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The impact of institutional stock ownership on a firm's earnings management practice: an empirical investigation

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THE IMPACT OF INSTITUTIONAL STOCK OWNERSHIP ON A FIRM'S EARNINGS MANAGEMENT PRACTICE: AN EMPIRICAL INVESTIGATION

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ABSTRACT

This study examines whether institutional investor shareholdings inhibit firm managers from engaging in earnings management practice. It investigates the empirical association between discretion/flexibility available to managers in managing abnormal non-cash working capital accruals and institutional stock ownership for a sample of 386 New York Stock Exchange firms over a period of 8 years, from 1991 through 1998. The differential institutional influence on the level of accrual management of firms having different information environment, S&P 500 versus non S&P 500, is also examined to see whether the difference in information environment of these two sets of firms has any effect on this empirical relationship.

By performing various multivariate statistical analyses, I find significant evidence that institutional stockholders reduce management flexibility in generating abnormal accounting accruals. Further, concentrated institutional shareholdings in some cases are found to diminish managerial propensity to manage abnormal accruals. A separate analysis for the S&P 500 and the non S&P 500 firms reveals that institutional monitoring effect on accrual management is different for these two sets of firms. I observe that institutions do not have mitigating influence in the S&P 500 firms but have significant mitigating effects on accrual management level in the non S&P 500 firms.

The study makes two-fold contributions to the existing earnings management literature. First, it is generally assumed in prior studies that firms have uniform abilities to generate abnormal accruals to manage earnings. This study provides evidence that management's ability to manage earnings is not constant across firms but varies according to the level and concentration of institutional stock ownership. Institutional

investors are found to improve the quality of corporate governance in financial reporting in cases where other important governance factors exist. Consequently, this study also extends prior research that examined the effects of other influential governance factors such as external audit, independence of boards or audit committees on the level of accrual management. Second, I develop a unique and powerful accrual model, which represents an improvement over the traditional accrual models typically used in previous research and provides more robustness to the tests of earnings management.

1. INTRODUCTION

In this study, I examine the effect of institutional stock ownership on a firm's earnings management activity by testing the empirical association between institutional investor shareholdings and flexibility available for managers to make use of abnormal accrual adjustments to manage earnings.[1] This study is motivated by the fact that most previous earnings management research generally ignores the influence of corporate governance factors that might constrain managers' ability to manage earnings, and a few studies to date have directly examined the effects of such a limiting factor on earnings management activity.

In recent years, regulators have expressed serious concern over earnings management. In a 1998 speech, Securities and Exchange Commission (SEC) Chairman Arthur Levitt identified several accounting practices that he claimed were eroding the quality of reported earnings and he advocated a number of initiatives to improve the quality of financial reporting. To address this concern, the SEC has started examining the disclosure requirements and formed a task force to crack down on firms that opportunistically manage earnings.[2] This action continues under the current chairman, Harvey Pitt. Furthermore, the New York Stock Exchange (NYSE) and the National Association of Security Dealers (NASD) have proposed a rule change regarding the

[1] As defined by the SEC in Rule 13-f, institutional investors are entities such as bank trusts, insurance companies, mutual funds, and pension funds that invest funds on behalf of others and manage at least $100 million in equity. Entities such as arbitrageurs, brokerage houses, and companies holding stock for their own portfolio (as opposed to their pension funds) are not considered institutional investors by the SEC and are not required to disclose their equity investments (Bushee 1998).

[2] On the SEC's recommendation, the Blue Ribbon Committee (BRC) was formed in 1999 (co-sponsored by NYSE and NASD) to look into the area of improving auditor effectiveness. The goal of the BRC was to find ways to improve the financial reporting process and enhance the role of the audit committee in overseeing the process. The BRC has recommended that companies have audit committees comprised entirely of independent outside directors. On December 14, 1999, the SEC approved changes to the audit committee rules of the NYSE, AMEX and NASDAQ requiring the listed companies to comply with the independence requirements before June 14, 2001.

independence of audit committees for listed companies to increase the effectiveness of monitoring the financial reporting process. Dechow and Skinner (2000) suggest that as the stock market valuations (measured in terms of earnings and book values) increased in the 1990s, managers have become increasingly sensitive to the level of their firms' stock prices and their relation to key accounting numbers such as earnings. Consequently, their incentives to manage earnings to maintain and improve firm valuations have also increased. These recent and ongoing events suggest that incentives and motivations behind earnings management by firms and of factors that mitigate or encourage such actions remain an important and useful area in accounting research.

Managers are posited to opportunistically manage earnings to maximize their utility at the expense of other stakeholders. Growing evidence from prior research supports the argument that earnings management is a common practice in firms (e.g., Dye 1988; Trueman and Titman 1988; Scott 1998).[3] Given that managers have flexibility in choosing accounting policies, they choose policies that maximize their own utility. Most studies of earnings management take this opportunistic perspective (e.g., Watts and Zimmerman 1986, 1990; Cahan 1992; Sweeney 1994; DeFond and Jiambalvo 1994). The primary focus on earnings management research to date has been on detecting whether

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

According to Parfet (2000), earnings management can be good or bad. A good earnings management is a reasonable and proper practice that is a part of operating a well-managed business and delivering value to shareholders. A bad earnings management involves intervention to hide real operating performance by creating artificial accounting entries or making accounting estimates beyond a point of reasonableness.

But empirically, so far it has not been possible for researchers to separately identify cases of good and bad earnings management. For example, use of accounting accruals is necessary to make financial statement more informative about the economic performance of an entity in a given time-period. However, the same accruals can be used by managers to manage earnings to accomplish their own economic objectives.

and when earnings management occurs. Researchers typically use broad measures of earnings management (e.g., based on accounting accruals) and draw a sample of firms where motivations to manage earnings are expected to be strong (Christie and Zimmerman 1994; Healy and Wahlen 1999).

Prior accounting research on earnings management generally ignores the influence of a firm's governance structure as an intervening variable that limits the ability of managers to manipulate earnings and assumes, instead, that the ability to manage earnings is constant across firms (Jiambalvo 1996). It remains an essential facet of earnings management research to look into the impact of various constraining factors on a firm's ability to manage earnings. Relatively few studies have specifically looked into the influence of corporate governance on earnings management activity. Prominent studies in this area, among others, are done by Becker et al. (1998), Francis et al. (1999), Chung et al. (2002) and Klein (2002). Becker et al. (1998) have examined the relation between audit quality and accrual management. They documented that Big-Six auditors reduce management's accounting flexibility to opportunistically engage in managing earnings through discretionary accrual adjustments. Francis et al. (1999) also observe that the Big-Six auditors constrain managers' ability to opportunistically report accounting accruals. Further, Chung et al. (2002) find evidence that institutional investors inhibit management to opportunistically engage in accrual management to smooth the earnings stream to achieve a desired level or range of profits. Klein (2002) observes that changes in board or audit committee independence are accompanied by changes in the level of abnormal accruals, a measure of earnings management. She concludes that an

independent board or audit committee is more effective in monitoring the corporate financial reporting process by reducing the magnitude of abnormal accruals.

Dechow et al. (1996), in their study on firms subject to SEC enforcement actions, have noted that firms manipulating earnings are less likely to have outside block-holders and more likely to have boards of directors dominated by management. They suggest that a firm's governance structure plays an important role in management's decision to manipulate earnings, and sophisticated investors are more likely to expose the earnings manipulation by firms. In their study on the reassessment of earnings quality, Balsam et al. (2000) find evidence that, relative to individual investors, institutional investors are more capable of quickly recognizing and decomposing the accrual components into discretionary and non-discretionary parts to reassess the reported earnings integrity. They assert that the sophisticated investors are more capable of recognizing earnings management than unsophisticated investors because of their access to other timely and valuable sources of firm-specific information.

Institutions have the resources, abilities and opportunities to monitor and discipline managers to focus more on long-term appreciation of firm-values. Institutions with substantial investment in a firm's common stock have heightened incentives to monitor firm-management. Whether they actually monitor and exert their influence is, therefore, an empirical question (Chung et al. 2002). I examine the influence of institutional investors, an influential corporate governance factor, on a firm's accrual management level in the presence of previously tested constraining factors such as audit quality and independent audit committees, in a general setting where other traditional underlying incentives and motivations behind earnings manipulations are expected to

exist. My primary objective is to see whether institutional stockholders have any incremental mitigating influence on a firm's accrual management activity. I also examine this influence of institutional stockholders for firms with different information environments. The basic difference between this study and most previous research on earnings management is that in this study, I focus on the impact of an influential constraining factor on earnings management activity rather than various economic factors providing managerial incentives to engage in earnings manipulation.

As this study examines the aggregate influence of institutional investors[4] in the context of overall earnings management, it is also an extension of several previous studies that examined the institutional influence on the level of specific expenditure items of a firm such as research and development and property plant and equipment (Bushee 1998; Wahal and McConnell 2000; Eng and Shackell 2001). Chung et al. (2002) suggest that although a number of studies were done in the past investigating the association between institutional stock ownership and corporate performance, there are very few studies that have examined how institutions monitor and influence certain management actions. This study extends this stream of research by examining institutional influence on the overall level of accrual management by firms.

Three hypotheses are developed. In the first hypothesis, I predict an inverse relationship between a firm's accrual management activity and its institutional stock ownership. The second one extends the first hypothesis to the effect of concentrated institutional stockholdings and predicts that increases in concentrated stock ownership

[4] The use of institutional stock ownership as a sophistication variable is well established in accounting and finance research. The studies using such variable look into the aggregate effects of institutional owners in the context of a specific economic circumstance or a research situation. (e.g., Chung et al. 2002; Balsam et al. 2000; Wahal and McConnell 2000; Bartov et al. 2000; Duggal and Millar 1999; El-Gazzar 1998; Utama and Cready 1997; Kim et al. 1997).

have mitigating influence on a firm's accrual management activity. In the third hypothesis, I predict differential institutional influence on accrual management in the two sets of firms, the S&P 500 and the non S&P 500 as they have different information environments.

The empirical tests in the study produce evidence consistent with institutional investor activism in the earnings management context. Using a sample of 386 New York stock exchange listed firms over a time-period of eight years from 1991 to 1998, I find evidence that institutional investors have a strong mitigating influence on a firm's accrual management activity. The institutional stockholders are found to reduce management's flexibility in generating abnormal accruals to manage earnings during the sample time-period under study. Further, for certain measures of concentration, this monitoring influence increases with the increase in concentration of institutional stockholdings in a firm. Firms having concentrated institutional shareholdings experience greater institutional monitoring and as a consequence, have lower flexibility to use accruals to manage earnings. The results of this study are consistent with those of Chung et al. (2002) who report that institutions deter management from opportunistically engaging in accrual management to smooth earning streams. Additionally, I segregate the clientele effects from the monitoring effects of institutional investors on accrual management levels to eliminate an alternative interpretation of the empirical test results. By adopting the two-stage least square approach, I have shown that institutions, in fact, provide monitoring to constrain management flexibility to manipulate accounting accruals. I observe, however, that the mitigating influence of institutions on accrual management is largely moderated for the S&P 500 firms in the sample compared to the non S&P 500

firms. By partitioning the full sample between S&P 500 and non S&P 500 firms, I find that there is a significant institutional influence for the non S&P 500 firms but not for the S&P 500 firms. As a whole I find significant institutional effects on firms' accrual management activities in a general setting after accounting for the effects of firm-specific variables controlling for firms' abnormal accrual generation process. The study's result suggests that institutional investors improve the quality of corporate governance by reducing the level of earnings manipulation.

The results of this study contribute to the existing literature of earnings management by examining and demonstrating an empirical relationship between an influential corporate governance factor, institutional stock ownership, and a measure of earnings management, flexibility in generating abnormal accounting accruals. Previous studies have examined the influence of two important governance variables, audit committee and external audit, on overall earnings management efforts. By examining the effects of a third influential governance factor, institutional stock ownership, on accrual management levels, the study makes an important and incremental contribution to the stream of earnings management research. The result of the study holds when two other governance variables, independent audit committees, high quality external audit, are included. My results suggest that it is essential to control for the effects of the corporate governance factor, especially the impact of sophisticated group of stockowners in the form of institutional investors, in an earnings management study because managers' abilities to manage earnings are not constant but differ across firms depending on the level and concentration of institutional stockholdings.

2. GOVERNANCE STRUCTURE VARIABLE AND INSTITUTIONAL INVESTORS

2.1. Theories of Governance Structure Variable

There are several theories concerning how governance structures affect the practice of earnings manipulation. Dechow et al. (1996) suggest that outside blockholders of common shares improve credibility of a firm's financial statements by providing close scrutiny over its earnings management activity.

Margiotta (1994) suggests that effective monitoring by large outside blockholders of shares reduces the need to tie managerial compensation to earnings performance. If the compensation is not linked to earnings performance, the incentive for managers to manage earnings for personal gains is substantially diminished.

Core (1995) argues that the presence of large block-holders of shares reduces the agency costs since managers would be more inclined to act in the interest of shareholders and would reduce the extent of fraudulent reporting through accounting manipulation to avoid litigation.

According to the Financial Economists Roundtable Statement on Institutional Investors and Corporate Governance (1999), with an increase in institutional investment in an entity, the institutional interest to monitor management actions increases because of the increasingly large economic stakes. Substantial ownership provides strong incentives to institutions to actively monitor and influence management actions and its various policy decisions.

2.2. Importance of Institutional Investors in Corporate Governance

The variable of interest in this study is the influence of institutional investor shareholdings on a firm's earnings management practice. Institutional investors have

become dominant equity holders in the U.S. during the past twenty years, and therefore, have become an influential governance factor in U.S. corporations. According to one estimate, institutional investors hold about one-half of the outstanding common stocks of U.S. corporations (Duggal and Millar 1999). The Financial Economists Roundtable (1999) estimated that institutional ownership of public corporations' common stock grew from 6% of the total outstanding stocks in 1950 to 47% by the end of 1996. Institutions now hold nearly 60% of the common stock of the 1,000 largest US corporations. These investors, therefore, hold large blocks of shares in firms and substantially influence trading activities in the capital markets.

Institutional investors have two incentives for managing their portfolio of investments: 1) fiduciary responsibilities and 2) higher investment performance. To satisfy their fiduciary responsibilities, institutions develop a prudent/selective investment policy and continuously monitor performance (Arbel et al. 1983). The efficient selection and monitoring of investments involves large-scale development of private pre-disclosure information (Brous and Kini 1994). Moreover, most institutional investors reward portfolio managers on quarterly performance (Hessel and Norman 1992). This compensation policy gives portfolio managers incentives to search for private information to help them improve investment performance. The search for private information by institutional investors is cost-effective because of the potential benefit associated with their large stakes in a corporation.[5] In addition, managers of firms with a

[5] In an interview with investment managers of four different institutions, the managers emphasized that they spend much time and effort on information collection and in-house analysis to improve portfolio performance and to satisfy their fiduciary standards (El-Gazzar 1998).

large institutional ownership may be induced to voluntarily release a high level of pre-disclosure information to gain confidence of institutional stockholders (El-Gazzar 1998).

The business community has expressed concern about the increasing power of institutional investors in the market and their influence over corporate policies (El-Gazzar 1998). Nussbaum and Dobrzynski (1987) report that institutions hold blocks of securities and continually monitor corporate performance. Institutions with a large stock ownership within a firm are likely to trigger more voluntary disclosures by managers of that firm and can impose their investment objectives on firms by introducing motions and proposals at annual meetings, which counter management policies (Hessel and Norman 1992). Jones (1993) claims that institutional investors have contributed to the resignation of CEOs of major corporations such as IBM, GM and Kodak, because institutions believed that management did not serve owners' interest.[6]

[6] GM's management made major policy changes less than three weeks after a threat was made by the Council of Institutional Investors (Hessel and Norman 1992), a pension fund organization collectively owning over $1 trillion of assets and taking active part in the corporate governance. The Co-chairman of the Council has made it clear that such pressure would continue when he said: The Council members want to meet with CFOs to make sure that their opinions are considered when policies are formulated and to ensure that management feels accountable to someone outside the firm.

A study by Opler and Sokobin (1998) on the activism of the Council of Institutional investors provides evidence that the firms on the Council's focus lists subsequently experienced significant improvements in operating profitability and share returns. Institutional investors attempt to improve firm-performance either through non-confrontational, long-term negotiation strategies or through confrontational strategies exemplified in shareholder motion or proposal.

3. PRIOR RESEARCH

3.1. Prior Research on Corporate Governance Variables

Although a considerable body of research has examined managerial incentives to opportunistically adjust earnings, relatively little research has examined factors that constrain earnings management activity. Becker et al. (1998) have examined the relationship between audit quality and earnings management by considering external auditing as a part of corporate governance. They assume that Big-Six auditors are of higher quality than non Big-Six auditors and find evidence that the clients of non Big-Six auditors report discretionary accruals, a proxy for earnings management, that are, on average, 1.5-2.1 percent of total assets higher than that reported by the clients of Big-Six auditors. Consistent with earnings management, they find that the mean and median of the absolute value of discretionary accruals are greater for firms audited by non Big-Six auditors. Becker et al. (1998) also examine the variation in discretionary accruals, which they suggest reflects the accounting flexibility that the auditor allows. They document that the companies audited by non Big-Six auditors have significantly larger variation in discretionary accruals compared to the companies audited by Big-Six auditors over the sample period. They conclude that the test results are consistent with the external auditor acting as a constraint on management's opportunistic choice of accounting procedures, with the effectiveness of such constraint depending on auditor quality. High quality auditing acts as an effective deterrent to earnings management activity.[7]

[7] This result is consistent with an earlier study done by Teoh and Wong (1993), which shows that earnings response coefficients are higher for Big-8 auditees. They contend that this is the evidence of higher audit quality for these firms, under the assumptions that a high quality audit ensures high earnings quality leading to greater informativeness of earnings and higher association between reported earnings and market returns.

Francis et al. (1999) have also examined whether the Big-Six auditors mitigate firms' earnings management behavior by constraining aggressive, potentially opportunistic reporting of accruals. They find that even though firms with the Big-Six auditors have relatively higher level of total accruals, they have smaller amount of estimated discretionary accruals compared to firms audited by the non Big-Six auditors. They extend this analysis to the three levels of audit quality. Firms audited by the first tier Big-Six auditors have smaller discretionary accruals than firms audited by the second tier national auditors, and firms audited by the second tier national auditors have smaller discretionary accruals than firms audited by the third tire local auditors. They contend that the Big-Six auditors have greater ability to constrain management's aggressive and questionable accounting practices. Francis et al. (1999) also find evidence that high accrual firms hire Big-Six auditors to convey credibility of their reported earnings to outside stakeholders of firms. High quality auditing is, therefore, regarded as an element of effective corporate governance that reduces managerial opportunism in the area of corporate financial reporting.

Warfield et al. (1995) observe that the increase in managerial ownership reduces the magnitude of discretionary accrual adjustments especially for unregulated firms because with an increase in managerial stock ownership, there is a greater alignment of interests between managers and shareholders leading to more faithful determination of accounting numbers and more informativeness of accounting earnings. However, Warfield et al. (1995) also find evidence that the inverse relationship between managerial ownership and absolute abnormal accruals becomes moderated in case of regulated firms. They suggest that regulation provides monitoring on managers' choice of making accrual

adjustment to manage earnings. Following this research, Gul et al. (2002) finds evidence that the results of Warfield et al. (1995) are likely to depend on perceived auditor quality in terms of Big-6 versus non Big-6 auditors. The result holds more strongly for non Big-6 auditees than for Big-6 auditees. Audit quality (proxied by Big-6 auditors) moderates or weakens the negative association between the magnitude of discretionary accruals and management ownership. Gul et al., therefore, suggest that the Big-6 audit mitigates potential agency problems for firms with low managerial ownership.

Krishnan (2000) finds evidence that the market attaches higher value to the discretionary accruals audited by Big-Six auditors relative to the discretionary accruals audited by non Big-Six auditors. He shows that the association between stock returns and discretionary accruals is greater for firms audited by Big-Six auditors than for firms audited by non Big-Six auditors. Further, the discretionary accruals of clients of Big-Six auditors have a greater association with future profitability than discretionary accruals of clients of non Big-Six auditors. Krishnan (2000) argues that high-accrual firms face greater agency costs compared to low-accrual firms and that auditing plays an important role in mitigating those agency costs by constraining opportunistic management of accruals.

In a study on institutional monitoring and opportunistic earnings management, Chung et al. (2002) find evidence that the presence of large institutional shareholdings inhibit managers from managing accruals to achieve desired level of earnings. Their results show that when managers have incentives to increase or decrease reported profits as revealed from the cash-flow performance for current versus future periods, they accomplish the objective by using income-increasing or income-decreasing discretionary

accruals to maintain a desired earnings stream. However, when investment institutions collectively own a large percentage of outstanding common stock in firms, managers are deterred from fully using discretionary accruals to opportunistically manage earnings. Chung et al. (2002) suggest that with the increase in shareholdings in a particular firm, institutional investors have strong incentives to monitor management to increase firm-value by focusing more on long-term profitability instead of managing earnings on a year-by-year basis. McConell and Servaes (1990) also report a statistically significant relationship between the value of a firm (as measured by Tobin's Q) and percentage shareholdings of institutional investors.

In a recent study, Klein (2002) examines whether audit committee and board characteristics are related to earnings management. Using a sample of 692 firm-years, she finds evidence that the magnitude of abnormal accruals (a measure of earnings management) is more pronounced for firms having audit committees comprised of less than a majority of independent directors. Further, abnormal accruals are inversely related to the percentage of outside directors on the audit committees. Klein (2002) concludes that reductions in board or audit committee independence are accompanied by an increase in abnormal accruals. Therefore, boards structured to be more independent of the chief executive officer are more effective in monitoring the corporate financial reporting process.

3.2. Prior Research on Influence of Institutional Investors

Previous studies on the influence of institutional investors over firm-specific expenditures provide mixed evidence. Bushee (1998) examines whether institutional investors reduce or create incentives for managers to cut research and development

expenditure (R&D) to meet short-term earnings goals. He observes that firms with a high percentage of institutional owners typically do not reduce a firm's R&D spending. However, a large percentage of ownership held by institutions engaged in momentum trading increases the probability of firms managing their earnings upward through a reduction in R&D spending. Bange and De Bondt (1998) also examined the management of research and expenditures (R&D) and its association with institutional shareholders. They conclude that there is less earnings management (related to R&D) when institutional stockholdings are high.

Wahal and McConnell (2000) analyze corporate expenditures for property plant and equipment (PP&E) and research and development (R&D) for more than 2,500 firms and find no support for the contention that institutional investors discourage managers to invest less in a project with a long-term pay-off. In fact, they document a positive relationship between industry-adjusted expenditures for PP&E and R&D and the fraction of shares owned by institutional investors. Similarly, Eng and Shackell (2001) find a significantly positive relationship between firms' R&D intensity and shareholdings of institutional investors. As R&D investments have the immediate effects of reducing near-term earnings (via FASB statement no.2),[8] the result indicates that institutional investors do not enforce managers to focus exclusively on short-term earnings performance. Institutional investors are found to have a positive influence on the level of R&D spending in firms implying that they encourage firms to invest in long-term value enhancing projects.

[8] All expenditures in conjunction with an R&D project, including personnel costs, materials, equipments, facilities and intangibles, for which the company has no alternative future uses beyond the specific project for which the items were purchased, are to be expensed (FAS-2, par.11).

A number of previous studies have observed that institutional investors are, on average, better informed than individual investors are because they spend substantial resources on information search, which reduces information asymmetry between management and outside stakeholders of firms making it difficult for managers to manipulate earnings (e.g., Shiller and Pound 1989; Lev 1988). They encourage corporate managers to focus on long-term value-maximizing projects. Other research findings, however, suggest that institutional investors pressure managers to achieve short-term profit goals at the expense of long-term value maximization (Greaves and Waddock 1990; Jacobs 1991; Potter 1992). Managers, for example, are discouraged from investing in long-term projects and focus instead on projects with short-term pay offs especially when the institutional investors themselves are judged by their own short-term portfolio performance. Institutional trade is responsive to earnings and may provide management with additional incentives to focus on earnings results (Lang and McNichols 1998) and engage in short-term earnings manipulations. Historically, when a firm's earnings performance weakened, institutional investors divested stocks. Due to the high level of shareholding by institutions, the sudden divestiture tends to drive the stock price down at least temporarily.

Prior research also contends that institutions destabilize stock prices. This is based on the premise that swings in institutional demand for a stock have a larger effect on its price than swings in individual investors' demands because institutions have much larger holdings than most individuals and therefore have a larger influence in trading activity in the market. More importantly, price destabilization may be aggravated by correlated trading across institutional investors or by herding based on information about the quality

of investments from each other's trade (Shiller and Pound 1989), or on some exogenous signals (Lakonishok et al. 1992). An opposing view is that institutional investors are rational investors who counter the unpredictable changes in the sentiment of individual investors. They are exposed to a variety of news reports and analyses, as well as to the guidance of professional money managers, which puts them in a better position to evaluate the fundamentals. Institutional investors, in fact, stabilize the stock prices. Lakonishok et al. (1992), however, observe that neither the stabilizing nor the destabilizing image of institutional investors is accurate.

There are arguments suggesting that the presence of substantial institutional shareholdings is associated with superior corporate performance. Some studies document a positive association between institutional stock ownership and corporate performance (e.g., McConnell and Servaes 1990; Nesbitt 1994; Smith 1996; Guercio and Hawkins 1999) while others show that there is no such association between institutional stock ownership and corporate performance in terms of accounting and stock return measures (e.g., Demsetz and Lehn 1985; Wahal 1996; Duggal and Millar 1999; Facio and Lasfer 2000). Unfortunately, there is no strong consensus in the results from empirical research.

As a whole, institutions are found to have a profound influence on a firm's performance and its value in the equity market. Their investment objectives and horizons may provide incentives or disincentives to firm management to focus either on maximizing short-term earnings or on appreciating long-run value by improving firm performance/profitability and/or focusing more on long-term value-enhancing projects.

4. RESEARCH QUESTIONS AND HYPOTHESIS DEVELOPMENT

4.1. Research Questions

In view of the mixed research evidence regarding the role of institutional investors in corporate governance and their influence on managerial actions of a firm, I pursue the following related research questions in the present study:

1) Is institutional stock ownership associated with earnings management practice after controlling the proxies for traditional earnings management incentives such as size, debt contract, compensation, financial risk etc?
2) Does such institutional influence on a firm's earnings management activity vary between the sets of firms differing in their information environment?

4.2. Hypotheses Development

4.2.1. Active Monitoring of Institutional Investors Hypothesis

The institutional investors are, on average, better informed than individual investors due to their large-scale development and analysis of private pre-disclosure information about firms. So, systematic differences exist in the amount and precision of private information in the hands of institutional and individual investors. The higher level of informedness of institutional investors also implies that with the increase in institutional investor shareholdings in a firm, the information asymmetry between shareholders and managers will decline thereby making it more difficult for managers to manipulate earnings. In their study on whether the extent of reassessment of earnings integrity varies with investor sophistication, Balsam et al. (2000) observe that because of their access to other more timely sources of information, institutional investors recognize earnings management more quickly and more easily than unsophisticated individual

investors by decomposing the reported earnings into discretionary accruals and non-discretionary earnings.

Duggal and Millar (1999) advance two arguments in favor of institutional monitoring on firms. First, institutional investors perform quality research in order to identify efficient firms to invest funds, thus directing scarce capital to its most efficient use. Second, the large institutional stake in public corporations provides strong economic incentives for institutional managers to monitor the firm performance to maximize their investment value. This vigilant institutional monitoring enhances managerial efficiency and the quality of corporate decision-making.[9] These arguments are supported by the recent finding of Chung et al. (2002) that institutions inhibit managers to opportunistically engage in income smoothing efforts. They argue that substantial investment in a firm make institutions more interested in monitoring managers' choice of accounting techniques.

Bushee (1998) finds evidence that managers are less likely to cut R&D expenses to reverse an earnings decline when institutional ownership is high, implying that institutional investors provide monitoring to encourage managers to concentrate more on value-enhancing projects. Wahal and McConnell (2000) find a positive relation between institutional investor shareholding and firms' industry-adjusted expenditures on R&D and PP&E. They conclude that they do not find any evidence that institutional owners pressure corporate managers to concentrate more on managing short-term earnings and

[9] 1) Institutional monitoring may involve holding discussions with management on corporate plans and performances, supporting or opposing the management's wealth enhancing or reducing policies and decisions, active participation in board elections and other voting issues (Duggal and Millar 1999).
2) The institutional owners of Honeywell and Lockheed Corporation used the proxy voting mechanism to oppose management attempts to block a take-over (A.C. Wallace-The New York Times, Section D:1:3, July 5, 1998).

less on projects with a long-term pay-off. The similar positive association between institutional investor shareholdings and a firm's R&D intensity is found by Eng and Shackell (2001), implying that institutional investors encourage managers to invest in value-enhancing projects by spending more on research and development.

Although the effects of institutional monitoring should eventually be reflected in operating and stock performance, some researchers (e.g., McConnell and Servaes 1990; Chaganti and Damanpour 1991) have not been able to document a strong association between institutional ownership and corporate performance. Further, Duggal and Millar (1999) do not find any evidence that active institutional investors, as a group, enhance efficiency in the market for corporate control. Several other research studies document that institutional trade is responsive to earnings, which creates a pressure on managers to focus more on achieving short-term profit targets (e.g., Lang and McNichols 1998; Greaves and Waddock 1990; Jacobs 1991).

According to Potter (1992), institutional investors are overly focused on short-term earnings, and as such, they are incapable of monitoring management. The institutional owners are passive investors who are likely to sell their holdings in poorly performing firms rather than expend their resources in monitoring firms to improve their performance (Duggal and Millar 1999). Fearing that a decline in short-term profit will lead to the liquidation of institutional ownership in the firm and at least a temporary decline in equity value, managers are compelled to take actions that increase short-term profit and resort to earnings manipulation in case the actual earnings are expected to fall short of predictions. Moreover, several factors may make institutions disinterested in overseeing firm management. Greaves (1988) argues that fund managers cannot afford to

take a long-term view in their investment decisions since they are reviewed and rewarded on the basis of quarterly, or at most, annual performance.

So, previous research provides competing evidence with respect to the active monitoring influence of institutional owners on a firm's operation. The primary objective of this study is to examine this issue of institutional monitoring in the context of earnings management and explore the relationship in a general setting where the traditional incentives behind earnings management are expected to exist. Since the study is not related to any particular economic event giving rise to specific earnings manipulation incentives, I am interested in the magnitude, not the direction, of discretionary accounting accruals, i.e., the combined effect of income-increasing and income-decreasing accruals. I predict that the magnitude of accrual manipulation, an instrument of earnings management, is considerably less in the case of firms with high levels of institutional stock ownership because the accounting flexibility available to managers in managing accounting accruals is expected to decrease with increase in institutional investor shareholdings. In other words, my prediction is based on the active monitoring influence of institutional investors on a firm's earnings management activity.[10]

The first hypothesis, in its alternative form, is:

H_1: The higher the level of institutional investor shareholdings, the lower the level of accrual management by firms.[11]

[10] According to the Financial Economists Roundtable Statement (1999), the larger the ownership position held by an entity, the greater is its incentive to actively oversee the management. The large stockowners are more likely to fully capture the economic benefits from their activism, and hence are more likely to perceive their oversight activities as cost effective.

[11] Accounting flexibility/discretion indicates the level of accrual management in a firm over the sample period of eight years.

This hypothesis posits a negative relationship between the level of institutional ownership and a firm's earnings management practice. Since the flexibility of generating discretionary accounting accruals (DACC) is positively related to the magnitude of DACC (Barton 2001),[12] the hypothesis implies a negative association between the magnitude of DACC and the level of institutional ownership. The greater the institutional ownership percentage, the lower is the accounting flexibility or discretion available to managers to manage earnings through accruals and the lower is the magnitude of abnormal accruals arising out of managerial discretion.

A natural follow up from the first hypothesis is that with an increase in concentration of institutional stock ownership,[13] the flexibility available to the firm managers (or, the discretion exercised by firm managers) to manage earnings is deemed to decline. The concentrated shareholding is expected to increase institutions' incentives to monitor managers, making them more focused on maximizing long-term profitability instead of being overly pre-occupied with managing short-term earnings.[14] Hence, my second hypothesis in its alternative form is:

> **H_2:** When the institutional stock ownership is highly concentrated, the level of accrual management is lower.

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[12] Barton (2001) finds a significant positive relationship between the magnitude of DACC and the flexibility available to the management to generate discretionary accounting accruals. In this study, I find that the Pearson Correlation Coefficient between the two variables is 0.527, which is highly significant with p-value of 0.000 (Spearman Correlation Coefficient: 0.935; p-value: 0.000).

[13] By concentration of shareholdings, I assume at least 5% shareholding in a firm by a single institutional investor (termed as large blockholder). I predict that the persistent presence of large blockholders in a firm makes it difficult for managers to engage in accrual manipulation activity in financial reporting process. With increase in concentration, institutions may also find it difficult to liquidate their positions in a firm if they feel that managers are not maximizing shareholder value (Financial Economists Roundtable Statement 1999).

[14] Shleifer and Vishny (1997) argue that ownership concentration is an important determinant of corporate governance.

An increase in concentration of institutional shareholdings in a firm is expected to increase the desire of institutions to exert more monitoring on management's choice of accruals to manage earnings, which leads to a reduction of flexibility available to managers in the context of accrual management. This hypothesis is formulated on two assumptions: 1) greater concentrations of institutional shareholdings lead to larger economic interest and 2) greater institutional stakes in the long-term performance of firms create disincentives for managers to focus excessively on short-term performance that reduces their propensity to manage short-term earnings making them more inclined toward enhancing long-term profitability. Rajgopal et al. (1998) find evidence that the informativeness of earnings as measured by the earnings response coefficient (ERC), increases with the increase in institutional ownership; in other words, the ERC is positively impacted by institutional investor shareholdings after controlling for other ERC determinants. They argue that institutional owners actively monitor management to improve the credibility of financial statement information. Therefore, it is expected that as the concentration of institutional stockholdings increase, the institutional monitoring of a firm's financial statement preparation will also increase.

4.2.2. Information Environment Hypothesis

Hessel and Norman (1992) find that institutional investors have a greater preference for large firms than do individual investors. Empirical research by Aggarwal and Rao (1990), Cready (1994) and Potter (1992) consistently find institutional investment to be associated with information-rich environment. Cready (1994) observes that relative to individual investors, institutional investors prefer the stocks of larger firms, S&P 500 firms, and of firms with low dividend yields. Potter (1992) documents a

positive relationship between size and institutional ownership. The positive relationship between firm-size and institutional holdings is in many cases viewed to be due to legal factors. Many institutional investors are held by the courts to a 'prudent person standard'. The courts have viewed firm size as evidence of prudence (Lang and McNichols 1998).

Guercio (1996) argues that the inclusion of S&P 500 firms in the portfolio of institutional investors may not be a convincing support for the prudent-man hypothesis. The inclusion of such stocks may be proxies for something other than quality. He contends, for example, that banks overweight S&P 500 stocks because they tend to passively index. Banks prefer large stocks for liquidity reasons or to avoid regulations on the disclosure of beneficial ownership. So, laws and regulations also influence the institutional investment behavior.

Therefore, the question remains whether institutional investors provide active monitoring to enhance the long-term value of their investments in firms of their preference in which they make large investments, or, they simply invest in large firms to meet the prudent person standard. Institutional investors may engage in relationship investing by concentrating their investments with the objective of achieving long-term capital appreciation, or they may simply passively index by holding a diversified portfolio. Moreover, larger firms, on average, release more public information and are subject to more scrutiny by external agencies than small firms. Previous studies document that more information is generated and analyzed for larger versus smaller firms (e.g., Atiase 1985, Collins, Kothari and Rayburn 1987; Freeman 1987). Bhushan (1989) finds that analysts' following increases with firm size, and Utama and Cready (1997) find evidence that sell-side analysts' services reduce the information asymmetry between

institutional and individual investors. So, greater information dissemination and analyses occur for large firms leading to a reduction of uncertainty in the market about large firms. Therefore, the difference in information environment between the S&P 500 and the comparatively smaller non S&P 500 firms may cause institutions to exert different degrees of monitoring over management decisions to use certain types of accounting techniques to manage earnings.

Following the previous research evidence, I consider S&P 500 firms as the benchmark for large capitalization firms attracting institutional investments[15] and classify those firms in the sample as S&P 500 that constantly appear on the S&P 500 list throughout the sample period. The information environment of such S&P 500 firms is expected to be superior to that of non-S&P 500 firms because the S&P 500 firms have greater visibility, larger analysts' following, and are subject to monitoring by various external agencies compared to the non S&P 500 firms. It is, therefore, interesting to study whether the difference in the information environment of these two sets of firms leads to differential institutional monitoring on earnings management. I expect a significant difference in information environment between the sample firms that appear constantly on S&P 500 list during the sample time period and the firms that sometimes appear on S&P 500 list during the same time period or do not appear at all. So, I specifically examine whether the institutional influence on earnings management differs between the two sets of firms with different information environments, e.g., S&P 500 and non S&P 500 firms. The third hypothesis, in its alternative form, is:

[15] Standard and Poor's considers, among other criteria, the market capitalization value of a firm to place it in S&P 500 category. In general, the companies in S&P 500 index have capitalization value of over $4 billion though the agency adds companies with lower market values to the index (General Guide for S&P U.S. index membership – September 2000). So, the S&P 500 firms, on average, have larger capitalization values and are expected to have greater visibility in the market compared to the non S&P 500 firms.

H_3: The monitoring influence of institutional stock ownership on the level of accrual management is different for the S&P 500 and the non S&P 500 firms.

5. RESEARCH DESIGN AND MODEL

5.1. Description of the Tests

The following tests are conducted to examine the predicted relationship between institutional stock ownership and earnings management practice as developed in the hypotheses:

1) Test of empirical association between percentage of institutional stock ownership and accrual management activity measured in terms of variations in abnormal non-cash working capital accruals during the sample time-period.
2) Test of the above empirical association in the case where the institutional stock ownership is concentrated in a firm to see whether the concentrated stockholdings by institutions have any mitigating influence on accrual management activities of the firms.
3) Test of the association between institutional stock ownership including concentrated ownership, and accrual management activity for firms having different information environment. For this, I use two categories of firms, e.g., firms that constantly appear in the S&P 500 list throughout the sample period of eight years and firms that do not constantly appear in the S&P 500 list or do not appear at all in the sample period of eight years.

In all the tests discussed above, I examine the effects of institutional stock ownership at the aggregate level through association studies. I argue that though this association study does not establish a direct causal link, a statistically significant association certainly implies causality, which is consistent with the institutional investor activism in the context of earnings management activity.

5.2. Measure of Earnings Management

Each revenue and expense item in reported income has a discretionary and a non-discretionary component. For many of these items, management can exercise discretion through accounting method choice, through operating, investing and financing policies, and through choice of estimates for a given accounting period (McNichols and Wilson 1988). Tests of earnings management generally assume that earnings are managed through changes in accounting procedures, through specific transactions such as write-downs, and through discretion exercised over accounting accruals.

Sloan (1996) finds that stock prices behave as if investors fail to correctly consider the valuation implications of the accrual component of earnings, which is found to be less persistent compared to the cash component because of its reversal in subsequent periods. He concludes that the result is consistent with earnings fixation by at least some market participants. Investors adjust their trading decisions based on reported total earnings rather than on the analysis of different components of earnings, accruals and cash flow and their implications for future earnings. The evidence of accrual mispricing by the market is also found by subsequent studies (e.g., Ali et al. 2000; Chambers 1999; Xie 2001; DeFond and Park 2001 etc).[16]

Moreover, in a recent study, Bradshaw et al. (2001) find evidence that professional intermediaries such as analysts and auditors do not provide investors with information concerning the future earnings problems experienced by firms with high accruals (having low quality of earnings). They find that sell-side analysts' earnings

[16] Xie (2001) finds evidence that the market overprices abnormal accruals while DeFond and Park (2001) conclude that the market overprices abnormal accruals because investors underanticipated the future reversal of these accruals. DeFond and Park (2001), however, document that market participants understand the reversing implications of working capital accruals but do not fully impound its pricing implications at the earnings announcement dates leading to subsequent stock price adjustments.

forecasts do not incorporate predictable future earnings declines associated with high accrual content in current earnings. Moreover, auditors do not signal future earnings problem associated with high accruals through either their audit opinions or through auditor changes. These findings favor the effectiveness of managing accruals by firms in order to mislead certain sections of investors or to loosen contractual constraints imposed on firms by outside stakeholders or to influence the contractual outcomes that depend on the reported accounting numbers.

The accounting accruals reflect the summarized effects of managers' selection and application of accounting techniques. McNichols and Wilson (1988) argue that accruals will reflect the effect of earnings management in many contexts on an ongoing basis. The undoing of income differences caused by accruals can be difficult because the information required to make these adjustments is not likely to be available (Schipper 1989). If managers manipulate accruals in ways that are hard to monitor, examination of visible accounting choices to discover managerial opportunism in financial reporting would underestimate the opportunistic behavior of managers (Christie and Zimmerman 1994). Hence, accrual management provides opportunity for managers to conveniently adjust reported earnings to their economic advantage (sometimes by misleading the outside stakeholders) without being easily detected.[17]

[17] For example, a manager could produce lower income by increasing bad debt expenses, increasing inventory write-offs, classifying more indirect manufacturing costs as period expenses rather than inventoriable costs, accelerating purchases of inventory at year-end when LIFO is used, extending the use of accelerated depreciation methods, or, by reducing the estimated lives of fixed assets (Cahan 1992). Similarly, earnings may be increased by early recognition of sales, delayed recognition of expenses, decreasing the bad debt provisions, delaying the purchase of inventories when LIFO is used, classifying more indirect manufacturing costs as inventoriable costs rather than period expenses, or, by extending the use of straight-line method of depreciation, or by increasing the estimated lives of fixed assets.

Subsequent detection of earnings management can be costly for managers. Dechow et al. (1996) find evidence that the firms face significant increases in their costs of capital once earnings manipulations are

In this study, I apply a modified version of the Jones (1991) model developed by Dechow et al. (1995) to estimate abnormal accounting accruals that constitute a measure of earnings management. The modified Jones model adopts an aggregate accrual approach. The aggregate accounting accruals have two components, current and non-current. The current component of accruals relates to the changes in non-cash working capital items such as accounts receivable or accounts payable, which can be caused by changes in various revenue and expense items. The non-current accruals, on the other hand, are depreciation and depletion expenses as well as deferred tax and amortization of bond discounts/premium etc. These are associated with long-lived assets and long-term liabilities. It is easier for managers to manipulate current accruals relative to non-current accruals because they can exercise more discretion over the choice and application of accounting techniques with regard to regular revenue and expense items. Sloan (1996) also reports that most of the variation of total accruals is driven by current accruals.[18]

The objective here is to ascertain the variation of abnormal accruals caused by managerial discretion during an estimation period of the study and to examine the association between this variation and institutional percentage stock ownership. The variability of abnormal accruals indicates the flexibility/discretion available to managers in managing earnings and is used as the measure of the level of accrual management in a firm during the sample time-period. Contrary to previous earnings management studies, I

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made public. Moreover, the capital market imposes substantial costs on firms identified as earnings manipulators. The average stock prices dropped by approximately 9% following the initial announcement of the alleged earnings management. Dechow et al. (1996) also find that the identification of earnings manipulator is associated with increase in bid-ask spread, a drop in analyst following, increase in short interest rates and an increase in the dispersion of analysts' earnings forecasts.

[18] Sloan (1996) documents that the most significant source of accrual variation is attributable to movements in receivables and inventories that are not matched by movements in current liabilities. Sloan points out that it is important to look at aggregate working capital accruals in order to identify such mismatches.

focus on firm-specific abnormal accrual variability as the potential measure of earnings management. For a number of reasons, this measure is more effective and efficient in capturing accrual management level than abnormal accruals determined cross-sectionally by previous studies (either by stacking data in a pooled accrual model or by applying the time-series or cross-sectional version of the Jones or the modified Jones model to firm-year or firm-quarter data).

First, multi-year accrual management in a firm can effectively be captured by the variability of abnormal accruals since prior studies show that the magnitude of abnormal accruals are positively correlated with its variability (e.g., Barton 2001). The magnitude indicates the extent to which accruals are managed by managers using certain accounting techniques. Therefore, the variability measure also indicates the extent of discretion or flexibility available to managers in managing accruals in the time-period under study.

Second, firm-specific determination of abnormal accrual variability eliminates the possibility of serial dependence problem that may arise in case of stacking firm-year or firm-quarter data in pooled time-series cross-sectional regression. The serial dependence of regression residuals causes underestimation of residual variance or MSE (root mean squared error) and overestimation of regression coefficients that inflate the significance of test statistics, leading to distorted test results and erroneous inference. This problem is avoided if the level of abnormal accruals is measured on a firm-by-firm basis.

Third, managing accounting accruals is unlikely to be a single-year decision but may be a part of multi-year management strategy of employing certain accounting procedures to manipulate earnings in corporate financial reporting. Managers are more

likely to have a long horizon while formulating a strategy for reporting accounting numbers consistent with the production, investment, and financial plans of the firm for the future. The year-to-year management of earnings, therefore, is a part of the broad management strategy followed in corporate financial reporting over a specific time-period in compliance with overall operating decisions. As a result, the earnings management in a particular year is not independent of prior or subsequent year. A multi-year measure of accrual manipulation such as this study's residual variance directly reflects this multi-year aspect of earnings management.

For example, based on long-term revenue forecasts dictated by the projected sales demand, the management in a firm may develop some projected earnings numbers over the next five years. They may have some desired level or range of profit in mind which they want to report considering the firm's equity market value, its past earnings trend, the general profitability trend of the industry in which the firm belongs, and the competitors' earnings position. In view of all these factors, a long horizon financial and operating decision calls for a management strategy to report earnings at a certain level or within a certain range over the years covered under the plan. The effects of other economic and market-based factors on the firm's operations are also considered. On the basis of all available information, the management may formulate a policy of using certain accounting techniques, including accruals, to manage and maintain earnings at the desired level or range over the time-period under plan and use accounting accruals along with other techniques such as managing derivatives to manage earnings. Examining accrual management at an individual firm level over a time-period is, therefore, more likely to reveal the level of such earnings management during this time-period.

Researchers sometimes account for the possibility of correlated accrual management actions over time-periods by employing the previous period's discretionary accruals as a separate explanatory variable in the regression model. This variable in particular is expected to control for reversal effects based on the premise that abnormal accruals will revert in the next period because they are considered to be an instrument for shifting earnings between periods. This design, however, is deficient in two respects. First, it imposes a distinct year-to-year linear structure on the manipulation that is essentially ad-hoc in nature because management may continue to manipulate accruals in some unidentified fashion. Second, the magnitude of any serial correlation between abnormal accruals in successive periods, particularly if it is negative, itself directly reflects the degree of manipulation that is occurring. Such reversed manipulation is necessarily excluded from the empirical measure of interest in this study.

Finally, many institutions (e.g., pension funds, etc) invest funds in a firm as a part of their long-term investment policy and do not liquidate their positions based on short-term firm performance. The large economic stakes of institutions provide them more incentives to monitor management actions toward enhancing long-term profitability. Moreover, Bushee (2000) finds evidence that the proportion of firm value captured in long-term earnings is associated with the level of stock ownership held by institutions having long investment horizons such as pension funds. Hence, the association between accrual management and institutional stock ownership can be better established if I use firm-specific abnormal accrual variability over a certain time-period as the dependent variable when I examine the institutional effects on such variability during such period.

In this study, I focus on current accruals (i.e., non-cash working capital items) instead of total accruals because the scope for manipulating non-current accruals is assumed to be relatively limited for management, and hence the magnitude of its variability compared to that of current accruals is also expected to be less. Bradshaw et al. (2001) suggest that there are two key differences between working capital and total accruals. First, working capital accruals exclude a variety of long-term accruals, such as depreciation of plant and equipment and amortization of the debt premium/discount. These accruals tend to be fairly constant over time and account for little variation in total accruals. Second, total accruals include a variety of 'special' accruals, such as gains and losses on the sale of plant/other investments and accruals associated with asset write-downs. These accruals tend to mean revert very quickly, but they are usually flagged as special, non-recurring items on the income statement. Bradshaw et al. (2001) argue that investors are more likely to anticipate the non-recurring nature of these accrual items. They find evidence that working capital accruals do a better job than total accruals in capturing abnormal accruals that lead to earnings reversals not anticipated by investors. Hence, it appears that managing current accruals as compared to total accruals is a more effective instrument for managers to manipulate earnings without being easily detected.

I use a version of the modified Jones model (1995) to extract the abnormal component of such current accruals arising out of managerial discretion and use it as a proxy for earnings management.[19] Like some previous studies such as Rangan (1998), the dependent variable of the accrual model used to segregate the abnormal component is the

[19] The abnormal accrual arising out of managerial discretion is termed as discretionary accrual, which is the focus of this study as a measure of earnings management.

aggregate current accruals instead of total accruals. The details of model development are discussed in subsequent sections.

5.3. Estimation of Abnormal Current Accounting Accruals

In this study, an estimate of abnormal current accounting accruals (ACACC) is used as the proxy for earnings management because it is expected that managers can adjust current accruals relatively easily compared to non-current accruals in an attempt to manage earnings. Consistent with the prior studies on earnings management that estimate either total or current accruals as the case may be (e.g., Jones 1991; Cahan 1992; Perry and Williams 1994; Dechow et al. 1995; Rangan 1998; Balsam et al. 2000; Pyne and Robb 2000), I use the following firm-specific accrual equation to compute current accruals from the changes in non-cash working capital items as reported in the balance-sheet.

$$CACC_{it} = [\Delta CA_{it} - \Delta Cash_{it}] - [\Delta CL_{it} - \Delta CLD_{it}] \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where, $CACC_{it}$ = Total current (working capital) accruals for firm i in year t;

ΔCA_{it} = Change in current assets for firm i in year t;

$\Delta Cash_{it}$ = Change in cash for firm i in year t;

ΔCL_{it} = Change in current liabilities for firm i in year t;

ΔCLD_{it} = Change in the current portion of long-term debt for firm i in year t.

I use a version of the modified Jones accrual model as developed by Dechow et al. (1995) to segregate the abnormal component of current accruals that arises out of managerial discretion.

The current accruals have both normal and abnormal components. In the original Jones model (1991), two explanatory variables are considered to account for the non-discretionary components of total accruals: the changes in revenues (ΔREV) that account for non-discretionary changes in working capital items and the level of gross property plant and equipment (PPE) that account for non-discretionary depreciation expenses. The Jones model is based on the assumption that revenue controls for the normal level of accruals, while property plant and equipment controls for depreciation and depletion expenses. Therefore, changes in current assets and current liabilities are driven by changes in revenues. Kang (1999) argues that this restrictive assumption is questionable since current liabilities such as accounts payable are more likely to be related to expenses than to revenues. The omission of expenses potentially explains why the Jones model produces upward bias in managed accruals in an economic upswing or downward bias in an economic downswing. The modified Jones model, which uses changes in revenues, adjusted by changes in accounts receivables, also suffers from the same limitation.

To address this concern, in addition to ΔREV, I include changes in cost of goods (ΔCOGS) sold as an explanatory variable to control for changes in those working capital items such as accounts payables that are expected to be more related to expenses rather than revenues. Rangan (1998) has applied this approach in developing his current accrual model to isolate the abnormal component of current accruals. However, I adjust changes in cost of goods sold by changes in inventory based on the reasoning that inventory is a potential source of managerial manipulation. A significant portion of abnormal current accruals may be attributed to discretion exercised in recognizing and managing inventory items.

Operating cash flows (OCF) and accruals constitute total income. Firms facing declines in OCF may engage in accrual manipulation to maintain smoothed earnings streams as Sloan (1996) finds that at least some investors do not look beyond the reported earnings number and analyze the earnings components. On the other hand, accruals are also used partly to smooth the effects of cash flow variability on reported earnings to produce a reliable and timely measure of economic performance of a firm during a certain time period (as per performance measurement hypothesis advocated by Guy et al. 1996). The smoothing property of accounting accruals also implies that the non-discretionary or normal accrual (NACC) is negatively correlated with OCF. In normal business operations, the extreme positive (negative) cash flows in a particular period result in negative (positive) NACC. So, failure to control for the association between OCF and NDACC will cause a part of the NACC to be reflected in the residuals of the accrual model and be erroneously termed as the abnormal accruals resulting from managerial discretion. I include changes in OCF (ΔOCF) as a variable to control for such relationship in the model.

The abnormal current accruals resulting from managerial discretion (ACACC) are the portion of total accruals that is not explained by the variables of the regression model, i.e., the residual/error terms, $\in_{it}$ in equation (2).[20] This portion of accounting accruals is assumed to be the result of managerial manipulation. The standard deviation of residuals computed from the following firm-specific regression forms the dependent variable of interest in the main analysis of the study. The firm-specific current accrual model is (an extended version of the modified Jones model) described as follows:

[20] This is similar to the methods employed by previous studies, e.g., Cahan (1992), Hall and Stammerjohan (1997), Ericson and Wang (1999), Barton (2001).

$$CACC_{it} / TA_{it-1} = \beta_{0i} + \beta_{1i} [(\Delta REV_{it} - \Delta REC_{it}) / TA_{it-1}] + \beta_{2i} [(\Delta COGS_{it} + \Delta INV_{it}) / TA_{it-1}] + \beta_{3i} (\Delta OCF_{it} / TA_{it-1}) + \in_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$ [21]

where,

$CACC_{it}$ = Total current accounting accruals for firm i in year t, as per equation (1).

ΔREV_{it} = Change in revenues of firm i in year t from year t-1;

ΔREC_{it} = Change in accounts receivables of firm i in year t from year t-1;

$\Delta COGS_{it}$ = Change in cost of goods sold of firm i in year t from year t-1;

ΔINV_{it} = Change in inventory in year t – change in inventory in year t-1;

ΔOCF_{it} = Change in operating cash flows of firm i in year t from year t-1.

TA_{it-1} = Total assets of firm i at the beginning of year t;

$\in_{it}$ = Error term for firm i in year t (proxy for discretionary accruals).

In the above equation (2), the variable, ΔREV-ΔREC accounts for changes in cash-basis revenue implying changes in the level of business activity and controls for the related non-discretionary component of working capital accruals and the variable, $\Delta COGS + \Delta INV$ accounts for changes in operating expenses that control for the related portion of normal current accruals. The TA deflator controls for potential scale bias (Jones 1991; Dechow et al. 1995). The variable ΔOCF accounts for the effect of change in operating cash flow on the level of normal business accruals (non-discretionary accounting accruals). The error term, $\in_{it}$, from equation (2) accounts for the portion of total current accruals that remains unexplained by the variables in the regression and is the proxy for abnormal current accruals arising out of managerial discretion.

[21] The modified Jones model implicitly assumes that all changes in credit sales in a period result from earnings management. This assumption is based on the reasoning that it is easier to manage earnings by exercising discretion over the recognition of credit sales than on cash sales (Dechow et al. 1996). As a specification check, I also estimate standard deviation of abnormal current accruals over the sample time-period by applying the original Jones' model (1991) and use it as the dependent variable of interest in the main analysis to provide comparability of the study's results.

The firm-specific variability of such abnormal current accruals over the eight-year period is the dependent variable of interest and hence, the root-mean square errors of such regression is used as a proxy for earnings management in this study. Over any given time-period, the mean squared residuals or residual variance reflects the variability of discretionary accounting accruals that indicates accounting flexibility available to management and as a result, discretion exercised by it in manipulating accruals during the same time period. Therefore, the root of mean squared residuals estimated from the firm-specific equation (2) is used as the dependent variable of interest in the main portion of the analysis.[22]

5.4. Cross-Sectional Multiple Regression Models

I use cross-sectional regressions to examine the relationship between the accounting flexibility available (and, hence, discretion exercised by a firm in generating abnormal accounting accruals as estimated from the firm-specific regression in equation 2) and institutional stock ownership. An inverse relationship between flexibility in generating abnormal accruals and institutional stock ownership is expected in accordance with the predictions made in Hypotheses 1 and 2. The independent variable of interest in cross-sectional regressions is institutional percentage stockholdings.

Institutional stock ownership, however, is not the sole determinant of the level of accounting accruals. There are a number of factors, which may make a difference in the accrual generation process across firms. These factors are also expected to influence management's decisions to manage earnings. With reference to previous research, I

[22] Becker et al. (1998) suggest that the variation in discretionary accruals implies accounting flexibility. The greater the variation in accounting accruals, the greater is the accounting flexibility available to management. The flexibility proxy indicates the extent of discretion exercised by a firm in the accrual adjustment process. So the greater the flexibility, the greater is the magnitude of accounting accruals arising out of managerial discretion.

identify several such factors as determinants of earnings management and include them in the cross-sectional model as control variables: managerial ownership, size, leverage, and liquidity. I also consider variables such as profitability, growth, and structural changes in business that are found by previous studies to be correlated with the measurement error of abnormal accruals estimated from the traditional accrual models. These variables are used in the cross-sectional test to control for the differences in the variation of abnormal current accruals across firms resulting from their effects to cleanly segregate the impacts of institutional stock ownership on the discretion exercised by a firm in making accrual adjustments.

5.4.1. Cross-Sectional Regression Model to Test Hypothesis 1

In order to test the hypothesis that there is an inverse relationship between flexibility in generating abnormal accruals and institutional stock ownership, I employ the following cross-sectional regression model:

$$FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 INST_i + \varepsilon_i \quad \text{.....(3)}$$

where,

$FLACAC_i$ = Accounting flexibility available in generating current (non-cash working capital) abnormal accruals, computed as the root mean squared residuals estimated from the firm-specific regression in equation (2).

$INST_i$ = Average percentage of institutional ownership of common stock in firm i over the sample period of 8 years.[23]

[23] I select institutional percentage shareholdings at the end of third quarter of each year because managers are presumed to have more accurate estimation of annual earnings at this stage and likely to consider its effects on the investment decisions of large stockholders like institutional investors (Bushee 1998).

$PMGR^2_i$ = Squared average percentage of managerial ownership of common stock in firm i in the sample period of 8 years.[24]

$SIZE_i$ = Log of average total assets of firm i for the sample period of 8 years.

LEV_i = Average leverage ratio of firm i for the sample period of 8 years, computed as long-term debt/total assets.

$\sigma NETWORTH_i$ = Standard deviation in stockholders' equity for firm i in the sample period of 8 years scaled by the mean stockholders' equity.

$\sigma LIQUIDITY_i$ = Standard deviation in liquidity computed as the standard deviation of working capital for firm i in the sample period of 8 years, scaled by the mean working capital.

ROS_i = Average return on sales for firm i in the sample period of 8 years; the measure of average operating profitability.

MB_i = Average beginning market to book ratio of firm i in the sample period of 8 years; the measure of average growth prospect.

CAP_i = Average capital expenditures of firm i during the sample period of 8 years, scaled by average total assets.

According to the prediction made in the first hypothesis, I expect the coefficient of INST to be negative, i.e., $\beta_9 < 0$.

- Control variables explained

Warfield et al. (1995) documents a negative association between managerial ownership (PMGR) and the absolute value of discretionary accruals. They observe that the magnitude of discretionary accrual adjustments is significantly low when managerial

[24] I square the average managerial percentage shareholdings to improve the linear relationship in the regression.

ownership is high and vice-versa. Specifically, the absolute value of abnormal accruals when managerial ownership is under 5 percent is more than twice that for corporations with managerial ownership above 45 percent. This is because the greater the managerial ownership, the greater is the alignment of interests between managers and stockholders and the greater is the managerial wealth tied to the long-term value of firms. Warfield et al. (1995) argue that when separation of ownership and control increases, managers are expected to capitalize on the latitude in reporting numbers by resorting to greater accrual adjustments with the objective of maximizing personal economic benefits. The evidence of increased discretionary accrual adjustments is consistent with strategic accounting choice behavior by managers to mitigate contractual restrictions imposed by firms to control the value-reducing managerial activities.

In the cross-sectional regression model, I include the proportion of managerial stock ownership as a control variable, computed as a ratio of the total number of equity shares held by managers to the total number of equity shares outstanding to control for its effect on the variability of abnormal current accruals. I predict that the greater the managerial stock ownership, the lower is the variability in generating abnormal accruals arising out of managerial discretion.

Size (SIZE) is a proxy for a variety of economic phenomena such as risk, earnings persistence, growth, accounting practices, political and regulatory costs and information environment. Positive accounting theory suggests that managers of large firms are more likely to exploit latitude in accounting to reduce political costs since sheer size often leads to political costs by attracting regulatory attention. Prior studies find that managers of firms facing regulatory actions choose income reducing discretionary accruals in the

period of regulatory process (e.g., Cahan 1992; Hall and Stammerjohan 1997; Cahan et al. 1997). However, large firms also have a rich information environment and high visibility and are subject to scrutiny by various external agencies that reduce information asymmetry between managers and outside stakeholders, especially institutions making it difficult for managers to manipulate earnings by making questionable accounting choices. So, size is expected to have a negative effect on the earnings manipulation process. I predict an inverse relationship between the variability of abnormal accruals and firm size.

Press and Wintrop (1990) and Duke and Hunt (1990) provide support for the use of the leverage ratio (LEV) as a proxy for closeness to violating debt covenants. The higher the leverage ratio, the greater is the possibility of violating debt covenants and the greater is the chance that managers would engage in manipulating income upwards to loosen the effect of constraints imposed by debt contracts. DeFond and Jiambalvo (1994) document that firms approaching debt-covenant violations use more income-increasing total accruals as well as working capital accruals in the year before and in the year of violation. They suggest that this accrual management behavior is caused by the tendency to avoid the violation, to delay the violation, or to increase the possibility of reducing the renegotiation costs once the covenant violation occurs. Press and Wintrop (1990) observe that for firms with accounting based constraints in their debt contracts, the measures of proximity to leverage, net worth, and working capital constraints are significantly and positively correlated to the leverage ratio. In their study, Duke and Hunt (1990) examine the validity of debt-equity ratio as a measure of closeness to debt-covenant restrictions. They report that several versions of the debt-equity ratio capture the existence and

tightness of retained earnings restrictions and the existence of net tangible assets and working capital restrictions. There is a positive relationship between the leverage ratio and closeness to the violation of debt covenants. Therefore, in this study I predict a positive relationship between the variability in generating abnormal accruals and the leverage ratio used as a measure of proximity to debt-covenant violation.

Moreover, a high leverage ratio indicates a greater financial risk for firms. With an increase in the leverage ratio, a firm's financial risk increases, which induces managers to use more income-increasing accruals to manage earnings upward to counter the negative impact of increasing financial risk and to avoid reduction in firm value. However, DeAngelo, DeAngelo and Skinner (1994) suggest that financially distressed companies generate large negative accruals to make contractual renegotiations favorable for them. These possibilities still support the prediction that variations in abnormal accruals over the sample period are positively associated with the leverage ratio.

Liquidity is one of the important factors behind managers' earnings management behavior. The change in working capital or operating cash flows brings about the change in the liquidity position of a company. Sweeney (1994) observes that the greater the reduction in operating cash flows, the greater is the necessity of income-increasing accounting changes to offset the effects of a decline in liquidity. Sweeney (1994) has also observed that the change in operating cash flows and the change in working capital are highly collinear variables. Since the change in operating cash flows is already considered a part of the accrual determination process, the change in working capital is considered as the proxy for change in liquidity. I predict that the standard deviation of liquidity (σLIQUIDITY), as measured by working capital variability during the sample period,

explains a part of the cross-sectional difference in variability of abnormal current accruals. The variability of working capital over the sample period is expected to be positively related to the standard deviation of abnormal current accruals in the cross-sectional test.

Managers of firms that are closer to default on debt covenants are more likely to be involved in accounting accrual manipulations to make income increasing accrual choice in an attempt to avoid covenant violations (Duke and Hunt 1990; Press and Wintrop 1990; DeFond and Jiambalvo 1994; Sweeney 1994). Sweeney (1994) observes that the majority of debt-covenant violating firms violate net worth covenants. The greater the decline in net worth, the greater is the necessity of income increasing accounting changes to offset the tightness of debt-covenant constraints. A decline in net worth signifies a decline in firm performance. Managers may adopt income increasing accounting procedures to loosen the debt covenant constraints and to offset poor financial performance (Sweeney 1994). I measure net worth as total stockholders' equity and predict that the variability of total stockholders' equity (σNETWORTH) is positively related to the standard deviation of abnormal current accruals.

Hansen (1999) finds evidence that discretionary accruals computed in accordance with the Jones, the modified Jones, and the DeAngelo models are positively correlated with structural change variables such as capital expenditure, sales of PP & E, acquisitions and divestitures. The result supports Healy's (1996) contention that discretionary accruals estimated by the currently used accrual models may be correlated with changes in business fundamentals. I use average capital expenditure (CAP) of each firm over the sample period as a proxy for structural changes in business in the cross-sectional model

to account for the portion of variations in abnormal current accruals that is attributed to such structural changes. I also predict that an increase in capital expenditure indicates managerial tendency toward enhancing long-term profitability, which, in turn, reduces their concern about short-term earnings performance of firms making them less inclined toward managing year-to-year earnings by accrual adjustments.

- Control for correlated variables affecting abnormal accruals

In any accrual management study, it is necessary to control for the effects of factors measuring firm performance and growth on the generation of accruals to isolate the portion of accruals arising out of managerial discretion. McNichols (2000) finds that both growth and profitability of firms have incremental power in explaining discretionary accruals (DAC) calculated from the Jones or the modified Jones model. Firms with high growth and profitability exhibit high DAC adjustments that might be correlated with firm performance rather than incentives to manipulate earnings. This finding indicates that high-growth and high-profitable firms are likely to exhibit positive DAC and that a comparison of such firms with low-growth and low-profitable firms can lead to a conclusion of greater earnings management by high-growth and highly profitable firms. In view of high growth and profitability, the DAC adjustment may be the result of unusual business operations, not the result of managerial discretion. Unless these two variables are controlled in a cross-sectional test, the result may lead to an erroneous conclusion regarding earnings management.

Moreover, Healy (1996) argues that the effect of ex-post performance influences the accrual generating process, which is not captured by the existing accrual models. If the demand for a product is ex-post lower than management anticipated, accruals are

likely to be affected by asset write-downs. On the other hand, due to ex-post abnormal growth in demand for products, the effects of stock-piling inventory are more likely to be captured in the discretionary accruals, even though they arise as a result of unusual business operations and not as a result of managerial incentive to manipulate earnings. To control for the effects of such correlated variables in the cross-sectional regression, I include return on sales (ROS) as the proxy for operating profitability, and market to book ratio (MB) as the proxy for growth.[25]

The two variables are measured as follows:

Return on sales (ROS): Income before interest and taxes divided by net sales (EBIT/Net Sales).

Market to book ratio (MB): Year-end market value of outstanding shares divided by total stockholders' equity.

5.4.2. Cross-Sectional Regression Model to Test Hypothesis 2

In order to test the second hypothesis that with the increase in concentration of institutional stockholdings, the flexibility in generating abnormal accruals decreases, I use several models and measures of concentrated institutional shareholdings to study the concentration effects. The related cross-sectional models are discussed below.

1) To examine the concentration effect by using a dummy variable to reflect the concentration construct

In many previous studies, dummy variable classification is employed to capture certain levels of institutional percentage shareholdings to examine their effects on the dependent variable of interest in a relative setting to facilitate understanding the degree of institutional influence (e.g., Chung et al. 2002; Balsam et al. 2000; Ali et al. 2000).

[25] Collins and Kothari (1989) suggest that market to book ratio provides a proxy for growth and/or persistence.

Following these studies, I formulate a concentration construct (CONC)[26] by assigning a value of 1 to firms having concentrated institutional shareholdings and 0 to firms not having concentrated institutional shareholdings. By employing this approach, I examine the concentration effect on accrual management in a cross-sectional setting in presence of other control variables. The related regression model is as follows:

$$FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 CONC_i + \varepsilon_i \quad \ldots\ldots\ldots\ldots (4)$$

The above model is based on the assumption that the coefficients of the control variables for the firms with and for firms without concentrated institutional shareholdings are statistically the same. For the model 4, the intercept for firms having concentrated institutional shareholdings is $\beta_0 + \beta_9$ while that for firms not having concentrated institutional shareholdings is β_0. The difference in the intercept is caused by the dummy variable CONC providing extra shift to the intercept. According to the second hypothesis, the coefficient of CONC is negative (i.e., $\beta_9 < 0$), so the CONC variable is predicted to provide negative shift to the intercept. Thus, firms having concentrated institutional shareholdings have lower accrual management level (i.e., lower flexibility/discretion) relative to firms without concentrated institutional stockholdings. Therefore, $\beta_0 + \beta_9$ is less than β_0 since $\beta_9 < 0$. This lower level of accrual management is deemed to be attributed to the monitoring effects of institutions having concentrated shareholdings over the sample time-period. This notion is supported by the arguments of previous studies that substantial investment in a firm provides strong incentives to institutions to monitor management actions. Moreover, management sometimes voluntarily discloses

[26] CONC assigned to a firm having at least one institutional owner holding 5% or more outstanding common stock for more than half of the sample period of eight years.

information to institutional owners to earn their confidence (e.g., Chung et al. 2002; El-Gazzar 1998).

2) To examine the incremental concentration effects over and above the general institutional effects on accrual management

In addition to the above test, I also examine the incremental concentration effects over and above the general institutional effects on accrual management. I include both the CONC dummy and INST as separate independent variables in the model to study the incremental negative concentration effects. The related regression model is as follows:

$$FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 CONC_i + \beta_{10} INST_i + \varepsilon_i \quad \text{.....(4A)}$$

The model is structured to examine whether the CONC dummy variable provides negative shift to the intercept in the presence of the INST variable in the model, i.e., whether the concentration effect on accrual management is observed even after accounting for the general institutional effect. The prediction is that both β_9 and β_{10} are less than zero.

In the next model, I add another variable to the above equation (4A) to capture the interaction effect between INST and CONC to test whether the CONC dummy provides any extra negative shift to the slope coefficient of the INST variable. The related regression model is as follows:

$$FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 INST_i + \beta_{10} CONC_i + \beta_{11} (INST_i * CONC_i) + \varepsilon_i \quad \text{.....(4B)}$$

For the model 4B, the slope coefficient of INST for firms having CONC=1 and CONC=0 are $\beta_9 + \beta_{11}$ and β_9 respectively while the intercepts for firms having CONC=1 and CONC=0 are $\beta_0 + \beta_{10}$ and β_0 respectively. According to the prediction of the second

hypothesis, the coefficients of CONC and the interaction variable, namely β_{10} and β_{11}, should both be less than 0 so that $\beta_0 + \beta_{10} < \beta_0$ and $\beta_9 + \beta_{11} < \beta_9$. The CONC variable is expected to provide negative shifts both to the intercept and to the slope coefficient of the INST variable. If firms with concentrated institutional shareholding have lower level of flexibility in generating abnormal accrual relative to firms without concentrated institutional shareholding, the coefficient of CONC should be negative. If the concentrated institutional shareholdings provide additional mitigating influence on accrual management over and above the general institutional effects, the coefficient of the interactive variable should be negative. Therefore, β_{10} is predicted to be less than zero, and $\beta_9 + \beta_{11}$ is predicted to be less than β_9. Again, for the models 4A and 4B, the underlying assumption is that the coefficients of the other control variables are the same for the two categories of firms (firms with and without concentrated institutional shareholdings).

3) To examine the concentration effects by using concentration measures in a continuous variable setting as the independent variable

In this test, I use three separate measures of concentrated institutional shareholdings as independent variables to study the concentration effects on accrual management in the presence of the other control variables. The first measure is CONPERC, which is computed as the average percentage shareholdings by institutional shareholders owning at least 5% of the outstanding common stocks over the sample period of eight years. The second measure is MULTCON, which is computed as the ratio of the average percentage of outstanding common stock held by 5% institutional owners to the average total percentage of institutional stockholdings during the sample time-period. The third measure is AVGHOLD, which is computed as the ratio of the total

percentage of institutional stockholdings divided by the number of institutional stockowners, i.e., the average stockholdings by a single institutional investor during the sample time-period of eight years

The related cross-sectional regression model is as follows:

$$FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 X_i + \varepsilon_i \quad \text{.....(4C)}$$

where, X = CONPERC or MULTCON or AVGHOLD as the case may be. According to the second hypothesis, the coefficient of X, β_9, is predicted to be less than 0.

5.4.3. Cross-Sectional Regression Model to Test Hypothesis 3

I partition the full sample of NYSE firms into two sub-samples: one for the firms that belong to S&P 500 group constantly over the eight-year sample period (S&P) and the other for the firms that either belonged to the S&P 500 group in some but not all sample years or did not enter into the S&P 500 category at all in any year (non S&P 500). The purpose of the test is to examine the relative influence of institutional investors on earnings manipulation practice in firms that are highly visible and are already subject to various external monitoring compared to firms that are not so large and visible. I assume that the firms that constantly appeared on S&P 500 list are comparatively more visible and differ in their information environment (i.e., having greater dissemination and analysis of information in the market) from the firms that appeared in S&P 500 in some but not all years as well as the firms that did not appear at all. These two categories of firms attract institutional investors with varying investment objectives and horizons. Therefore, I expect varying degrees of influence exerted by institutional investors on managerial incentives to engage in accrual manipulation in these two categories of firms, S&P 500 and non S&P 500.

I use the following two approaches to test the institutional influence on accrual management in the two sets of firms, S&P 500 and non S&P 500.

1) To test the institutional effects by using a dummy variable, S&P, to examine any differential institutional impact in the case of the S&P 500 firms in the sample relative to the non S&P 500 firms.

The relevant cross-sectional regression model is described below:

$$FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 INST_i + \beta_{10} S\&P_i + \beta_{11} (INST_i * S\&P_i) + \varepsilon_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

$S\&P_i$ = Dummy variable taking the value of 1 for S&P 500 firms and 0 otherwise. Other variables are already defined in the previous section.

The equation 5 is formulated on the assumption that the coefficients of the control variables are the same for the two sets of firms, the S&P 500 and the non S&P 500. The interaction variable captures the differential institutional effects on accrual management in the S&P 500 firms compared to the non S&P 500 firms. According to the prediction of the third hypothesis, the coefficient of the S&P dummy provides extra shift to the slope coefficients of the INST variable. The coefficient of INST for the S&P 500 firms is $\beta_9 + \beta_{11}$ whereas the coefficient of INST for the non S&P 500 firms is $\beta 9$. Therefore, β_{11} should be significantly different from zero and hence, β_9 should be different from $\beta_9 + \beta_{11}$. Moreover, the coefficient of the S&P dummy, β_{10} should be different from zero providing shift to the intercept if there is a difference in flexibility in abnormal accrual generation between the two sets of firms.

2) To test the institutional effects on accrual management for the two categories of firms by estimating the equation (3) separately for the S&P 500 and the non S&P 500 firms in the sample.

In this case, I estimate the regression equation (3) separately for the two categories of firms by partitioning the full sample into S&P 500 and non S&P 500 firms. According to the prediction in the third hypothesis, the coefficient of INST is different for these two categories of firms. This test is qualitatively superior to the previous one because in this test, the differential institutional effect on accrual management is precisely and separately estimated for the two categories of firms by partitioning the full sample into S&P 500 and non S&P 500 firms. Moreover, there is no restrictive assumption of uniform coefficients of the control variables for the two categories of firms; the coefficients are allowed to be different.

5.5. Clientele Versus Monitoring Effects of Institutional Investors

It can be inferred from the association between institutional stock ownership and the level of accrual management that the observed association might be a result of the effects of some other exogenous factors attracting institutional investors to a firm. It is also probable that institutional investors might be attracted to a firm having low-accrual management instead of institutions providing active monitoring on the firm's accrual management process.

Demsetz and Lehn (1985) argue that ownership concentration is determined by several industry and firm-specific factors. Cready (1994) finds evidence that, relative to individual investors, institutional investors prefer larger firms, firms in S&P 500 group, and firms paying low dividends. He suggests that investors find a number of firm-specific factors important in their investment decisions and that importance varies systematically across investor types like individual versus institutional investors. Duggal and Millar (1999) further observe that institutional investment is negatively correlated with insider

stockholdings. Wahal and McConnell (2000) also address this clientele issue. They suggest that the potential endogeneity between firm-level expenditures on R&D and PP&E and institutional ownership creates a problem in distinguishing a causal relationship from a clientele effect. Hence, if institutional ownership is determined by firm-specific exogenous factors, or if institutions are attracted to firms having low-accrual management activity, it will be difficult to interpret the results of the association test in terms of implied causality attributed to institutional stock ownership. Therefore, it is necessary to segregate the clientele effects from the causal effects implied by the results of the test to eliminate the possibility of any alternative interpretation of the test results.

To address the issue of the clientele effect, I adopt a two-stage least squares regression approach like previous research (e.g., Duggal and Millar 1999; Wahal and McConnell 2000). In the first stage cross-sectional regression, I regress institutional percentage shareholdings on the determinants of institutional stock ownership as found in previous research (Cready 1994; Duggal and Millar 1999; Wahal and McConnell 2000). The coefficients estimated from the first stage regression are then used to ascertain the predicted value of institutional stock ownership. In the second stage cross-sectional regression, I regress the flexibility in generating abnormal accruals (FLACAC) estimated from the firm-specific accrual model (as described in the equation 2) on the predicted value of institutional stock ownership in the presence of other control variables.

The two cross-sectional regressions are described below:

First-stage regression:

$$INST_i = \beta_0 + \beta_1 MV_{i-1} + \beta_2 DP_{i-1} + \beta_3 S\&P_i + \beta_4 PMGR_{i-1} + \varepsilon_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

where, $INST_i$ = Average institutional investor stockholdings in firm i in the sample period of eight years;

MV_{i-1} = Average lagged market value of equity of firm i in the sample period of eight years;

DP_{i-1} = Average lagged dividend pay-out ratio of firm i in the sample period of eight years;

$S\&P_i$ = A dummy variable taking the value of 1 for firm in S&P 500 group, and 0 otherwise;

$PMGR_{i-1}$ = Average lagged managerial stock ownership in firm i in the sample period of eight years.

Second-stage regression:

$$FLACAC_i = \beta_0 + \beta_1 LEV_i + \beta_2 \sigma LIQUIDITY_i + \beta_3 \sigma NETWORTH_i + \beta_4 ROS_i + \beta_5 MB_i + \beta_6 CAP_i + \beta_7 PINST_i + \beta_8 UNEXPINST_i + \varepsilon_i \quad \text{.....(8)}$$

The independent variables are PINST and UNEXPINST. PINST, the predicted value of institutional stockholdings, is estimated from the coefficients of the first-stage regression. UNEXPINST represents unexpected institutional stockholdings not accounted for by the firm-specific factors attracting institutional investors, computed as the difference between actual percentage shareholding and predicted percentage shareholding. The objective here is to examine the effects of these two variables separately as well as simultaneously in the same model keeping all other control variables. The tests show the institutional effects after controlling for the clientele factors that are observed in previous research. Further, the effects of the portion of institutional stockholdings not accounted for by those clientele factors (termed as unexpected), but

that may be the result of some unknown factors, are also examined with regard to accrual management activity.

Based on the monitoring of institutional investors hypothesis, it is predicted that the coefficients of both PINST and UNEXPINST will be significantly negative. Here, it is noteworthy that these two variables are not correlated, which implies that they represent different constructs of institutional stockholdings.[27] The tests more clearly help separate the institutional monitoring effects by removing the alternative interpretation of clientele effects. They also explain the association test in terms of implied causality attributed to institutional investors.

[27] The Pearson correlation statistic between the two variables is -0.001 (p-value: 0.984) and the corresponding Spearman rank correlation coefficient (non-parametric) is -0.032 (p-value: 0.528).

6. SAMPLE SELECTION AND DESCRIPTIVE DATA

6.1. Details of Sample Selection

The sample for the study is comprised of unregulated industrial firms. I choose all firms listed on New York Stock Exchange (NYSE) that are non-regulated, non-financial and non-service in nature. In addition, the firms selected have fiscal year end of December 31.[28] The sample period is from 1991 through 1998. The following criteria are applied in selecting firms for the sample:

1) Firms have a December 31 fiscal year-end.
2) The data on the variables used in the models are available on Compustat-Research Insight database for each year in the sample period.
3) The institutional and insider ownership data are available on Compact Disclosure database for each year in the sample.
4) Firms are unregulated, industrial firms; financial, regulated and service companies are excluded.

My primary objective is to use a constant sample of firms for the entire period of eight years. Out of the full sample, the firms that belong to S&P 500 group constantly

[28] 1) Firms with the same fiscal year are chosen to control for the effects of common market-based economic factors. It will facilitate interpretation of results in the context of the economics of the period.
2) I exclude financial companies due to unique rules and regulations with regard to their accounting systems. Computing discretionary accounting accruals are problematic for financial firms (Becker et al. 1998).
3) I do not consider regulated firms because regulation monitors managers' accounting policy choices (Warfield et al. 1995). Moreover, earnings have relatively less important role in firm valuation for regulated firms compared to non-regulated firms where current earnings performance signals a firm's ability to generate future abnormal earnings. So, the incentive to manage earnings to maintain and improve firm-valuation is expected to be greater, or, at least different in unregulated firms compared to regulated firms.
5) I exclude service firms and concentrate on firms engaged in manufacturing or merchandising operations because the accrual management process in such firms are expected to be different from service firms especially with regard to managing inventory, which comprises a substantial proportion of total current assets and working capital, and is, therefore, a potential source of manipulation in manufacturing or merchandising firms.

over the entire period of eight years are classified as S&P 500 firms while the firms that belong to S&P 500 group for some but not all years or do not belong to the S&P 500 group at all are classified as non S&P 500 firms for the purpose of this study.

Restricting the sample to the NYSE firms ensure a level of homogeneity in the sample firms because all firms in the sample are subject to same kind of exchange-related regulations and governance. All of them are expected to have the same degree of visibility and external monitoring by various agencies. Baker, Powell and Weaver (1999) find that the NYSE listing increases a firm's visibility in terms of the number of analysts' following and institutional stock ownership. They suggest that this visibility leads to greater flow of information about a firm, reducing the uncertainty about the firm's future prospect and increasing the efficiency of trading its stocks in the market. Moreover, in the sample period under the present study, firms listed in the NYSE are required to have an independent audit committee, which is intended to increase audit effectiveness and improve the credibility and integrity of financial reports by eliminating questionable accounting policies and practices. Maintaining a wholly independent audit committee is not a mandatory listing requirement in the sample period for firms listed in the American Stock Exchange or OTC exchanges like NASDAQ.[29] Therefore, this study examines whether institutional investor shareholdings in NYSE-listed firms provide any additional monitoring to constrain a firm's accrual management ability by reducing the

[29] The National Association of Security Dealers requires that companies listed on NASDAQ have audit committees with at least a majority of members independent while the American Stock Exchange recommends but does not require a wholly independent audit committee as a part of listing requirements.

flexibility/discretion available to managers in generating abnormal accruals in presence of several other governance mechanisms.[30]

The sample selection procedure is summarized in Table-1. I initially obtained data for 2593 firms listed on the NYSE from the Compustat Research Insight database. Out of those, I exclude the firms with the fiscal year-end other than December 31. I also exclude firms engaged in financial, regulated and service industries. After these filters are applied, there are 824 firms left.

I collected institutional and managerial ownership data from the Compact Disclosure database. I did not find ownership data for the entire sample period with respect to 108 firms nor data for the variables to be used in regression analyses for 330 firms. After eliminating those firms, the final sample has 386 firms that have complete data for the entire sample period of eight years, 1991-1998.

Out of those 386 firms, the number of firms appearing constantly in the S&P 500 group over the entire sample period is 140; those firms are classified as S&P 500. The remaining 246 firms are classified as non S&P 500 for the purpose of the study. Some of the non S&P 500 firms appeared for not more than two years in the S&P 500 group, and most of the 246 firms did not appear at all in the S&P 500 list.

It is also interesting to note that out of the final set of 386 firms, 380 firms were audited by Big-5 auditors in the sample time-period. Some firms changed auditors during this time-period but they switched from one Big-5 to another Big-5 auditor. Therefore, it appears that an important form of corporate governance is already in place for almost all

[30] El-Gazzar (1998) finds evidence that large institutional ownership induces a high level of voluntary disclosure prior to earnings announcements even for large and widely followed firms. He shows that the higher the institutional shareholdings, the lower is the market reaction to earnings releases after controlling for security market capitalization and the number of analysts following a firm.

of the sample firms in the period under study. Most firms are, therefore, subject to high quality external audit, an influential constraining factor on management's accrual manipulation activities as observed by previous studies (e.g., Becker et al. 1998; Francis et al. 1999; Gul et al. 2002).

6.2. Industry Distribution of Sample Firms

Table 2 exhibits the industry distribution of the sample firms based on the three-digit Standard Industry Classification (SIC) code. The selected firms represent a wide cross-sections of industries. Some industries are, however, more heavily represented in sample than others. In my main analysis (which is discussed in subsequent sections of the paper), I have also evaluated whether the basic findings of the study are driven by the influence of industries that are heavily represented in the sample.

6.3. Descriptive Statistics

Table 3 presents the descriptive statistics for the variables used in the empirical tests. The mean and median of institutional percentage stockholdings in the sample firms are 48.76 and 52.46 respectively. So, the data distribution of this variable is slightly left-skewed. This pattern of distribution of percentage institutional stockholdings is comparable to that reported in previous research (e.g., Balsam et al. 2000; Bushee 2000). For an average firm, institutional owners collectively own more than four times as much common stock as managers (48.67% for institutions versus 10.48% for managers). Hence, institutions are more likely to have greater influence on managerial decision to engage in accrual management activity. The range of distribution of the INST% variable is also wide with a minimum of 0.16% to a maximum of 86.12%. This wide distribution of an independent variable in the sample increases the probability of increasing the power

of the statistical tests. It is also interesting to note that the mean (median) number of institutional owners in the sample firms is 165 (106) with a minimum of 3 and a maximum of 799. This statistic indicates that an average sample firm has large institutional following, and this institutional following substantially varies across firms in the sample.

The distribution of managerial stock ownership (PMGR%) is also found to be wide across firms with a minimum of 0.16% and a maximum of 86.12%. The mean and median of the PMGR% variable in the sample firms is 10.48% and 6.35% respectively. The wide variability of PMGR% helps improve the explanatory power of the variable in the regression analysis.

The mean and median of abnormal accrual variations (FLACAC) are 4.71% and 3.71% respectively of total assets as estimated by the modified version of the Jones' model used in this study. Under the original version of the Jones' model, the corresponding mean and median of FLACAC are 5.82% and 3.71% of total assets respectively. The FLACAC variable has a quite large range in the data distribution with a minimum of 0.32% and a maximum of 64.05% of total assets (min of 0.84% and max of 77.08% under the original Jones' model). The pattern of FLACAC data distribution across firms is identical under both the modified version of the Jones' model employed in the paper and under the original Jones' model. It also appears that the distribution of FLACAC is not unduly skewed under both versions of the Jones' model.

The firms selected in the sample have varying sizes and equity market values. The average (median) total assets is $5,708 million ($1,242 million). The sizes range widely from minimum total assets of $42 million to maximum total assets of $233,310 million.

Table 1: Sample Selection Procedure

A)

Total number of firms listed on NYSE (as per Compustat Research Insight database)	2,593
Less: Firms with non Dec. 31 fiscal year end	788
Firms with Dec. 31 fiscal year end	1,805
Less: Number of firms in financial industry (SIC 6000 to 6999)	(571)
Number of firms in regulated industry (SIC 4000 to 4990)	(266)
Number of firms in service industry (SIC 7000 to 8999)	(144)
Number of firms in manufacturing and merchandising operations	824
Less: Firms with incomplete data for regression variables for the sample time period	(330)
Firms with incomplete ownership data in Compact Disclosure database	(108)
Number of firms finally selected for the study	**386**

B)

Out of 386 firms in the final sample:	
Firms appearing constantly in S&P 500 list in the sample years:	140
Non S&P 500 firms:	246
	386
Firms audited by Big-5 auditors:	380
Firms audited by non Big-5 auditors:	6
	386

Table 2: Industry Distribution of Sample Firms Based on Three-Digit SIC Codes

SIC	Name of Industries	No. of Firms	SIC	Name of Industries	No. of Firms
104	Metal mining	9	314	Leather and leather products	3
131	Crude petroleum and natural gas	35	321	Glass products	8
140	Mining queries and non-metal minerals	4	331	Steel works, rolling and finishing mills	23
			341	Metal cans and shipping containers	18
160	Heavy construction	2	351	Engines and turbines	3
173	Electrical works	1	353	Construction machinery and equipment	32
201	Meat products	1	362	Elect. transmission and distribution equipment	2
204	Grain mill products	2			
205	Bakery products	2	363	Household appliances	7
206	Sugar and confectionary prods.	4	366	Communication equipment	16
207	Fats and oils	1	371	Motor vehicles and car bodies, parts and accessories	23
208	Beverages	3			
209	Misc. food preparations	1	381	Industrial measurement equipment	7
210	Tobacco products	2	384	Surgical and medical instrument and apparatus	7
221	Broadwoven fabric mills, cotton	2			
225	Knit and outwear mills	1	386	Photographic equipment	1
227	Carpets and rugs	2	394	Toys and sporting goods	4
230	Apparel and other finished products	4	495	Sanitory systems	4
240	Lumber and wood products	6	500	Wholesale durable goods	9
251	Furniture and fixtures	4	511	Paper and paper products	3
260	Paper and allied products	21	517	Petroleum products-wholesale	2
271	Publishing and printing	19	519	Non-durable goods-wholesale	1
281	Industrial inorganic chemicals	15	520	Building material, hardware-retail	1
283	Pharmaceuticals	24	531	Department stores	1
286	Industrial organic chemicals	6	531	Grocery stores	3
287	Agricultural chemicals	6	571	Home furniture and office equipment	2
291	Petroleum refining	15	590	Misc. retail stores	3
301	Rubber and plastic products	7	999	Conglomerates	4
					386

The average (median) equity market values of the sample firms are $5,463 million ($1,315) ranging from a minimum of $42 million to a maximum of $146,518 million. So, the sample firms represent a wide array of firms with varying sizes. It is noteworthy from Table-3 that all variables used in the empirical tests have broad ranges of distribution across firms and, therefore, have high variability in data distribution, which increases the overall explanatory power of the regression model, providing more robustness to various tests conducted in the study.

6.4. Distribution of Abnormal Accrual Variations

Table 4 presents various statistics of the distribution of abnormal accrual variations. Panel A of Table 4 depicts FLACAC distribution in two sets of firms, one having institutional stockholdings greater than the sample median and the other with institutional stockholdings less than the sample median. Consistent with expectations, the firms having greater than median institutional stockholdings have mean (median) FLACAC of 3.98% (3.37%) of total assets with a mean institutional stockholding percentage of 64.74% (median 64.67%) while the firms having less than median institutional stockholdings have mean (median) FLACAC of 5.45% (3.98%) of total assets with a mean institutional stockholding percentage of 32.61% (median 34.09%). The univariate test of the mean difference between these two sets of firms shows that the mean institutional stockholding in firms having less than the median stockholdings is significantly less than that in the firms having greater than the median institutional stockholding (t-statistic: -27.528; p-value: 0.000) while the mean abnormal accrual variation for the firms with less than the median institutional shareholding is significantly greater than that for the firms with greater than the median institutional shareholding (t-

statistic: 3.039; p-value: 0.002). The inverse relationship between FLACAC and institutional percentage stockholdings is quite evident from this statistical comparison.

Panel B of Table 4 presents an interesting pattern of FLACAC distribution across different quintiles of institutional stock ownership. In the lowest quintile, the mean institutional ownership percentage is 17.77 while in the highest quintile the mean institutional ownership percentage is 72.33. The mean FLACAC in the lowest quintile is 6.80% while in the highest quintile it is 3.83% of total assets. The average abnormal accrual variation monotonically decreases from the lowest to highest quintiles of institutional stock ownership. The pattern indicates an inverse relationship between abnormal accrual variations and institutional stock ownership and supports the notion that institutional investors provide mitigating effects on a firm's accrual management efforts. The univariate t-tests for the difference in mean FLACAC between two quintiles are reported at the bottom of the table. Only the difference of FLACAC between 1st and 2nd quintiles is statistically significant. However, when I combine two quintiles together and conduct a t-test for the difference in FLACAC between one pair of quintiles and the other, I find significant t-statistics for the three out of four tests. The results further support the notion of greater institutional monitoring for firms in the higher ownership quintiles relative to lower ownership quintiles.

Panel A of Table 5 presents the distribution pattern of institutional stockholdings and abnormal accrual variations across S&P 500 and non S&P 500 firms. The mean institutional stockholdings in S&P 500 firms is about 60% (median 62.87%), while that in non S&P 500 firms is 42.46% (median 43.47%). The average institutional shareholding in S&P 500 firms is significantly greater than that of non S&P 500 firms. In

the S&P 500 firms, the institutional ownership distribution across firms is left-skewed (the mean is less than the median) which signifies the presence of firms with some low institutional shareholdings. The distribution of institutional shareholdings is almost normal in non S&P 500 firms with the mean being slightly less than the median. The mean abnormal accrual variation in the S&P 500 firms is 0.0364 (median 0.0296), which is significantly less than the mean of 0.0533 (median 0.0437) in non S&P 500 firms (p-value: 0.0001).

Combining these results, it appears that on average, the S&P 500 firms have a much larger institutional following relative to the non S&P 500 firms in the sample, and the level of accrual management is also lower in the case of these S&P 500 firms. This observation is consistent with previous research findings that institutions prefer to invest in large firms and in firms having S&P 500 membership (e.g., Cready 1994). The average low level of flexibility in generating abnormal accrual in the S&P 500 firms seems to be due to greater monitoring by regulatory and other external agencies already in place for such firms compared to their non S&P 500 counterpart. Institutions have little room for monitoring the S&P 500 firms with respect to the quality of their accounting reports as compared to their impact in the non S&P 500 firms. The large institutional investment in the S&P 500 firms might be due to institutional policy for indexing or due to regulatory and other legal reasons.

Panel B of Table 5 presents the size measurements of the S&P 500 and the non S&P 500 firms in the sample along two size dimensions, total assets and equity market values. In both dimensions, the S&P 500 firms are statistically significantly greater in size than the non S&P 500 firms. The mean total assets and equity market values of the

S&P 500 firms are $12,707 million and $12,565 million respectively, whereas the corresponding numbers for the non S&P 500 firms are $1,725 million and $1,420 million. Taking into account the observations depicted in Panel A and B, it is evident that on average, the sample S&P 500 firms are very large and highly visible relative to the non S&P 500 firms; they have also, on average, a larger institutional investor following and lower level of accrual management compared to the non S&P 500 firms in the sample.

Table 6 presents information regarding the abnormal accrual variations between firms having concentrated institutional shareholdings and firms not having concentrated institutional shareholdings. Though the average institutional stockholdings in firms having concentrated shareholding is statistically significantly greater than that in firms not having concentrated institutional shareholdings (p-value: 0.000), the difference in the average abnormal accrual variations between these two sets of firms is not statistically significant. So, from the univariate t-tests, I do not find any additional monitoring effects of concentrated institutional shareholdings over and above the general institutional influence on the level of accrual management activity of the sample firms. It appears that the concentrated institutional shareholdings do not capture more than the general institutional effects.

6.5. Correlation Statistics

Table 7 presents the Pearson correlation coefficients between each pair of variables used in various regression analyses. Some correlation statistics are noteworthy. The institutional percentage shareholdings (INST) is significantly negatively correlated with the FLACAC variable estimated under both versions of the Jones' accrual model (coefficient: -0.207; p-value: 0.000). The predicted inverse relationship between these

two variables is evident in this case. The INST variable is significantly negatively correlated with the managerial ownership variable ($PMGR^2$) [31] (coefficient: -0.303; p-value: 0.000), which is consistent with the previous research observations that institutions tend to invest less in firms dominated by insiders/managers (e.g., Duggal and Millar 1999). Further, firm size measured by the natural logarithm of average total assets is highly and positively correlated with the INST variable, and the correlation coefficient is 0.271 (p-value: 0.000). This is also in line with previous research findings that institutions prefer to invest in large firms. The size variable is, however, negatively correlated with the FLACAC variable, and the coefficient is -0.211 (p-value: 0.000), which indicates that in large firms the discretion/flexibility available to managers to engage in accrual management is lower. These significant correlations with the SIZE variable also underline the fact that it is necessary to control for the size effects in the analyses; failure to do so will result in a potentially large omitted variable bias. The INST is found to be negatively correlated with the LEV variable (coefficient: -0.066; p-value: 0.193), indicating that institutional investment decreases with increase in financial leverage of a firm.

A significant correlation is found between the FLACAC variables computed as per the modified version of the Jones' accrual model developed in the paper and as per the original Jones model. The two variables are highly positively correlated with a correlation coefficient of 0.923 (p-value: 0.000). Hence, it is evident that these two measures of flexibility potentially reflect the same degree of management flexibility in managing current accruals during the sample time-period.

[31] I square the PMGR variable in order to improve the linear relationship in regression analysis.

Table 3: Descriptive Statistics of the Variables Employed in the Study

N = 386

Variables	Mean	Median	St. Dev	Min	Max
FLACAC (as per paper model)	0.0471	0.0371	0.0480	0.0032	0.6405
FLACAC (as per Jones' model)	0.0582	0.0442	0.0630	0.0084	0.7705
SIZE ($ mil)	5708	1242	20812	42	233310
MV ($ mil)	5463	1315	13879	12	146518
LEV	0.2042	0.1935	0.1268	0.0000	0.8108
σLIQUIDITY	0.6138	0.3839	6.7995	-27.3815	114.7253
σNETWORTH	0.4016	0.2900	0.8276	-2.4794	14.4963
ROS	0.0971	0.0904	0.0987	-0.7266	0.6519
MB	3.1946	2.4628	3.7132	-5.7800	42.3590
INST%	0.4867	0.5246	0.1974	0.0016	0.8612
PMGR%	0.1048	0.0635	0.1195	0.0000	0.6808
CAP	0.0781	0.0637	0.0599	0.0000	0.4832
NOOWNER	165	106	165	3	799
CONPERC	0.1157	0.1049	0.0860	0.0000	0.4329
MULTCON	0.2309	0.2073	0.1587	0.0000	0.6841
AVGHOLD	0.0060	0.0047	0.0048	0.0001	0.0318

Table 3 (Continued)

Definition of variables

FLACAC: (Paper)

Abnormal working capital accruals measured by the standard deviation of residuals from the following firm-specific accrual model:

$$CACC_{it} / TA_{it-1} = \beta_{0i} + b_{1i} [(\Delta REV_{it} - DREC_{it}) / TA_{it-1}] + \beta_{2i} [(\Delta COGS_{it} + \Delta INV_{it}) / TA_{it-1}] \beta_{3i} (\Delta OCF_{it} / TA_{it-1}) + \varepsilon_{it}$$

(Estimated over the sample time period of 8 years)

where, $CACC_{it} = [\Delta CA_{it} - \Delta Cash_{it}] - [\Delta CL_{it} - \Delta CLD_{it}]$; CA = Current assets; CL = Current liabilities; CLD = Current portion of long-yerm debt.

ΔREV = Change in revenue; ΔOCF = Change in operating cash flows;

ΔREC = Change in accounts receivables; ΔINV = Change in inventory balance;

ΔCOGS = Change in cost of goods sold; TA = Lagged total assets;

FLACAC (Jones)

Abnormal working capital accruals measured by the standard deviation of residuals from the following firm-specific accrual model:

$$CACC_{it} / TA_{it-1} = \beta_{0i} + \beta_{1i} (\Delta REV_{it}) / TA_{it-1} + \varepsilon_{it}$$

(Estimated over the sample time-period of 8 years)

SIZE

Log of average total assets of firm i for the sample period of 8 years.

MV

Average market value of equity of firm i over the sample period of 8 years.

LEV

Average leverage ratio of firm i for the sample period of 8 years, computed as long-term debt/total assets.

σNETWORTH

Standard deviation in stockholders equity for firm i in the sample period of 8 years scaled by the mean stockholders' equity.

Table 3 (Continued)

σLIQUIDITY	Standard deviation in liquidity computed as the standard deviation of working capital for firm i in the sample period of 8 years, scaled by the mean working capital.
ROS	Average return on sales for firm i in the sample period of 8 years; the measure of average operating profitability
MB	Average beginning market to book ratio of firm i in the sample period of 8 years; the measure of average growth prospect.
INST%	Average percentage of institutional ownership of common stock in firm i over the sample time period of 8 years.
PMGR%	Average percentage of managerial ownership of common stock in firm i over the sample period of 8 years.
CAP	Average capital expenditures scaled by total assets of firm i during the sample period of 8 years.
NOOWNER	Average number of institutional stockowners of firm i during the sample period of 8 years.
CONPERC	Average percentage of common stock held by 5% institutional owners in firm i during the sample period of 8 years.
MULTCON	The ratio of average percentage of common stock held by 5% institutional owners to the average total percentage of institutional stock ownership in firm i over the sample period of 8 years.
AVGHOLD	Average percentage stockholding by an institutional owner in firm i over the sample period of 8 years, computed as the ratio of total percentage of institutional stockholdings divided by the number of institutional stockowners.

Table 4: Distribution Pattern of Abnormal Accrual Variations

Panel A: Distribution of Abnormal Accrual Variations across Median Institutional Shareholdings

N = 386

	Institutional Stock Ownership (INST %)	Abnormal Accrual Variation (FLACAC)
Less than median stockholdings		
No. of observations	193	193
Mean	0.3261	0.0545
Median	0.3409	0.0398
St. Dev	0.1425	0.0630
Minimum	0.0016	0.0084
Maximum	0.5240	0.6405
More than median stockholdings		
No. of observations	193	193
Mean	0.6474	0.0398
Median	0.6467	0.0337
St. Dev	0.0774	0.0235
Minimum	0.5251	0.0032
Maximum	0.8612	0.1292
Univariate test of mean difference		
t-statistic:	-27.528	3.039
p-value (one-tailed):	0.000	0.002

Table 4 (Continued)

Panel B: Distribution of Abnormal Accrual Variations across Quintiles of Institutional Shareholdings

N = 386

	Institutional Stock Ownership					**Variations of Abnormal Accruals (FLACAC)**				
	Mean	Median	St. Dev	Min	Max	Mean	Median	St. Dev	Min	Max
Quintile 1	0.1777	0.1952	0.0909	0.0016	0.3041	0.0680	0.0462	0.0883	0.0088	0.6405
Quintile 2	0.3858	0.3858	0.0498	0.3046	0.4619	0.0465	0.0350	0.0411	0.0084	0.2745
Quintile 3	0.5206	0.5240	0.0299	0.4619	0.5688	0.0422	0.0372	0.0226	0.0119	0.1217
Quintile 4	0.6205	0.6203	0.2810	0.5718	0.6609	0.0410	0.0320	0.0266	0.0084	0.1292
Quintile 5	0.7233	0.7056	0.0491	0.6629	0.8612	0.0383	0.0328	0.0219	0.0032	0.1063

1) Univariate tests of difference in FLACAC of 1st and 2nd quintiles: t-statistic: 1.933; p-value (one-tailed): 0.028.
2) Univariate tests of difference in FLACAC of 2nd and 3rd quintiles: t-statistic: 0.800; p-value (one-tailed): 0.213.
3) Univariate tests of difference in FLACAC of 3rd and 4th quintiles: t-statistic: 0.306; p-value (one-tailed): 0.380.
4) Univariate tests of difference in FLACAC of 4th and 5th quintiles: t-statistic: 0.694; p-value (one-tailed): 0.244.
5) Univariate tests of difference in FLACAC of 1st and 2nd (combined) versus 4th and 5th (combined): t-statistic: 2.958; p-value (one-tailed): 0.002.
6) Univariate tests of difference in FLACAC of 1st and 2nd (combined) versus 3rd and 4th (combined): t-statistic: 2.618; p-value (one-tailed): 0.005.
7) Univariate tests of difference in FLACAC of 2nd and 3rd (combined) versus 4th and 5th (combined): t-statistic: 1.431; p-value (one-tailed): 0.077.
8) Univariate tests of difference in FLACAC of 3rd and 4th (combined) versus 4th and 5th (combined): t-statistic: 0.710; p-value (one-tailed): 0.240.

Table 5: Statistics for the S&P 500 and the Non S&P 500 Firms of the Final Sample

Panel A: Distribution of Abnormal Accrual Variations across the S&P 500 and the Non S&P 500 firms of the sample

N = 386

	S &P 500	Non S &P 500		
Number of firms	140	246	Difference in means	
			Between S&P and non S&P firms	
Institutional stock ownership			With respect to Institutional stock ownership	
Mean	0.5959	0.4246		
Median	0.6287	0.4347	t-statistic:	10.2372
St. Dev	0.1241	0.2045	p - value:	0.0000
Minimum	0.1735	0.0016	(two-tailed)	
Maximum	0.8028	0.8612		
Abnormal accrual variations			With respect to abnormal accrual variations	
Mean	0.0364	0.0533		
Median	0.0296	0.0437	t-statistic:	-4.0345
St. Dev	0.0257	0.0561	p - value:	0.0001
Minimum	0.0032	0.0088	(two-tailed)	
Maximum	0.1588	0.6405		

Table 5 (Continued)

Panel B: Size Measurements of the S&P 500 and the Non S&P 500 firms

N = 386

	S&P 500	Non S&P 500		
Average total assets (in $ mil)			Univariate Tests:	
Mean	12707.3	1724.67	t-statistic:	3.9425
Median	4196.92	498.174	p-value:	0.0000
St. Dev	32699.9	5483.78	(two-tailed)	
Minimum	145.397	41.8371		
Maximum	233310	63818.7		
Average equity market value (in $ mil)				
Mean	12565.1	1420.45	t-statistic:	6.2952
Median	4548.42	528.328	p-value:	0.0000
St. Dev	20775.4	3547.69	(two-tailed)	
Minimum	269.692	11.6234		
Maximum	146518	45854.9		

Table 6: Distribution of Abnormal Accrual Variations across Firms With and Without Concentrated Institutional Stockholdings

N = 386

	Conc. Holding	Non Conc. Holding	
Number of firms	276	110	
S&P 500 firms	102	38	
Non S&P 500 firms	174	72	
Institutional stock ownership			With respect to institutional stock ownership
Mean	0.5438	0.3435	
Median	0.5647	0.3247	t-statistic: 8.9387
St. Dev	0.1586	0.2127	p – value: 0.0000
Minimum	0.1353	0.0016	(two-tailed)
Maximum	0.8612	0.8590	
Abnormal accrual variations			With respect to abnormal accrual variations
Mean	0.0452	0.0520	
Median	0.0371	0.0362	t-statistic: -1.2225
St. Dev	0.0469	0.0507	p - value: 0.2231
Minimum	0.0032	0.0106	(two-tailed)
Maximum	0.6405	0.3259	

Both the PINST and UNEXPINST variables are found to be positively and significantly correlated with INST (coefficients are 0.451 and 0.892 respectively with p-values of 0.000), and PINST is positively correlated with SIZE (coefficient: 0.668 and p-value: 0.000). Theses two variables are also negatively correlated with $PMGR^2$ (coefficients are -0.550 and -0.061 respectively). Further, I do not find any significant correlation between PINST and UNEXPINST (coefficient: -0.001; p-value: 0.984). This insignificant correlation indicates that these two variables represent different unrelated institutional ownership constructs. This provides credibility to the test (reported in latter section) of separating monitoring from clientele effects of institutional stockholdings. Moreover, PINST and UNEXPINST are significantly negatively correlated with the FLACAC variable (coefficients -0.187 and -0.137 respectively with p-values of 0.000 and 0.007).[32]

6.6. Estimated Coefficients and Descriptive Statistics for Firm-Specific Regressions

Table 8 presents the results and descriptive statistics of the firm-specific accrual regression model. The mean average absolute abnormal accruals computed from the average absolute residual from the regression of 386 firms is 0.0303 (median 0.0219). The average adjusted R^2 of the 386 regressions is 0.3068 (median 0.3621). The mean coefficient of adjusted REV is 0.0165 (median -0.0632), of adjusted COGS is 0.1578 (median 0.2663), and of ΔOCF is -0.0519 (median 2.625).[33]

[32] Regarding FLACAC variable, I only discuss the correlations with FLACAC estimated by using the extended version of the modified Jones' model as developed in the paper.

[33] This result is comparable with that reported by Jones (1991; pp.213) with regard to firm-specific total accrual regression to estimate discretionary accruals. Jones reported average adjusted R^2 of 0.232 (median 0.249). The average coefficient of ΔREV in the Jones' model is 0.035 (median -0.008). The estimation period in her study ranges between 14 and 32 years. In this study, the estimation period for each firm is 8 years.

Not surprisingly, there is a significant positive correlation between average absolute residuals and root mean squared errors from firm-specific regressions (Pearson correlation coefficient: 0.527, p-value: 0.000; spearman correlation coefficient: 0.935; p-value: 0.000) as reported in Panel A of the table. This is consistent with the observations made in previous studies (e.g., Barton 2001). The greater the variability, the greater is the magnitude, and therefore, the greater is the level of accrual management. This variability, therefore, effectively indicates management flexibility in generating abnormal accruals. The average absolute residual from firm-specific regressions (i.e., the magnitude of abnormal accruals) and standard deviation of residuals (i.e., root mean squared error) both reflect managerial flexibility in generating abnormal accruals during the estimation period of eight years. This finding also provides credibility for employing the FLACAC as the measure of earnings management in this study.

Table 7: Correlation Matrix of Variables Used in Various Regressions
N = 386

	FLACAC (Paper)	FLACAC (Jones)	SIZE	LEV	σNET-WORTH	σLIQUI-DITY	ROS	MB	CAP	INST	$PMGR^2$	PINST	UNEX-PINST
FLACAC (Paper)	1.000												
FLACAC (Jones)	0.923	1.000											
	0.000												
SIZE	-0.211	-0.196	1.000										
	0.000	**0.000**											
LEV	0.113	0.122	0.066	1.000									
	0.026	**0.017**	**0.196**										
σNETWORTH	0.196	0.134	-0.133	0.172	1.000								
	0.000	**0.008**	**0.009**	**0.001**									
σLIQUIDITY	0.130	0.128	-0.003	0.140	0.056	1.000							
	0.011	**0.012**	**0.947**	**0.006**	**0.272**								
ROS	-0.035	0.010	0.141	-0.122	-0.047	0.214	1.000						
	0.499	**0.841**	**0.005**	**0.017**	**0.355**	**0.000**							
MB	0.177	0.218	0.128	0.013	-0.101	0.014	0.217	1.000					
	0.000	**0.000**	**0.012**	**0.793**	**0.046**	**0.782**	**0.000**						
CAP	-0.107	-0.091	-0.167	0.191	0.014	-0.028	-0.035	-0.026	1.000				
	0.035	**0.074**	**0.001**	**0.000**	**0.785**	**0.579**	**0.497**	**0.607**					
INST	-0.207	-0.180	0.271	-0.066	-0.099	-0.084	0.128	0.042	-0.089	1.000			
	0.000	**0.000**	**0.000**	**0.193**	**0.052**	**0.101**	**0.012**	**0.415**	**0.080**				
$PMGR^2$	-0.098	-0.088	-0.242	0.104	0.277	0.098	-0.030	-0.017	-0.053	-0.303	1.000		
	0.055	**0.085**	**0.000**	**0.041**	**0.000**	**0.054**	**0.552**	**0.733**	**0.303**	**0.000**			
PINST	-0.187	-0.184	0.668	-0.155	-0.195	-0.087	0.192	0.107	-0.095	0.451	-0.550	1.000	
	0.000	**0.000**	**0.000**	**0.002**	**0.000**	**0.088**	**0.000**	**0.035**	**0.062**	**0.000**	**0.000**		
UNEXPINST	-0.137	-0.108	-0.035	0.004	-0.012	-0.050	0.047	-0.008	-0.052	0.892	-0.061	-0.001	1.000
	0.007	**0.033**	**0.497**	**0.937**	**0.810**	**0.330**	**0.359**	**0.882**	**0.310**	**0.000**	**0.229**	**0.984**	

Note: For each variable, the numbers in the first row are Pearson correlation coefficients and the bold numbers in the second row are p-values (two-tailed).

Table 7 (Continued)

Definition of variables

FLACAC: (Paper)

Abnormal working capital accruals measured by the standard deviation of residuals from the following firm-specific accrual model:

$$CACC_{it} / TA_{it-1} = \beta_{0i} + \beta_{1i} [(\Delta REV_{it} - \Delta REC_{it}) / TA_{it-1}] + \beta_{2i} [(\Delta COGS_{it} + \Delta INV_{it}) / TA_{it-1}] \beta_{3i} (\Delta OCF_{it} / TA_{it-1}) + \varepsilon_{it}$$

(Estimated over the sample time period of 8 years)

where, $CACC_{it} = [\Delta CA_{it} - \Delta Cash_{it}] - [\Delta CL_{it} - \Delta CLD_{it}]$; CA = Current assets;
CL = Current liabilities; CLD = Current portion of long-term debt.
ΔREV = Change in revenue; ΔOCF = Change in operating cash flows
ΔREC = Change in accounts receivables; ΔINV = Change in inventory balance;
ΔCOGS = Change in cost of goods sold; TA = Lagged total assets;

FLACAC (Jones)

Abnormal working capital accruals measured by the standard deviation of residuals from the following firm-specific accrual model:

$$CACC_{it} / TA_{it-1} = \beta_{0i} + \beta_{1i} (\Delta REV_{it}) / TA_{it-1} + \varepsilon_{it}$$

(Estimated over the sample time-period of 8 years)

SIZE

Log of average total assets of firm i for the sample period of 8 years.

LEV

Average leverage ratio of firm i for the sample period of 8 years, computed as long-term debt/total assets.

σNETWORTH

Standard deviation in stockholders equity for firm i in the sample period of 8 years scaled by the mean stockholders' equity.

σLIQUIDITY

Standard deviation in liquidity computed as the standard deviation of working capital for firm i in the sample period of 8 years, scaled by the mean working capital.

Table 7 (Continued)

ROS	Average return on sales for firm i in the sample period of 8 years; the measure of average operating profitability
MB	Average beginning market to book ratio of firm i in the sample period of 8 years; the measure of average growth prospect.
INST	Average percentage of institutional ownership of common stock in firm i over the sample time period of 8 years.
$PMGR^2$	Squared average percentage of managerial ownership of common stock in firm i over the sample period of 8 years.
CAP	Average capital expenditures scaled by total assets of firm i during the sample period of 8 years.
PINST	Predicted average institutional percentage stockholdings in firm i in sample period of 8 years, estimated from the following regression: $INST_i = \beta_0 + \beta_1 MV_{i-1} + \beta_2 DP_{i-1} + \beta_3 S\&P_i + \beta_4 PMGR_{i-1} + \varepsilon_i$ where, MV = Lagged average market capitalization value of equity of firm i in the sample time period of 8 years. DP = Average lagged dividend pay-out ratio of firm i in the sample time period of 8 years. S&P = A dummy variable, taking the value of 1 if the firm belongs to S&P 500 group in the eight year period; 0 otherwise. PMGR = Average lagged percentage of managerial ownership in firm i over the sample period of 8 years.
UNEXPINST	Average unexpected percentage of institutional stockholdings in firm i over the sample time-period, computed as: average actual percentage stockholdings minus predicted percentage stockholdings estimated from the above regression.

Table 8: Estimated Coefficients and Descriptive Statistics for 386 Firm-Specific Regressions

N = 386

Panel A

Correlation statistics with regard to average absolute residuals and root mean squared errors from firm-specific regressions:

Pearson's correlation coefficient:	0.527	
p-value (two-tailed):	0.000	(Significant at 0.01 level)
Spearman's correlation coefficient:	0.935	
p-value (two-tailed):	0.000	(Significant at 0.01 level)

Panel B

Descriptive statistics for firm-specific accrual regressions:

	Coefficient statistics				Avg. absolute	
	Adj. REV (β_{1i})	Adj. COGS (β_{2i})	ΔOCF (β_{3i})		residuals	Adjusted R^2
Coefficients:						
Mean	0.0165	0.1578	-0.0519	Mean	0.0303	0.3068
Median	-0.0632	0.2663	-0.2090	Median	0.0219	0.3621
St Dev	0.9195	1.2452	2.6250	St Dev	0.0477	0.4321

7. RESULTS

- General institutional effects on the level of accrual management to test hypothesis 1

Table 9 reports the test results by estimating the regression model in equation 3 with respect to institutional effects on accrual management as embodied in the first hypothesis. By using the reduced model 1 in which β_9 is set to zero, I estimate the regression of FLACAC on the control variables. Many control variables are found to be significant in the predicted directions. The SIZE variable is significantly negative, which is consistent with the political cost hypothesis as documented by Cahan (1992) and Hall and Stammerjohan (1997), and the information environment hypothesis that large firms have greater visibility and a large following by external agencies (e.g., Bhushan 1989) that make it difficult for managers to manipulate earnings. LEV is significantly positive, providing evidence that an increase in leverage induces managers to use more accruals to manage earnings to loosen the contractual debt-constraints, consistent with the observations made by DeFond and Jiambalvo (1994). The variables, σ LIQUIDITY and σ NETWORTH, are positive and significant, which is consistent with the observations of Sweeney (1994) that the greater the decline in networth and liquidity, the greater is the necessity to offset their negative effects by using income-increasing accounting changes. MB is positive and significant, indicating that some portion of abnormal accrual variation results from growth and not from managerial discretion. CAP is significantly negative, indicating that with an increase in capital expenditures, a proxy for structural changes in business, managerial propensity to manage accruals declines. The structural changes may be geared toward enhancing long-term firm profitability that make managers more far-sighted instead of being overly concerned about short-term earnings performance.

$PMGR^2$ is negative, which is consistent with the observations of Warfield et al. (1995) that with an increase in managerial ownership, the level of accrual management declines. But the $PMGR^2$ is not statistically significant. I find that ROS variable, a proxy for profitability, is also not significant in the regression.

I report the regression results of FLACAC on the INST variable by applying the reduced model 2 in which β_1 through β_8 are set to zero. The INST is found to be negative and statistically significant at any level (coefficient: -0.207; t-statistic: -4.137; p-value: 0.000), which strongly supports the prediction made in the first hypothesis that institutional investors mitigate a firm's accrual management. By using the full model, I have examined the institutional investor influence on flexibility in generating abnormal accruals (FLACAC) in the presence of other control variables. I find that the INST variable remains negative and statistically significant even after including all control variables in the regression model (coefficient: -0.158; t-statistic: -3.130; p-value 0.001). The control variables are all significant as predicted except ROS. $PMGR^2$ is also found to be negative and statistically significant at the 10% level in this regression. As a whole, I find strong evidence in support of the first hypothesis.[34]

- Effect of concentrated institutional shareholdings on accrual management to test hypothesis 2

In Table 10, I report various test results with respect to the concentrated institutional shareholdings using the regression models formulated in the equations 4, 4A and 4B. I present the test results regarding the effects of CONC, a dummy variable assigned to firms having 5% institutional stockowners, on FLACAC in the presence of

[34]As an alternative measure, I use square root of the number of institutional owners as the independent variable in regression equation to test the institutional effect and find significant result. The related test statistics for this variable are: coefficient: - 0.158; t-statistic: -1.881 and p-value: 0.031.

other control variables by estimating the regression equation 4 in the reduced model 1. The CONC variable is found to be negative and statistically significant at the 5% level (coefficient: -0.094; t-statistic: -1.910; p-value: 0.029). Most control variables are significant in the predicted direction. The result shows that firms with concentrated institutional shareholdings have a lower level of accrual management relative to firms without such concentrated shareholdings. Therefore, with an increase in concentration institutions are found to become more inclined to monitor management choice of using certain accounting techniques to manage accruals, a finding consistent with the observations made in prior studies that substantial investment in a firm provides strong incentives to institutions to monitor managers (e.g., Chung 2002; Wahal and McConnell 2000). The result supports the predictions made in the second hypothesis that with an increase in concentrated institutional shareholdings, the level of accrual management becomes lower.

By applying the reduced model 2, I estimate the regression equation 4A. Here, I examine the effect of CONC once INST is included in the model to see whether concentrated shareholding has any incremental effect on accrual management. I have found that INST is negative and statistically significant at the 1% level (p-value: 0.007). But CONC variable is not significant even though the sign of its coefficient is negative (coefficient: -0.023; t-statistic: -0.399; p-value: 0.345). It seems that the strong institutional influence as captured by INST makes the concentration effect insignificant. By applying the full model, I estimate the regression equation 4B to test the incremental effects of concentrated institutional shareholdings by including an interaction variable (INST*CONC) in the presence of other variables. INST is again negative and highly

significant (p-value: 0.015). But the coefficients of both the CONC and the interaction variable are found to be not significant (with p-values of 0.229 and 0.265 respectively). It is therefore evident that the presence of INST and CONC at the same time in the model does not provide any additional information about the effects of concentration over and above the general institutional effects on accrual management. In presence of the strong influence of INST in the model, the concentration effects have become insignificant. But when the effect of concentrated shareholding is examined on a stand-alone basis, I find that its effect is statistically significant in the presence of other control variables.[35] The overall test results as reported by using the three models suggest that the concentrated institutional shareholding may have some additional effects on accrual management but the effect is not very clear from the reported test results. CONC seems to capture not more than the general institutional effects. CONC might have captured some concentration effects when considered on a stand-alone basis in the regression, but this effect disappears when INST is included in the model. Therefore, from the test results I find only limited evidence in support of the second hypothesis regarding the effect of concentrated institutional stock ownership on the variability of abnormal accruals.

[35] I also estimate the regression model by including only the interaction of INST and CONC, as the independent variable and other control variables. I find that the coefficient of INST*CONC is negative and statistically significant (coefficient: -0.113; t-statistic: -2.323; p-value: 0.010). The result indicates that in firms with concentrated institutional shareholdings, the institutional investors provide significant monitoring to reduce management flexibility to make abnormal accrual adjustments. However, it is not clear whether the result indicates the general institutional investor effects in firms having concentrated institutional shareholdings or the effects of concentrated shareholdings exerted by the institutional owners. The result may be due to the combined effects of the two factors, the general and the concentrated shareholdings by institutions. It is not evident which factor dominates over the other in its effects on the level of accrual management.

I also estimate the regression equation 3 separately for firms having concentrated institutional shareholdings and for firms not having such concentrated shareholdings. I find that the coefficient of INST is negative and significant for both types of firms. The result apparently suggests the general institutional monitoring effect on flexibility in abnormal accrual generation for both categories of firms, firms with and without concentration. No additional concentration effect is evident from such separate analysis.

Table 11 reports the regression results by estimating the effects of various concentration measures in the presence of other control variables in the equation 4C. Three measures of concentration, CONPERC, AVGHOLD and MULTCON, are used separately to test the effects of concentrated institutional shareholdings in the presence of other control variables. By using the model 1, I test the effects of CONPERC. I find that CONPERC is negative and significant at the 10% level (coefficient: -0.069; t-statistic: -1.412; p-value: 0.080), which indicates that with the increase in aggregate shareholdings of 5% institutional stockowners in a firm, management flexibility to manage accruals declines, a result that supports the second hypothesis. Most control variables are significant as per predicted directions. However, by using the models 2 and 3, I find that the other two measures of concentrated institutional shareholdings, AVGHOLD and MULTCON, are not statistically significant (p-values are 0.355 and 0.456 respectively). Therefore, by applying various concentration measures I find limited support for the predictions made in the second hypothesis.[36] The test results are also consistent with the one obtained from the univariate test and reported in Table 6 that firms with concentrated institutional stockholdings have greater institutional percentage shareholdings but do not experience significantly greater abnormal accrual variations compared to firms without concentrated institutional shareholdings.

- Institutional effects on accrual management in the S&P 500 and the non S&P 500 firms to test hypothesis 3

Table 12 reports the test results of institutional effects in the two categories of firms, the S&P 500 and the non S&P 500 by estimating the regression equation 5. By

[36] I find significant positive effects of AVGHOLD and MULTCON in univariate tests regressing FLACAC on AVGHOLD and MULTCON respectively. The coefficients and p-values are: 0.169 and 0.001 for AVGHOLD, and 0.015 and 0.10 for MULTCON. However, these effects disappear when the control variables are included in the regression model.

using the reduced model 1, I find that in the presence of other control variables, the S&P dummy is not significant. Perhaps the difference of flexibility in generating abnormal accruals between the two categories of firms are accounted by the control variables as well as by the factors not included in the model as indicated by the highly significant intercept (with t-statistic: 6.828; p-value: 0.000).

By using the reduced model 2, I examine the differential effects of institutional monitoring on accrual management in the S&P 500 and the non S&P 500 firms in the sample. I find that the INST variable is negative and significant at the 1% level (t-statistic: -3.161; p-value: 0.002). But the S&P dummy variable is not significant though the sign of its coefficient is negative (t-statistic: -1.478; p-value: 0.140). Further, I do not observe any significant differential effect of institutions in the S&P 500 firms compared to the non S&P 500 firms, as revealed by the insignificant interaction variable (t-statistic: 1.030; p-value: 0.304) though its coefficient is positive. The positive coefficient of the interaction variable indicates that the institutional effect on flexibility in the generation of abnormal accruals is somewhat moderated in the S&P 500 firms compared to the non S&P 500 firms.

By using the full model, I estimate the full regression equation 5. I find that the INST is significantly negative at the 1% level in the presence of all other control variables (t-statistic: -3.265; p-value: 0.002). Most control variables are significant in the predicted directions. However, both the S&P dummy (though it has a negative coefficient) and the interaction between INST and S&P are found to be insignificant (with p-values of 0.628 and 0.428 respectively). The result, therefore, does not indicate any differential institutional impact on accrual management for these two sets of firms, a

result that does not support the prediction of the third hypothesis. However, to better comprehend the differential institutional impact, it is necessary to estimate general cross-sectional regressions as formulated in the equation 3 separately for the S&P 500 and the non S&P 500 firms to more clearly examine the differential institutional effects.

Table 13 reports the test results on institutional effects separately for the S&P 500 and the non S&P 500 firms by estimating the equation 3. I find that in the presence of all control variables, INST is not significant (t-statistic: 0.065; p-value: 0.474) for the S&P 500 firms. Many of the control variables are also not significant. It is worth mentioning that among the control variables, SIZE, LEV, σLIQUIDITY, ROS and CAP are found to be statistically insignificant. Another remarkable thing is that the intercept is not significant (p-value: 0.116). The traditional accrual determinant variables, therefore, appear to be mostly redundant in explaining the cross-sectional differences in FLACAC among the sample S&P 500 firms. Moreover, the coefficient of $PMGR^2$ is positive and significant, a result that is contrary to the previous research findings that an increase in managerial ownership is accompanied by a decrease in the level of accrual management.

For the non S&P 500 firms, I find evidence of significant institutional effects on accrual management in the presence of other control variables. INST is significantly negative (coefficient: -0.163; t-statistic: -2.681; p-value: 0.004). Most control variables are significant in the predicted directions. Therefore, by separately estimating the general regression equation 3, I find evidence of differential institutional impact on the level of accrual management in these two different categories of sample firms, S&P 500 and non S&P 500. Hence, the test results support the third hypothesis that the monitoring

influence of institutional investors on accrual management are different for these two categories of firms.

The S&P 500 firms are very large and highly visible, having substantially higher institutional investment compared to the non S&P 500 firms in the sample as seen from Panels A and B of the Table 5. Institutions are found not to exert any significant influence on the accrual management level of such firms while they have significant influence in the non S&P 500 firms. Institutions seem to find greater scope to provide monitoring in the non S&P 500 firms in their accrual management effort relative to the S&P 500 firms. This result is also consistent with the observations made in previous studies that institutions prefer to invest in the firms having S&P 500 membership to meet the "prudent-person" standard either because these firms have information-rich environments (Lang and McNichols 1998), or for other regulatory or liquidity reasons (Guercio 1996). Institutions may simply passively index in the S&P 500 firms for such various reasons. It also seems that the pattern of accrual generation is somewhat different in nature in those large highly visible S&P 500 firms having greater transparency and external monitoring by various regulatory and professional bodies compared to the non S&P 500 firms. Most of the traditional variables that are expected to explain the cross-sectional differences of accrual management are not significant for the S&P 500 firms. Moreover, some variable, i.e., managerial ownership has significantly positive effects on flexibility in abnormal accrual generation, which is contrary to the predictions based on prior studies. This result provides an interesting avenue for future research with respect to the accrual generation process of the S&P 500 firms. It will be an interesting endeavor to explore the factors at an individual firm level influencing management choice of the

selection and application of accounting techniques in financial reporting of such highly visible, large capitalization firms.[37]

- Test of clientele versus monitoring effects of institutional investors

Table 14 reports the results of two-stage least square regressions to segregate and examine the institutional monitoring effects from clientele effects in the context of accrual management. In the first stage cross-sectional model, institutional percentage shareholdings are regressed on the determinant variables. The coefficients and related test statistics are reported in the first stage. The adjusted R^2 of the regression is 0.195, which appears to be healthy.[38] The signs of the coefficients are consistent with the previous research findings that institutions invest more in large firms and firms having S&P 500

[37] The industry distribution of sample firms is not even. As revealed from Table-2, there are some industries which have greater representation in the final sample relative to others, e.g., oil and gas, paper and allied products, publishing and printing, steel works, communication equipment, motor vehicles, organic/inorganic chemicals, pharmaceuticals, engines/turbines, metal cans and shipping containers. Altogether 10 industries out of 51 are heavily represented by firms in the sample. In order to check whether the basic results of the study are driven by any industry-related factors, I estimate the original cross-sectional regression by including 10 industry dummy variables to capture any industry-related effects for those heavily represented industries. The use of such industry dummy variables also controls for any cross-sectional correlations among residuals that may be caused by the common industry-related factors. I find the dummy variable for oil and gas industry as positive and significant at 5% level and that of publishing and printing as negative and significant at 10% level in all regressions. All other industry dummy variables are found to be insignificant. But the original results reported in the main analysis remain qualitatively identical.

The adjusted R^2 of the cross-sectional accrual regressions reported by previous research on earnings management varies widely from study to study. Normally, on average, it ranges between 1% and 25%, depending on the specific circumstances of a test. The accrual management studies of similar nature as the present one report adjusted R^2 varying between 8% and 13%, on average. Therefore, the model employed in this study appears to be more powerful than the ones used in prior studies. As a whole, the adjusted R^2 as reported in various tests in the Tables 9 to 13 ranges between 16% and 17% that are comparable to those reported in previous studies of accrual management (e.g, Hall and Stammerjohan 1997; Warfield et al. 1995; Rajgopal et al. 1998; Gul et al. 2002; Becker et al. 1998; Chung et al. 2002).

With respect to different tests reported in the Tables 9 to 13, I employ the dependent variable, FLACAC as estimated from the alternative version of the modified Jones' model (1995) developed in this paper. Alternatively, as a specification check I also use FLACAC estimated as per the original Jones' model. The results in both cases are qualitatively identical.

[38] I am not able to compare the power of the first stage regression in terms of adjusted R^2 with that of the similar test done by Wahal and McConnell (2000) because they did not report this statistic relating to the first stage regression.

membership, and less in firms having high dividend payout and having high insider ownership. The intercept and coefficients of S&P and PMGR appear to be extremely significant. However, the coefficients of MV and DP remain statistically insignificant. The predicted value of institutional percentage shareholdings (PINST) in each sample firm is obtained from the intercept and coefficients estimated from the first-stage regression. The unexpected institutional shareholding (UNEXPINST) in each firm is obtained by subtracting the predicted shareholding from the actual institutional shareholding.

The second stage presents the results of the cross-sectional regression of FLACAC on the predicted institutional stock ownership and unexpected institutional stockholdings in the presence of the other control variables. The regression results of FLACAC on PINST in the presence of other control variables are estimated by using the reduced model 1. I find the coefficient of PINST to be negative and statistically significant at the 1% level (coefficient: -0.159; t-statistic: -3.153; p-value: 0.001). By using the reduced model 2, I examine the association with respect to UNEXPINST. I find that the coefficient of UNEXPINST is also negative and statistically significant at the 1% level (coefficient: -0.130; t-statistic: -2.707; p-value: 0.004). By estimating the full model, I report the regression results by simultaneously testing the effects of PINST and UNEXPINST. Both the variables are found to be negative and statistically significant at the 1% level (with p-values of 0.001 and 0.003 respectively) in the presence of other control variables. Therefore, these test results clearly suggest that institutions did exert monitoring over a firm's accrual management activity during the sample time-period.[39]

[39] I also test the interaction effects of PINST and UNEXPINST with CONC variable in the regression in presence of PINST and UNEXPINST. The interaction variables are not found to be statistically significant.

The significantly inverse relationship between flexibility in generating abnormal accruals and institutional percentage shareholdings is not due to the institutional preference to invest in a firm having low accrual management (i.e., high-quality earnings) or for some omitted underlying factors driving the relationship. Therefore, the relationship can be attributed to institutional investors constraining management's flexibility to opportunistically use abnormal accruals to manage earnings. Substantial institutional presence acts as a deterrent to a firm's accrual management activity. Institutional investors are, therefore, found to improve corporate governance by providing monitoring on the corporate financial reporting process.

I also test the relationship as reported in the Table 14 by employing FLACAC estimated from the original Jones' model (1991) as the dependent variable. The results appear to be similar.

Table 9: Cross-Sectional Regressions of Abnormal Accrual Variation on Institutional Stock Ownership and Other Control Variables

N = 386

Full model: $FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 INST_i + \varepsilon_i$

		Reduced Model 1			Reduced Model 2			Full Model	
Variable	Coeff.	t-statistic	p-value	Coeff.	t-statistic	p-value	Coeff.	t-statistic	p-value
Intercept	0.092	7.655	0.000	0.067	11.222	0.000	0.109	8.348	0.000
$PMGR^2$	-0.040	-0.797	0.426				-0.080	-1.548	0.061
SIZE	-0.254	-5.025	0.000				-0.225	-4.420	0.000
LEV	0.111	2.209	0.014				0.109	2.184	0.015
σNETWORTH	0.171	3.427	0.001				0.172	3.492	0.001
σLIQUIDITY	0.112	2.280	0.012				0.099	2.032	0.022
ROS	-0.058	-1.158	0.124				-0.041	-0.816	0.210
MB	0.232	4.772	0.000				0.230	4.793	0.000
CAP	-0.168	-3.429	0.001				-0.179	-3.677	0.000
INST				**-0.207**	**-4.137**	**0.000**	**-0.158**	**-3.130**	**0.001**
Adjusted R^2	0.154			0.040			0.173		
F -statistic	9.738			17.117			9.947		

Note: All variables are defined in previous sections. The p-values reported are one-tailed.

Table 10: Cross-Sectional Regressions of Abnormal Accrual Variation on Concentrated Institutional Stockholdings and Other Control Variables

N = 386

Full model : $FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 INST_i + \beta_{10} CONC_i + \beta_{11} (INST_i * CONC_i) + \varepsilon_i$

	Reduced Model 1			Reduced Model 2			Full Model		
Variable	Coeff.	t-statistic	p-value	Coeff.	t-statistic	p-value	Coeff.	t-statistic	p-value
Intercept	0.101	7.770	0.000	0.105	8.094	0.000	0.107	7.627	0.000
$PMGR^2$	-0.061	-1.179	0.120	-0.082	-1.577	0.058	-0.083	-1.592	0.056
SIZE	-0.271	-5.291	0.000	-0.231	-4.343	0.000	-0.234	-4.377	0.000
LEV	0.127	2.500	0.007	0.113	2.218	0.014	0.114	2.234	0.013
σNETWORTH	0.176	3.536	0.000	0.173	3.505	0.001	0.176	3.548	0.000
σLIQUIDITY	0.099	1.999	0.046	0.097	1.972	0.025	0.095	1.927	0.028
ROS	-0.058	-1.163	0.246	-0.042	-0.840	0.202	-0.041	-0.817	0.207
MB	0.223	4.592	0.000	0.228	4.724	0.000	0.228	4.716	0.000
CAP	-0.177	-3.599	0.000	-0.180	-3.691	0.000	-0.181	-3.708	0.000
CONC	**-0.094**	**-1.910**	**0.029**	-0.023	-0.399	0.345	-0.090	-0.743	0.229
INST				**-0.146**	**-2.497**	**0.007**	**-0.184**	**-2.184**	**0.015**
INST*CONC							0.096	0.630	0.265
Adjusted R^2	0.160			0.171			0.170		
F -statistic	9.122			8.948			8.158		

Note: All variables are defined in previous sections. The p-values reported are one-tailed.

Table 11: Cross-Sectional Regressions of Abnormal Accrual Variation on Various Measures of Concentrated Institutional Shareholdings and Other Control Variables

N = 386

Model: $FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 X_i + \varepsilon_i$

	Model 1			Model 2			Model 3		
Variable	Coeff.	t-statistic	p-value	Coeff.	t-statistic	p-value	Coeff.	t-statistic	p-value
Intercept	0.099	7.646	0.000	0.084	4.423	0.000	0.094	6.706	0.000
$PMGR^2$	-0.051	-0.998	0.160	-0.041	-0.812	0.209	-0.040	-0.792	0.214
SIZE	-0.265	-5.188	0.000	-0.235	-3.282	0.001	-0.253	-4.770	0.000
LEV	0.124	2.424	0.008	0.110	2.183	0.015	0.110	2.097	0.019
σNETWORTH	0.167	3.364	0.001	0.170	3.408	0.001	0.171	3.424	0.001
σLIQUIDITY	0.105	2.141	0.017	0.112	2.286	0.012	0.112	2.277	0.012
ROS	-0.060	-1.185	0.119	-0.056	-1.115	0.132	-0.058	-1.148	0.126
MB	0.226	4.636	0.000	0.234	4.778	0.000	0.232	4.754	0.000
CAP	-0.173	-3.515	0.000	-0.166	-3.369	0.001	-0.168	-3.413	0.001
CONPERC[a]	**-0.069**	**-1.412**	**0.080**						
AVGHOLD[a]				0.026	0.373	0.355			
MULTCON[a]							0.006	0.110	0.456
Adjusted R^2	0.156			0.154			0.151		
F-statistic	8.901			8.652			8.635		

[a]The independent variable of the model is denoted by X, which represents CONPERC, AVGHOLD and MULTCON respectively.
All variables are defined in previous sections. The p-values reported are one-tailed.

Table 12: Cross-Sectional Regressions Testing the Institutional Shareholding Effects in the S&P 500 and the Non S&P 500 Firms of the Full Sample

N = 386

Full model: $FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 INST_i + \beta_{10} S\&P_i + \beta_{11} (INST_i * S\&P_i) + \varepsilon_i$

		Reduced Model 1			Reduced Model 2			Full Model	
Variable	Coeff	t-statistic	p-value	Coeff	t-statistic	p-value	Coeff	t-statistic	p-value
Intercept	0.089	6.828	0.000	0.074	10.562	0.000	0.115	7.664	0.000
$PMGR^2$	-0.041	-0.807	0.210				-0.080	-1.553	0.060
SIZE	-0.247	-3.798	0.000				-0.252	-3.911	0.000
LEV	0.110	2.130	0.017				0.113	2.219	0.014
σNETWORTH	0.171	3.425	0.001				0.172	3.484	0.001
σLIQUIDITY	0.111	2.259	0.012				0.100	2.050	0.021
ROS	-0.057	-1.120	0.132				-0.046	-0.907	0.182
MB	0.232	4.769	0.000				0.232	4.816	0.000
CAP	-0.168	-3.422	0.001				-0.177	-3.619	0.000
INST				**-0.190**	**-3.161**	**0.002***	**-0.189**	**-3.265**	**0.002***
S&P	-0.012	-0.179	0.858*	-0.307	-1.478	0.140*	-0.099	-0.487	0.628*
INST*S&P				0.224	1.030	0.304*	0.163	0.792	0.428*
Adjusted R^2	0.151			0.046			0.171		
F-statistic	8.638			7.217			8.237		

*The reported p-values are two-tailed. All other p-values are one-tailed.
All variables are defined in previous sections.

Table 13: Cross-Sectional Regressions Testing the Institutional Shareholding Effects Separately for the S&P 500 and the Non S&P 500 Firms

Full model: $FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma NETWORTH_i + \beta_5 \sigma LIQUIDITY_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 INST_i + \varepsilon_i$

	N = 140 S&P 500			**N = 246** Non S&P 500		
Variable	Coeff.	t-statistic	p-value	Coeff.	t-statistic	p-value
Intercept	0.025	1.202	0.116	0.130	6.484	0.000
$PMGR^2$	0.198	2.352	0.010	-0.121	-1.909	0.029
SIZE	-0.044	-0.543	0.294	-0.220	-3.491	0.001
LEV	0.079	0.955	0.170	0.130	1.970	0.025
σNETWORTH	0.198	2.299	0.012	0.180	2.888	0.002
σLIQUIDITY	-0.100	-1.237	0.110	0.120	1.910	0.029
ROS	0.023	0.238	0.406	-0.061	-0.979	0.164
MB	0.255	2.417	0.008	0.214	3.584	0.000
CAP	-0.075	-0.924	0.177	-0.212	-3.432	0.001
INST	0.005	0.065	0.474	**-0.163**	**-2.681**	**0.004**
Adjusted R^2	0.177			0.159		
F-statistic	4.311			6.163		

Note: All variables are defined in previous sections. The p-values reported are one-tailed.

Table 14: Test of Clientele versus Monitoring Effects of Institutional Investors in the Context of Accrual Management Using Two-Stage Least Squares

N = 386

Two-stage least squares regressions

First stage

Estimation of the coefficients of the determinant variables of institutional stockholdings by using the following cross-sectional regression:

Model: $INST_i = \beta_0 + \beta_1 MV_{i-1} + \beta_2 DP_{i-1} + \beta_3 S\&P_i + \beta_4 PMGR_{i-1} + \varepsilon_i$

	β_0	β_1	β_2	β_3	β_4
Estimated coefficients:	0.463	0.00026	-0.00073	0.147	-0.295
Adjusted R^2	0.195				
F-statistic	24.270				

Second stage

Cross-sectional regression on abnormal accrual variations on predicted value of institutional stock ownership computed from the first-stage stage estimated from the first stage

Full model: $FLACAC_i = \beta_0 + \beta_1 LEV_i + \beta_2 \sigma LIQUIDITY_i + \beta_3 \sigma NETWORTH_i + \beta_4 ROS_i + \beta_5 MB_i + \beta_6 CAP_i + \beta_7 PINST_i + \beta_8 UNEXINST_i + \varepsilon_i$

	Reduced Model 1			Reduced Model 2			Full Model		
Variable	Coeff.	t-statistic	p-value	Coeff.	t-statistic	p-value	Coeff.	t-statistic	p-value
Intercept	0.083	5.582	0.000	0.040	6.630	0.000	0.085	5.680	0.000
LEV	0.059	1.164	0.123	0.076	1.493	0.078	0.064	1.266	0.103
σLIQUIDITY	0.105	2.091	0.019	0.113	2.257	0.012	0.095	1.909	0.028
σNETWORTH	0.170	3.431	0.001	0.194	3.954	0.000	0.167	3.416	0.000
ROS	-0.063	-1.223	0.110	-0.084	-1.640	0.051	-0.054	-1.045	0.198
MB	0.220	4.450	0.000	0.208	4.210	0.000	0.216	4.425	0.000
CAP	-0.129	-2.646	0.004	-0.125	-2.558	0.060	-0.137	-2.831	0.003
PINST	**-0.159**	**-3.153**	**0.001**				**-0.162**	**-3.242**	**0.001**
UNEXINST				**-0.130**	**-2.707**	**0.004**	**-0.134**	**-2.810**	**0.003**
Adjusted R^2	0.122			0.116			0.138		
F-statistic	8.647			8.225			8.691		

Note: p-values reported are one-tailed. All variables are defined in previous sections.

8. ROBUSTNESS EVALUATION

8.1. Test of Institutional Effects on Accrual Management in a Dummy Variable Setting

In this section, I describe tests of institutional influence on a firm's accrual management activity in a dummy variable setting. Instead of applying continuous variables like the ones in the main analysis as reported in previous sections, I use dummy variables to capture different institutional ownership levels and examine their relative impacts on a firm's accrual management activity.

I predict that different proportions of institutional ownership in a firm's shareholder mix have differential influence on the abnormal accrual generation activities. Institutions with a large ownership in a firm are likely to trigger more voluntary disclosures by firm managers (Hessel and Norman 1992) and large-scale development of sophisticated, private information from many different sources. Moreover, the larger the ownership position in an entity, the greater is the economic stake involved providing greater incentives to oversee management's choice of using certain accounting techniques in financial statement preparation.

In order to examine the differential impact of institutional shareholding, I conduct two types of dummy variable tests. The first test involves the formation of two levels of institutional ownership based on median shareholdings. I assign a dummy variable with a value of 1 to firms having more than the median institutional shareholdings (MEDIH) when firms are arranged in a lowest to highest order of institutional stock ownership, and 0 to firms having less than the median institutional shareholdings. An interaction variable with a concentration dummy is also used to capture the additional effect of concentrated institutional stockholdings.

The relevant regression model is described below:

$$FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma LIQUIDITY_i + \beta_5 \sigma NETWORTH_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 MEDIH_i + \beta_{10} [MEDIH_i * CONC_i] + \beta_{11} [MEDPIH_i * S\&P_i] + \varepsilon_i \quad \text{.....(9)}$$

For the second test, I form quintiles of firms based on institutional stock ownership when firms are arranged in a lowest to highest order. For each fiscal year, the lowest 20% of the observations is assigned to the first quintile (Q1), the next 20% to the second quintile (Q2) and so on. In the process, the highest 20% of the observations is placed in the fifth quintile (Q5). A score is assigned to a firm based on the institutional quintile ranking in each year: 1 for Q1, 2 for Q2, 3 for Q3, 4 for Q4 and 5 for Q5. Then, I compute the mean eight-year score (from 1991 to 1998) for each firm. I reassign the firms to quintiles on the basis of the mean eight-year scores, the lowest 20% to the first quintile, the second lowest to the second quintile and so forth.[40]

Using these quintiles I examine the impact of institutional holdings in conjunction with ownership concentration by using dummy variable classifications as follows:

1) CONPIH takes the value of 1 for firms with high institutional ownership levels (i.e., firms in quintiles 4 and 5), where at least one of the institutions owns 5% or more of the outstanding shares and 0 otherwise.[41]
2) HPIH takes the value of 1 for all firms (i.e., quintiles 4 and 5) with a high level of institutional ownership and 0 otherwise.[42]

[40] Different forms of institutional shareholdings constructed on the basis of ownership levels are expected to provide better understanding of the tests of institutional influence on a firm's accrual management activity. This relative setting is applied based on the assumption that influence may not be linearly correlated with the percentage shareholdings. Therefore, the tests using different institutional ownership constructs are expected to exhibit more precisely the differing institutional influence on firms' accrual management activity.

[41] CONPIH is assigned to firms having concentrated institutional shareholdings (i.e., with 5% or more than 5% stockowners) for more than half of the sample period of 8 years.

3) MPIH takes the value of 1 for firms with a medium level of institutional ownership (i.e., quintile 3) and 0 otherwise.

A negative relation between HPIH and the level of discretionary accrual activity is expected if institutional oversight dampens managerial enthusiasm for employing discretionary accruals. If CONPIH is also negative then this dampening effect is heightened when individual institution holdings are sizable (i.e., 5% or more). A negative MPIH effect, if it occurs, implies that institutional stock ownership is influential even when it is not particularly large.

$$FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma LIQUIDITY_i + \beta_5 \sigma NETWORTH_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 CONPIH_i + \beta_{10} HPIH_i + \beta_{11} MPIH_i + \beta_{12} [CONPIH_i * S\&P_i] + \beta_{13} [HPIH_i * S\&P_i] + \beta_{14} [MPIH_i * S\&P_i] + \varepsilon_i \quad \text{.....(10)}$$

All variables are defined in previous sections and paragraphs.

Table 15 reports the results of cross-sectional tests in a dummy variable setting based on median institutional percentage shareholdings, the relative degree of institutional influence in firms having greater than median stockholdings compared to firms having less than median stockholdings. By using the reduced model 1, I find evidence that in the presence of other variables, the coefficient of MEDIH is negative and statistically significant at the 5% level (coefficient: -0.099; t-statistic: -1.943; p-value: 0.026). By using the reduced model 2, I separately estimate the effects of MEDIH having concentrated institutional shareholdings. The coefficient is again found to be negative and statistically significant at the 5% level (coefficient: -0.092; t-statistic: -1.887; p-value: 0.030). Therefore, I find that both the MEDIH dummy (in the reduced model 1) and the MEDPIH dummy with concentrated institutional shareholdings (in the reduced model 2)

[42] CONPIH is designed to capture the incremental effect over and above HPIH.

provide significantly negative shifts to the intercept when considered on a stand-alone basis in the presence of other control variables. Most control variables are significant as per predicted directions. The results support the predictions made in the first and second hypotheses. Firms having greater than the median institutional shareholdings experience more institutional monitoring and as a result, have less flexibility in generating abnormal accruals compared to firms having less than the median institutional shareholdings. Further, firms having greater than the median institutional stockholdings with concentration experience more institutional monitoring and as a result, have less flexibility in generating abnormal accrual than firms having greater than the median institutional shareholdings without any concentration and firms having less than the median institutional shareholdings. The test results are consistent with the findings of Chung et al. (2002) that substantial investment in a firm makes the institutions more inclined to monitor managers and deter them from opportunistically manipulating accruals. Consistent with the test results in the continuous variable setting (as reported in Table 8), I find significant concentrated institutional effects when the concentration construct is separately considered in the regression analysis.

However, when I include both dummy variables, MEDIH and MEDIH*CONC, in the same model they become insignificant as found by applying the reduced model 3. It seems that since both the variables have almost the same coefficients when considered separately, they are almost equally powerful in providing shift to the intercept. As a result, when they are jointly considered in a model, they neutralize each other's effect.

By using the reduced model 4, I estimate the additional effects of the S&P dummy in the presence of MEDIH and other control variables. It is observed that the

coefficient of MEDIH is negative and statistically significant at the 5% level (coefficient: -0.114; t-statistic: -1.894; p-value of 0.029). But the interaction variable with S&P is not significant even though the coefficient is positive. This finding is consistent with the results of the main analyses that the S&P dummy fails to capture any differential institutional effects between the two categories of firms once the main effect of institutional stockholdings is considered in the same model. Most of the control variables are significant in the predicted directions.

In Table 16, I report the test result separately for the institutional effects with concentrated shareholdings on accrual management level in a mutually exclusive dummy variable setting. I include two mutually exclusive constructs of institutional ownerships, one dummy variable for firms having greater than the median institutional ownership with concentrated stockholdings (CONMEDIH) and the other for firms having greater than the median institutional ownership without concentrated stockholdings (NCONMEDIH) for better comprehension of the relative impacts of concentrated stockholdings. The CONMEDIH is found to have greater and significantly negative effects on managerial flexibility in generating accruals relative to NCONMEDIH in the presence of other control variables. The coefficient of CONMEDIH is -0.103 (t-statistic: -1.997; p-value: 0.024), while that of NCONMEDIH is -0.031 (t-statistic: -0.606; p-value: 0.273). Firms having greater than the median institutional stockholdings with concentration experience significantly greater institutional influence on their accrual management activities relative to firms having greater than the median institutional stockholdings without concentration. This test result, therefore, suggests that

concentrated institutional stockholdings have greater mitigating effects on accrual management levels providing support to the prediction made in the second hypothesis.

Table-17 presents the test results in the case of dummy variable classifications based on quintiles of institutional stock ownership. By using the reduced model 1, I report the regression results when CONPIH and MPIH dummy variables are used as independent variables. It is observed that in the presence of other control variables, CONPIH is negatively significant at the 5% level (coefficient: -0.101; t-statistic: -1.883; p-value: 0.031) but MPIH is not statistically significant (coefficient: -0.057). Most control variables are significant in the predicted directions. The result suggests that CONPIH provides significantly negative shift to the intercept, which means that firms in the top two quintiles of institutional ownership having concentrated holdings experience more mitigating effects on accrual management relative to firms in the top two quintiles without having concentrated institutional shareholdings and to firms in the middle and lower two quintiles. This result supports the prediction of a concentration effect made in the second hypothesis. However, I do not find any additional institutional effect for firms in middle quintile relative to firms in the lower two quintiles.

By using the reduced model 2, I estimate the effects of HPIH and MPIH as independent variables. The coefficient of HPIH is found to be negative and statistically significant at the 5% level (coefficient: -0.109; -1.892; p-value: 0.030) but the coefficient MPIH is not significant (coefficient: -0.067; t-statistic: -1.224; p-value: 0.111). This result suggests that firms in the top two quintiles of institutional stock ownership experience greater institutional monitoring over accrual management relative to firms in the middle and lowest two quintiles of institutional stock ownership. The finding supports

the prediction of the first hypothesis. Most control variables are significant in the predicted directions.

By using the reduced model 3, I estimate the regression equation when CONPIH, HPIH and MPIH are considered together in the model. None of the independent variables are found to be significant. This is mainly due to the fact that these variables are collinear. Especially, the correlation coefficient between CONPIH and HPIH is extremely high and significantly positive (coefficient: 0.895 and p-value: 0.000), which is the reason that these variables become insignificant when simultaneously considered in the same regression analysis. Therefore, no additional information regarding the incremental effects of institutional shareholdings is observed at different ownership levels when these three ownership constructs are included together in the same model.

By using the full model, I estimate the effects of the interaction variables of the S&P dummy with CONPIH, HPIH and MPIH. None of the interaction variables is found to be significant, which is consistent with the previous test results that there is no additional institutional monitoring effect evident for the S&P 500 firms once the main effects of institutional stockholdings are accounted for in the model. Again, most control variables are significant in predicted directions.[43]

In Table 18, I present the test results when two mutually exclusive constructs of institutional ownership are considered for firms in the top two quintiles of institutional stock ownership: with concentrated shareholdings and without concentrated shareholdings This test is designed to specifically examine the concentration effects. I develop three institutional ownership constructs that are mutually exclusive to one

[43] With regard to all cross-sectional regressions reported in Table 15 to 18, the power of the models remains quite reasonable as the adjusted R^2 ranges between 15% and 16%.

another; first one, CONHPIH, denotes firms in the top two quintiles of institutional stock ownership having concentrated shareholdings, the second one, HPIH, denotes firms in the top two quintiles without having concentrated institutional shareholdings, and the third one, MPIH, denotes firms in the middle quintile of institutional ownership. The results shows that firms in the top two quintiles having concentrated stockholdings (CONHPIH) experience significantly greater institutional monitoring on accrual management than firms in the top two quintiles not having concentrated institutional stockholdings (HPIH) and firms in the middle quintile of institutional stockholdings (MPIH). The coefficient of CONHPIH is -0.111 (t-statistic: 1.956; p-value: 0.025), while the coefficient of HPIH is -0.026 and that of MPIH is -0.065. Both the coefficients are statistically insignificant. It is also interesting to note that firms in the middle quintile experience less institutional monitoring effects compared to firms in the top two quintiles having concentration and have relatively greater institutional influence relative to firms in the top two quintiles without having concentration. On an overall basis, I find support for the prediction that concentrated institutional ownership has greater mitigating effects on management's flexibility in generating abnormal accruals.

8.2. Cross-Sectional Tests of Institutional Influence on Accrual Management

The primary test in this study relates to the firm-specific variability in generating abnormal accruals during the sample period of eight years. I use average values of explanatory variables in the cross-sectional regressions in equations (3) through (5). In the main analysis, I examine the institutional influence on the overall accrual management levels indicated by management flexibility during the sample time-period.

Table 15: Cross-Sectional Regressions of Abnormal Accrual Variation on Institutional Stock Ownership and Other Control Variables in Dummy Variable Classification Setting on Median Institutional Percentage Shareholdings

N = 386

Full model: $FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma LIQUIDITY_i + \beta_5 \sigma NETWORTH_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 MEDIH_i + \beta_{10} [MEDIH_i * CONC_i] + \beta_{11} [MEDIH_i * S\&P_i] + \varepsilon_i$

	Reduced Model 1			Reduced Model 2			Reduced Model 3			Reduced Model 4		
Variable	Coeff.	t-stat.	p-value	Coeff.	t-stat.	p-value	Coeff.	t-stat.	p-value	Coeff.	t-stat.	p-value
Intercept	0.092	7.718	0.000	0.094	7.823	0.000	0.092	7.686	0.000	0.097	7.463	0.000
$PMGR^2$	-0.064	-1.228	0.110	-0.060	-1.170	0.122	-0.064	-1.231	0.109	-0.064	-1.238	0.119
SIZE	-0.234	-4.538	0.000	-0.246	-4.854	0.000	-0.238	-4.539	0.000	-0.245	-4.343	0.000
LEV	0.116	2.304	0.011	0.119	2.355	0.010	0.117	2.327	0.011	0.119	2.343	0.010
σLIQUIDITY	0.104	2.126	0.017	0.106	2.153	0.016	0.104	2.124	0.017	0.105	2.131	0.017
σNETWORTH	0.170	3.434	0.001	0.168	3.395	0.001	0.169	3.411	0.001	0.170	3.424	0.001
ROS	-0.045	-0.899	0.184	-0.051	-1.023	0.154	-0.047	-0.929	0.177	-0.047	-0.934	0.175
MB	0.232	4.798	0.000	0.230	4.741	0.000	0.231	4.763	0.000	0.233	4.809	0.000
CAP	-0.174	-3.547	0.000	-0.173	-3.536	0.000	-0.174	-3.546	0.000	-0.173	-3.537	0.000
MEDIH	**-0.099**	**-1.943**	**0.026**				-0.062	-0.628	0.265	**-0.114**	**-1.894**	**0.029**
MEDIH*CONC				**-0.092**	**-1.887**	**0.030**	-0.041	-0.427	0.335			
MEDIH*S&P										0.031	0.477	0.317
Adjusted R^2	0.160			0.159			0.158			0.158		
F-statistic	9.140			9.111			8.226			8.232		

Note: Dummy variable 1 assigned to firms having institutional stockholdings greater than sample median (MEDIH); 0 otherwise. All other variables are defined in previous sections. The reported p-values are one-tailed.

Table 16: Cross-Sectional Regression in a Dummy Variable Setting of Mutually Exclusive Institutional Ownership Constructs on Median Percentage Shareholdings

N = 386

Full model: $FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma LIQUIDITY_i + \beta_5 \sigma NETWORTH_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 CONMEDIH_i + \beta_{10} NCONMEDIH_i + \varepsilon_i$

	β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	β_8	β_9	β_{10}
Coefficient	0.092	-0.064	-0.238	0.117	0.104	0.169	-0.047	0.231	-0.174	**-0.103**	-0.031
t-statistics	7.688	-1.232	-4.543	2.328	2.124	3.409	-0.930	4.764	-3.544	**-1.997**	-0.606
p-value	0.000	0.110	0.000	0.010	0.017	0.001	0.177	0.000	0.000	**0.024**	0.273
Adjusted R^2	0.158										
F-statistic	8.231										

Note: One dummy variable 1 is assigned to firms having greater than median institutional stockholdings and also having concentrated institutional shareholdings (CONMEDIH) and another dummy variable 1 is assigned to firms having greater than median institutional stockholdings without concentrated shareholdings (NCONMEDIH); 0 otherwise.
CONMEDIH = MEDIH*CONC
NCONMEDIH = MEDIH - CONMEDIH
All variables are defined in previous sections. The p-values reported are one-tailed.

Table 17: Cross-Sectional Regressions of Abnormal Accrual Variation on Institutional Stock Ownership and Other Control Variables in Dummy Variable Setting on Quintiles of Institutional Percentage Shareholdings

N = 386

Full model: $FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 \sigma LIQUIDITY_i + \beta_5 \sigma NETWORTH_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i$
$\beta_9 CONPIH_i + \beta_{10} HPIH_i + \beta_{11} MPIH_i + \beta_{12} [CONPIH_i * S\&P_i] + \beta_{13} [HPIH_i * S\&P_i] + \beta_{14} [MPIH_i * S\&P_i] + \varepsilon_i$

	Reduced Model 1			Reduced Model 2			Reduced Model 3			Full Model		
Variable	Coeff.	t-stat	p-value	Coeff.	t-stat	p-value	Coeff.	t-stat	p-value	Coeff.	t-stat	p-value
Intercept	0.093	7.766	0.000	0.092	7.696	0.000	0.092	7.702	0.000	0.095	7.304	0.000
$PMGR^2$	-0.062	-1.197	0.161	-0.066	-1.267	0.103	-0.066	-1.257	0.105	-0.066	-1.252	0.106
SIZE	-0.235	-4.567	0.000	-0.226	-4.300	0.000	-0.229	-4.323	0.000	-0.251	-4.100	0.000
LEV	0.115	2.278	0.011	0.110	2.191	0.015	0.112	2.224	0.013	0.117	2.283	0.012
σLIQUIDITY	0.103	2.103	0.018	0.103	2.096	0.018	0.103	2.085	0.019	0.105	2.116	0.018
σNETWORTH	0.169	3.397	0.001	0.171	3.442	0.001	0.170	3.412	0.001	0.170	3.401	0.001
ROS	-0.052	-1.036	0.151	-0.046	-0.909	0.182	-0.048	-0.950	0.172	-0.051	-0.990	0.162
MB	0.231	4.762	0.000	0.234	4.825	0.000	0.232	4.781	0.000	0.234	4.784	0.000
CAP	-0.173	-3.521	0.001	-0.173	-3.526	0.000	-0.173	-3.526	0.000	-0.172	-3.501	0.001
CONPIH	**-0.101**	**-1.883**	**0.031**				-0.053	-0.489	0.313	-0.198	-0.873	0.192
HPIH				**-0.109**	**-1.892**	**0.030**	-0.060	-0.522	0.301	0.068	0.296	0.383
MPIH	-0.057	-1.097	0.136	0.067	-1.224	0.111	-0.065	-1.199	0.116	-0.084	-1.293	0.094
CONPIH*S&P										0.157	0.747	0.228
HPIH*S&P										-0.121	-0.555	0.290
MPIH*S&P										0.040	0.603	0.273
Adjusted R^2	0.157			0.157			0.156			0.151		
F -statistic	8.191			8.195			7.456			5.905		

All variables are already defined in previous sections.

Table 18: Cross-Sectional Regression in a Dummy Variable Setting of Mutually Exclusive Institutional Ownership Constructs on Quintiles of Institutional Percentage Shareholdings

N = 386

Full model: $FLACAC_i = \beta_0 + \beta_1 PMGR^2_i + \beta_2 SIZE_i + \beta_3 LEV_i + \beta_4 sLIQUIDITY_i + \beta_5 sNETWORTH_i + \beta_6 ROS_i + \beta_7 MB_i + \beta_8 CAP_i + \beta_9 CONHPIH_i + \beta_{10} HPIH_i + \beta_{11} MPIH_i + \varepsilon_i$

	β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	β_8	β_9	β_{10}	β_{11}
Coefficient	0.093	-0.066	-0.230	0.112	0.103	0.170	-0.048	0.232	-0.173	**-0.111**	-0.026	-0.065
t-statistics	7.705	-1.257	-4.239	2.226	2.084	3.410	-0.952	4.784	-3.523	**-1.956**	-0.505	-1.196
p-value	0.000	0.105	0.000	0.014	0.019	0.001	0.171	0.000	0.000	**0.025**	0.307	0.116

Adjusted R^2	0.156
F-Statistic	7.461

Note: Mutually exclusive dummy variables; the first dummy variable assigned to firms in the top two quintiles of institutional ownership having concentrated shareholdings, the second dummy variable assigned to firms in the top two quintiles of institutional stock ownership, and the third one assigned to firms in the middle quintile of institutional stock ownership; 0 otherwise.
CONHPIH refers to firms in the top two quintiles of institutional stock ownership having institutions with concentrated shareholdings.
HPIH refers to firms in the top two quintiles of institutional stock ownership not having institutions with concentrated shareholdings.
MPIH refers to firms in the middle quintile of institutional stock ownership.
All other control variables are already defined in previous sections.

The tests are based on the premise that multi-year accrual management levels (as measured by variability in abnormal accrual generation) during a specific time-period can better be ascertained on a firm by firm basis, and the association tests between such a measure of accrual management and institutional stockholdings in a cross-sectional setting will better reflect the institutional influence on the level of accrual management.

However, previous studies of accrual management have used either year-wise cross-sectional data or pooled time-series cross-sectional data in regression analyses to perform test of accrual management in a specific economic context or to examine the effects of any governance factors.[44] To provide comparability to previous studies, it is necessary to complement the aggregate approach of the main analysis with year-wise cross-sectional tests as well as with tests using pooled cross-sectional data over the years. Moreover, during the sample period of eight years, the operating and economic circumstances of some firms might change leading to a change in the nature of their accrual management activities. Further, the institutional stockholdings and their influence on firms' financial and operating decisions have grown over the years. Therefore, the institutional influence on firms' accrual management activities may not be uniform and of the same magnitude throughout the sample period. Since the relationship between institutional stock ownership and earnings management activity may vary over the years in the sample time-period, it is interesting to examine the stability of this relationship during the sample time-period. A year-wise cross-sectional test is expected to capture the time-series change in the relationship between institutional stock ownership and a firm's accrual management level.

[44] For example: Cahan 1992; Warfield et al. 1995; Hall and Stammerjohan 1997; Han and Wang 1998; Becker et al. 1998; Rajgopal et al. 1998; Ericson and Wang 1999; Gul et al. 2002; Klein 2002.

In this section, I conduct two kinds of regression tests: the first test is done by using a pooled cross-sectional regression model by stacking the annual data across firms over the sample time-period, and the second test is performed annually by using the year-wise cross-sectional data.

- Pooled cross-sectional regression analysis

With the pooled cross-sectional data, I replicate the analyses in the same way as I perform in the main analysis to test the predictions regarding institutional effects made in various hypotheses. To test the first hypothesis of general institutional monitoring effects on the accrual management level, I employ the following cross-sectional model:

$$|CACC_{it}| / TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} INST_{it} + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (11)$$

where, $|CACC_{it}|$ = Absolute non-cash working capital accruals computed as per equation (1) for firm i in year t.[45]

The other variables are already defined in previous sections. The explanatory variables in the regression represent the independent variable, INST, and the other control variables. The control variables account for the normal level of the magnitude of accruals so that the relationship between the absolute abnormal component accruals and

[45] I use the absolute current accruals as dependent variable because in a general setting, I am interested in examining the extent of managerial discretion in generating abnormal accruals. The absolute abnormal accruals reflect the level of discretion/flexibility available to manage earnings and serves to measure the extent to which earnings are managed by pursuing certain accounting techniques. In the regression model, I include various control variables to account for the normal level of accruals so that the relationship between the magnitude of abnormal accruals and institutional stock ownership can be examined. The test is performed to examine how the magnitude of abnormal accruals is impacted by the institutional percentage stockholdings.

institutional investor stockholdings can be examined. The prediction in this case is that β_{12} is significantly less than zero.

In order to test the second hypothesis, I use the following regression models to examine the effects of various concentration measures.

1) To examine the concentration effect by using a dummy variable to reflect the concentration construct.

   The relevant regression model is described below:

$$|CACC_{it}| /TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} CONC_{it} + \varepsilon_{it} \ldots\ldots\ldots (12)$$

CONC is a dummy variable 1 assigned to firm-years with at least one institutional investor owning 5% or more of outstanding common stock and 0 otherwise. The prediction in this case is that β_{12} is significantly less than zero. CONC is expected to provide a negative shift to the intercept. The intercept of firms having concentrated institutional shareholdings is $\beta_0 + \beta_{12}$ while that of firms not having concentrated institutional shareholdings is β_0. All other variables are already defined in previous sections.

2) To examine the incremental effects of concentrated institutional shareholding over and above the general institutional effects on accrual management.

   The relevant cross-sectional regression models is as follows:

   First model:

$$|CACC_{it}| /TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} INST_{it} + \beta_{13} CONC_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (12A)$$

The prediction is that β_{13} is significantly less than zero.

Second model:

$$|CACC_{it}| /TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} INST_{it} + \beta_{13} CONC_{it} + \beta_{14} (INST_{it} * CONC_{it}) + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots (12B)$$

The variables are defined in previous sections. The prediction here is that β_{13} and β_{14} are significantly less than zero. CONC variable is expected to provide a negative shift to the slope coefficient of INST.

3) To examine the concentration effects by using various concentration measures.

The relevant cross-sectional regression model is as follows:

$$|CACC_{it}| /TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} X_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots (12C)$$

where, X = CONPERC or MULTCON or AVGHOLD as the case may be. The other variables are already defined in previous sections. The prediction here is that the coefficient of X, β_{12}, is significantly less than zero.

In order to test the third hypothesis regarding differential institutional effects on accrual management of the two different categories of firms, the S&P 500 and the non S&P 500, I employ the following two approaches as done in the main analysis.

1) To test the differential institutional effects by using a dummy variable, S&P, to examine difference in institutional influence on accrual management in the two sets of firms.

The relevant cross-sectional regression model is described below:

$$|CACC_{it}|/TA_{it-1} = \beta_0 + |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} INST_{it} + \beta_{13} S\&P_{it} + \beta_{14} (INST_{it} * S\&P_{it}) \ldots\ldots\ldots\ldots (13)$$

The prediction is that β_{14} is significantly different from zero. The S&P dummy is expected to provide a significant shift to the slope coefficient of the INST variable. Therefore, $\beta_{12} + \beta_{14}$ is statistically different from β_{12}.

2) To test the difference in institutional effects in the S&P 500 and the non S&P 500 firms by separately estimating equation (11) for these two sets of firms.

The prediction in this case is that the coefficient of INST is different for the two categories of firms, S&P 500 and non S&P 500.

Table 19 reports the cross-sectional regression results by estimating the equation 11. The number of firm-year observations is 3088 (for 386 firms over an eight-year period). By using the reduced model 1, I examine the relationship between absolute accruals and various control variables by regressing ABSCACC on all control variables. Most control variables are significant in the predicted directions. The adjusted R^2 is 0.157, which is comparable to that reported in earlier studies of earnings management (Warfield et al. 1995; Becker et al. 1998; Gul et al. 2002). By using the reduced model 2, I conduct a univariate test by regressing absolute accruals on the institutional percentage stockholdings. The coefficient of INST is found to be negative and significant at the 1% level (t-statistic: -3.053; p-value: 0.001). By using the full model, I examine the association between absolute abnormal accruals and institutional ownership in the presence of other control variables. The coefficient of INST still remains significantly negative when the control variables are also included in the model (t-statistic: -1.803; p-value: 0.035). The result supports the prediction of the first hypothesis that institutions

actively monitor to reduce the level of abnormal accruals and is consistent with the result reported in the main analysis.

Table 20 reports various test results with respect to the effects of concentrated institutional shareholdings. Panel A presents the test results by estimating the equations 12, 12A and 12B. By using the reduced model 1, I examine the effects of CONC, a dummy variable formed as a construct of concentrated stockholdings by institutions similar to the main analysis. I find that the coefficient of CONC is negative and significant at the 5% level (t-statistic: -2.246; p-value: 0.013); the result indicates that firms with concentrated institutional stockholdings experience more mitigating institutional influence in accrual management, a finding consistent with that of the main analysis and supports the prediction of the second hypothesis. Most control variables are significant in the predicted directions. By using the reduced model 2, I examine the effect of CONC in presence of INST and other control variables. It is observed that when INST is included in the regression, CONC still remains significantly negative at the 10% level (t-statistic: -1.609; p-value: 0.054). However, INST is found to be insignificant though the sign of its coefficient is negative (p-value: 0.185). The result is different from that reported in the main analysis that the presence of the influential INST variable makes the CONC variable insignificant. The difference may be due to the artifacts of the regression model used in the main analysis and the one used in the pooled cross-sectional time-series design. In this cross-sectional test, I find evidence of an additional concentration effect on accrual management in the presence of INST, which supports the prediction of the second hypothesis.

Table 19: Pooled Cross-Sectional Regressions of Absolute Current Accruals on Institutional Stockholdings and Other Control Variables

N = 3088

Full model: $|CACC_{it}| / TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} INST_{it} + \varepsilon_{it}$

	Reduced Model 1			Reduced Model 2			Full Model		
Coefficient	Value	t-stat.	p-value	Value	t-stat.	p-value	Value	t-stat.	p-value
β_0	0.064	9.131	0.000	0.071	17.757	0.000	0.065	9.288	0.000
β_1	-0.267	-6.152	0.000				-0.267	-6.146	0.000
β_2	0.546	12.667	0.000				0.546	12.688	0.000
β_3	0.110	6.048	0.000				0.110	6.060	0.133
β_4	-0.021	-1.251	0.105				-0.028	-1.628	0.052
β_5	-0.107	-5.964	0.000				-0.100	-5.483	0.000
β_6	0.078	4.581	0.000	Reduced			0.078	4.549	0.000
β_7	0.051	2.997	0.001				0.051	2.998	0.001
β_8	0.004	0.222	0.413				0.004	0.246	0.403
β_9	0.070	4.069	0.000				0.072	4.183	0.000
β_{10}	0.003	0.160	0.437				0.003	0.208	0.418
β_{11}	-0.085	-4.992	0.000				-0.086	-5.043	0.000
β_{12}				**-0.055**	**-3.053**	**0.001**	**-0.032**	**-1.803**	**0.035**
Adjusted R^2	0.157			0.003			0.158		
F-statistic	53.331			9.320			49.194		

Note: All variables are defined in previous sections. The reported p-values are one-tailed.

Table 20: Pooled Cross-Sectional Regression Analysis of Concentrated Institutional Shareholding Effects on Accrual Management

N = 3088

Panel A: Pooled Cross-Sectional Regression of Absolute Abnormal Accrual on Concentrated Institutional Shareholdings and Other Control Variables

Full model: $|CACC_{it}| / TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} CONC_{it} + \beta_{13} INST_{it} + \beta_{14} (INST_{it} * CONC_{it}) + \varepsilon_{it}$

	Reduced Model 1			Reduced Model 2			Full Model		
Coefficient	Value	t-stat.	p-value	Value	t-stat.	p-value	Value	t-stat.	p-value
β_0	0.075	9.380	0.000	0.075	9.416	0.000	0.077	9.692	0.000
β_1	-0.270	-6.212	0.000	-0.269	-6.195	0.000	-0.270	-6.231	0.000
β_2	0.549	12.745	0.000	0.549	12.739	0.000	0.550	12.773	0.000
β_3	0.109	5.992	0.000	0.109	6.008	0.000	0.107	5.898	0.139
β_4	-0.026	-1.510	0.066	-0.029	-1.655	0.049	-0.028	-1.606	0.054
β_5	-0.110	-6.131	0.000	-0.106	-5.689	0.000	-0.110	-5.877	0.000
β_6	0.082	4.792	0.000	0.081	4.715	0.000	0.082	4.772	0.000
β_7	0.050	2.928	0.002	0.050	2.941	0.001	0.051	3.033	0.001
β_8	0.004	0.255	0.400	0.004	0.262	0.496	0.004	0.252	0.400
β_9	0.069	4.021	0.000	0.070	4.083	0.000	0.071	4.113	0.000
β_{10}	0.002	0.143	0.443	0.003	0.172	0.431	0.004	0.246	0.403
β_{11}	-0.087	-5.055	0.000	-0.087	-5.069	0.000	-0.088	-5.143	0.000
β_{12}	**-0.038**	**-2.246**	**0.013**	**-0.030**	**-1.609**	**0.054**	**-0.121**	**-2.998**	**0.002**
β_{13}				-0.018	-0.893	0.186	**-0.068**	**-2.435**	**0.008**
β_{14}							**0.129**	**2.541**	**0.006**
Adjusted R^2	0.158			0.158			0.160		
F-statistic	49.372			45.632			42.909		

Panel B: Reported Coefficients of Various Measures of Concentrated Institutional Stockholdings from Pooled Cross-Sectional Regression

	Concentration of institutional stockholding measures		
	CONPERC	MULTCON	AVGHOLD
Coefficient	-0.019	-0.017	0.002
t-statistics	-1.148	-0.984	0.101
p-value	0.126	0.163	0.460

Note: The pooled model in equation 12C is estimated by including all control variables as described above and treating each measure of concentration as the independent variable to examine their effects separately on the magnitude of abnormal accruals.
All variables are defined in previous sections. The reported p-values are one-tailed.

Table 21: Pooled Cross-Sectional Regressions Testing the Institutional Shareholding Effects on Accrual Management in the S&P 500 and the Non S&P 500 Firms of the Full Sample

N = 3088

Full model: $|CACC_{it}| / TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} S\&P_{it} + \beta_{13} INST_{it} + \beta_{14} (INST_{it} * S\&P_{it}) + \varepsilon_{it}$

	Reduced Model 1			Reduced Model 2			Full Model		
Coefficient	Value	t-stat.	p-value	Value	t-stat.	p-value	Value	t-stat.	p-value
β_0	0.068	8.536	0.000	0.069	17.139	0.000	0.070	8.790	0.000
β_1	-0.267	-6.148	0.000				-0.266	-6.118	0.000
β_2	0.546	12.666	0.000				0.078	4.482	0.000
β_3	0.110	6.044	0.000				0.110	6.042	0.133
β_4	-0.021	-1.237	0.108				-0.029	-1.652	0.049
β_5	-0.109	-4.893	0.000				-0.107	-4.783	0.000
β_6	0.079	4.525	0.000				0.078	4.482	0.000
β_7	0.051	2.995	0.001				0.051	2.990	0.001
β_8	0.004	0.223	0.412				0.005	0.274	0.392
β_9	0.070	4.044	0.000				0.071	4.130	0.000
β_{10}	0.003	0.152	0.439				0.003	0.197	0.422
β_{11}	-0.085	-4.989	0.000				-0.085	-4.944	0.000
β_{12}	0.004	0.171	0.864*	**-0.215**	**-3.452**	**0.000***	-0.064	-1.064	0.288*
β_{13}				-0.031	-1.459	0.146*	**-0.047**	**-2.332**	**0.020***
β_{14}				**0.117**	**1.775**	**0.076***	0.086	1.412	0.158*
Adjusted R^2	0.157			0.014			0.158		
F-statistic	48.874			15.130			42.345		

Note: All variables are defined in previous sections.
*The reported p-values are two-tailed. All other p-values are one-tailed.

Table 22: Pooled Cross-Sectional Regressions to Test the Institutional Shareholding Effects on Accrual Management Separately for the S&P 500 and the Non S&P 500 Firms

Full model: $|CACC_{it}| / TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} INST_{it} + \varepsilon_{it}$

	N = 1120 S&P 500			**N = 1968** Non S&P 500		
Coefficient	Value	t-stat.	p-value	Value	t-stat.	p-value
β_0	-0.004	-0.369	0.356	0.085	7.748	0.000
β_1	0.092	1.642	0.050	-0.343	-6.177	0.000
β_2	0.276	4.964	0.000	0.604	11.020	0.000
β_3	0.016	0.552	0.290	0.129	5.675	0.033
β_4	0.035	1.199	0.116	-0.041	-1.906	0.028
β_5	0.005	0.156	0.438	-0.103	-4.614	0.000
β_6	0.083	2.877	0.002	0.086	3.944	0.000
β_7	0.105	3.737	0.000	0.092	3.945	0.000
β_8	-0.043	-1.508	0.066	0.011	0.462	0.322
β_9	0.118	3.878	0.000	0.061	2.848	0.002
β_{10}	0.082	2.722	0.004	-0.006	-0.275	0.392
β_{11}	-0.009	-0.314	0.377	-0.100	-4.657	0.000
β_{12}	**0.049**	**1.700**	**0.045**	**-0.045**	**-2.101**	**0.018**
Adjusted R^2	0.154			0.167		
F-statistic	18.039			33.758		

Note: All variables are defined in previous sections. The reported p-values are one-tailed.

Table 23: Annual Cross-Sectional Regressions of Absolute Abnormal Accruals on Institutional Stockholdings and Other Control Variables

N = 386

Full model:

$$|CACC_{it}| / TA_{it-1} = \beta_0 + \beta_1 |(\Delta REV_{it} - \Delta REC_{it})| / TA_{it-1} + \beta_2 |(\Delta COGS_{it} + \Delta INV_{it})| / TA_{it-1} + \beta_3 |\Delta OCF_{it}| / TA_{it-1} + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} INST_{it} + \varepsilon_{it}$$

		1991	1992	1993	1994	1995	1996	1997	1998
β_0	Coeff.	0.056	0.105	0.077	0.085	0.080	0.118	0.063	0.019
	t-statistic	3.287	5.273	3.075	4.484	3.795	3.803	3.500	0.920
	p-value	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.179
β_1	Coeff.	-0.159	0.083	-0.437	-0.569	-0.337	-0.336	-0.712	0.029
	t-statistic	-1.256	0.769	-3.267	-4.051	-3.303	-2.883	-3.962	0.287
	p-value	0.105	0.221	0.001	0.000	0.001	0.002	0.000	0.387
β_2	Coeff.	0.523	0.167	0.704	0.915	0.568	0.545	0.957	0.359
	t-statistic	4.158	1.570	5.420	6.453	5.623	4.608	5.362	3.614
	p-value	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000
β_3	Coeff.	0.091	-0.007	0.184	0.110	0.093	0.121	0.141	0.092
	t-statistic	1.840	-0.118	3.577	2.336	1.783	2.040	2.781	1.795
	p-value	0.034	0.453	0.090	0.010	0.038	0.021	0.003	0.036
β_4	Coeff.	-0.050	-0.064	-0.065	-0.025	-0.026	-0.033	-0.028	0.001
	t-statistic	-1.017	-1.229	-1.402	-0.553	-0.522	-0.669	-0.568	0.022
	p-value	0.155	0.110	0.081	0.280	0.301	0.252	0.285	0.490

Table 23 (Continued)

		1991	1992	1993	1994	1995	1996	1997	1998
β_5	Coeff.	-0.067	-0.216	-0.065	-0.200	-0.152	-0.164	-0.124	0.007
	t-statistic	-1.297	-3.627	-1.270	-3.713	-2.769	-2.845	-2.354	0.150
	p-value	0.100	0.000	0.102	0.000	0.003	0.002	0.009	0.440
β_6	Coeff.	0.017	0.040	0.137	0.085	-0.008	0.153	0.080	0.018
	t-statistic	0.366	0.823	2.933	1.927	-0.161	3.049	1.600	0.343
	p-value	0.357	0.205	0.002	0.028	0.436	0.001	0.055	0.366
β_7	Coeff.	-0.057	-0.035	0.105	0.245	0.042	-0.066	-0.030	-0.041
	t-statistic	-1.049	-0.673	2.357	5.624	0.788	-1.361	-0.535	-0.673
	p-value	0.147	0.250	0.009	0.000	0.216	0.087	0.298	0.250
β_8	Coeff.	0.093	-0.037	0.227	0.059	0.017	0.062	0.015	-0.055
	t-statistic	1.674	-0.696	5.042	1.245	0.331	1.153	0.272	-0.887
	p-value	0.047	0.244	0.000	0.107	0.370	0.125	0.393	0.188
β_9	Coeff.	0.078	0.044	0.055	0.160	0.058	0.047	0.128	0.021
	t-statistic	1.587	0.872	1.237	3.653	1.149	0.905	2.550	0.391
	p-value	0.056	0.192	0.109	0.000	0.126	0.183	0.055	0.348
β_{10}	Coeff.	0.042	0.012	-0.190	-0.024	0.002	0.004	0.095	-0.008
	t-statistic	0.909	0.238	-4.014	-0.557	0.042	0.087	1.889	-0.175
	p-value	0.182	0.406	0.000	0.289	0.483	0.465	0.030	0.430
β_{11}	Coeff.	0.016	-0.008	-0.082	-0.117	-0.116	-0.149	-0.078	-0.116
	t-statistic	0.346	-0.159	-1.817	-2.582	-2.314	-2.605	-1.501	-2.331
	p-value	0.364	0.476	0.035	0.005	0.010	0.005	0.067	0.010

Table 23 (Continued)

		1991	1992	1993	1994	1995	1996	1997	1998
* β_{12}	Coeff.	**-0.100**	**-0.070**	**-0.099**	0.007	0.039	**-0.066**	-0.11	**0.091**
	t-statistic	**-1.962**	**-1.293**	**-2.081**	0.156	0.767	**-1.320**	-0.229	**1.916**
	p-value	**0.025**	**0.098**	**0.019**	0.438	0.222	**0.094**	0.409	**0.028**
Adjusted R^2		0.189	0.112	0.282	0.312	0.124	0.139	0.145	0.185
F-statistic		8.468	5.039	13.583	15.545	5.550	6.190	6.456	8.271

Note: All variables are defined in previous sections. The reported p-values are one-tailed.

By using the full model, I estimate the concentration effects by including an interaction variable, INST*CONC. The result shows that in the presence of all control variables, CONC, INST and the interaction variable are all significant at the 1% level (with p-values of 0.002, 0.008 and 0.006 respectively). This result is somewhat different from the one reported in the main analysis. The interesting thing is that the coefficient of the interaction variable is significantly positive. For firms with concentrated institutional stockholdings, the coefficient value for the total institutional effect is (-0.068 + 0.129) = 0.61 while for firms not having any concentrated shareholdings by institutions, the coefficient value is -0.068. It is evident that the mitigating influence of institutions is greater in firms without concentrated institutional stockholdings as revealed by the test results, which is counterintuitive and contrary to the results of the main analysis. One interpretation is that firms with concentrated shareholdings have lower magnitudes of abnormal accruals, which may be due to some unknown firm-specific factors in the study and not due to institutional monitoring. This explanation contradicts the basic premise underlying the concentration hypothesis that concentrated shareholdings are an essential component of corporate governance in that they increase the economic stake of investors and provide greater incentives to monitor management in their policy decisions regarding accounting or other matters. Another reason for such a conflicting result is different structures of the regression models used in these two types of settings, i.e., in the main analysis, the dependent variable, FLACAC, estimated at an individual firm level and the average values of independent variables are used to examine the regression relationship; however, in the pooled cross-sectional time-series setting, I stack firm-year data to study the institutional effect on cross-sectional differences in abnormal current accruals.

Further research in this direction is warranted to look more thoroughly into this area of anomaly and the reasons thereof. Moreover, further refinement may be required for estimating concentration construct that would more effectively and precisely reflect its effect on accrual management. As a whole, I find some support for the second hypothesis from this pooled cross-sectional setting although some portion of the results conflict with the basic notion of corporate governance.

Panel B of Table 20 reports the test results from estimating the equation 12C with respect to various concentration measures. I find that none of these measures, CONPERC, MULTCON or AVGHOLD are statistically significant in the presence of other control variables.[46]

Table 21 presents the test results of institutional effects on accrual management for the two categories of firms, the S&P 500 and the non S&P 500 in the sample by estimating the equation 13. By using the reduced model 1, I replicate the regression to estimate the effect of the S&P dummy in the presence of the control variables only. Like the results reported in the main analysis, I find that the S&P dummy is not significant. By using the reduced model 2, I examine the differential effects of institutional monitoring on accrual management in the two sets of firms. The coefficient of the S&P dummy is negative and highly significant (t-statistic: -3.452; p-value: 0.000) indicating that the general level of abnormal accrual is lower in the S&P 500 firms. INST is found to be insignificant (p-value: 0.146). But the interactive variable, INST*S&P, is found to be

[46] In all the pooled cross-sectional tests, I also estimate the regression models by including year dummy variables for eight years to capture any year-specific effects and to reduce the possibility of serial dependence among residuals that may arise from the effects of common year-specific factors. None of the year dummy variables is found to be significant. The basic results remain unaltered but most of the coefficients become more robust. Moreover, I find that when the year-specific effects are controlled in this manner, the coefficient of CONPERC has become significant at 10% level (coefficient: -0.022; t-statistic: -1.268; p-value: 0.100).

significant at the 10% level (p-value: 0.076). The coefficient value for the S&P 500 firms regarding the institutional effect is (-0.031 + 0.117) = 0.086 while that for the non S&P 500 firms is -0.031. It is evident therefore that the institutional monitoring effect is largely moderated in the S&P 500 firms compared to the non S&P 500 firms. The result changes when I estimate the differential institutional effects for the two categories of firms in presence of other control variables by using the full model. Again, the coefficient of S&P is negative but not significant (with p-value of 0.144). INST is significant (p-value: 0.020) but the interaction variable, INST*S&P, is found to be insignificant (p-value: 0.158). So, there is a difference in the institutional monitoring effect on accrual management for the two categories of firms in the sample. But the evidence is inconsistent across the models. The differential institutional effect as reflected by the interactive variable disappears in the presence of all control variables in the regression. Hence to better comprehend the institutional effects in the two categories of firms, I estimate the regression equation 11 separately for the S&P 500 and the non S&P 500 firms.[47]

Table 22 exhibits the test results by estimating the equation 11 separately for the S&P 500 and the non S&P 500 firms. It appears that for the S&P 500 firms, the coefficient of INST is positive and significant at the 5% level (p-value: 0.045) whereas for the non S&P 500 firms, the coefficient of INST is negative and significant at the 5%

[47] I also estimate the cross-sectional regressions as described in the equations 11 to 13 by using fixed-effects model to control for firm-specific effect in the regressions. In the models, I control for the firm-specific effects by introducing dummy variable to represent each firm. I find that in most cases the results are not significant, which indicates that the relationship between institutional investor shareholdings and magnitude of abnormal accruals is basically driven by intertemporally stable firm-specific factors. Controlling such factors makes the institution's effect less powerful or insignificant in the cross-sectional setting. This finding amplifies the basic premise underlying the main analysis of this study that the analysis of accruals should be made at the individual firm level to properly capture the institutional investor influence on management's decision to make accrual adjustments in order to manage earnings.

level (p-value: 0.018) in the presence of all control variables. The result is consistent with the main research finding that the effect of institutional monitoring on accrual management is different for these two categories of firms. The institutional monitoring effect on accrual management levels is found to be large and negative for the non S&P 500 firms while for the S&P 500 firms, the institutional effect is found to be significantly positive. The institutional monitoring effect on accrual management in the non S&P 500 firms is found to be consistent with the prediction and the result of the main analysis. It is, however, counter-intuitive that institutional percentage shareholdings are positively correlated with the magnitude of abnormal accruals for the S&P 500 firms. The accrual generation process and the effects of institutional monitoring on such process in the highly visible and large capitalization firms like the S&P 500 firms therefore need to be further examined, preferably at the individual firm level, which suggests a future research avenue in this direction.

- Annual cross-sectional regression tests

Table 23 reports the results of annual cross-sectional regressions of absolute accruals on institutional percentage shareholdings and other control variables. The coefficients of INST are generally found to be negative (in five out of eight years, INST coefficients are negative), and in four out of eight years, they are statistically significant. It is also observed that compared to the latter part of the sample period, in the earlier part firms experience greater institutional monitoring. The annual regression tests reveal that over the time-period from 1991 to 1998, there is a change in the cross-sectional relationship between institutional stock ownership and magnitude of abnormal accruals. Furthermore, I find that the overall power of the cross-sectional accrual model has

declined over the sample time-period as revealed by the adjusted R^2. For the first four years, the average adjusted R^2 is 22.37% while for the last four years it is 14.83%. It seems that the accrual generation process of the firms in the sample has undergone change during the time-period under study as the explanatory power of the determinant variables accounting for the normal level of accruals have declined over time. As a whole, based on the main analysis as well as the pooled cross-sectional test, it is evident that institutions, in general, have provided active monitoring on the accrual management of the sample firms during the time-period under study.

8.3. Institutional Monitoring Effects on Generation of Positive Abnormal Accruals

Prior literature argues that institutional investors are transient in nature and formulate their investment strategies based on short term gains because, as Greaves (1988) suggests, institutions cannot afford to be far-sighted because managers managing investment funds are reviewed and rewarded on the basis of quarterly, or at most, annual investment performance. Potter (1992) opines that institutional investors are overly concerned about short-term earnings. Bushee (2000) finds evidence that transient institutional ownership in a firm is positively and significantly associated with over-weighting of near-term expected earnings and under-weighting of long-term earnings. In other words, firm-values captured in near-term earnings are positively associated with transient institutions' ownership levels, and this phenomenon leads to the temporary mispricing of stocks leading to significant abnormal returns in subsequent periods.

It follows, therefore, that such a short-term earnings preference of a section of large blockholders can create pressure on firm managers to present decent profit numbers to maintain or increase firm value in the market, or, at least to prevent temporary stock

price decline that may result from institutional investors' large-scale selling off of their stockholdings in response to a less than expected earnings performance. Generating positive abnormal accruals is one of the convenient ways of managing earnings upward in these situations. Moreover, Dechow and Skinner (2000) suggest that due to the increasing importance of stock market valuations in 1990s, managers became overly concerned about their firm values in the market and their relations to the key accounting numbers such as earnings. Therefore, it is more probable that under pressure to meet or beat certain earnings benchmarks, managers resort to upward accrual management by generating positive abnormal accruals.

Besides, there are certain incentives for managing income upward rather than downward such as compensation, debt-covenant violations etc. In those cases, managers are more likely to generate income increasing abnormal accruals to achieve their economic objectives rather than income decreasing abnormal accruals. Therefore, there is likelihood that positive abnormal accruals are more commonly used tools at the hands of managers to achieve their economic objectives rather than negative abnormal accruals. In view of this discussion, it is interesting to examine whether institutions, as a whole, provide any mitigating influence on the process of generating positive accruals, or, whether they pressure managers to resort to managing accruals upward.

In Table 24, I present test results on the association between positive abnormal accruals and institutional ownership using the same pooled cross-sectional model as described in the equation 11 with the exception that in this case, instead of including all observations, I consider the firm years having positive current accruals. The dependent variable of interest is, therefore, positive accounting accruals instead of absolute value of

the total current accruals. It is noteworthy that the number of firm-years having positive accruals is 1759, which is 57% of the total sample observations. The proportion of firm-years having positive accruals is greater than that of firm-years having negative accruals.

By using the reduced model, I estimate the relationship between positive abnormal accruals and the institutional percentage shareholdings in a univariate test. The coefficient of INST is found to be negative and highly significant (coefficient: -0.070; t-statistic: -2.941; p-value: 0.002). By using the full model, I examine the institutional shareholding effect on positive abnormal accruals in the presence of all control variables that account for the level of normal accruals. INST is still found to be significant at the 10% level (t-statistic: -1.562; p-value: 0.060). The results support the first hypothesis suggesting that institutions provide mitigating influences on the level of positive abnormal accruals in a firm.

In Panel A of Table 25, I present various test results with respect to the effects of concentrated institutional shareholdings on the level of positive abnormal accruals. By using the reduced model 1, I examine the effects of the CONC dummy. I find that CONC is negative and highly significant at the 1% level (t-statistic: -2.590; p-value: 0.005). Most of the control variables are significant in the predicted directions. By using the reduced model 2, I examine the concentration effect in the presence of the general institutional effect. I observe that after inclusion of INST, the CONC is still statistically significant (p-value: 0.018). INST, on the other hand, is not significant (p-value: 0.328). The results suggest that firms with concentrated institutional stockholdings experience greater institutional monitoring on generation of positive abnormal accruals that reduces the level of income-increasing abnormal accruals compared to firms not having

concentrated institutional shareholdings. This concentration effect persists even in the presence of the general institutional effect. Therefore, with respect to positive abnormal accruals I find some clear evidence of an incremental monitoring effect of concentrated institutional shareholdings on the accrual management level.

However, the result does not hold when I test the full model by including an interaction variable, INST*CONC, in the previous model. The results obtained are qualitatively the same as I find in the case of pooled regression tests for total absolute current accruals. The CONC, INST, and interaction variables are all significant. Moreover, the coefficient of the interaction variable is positive. The coefficient for firms having concentrated institutional shareholdings is (-0.071+ 0.148) = 0.077 while that of firms not having concentrated institutional shareholdings is -0.071.[48] The test result suggests that firms not having concentrated institutional shareholdings experience greater institutional monitoring effect compared to firms having concentrated shareholdings. The result is similar to that found in the previous test done in the cross-sectional setting with total absolute current accruals and is conflicting to the findings of the main analysis. Further research in this area is warranted investigating the causes of such conflicting results.

Panel B reports the regression results concerning the effects of various concentration measures on positive abnormal accruals in the presence of other control variables. I find that CONPERC is negative and significant at the 10% level (t-statistic: -1.348; p-value: 0.089) but the other two measures, MULTCON and AVGHOLD, are not significant. Therefore, like earlier pooled cross-sectional tests as well as the main

[48] I also estimate the regression models by including year dummy variables to control for the effects of any unknown year specific factors. None of the year dummy variables is found to be significant, and the basic results remain the same.

analysis, I find limited evidence of concentration effect on the level of positive abnormal accruals.

Table 26 presents test results regarding the institutional monitoring effects on positive abnormal accruals separately for the S&P 500 and the non S&P 500 firms in the sample. Consistent with the findings of previous sections, I observe that institutions have a differential monitoring influence in the case of these two sets of firms. The coefficient of INST is positive and significant (t-statistic: 1.397; p-value: 0.082) for the S&P 500 firms while it is significantly negative (t-statistic: -1.592; p-value: 0.056) for the non S&P 500 firms. So, with respect to positive abnormal accruals, I find the same kind of differential institutional monitoring effects as I observed in the main analysis as well as in the pooled cross-sectional tests reported earlier. The institutional monitoring effect on the management of income-increasing abnormal accrual is more pronounced in the non S&P 500 firms. However, it is counter-intuitive that the coefficient of INST is significantly positive for the S&P 500 firms indicating that in such firms, institutions induce managers to use positive/income-increasing accruals to manage earnings. Further research needs to be done in the area of the accrual generation process by large firms like the S&P 500 and institutional activism in the context of earning management of such firms.

I also estimate the institutional shareholding effect on positive abnormal accruals by estimating equation 13 like the previous cross-sectional tests for absolute current accruals as reported in Table 21. The results in this case are reported in Table 27. I find qualitatively similar results. I do not find any differential institutional effects on positive abnormal accruals between the two sets of firms. The interaction variable, INST*S&P, remain insignificant both in the reduced and full models. The result is qualitatively

Table 24: Pooled Cross-Sectional Regression of Positive Accounting Accruals on Institutional Percentage Shareholdings and Other Control Variables

N = 1759

Model: $CACC^{+}_{it}/ TA_{it-1} = \beta_0 + \beta_1 [(\Delta REV_{it} - \Delta REC_{it}) / TA_{it-1}] + \beta_2 [(\Delta COGS_{it} + \Delta INV_{it}) / TA_{it-1}] + \beta_3 (\Delta OCF_{it} / TA_{it-1}) + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} INST_{it} + \varepsilon_{it}$

	Reduced Model			Full Model		
Coefficient	Value	t-stat.	p-value	Value	t-stat.	p-value
β_0	0.005	13.732	0.000	0.105	10.168	0.000
β_1				-0.608	-10.085	0.000
β_2				0.923	15.617	0.000
β_3				0.026	1.138	0.128
β_4				-0.033	-1.475	0.070
β_5				-0.186	-7.756	0.000
β_6				0.144	6.740	0.000
β_7				0.121	5.624	0.000
β_8				0.042	1.940	0.026
β_9				0.101	4.684	0.000
β_{10}				-0.004	-0.172	0.432
β_{11}				-0.042	-1.943	0.026
β_{12}	**-0.070**	**-2.941**	**0.002**	**-0.035**	**-1.562**	**0.060**
Adjusted R^2	0.004			0.246		
F-statistic	8.650			48.862		

Note: All variables are defined in previous sections. The p-values reported are one-tailed.

Table 25: Pooled Cross-Sectional Regression Analysis of Concentrated Institutional Shareholding Effects on Management of Positive Accruals

N = 1759

Panel A: Pooled Cross-Sectional Regressions of Positive Accounting Accrual on Concentrated Institutional Shareholdings and Other Control Variables

Full model: $CACC^{+}_{it} /TA_{it-1} = \beta_0 + \beta_1 [(\Delta REV_{it} - \Delta REC_{it}) /TA_{it-1}] + \beta_2 [(\Delta COGS_{it} + \Delta INV_{it}) / TA_{it-1}] + \beta_3 (\Delta OCF_{it} / TA_{it-1}) + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} CONC_{it} + \beta_{13} INST_{it} + \beta_{14} (INST_{it} * CONC_{it}) + \varepsilon_{it}$

	Reduced Model 1			Reduced Model 2			Full Model		
Coefficient	Value	t-stat.	p-value	Value	t-stat.	p-value	Value	t-stat.	p-value
β_0	0.104	10.411	0.000	0.114	10.394	0.000	0.116	10.530	0.000
β_1	-0.611	-10.140	0.000	-0.611	-10.127	0.000	-0.607	-10.073	0.000
β_2	0.923	15.646	0.000	0.924	15.645	0.000	0.919	15.575	0.000
β_3	0.027	1.189	0.118	0.027	1.191	0.117	0.027	1.166	0.122
β_4	-0.032	-1.462	0.072	-0.034	-1.521	0.064	-0.033	-1.507	0.066
β_5	-0.197	-8.524	0.000	-0.194	-8.001	0.000	-0.198	-8.144	0.000
β_6	0.151	7.019	0.000	0.150	6.966	0.000	0.150	6.952	0.000
β_7	0.118	5.492	0.000	0.118	5.488	0.000	0.121	5.622	0.000
β_8	0.043	1.990	0.024	0.043	1.976	0.024	0.042	1.932	0.027
β_9	0.095	4.427	0.000	0.096	4.448	0.000	0.097	4.481	0.000
β_{10}	-0.005	-0.224	0.412	-0.004	-0.194	0.423	-0.002	-0.076	0.470
β_{11}	-0.041	-1.922	0.028	-0.041	-1.936	0.027	-0.043	-2.015	0.022
β_{12}	**-0.055**	**-2.590**	**0.005**	**-0.050**	**-2.111**	**0.018**	**-0.152**	**-3.104**	**0.001**
β_{13}				-0.011	-0.444	0.328	**-0.071**	**-1.987**	**0.024**
β_{14}							**0.148**	**2.381**	**0.009**
Adjusted R^2	0.248			0.248			0.250		
F-statistic	49.337			45.536			42.801		

Panel B: Reported Coefficients of Various Measures of Concentrated Institutional Stockholdings from Pooled Cross-Sectional Regression regarding Positive Abnormal Accruals

	Concentration of institutional stockholding measures		
	CONPERC	MULTCON	AVGHOLD
Coefficient	**-0.029**	-0.023	-0.009
t-statistics	**-1.348**	-1.077	-0.324
p-value	**0.089**	0.141	0.373

Note: All variables are defined in previous sections. The p-values reported are one-tailed.

Table 26: Pooled Cross-Sectional Regressions Testing the Institutional Shareholding Effects on Positive Abnormal Accruals Separately for the S&P 500 and the Non S&P 500 Firms

Full model: $CACC^{+}_{it} / TA_{it-1} = \beta_0 + \beta_1 [(\Delta REV_{it} - \Delta REC_{it}) / TA_{it-1}] + \beta_2 [(\Delta COGS_{it} + \Delta INV_{it}) / TA_{it-1}] + \beta_3 (\Delta OCF_{it} / TA_{it-1}) + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} INST_{it} + \varepsilon_{it}$

	N = 611			**N = 1148**		
	S&P 500			Non S&P 500		
Coefficient	Value	t-stat.	p-value	Value	t-stat.	p-value
β_0	0.038	2.253	0.013	0.133	8.845	0.000
β_1	-0.430	-5.267	0.000	-0.660	-8.691	0.000
β_2	0.788	10.138	0.000	0.956	12.841	0.000
β_3	-0.054	-1.454	0.073	0.037	1.309	0.096
β_4	0.018	0.475	0.318	-0.040	-1.497	0.068
β_5	-0.143	-3.749	0.000	-0.192	-6.798	0.000
β_6	0.137	3.867	0.000	0.161	5.957	0.000
β_7	0.310	8.717	0.000	0.154	5.559	0.000
β_8	-0.013	-0.358	0.360	0.064	2.263	0.012
β_9	0.158	4.190	0.000	0.083	3.122	0.001
β_{10}	0.094	2.533	0.006	-0.013	-0.519	0.302
β_{11}	0.041	1.206	0.114	-0.049	-1.831	0.034
β_{12}	**0.051**	**1.397**	**0.082**	**-0.043**	**-1.592**	**0.056**
Adjusted R^2	0.321			0.249		
F-statistic	25.027			32.703		

Note: All variables are defined in previous sections. The reported p-values are one-tailed.

Table 27: Pooled Cross-Sectional Tests of the Institutional Shareholding Effects on Positive Abnormal Accruals in the S&P 500 and the Non S&P 500 Firms of the Full Sample

N = 1759

Full model: $CACC^{+}_{it} /TA_{it-1} = \beta_0 + \beta_1 [(\Delta REV_{it} - \Delta REC_{it}) /TA_{it-1}] + \beta_2 [(\Delta COGS_{it} + \Delta INV_{it}) / TA_{it-1}] + \beta_3 (\Delta OCF_{it} / TA_{it-1}) + \beta_4 PMGR^2_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 \Delta LIQUIDITY_{it} + \beta_8 \Delta NETWORTH_{it} + \beta_9 ROS_{it} + \beta_{10} MB_{it-1} + \beta_{11} CAP_{it} + \beta_{12} S\&P_{it} + \beta_{13} INST_{it} + \beta_{14} (INST_{it} * S\&P_{it}) + \varepsilon_{it}$

	Reduced Model 1			Reduced Model 2			Full Model		
Coefficient	Value	t-stat.	p-value	Value	t-stat.	p-value	Value	t-stat.	p-value
β_0	0.105	9.587	0.000	0.069	17.139	0.000	0.108	9.762	0.000
β_1	-0.610	-10.107	0.000				-0.608	-10.084	0.000
β_2	0.923	15.608	0.000				0.925	15.662	0.000
β_3	0.026	1.115	0.133				0.025	1.105	0.135
β_4	-0.024	-1.099	0.136				-0.033	-1.488	0.068
β_5	-0.210	-7.350	0.000				-0.203	-6.984	0.000
β_6	0.149	6.781	0.000				0.148	6.735	0.000
β_7	0.123	5.703	0.003				0.122	5.671	0.000
β_8	0.043	1.998	0.023				0.043	1.996	0.023
β_9	0.098	4.515	0.000				0.100	4.618	0.000
β_{10}	-0.007	-0.334	0.370				-0.004	-0.204	0.419
β_{11}	-0.040	-1.867	0.031				-0.040	-1.846	0.033
β_{12}	0.022	0.807	0.420*	**-0.253**	**-2.836**	**0.006***	-0.059	-0.723	0.470*
β_{13}				-0.035	-1.272	0.200*	**-0.053**	**-2.097**	**0.036***
β_{14}				0.126	1.353	0.176*	0.099	1.199	0.230*
Adjusted R^2	0.245			0.021			0.247		
F-statistic	48.663			13.358			42.099		

Note: All variables are defined in previous sections.
*The reported p-values are two-tailed. All other p-values are one-tailed.

similar to those found in the pooled cross-sectional time-series analysis regarding the total absolute current accruals. The test results suggest that partitioning the full sample into the S&P 500 and the non S&P 500 sub-samples and conducting the tests separately for each set of firms is a superior method of identifying the differences in institutional effects on accrual management between these two sets of firms.

As a whole, the results suggest that institutions, in general, provide active monitoring on a firm's strategy to generate positive (i.e., income-increasing) abnormal current accruals to boost earnings to achieve various economic objectives. Moreover, this institutional monitoring effect on income-increasing abnormal accruals is specifically large and significant for the non S&P 500 firms. This finding is contrary to the transient investor hypothesis as advocated by prior studies and is consistent with the active institutional monitoring hypothesis in the accrual management context.

8.4. Regression Diagnostics

I conducted several regression diagnostic procedures on the main model and the pooled cross-sectional model employed in the analysis. The variance inflation factors (VIF) and condition indices do not provide any evidence that multicollinearity effect is a problem.[49] The Durbin-Watson tests of first order auto-correlation indicate that errors are uncorrelated to each other. The influence statistics, DEFFITS and Cook's D, do not indicate the presence of any influential data-points that may significantly affect the results of the study. For most observations, the value of Cook's D is less than 1.[50] In a

[49] Chatterjee and Price (1977) indicate that the VIFs in excess of ten signify serious multicollinearity problem. Belsley et al. (1980) suggest that a condition index greater than 15 indicates a possible problem and in excess of thirty suggests a serious problem with multicollinearity among the explanatory variables in the regression. In this respect, the regression models employed in this study are well specified.

[50] Both DFFITS and Cook's D are available in SAS. I compare the DFFITS value of each observation with the value of $[2^* [(m+1) / n]^{1/2}]$, m = No of coefficients and n = No of observations in the model, as

very few cases, Cook's D ranges between 2 and 3. After eliminating those specific observations, the basic results remain unchanged. The normal probability plots indicate that errors are normally distributed. In general, residual plots do not exhibit any systematic pattern of error distribution. The residuals are plotted against the predicted value of FLACAC and against INST and are found to be randomly distributed with no pattern. Overall, these statistics indicate that the regression models applied in the study are well specified and can be interpreted without concern that multicollinearity, heteroscedasticity, or influential observations affect the results.

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suggested by Belsley Kuh and Welsch (1980) to identify outlier observations and estimate their effects on the results of the study. Cook's D helps to determine how strongly a data-point affects the overall regression results. This is essentially a scaled DFFITS statistic, and any score above 2 or so indicate possible problem with a particular data-point (Cody and Smith 1997).

9. CONCLUSIONS

In this study, I examine the effects of an influential corporate governance factor, institutional stock ownership, on a firm's accrual management activity over a time-period of eight years from 1991 through 1998 for 386 NYSE listed unregulated industrial firms. This study is important in view of the fact that very little research exists directly testing the effects of a governance factor on a firm's decision to manage earnings. Earnings management research to date is mostly confined to the studies of specific economic incentives that induce managers to make accrual adjustments in some predicted directions to manage earnings. Moreover, there are very few studies that have examined how institutions monitor specific managerial actions. Therefore, in order to complement previous research on earnings management it becomes necessary to examine the effects of factors that constrain managers' ability and influence their choice to manage earnings.

In various tests conducted in this study, I find strong evidence that institutions have provided active monitoring on the sample firms' decisions to manage earnings. The estimated managerial flexibility/discretion to manage accruals for the sample time-period is negatively and significantly associated with the level of institutional percentage stockholdings of sample firms. The test results suggest that institutional investors monitor and constrain management's discretion to engage in accrual manipulation to manage earnings. The substantial institutional presence reduces the level of earnings management by inhibiting managers to use questionable accounting techniques to manage accruals. In this sense, institutional investors improve the quality of corporate governance. This mitigating institutional influence is found to be greater in firms having concentrated institutional shareholdings. I observe that the effect of concentrated shareholdings is

significant in the case where it is considered on a stand-alone basis. But when the general institutional effect is accounted for in the model, the concentrated shareholding is not found to provide any additional effect over and above the general institutional monitoring effects. Also, for certain measures of concentration, I find some evidence of mitigating effects of concentrated institutional shareholding on the level of accrual management.

Moreover, I observe that the institutional influence on accrual management differs between two categories of firms with different information environments, i.e., firms having S&P 500 membership. Specifically, I observe a strong mitigating influence of institutional investors on management flexibility in generating abnormal accruals for the non S&P 500 firms but I do not find any significant institutional influence for the S&P 500 firms.

This "no institutional effect" result for the S&P 500 firms is consistent with the fact that S&P 500 firms are generally large having high visibility and followings, and are subject to monitoring by various regulatory and professional agencies. In such firms institutional investors have, therefore, little room to provide additional influence on managers in their accrual management efforts. I also observe that most of the traditional determinants of accruals have no significant predictive abilities for the accrual generation process of the S&P 500 firms as revealed from their insignificant coefficients in the main cross-sectional accrual regression used in the study. Moreover, in the cross-sectional pooled regressions using firm-year data the institutional effect is found to be positive both in case of absolute abnormal accruals and in case of positive abnormal accruals. The results contradict the basic notion of governance provided by institutional investors. I suggest that the S&P 500 firms may have some unique abnormal accrual generating

process, and that the traditional accrual model is insufficient to reflect that process. Moreover, the role of institutions as the sophisticated investor group in such large, highly visible firms needs to be further scrutinized. Therefore, future research is warranted in the area of accrual generating process of such highly visible, large firms with high institutional investor and analysts following, and the institutional activism in the context of such accrual management.

In this study, I consider firms listed on the NYSE stock exchange as the sample firms. Restricting the sample to the NYSE firms ensures a level of homogeneity across sample firms. According to the NYSE listing requirements in the time-period of study, the listed firms must have independent audit committees, which act as a governance mechanism overseeing financial statement preparation and providing support to external auditors leading to increases in audit effectiveness. Moreover, most firms in the sample are audited by Big-5 auditors. The Big-5 auditors are assumed to provide high-quality auditing in audit literature, and previous studies (e.g., Becker et al. 1998) find that high quality external audits reduce the level of accrual manipulation by constraining management's accounting flexibility. Therefore, the firms in the sample are already subject to some form of effective corporate governance. This study is an interesting extension of this stream of research as it shows that when several governance factors are in place, institutional investors still impact a firm's decision to manage abnormal accruals. The effect increases with the increase in the concentration of institutional stockholdings in some concentration measures. The overall results of the study are also consistent with that of a recent study done by Chung et al. (2002) who examine institutional impact on a firm's effort to maintain a smooth profile of earnings stream and

report that institutional investors reduce managerial efforts to opportunistically engage in generating discretionary accruals to manage and smooth earnings. The present study differs from that of Chung et al. (2002) in that in this study, I examine the monitoring influence of institutional investors in the context of the overall accrual management process by employing a unique firm-specific abnormal accrual estimation approach whereas Chung et al. (2002) restrict their investigation to a specific managerial action, income smoothing, to manage earnings in a pooled cross-sectional setting.

The influence of two important governance factors, audit quality and audit committee, in the context of accrual management was already examined by prior studies. This study incrementally contributes to the existing literature of earnings management and corporate governance by documenting the evidence of the effects of another influential governance factor, institutional stock ownership on a firm's accrual management effort. I suggest that earnings management tests performed in many prior studies may be more effective if they control for the cross-sectional variations in the level and concentration of institutional stock ownership because managers' abilities to manage accruals are not uniform but vary across firms depending on the degree of governance mechanisms.

The other notable contribution of the research is the unique model developed to estimate the level of accrual management. Most previous research employed a cross-sectional approach and used abnormal or discretionary accruals estimated according to the firm-specific or cross-sectional version of the Jones (1991) or the modified Jones (1995) models as the dependent variable of interest. In this study, I estimate management flexibility in making abnormal accrual adjustments by ascertaining the firm-specific

variability of abnormal accruals over the sample time-period based on the premise that management strategy of managing earnings in a year is unlikely to be a single-year decision but is a part of the broader strategy of reporting earnings number at a certain level or within a certain range in compliance with the overall operating and financial plan of an organization for a time-period. Therefore, the estimated managerial flexibility in managing accruals could better reflect the multi-year aspect of accrual management. The magnitude of abnormal accruals is positively and significantly correlated with management flexibility as reported by previous research and observed by this study. This management flexibility is used as the dependent variable of interest in the main analysis of this study. Econometrically, this model also appears to be sound while estimating the level of accrual management over a given time-period.

In this study, I examine aggregate institutional influence on a firm's accrual management activity. Institutional investors, however, differ from each other in their investment objectives and horizons. So, the policies toward corporate governance and their influence on a firm's earnings management activity are not homogeneous across different types of institutional investors. Moreover, Bushee (2000) documents that the level of stock ownership by institutions with short investment horizons and by institutions with stringent fiduciary standards is positively (negatively) associated with the amount of firm-value captured in near-term (long-term) earnings. Hence, it is interesting to see how different types of institutional investors with different investment objectives/policies influence a firm's earnings management. Therefore, a logical extension of this study is to examine the influence of different categories of institutional investors having different investment objectives and horizons on the level of a firm's accrual management activity.

The analysis of the empirical relationship between the level of accrual management and percentage shareholdings by different classes of institutional investors would also be a worthwhile exercise because the impact of concentrated stockownership on accrual management may vary depending on investment policies and horizons of different institutional investor types, e.g., transient versus dedicated institutional investors, or, bank trusts versus pension funds. Therefore, examining the monitoring effects of the concentrated shareholding of institutions at the aggregated level may have balanced out the respective unique influence exerted by various classes of institutional investors. The analysis can help explore the factors underlying investment decisions of different classes of institutional stockowners and their strategy toward governing the financial reporting process of firms in which they made substantial investments.

I design this study for a general setting. An extension is to examine the aggregate institutional influence in specific situations where particular economic incentives to manage earnings are expected to be present (e.g., income smoothing, reducing political/regulatory costs, avoiding debt-covenant violations, meeting or beating earnings' benchmarks, avoiding reporting losses) to see how this influential corporate governance factor impacts a firm's decision to manage accruals in view of such specific incentives.

I have observed that accrual generation process of the S&P 500 firms in the sample are unique because most traditional determinants of accruals used in this study are found to have little predictive ability to account for the normal accrual level of such firms. Moreover, institutions are found to have no monitoring effect on abnormal accrual generation of the S&P 500 firms as reported in the main analysis. Further, in the specification check, I find evidence that in the pooled time-series cross-sectional setting

with firm-year data, the institutional shareholding is positively related to the level of abnormal accruals of the sample S&P 500 firms. The result is somewhat contrary to the general notion of institutional monitoring on corporate financial reporting process. The S&P 500 firms are large capitalization firms having high visibility and large institutional investor and financial analysts following. The nature of institutional activism in such firms' financial reporting and their accrual management are likely to be different from firms not having the S&P 500 membership. It is, therefore, an interesting extension of this research to investigate the accrual generation activity of the S&P 500 firms at the individual firm level and the nature of institutional investors' intervention in such process.

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