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# **External auditing, managerial monitoring and firm valuation: An empirical analysis for India**

**Saibal Ghosh<sup>1</sup>**

## **Abstract**

The paper examines how external auditing and managerial ownership relate to firm valuation. It is argued that both external auditors (which serves as an external monitoring function) and managerial ownership (which serves as an internal monitoring function) affect firm value, while internal monitoring by managers and external monitoring by auditors were viewed as substitutes or complements. After controlling for the effect of exogenous variables, the results reveal the existence of a substitution monitoring effect between auditors and the managerial group. Additionally, firm valuation is found to be a significant determinant of managerial ownership. A disaggregated analysis of firms according to size and leverage suggests the existence of a complementary monitoring effect between auditors and managers, especially for low-leveraged firms.

Keywords: corporate governance, external auditing, managerial ownership, adjusted Q, India

JEL classification: G32, M42, C31

## **Introduction**

The importance of external auditing as a mechanism for corporate governance has attracted considerable attention of late. Academics and policy makers in both developed and emerging markets are increasingly grappling with this issue as they seek to reform their governance mechanisms, particularly in the wake of the East Asian financial crises and recent accounting irregularities in the US and elsewhere.

The present paper examines this issue in the Indian context, drawing upon available theoretical and empirical literature. More specifically, the study investigates the joint determinants of external auditing, internal managerial monitoring and firm value. It is argued that both internal monitoring by managers and external monitoring

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by auditors play a vital role in affecting firm value, even though these two kinds of monitoring are either substitutes or complements in terms of monitoring.

The choice of India is based on three main reasons. First, India is one of the largest and fastest growing emerging economies with a long history of auditing practice. Second, over the last decade-and-a-half, India has introduced an extensive set of reforms in the financial sector, thereby providing an enabling environment for corporates to determine their capital structure. And finally, the firm-level database employed for the purpose provides an ideal vehicle to clearly discern the interlinkage among monitoring and firm valuation. The findings so obtained may be representative of the role of auditors in ensuring corporate governance in other emerging markets.

The dataset includes information on non-financial firms for the year 2005. The variables include measures of firm characteristics, ownership type and performance. The data are matched to information on the identities of auditors with which these firms have relationships. In case a firm has multiple auditor relationships, the data also provides the names of these auditors listed in order of priority (main auditor, second auditor etc.).

Empirical literature on auditing has been confined largely to the US (Francis and Wilson, 1988; DeFond, 1992) and other developed economies such as UK (Chan et al., 1993), Australia (Francis, 1984), New Zealand (Firth, 1985) and Canada (Chung and Lindsay, 1988) and to a lesser extent, for East Asian economies (Simon *et al.*, 1992; DeFond *et al.*, 2000) for two main reasons. First, until recently, corporate balance sheets were exceedingly opaque with limited disaggregated information being provided on the documentation by auditors. Second and more importantly, the accounting irregularities in the US and elsewhere have heightened the awareness about the relevance of proper accounting standards to ameliorate the agency problems between management and stakeholders. These developments have, as a consequence, prompted the need for greater transparency in the annual accounts of corporate entities.

Notwithstanding the emerging literature on this aspect for developed economies, limited research has been forthcoming in this area for developing countries. First, until

recently, the corporate sector in many developing markets encountered several constraints in accessing equity and debt markets. As a consequence, any research on the interface between capital structure and corporate governance features of firms could have been largely constraint-driven and hence, less illuminating. Second, several developing countries, even until the late 1980s, suffered from 'financial repression', with negative real rates of interest as well as high levels of statutory pre-emptions. This could have meant restricted play of competitive forces in resource allocation.

Questions regarding the interface between corporate governance and firm valuation have, however, gained prominence in recent years, especially in the context of the fast changing institutional framework in these countries. Several developing countries have introduced market-oriented reforms in the financial sector. More importantly, the institutional set-up within which corporate houses operated in the regulated era has undergone substantial transformation since the 1990s. The move towards market-driven allocation of resources, coupled with the widening and deepening of financial markets, including the capital market, and the stringent disclosure and transparency practices consequent upon initial public offerings have provided greater scope for corporates to determine their capital structure. This, in turn, has provided greater impetus for analyzing the interrelationships among auditor relationships, managerial ownership and firm valuation.

This paper makes several contributions. First, this is a first study on an emerging economy that explores how the interplay of external auditing and internal managerial monitoring affects firm valuation. Second, the paper contributes to the corporate governance literature by linking monitoring with firm value. The number of auditor firm relationships and the shareholding of the promoters in a company provide good quantifiable measures of the quality of this corporate governance mechanism. Third, from the policy perspective, the study identifies 'threshold' shareholding level which prompts managers to increase internal monitoring.

The remainder of the paper is structured as follows. Section 2 provides an overview of the relevant literature. The institutional considerations that affect Indian

firms are highlighted in Section 3. The database and econometric methodology are presented in Section 4. Section 5 discusses the empirical results, followed by the policy conclusions.

## **2. Related Literature**

Jensen and Meckling (1976) contended that managerial ownership serves to align the interests of managers and outside equity holders such that a positive relationship is expected between managerial ownership and firm valuation. Stulz (1988) developed a model of firm valuation in which the entrenchment effect results in a negative relationship between managerial ownership at relatively high levels of managerial ownership. Other studies have also investigated the relationship between managerial ownership and firm value. For example, Morck *et al.* (1988) and McConnell and Servaes (1990) found that their empirical results supported both the positive alignment effect and the negative entrenchment effect.

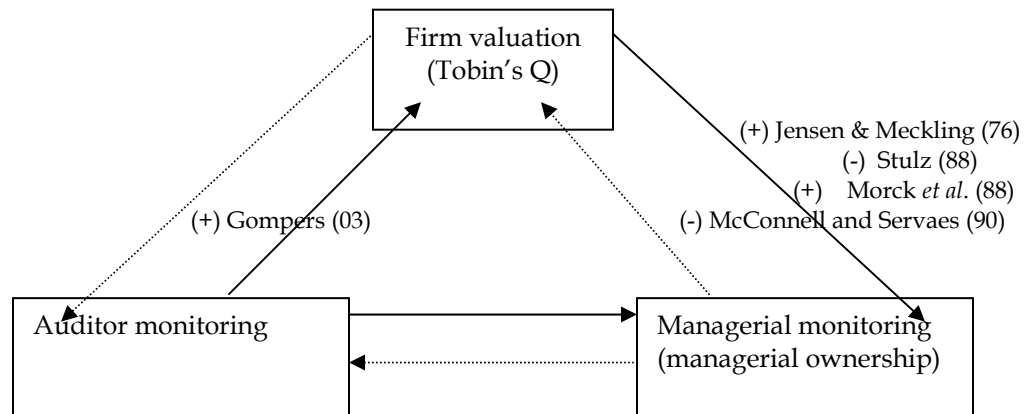
The empirical models, however, do not account for the monitoring effects associated with external auditing. Studies for the US (Palmrose, 1988; Francis and Wilson, 1988; DeFond, 1992) document lack of convincing evidence linking management ownership and leverage relevant in auditor choice. These results might stem from the fact that, given the wide spectrum of governance mechanism available to alleviate agency conflicts, the relative importance of external auditors is quite limited. However, in emerging economies as India, where conventional corporate control systems have begun to gain prominence only recently (Ghosh, 2006a), it seems likely that independent external auditors could potentially act as important monitors of controlling shareholders. More specifically, external monitoring such as those by auditors can serve to reduce the moral hazard problem associated with high managerial ownership. If this is true, then the major benefits derived from external auditing activity should be reflected in the higher capitalized value of the ownership claims on the corporation. Recent empirical evidence for East Asian economies (Fan and Wong, 2005) highlights the

fact that external auditors played a monitoring and bonding role in order to mitigate the agency conflicts between controlling owners and outside investors.

Recent studies have attempted to construct a corporate governance index to evaluate its impact on firm performance. Using data on over 1500 large firms during the 1990s, Gompers et al. (2003) establish a strong relationship between corporate governance and firm performance. Following from this approach, Bauer et al. (2004) construct 'good governance portfolios' (or top 20% of the companies with highest corporate governance ratings) and 'bad governance portfolios' (or bottom 20% of the companies with lowest corporate governance ratings) using the Deminor corporate governance ratings for companies included in the FTSE Eurotop 300 index. The study uncovers positive correlation between firm valuation (measured by Tobin's Q) and corporate governance scores.

Central to these studies has been to employ an index of governance, where auditing enters as one of the variables in the construction of the governance index. Explicitly exploring the impact of auditing on firm valuation or, for that matter, its interlinkage with managerial ownership is an aspect not adequately accounted for by any of the studies and this becomes a major concern of the paper.

In order to formulate a coherent empirical framework, it is argued that external auditing, managerial ownership and Tobin's Q are jointly determined and, accordingly, is modeled within a three-equation system of equations. Chung and Jo (1996), for instance, find empirical support in favor of a two-way relationship between Tobin's Q and analyst coverage. Moyer *et al.* (1989), on the other hand, find analyst coverage to be negatively impacted by the percentage of insider ownership. Borrowing from these findings, it seems likely that external auditing, managerial ownership and firm valuation are simultaneously determined. Judged thus, the present study expands on the extant literature by investigating the interaction among alternative monitoring agents and among monitoring agents and firm valuation (Figure 1).



**Figure 1:** The figure offers a summary representation of the relationships among auditor monitoring, managerial monitoring and firm valuation. The signs on the causal relationships emanating from selected studies are provided within parentheses.

### 3. The Indian experience

#### 3.1 Governance aspects

Governance issues were not an important consideration until the adoption of the economic reforms program in India in 1991. With gradual integration with global markets and increasing number of Indian corporates accessing global markets and getting listed on overseas exchanges, public concerns have become more focused on the effective protection of investors' interests, the promotion of transparency of operations and the need to move towards international standards in terms of disclosure by the corporate sector.

There are presently three distinct, though mutually reinforcing avenues through which the active ('voice') and passive ('exit') options of outside debt holders and equity holders in corporate governance are sought to be ensured. These include the Companies Act 1956, the Securities and Exchange Board of India Act 1992 and a market for corporate control.

The activities of Indian companies are regulated through the Companies Act, 1956. Through the consolidation of several successive amendments, the Act has sought to ensure that the interests of shareholders and creditors are protected and that shareholder voice is adequately represented in the management of companies. The Act

also lays down provisions for the constitution of boards of directors, their appointment, remuneration, frequency of board meetings as well as powers and restrictions of the board. Several amendments in the Act have occurred in the 1990s, with the most recent one coming through the Companies (Amendment) Act, 2001.

Central to these amendments has been the move to revamp the Board of Directors to make them more responsive to the interests of shareholders, since the board is the focal point of the decision-making process. In India, company boards are typically single-tiered, comprising of a Chairman and Managing Director (one person can hold both posts) and other board members, in either executive or non-executive capacity. Earlier, there was no specification regarding the proportion of executive to non-executive members. The Companies Act simply provided broad guidelines on how the board should function.

A need was increasingly felt that some statutory governance codes be instituted in view of several malpractices (like insider trading) that inflicted losses on small investors and undermined investor interests in capital markets. Accordingly, several committees were appointed by SEBI to examine this aspect in its totality. Following from these recommendations, SEBI made certain mandatory provisions for listed companies through the route of listing agreement since 2002. Accordingly, it was stipulated that one-half of board members should comprise of non-executive directors. The Board of a company should set up a qualified and independent Audit Committee with a minimum of three non-executive Directors, with the majority being independent. It was also stipulated that at least one Director needs to be well-versed with financial and accounting knowledge.<sup>1</sup> In addition, companies were directed to constitute different sub-committees like audit and remuneration committees and report the remuneration of the CEO as part of their corporate governance report.

The activities of the stock market are regulated by the Securities and Exchange Board of India (SEBI), whose functions are similar in scope to the Securities Exchange Commission in the US. The SEBI Act, 1992 imparted SEBI with statutory powers to protect the interests of investors in securities and to promote the development of, and



regulate, the securities market. Prior to the Act, all issues of capital by Indian companies were controlled by a government agency, the Controller of Capital Issues, which regulated both the terms as well as the pricing of the issue. Under the SEBI Act, companies have been given the freedom, subject to stringent disclosure requirements, to price their issues and raise funds to meet various types of business requirements. In order to ensure that promoters' interests are closely integrated with those of minority shareholders, SEBI guidelines also contain a stipulation as to minimum promoters' contribution and lock-in period.

The market for corporate control has been rather inactive in India. The first attempts at regulating takeovers were made by incorporating a clause (namely, Clause 40) to the listing agreement that provided for making a public offer to the shareholders of a company by any person who sought to acquire 25% or more of the voting rights of the company. Current regulations, by making the disclosure of substantial acquisitions mandatory, have sought to ensure that the equity of a firm does not covertly change hands between the acquirer and the promoters. At present, the acquisition of 15% of shares/voting rights triggers a minimum public offer of 20%. Further, promoter groups holding a stake not less than 10% are allowed to consolidate their position through the provision of 'creeping' takeover up to 5% of shares, without attracting the mandatory public offer requirement. However, takeover defence mechanisms as poison pills for incumbent management as prevalent in the US and UK are not permitted under current regulations.

While the alignment of managerial and shareholder interests is possible through higher shareholding by corporate insiders, expropriation of minority shareholders becomes an issue in cases where the control rights of insiders, particularly those of company promoters, are disproportionately more than their cash flow rights. This is an important feature of corporate ownership structure in India, as it is in many other countries, where family-owned business groups are prevalent (Claessens *et al.*, 2000).

### *3.2 Accounting aspects*

The enactment of the Indian Companies Act in 1857, for the first time, introduced the concept of preparing company balance sheets on a voluntary basis. Following independence in 1947, an Expert Committee was constituted to examine the scheme of an autonomous association of accountants in India, which led to the enactment of the Chartered Accountants Act (1949) and establishment of Institute of Chartered Accountants of India (ICAI) in the same year. The Chartered Accountants Act governs the accountancy profession in India. A broad revision of the legislative framework relating to the accountancy profession has been underway over the last couple of years, primarily in the wake of the accounting irregularities in the US. Towards this end, the Chartered Accountants (Amendment) Bill 2003 has been prepared which seeks to reconfigure the current regulatory regime and the disciplinary arrangements in relation to the accounting profession.<sup>2</sup>

The Companies Act (1956) governs the form and contents of balance sheet and profit and loss accounts of limited-liability companies. The Act requires the preparation, presentation, publication and disclosure of financial statements; and an audit of all companies by a member-in-practice certified by the ICAI. Schedule VI of the Act prescribes the form, content and minimum disclosure requirements of financial statements. The Act has been amended several times, most recently in 1999. The amendment requires all companies to comply with (Indian) accounting standards, disclose any deviation, provide reasons for such deviation and state the impact of the deviation on the financial statements. Subsequent amendments, most notably in 2001 and 2002 included, among others, incorporation of directors' responsibility statements in the board's report to highlight the accountability of directors in good corporate governance, prescribe voting through postal ballot and delimiting the number of companies in which a person can hold directorship to ten from more than twenty earlier.

Smaller firms dominate the Indian auditing marketplace, even though the Indian affiliates of large international firm networks audit approximately 47% of the top 100 listed companies.<sup>3</sup> The ICAI reports that about 53000 audit firms operate in India,

including members/affiliates of most of the international networks of accounting firms. About 1000 firms audit at least one economically significant enterprise; and about 15 of the largest firms audit more than 70% of the top 100 listed companies. Government-owned companies and unlisted companies are generally audited by small- and medium-size firms apparently due to the unremunerative fee scales prescribed for these engagements.

In most cases, the regulator or the Office of the Comptroller and Auditor General of India (CAG) mandates joint auditors for state-owned enterprises. A panel of firms qualified to undertake audits of state-owned enterprises is updated annually. Allocation of audit work among these audit firms is based on a points system that gives credit based on information self-disclosed by the audit firms,<sup>4</sup> which includes the number of partners in the firm, number of employees and trainees, experience of the firm and the term of association of the partners with the firm. The board of directors of state-owned enterprises determines the professional fee of the auditor on the basis of guidelines issued by CAG and subsequently, approved by the shareholders of the company. The CAG conducts a supplementary/test audit of all such companies on a regular basis. The state-owned enterprises that are incorporated under specific acts have associated rules with respect to auditing. Depending upon the audit arrangements, as specified by these rules, the audit may be performed either by a state-appointed auditor (which may include the office of the CAG or its appointee) or a private sector auditor or a combination of both state and private auditors.

The members of the ICAI are required to follow a detailed code of ethics as prescribed under the Chartered Accountants Act. The ICAI council is entrusted with disciplinary powers that are exercised through its disciplinary committee. Some of the salient legal restrictions on auditors include: the name of any firm that intends to register for ICAI membership must have a combination of the names of the partners of a name in being (that is, a name in use before this rule was introduced)<sup>5</sup>; post-1995, the display of any association with any firm, domestic or international, was banned; the number of partners in an audit firm is limited to a maximum of 20; the Companies Act

prohibits indebtedness of audit partner to audit clients in excess of Rs.1000 ( $\approx$ US\$ 22) which includes any arms-length transactions (for example, a credit card with a banking client); and, advertising and publicity is prohibited.

Mandatory audit firm rotation, after serving as auditor for 4 to 5 years, exists for government-owned companies. Audit partner rotation has never been mandatory, and hence is not widely followed across the profession. In considering auditor independence, the Government-appointed Committee (see endnote 2) recommended adoption of audit partner rotation. The ICAI has recently put forward a resolution that will make mandatory audit firm rotations and joint audits for all listed companies. A final decision on this aspect is awaited, which has been referred to a high-level committee for further deliberation.

As regards ensuring compliance with auditing standards, the Department of Company Affairs, a wing of the Government under the Ministry of Industry, enforces regulatory norms and act decisively against any non-compliance. The two primary stock exchanges, the Bombay and National Stock Exchanges rely on external auditors to monitor compliance with the accounting and disclosure requirements. The corporate relations department of the stock exchanges pursues any qualification by the auditors with the company and requires corrections by the following year-end.

The ICAI has made a beginning as a self-regulator by introducing peer-review of audit firms. As part of the process, a 11-member Peer Review Board was established in March 2002.<sup>6</sup> The Board provides guidance to enhance the quality of services provided by ICAI members.

In the light of these developments, the present study seeks to formulate a coherent empirical model to explore the association among external auditing, managerial monitoring and firm valuation. It is argued that external auditing, managerial ownership and firm valuation are jointly determined and therefore, should be modeled within a three-equation system of equations. The results demonstrate the existence of a substitution monitoring effect between auditors and the managerial group. Additionally, the results indicate that the number of auditor relationships and

firm performance are positively related, suggesting that external monitoring enhances firm performance.

## **4. Data and Research Design**

### *4.1 The database*

The data employed for the study is cross-sectional information for the year 2005, extracted from the *Prowess* database (Release 2.4), generated and maintained by the Centre for Monitoring the Indian Economy (CMIE), a leading private think-tank in India.<sup>7</sup> This database is broadly similar to the *Compustat* database of US firms and is increasingly employed in the literature for firm-level analysis on Indian industry for analysis of issues like the effect of foreign ownership on the performance of Indian firms (Chibber and Majumdar, 1999) and the performance of firms affiliated to diversified business groups (Khanna and Palepu, 2000), the linkage between monetary policy and corporate governance (Ghosh and Sensarma, 2004) and the role of financial liberalization in alleviating financing constraints for firms (Ghosh, 2006b).

The dataset contains financial information on around 8,000 companies, which are either listed on the stock exchanges as well as major unlisted public limited companies having sales exceeding Rs.200 million ( $\approx$ US\$ 4.2 million). Accordingly, the firms in the sample generally do not include the smallest firms due to the requirements for firms to be included in *Prowess*. Thus, in effect, the sample is skewed towards large Indian firms. There is detailed information on the financial performance of these companies culled out from their profit and loss accounts, balance sheets and stock price data. The database also includes information on the ownership type of the firm as well as the number of auditors with which a firm maintains relationships.<sup>8</sup> Additionally, the database contains detailed information on the financial performance of these companies culled out from their profit and loss accounts and balance sheets.

The selection of the sample is guided by the availability of data. We proceed in several stages for the selection of sample firms. In step one, we cull out information on

all manufacturing firms for the year 2005 that are listed on the National Stock Exchange.<sup>9</sup> This, in effect, provided us with aggregate information on 753 firms.

We subsequently delete a number of firms from the sample. First, we exclude firms which do not report any auditor relationship, reducing the sample to 719 firms. In stage two, we delete 30 firms which do not provide information on their share prices. And finally, we delete 12 firms which do not report their CEO ownership. The final sample, therefore, comprises of 677 manufacturing firms for the year 2005. Taken together, these firms accounted for nearly 65% of the market capitalization of all firms listed on the National Stock Exchange.

Table 1 provides a description of the relevant variables along with their mean and standard deviation. The percentage of managerial ownership in the sample firms averaged 46%. In other words, the level of CEO ownership was high among the listed companies as a whole, and thus, ownership and control rights were close among the companies. The average firm size was 2.56 and the average firm age was 1.41. These figures reveal that the firms are in operation for a certain time period and a significant scale of operations had already been reached. The average number of auditor relationships was 1.11, suggesting that listed corporates tend to maintain multiple auditor relationships. Access to a wider choice of sources of finance for corporates such as capital markets and external financing nudge towards transaction-based banker-customer relationship, which could impinge on the access to the information required by the bankers for financial assessment as also on the ability of corporates to get an assured and appropriately priced financial package (Reddy, 2005). This might be an important factor behind the multiple auditor certification by corporates. The leverage ratio of corporates stood at 38%. The average adjusted Q for the full sample was 1.18, which indicated that most of the firms exhibited high growth opportunities. The return on asset was positive on average, with low variability, signifying that profitability levels were fairly synchronous for listed corporates. The sample firms had a high proportion of tangible assets, and therefore informationally less opaque. Finally, the average level of

R&D was quite low, compared to an average of around 2-3% for developed countries, suggesting that R&D investment across listed companies is still quite limited.

**Table 1: Firm-specific variables – description and summary statistics**

Variable	Definition	Obs.	Mean	Standard deviation
<i>Endogenous</i>				
CEO	Number of shares held by the board of directors/ total shares outstanding	677	0.456	0.239
Auditors	Number of auditor firm relationships	677	1.111	0.691
Adjusted Q	Market value of equity <i>plus</i> book value of debt/total asset	626	1.182	0.961
<i>Exogenous</i>				
Ln MVE	Natural logarithm of equity value, where equity value is measured as the stock price times the shares outstanding	583	5.241	1.950
Ln Asset	Natural logarithm of total asset	626	2.559	0.596
Ln Age	Natural logarithm of number of years since the incorporation of the firm	675	1.409	0.299
Leverage	Total debt/Total asset	626	0.374	0.451
Tangible	Tangible asset (=Plant, property and equipment)/Total asset	626	0.629	0.406
RoA	Operating profit/Total asset	626	0.039	0.194
R&D	Expenditure on research and development/Total sales	620	0.006	0.018
Dividend	Dividend payment/Net operating income	626	0.365	4.359
Subsidiaries	Numerical value equal to the number of subsidiaries	677	1.481	2.488
Current	Current asset/total asset	626	0.499	0.206
<i>Ownership Dummies</i>				
Dum_Group	Dummy variable=1, if a firm belongs to a business group, else zero	677	0.644	0.479
Dummy_IPVT	Dummy variable=1, if a firm is Indian private-owned, else zero	677	0.251	0.434
Dummy_Forgn	Dummy variable=1, if a firm is foreign-owned, else zero	677	0.065	0.247
Dummy_State	Dummy variable=1, if a firm is state-owned, else zero	677	0.031	0.173

#### 4.2 Research Design

Following from the earlier discussion, the empirical framework comprises of estimating the following simultaneous equation system:

$$NA=f_1(CEO, CEO \text{ squared}, Adjusted Q ; LnAsset, LnAge, Tangible, Subsidiaries, Current, OD, ID) \quad (1)$$

$$CEO=f_2(Adjusted Q NA; LnMVE, LnAge, Leverage, Tangible, R\&D, OD, ID) \quad (2)$$

$$Adjusted Q=f_3(CEO, CEO \text{ squared}, NA; LnAsset, LnAge, Leverage, Tangible, R\&D, RoA, OD, ID) \quad (3)$$

We include dummies for firm ownership (OD) and industry groups (ID) in all equations, but do not report them in the regressions.<sup>10</sup>

In the first equation, termed *external monitoring equation*, higher managerial ownership (internal monitoring) might necessitate higher or lower external auditing (external monitoring), the sign of which is left to be determined econometrically. On the other hand, following from Bhattacharya and Chisea (1995), it is likely that firms with

higher valuation will tend to maintain fewer auditor relationships in order to prevent information leakage, so that *NA* is likely to be negatively related to adjusted *Q*. Likewise, in (2), greater external monitoring (the number of auditors a firm has, *NA*) would influence internal monitoring, the sign of which is not clear *a priori*. Additionally, adjusted *Q* is also included as a determinant of managerial ownership: higher quality firms (proxied by higher adjusted *Q*) will inspire higher percentages of managerial ownership. Finally, in (3), higher managerial ownership is expected to impact firm valuation in a way consistent with the alignment and entrenchment effect of Jensen and Meckling (1976). In addition, we expect the number of external auditors to positively cause *Q* consistent with the argument that outside monitoring reduces agency costs. A tabular representation of the expected relationships among the endogenous variables is presented in Table 2.

**Table 2: Endogenous variables and expected relationships**

Variable	Economic argument	Expected sign
CEO → Auditors	Higher managerial ownership might necessitate higher or lower external auditing	+/-
CEO → Adjusted Q	Managerial ownership serves to align the interests of managers and outside equity holders such that a positive relationship is expected between managerial ownership and firm valuation	+
Auditors → CEO	Greater external monitoring (auditing) will influence internal monitoring	+/-
Auditors → Adjusted Q	Outside monitoring is likely to reduce agency costs and therefore positively impact firm valuation	+
Adjusted Q → Auditors	Firms with higher valuation will tend to exhibit higher or lower external monitoring by auditors	+/-
Adjusted Q → CEO	Higher quality firms will inspire higher percentages of managerial ownership	+

The control variables in (1) include size (*LnAsset*), age (*LnAge*), asset tangibility (*tangible*), number of subsidiaries of the firm (*subsidiaries*) and current asset ratio (*current*). Larger and hence more visible firms would face less informational asymmetry, making it easier for them to gain access to equity markets (Rajan and Zingales, 1995). This would presumably imply better external auditing, although its impact on the number of auditors is not evident *a priori*. At the same time, as Demsetz and Lehn (1985) have argued, concentration is likely to be lower in larger firms: if owners are risk-averse,



then increasing percentages of wealth are required to achieve the same percentage of firm ownership. Likewise, older firms, to the extent they are better known to outside investors, might face less severe adverse selection problems, and as a result, are less likely to resort to multiple auditor relationships. Likewise, firms with higher tangible asset are expected to be less informationally opaque, implying the possibility of such firms being associated with multiple auditors. We also include the number of subsidiaries (*Subsidiaries*) to capture the organizational complexity of firm operations (Craswell et al., 2002). Borrowing from the literature (Craswell, 2002; Fan and Wong, 2005), we include the firm's current asset ratio (*current*). A low current ratio, indicative of liquidity problems, might lower the likelihood for auditors to be associated with such firms.

The second equation is labeled *managerial ownership equation*. The control variables in this equation include *LnMVE*, *LnAge*, leverage, R&D and tangible assets. Size is expected to negatively impact managerial ownership because wealth constraints prevent managers from obtaining a large percentage of equity as firm grows bigger. Leverage is also expected to be a negative determinant of managerial ownership because high-leveraged firms are more intensely exposed to market monitoring. Additionally, the inclusion of dividend variable stems from the argument forwarded by Jensen *et al.* (1992) that insider ownership is a function of the amount of dividend.

In the third specification, the *adjusted Q equation*, the control variables are those already employed by Chung and Jo (1996). Specifically, they find natural logarithm of total asset, R&D, profitability and leverage to be significant determinants of firm valuation.

## 5. Results and Discussion

Table 3 sets out the results of the nonlinear 3SLS estimates for the simultaneous equation model defined by equations 1-3. Under the 3SLS procedure, a structural equation is defined as one of the equations specified in the system. Dependent variables have their usual interpretation as the left-hand-side variable in an equation with an

associated disturbance term. All dependent variables are explicitly endogenous to the system and as such are treated as correlated with the disturbances in the system's equations. All other variables in the system are typically treated as exogenous to the system and uncorrelated with the disturbances. The exogenous variables are taken to be instruments for the endogenous variables.

Model 1 of the table provides the regression estimates of the external auditing equation. The level of managerial ownership (internal monitoring) is significantly non-linearly related to the number of auditor relationships (external monitoring). More specifically, the negative estimate on the parameter CEO reveals the existence of a substitution monitoring effect between auditors and the managerial group. This effect, however, is increasingly retarded at higher percentages of managerial ownership, as the sign of the estimated CEO squared is positive. The inflection point in the relationship is 15.2%.<sup>11</sup> This convex quadratic relationship between auditor monitoring and managerial monitoring suggests that an increase in managerial ownership will result in a less significant auditor monitoring while the percentage of managerial ownership is below 15.2%. Beyond this threshold, however, the number of auditor relationships is accompanied by a rise in the level of managerial ownership. The interpretation of this inflection point is that once the managerial ownership exceeds this threshold, the moral hazard resulting from managerial private benefits presumably rises, so that auditors need to step up their external monitoring to counter this moral hazard behavior that is difficult for outsiders to monitor.

It is also observed that adjusted Q had a limited impact on the number of auditor relationships. In terms of the exogenous variables, firm size ( $LnMVE$ ) carries a positive and significant parameter, suggesting that larger firms need to have manifold multiple auditor relationships to maintain their larger sources of demand. Finally, higher R&D has a negative effect on the number of auditors, suggesting that auditors are less likely to be associated with riskier and hence, R&D intensive firms.

Model 2 of the equation explores the factors influencing the percentage of managerial ownership. The results indicate that the number of auditor relationships is

significantly negatively related to the percentage of managerial ownership which is consistent with the discussions regarding a substitution effect: increased external monitoring by auditors being accompanied by a simultaneous decrease on the part of managers to engage in internal monitoring. The point estimate on the parameter in relation to external auditor monitoring shows that a unit increase in monitoring per auditor results in a decline of 0.86 in managerial ownership. Consistent with earlier studies, adjusted Q is a positive and significant determinant of managerial ownership, suggesting that managers guided by self-interests tend to hold higher level of ownership capital in high-quality firms.

**Table 3: 3SLS model of external auditing, managerial ownership and adjusted Q**

Variable	Auditors (Model 1)	CEO (Model 2)	Adjusted Q (Model 3)
Constant	2.987 (0.693)***	1.774 (0.429)***	-17.716 (4.698)***
<i>Endogenous</i>			
Auditors		-0.857 (0.343)***	10.211 (3.718)***
CEO	-0.891 (0.472)**		0.952 (0.469)***
CEO squared	0.029 (0.011)***		-0.036 (0.019)**
Adjusted Q	0.011 (0.065)	0.023 (0.013)*	
<i>Exogenous</i>			
Ln MVE	0.105 (0.045)***	-0.049 (0.023)**	
Ln Asset			-1.423 (0.644)
Ln Age	-0.056 (0.142)	0.149 (0.066)**	1.785 (0.745)***
Leverage		-0.036 (0.020)*	-0.414 (0.222)*
Tangible		-0.046 (0.054)	0.309 (0.540)
R&D	-0.368 (0.187)**	-0.302 (0.107)***	3.880 (1.169)***
RoA			-0.214 (0.799)
Dividend		0.008 (0.017)	
Subsidiaries	-0.266 (0.194)		
Current	0.125 (0.184)		
Ownership dummies	Included	Included	Included
Industry dummies	Included	Included	Included
Number of observations	583	583	583
Adjusted R-squared	0.152	0.146	0.150

Robust standard errors in parentheses

\*\*\*, \*\* and \* indicate statistical significance at 1, 5 and 10%, respectively.

The other exogenous variables are characterized as follows. The coefficient on *LnMVE* is negative and statistically significant. In other words, wealth constraints prevent managers from obtaining a large percentage of equity as firm size increases. On

the other hand, leverage is significantly negatively related to the percentage of managerial ownership, suggesting that firms with higher financial risk are less likely to be subject to internal monitoring than to external monitoring by auditors. Finally, the positive sign on the coefficient on age means that older firms may be regarded as having better reputations which provides managers higher motivation to increase their ownership.

The final model explores the determinants of adjusted Q. The percentage of managerial ownership is a non-linear function of firm value as measured by adjusted Q. The non-linear function estimates an inflection point of 13.2%. In other words, an increase in managerial ownership will lead to higher firm performance right from the beginning (the alignment effect), but once CEO ownership exceeds the threshold level of 13.2%, the moral hazard resulting from private managerial benefits exceeds contribution of managers (the entrenchment effect), so that performance declines. The inflection point so obtained is close to that derived in the causal relationship from managerial ownership to auditor relationships.

In addition, the number of auditors is found to have a positive and significant impact on adjusted Q, after controlling for the effects of managerial ownership. This suggests that firms subject to multiple external auditing tend to exhibit higher valuation.

Among the exogenous variables, LnAsset is found to be related inversely to firm valuation, consistent with the fact that larger firms, having a more diversified asset composition tend to retard market valuation (Lang and Stulz, 1994). Additionally, higher leverage is found to have a dampening effect on firm value, indicating that firms with higher risk tend to perform poorly. It is also observed that firms with higher tangible assets tend to exhibit higher valuation. Finally, R&D carries positive parameter estimates, consistent with earlier findings in the literature (Morck *et al.*, 1988; McConnell and Servaes, 1990; Chung and Jo, 1996; Chen and Steiner, 2000).

## 5.2 Additional Results

We re-estimated the equations for the sub-samples. Since the control variables are materially unaltered in sign and significance, table 4 reports the estimated coefficients for the endogenous variables. The first two sub-samples comprise of the top and bottom 25 percentile of the size distribution, respectively, where size is measured by *LnAsset*. The third and fourth sub-samples, on the other hand, comprise of the top and bottom 25 percentile of the leverage distribution, where leverage is measured by *leverage*. The findings arising from the analysis can be summarized as under.

**Table 4: 3SLS model of external auditing, managerial ownership and adjusted Q-Sub-sample Results**

Variable	Auditors	CEO	Adjusted Q
<i>Top 25% by LnAsset</i>			
Auditors		1.344 (0.839)*	0.381 (0.187)**
CEO	-0.672 (0.059)***		0.810 (0.196)***
CEO squared	0.017 (0.006)***		-0.026 (0.013)**
Adjusted Q	-0.266 (0.089)***	0.368 (0.249)	
Number of Observations	123	123	123
R-squared	0.481	0.319	0.250
<i>Bottom 25% by LnAsset</i>			
Auditors		-0.557 (0.307)*	0.304 (0.185)*
CEO	-0.858 (0.887)		
CEO squared	0.543 (1.049)		-0.871 (1.377)
Adjusted Q	-0.079 (0.031)***	0.102 (0.052)**	0.561 (0.754)
Number of Observations	83	83	83
R-squared	0.186	0.096	0.608
<i>Top 25% by Leverage</i>			
Auditors		-1.649 (1.704)	0.468 (0.282)*
CEO	0.745 (1.379)		-0.698 (1.032)
CEO squared	-0.079 (0.134)		0.863 (1.051)
Adjusted Q	0.184 (0.058)***	0.349 (0.156)**	
Number of Observations	104	104	104
R-squared	0.097	0.273	0.215
<i>Bottom 25% by Leverage</i>			
Auditors		-0.015 (0.056)	0.076 (0.233)
CEO	0.909 (0.229)***		-0.492 (0.761)
CEO squared	-0.096 (0.043)**		0.549 (0.790)
Adjusted Q	-0.537 (0.219)***	0.030 (0.041)	
Number of Observations	121	121	121
R-squared	0.031	0.188	0.557

Robust standard errors in parentheses

\*\*\*, \*\* and \* indicate statistical significance at 1, 5 and 10%, respectively.

At the top end of the asset distribution, the results are akin to those obtained for the entire sample: a substitution monitoring effect between CEO and auditors in the initial stages, followed by lower auditor monitoring beyond a threshold, computed to be 19.76%. The threshold level is higher than that obtained for the entire sample. In other words, managerial stake in large firms are higher than those for the entire sample. In the third equation, increased CEO monitoring is observed to raise firm valuation, although the entrenchment effect (a negative relationship) gains prominence after a threshold. The results also indicate, after controlling for internal managerial monitoring, increased oversight by auditors has a salutary effect on firm valuation.

On the other hand, for the bottom 25% of firms by asset, the results indicate that adjusted Q has a negative impact on the number of auditors, suggesting that smaller firms with higher valuation will tend to maintain fewer auditor relationships, resulting in less external monitoring. Likewise, there is evidence of a substitution effect between external auditing and internal managerial monitoring. Finally, in the third equation, an increase in external auditing is found to improve firm performance, consistent with the argument that outside monitoring reduces agency costs.

Turning to the results by leverage, the results for the top 25% of firms are at variance to those obtained for the entire sample. More specifically, the results indicate the lack of any monitoring between auditors and managerial group. The results, in particular, suggest a two-way relationship between firm valuation and external auditors: on one hand, adjusted-Q had a positive impact on the number of auditor relationships, on the other, firms with multiple auditors exhibited higher valuation.

On the other hand, for low leveraged firms, the results were at variance to those obtained for the entire sample. More specifically, the positive and significant coefficient on the CEO parameter indicates the existence of a complementary monitoring effect between auditors and the managerial group. This effect however, was found to decline as the percentage of CEO ownership increased, since the since of the CEO squared term was positive. In other words, an increase in managerial ownership is accompanied by an increase in auditor relationship for a level of managerial ownership upto 4.73%. Beyond

this threshold, the number of auditor relationships is accompanied by a decline in the level of managerial ownership, suggesting a lowering of moral hazard resulting from managerial private benefits beyond the threshold.

Summing up, the results obtained from the estimation of the simultaneous equation system lead to some interesting conclusions. First and more generally, external monitoring by auditors, managerial ownership and firm valuation are jointly determined, with each serving to reinforce the other. In terms of specifics, the percentage of managerial ownership is a non-linear determinant of the number of auditor relationships. Second, auditor monitoring is a positive determinant of managerial ownership, consistent with the existence of a substitution monitoring effect. This effect was evidenced primarily for large firms. Secondly, adjusted Q is a significant and positive determinant of managerial ownership, while managerial ownership is also a statistically significant determinant of adjusted Q, after controlling for external monitoring. Third, for low-leveraged firms, there is evidence of a complementary monitoring effect between auditors and managers.

## **6. Concluding remarks**

The study presents a non-linear simultaneous equation model of external auditing, managerial oversight and firm valuation. After controlling for the effects of exogenous variables, the results reveal the existence of substitution monitoring effect between auditors and the managerial group. In addition, the results indicate that increased external monitoring by auditors will simultaneously raise the incentive on the part of managers to engage in internal monitoring. Also, firm valuation is found to be a significant determinant of managerial ownership.

The aforesaid analysis leads to several interesting policy conclusions. First, the findings indicate that company value is low when promoters have low stake in the company. Since control of such companies can still be in the promoters' hands because of the dispersed nature of shareholding, such companies needs to be subjected to more vigilant external monitors like auditors and to the discipline of an active market for

corporate control. However, as the promoters' stake increase beyond a threshold, consistent with agency theory, there is a positive effect on company value.

Second, the analysis suggests that external monitors can perform an important governance role. However, as has been many an instance in Germany and Japan, external monitors in India have been perceived by and large to be extremely passive in corporate governance. With the envisaged revisions in the Companies Act and the Chartered Accountants Act which provide explicit emphasis on external auditing, it is expected that this aspect will take center-stage.

## **Endnotes**

1. There were also several other recommendations made by the committees. Salient among these include: presence of the chairman of the Audit Committee at Annual General Meeting to answer shareholder queries, the Company Secretary should act as the secretary to the Audit Committee, the Audit Committee should meet at least thrice a year with a quorum of either two members or one-third of the members of the Audit Committee and granting the Audit Committee necessary powers to investigate any activity within its terms of reference, to seek information from any employee; to obtain outside legal or professional advice, and to secure attendance of outsiders if necessary. In addition, the recommendations also emphasized that the Audit committee should discharge various roles such as, reviewing any change in accounting policies and practices; compliance with Accounting Standards; compliance with Stock Exchange and legal requirements concerning financial statements; the adequacy of internal control systems; the company's financial and risk management policies.
2. The Department of Company Affairs, an arm of the Government which enforces the Companies Act appointed a Committee in August 2002 to examine issues such as auditor-firm relationship, certification of the financial statements by directors and setting up an independent regulator along the lines of the Public Company Accounting Oversight Board established under the Sarbanes-Oxley Act of the US. The proposed Chartered Accountants (Amendment) Bill and Companies Act concept paper includes certain recommendations of the Committee.
3. Local affiliates of large international networks audit 11 out of the top 50 Indian companies and jointly audit 6 other companies in the top 50 with another medium-sized firm. They also audit 25 out of the top 51-100 companies and jointly audit 5-10 other companies in that bracket with another medium-sized firm.
4. The audit firms have to provide the required information in standard questionnaire, which is reviewed on a limited basis by the CAG.
5. Because of this 1988 regulation, 2 Indian affiliates of the Big 4 international network operate using their pre-1988 registered brand names. The other 2 did not have any firms registered with the ICAI pre-1988 and hence use completely unconnected Indian member firm brand names. Also, all 4 firms and some of the other larger international networks have private limited companies registered in India that use the global brand and actively



- sell all the firms services, other than those restricted to be provided by ICAI members. These private limited companies are not required to follow the strict code of ethics.
6. Comprising of 6 ICAI members and 5 members from industry and government bodies and users of financial statements.
  7. The *Prowess* database provides information on auditor-firm relationships only for a single time point; it does not provide a cross-sectional and time series variation in the number of auditor-firm relationships. Updation of the information in *Prowess* takes the form of replacing the earlier database on the auditor-firm relationships figures with the revised information. As a consequence, the analysis is based on cross-sectional data.
  8. Under the head 'Associates and subsidiary companies name' within query by basic information, *Prowess* provides information on the number of auditors with which a firm is associated listed in order of priority (primary auditor, second auditor, etc).
  9. The National Stock Exchange is the state-of-the-art exchange for listed corporates in India.
  10. We consider eleven industry groups: Automobiles, Cement, Chemicals, Diversified, Electronics, Electrical Machinery and equipment, Food, Metal and metal products, Paper and plastic, Textile and Others (which includes glass and ceramics, refined petroleum products and nuclear fuel, paper and printing, mining and quarrying, extraction of crude petroleum and natural gas, gems and jewellery, manufacture of coke and cosmetics).
  11. The inflection point is computed as the derivative of number of auditor relationships with respect to managerial ownership. The other reported inflection points are computed in a similar manner.

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