The strategic role of Non-audit Services in Audit Markets

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There has been an extensive debate about whether the joint provision of audit and non-audit services (NAS) impairs auditor independence and objectivity. Literature suggest that joint delivery of the audit and NAS may generate knowledge spillover effects that could lead to economic rents, integrity and increased audit quality. We model that markets are better off when audit firms provide NASs together where firms are indifferent between the benefits of economic rents and the independence costs. The findings have implications for audit profession, regulators and policy makers such as PCAOB deliberation over whether additional NAS should be banned or relaxed for auditors.

INTRODUCTION

The independence of auditors in the performance of their professional duties is considered a cornerstone of the auditing profession. Over the past five decades, an extensive debate has existed amongst regulators, practitioners, and researchers about whether the joint provision of audit and non-audit services (NAS) impairs auditor independence and objectivity (AICPA, 1978; Mautz and Sharaf, 1961; Pany and Reckers, 1983; SEC, 2000; Zeff, 2003; Ghosh Kallapur and Moon, 2009; Beaulieu and Reinstein, 2010). Since the 1990s there has been a growth in NAS by public accounting firms; non-audit service fees have increased significantly while audit fees have shown little growth, or in some instances even decreased (Iyer, Iyer and Mishra, 2003). An implication of this is that the revenue from these fees could make an auditor vulnerable to economic pressures from the client, creating an economic bond that could impair auditor independence, resulting in reduced audit quality. Several researchers have found evidence in support of this economic bonding assertion (Frankel et al., 2002; Sharma and Sidhu, 2001; Wines, 1994). Contrary evidence is presented by other researchers (Krishnan and Yu, 2011; Knechel, Sharma and Sharma, 2012; Lim and Tan, 2008; Simunic, 1984); their studies have shown that an increase in the provision of NAS increases the efficiency of audit services, because joint provision of these services creates knowledge spillover effects, leading to economic rents and enhanced audit quality.

Enron's accounting scandal changed entire auditing market especially perception about audit independence while jointly providing audit and non-audit services to the same client (Benston, 2002). The US Securities and Exchange Commission (SEC) issued a regulation (SEC, 2003) that prevents auditors performing non-audit services to their audit clients to mitigate the independence issues in audit market. Liu and Chan (2012) examined the effects of this regulatory change on the effort and reporting decisions of audit partners. They showed that partners in an audit firm strategically change the firm's liability-sharing rule which is expected. As a consequence, the regulation restores truthful reporting but has an

undesirable negative effect on audit effort. The effect of the regulation on the welfare of the economy entirely depends on the tradeoff between the benefit (truthful reporting) and the cost (less diligent audit work) of the regulation. They also show that regulation more likely to increase the market welfare in a strong legal regime than in a weak legal regime.

Following above arguments, especially Liu and Chan (2012) we acknowledge the likelihood of both effects, and instead show that there can be an optimal distribution of audit and non-audit services; in other words, there can be a productive tradeoff between knowledge spillover on the one hand, and objectivity and independence on the other. Using analytical game theory, we model the optimal distribution of auditing services and NAS that would increase the market wealth overall.

In our game setting we examine two cases, both assuming that the investor takes the audited report at face value; (1) the auditor provides auditing services, but no NAS, and (2) the auditor provides auditing and NAS jointly to the same clients. In the first case, we show that the investor does not discount the auditor report because there is no independence issue concern. The auditor could therefore put in less effort because audit quality would be less important in comparison to the second case, where the auditor provides NAS and audit services to the same client. In the second case, we show that providing a certain level of NAS allows the audit firm to enjoy knowledge spillover effects which produce economic rents. The increases in the revenue of the audit firm from providing NAS allow the firm to pay higher wages for better auditors and therefore increase the quality of the audit. Nonetheless, beyond a certain level of NAS services, the audit market will be faced with a conflict of interest problem, since providing NAS eventually causes an independence issue.

Our analytical models provide guidance for the optimal level of NAS provision for audit firms if they choose to provide these services to their audit clients. This should be of interest to auditors as they seek simultaneously to increase the revenue from and quality of their audit and NAS services; to regulators who are responsible for policies for audit practices; to investors assessing the provision of audit and NAS services when calculating the value of a firm; and to audit and financial reporting researchers.

The remainder of the paper is organized as follows: Section 2 provides a review of the literature and the motivation for the current study. Our model is presented in Section 3. The results are discussed in Section 4. Finally, Section 5 summarizes and concludes our study.

MOTIVATION AND LITERATURE REVIEW

Auditors are crucial intermediaries in financial markets, providing opinions about the reliability of financial statements that are prepared by the executive management of reporting entities. This role of the auditor is seen as an efficient control mechanism used to decrease the agency problem that may otherwise exist (Jensen and Meckling, 1976). Moreover, an independent auditor is needed for the proper functioning of the monitoring process (Watts and Zimmerman, 1983; Chaney, Jeter, 2003). Auditors are independent when they can carry out their work freely and objectively. Independence permits auditors to render the impartial and unbiased judgments essential to the proper conduct of audits.

There are currently competing theories in the literature concerning the independence of auditors who jointly provide auditing services and NAS: the Economic Bonding theory and the Knowledge Spillover Effects theory.

Economic Bonding

An economic bond forms between an audit firm and its client when the audit firm's economic dependence on the client reduces the auditor's independence, rendering the auditor less willing to resist management pressure (Kinney and Libby, 2002; Kim and Yi, 2009). Some research suggests this bond can be created when non-audit services fees are relatively high (Firth, 2002; Frankel et al., 2002; Sharma and Sidhu, 2001). According to Iyer, Iyer and Mishra (2003), the revenue mix of the largest auditing firms shifted toward NAS during the 1990s. In 1990, accounting and audit services accounted for 71% of the revenue from audit clients while NAS accounted for 12%. In 1999, the corresponding ratios were

48% and 32% respectively where the remaining source of revenues came from tax services. The United States Securities and Exchange Commission (SEC) noted: "The dramatic expansion of non-audit services may fundamentally alter the relationships between the auditors and their audit clients in two principal ways. First, as auditing becomes a smaller portion of a firm's business with its audit clients, auditors become increasingly vulnerable to economic pressures from audit clients. Second, certain non-audit services, by their very nature, raise independence issues" (SEC 2000).

The concern over the joint provision of audit and NAS received heightened attention due to accounting scandals, for instance those surrounding Enron, WorldCom, Adelphia, and Global Crossing (Benston, 2002). These audit failures led to increased regulation in the United States, specifically the Sarbanes-Oxley Act of 2002 (SOX) (Branson, Carcello, Hollingsworth and Neal, 2009). Effective May 6, 2003, the SEC strengthened its requirements regarding the independence of accountants that audit financial statements, banning auditors from providing nine categories of NAS (SEC, 2003). SOX is strictly applied within the audit profession; in fact, some of the major accounting firms sold their consulting units to avoid any appearance of, or consequences from, conflicts of interest (e.g., PwC to IBM).

SOX is enforced only for US public firms, but the world audit market is discussing the American experience on banning consulting services for audit companies entirely. For instance, in the European Union (EU), Michel Barnier, and the European Commissioner for Internal Market and Services questioned whether audit firms should be allowed to perform NAS for the companies they audit (Fidler, 2010b). Later, European Union legislation to reform the statutory audit market was adopted in April 2014. The laws are expected to apply from mid-June 2016, and regulate provisioning of non-audit services i.e. certain non-audit services are prohibited to their clients (PWC, 2015). And, there is a public debate in New Zealand over auditor independence and possible reforms driven by international accounting scandals (Hay, Knechel and Li, 2006; Knechel, Sharma, and Sharma, 2012).

Researchers have found evidence supporting the economic bonding theory. Sharma and Sidhu (2001) found that auditors are less likely to issue a going concern qualification to audit clients that generate a higher proportion of non-audit fees. Firth (2002) found that high NAS are associated with clean audit opinions. He suggests reasons for this relationship may be a lack of auditor independence, though it could also be that consultancy services clear up uncertainties and disagreement prior to the audit. Frankel et al. (2002) test for an association between earnings management and auditor fees and find that firms purchasing more NAS are more likely to just meet or slightly exceed analysts' expectations. As a possible explanation, they offer that auditors have fewer incentives to prevent this behavior. Testing both pre- and post-SOX timeframes, Hoitash, Markelevich, and Barragato, (2007) find a negative association between total fees and audit quality, consistent with economic bonding impacting auditor independence.

The threat of reputation loss, lawsuits, and the application of a discount to the company's stock price provide auditors incentive to behave independently and follow regulations. Accordingly, it might be posited that the provision of NAS does not compromise auditor independence, because potential punishments are so large, even devastating (e.g., Anderson). However, Beeler and Hunton (2001) examine the effect of contingent economic rents on professional judgments and impairment of auditor independence; they conclude that independence impairment is typically the result of unconscious biases that would distort audit outcomes, not the result of conscious opportunistic behaviors.

But, there is also evidence that is contrary to the economic bonding theory. Higgs and Skantz (2006) find only some evidence that high NAS fees are associated with lower ERCs, which they interpret as limited support that the market interprets abnormally profitable nonaudit engagements as creating an economic bond that threatens auditor independence. DeFond et al. (2002) could not find a relationship between a going concern opinion (a proxy for auditor independence) and non-audit fees; they maintain that auditors have strong incentives to remain independent. Using a sample of distressed companies, Geiger and Rama (2003) find no significant association between nonaudit fees and the likelihood of auditors issuing a going-concern modified audit opinion. Using a sample of US firms that subsequently file for bankruptcy, Callaghan, Mohinder, and Singhal (2009) find no association between non-audit fees

and the likelihood of a going concern opinion. Ashbaugh, , LaFond, and Mayhew (2003) do not find an association between non-audit fees and positive discretionary accruals (a proxy for auditor independence).

The mixed support for NAS impairing auditor independence suggests there may be a degree to which an auditor firm may constructively provide NAS to its audit clients before independence is compromised. Our research contributes to the literature by demonstrating a theoretical optimal level of NAS provisions.

Knowledge Spillover Effects

The opposing theory to economic bonding suggests that knowledge generated while performing NAS can spill over into an audit, producing economic rents and reducing audit costs; these knowledge spillover effects, moreover, may lead to a more effective audit. Simunic (1984) analyzed a client's decision to purchase both Management Advisory Services (MAS) and audit services when their production functions are interdependent. He developed observable implications for MAS and audit fees, and then tested the resulting hypothesis using fee data from a sample of publicly held companies in the U.S. His results suggested that public accounting firms can provide audit (NAS) services more efficiently (i.e. with less effort) for NAS (audit) service purchasers and thereby may earn economic rents.

Lim and Tan (2008) provide evidence that knowledge spillover effects from NAS to the audit enhance audit quality for industry specialist auditors, using nonspecialist auditors as their control. They propose this is due to industry specialist auditors being more concerned about reputation losses and litigation risk, along with the knowledge spillover resulting from these auditors having a greater understanding of the client's risk and operations.

Krishnan and Yu (2011) empirically investigate whether knowledge spillover effects exist when NAS and audit services are jointly provided. Using a two-stage least squares regression model on a sample covering pre- and post-SOX, their results suggest reciprocal knowledge spillovers flow from NAS to audit service and from audit services to NAS. Joe and Vandervelde (2007) also find evidence of knowledge spillover effects improving audit quality.

Gul et al. (2007) found a positive association between NAS fees and positive discretionary current accruals (a proxy of auditor independence) for firms with short audit tenure, but not for firms with long audit tenure, consistent with the view that a longer auditor/client relationship allows auditors to acquire an in-depth knowledge of the client, which results in a higher quality audit.

The arguments in support of knowledge spillover effects are driven from a cost-benefit trade off analysis, i.e. whether the economic rents generated by providing NAS to audit clients dominate the expected cost of diminished auditor independence. Our analytical models provide guidance for the optimal level of joint NAS and audit services which can maximize the effectiveness and efficiency benefits obtained with knowledge spillovers.

The economic rents which are obtained from knowledge spillover effects allow audit firms to invest their resources in their human capital and hire auditors of a higher caliber; support R&D, education, and training; offer internships; and organize conferences and other similar events about the audit profession. These activities increase the reputation of the auditor firm. Arruñada (1999a) analytically showed that NAS may increase investment in reputational capital. Subsequently, an increase in reputational capital would increase auditor independence and audit quality which in turn would result in a decrease in the probability of audit errors.

Revenues from NAS may increase audit quality and as a result may decrease the likelihood of earnings management by audit clients (Arruñada, 1999b; DeAngelo, 1981). Nor et al. (2010) documented a significant negative relationship between audit quality and fraudulent financial reporting. Kim and Yi (2009) findings about auditor designation regime increases auditor quality and credibility of financial reporting. If NAS increases audit quality and audit quality reduces earnings management and fraudulent financial reporting, then determining the optimal level of NAS provisions is important.

The competing theories (economic benefits vs. knowledge spillover effects) led us to investigate the following research question:

RQ: Is there a degree to which an auditor firm may provide NAS to its audit client companies to reach an optimal equilibrium level to maximize audit firm value?

MARKET WELFARE MODEL

There is a basic economic rationale for the auditor to be seen as independent. Since no investor or creditor will rely on an auditor who is believed not to be independent, lack of independence will increase the risk for different capital market players and hence the cost of capital to the firm and finally the demand for an audit itself (Amir et al., 2010). The perception of an interest conflict between a corporation's auditor and consultants could cause investors to apply a discount to that company's stock price. In this paper, we examine the equilibrium strategy of the company and the auditor in a Stakelberg game (Osborne and Rubenstein, 1994; Fudenberg and Tirole, 1997). In this game, the company as the Stakelberg leader moves first and prepares its financial statement reporting the value of the firm to the auditor. As the Stakelberg follower, the auditor then decides on the level of effort to exert to audit the report.

The game process works as follows;

(1) Client firms observe their true valuations and prepare a financial report. The firm reports its value as R in the financial statements.

(2) The auditor observes the reported value, R, and selects an audit effort level, α, and performs the audit service. The probability of detecting a misreport of the client depends on the audit effort and the auditor quality. If a misreport is detected by the auditor then it is corrected by the company accordingly. We normalize the effort level, α, between 0 and 1 so that the effort level is equal to the probability of detecting an error.

The price of the auditing service is fixed due to the existence of a competitive auditor labor market. In other words, auditors do not play a role in the pricing of their services. For the sake of simplicity, we also assume that the auditing firm hires its auditors from a normally distributed labor market with wage w depending on the quality set of the auditor. We assume a positive relationship between the quality of the auditor and the wage received in a competitive labor market that relates distribution of wage with the quality set.

If the company hires its auditor to perform non-audit services, then the investor discounts the value of the company with an amount ε because of suspected independence issues. If the company does not hire its auditor to perform NAS, then the investor does not discount the company's value.

(3) After observing the audited report, investors value the company with their information set about the company including whether or not the company receives NAS services from its auditor. In making their investment decision, investors only observe (1) the name of the auditor and its effort level, which proxies for the market reputation of the audit firm, (2) the company's decision to hire or not hire its auditor to perform NAS, and (3) the historical performance of the company in relation to the value of the company. At the end of the fiscal year, the firm observes its true value, π, and then the firm may either truthfully report this value to the market or reports $R > \pi$. With probability α the auditor detects the error and corrects it to the true value π and with probability 1- α, the auditor misses the reporting error and the firm value is reported as R. In addition, the investor's do not perfectly observe whether the firm also receives NAS from the auditor. We denote r as the probability of the firm receiving NAS from the auditor as perceived by the investors. Hence with probability r, firm value is discounted by the function an amount ε. Accordingly, after observing the published reports, the investors value the firm as;

$$v(R,\alpha) = (1-\alpha)R + \alpha\pi - r\varepsilon \qquad (1)$$

When the screening process of the auditor is perfect, $\alpha = 1$, then the financial report truthfully reveals firm value, i.e., $v(R,\alpha) = \pi$. However, when the screening process is completely ineffective, $\alpha = 0$, then the firm value is reported as $v(R,\alpha) = R$. Table 1 below summarizes the notation.

TABLE 1
LIST OF THE MAIN NOTATION

Parameters and strategy elements	**Notation**
Realized true value of company	π
Reported value of the company on financial statements	R
Probability of detection of misreport through audit (level of effort)	α
Auditor Service Quality	q
Wage	w
Discount amount due to NAS	ε
Probability of providing NAS	r

RESULTS

Provision of no NAS by the audit firm

The company maximizes its expected value subject to the auditor's actions. These actions are given by the choice of audit effort and auditor quality, which determine the probability of detection. For ease of exposition, we assume that there is a one to one relationship between auditor effort and the probability detection. First, we consider the situation where the audit firm only performs auditing services, and not NAS. The audit firm is assumed to minimize the total reputation and verification costs and average wage paid to the auditors. In this case, the revenue of the audit firm is constant. The reputation cost is assumed to be directly proportional to the amount of overstatement by the company $c_r(\alpha) = (1-\alpha)(R-\pi)$ where $(1-\alpha)$the probability of missing the error is, and $(R-\pi)$ is the amount of overstatement. The audit firm does not worry about understatement because it does not provide NAS (i.e., the audit firm is indifferent with respect to the company's success or failure). Under this condition it is not rational for the company to understate its accounts for financial statement reporting purposes and risk detection of the type of auditor service (i.e., the joint provision of audit and NAS). Verification cost of the auditor involves fixed investment to information technology and is given by $c_v(\alpha) = K$. Finally, the cost of wages is an increasing convex function of the effort α, and is increasing in the quality level q, i.e., $c_w(\alpha) = w_0 q + q\alpha^2$ where w_0 is the base wage level in the market.

Therefore, the auditor minimizes its total cost $c_T(\alpha) = c_r(\alpha) + c_v(\alpha) + c_w(\alpha)$ including reputation cost, verification and wage costs by deciding on the level of effort:

$$\min_\alpha c_T(\alpha) \qquad (2)$$

The first order optimality condition yields the following optimal level of effort by the auditor:

Theorem 1

Given the firm reports R to the auditor, auditor's optimal level of effort is given by

$$\alpha^* = \frac{(R-\pi)}{2q}$$

As the Stakelberg leader, the company anticipates the optimal effort level by the auditor and decides on the firm value to report to the auditor *R*. Letting, $v(\alpha^*, R) = \alpha^*\pi + (1-\alpha^*)R$ denote the firm value

perceived by the investors (when there is no NAS) given the auditor's best response α^*, the firm solves the following problem to decide *R*:

$$\max_R v(\alpha^*, R) \qquad (3)$$

Following theorem describes the optimal *R* that solves (2). This is the equilibrium level of firm value reported to the auditor.

Theorem 2

As the Stakelberg leader, the firm anticipates the best response of the auditor and in equilibrium reports $R^* = \pi + q$ to the auditor.

In Theorem 2, we observe that the company always overstates its value and this overstatement is proportional to the quality of the auditor. In the following section we explore how this equilibrium behaviour changes in the presence of NAS services.

Provision of audit services and NAS provided jointly

When NASs are provided together with auditing services, then the issues of independence and conflict of interest arise. However, a desirable effect of these jointly provided services is the efficiency gains, or knowledge spillover effects, which can result from auditors becoming more familiar with the client company and therefore being able to provide a higher-quality audit.

NASs are expected to increase the value of the company because expert opinion may help managers to be more successful in their strategic decision making. In other words, there is an association between NAS and firm value (Lai and Krishnan, 2009). The auditor's payoff is enhanced by a fraction of the company's value and size, therefore NAS may increase total audit payoff. Let this fraction that ties auditor fees with the value of the company be denoted $0 \leq k \leq 1$. Accordingly, in addition to a fixed payment *K*, the auditor also receives $(\alpha\pi + (1-\alpha)R)k$ from the company. Then the auditor chooses its effort level α to maximize its total profits given by

$$max_\alpha(K + (\alpha\pi + (1-\alpha)R)k - c_T(\alpha)) \qquad (4)$$

The first two terms in (4) are the revenues and the last term is the total cost of the auditor. The optimal solution is given by the following theorem.

Theorem 3

With NAS, given the firm reports R to the auditor, auditor's optimal level of effort is given by

$$\alpha^* = \frac{(R-\pi)(1-k)}{2q}.$$

In the presence of NAS, the optimal level of auditor effort depends on the compensation scheme, *k*, of the auditor. As the auditor offered a larger share of the firm value (as *k* increases) the optimal effort level decreases. In this case, the auditor has an incentive to overstate firm value because the auditor' compensation package rely on firm value. Now, given that the auditor has an incentive to reduce auditing effort that also decreases total auditing cost, what should the company report to the auditor? Theorem 4 shows the equilibrium firm value, *R*, reported to the auditor in the presence of NAS.

Theorem 4

As the Stakelberg leader, the firm anticipates the best response of the auditor and in equilibrium reports $R^* = \pi + \frac{q}{(1-k)}$ *to the auditor.*

In the presence of NAS, we observe that the amount of overstatement ($\frac{q}{(1-k)}$) increases relative to the case with no NAS. Clearly, the overstatement amount increases in *k*. Note that *k* is zero when the firm

receives no NAS from the auditor. In summary, receiving NAS services leads to reduced auditor effort and anticipating this behaviour, the company further inflates the firm value in its financial statements.

If we compare both cases, the joint provision of audit and NAS case shows that the quality (q) of the auditor increases the value of the client company. When the increase is a fraction k=0 then we basically obtain the first NAS case

Studies have reported that audit fees for clients who also purchased NAS from their auditors are higher than those of clients who did not do so because of an increase in the value of the company with the help of the NAS (Barkess and Simnett, 1994; Ezzamel et al., 1996; Firth, 1997; Palmrose, 1986; Simon, 1985). This result arises from beneficial knowledge spillover effects between the audit and non-audit services which results in proper decision making for business investment strategies to generate positive cash flow for the company. However, provision of consulting services by the same auditor firm causes conflict of interest as a result of independence issues where investors discount the value of the firm accordingly. If the cost of independence is bigger than the benefit of getting NAS then the firm stops getting NAS from its auditor. This finding is significant for the future of the international audit market according to our market welfare modelling.

SUMMARY AND CONCLUSION

Joint provision of several services us an important issue both in academia and practice. Some studies suggest that the joint provision of audit services and NAS leads to a conflict of interest and independence issues, reducing the quality of the audit (Frankel et al., 2002; Sharma and Sidhu, 2001; Wines, 1994). Yet other studies support the idea that the effectiveness and efficiency of audit services increases with the joint provision (Krishnan and Yu, 2011; Lim and Tan, 2008; Simunic, 1984). In an attempt to resolve these arguments, we examine if there is an equilibrium level of combined audit and NAS which audit firms can provide to their clients. Using an analytical game theory approach, we suggest there is. Our model shows that markets are better off when an auditor firm provides NAS for its audit clients until reaching a certain optimal level where firms are indifferent between the benefits of economic rents and the independence costs of providing joint services.

Regulators around the world are concerned with auditor independence. Recently, regulators in the European Union have been debating separating audit services from NAS to follow American standards. Finally, European Union legislation to reform the statutory audit market was adopted in April 2014. The laws are expected to apply from mid-June 2016, and regulate provisioning of non-audit services i.e. certain non-audit services are prohibited to their clients (PWC, 2015). And, there is a public debate in New Zealand over auditor independence and possible reforms driven by international accounting scandals (Hay, Knechel and Li, 2006; Knechel, Sharma, and Sharma, 2012). However, according to our finding, banning the joint provision of audit services and NAS completely would not benefit market welfare overall.

Given that every company has a different utility/optimization function, we are unable to prescribe a specific optimal solution for every company - this is a common limitation of analytic modeling. But we do show that there exists a local optimal point of jointly providing audit services and NAS where the benefits of NAS (e.g., knowledge spillover) exceed the cost resulting from impairment of independence.

As with any analytical game theory paper, there is a question of whether our assumptions are valid. While careful consideration was given to the model and it is grounded on established theories, there may still be some incomplete assumptions. As stated in Dopuch et al. (2001), "experimental research has shown that game theory is often a reasonable predictor of behavior in auditing settings. However, Kachelmeier (1996) argues that the predictive accuracy of game theory models by noneconomic factors. As an example, Bloomfield [1995, 1997] shows that the structure of the game setting may influence how closely players are able to achieve the equilibrium depends on whether players converge to an equilibrium inductively (through trial-and-error or adaptive learning) or deductively (as in the inferential process of a

game theorist)." An empirical analysis could provide support for our analytical model findings, even recognizing that gathering pertinent data poses a serious practical challenge.

Future research might consider issues such as the effect of audit partner or audit firm rotation on the equilibrium, especially given the Public Company Accounting Oversight Board's recently issued concept release soliciting public opinion on mandatory audit firm rotation (PCAOB, 2011), and research on banning additional non-audit services i.e. PCAOB deliberation over whether additional services should be banned (Asare, Cohen, and Trompoter, 2005).

REFERENCES

American Institute of Certified Public Accountants (1978). *Commission on Auditors' Responsibilities (The Cohen Report). Report, Conclusions and Recommendations. New York:* American Institute of Certified Public Accountants.

Amir, E., Guan, Y., & Livne, G. (2010). Auditor independence and cost of capital before and after Sarbanes-Oxley: The case of newly issued public debt. *European Accounting Review*, 19(4), 633-664.

Arruñada, B. (1999a). The Economics of Audit Quality: Private Incentives and the Regulation of Audit and Non-Audit Services. *Kluwer Academic Publishers*. Norwell, MA.

Arruñada, B. (1999b). The provision of non-audit services by auditors: Let the market evolve and decide. *International Review of Law and Economics*, 19, 513-531.

Asare, S, Cohen, J., & Trompeter, G. (2005). The effect of non-audit services on client risk, acceptance and staffing decisions, *J. of Accounting and Public Policy* 24: 489–520.

Ashbaugh, H., LaFond R., & Mayhew, B.W. (2003). Do nonaudit services compromise auditor independence? Further evidence. *The Accounting Review*, 78(3): 611-639.

Barkess, L., & Simnett, R. (1994). The provision of other services by auditors: Independence and pricing issues. *Accounting and Business Research*, 24(94), 99-108.

Beaulie, P. & Reinstein, A.(2010), Belief perseverance among accounting practitioners regarding the effect of non-audit services on auditor independence, *J. Account. Public Policy* 29: 353–373

Beeler, J.D., & Hunton, J.E. (2001). Contingent economic rents: Precursors to predecisional distortion of client information. *Working Paper*, University of South Carolina, CA, USA.

Benston, G.J. & Hartgraves, A.L. (2002). Enron: what happened and what we can learn from it, *J. of Accounting and Public Policy* 21: 105–127.

Bloomfield, R.J. (1995). Strategic dependence and inherent risk assessment, *The Accounting Review* 70: 71-90.

Bloomfield, R.J. (1997). Strategic dependence and assessment of fraud risk: A laboratory study, *The Accounting Review* 72: 517-538.

Branson, S.N, Carcello, J.V., Hollingsworth, C.W., & Neal, T.L., (2009). Are fully independent audit committees really necessary?, *J. Account. Public Policy* 28: 265–280

Callaghan, J., Mohinder, P., & Singhal, R. (2009). Going-concern audit opinions and the provision of nonaudit services: Implications for auditor independence of bankrupt firms. *Auditing: A Journal of Practice & Theory*, 28(1), 153-169.

DeAngelo, L. (1981). Auditor size and audit quality. *Journal of Accounting and Economics*, 3(3), 183-199.

DeFond, M.L., Raghunandan, K., & Subramanyam, K.R., (2002). Do non-audit service fees impair auditor independence? Evidence from going concern audit opinions. *Journal of Accounting Research*, 40(4), 1247-1274.

Dopuch, N. R., King, R., & Sc hwartz, R. (2001). An Experimental Investigation of Retention and Rotation Requirements. *Journal of Accounting Research*,39, 93–117.

Ezzamel, M., Gwilliam, D.R., & Holland, K.M. (1996). Some empirical evidence from publicly quoted UK companies on the relationship between the pricing of audit and non-audit services. *Accounting and Business Research*, 27(1), 3-16.

Fidler, S., (2010a). Plans grow for a European Union audit cop. *The Wall Street Journal*, October 12, C3.

Fidler, S. (2010b). EU launches drive to overhaul audit system. *The Wall Street Journal*, October 13.

Firth, M.A. (1997). The provision of nonaudit services by accounting firms to their audit clients. *Contemporary Accounting Research*, 14(2), 1-21.

Firth, M A. (2002). Auditor-provided consultancy services and their associations with audit fees and audit opinions. *Journal of Business Finance and Accounting*, 29(5/6), 661–93.

Frankel, R., Johnson, M., & Nelson, K. (2002). The relation between auditors' fees for nanaudit services and earnings management. *The Accounting Review*, 77(4): 71-105.

Fudenberg, D. and Tirole, J. (1993) Game Theory, *MIT Press*. (see Chapter 3, sect 1)

Geiger, M.A., & Rama, D.V. (2003). Audit fees, non-audit fees and auditor reporting on stressed companies. *Auditing: A Journal of Practice & Theory*, 22(2), 53–69.

Ghosh, A., Kallapur, S. & Moon, D. (2009). Audit and non-audit fees and capital market perceptions of auditor independence, J. Account. Public Policy 28: 369–385

Gul, F.A., Jaggi, B.L., & Krishnan, G.V. (2007). Auditor independence: Evidence on the joint effects of auditor tenure and nonaudit fees. *Auditing: A Journal of Practice & Theory*, 26(2), 117-142.

Hay, D, Knechel, R. & Li, V. (2006). Non-audit services and auditor Independence: New Zealand evidence. *Journal of Business Finance and Accounting*, 33(5&6), 715-734.

Higgs, J.L., & Skantz, T.R. (2006). Audit and nonaudit fees and the market's reaction to earnings announcements. *Auditing: A Journal of Practice & Theory*, 25(1), 1-26.

Hoitash, R., Markelevich, A., & Barragato, C.A. (2007). Audit fees and audit quality. *Managerial Auditing Journal*, 22(8), 761-786.

Iyer, G.S., Iyer, V.M., & Mishra, B.K. (2003). The impact of non-audit service fee disclosure requirements on audit fee and non-audit service fee in the United Kingdom: An empirical analysis. *Advances in Accounting*, 20, 127-140.

Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.

Joe, J., & Vandervelde, S. (2007). Do auditor-provided non-audit services improve audit effectiveness? *Contemporary Accounting Research*, 24(2), 467-487.

Kachelmeier, S. J. 1996. Do cosmetic reporting variations affect market behavior? A laboratory study of the accounting emphasis on unavoidable costs. *Review of Accounting Studies* (v. 1): 115-140

Knechel, Sharma & Sharma (2012). Non-audit services and knowledge spillovers: evidence from New Zealand, *Journal of Business Finance & Accounting*, 39 (1) & (2), 60-81. Kim, J-B, & Yi, C.H. (2009). Does auditor designation by the regulatory authority improve audit quality? Evidence from Korea, *J. Account. Public Policy* 28: 207–230.

Kinney, W.R., Jr., & Libby, R. (2002). Discussion of the relation between auditors' fees for nonaudit services and earnings management. *The Accounting Review*, 77 (Supplement), 107-114.

Krishnan, G., & Yu, W. (2011). Further evidence on knowledge spillover and the joint determination of audit and non-audit fees. *Managerial Auditing Journal*, 26(3), 230-247.

Lai, K-W., & Krishnan, G. (2009). Are non-audit services associated with firm value? Evidence from financial information system-related services. *Accounting and Finance*, 49(3), 599-617.

Lim, C., & Tan, H. (2008). Non-audit service fees and audit quality: The impact of auditor specialization. *Journal of Accounting Research,* 46(1), 199-246.

Liu, Z., & Chan, D.K. (2012). Consulting revenue sharing, auditor effort and independence, and the regulation of auditor compensation, J. Account. Public Policy 31: 139–160.

Mautz, R.K., & Sharaf, H.A. (1961). *The Philosophy of Auditing*. American Accounting Association. Sarasota, FL.

Nor, J.M., Ahmad, N., & Saleh, N.M. (2010). Fraudulent financial reporting and company characteristics: Tax audit evidence. *Journal of Financial Reporting and Accounting*, 8(2), 128-142.
Osborne, M.J. and Rubenstein, A. (1994). A Course in Game Theory, *MIT Press* (see p 97-98)
Palmrose, Z-V. (1986). The effect of nonaudit services on the pricing of audit services: Further evidence. *Journal of Accounting Research,* 24(2), 405-11.
Pany, K. (1983). Auditor independence and nonaudit services: Director views and their policy implications, *J. of Accounting and Public Policy*, 2 (1):43-62.
Public Company Accounting Oversight Board (PCAOB). Concept Release on Auditor Independence and Audit Firm Rotation; Notice of Roundtable, Release 2011-006 (Aug. 16, 2011).
Securities and Exchange Commission, (2000). *Final rule: Revision of the commission's auditor independence requirements*. Release Nos. 33-7919; 34-43602; 35-27279; IC-24744; IA-1911; FR-56. Washington, D.C.: Government Printing Office.
Securities and Exchange Commission, (2003). Strengthening the Commission's Requirements Regarding Auditor Independence. Release Nos.33-8183; 34-47265; 35-27642; IC-25915; IA-2103, FR-68. Washington, D.C.: Government Printing Office.
Sharma, D.S., & Sidhu. J. (2001). Professionalism vs. commercialism: The association between non-audit services (NAS) and audit independence. *Journal of Business Finance and Accounting*, 28(5&6), 595-629.
Simon, D.T. (1985). The audit services market: Additional empirical evidence. *Auditing: A Journal of Practice & Theory*, 5(1), 71-78.
Simunic, D.A. (1984). Auditing, consulting, and auditor independence. *Journal of Accounting Research*, 22(2), 679-702.
Watts, R.L., & Zimmerman, J.L. (1983). Agency problems, auditing and the theory of the firm: Some evidence. *Journal of Law and Economics*, 26(3), 613-634.
Wines, G. (1994). Auditor independence, audit qualifications, and the provision of non-audit services: A note. *Accounting and Finance*, 34(1), 75-86.
Zeff, S. (2003). How the U.S. accounting profession got where it is today: Part I. *Accounting Horizons,* 17(3), 189-205.

APPENDIX

Proof of Theorem 1

$$c_T(\alpha) = (1-\alpha)(R-\pi) + K + w_0 q + q\alpha^2$$
$$\frac{\partial c_T(\alpha)}{\partial \alpha} = -(R-\pi) + 2q\alpha = 0$$
$$\alpha^* = \frac{(R-\overline{\pi})}{2q}.$$

Proof of Theorem 2

$$\frac{\partial v(\alpha^*, R)}{\partial R} = \frac{\partial \alpha^*}{\partial R}\pi + (1-\alpha^*) - \frac{\partial \alpha^*}{\partial R}R = 0$$

Note that $\frac{\partial \alpha^*}{\partial R} = \frac{1}{2q}$. Substituting this and $\alpha^* = \frac{(R-\pi)}{2q}$ to above equation;

$$\frac{1}{2q}\pi + \left(1 - \frac{(R-\pi)}{2q}\right) - \frac{1}{2q}R = 0,$$
$$1 - \frac{(R-\pi)}{q} = 0,$$

$R = \pi + q.$

Proof of Theorem 3

Similar to the proof of Theorem 1, first order optimality condition for (4) gives;

$$(\pi - R)k + (R - \pi) - 2q\alpha = 0$$
$$\alpha^* = \frac{(R - \pi)(1 - k)}{2q}$$

Proof of Theorem 4

It is given that

$$\alpha^* = \frac{(R - \overline{\pi})(1 - k)}{2q},$$

Then the company value is;

$$v(R, \alpha^*) = (1 - \alpha^*)R + \alpha^*\pi - r\varepsilon$$

$$\frac{\partial v(\alpha^*, R)}{\partial R} = \frac{\partial \alpha^*}{\partial R}\pi + (1 - \alpha^*) - \frac{\partial \alpha^*}{\partial R}R = 0$$

Note that $\frac{\partial \alpha^*}{\partial R} = \frac{1-k}{2q}$. Substituting and $\alpha^* = \frac{(R-\overline{\pi})(1-k)}{2q}$ to above equation;

$$\frac{(1 - k)}{2q}\pi + \left(1 - \frac{(R - \pi)(1 - k)}{2q}\right) - \frac{(1 - k)}{2q}R = 0$$
$$\frac{(1 - k)}{2q}(\pi - R) + \left(1 - \frac{(R - \pi)(1 - k)}{2q}\right) = 0$$
$$1 - \frac{(R - \pi)(1 - k)}{q}$$
$$R^* = \pi + \frac{q}{(1 - k)}$$