and taxes to total assets,  $FOREIGN$  equals the ratio of foreign sales to total sales,  $OPINION$  is an indicator variable for qualified opinion,  $YE$  is an indicator variable for clients with a 12/31 year-end,  $LOSS$  is an indicator if the firm incurred a loss in the current year,  $INDUSTRYDUMMIES$  represent a series of dummy variables to control for industry fixed effects, and  $YEARDUMMIES$  represent a series of dummy variables to control for year fixed effects.

Next I include strategic choice variables in the empirical model in order to examine the relationship between strategic choices and the pricing of audits within strategic group. Model (2) builds on model (1) by including strategic choice variables and allowing the

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<sup>24</sup> Francis et al. (2005) test the impact of city-, national-, and joint-leadership on audit fees. Since the focus of this study is not only those test variables, they are omitted from the model. I include year dummies, which are not included in the original model, in order to account for year fixed effects in a large panel of data. Further, the original model included a control for the number of subsidiaries that a firm had. This acted as a proxy for firm complexity. Due to data constraints, this variable has been omitted. However, other variables such as  $LTA$  and  $FOREIGN$  capture firm complexity.

slope coefficients to vary across strategic group by interacting each of the terms with the strategic group indicators.

*Adapted version of Francis et al. (2005) including strategic choice variables:*

$$\begin{aligned}
 (2) \text{LAF}_{it} = & \sum (\alpha_f \times \text{STRATGROUP}) + \text{STRATGROUP} \times [\beta_1 \text{CPA}_j \\
 & + \beta_2 \text{PERSONNEL}_j + \beta_3 \text{LEVERAGE}_j + \beta_4 \text{LTA}_{it} + \beta_5 \text{CATA}_{it} \\
 & + \beta_6 \text{QUICK}_{it} + \beta_7 \text{DE}_{it} + \beta_8 \text{ROI}_{it} + \beta_9 \text{FOREIGN}_{it} + \beta_{10} \text{OPINION}_{it} \\
 & + \beta_{11} \text{YE}_{it} + \beta_{12} \text{LOSS}_{it} + \sum (\beta_u \text{INDUSTRYDUMMIES}) \\
 & + \sum (\beta_v \text{YEARDUMMIES})] + \varepsilon
 \end{aligned}$$

where  $i$ ,  $t$ , and  $j$  index clients, fiscal years, and audit firms respectively, *STRATGROUP* equals the mutually exclusive set of strategic group indicators, *CPA* equals the number of licensed CPAs at the audit firm level scaled by the number of professionals, *PERSONNEL* equals the total personnel costs at the audit firm level scaled by the number of professionals, and *LEVERAGE* equals the ratio of the number of professionals to partners.

The dependent variable is the natural logarithm of audit fees and is regressed on the set of control variables that may explain its variation. Variables such as audit fees and firm size (as proxied by total assets) are transformed using the natural logarithm of the original value in order to linearize them. With respect to the control variables, higher fees are expected (positive signs) for larger clients (*LTA*), greater audit complexity (*FOREIGN*), and greater audit risk (*DE* and *CATA*). A positive sign is expected for *OPINION* as modified opinions require greater audit efforts to reconcile audit deviations and determining that a modification is justified. *QUICK* captures the liquidity of a company

and since less liquid companies (lower quick ratio) pose a greater audit risk, it is expected to be negatively associated with audit fees. On the other hand, a higher *ROI* signifies a more profitable client and poses a lower risk to the auditor. Hence, *ROI* is negatively associated with audit fees. Prior studies have found *LOSS* to be negatively associated with audit fees since clients with operating losses may be unable to pay high fees for an audit. Clients with off-peak financial year-ends (*YE*) are expected to have lower fees and so *YE* is negatively associated with audit fees. The adapted models control for industry and year fixed effects by including industry and year dummies respectively.

Although the expected direction of the parameter for *DE* is expected to be positive, there are significant differences in the institutions in Korea which may in fact lead to a different result. The South Korean chaebols and east-Asian companies in general tend to have very high debt to equity ratios (often two to one or more) compared to western companies which often do not exceed one to one. Equity markets are not sufficient to provide the necessary capital for large companies to expand and grow so borrowing is much more common. After the Asian financial crisis, banks began monitoring debt much more strongly and this may offset some of the risk from auditors, potentially changing the relationship between *DE* and audit fees.

Similarly, although the expected direction of the parameter for *LOSS* is expected to be negative, Korean institutions may lead to a different result. Fan and Wong (2002) point out East Asian economies tend to have high ownership concentration in companies. High ownership concentration results in rent extracting behavior from minority shareholders and makes earnings less informative. Furthermore, Ball Kothari and Robin (2000) document that companies in code law countries, such as South Korea, are less timely in incorporating

economic losses. This may result in the relationship between *LOSS* and audit fees being different from what is expected in the U.S. setting. The following table lists and defines the variables used in this study.

### Descriptive Statistics

After merging the audit-firm level data with engagement-level and client firm-level data, the test sample is made up of 18,121 engagement-year observations. In table 11, I show descriptive statistics for variables relating to the audit pricing model. The descriptive statistics relating to the strategic choice variables are shown at the audit firm level in another table. The statistics are computed by strategic group to show differences in client characteristics across strategic group. In table 12, I show the correlation coefficients for all the variables used in the empirical model. The respective p-values are presented below the correlation coefficients in parentheses. I computed VIFs for each variable to ensure that there are no issues with multicollinearity.

### Empirical Results

Strategic groups make strategic choices relating to CPAs, personnel costs, and leveraging partner time. These choices relate to the underlying economic and regulatory conditions as well as the groups' relative accessibility to these strategic resources. In Table 13, I conduct tests of differences in means for the strategic choice variables across strategic group to verify if the differences are statistically significant. All of the differences across strategic group are statistically significant and in the expected directions as specified in

**Table 10**  
**Variable Definitions**

<b>Variables</b>	<b>Definition</b>
<i>LAF</i>	equals the natural logarithm of audit fees for engagement
<i>CPA</i>	equals the ratio of licensed certified public accountants to total number of professionals at the audit firm
<i>PERSONNEL</i>	equals total costs incurred relating to personnel including compensation, benefits, and training scaled by total number of professionals
<i>LEV</i>	equals the ratio of number of non-partner professionals to number of partners
<i>LTA</i>	equals the natural logarithm of total assets at the client
<i>CATA</i>	equals the ratio of current assets to total assets
<i>QUICK</i>	equals the ratio of current assets less inventory to current liabilities
<i>DE</i>	equals the ratio of total long-term debt to total equity
<i>ROI</i>	equals the ratio of operating income to total assets
<i>FOREIGN</i>	equals the ratio of foreign sales to total sales
<i>OPINION</i>	equals 1 for modified opinions and 0 otherwise
<i>YE</i>	equals 1 for non-12/31 fiscal year-ends and 0 for 12/31 year-ends
<i>LOSS</i>	equals 1 when firm incurs a loss and 0 otherwise
YEAR DUMMIES	indicator variables for each fiscal year to control for time fixed effects
INDUSTRY DUMMIES	indicator variables for each industry code to control for industry fixed effects

section II. The tests support that the BigN firms hold a higher proportion of CPAs, spend more on personnel costs, and leverage partner time more than all of the other strategic

groups. Similarly, the OLD firms hold a higher proportion of CPAs, spend more on personnel costs, and leverage partner time more than both groups of new entrants. Among the new entrants, the NEW\_TRAD firms hold a higher proportion of CPAs and spend more on personnel costs than the NEW\_ACCT firms. However, the NEW\_TRAD firms are unable to leverage partner to the same extent as the NEW\_ACCT firms. These differences reflect the underlying economics driven by resource differences and differences in the type of services being provided which ultimately explain the respective strategic group formations.

The difference in CPAs across OLD and NEW\_TRAD is statistically significant for  $\alpha = 0.05$ , the difference in Personnel across OLD and NEW\_TRAD is statistically significant for  $\alpha = 0.1$ . All other differences are statistically significant at  $\alpha = 0.01$ . This provides further support and validation for the strategic groups. The p-values and significance levels are all based on two-tailed t-tests of differences in means.

**Table 11**  
**Summary Statistics by Strategic Group for Audit Pricing Model Variables**

Variables	N	Mean	Std. Dev.	25th percent	50th percent	75th percent
<b><i>BigN</i></b>						
Fees (KRW million)	10,156	92.358	149.311	39.000	54.965	86.070
Assets (KRW million)	10,156	907,000	3,800,000	48,700	117,000	368,000
LAF	10,156	4.148	0.737	3.664	4.007	4.455
LTA	10,156	18.870	1.597	17.702	18.579	19.722
CATA	10,156	0.479	0.198	0.336	0.481	0.626
QUICK	10,156	2.175	6.395	0.679	1.122	1.981
DE	10,156	0.055	0.142	0.000	0.012	0.059
ROI	10,156	0.031	0.262	0.009	0.046	0.088
FOREIGN	10,156	0.255	0.313	0.000	0.086	0.468
OPINION	10,156	0.020	0.142	0.000	0.000	0.000
YE	10,156	0.048	0.213	0.000	0.000	0.000
LOSS	10,156	0.252	0.434	0.000	0.000	1.000
<b><i>OLD</i></b>						
Fees (KRW million)	2,433	72.238	885.753	32.306	43.027	57.932
Assets (KRW million)	2,433	185,000	489,000	34,500	69,400	155,000
LAF	2,433	3.792	0.519	3.475	3.762	4.059
LTA	2,433	18.167	1.155	17.356	18.055	18.860
CATA	2,433	0.508	0.189	0.366	0.511	0.652
QUICK	2,433	3.266	36.878	0.750	1.269	2.161
DE	2,433	0.055	0.146	0.000	0.010	0.057
ROI	2,433	0.013	0.158	-0.002	0.040	0.078
FOREIGN	2,433	0.255	0.312	0.000	0.090	0.465
OPINION	2,433	0.020	0.141	0.000	0.000	0.000
YE	2,433	0.059	0.236	0.000	0.000	0.000
LOSS	2,433	0.296	0.457	0.000	0.000	1.000
<b><i>NEW TRAD</i></b>						
Fees (KRW million)	2,378	47.763	25.468	33.728	42.421	55.817
Assets (KRW million)	2,378	110,000	342,000	32,500	57,300	100,000
LAF	2,378	3.767	0.430	3.518	3.748	4.022
LTA	2,378	17.921	0.958	17.296	17.863	18.423
CATA	2,378	0.501	0.177	0.380	0.509	0.629
QUICK	2,378	2.422	7.765	0.727	1.216	2.319
DE	2,378	0.049	0.134	0.000	0.007	0.053
ROI	2,378	0.001	0.154	-0.030	0.028	0.072
FOREIGN	2,378	0.265	0.319	0.000	0.088	0.495
OPINION	2,378	0.032	0.176	0.000	0.000	0.000
YE	2,378	0.044	0.205	0.000	0.000	0.000



LOSS	2,378	0.360	0.480	0.000	0.000	1.000
<b><u>NEW ACCT</u></b>						
Fees (KRW million)	3,154	43.742	20.296	30.852	39.167	51.642
Assets (KRW million)	3,154	77,500	100,000	27,200	48,800	84,800
LAF	3,154	3.690	0.413	3.429	3.668	3.944
LTA	3,154	17.722	0.912	17.117	17.703	18.255
CATA	3,154	0.507	0.193	0.368	0.509	0.650
QUICK	3,154	2.923	10.842	0.730	1.268	2.483
DE	3,154	0.049	0.246	0.000	0.005	0.048
ROI	3,154	-0.017	0.202	-0.054	0.023	0.068
FOREIGN	3,154	0.225	0.293	0.000	0.059	0.401
OPINION	3,154	0.030	0.170	0.000	0.000	0.000
YE	3,154	0.058	0.233	0.000	0.000	0.000
LOSS	3,154	0.411	0.492	0.000	0.000	1.000
<b><u>Pooled</u></b>						
Fees (KRW million)	18,121	75.343	344.077	35.167	47.710	69.389
Assets (KRW million)	18,121	561,000	2,880,000	37,800	78,200	213,000
LAF	18,121	3.971	0.660	3.560	3.865	4.240
LTA	18,121	18.451	1.454	17.447	18.175	19.176
CATA	18,121	0.491	0.194	0.352	0.494	0.635
QUICK	18,121	2.484	15.297	0.702	1.171	2.136
DE	18,121	0.053	0.165	0.000	0.010	0.057
ROI	18,121	0.016	0.229	-0.001	0.039	0.082
FOREIGN	18,121	0.251	0.310	0.000	0.082	0.459
OPINION	18,121	0.024	0.152	0.000	0.000	0.000
YE	18,121	0.051	0.219	0.000	0.000	0.000
LOSS	18,121	0.300	0.458	0.000	0.000	1.000

The next set of result tables test hypotheses relating to the relationship between audit firm strategic choices and audit pricing across strategic group. Table 14 estimates parameters relating to the adapted Francis et al. (2005) model separately for each strategic group. The innovative feature of this research design is that it allows the parameters to vary across strategic group and considers that the relationships between audit pricing and its determinants may vary across strategic group since firms compete within their respective strategic group. The models also include year fixed effects to address serially correlated error terms and industry fixed effects to control for factors that may vary across industry. The robust standard errors for all estimation models are clustered by firm and year.

**Table 12**  
**Spearman Correlations Coefficients**

	LAF	CPA	PERSONNEL	LEVERAGE	LTA	CATA	QUICK	DE	ROI	FOREIGN	OPINION	YE	LOSS
<b>LAF</b>	1												
<b>CPA</b>	0.2795 (0.000)	1											
<b>PERSONNEL</b>	0.2408 (0.000)	0.6227 (0.000)	1										
<b>LEVERAGE</b>	0.294 (0.000)	0.5135 (0.000)	0.5289 (0.000)	1									
<b>LTA</b>	0.6917 (0.000)	0.2403 (0.000)	0.1752 (0.000)	0.2898 (0.000)	1								
<b>CATA</b>	-0.213 (0.000)	-0.038 (0.000)	-0.0342 (0.000)	-0.054 (0.000)	-0.263 (0.000)	1							
<b>QUICK</b>	-0.256 (0.000)	-0.04 (0.000)	-0.0257 (0.001)	-0.046 (0.000)	-0.248 (0.000)	0.4831 (0.000)	1						
<b>DE</b>	0.0907 (0.000)	-0.007 (0.3965)	-0.015 (0.0494)	0.0328 (0.000)	0.1866 (0.000)	-0.208 (0.000)	-0.323 (0.000)	1					
<b>ROI</b>	0.079 (0.000)	0.1043 (0.000)	0.0762 (0.000)	0.144 (0.000)	0.2581 (0.000)	0.1836 (0.000)	0.1739 (0.000)	-0.012 (0.121)	1				
<b>FOREIGN</b>	0.0522 (0.000)	-0.001 (0.858)	0.0278 (0.0003)	0.0153 (0.046)	0.0815 (0.000)	-0.015 (0.057)	-0.082 (0.000)	0.1298 (0.000)	0.0368 (0.000)	1			
<b>OPINION</b>	0.0068 (0.377)	-0.037 (0.000)	-0.0274 (0.000)	-0.024 (0.002)	-0.084 (0.000)	-0.031 (0.000)	-0.113 (0.000)	0.0158 (0.039)	-0.178 (0.000)	-0.038 (0.000)	1		
<b>YE</b>	-0.048 (0.000)	-0.03 (0.000)	-0.0135 (0.078)	-0.016 (0.038)	-0.035 (0.000)	-0.008 (0.326)	-0.013 (0.087)	0.0019 (0.808)	-0.015 (0.050)	-0.004 (0.579)	0.0313 (0.000)	1	
<b>LOSS</b>	-0.064 (0.000)	-0.095 (0.000)	-0.0623 (0.000)	-0.113 (0.000)	-0.279 (0.000)	-0.094 (0.000)	-0.163 (0.000)	-0.006 (0.447)	-0.673 (0.000)	-0.014 (0.071)	0.1924 (0.000)	0.0093 (0.224)	1

**Note:** This table shows the spearman correlation coefficients for the variables used in this study. The P-values are in parentheses to show the significance level of the correlation coefficients.

**Table 13**  
**Tests of Difference in Strategic Choice Variables across Strategic Group**

	<b>Test</b>	<b>Difference</b>	<b>p-value</b>
<i>CPAs</i>	BIGN = OLD	0.121 ***	< 0.000
	BIGN = NEW_TRAD	0.175 ***	< 0.000
	BIGN = NEW_MAS	0.255 ***	< 0.000
	OLD = NEW_TRAD	0.054 **	0.015
	OLD = NEW_ACCT	0.134 ***	< 0.000
	NEW_TRAD = NEW_ACCT	0.080 ***	< 0.000
<i>Personnel</i>	BIGN = OLD	14.035 ***	< 0.000
	BIGN = NEW_TRAD	18.832 ***	< 0.000
	BIGN = NEW_ACCT	29.158 ***	< 0.000
	OLD = NEW_TRAD	4.796 *	0.065
	OLD = NEW_ACCT	15.122 ***	< 0.000
	NEW_TRAD = NEW_ACCT	10.326 ***	< 0.000
<i>Leverage</i>	BIGN = OLD	11.044 ***	< 0.000
	BIGN = NEW_TRAD	12.975 ***	< 0.000
	BIGN = NEW_ACCT	12.397 ***	< 0.000
	OLD = NEW_TRAD	1.931 ***	< 0.000
	OLD = NEW_ACCT	1.353 ***	< 0.000
	NEW_TRAD = NEW_ACCT	-0.578 ***	< 0.000

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Note:** This table exhibits the tests of means of strategic variables across strategic group. The p-values are based on two-tailed t-tests.

The table shows results for the pooled sample, then for each strategic group separately. For the pooled estimations, the parameters are all in the expected direction except for FOREIGN and YE, which are not significant. The adjusted R-squared for the pooled sample is 0.67, which is close to the ones reported in other U.S. based audit-pricing studies (Ferguson et al. 2003, Chaney et al. 2004, Francis et al. 2005). The parameter for DE is not positive and significant for the pooled sample as is the case for U.S. firms. This

is consistent with the high level of borrowing in South Korea and increased bank monitoring of debt which offsets the auditors' risk. Similarly, the parameter for LOSS is not positive and significant as with U.S. audit pricing studies. This is consistent with the less timely incorporation of economic losses into accounting income in code law countries such as South Korea (Ball et al. 2000). Further, earnings (and losses) are less informative in countries with high ownership concentration (Fan and Wong 2002). The Vuong-test confirms that the strategic group analysis, which allows the relationship between audit fee and its determinants to vary across strategic group yields a significantly better model fit at  $p\text{-value} < 0.000$ . The results support separate estimation of audit pricing models by strategic group due to considerable variation in magnitude and significance of parameters across strategic group.

In the next model, I include strategic choice variables in the adapted Francis et al. (2005) audit pricing model to conduct empirical tests of hypotheses from section II. The parameters for the strategic choice variables are estimated separately for each strategic group just as they are for all of the control variables. Table 13 shows the parameter estimates for this model.

The coefficient on CPA is positive and significant at  $p < 0.01$  for BigN firms and positive and significant at  $p < 0.05$  for OLD firms. These results support hypotheses 1 and 2. Consistent with expectations, the proportion of CPAs is not significantly associated with audit fees for the new entrants. The results suggest that both the BigN and OLD firms signal a higher quality services by holding a higher proportion of CPAs, and that this allows those firms to charge an audit fee premium relative to other members of their respective strategic

**Table 14**  
**Audit Pricing and Strategic Group Membership**

VARIABLES	Expected Direction	BASE MODEL	STRATEGIC GROUP ANALYSIS MODEL (2)			
		(1)	BIGN	OLD	NEW_TRAD	NEW_ACCT
LTA	+	0.389*** (0.000)	0.410*** (0.000)	0.311*** (0.000)	0.287*** (0.000)	0.249*** (0.000)
CATA	+	0.0598* (0.063)	0.0940** (0.0335)	0.137** (0.0312)	-0.0249 (0.361)	0.0320 (0.265)
QUICK	-	-0.00120*** (0.001)	-0.00371*** (0.000)	-0.000633*** (0.000)	-0.00230*** (0.006)	-0.00179** (0.015)
DE	?	-0.0828* (0.0625)	-0.168*** (0.000)	0.0309 (0.288)	-0.163*** (0.001)	0.0307 (0.1135)
ROI	-	-0.195** (0.013)	-0.127** (0.0328)	-0.443*** (0.000)	-0.354*** (0.000)	-0.279*** (0.000)
FOREIGN	+	0.0233 (0.116)	0.0313* (0.0945)	0.0857** (0.0218)	0.0311 (0.1835)	0.0105 (0.364)
OPINION	+	0.187*** (0.000)	0.184*** (0.000)	0.0775* (0.0935)	0.184*** (0.002)	0.163*** (0.002)
YE	-	-0.0280 (0.166)	-0.0286 (0.1935)	-0.0284 (0.317)	-0.00769 (0.4145)	0.0469* (0.099)
LOSS	?	0.126*** (0.000)	0.124*** (0.000)	0.0107 (0.327)	0.0829*** (0.001)	0.141*** (0.000)
Constant		-3.697*** (0.000)	-3.906*** (0.000)	-2.068*** (0.000)	-1.629*** (0.00217)	-1.539*** (0.000)
Industry FE		Included	Included	Included	Included	Included
Year FE		Included	Included	Included	Included	Included
Observations		18,121	9,947	2,433	2,378	3,154
R-squared		0.678	0.690			

Vuong test (traditional) vs (strategic group): Z-test = -6.0952\*\*\*, p-value < 0.000

**Note:** This table presents parameter estimates for audit pricing both pooled (1) and across strategic group (2)-(5) using standard errors clustered by firm and year. The p-values are presented in parentheses. \*, \*\*, and \*\*\* indicate significance at alpha levels 0.1, 0.05, and 0.01 respectively in one-tailed tests. Parameters are allowed to vary across strategic group from (2)-(5) by interacting independent variables by each strategic group. A positive Z-statistic in a Vuong test of model X vs. model Y indicates that model X performs better.

**Table 15**  
**Audit Pricing, Strategic Choice, Strategic Group Membership**

VARIABLES	Expected Direction	BASE MODEL	STRATEGIC GROUP ANALYSIS MODEL (2)			
		(1)	BIGN	OLD	NEW_TRAD	NEW_ACCT
CPA	?	0.0907 (0.173)	0.597*** (0.002)	0.219** (0.037)	0.0648 (0.232)	-0.0869 (0.172)
PERSONNEL	?	0.000259 (0.342)	0.00115*** (0.000)	-0.000983 (0.229)	0.00138** (0.024)	-0.000689 (0.103)
LEV	?	0.00546*** (0.000)	0.00988*** (0.000)	-0.00876 (0.138)	0.00299 (0.117)	0.000160 (0.481)
LTA	+	0.377*** (0.000)	0.407*** (0.000)	0.311*** (0.000)	0.285*** (0.000)	0.249*** (0.000)
CATA	+	0.0490 (0.101)	0.0865** (0.040)	0.123** (0.044)	-0.0276 (0.344)	0.0308 (0.273)
QUICK	-	-0.00114*** (0.003)	-0.00375*** (0.000)	-0.000661*** (0.000)	-0.00225** (0.012)	-0.00180** (0.033)
DE	?	-0.0827* (0.072)	-0.171*** (0.000)	0.0351 (0.263)	-0.161*** (0.001)	0.0281 (0.141)
ROI	-	-0.194** (0.014)	-0.131** (0.028)	-0.438*** (0.000)	-0.363*** (0.000)	-0.278*** (0.000)
FOREIGN	+	0.0237 (0.118)	0.0355* (0.066)	0.0856** (0.022)	0.0328 (0.172)	0.0108 (0.360)
OPINION	+	0.184*** (0.000)	0.175*** (0.001)	0.0740 (0.106)	0.183*** (0.002)	0.165*** (0.001)
YE	-	-0.0264 (0.172)	-0.0269 (0.202)	-0.0346 (0.287)	-0.00293 (0.468)	0.0434 (0.120)
LOSS	?	0.130*** (0.000)	0.120*** (0.000)	0.0103 (0.328)	0.0810*** (0.000)	0.142*** (0.000)
Constant		-3.633*** (0.000)	-4.733*** (0.000)	-2.064*** (0.000)	-1.768*** (0.000)	-1.465*** (0.000)
Industry FE		Included	Included	Included	Included	Included
Year FE		Included	Included	Included	Included	Included
Observations		18,121	9,947	2,433	2,378	3,154
R-squared		0.683	0.697			
Vuong test (traditional) vs. (strategic group): Z-test = -6.4133***, p-value < 0.000						

**Note:** This table presents parameter estimates for audit pricing both pooled (1) and across strategic group (2)-(5) using standard errors clustered by firm and year. The p-values are presented in parentheses. \*, \*\*, and \*\*\* indicate significance at alpha levels 0.1, 0.05, and 0.01 respectively in one-tailed tests. Parameters are allowed to vary across strategic group from (2)-(5) by interacting independent variables by each strategic group. A positive Z-statistic in a Vuong test of model X vs. model Y indicates that model X performs better.

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group. Next, the coefficient on PERSONNEL is positive and significant at  $p < 0.01$  for BigN firms and positive and significant at  $p < 0.05$  for NEW\_TRAD firms. These results support hypotheses 3 and 4. Personnel costs (scaled by number of professionals) are not significantly associated with audit fees for OLD and NEW\_ACCT firms. The results suggest that both the BigN and NEW\_TRAD firms attract, retain, and develop higher quality talent by incurring personnel costs, allowing those firms to charge an audit fee premium relative to other members of their respective strategic group.

Further, the coefficient on LEVERAGE is positive and significant at  $p < 0.01$  for BigN firms. This result supports hypothesis 5. The variable LEVERAGE is not significantly associated with audit fees for the non-BigN firms. The results suggest that the strategic choice to leverage partner time is associated with an audit fee premium only within the BigN strategic group. Finally, there is no significant association between the strategic choices and audit pricing for the NEW\_ACCT firms. This is consistent with expectations since NEW\_ACCT firms focus on specific routine managerial advisory services, and so their strategic choices do not have any direct relationship with the pricing of audits. These results support the hypotheses motivated in section II. Further, the results provide evidence of significant differences in the relationship between strategic choices and within-group audit fee premium. The Vuong-test confirms that the strategic group analysis, which allows the relationship between audit fee and its determinants to vary

across strategic group yields a significantly better model fit at  $p\text{-value} < 0.000$ . This further supports the classification of strategic groups and separate estimation of audit pricing parameters.



## CHAPTER 6 CONTRIBUTION

In this dissertation proposal, I examine the public accounting industry in Korea in the midst of a changing regulatory environment and competitive landscape. I appeal to the resource based view of the firm by identifying relative differences in strategic group resources to classify strategic groups within the industry. Prior accounting studies have used blunt indicators to measure some of the differences within the public accounting industry. I develop hypotheses and models to address how strategic group membership explains variations in performance in the industry. Particularly, I show that group effects dominate over individual effects in explaining performance variations as captured by revenue per partner. I further show how other human resource strategic choices relate to performance and how this relationship differs depending on the strategic group. In the subsequent sections, I apply traditional audit fee models to the public accounting industry in Korea. Finally, I augment traditional audit fee models by incorporating strategic group analysis and motivating hypotheses relating to how strategic groups moderate the relationship between audit fee determinants and audit fees.

This study contributes to prior literature by examining the impact of regulation and economic stimuli on the public accounting industry. Korean CPA firms are required to publicly disclose their business reports beginning in 1997. This allows for accessibility to detailed information that I use in order to identify strategic groups and strategic positioning which are then examined over a 16 year sample period. Knowing how public accounting firms behave in response to regulation and economic conditions can help aid in making optimal regulatory decisions. Having access to detailed public accounting industry data in

an environment that is rapidly changing due to regulatory and economic forces allows for a perfect storm opportunity to research strategic groups and performance variations in terms of both overall firm performance and with respect to audits.

Some of the preliminary findings and descriptive statistics suggest that the industry is shifting from an oligopolistic structure to a more competitive one. In light of this, the incumbent firms lose considerable ability to command premium as new entrants increase their market share. Furthermore, trend graphs show significant differences in strategic positioning and service focus between the two groups of new firms: NEW\_TRAD and NEW\_MAS. As strategic groups modify strategic positioning in response to economic forces, the relationship between strategic groups and audit fees may also be moderated by the extent of competition in the industry. Further, the relationship between audit fee determinants and audit fees may depend on strategic groups. The research proposal applies traditional audit fee models using the public accounting industry in Korea and develops hypotheses and research models to examine between group and within group differences in the relationship between audit fee determinants and audit fees.

Prior research examining the public accounting industry and audit pricing has been limited due to data constraints. This dissertation contributes to prior work by incorporating auditor and auditor-client relationship level variables into a consolidated audit fees model which allows the slope coefficient across strategic group to vary for all auditor and auditor-client relationship level while holding the slope coefficients constant for all strategic groups for client characteristics. This design holds the level of auditor effort fixed and then tests for the differences within strategic group and between strategic groups in their relationship with audit fees.

This research opens up avenues for future research concerning the public accounting industry. Particularly, as partners are key resources varying in their type and quality, future research can trace partner movement by tracing client switches and examining the relationship this may have with resource accessibility. Additionally, future research can develop a refined translog production function for the public accounting industry using the rich firm level data to build on the work of Banker et al. (2003). This may provide key insights regarding the productivity of public accounting firms and how it is affected by variations in resources.

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