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Article

Do Big Four Auditors Always Provide Higher Audit Quality? Evidence from Pakistan

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Abstract: The purpose of this paper is to examine the role of external auditors in potentially approving or limiting a firm's earnings management practices in institutional settings which do not provide incentives for auditors to deliver high audit quality. We use signed discretionary and performance-adjusted discretionary accruals as proxies for earnings management, and audit firm size (Big 4 vs. Non-Big 4) and audit opinion type (Qualified vs. Unqualified) as measures for audit quality. Using a sample of 183 firms listed on the Karachi Stock Exchange, Pakistan for the five-year period from 2009 to 2013, we find that there is statistically no significant difference between earnings management activities of firms audited by Big 4 and non-Big 4 auditors. Audit opinion is not being issued in response to the earnings management activities being employed by firms. Further consistent with the entrenchment hypothesis, we find that earnings management is pervasive in family controlled firms and Big 4 auditors do not moderate the relation between family firm dominance and earnings management. A small audit market coupled with non-existent litigation risk, strong economic bonding of auditors with their clients, lower investor protection, poor enforcement mechanisms and dominance of firms by influential family groups lead auditors to behave opportunistically, which undermines their independence and objectivity.

Keywords: auditor quality; Big 4 auditors; discretionary accruals; earnings management; family ownership

JEL Classification: M49

1. Introduction

Auditing and financial reporting scandals like Enron and WorldCom have brought audit quality and governance mechanisms into the spotlight. External auditors serve a monitoring role to ensure the quality of financial reporting (Iatridis 2012), reduce agency costs arising from managers' opportunistic behavior, and lessen asymmetric information between firms and stakeholders (Francis and Wang 2008). Earnings management practices have a detrimental impact on investor confidence, capital market development and transparency of financial reporting. Users of financial statements look towards audit report when they are skeptical about the reliability of financial statements (Tsipouridou and Spathis 2012).

Pakistan is a common law country, having adopted International Financial Reporting Standards (IFRS) after their promulgation on 1 January 2005. However, Ashraf and Ghani (2005) argue that Pakistan exhibits characteristics of code law countries, having less developed equity market, reliance

on banks and financial institutions for debt financing, poor investor protection laws for minority shareholders, and concentrated ownership dominated by family business groups. Empirical studies of international comparison among countries have demonstrated that Pakistan is among the countries with the highest levels of earnings management practices (Leuz et al. 2003), despite adoption of International Accounting Standards (IAS) from the outset.

Agency Theory (Jensen and Meckling 1976) highlights the existence of agency problem between managers and shareholders due to separation of ownership and control in the corporate form of organization, which may lead to an entrenchment effect and expropriation of shareholders' wealth by managers. Another type of agency problem may also arise between controlling and minority shareholders. Both of these types of agency problems can result in the expropriation of wealth and lead towards manipulation of financial statements and earnings management practices. External auditors are expected to play a monitoring role in ensuring the reliability of financial statements, constraining opportunistic earnings management and reducing agency conflict between management and shareholders. However, the effectiveness of external auditors has been questioned in Pakistan and has often been criticized for low-quality financial reporting and disclosure practices by academics (Ashraf and Ghani 2005) and press alike (Baig 1997).

Earnings management is more pervasive in countries that are characterized by weaker investor protection, inefficient judicial system, poor enforcement mechanisms, irrelevant equity markets and concentrated ownership (Leuz et al. 2003). Recently, Persakis and Iatridis (2016) investigated the joint effect of audit quality and investor protection on earnings management among an international sample of countries based on the classification of (Leuz 2010). Their findings were that higher audit quality is associated with stronger investor protection and legal enforcement in all clusters of countries. Secondly, earnings quality and audit quality are stronger in countries with stronger investor protection, implying the significance of enforcement mechanisms, legal structure and institutional environment in improving earnings and audit quality. When the demand for quality of auditing is lower and the regulations are less stringent, auditors will act in a less conservative manner and earnings management will be more pronounced (Tsipouridou and Spathis 2012). Therefore, the objective of this paper is to examine the role of auditors in potentially approving or limiting firms' earnings management practices in institutional settings that do not provide incentives for auditors to deliver higher audit quality.

In this study, we aim to investigate the relation between earnings management and audit quality for firms listed on the Karachi Stock Exchange (KSE), Pakistan for the period 2009–2013. Although there has been plentiful research on earnings management, the role of auditors in constraining or approving management's opportunistic behavior in different settings needs to be further investigated, especially in the presence of International Financial Reporting Standards (IFRS) that aim to provide useful financial statements.

International Financial Reporting Standards (IFRS) are intended to provide international harmonization of accounting and auditing standards, reduce discretion in reporting, and call for detailed disclosures to address the information needs of financial statements users (Tsipouridou and Spathis 2012). Therefore, IFRS implementation can be linked with improving financial reporting quality and reducing earnings management activities. Francis and Wang (2008) argued that institutional settings and enforcement mechanisms may be more relevant than accounting standards in determining financial reporting and audit quality. More recently, studies have provided evidence that the mere mandatory adoption of accounting standards might not affect earnings management practices in countries with weaker investor protections and regulatory environments (Garrouch et al. 2014; Pelucio-Grecco et al. 2014). The argument established by these studies is that IFRS can have a limiting effect on earnings management activities if these are accompanied by efficient enforcement mechanisms, and appropriate corporate governance and regulatory environments. This further substantiates the need to study the effect of auditor quality on earnings management in an environment of weaker investor protection and lax enforcement standards, governance mechanisms and regulatory regimes, like Pakistan, which have adopted IAS and IFRS from the beginning. The results of this study would

thus be significant to evaluate whether the adoption of IFRS has been successful in curbing managerial opportunism and earnings management practices in Pakistan in the presence of ineffective governance, enforcement and regulatory environment.

We use signed discretionary accruals and performance-adjusted discretionary accruals as proxies for earnings management activities and auditor firm size (Big 4 vs. Non-Big 4) and audit opinion (Qualified vs. Unqualified) as proxies for auditor reporting. As the purpose of external audit is to improve financial reporting quality, we examine whether there are significant differences in earnings management activities between clients of Big 4 and non-Big 4 audit firms. Further, we investigate if there are differences in the type of audit opinions (Qualified vs. Unqualified) that are issued in response to the level of earnings management activities of the firms. The examination of these relationships is reasonable when we consider the findings that Big 4 auditors act in a less conservative manner in settings where there are fewer restrictive regulations and enforcement mechanisms, and where the demand for high-quality auditing by stakeholders is lower (Ajona et al. 2008). We also examine the relation between family ownership and earnings management and the monitoring role of Big 4 auditors in constraining or controlling owners' opportunistic behavior.

Family firms are the prevalent form of business organization in Pakistan and are characterized by controlling ownership and the presence of family members on the board, which presents a unique governance problem. In family-controlled firms, concentrated ownership gives rise to the development of agency conflict between controlling and minority shareholders (Chi et al. 2015). Because controlling family owners are in charge of accounting policies and flow of information to the public, they are perceived to have incentives for opportunistic earnings management for private benefit at the expense of minority shareholders (Fan and Wong 2002). Big 4 auditors are expected to play a monitoring role and ensure the integrity of accounting figures and moderate the relation between family firms and earnings management. This provides an interesting platform to research the role of Big 4 auditors in ensuring the quality of financial reporting in the presence of controlling family ownership and poor investor protection laws for minority shareholders. As the objective of this paper is to examine the role of auditors in intuitional settings that do not provide incentives for auditors to deliver high audit quality and curb management's earnings management practices, family dominance of firms is one such setting to research this objective. Therefore, we examine the role of Big 4 auditors in the presence of family dominance of firms and test whether Big 4 auditors moderate the relationship between family firms' dominance and earnings management. This could be one of the reasons why external auditors are less effective in Pakistan.

Our results reveal that there are no significant differences in the earnings management activities of Big 4 and non-Big 4 auditors' clients, as both the Big 4 and non-Big 4 auditors have weaker incentives to prevent earnings management activities (Tsipouridou and Spathis 2012). Audit opinion qualification is not issued in response to the earnings management activities of the firm. Further, we find that earnings management is pervasive in family-dominated firms, and Big 4 auditors do not moderate the positive relationship between family ownership and earnings management.

The findings of this study can be useful for investors as well as policy makers and regulators. The Government of Pakistan is trying to attract foreign direct investment, as it believes that foreign direct and indirect investment can help them overcome energy crisis which has plagued the economy for the past few years. Further, the Government is following the policy of privatization of state owned enterprises and liberalization of economy, also targeting foreign investors for disinvestment of sick industrial units and enterprises (Ayyub 2014). Investors who intend to enter the Pakistani market should be aware of the relationship between auditor report and earnings management as investors rely on the auditor's report to make conclusion about financial reporting quality.

This study contributes to the literature as the relationship between earnings management and auditing has not been studied in Pakistan in the past, to the best of our knowledge, and the results drawn from United States and other developed countries may not be relevant because of the differences in economic and institutional environment such as level of investor protection, regulatory quality, legal

enforcement and ownership structure. We also study the relationship between family firm ownership and earnings management. Further, we examine the monitoring role of Big 4 auditors in the presence of influential family ownership and highlight family dominance of firms as one of the reasons for ineffectiveness of Big 4 auditors in Pakistani market.

The remainder of the paper is organized as follows. Section 2 provides an overview of institutional environment in Pakistan. Section 3 discusses related literature and hypotheses of our study. In Section 4, data and sample selection is discussed. Section 5 provides the research design and methodology. Empirical results are discussed in Section 6. Section 7 presents robustness results, while Section 8 concludes the paper and provides avenues for future research.

2. Institutional Environment in Pakistan

Pakistan is a common law country, having adopted International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) after their promulgation. Researchers argue that although Pakistan is a common law country, it exhibits characteristics of code law countries, having a weak equity market, reliance on banks and financial institutions for debt financing, concentrated ownership dominated by family business groups, and a generally observed low quality of accounting and disclosure practices (Ashraf and Ghani 2005; Baig 1997). Financial reporting quality cannot be achieved without the presence of effective enforcement mechanisms which include investor protection mechanisms, efficiency of legal system, protection of minority shareholders, and insider trading laws (Hope 2003). Enforcement mechanisms are generally considered to be weak in Pakistan. In the absence of robust enforcement mechanisms, accounting standards cannot achieve their desired objective of producing transparent and reliable financial statements. Further, absence of effective enforcement mechanisms along with judicial inefficiency lowers the demand for high quality auditing in Pakistan.

Efforts have been made over time to improve the regulatory framework, including the promulgation of the Securities & Exchange Ordinance of 1969. Corporate Law was established in 1981 which was restructured as the Securities & Exchange Commission of Pakistan (SECP) in 1999 under the Securities and Exchange Commission of Pakistan Act 1997. SECP has the mandate to regulate the corporate sector and the capital market. The Companies Act of 1913, which was adopted from colonial India, was replaced with the Companies Ordinance of 1984. Section 234 of the Companies Ordinance, 1984 requires all listed companies to present their financial statements in accordance with the requirements of International Accounting Standards and International Financial Reporting Standards (IFRS).

The Code of Corporate Governance was issued in 2002, and requires companies to provide a statement that they are complying with IFRS applicable in Pakistan for the presentation of financial statements. The code also requires firms to design, implement and monitor a system of internal control and provide information about this fact. The Code of Corporate Governance also increased disclosure requirements for firms, and they are required to provide a statement of compliance with the code of corporate governance. All of these reforms were aimed at ensuring that Pakistani companies comply with international best practices (Ashraf and Ghani 2005).

The auditing profession in Pakistan is self-regulated. The Institute of Chartered Accountants of Pakistan (ICAP) was established under the Chartered Accountants Ordinance (1961). ICAP has instituted a Quality Control Review Program (QCR) to ensure the quality of audits performed and auditors of listed firms are required to achieve a satisfactory QCR rating. The review is conducted on a sample basis, and the reviewers conduct reviews of only two audit engagements of selected firms. In this scenario, auditors may not believe that they have a probability of being caught for providing low-quality audits. Even if they are caught, penalties or sanctions are not stern enough to cause auditors to provide high quality audits. Big 4 accounting firms, like in other South Asian countries, do not operate directly under their brand name; rather, they operate under the name of local affiliates. This practice also reduces the incentives to protect brand name reputation by providing high-quality audits.

Family ownership is another distinctive feature of business organization in Pakistan, where ownership is highly concentrated and closely held in the form of influential business groups. Generally, family members are also board members and occupy positions as chairperson and chief executive officer (CEO) and are directly involved in the management of the firm. In case of business groups, some family members who are executives in one company may be working as non-executive or independent directors in another firm of the same group. This leads to the creation of a nexus that can potentially cause serious threats to the independence of auditors in family-dominated environments (Ashraf and Ghani 2005). Managers also communicate information regarding financial performance directly to family owners reducing reliance on financial statements.

Banks are a major source of financing in such economic and institutional environment. Banks also develop direct relationships with firms, and they can obtain all information directly and may not rely on published financial statements. Information asymmetries are resolved through private channels, which reduce the stakeholders' demands for high-quality auditing. In Pakistan, business decisions are also influenced by personal relationships, like family ties, etc. Auditors who are selected on the basis of personal relationships may also not object to the firm's earnings management practices. Overall, enforcement mechanisms are weak, and sanctions and penalties are not harsh enough to cause the auditors to provide high-quality audits.

3. Literature Review and Hypothesis Formulation

Agency theory posits that monitoring mechanisms are assumed to align the interests of managers and shareholders and remove the conflict of interest inherent in the corporate form of organization and the manager's opportunistic behavior (Alzoubi 2016). Auditing function is one such monitoring mechanism that aligns the interests of managers and shareholders, restricts managers' opportunistic behavior with regard to earnings management, and decreases information asymmetry among managers and shareholders (Arens et al. 2012).

Audit quality has been proxied by Big 4 auditors in the accounting literature (Becker et al. 1998; DeAngelo 1981; Francis and Krishnan 1999; Francis et al. 1999). Research on audit quality and earnings management demonstrates that firms audited by Big 4 auditors have lower levels of earnings management than firms audited by non-Big 4 auditors (Alzoubi 2016; Becker et al. 1998; Francis et al. 1999).

However, research that demonstrates that Big 4 auditors provide better-quality audits than non-Big 4 auditors has mostly been carried out in the United States and other countries where auditors face a high litigation risk from shareholders if they provide a lower quality of auditing. Recent evidence suggests that differences in audit quality between Big 4 and non-Big 4 auditors are due to client characteristics, especially size (Lawrence et al. 2011). Ajona et al. (2008) argue that Big 4 auditors behave differently with regards to earnings management in different countries and it varies systematically with differences in economic environment and individual institutional settings. Chen, Chen, Lobo, and Wang (Chen et al. 2011) investigated the effect of audit quality on earnings management and cost of equity capital for Chinese listed firms. They found a significantly lower level of earnings management for non-state-owned enterprises (NSOEs) audited by Top 8 auditors than for state owned enterprises (SOEs) audited by Top 8 auditors. Top 8 auditors also behave differently in reducing earnings management between NSOEs and SOEs. They argue that the asymmetric effects of audit quality on earnings management between SOEs and NSOEs are due to differences in ownership structures, agency problems and different managerial incentives to mediate in the financial reporting process.

Big 4 auditors will enforce higher earnings quality and greater conservatism on financial statements of clients in response to stringent investor protection establishments, including the ability of stakeholders to initiate legal proceedings against the auditors for negligence and strong regulatory actions to discipline auditors for delinquency (Francis 2004; Francis and Wang 2008). Research in countries like Belgium, France, Greece, Korea, Malaysia and Turkey provides evidence that there

is no significant difference in levels of discretionary accruals of Big 4 and non-Big 4 audited firms (Bauwhede and Willekens 2004; Ching et al. 2015; Jeong and Rho 2004; Othman and Zeghal 2006; Tsipouridou and Spathis 2012; Yasar 2013). Ching et al. (2015) studied the effect of audit quality on earnings management practices and financial performance for Malaysian firms and their findings are that audit quality does not restrict earnings management activities. They argue that this is due to the differences in the audit environment that are significantly different from developed countries. Persakis and Iatridis (2016) investigated the joint effect of audit quality and investor protection on earnings management for an international sample of countries. Their findings are that audit quality is positively associated with investor protection, and audit quality is higher for firms with stronger investor protection and legal enforcement among all clusters of countries. Audit quality has a positive relation with earnings quality, but earnings quality is higher in countries with stronger investor protection, implying the relative significance of stronger investor protection and legal enforcement in establishing higher audit and earnings quality. Therefore, achievement of higher audit and earnings quality is contingent upon establishment of strong enforcement mechanisms, corporate governance rules, regulatory environment and legal enforcement (Garrouch et al. 2014). In the absence of legal enforcement and strong investor protection, mere adoption of accounting standards cannot achieve higher audit and earnings quality (Alzoubi 2016; Garrouch et al. 2014; Pelucio-Grecco et al. 2014).

In Pakistan, litigation risk by stakeholders is virtually nonexistent for auditors, where there has never been a legal case against the auditors (Ashraf and Ghani 2005). Over time, the legal and judicial systems have remained inefficient and require a series of reforms for the protection of minority investors' rights. Pakistan's scores for regulatory quality, rule of law and control of corruption in World Governance Indicators Report for 2015 were -0.62 , -0.79 and -0.76 , respectively. Pakistan also ranks among the bottom twenty-five percentile ranks among all countries. Auditors do not believe that they will be subject to legal action by shareholders. Even if a legal suit is filed by the shareholders against the auditors, it will take years to complete legal proceedings and the penalties or sanctions will be minimal. Further, enforcement mechanisms are not effective at disciplining auditors. Auditors are rarely penalized for low-quality audits and they do not believe that they have a chance of getting caught by regulators for providing low-quality audits (Jeong and Rho 2004).

Research has also pointed out that those firms which require greater monitoring due to higher information asymmetry between shareholders and managers would demand higher-quality audits (Defond 1992). Information asymmetries can be resolved through private channels (Filatotchev et al. 2011) if the reliance on the equity market is lower, thus lowering the demand for high-quality auditing. Previous research on earnings management in Pakistan has focused on the relation between earnings management and corporate governance mechanisms (Shah 2014) and the finding is that majority shareholders expropriate the interests of minority shareholders and alter financial statements for their vested interests. Afza and Nazir (2014) investigated the effect of audit committee characteristics on firm value and found that audit committee size and the quality of external audit have significant positive impacts on firm value. Apart from that, the relationship between audit quality and earnings management and the impact of family firm dominance on earnings management has generally been neglected, to the best of our knowledge, which further established the need to carry out this research.

Businesses in Pakistan are mostly owned by family business groups which are very influential. Ashraf and Ghani (2005) quoted an associate of a Big 4 audit firm, "It is very difficult to stand against the aspirations of management, if they own more than seventy percent of voting rights". Economic bonding, according to L. E. DeAngelo (1981), provides incentives to auditors to report favorably and obtain more revenues especially if the client is large and all firms in the business groups are being audited by the same auditors. Big 4 audit firms also do not operate under their international brand name in Pakistan; rather, they operate under the names of local affiliates in Pakistan. This also reduces the incentives for Big 4 auditors to protect their brand name and reputation by providing high quality audits. Thus, it is difficult for auditors to remain objective and independent in a relationship-based

economy (Jeong and Rho 2004) when institutional settings do not provide incentives for auditors to deliver a high-quality audit. Thus, we hypothesize that;

Hypothesis 1. *Given the institutional environment in Pakistan, there is no significant difference between earnings management activities of firms audited by Big 4 and non-Big 4 auditors.*

As another measure of audit quality, we examine whether the audit report (Unqualified vs. Qualified) is issued in response to the earnings management activities employed by firms. One stream of research posits that qualified reports are positively associated with level of discretionary accruals (Bartov et al. 2000; Francis and Krishnan 1999), while others found no evidence of the association between discretionary accruals and qualified reports (Tsipouridou and Spathis 2012). Similarly, Tsipouridou and Spathis (2014) investigated the association between qualified audit opinions and earnings management and found that audit opinions and earnings management have no relation. Rather, firm characteristics such as size and profitability are important drivers of going concern audit opinion. This means that there is no unanimity among researchers that firms receiving qualified audit opinions are managing earnings more than those receiving unqualified audit opinions (Butler et al. 2004).

Butler et al. (2004) argue that auditors discuss with their clients any material misstatements in financial statements and any deviation from accounting standards, and negotiate with the management to make relevant adjustments. High-quality auditors are those who are able to detect material misstatements and get them corrected before issuance of audit reports. Therefore, lower earnings management activities will be expected, and the auditors will issue an unqualified audit opinion.

However, in Pakistan, the incentives of auditors are different from in other developed markets, as outlined in the previous hypothesis. These include financial incentives to obtain greater revenues from large clients and their inability to withstand pressure from the management in case of concentrated ownership in form of influential business groups. Second, auditors in Pakistan do not face the same litigation risk experienced by auditors in developed countries, because of poor legal enforcement. Therefore, auditors may not be able to convince management to make relevant adjustments in financial statements. In that scenario, they have two options; either to issue an unqualified audit opinion and absolve the management from material misstatements in financial statements and deviation from accounting standards or issue a qualified audit opinion. In the latter case, auditors have the further option to issue a qualified audit opinion that does not affect the overall audit opinion as an alternative to issuing a sterner qualified audit opinion that does affect the overall audit opinion. In this way, auditors are able to issue a qualified opinion as well as avoid the risk of losing their influential clients and revenues. Thus, our second hypothesis is;

Hypothesis 2. *Given auditors' incentives in Pakistan, the audit opinion (unqualified vs. qualified) is not issued in response to the earnings management activities employed by firms.*

Fan and Wong (2005) find that in East Asian markets, high-quality auditors play a monitoring role, and firms with higher agency conflicts hire high-quality auditors. Chen et al. (2011) provide evidence that governance role of high-quality auditors are limited and varies with SOEs and NSOEs in China. This is largely due to the fact state-owned enterprises and non-state-owned enterprises have different ownership structures, agency issues and managerial incentives. We exploit family domination of firms as one such setting to examine the monitoring role of auditors in Pakistan, where ownership structures, agency problems and managerial incentives to mediate in the financial reporting are different from non-family-dominated firms.

There is mixed evidence on the impact of family control on earnings management in the accounting literature. There is one stream of research which provides evidence that family firms are more likely to provide higher earnings quality because family owners have a long-term investment horizon, reputational concerns, and are able to monitor managers better (Prencipe and Bar-Yosef 2011;

Tong 2007; Wang 2006). Another stream of research posits that family firms are more likely to engage in earnings management practices because of concentrated ownership, which gives rise to the expropriation of wealth by controlling shareholders at the expense of minority shareholders (Chi et al. 2015; Fan and Wong 2002).

In Pakistan, ownership is highly concentrated and firms are mostly controlled by influential family business groups (Ashraf and Ghani 2005; Mirza and Azfa 2010). The presence of family members on the board, lower demand for high-quality financial reporting because of a less developed capital market, concentrated ownership and weaker investor protection lend support to the argument that family firms may engage in earnings management practices. Information asymmetries can be resolved through private channels and managers convey financial information directly to family owners. Banks and financial institutions, which are major source of financing, can also obtain information directly establishing close tie with family firms and reliance on published financial statements is lower, thus reducing the incentives for auditors to provide high-quality audits.

External auditors are expected to play a monitoring role to ensure the quality of financial reporting by curbing manager's opportunistic behavior. In Pakistan, it is difficult for external auditors to stand against the aspirations of influential family groups (Ashraf and Ghani 2005). Family members also sit on the board and occupy the influential positions of chairperson or CEOs and involved in the management of the firm. Family members who are executive directors in one firm may work as nonexecutive or independent directors in another company of the same business group. This leads to the creation of a nexus that can undermine the independence and objective of external auditors in family dominated firms. In the case of family groups, thus, it is expected that auditors will fail to perform a monitoring role and constrains earnings management practices in family-dominated firms. We expect that if the audit quality is the same for both types of auditors (Big 4 vs. Non Big 4), there should be no differentiation in their monitoring role in family firms. Thus, we test these related hypotheses;

Hypothesis 3. *In Pakistan, there is a positive association between family firm's dominance and the level of earnings management.*

Hypothesis 4. *The presence of Big 4 auditors does not moderate the relation between family firm dominance and earnings management.*

4. Data and Sample Selection

The population from which the sample is drawn consists of firms listed on the Karachi Stock Exchange (KSE) for the period from 2009–2013. We also collected data for 2008 for some of the variables for estimation of discretionary accruals which required beginning of year values. Although IFRS was promulgated in 2005 we selected the time period from 2009, because it took firms some time to become conversant with the adoption of IFRS and develop their financial reporting and accounting system and personnel to cope with the requirements of IFRS. Consistent with previous literature, all firms from the financial sector were excluded because of different regulatory environment in these sectors, and it is also challenging to estimate discretionary accruals for these firms (Tsipouridou and Spathis 2012). A total of 12 sectors were included in the sample: Textile, Food and Beverages, Chemical and Pharmaceuticals, Other manufacturing, Cement and Minerals, Automobile, Fuel and Energy, Information and Communication, Coke & Refinery, Paper Products, Electrical Machinery and Apparatus, and Wholesale and Retail Trade.

We also excluded firms that had undergone IPO, because there is the likelihood that these firms managed earnings when going public. Data availability for calculation of total accruals and estimation of variables used to test hypotheses further reduced the sample size, resulting in 907 firm-year observations for 183 non-financial firms. Firms with incomplete five-year data were not excluded

from analysis, resulting in a different number of observations in each of the five years. Out of the total sample, 449 firm-years were audited by Big 4 audit firms and 458 firm-years were audited by non Big 4 audit firms. Data for all the variables, including financial statement data was obtained from BVD OSIRIS database. Audit opinion data was available only for 858 firm-year observations for audit opinion model.

5. Research Methodology

5.1. Estimation of Discretionary Accruals

We use signed discretionary accruals as a measure of earnings management. Manipulation of accruals to achieve desired level of earnings and profitability is preferential method for earnings management (Tsipouridou and Spathis 2012). Firms use judgments, estimates, assumption of key accounting figures to exercise discretion over accruals, which include both income increasing and income decreasing accruals. Income increasing accruals are exercised by management to present a healthy financial performance, to avoid violation of debt covenants and prevention from technical default. Managers can also engage in income increasing earnings management practices for compensation benefits, if such benefits are based on accounting numbers. Income decreasing accruals can be used for “Big Bath” or tax avoidance. Researchers differentiate between discretionary accruals and non-discretionary accruals to analyze the level of earnings management.

The most widely used model in the literature for estimation of discretionary accruals is the Jones (1991) model, modified by P. M. Dechow, Sloan, and Sweeney (Dechow et al. 1995) to remove the tendencies of Jones (1991) model to estimate discretionary accruals with errors when management has the discretion to manipulate revenues. We used two alternative models to test our hypotheses; (1) modified Jones (1991) model developed by P. M. Dechow et al. (1995), and (2) Performance-adjusted discretionary accruals model developed by Kothari, Leone, and Wasley (Kothari et al. 2005) with previous year return on assets, to ensure the robustness of our results. These models are relevant to use when firms are engaged in accrual-based earnings management, and these models distinguish the discretionary component of accruals from the non-discretionary component. P. Dechow, Ge, and Schrand (Dechow et al. 2010) discussed that “the use of these models has become the accepted methodology in accounting to capture discretion”.

Discretionary accruals can be estimated using both the time series and cross-sectional data of the industry in which the firm is included. We used across-sectional approach to estimate the discretionary accruals since year-specific changes in economic environment affecting expected accruals are cleansed, as the model is reestimated every year. Subramanyam (1996) argues that cross-sectional models for estimation of discretionary accruals are better specified than time series models. Studies generally require ten firms in the industry for estimation of discretionary accruals (Jeong and Rho 2004). We require at least eight firms in the industry for estimation of discretionary accruals, as Pakistan’s market is small compared to other markets.

5.1.1. Modified Jones Model

Our first measure of earnings management is discretionary accruals, DA estimated by applying the model developed by P. M. Dechow et al. (1995) to remove estimation errors from Jones (1991) model.

First, we estimate the parameters of the modified Jones (1991) model by running a cross-sectional ordinary least squares regression using following equation.

$$\frac{TA_{it}}{AT_{it-1}} = \alpha_0 \left(\frac{1}{AT_{it-1}} \right) + \alpha_1 \left(\frac{\Delta REV_{it} - \Delta REC_{it}}{AT_{it-1}} \right) + \alpha_2 \left(\frac{PPE_{it}}{AT_{it-1}} \right) + \varepsilon_{it} \quad (1)$$

where for firm i year t , TA is total accruals calculated as the difference between net income and cash flow from operations, ΔREV is the change in sales revenue, ΔREC is the change in receivables, and PPE

is Gross Property, Plant and Equipment and ε_{it} is the error term. All terms are scaled by lagged total assets, AT_{it-1}

Using parameters estimates from above equation, we calculate non-discretionary accruals by following equation.

$$\frac{NDA_{it}}{AT_{it-1}} = \alpha_0 \left(\frac{1}{AT_{it-1}} \right) + \alpha_1 \left(\frac{\Delta REV_{it} - \Delta REC_{it}}{AT_{it-1}} \right) + \alpha_2 \left(\frac{PPE_{it}}{AT_{it-1}} \right) \quad (2)$$

The difference between total accruals (TA_{it}) and non-discretionary accruals (NDA_{it}) is the discretionary accruals, DA , which is our proxy for earnings management. A higher level of discretionary accruals indicates higher degree of earnings management.

The intuition here is that non-discretionary accruals represent the accruals from firm's primary business operations that are inevitable. However, discretionary accruals can be used by management to alter financial information to serve vested interests. Financial information can be altered to increase managerial compensation, avoid debt covenants, and circumvent governmental or regulatory controls.

5.1.2. Performance-Adjusted Discretionary Accruals Model

The second measure of earnings management is performance-adjusted discretionary accruals, $PADA$ that is estimated by applying the model developed by (Kothari et al. 2005). The cross-sectional performance-adjusted current discretionary accruals, $PADA$, are estimated by incorporating the lagged performance factor (ROA_{t-1}), as recommended by Kothari et al. (2005), who argue that for firms experiencing unusual performance have systematic non-zero accruals and firm performance is related with accruals (Tsipouridou and Spathis 2012).

The following equation is used to calculate the industry-specific parameters for expected current accruals (ECA) by using the equation:

$$\frac{TA_{it}}{AT_{it-1}} = \alpha_0 \left(\frac{1}{AT_{it-1}} \right) + \alpha_1 \left(\frac{\Delta REV_{it} - \Delta REC_{it}}{AT_{it-1}} \right) + \alpha_2 \left(\frac{PPE_{it}}{AT_{it-1}} \right) + \alpha_3 (ROA_{it-1}) + \varepsilon_{it} \quad (3)$$

where for firm i year t , TA is total accruals calculated as the difference between net income and cash flow from operations, ΔREV is the change in sales revenue, ΔREC is the change in receivables, PPE is Gross Property, Plant and Equipment and ROA_{it-1} is last year net income divided by last year assets and ε_{it} is the error term. AT_{it-1} is the lagged total assets.

The expected current accruals (ECA) use the estimated parameters as follows:

$$\frac{ECA_{it}}{AT_{it-1}} = \alpha_0 \left(\frac{1}{AT_{it-1}} \right) + \alpha_1 \left(\frac{\Delta REV_{it} - \Delta REC_{it}}{AT_{it-1}} \right) + \alpha_2 \left(\frac{PPE_{it}}{AT_{it-1}} \right) + \alpha_3 (ROA_{it-1}) \quad (4)$$

The difference between total accruals (TA_{it}) and expected current accruals (ECA_{it}) is the performance-adjusted discretionary accruals, $PADA$, which is our proxy for earnings management. A higher level of performance-adjusted discretionary accruals indicates a higher degree of earnings management.

5.2. Multiple Regression Model and Control Variables

In order to test our hypotheses, we develop multiple regression models and control for factors that can have potential confounding effects on earnings quality. We measure earnings management by the signed value of discretionary accruals and performance-adjusted discretionary accruals, DA and $PADA$, and audit quality by audit firm size, $BIG\ 4$. Following are the regression models, we run to test our first hypothesis.

$$DA_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 CFO_{it} + \beta_5 LOSS_{it} + \beta_6 ABSTA_{it} + \varepsilon_{it} \quad (5a)$$

$$PADA_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 CFO_{it} + \beta_5 LOSS_{it} + \beta_6 ABSTA_{it} + \varepsilon_{it} \quad (5b)$$

where, DA_{it} for firm i at year t is the signed value of discretionary accruals estimated using modified Jones model developed by P. M. Dechow et al. (1995) and $PADA_{it}$ is the signed value of performance-adjusted discretionary accruals estimated using the Kothari et al. (2005) model; $BIG4_{it}$ is the dummy variable equal to 1 if the firm is audited an affiliate of the Big 4 firm in Pakistan, otherwise 0; $SIZE_{it}$ is the natural logarithm of total assets; LEV_{it} is the ratio of total debt to total assets; CFO_{it} is cash flow from operations scaled by lagged total assets; $LOSS$ is a dummy variable equal to 1 if the firm has a current year loss, otherwise 0; $ABSTA_{it}$ is the absolute value of total accruals for firm i for year t scaled by lagged total assets; and ε_{it} is the error term.

The control variables included in the model represent the firm's financial characteristics. Consistent with previous studies (Iatridis 2011; Jeong and Rho 2004; Kim et al. 2003; Othman and Zeghal 2006), we include firm size measured by the natural logarithm of total assets, $SIZE$, as control variable. Empirical studies suggest that size can be both positively or negatively associated with discretionary accruals (Becker et al. 1998; Heninger 2001; Watts and Zimmerman 1990). We also include financial leverage, LEV , as a control variable in our model. Highly leveraged firms may involve in both income increasing and decreasing earnings management practices to evade violation of debt covenants and renegotiation costs (Becker et al. 1998; Choi et al. 2010; DeFond and Jiambalvo 1994; Healy and Palepu 1990; Sweeney 1994). The expected sign of this coefficient can be either positive or negative. Cash flow from operations, CFO , is included as control variable to control for the relation between accruals and cash flows, which is expected to be negative (Becker et al. 1998; Dechow et al. 1995; Iatridis 2011; Jeong and Rho 2004; Kim et al. 2003; Kothari et al. 2005; Peasnell et al. 2005; Tsipouridou and Spathis 2012), as firms with higher operating cash flows do not have an incentive to manage earnings using discretionary accruals.

A dummy variable for current year loss, $LOSS$, is included to account for difference between profit and loss firms as the period under study has witnessed losses for most firms. We expect the sign of this coefficient to be negative. Absolute value of total accruals, $ABSTA$, is also included as control variable for accrual generating capacity of firms. Firms with greater accrual-generating capacity are probably inclined to the report higher discretionary accruals if market participants do not have an effective mechanism to differentiate between discretionary and non-discretionary components of accruals (Francis et al. 1999).

To test Hypothesis 2, we estimate a logistic regression model, where the type of Audit Opinion, AO is a dummy variable and Discretionary Accruals, DA , and Performance-Adjusted Discretionary Accruals, $PADA$, are independent variables, as shown in the following models;

$$AO_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 BIG4_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 CFO_{it} + \beta_6 LOSS_{it} + \beta_7 ABSTA_{it} + \varepsilon_{it} \quad (6a)$$

$$AO_{it} = \beta_0 + \beta_1 PADA_{it} + \beta_2 BIG4_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 CFO_{it} + \beta_6 LOSS_{it} + \beta_7 ABSTA_{it} + \varepsilon_{it} \quad (6b)$$

where, AO_{it} for firm i at year t is the dummy variable equal to 1 if the audit opinion is qualified, otherwise 0. Qualified opinion includes qualified opinions that do affect overall audit opinion, qualified opinions that do not affect overall audit opinion, and adverse opinions. There was no disclaimer opinion in our sample. The remaining variables are estimated similarly as defined in previous models.

We use the same control variables as in models (5a) and (5b), as they have consistently been used in previous literature to explain auditors' decisions to qualify audit opinions. $SIZE$ can impact the auditor's decision to qualify audit opinion both positively and negatively. Craswell, Stokes, and Laughton (Craswell et al. 2002) argue that the expected sign of this coefficient could be either positive or negative. Small clients are more likely to face going concern problem which can lead auditors to qualify their opinion. Auditors face high litigation cost in the case of large clients' failure, which conditions them to behave conservatively and do not qualify their opinion. LEV is expected to have a positive coefficient, as firms with high leverage and financial distress are deemed more risky, which increases the probability of qualification (Chan et al. 2006; DeFond et al. 2002). CFO is expected to be negatively associated with the propensity of receiving a qualified opinion since

firms with higher cash flow and profitability are less likely to engage in earnings management (Carey and Simnett 2006). LOSS and ABSTA are expected to have positive coefficients, as they control for the impact of operating risk and accrual generating capacity respectively (Carey and Simnett 2006; Craswell et al. 2002; DeFond et al. 2002).

To test Hypotheses 3 and 4, we first define a family firm, to differentiate it from non-family firms. We use family members holding at least 30% of the equity of the firm and presence of more than 50% on the board of directors as benchmarks to differentiate between a family and non-family firm. We use the following empirical models to study the relationship between family firm ownership and earnings management and the monitoring role of Big 4 auditors.

$$DA_{it} = \beta_0 + \beta_1 \text{FAMILY}_{it} + B_2 \text{FA} * \text{BIG4}_{it} + B_3 \text{BIG4}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{LEV}_{it} + \beta_6 \text{CFO}_{it} + \beta_7 \text{LOSS}_{it} + \beta_8 \text{ABSTA}_{it} + \varepsilon_{it} \quad (7a)$$

$$PADA_{it} = \beta_0 + \beta_1 \text{FAMILY}_{it} + B_2 \text{FA} * \text{BIG4}_{it} + B_3 \text{BIG4}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{LEV}_{it} + \beta_6 \text{CFO}_{it} + \beta_7 \text{LOSS}_{it} + \beta_8 \text{ABSTA}_{it} + \varepsilon_{it} \quad (7b)$$

where FAMILY_{it} for firm i at year t is a dummy variable equal to 1 if the firm is a family firm, 0 otherwise, decided on the basis of the benchmarks discussed above. $\text{FA} * \text{BIG4}_{it}$ is the interaction term between family firm ownership and Big 4 auditors. All other variables, including control variables, are the same as discussed in models (5a) and (5b), with the same expected coefficient sign and explanation.

6. Empirical Results and Analysis

6.1. Descriptive Statistics and Univariate Results

Table 1 presents descriptive statistics for the variables used in the empirical analysis. Cash flow from operations is about 7 per cent of total assets. Leverage for firms is about 23 per cent of total assets. Discretionary accruals are negative which imply that firms in Pakistan indulge in income decreasing earnings management practices. Absolute accruals are 11 per cent of total assets. The average size for firms as measured by natural log of total assets is 22.005.

Table 1. Descriptive statistics of continuous variables.

Variables	Mean	Std. Dev.	Min	Median	Max
TA	−0.015	0.207	−1.267	−0.029	3.299
DA	−0.311	0.168	−1.195	−0.010	2.039
PADA	−0.310	0.212	−1.183	−0.006	2.023
SIZE	22.005	1.645	15.642	21.917	26.749
LEV	0.232	0.365	−0.985	0.137	5.394
CFO	0.071	0.152	−0.539	0.052	1.327
ABSTA	0.110	0.176	0.001	0.072	3.299

TA: total accruals scaled by lagged total assets; DA: discretionary accruals estimated using modified Jones model developed by (Dechow et al. 1995); PADA: performance-adjusted discretionary accruals estimated using (Kothari et al. 2005) model; SIZE: the natural logarithm of total assets; LEV: the ratio of total debt to total assets; CFO: cash flow from operations scaled by lagged total assets; ABSTA: absolute value of total accruals scaled by lagged total assets.

In Table 2, the descriptive statistics and univariate tests for variables used in the empirical analysis for Big 4 and non-Big 4 audit groups are presented. The mean differences are statistically significantly for most variables, except for discretionary accruals, DA, and performance-adjusted discretionary accruals, PADA, for the Big 4 and non-Big 4 auditors samples. Discretionary accruals, DA, and performance-adjusted discretionary accruals, PADA, have negative mean values in both Big 4 (mean DA = −0.157 and mean PACDA = −0.152) and non-Big 4 groups (mean DA = −0.464 and mean PACDA = −0.469), which implies that firms in both Big 4 and non-Big 4 group tend to manage

earnings downwards, possibly to gain tax advantages. Size (SIZE), Leverage (LEV), and Cash flow (CFO) are significantly different between the two groups.

Table 2. Descriptive statistics and univariate test of continuous variables by audit firm group.

Variables	Big 4 (n = 449)					Non-Big 4 (n = 458)					Difference t-Statistics
	Mean	Std. Dev.	Min	Median	Max	Mean	Std. Dev.	Min	Median	Max	
TA	-0.005	0.247	-1.267	-0.023	3.299	-0.025	0.158	-0.766	-0.031	0.769	1.44
DA	-0.157	0.206	-0.412	-0.002	2.039	-0.464	0.080	-1.195	-0.054	1.127	1.08
PADA	-0.152	0.236	-0.520	-0.003	2.023	-0.469	0.090	-1.183	-0.038	0.887	1.09
SIZE	22.616	1.514	19.135	22.387	26.749	21.406	1.548	15.642	25.113	21.520	13.05 ***
LEV	0.168	0.231	-0.985	0.097	1.768	0.292	0.452	-0.429	0.188	5.394	-5.70 ***
CFO	0.093	0.165	-0.385	0.069	1.327	0.048	0.134	-0.539	0.043	0.963	4.49 ***
ABSTA	0.114	0.219	0.001	0.073	3.299	0.106	0.119	0.001	0.069	0.769	0.60

TA: total accruals scaled by lagged total assets; DA: discretionary accruals estimated using modified Jones model developed by (Dechow et al. 1995); PADA: performance-adjusted discretionary accruals estimated using (Kothari et al. 2005) model; SIZE: the natural logarithm of total assets; LEV: the ratio of total debt to total assets; CFO: cash flow from operations scaled by lagged total assets; ABSTA: absolute value of total accruals scaled by lagged total assets.*** Significant at 1% level.

Big 4 audit clients are larger in size (mean = 22.616), less leveraged (0.168) and have higher cash flow from operations (mean = 0.093) compared to non-Big 4 audit clients.

In Table 3, the descriptive statistics and univariate tests for variables distinguishable by audit opinion type (Unqualified vs. Qualified) are presented. Total Accruals (TA), Size (SIZE), Leverage (LEV), and Absolute total accruals (ABSTA) have significantly different mean values between the two groups. Firms with qualified opinion have positive mean total accruals, compared with firms who have unqualified opinion, and higher absolute total accruals. Firms with unqualified opinions are larger in size (mean = 22.110) and less leveraged (mean = 0.211), which is inconsistent with the results reported by (Tsipouridou and Spathis 2012).

Table 3. Descriptive statistics and univariate test of continuous variables by audit opinion type.

Variables	Qualified Opinion (n = 144)					Unqualified Opinion (n = 717)					Difference t-Statistics
	Mean	Std. Dev.	Min	Median	Max	Mean	Std. Dev.	Min	Median	Max	
TA	0.013	0.395	-0.717	-0.029	3.299	-0.018	0.149	-1.267	-0.027	0.769	1.64 *
DA	-0.221	0.182	-1.038	-0.004	2.039	-0.175	0.112	-1.195	-0.032	1.564	-0.13
PADA	-0.315	0.221	-1.057	-0.005	2.023	-0.260	0.130	-1.183	-0.024	0.982	-0.18
SIZE	21.876	1.821	16.683	21.749	26.749	22.110	1.553	15.642	21.958	26.573	-1.77 *
LEV	0.271	0.456	-0.429	0.149	4.583	0.211	0.318	-0.985	0.134	5.394	2.07 **
CFO	0.071	0.163	-0.334	0.046	0.824	0.068	0.149	-0.539	0.052	1.327	0.19
ABSTA	0.155	0.363	0.001	0.072	3.299	0.103	0.109	0.001	0.073	1.267	3.16 **

TA: total accruals scaled by lagged total assets; DA: discretionary accruals estimated using modified Jones model developed by (Dechow et al. 1995); PADA: performance-adjusted discretionary accruals estimated using (Kothari et al. 2005) model; SIZE: the natural logarithm of total assets; LEV: the ratio of total debt to total assets; CFO: cash flow from operations scaled by lagged total assets; ABSTA: absolute value of total accruals scaled by lagged total assets.* Significant at 10% level; ** Significant at 5% level.

Table 4 presents the Pearson correlation coefficient of independent and control variables. Correlations among the variables are very weak. DA and PADA are positively correlated with the independent variable BIG 4, but the correlations are very small and insignificant. Our measures of earnings management, DA and PADA, are positively and strongly correlated with each other, and their correlation coefficient is 0.700, significant at the 1 per cent level, which suggests that they can be used as proxies for earnings management interchangeably. DA is significantly correlated with SIZE (0.095), LEV (-0.165) and CFO (-0.080) at the 1% level, which justifies the choice for control variables. PADA is also significantly correlated with SIZE (0.092) and LEV (-0.149) at the 1% level, and with LOSS (-0.067) at the 5 per cent level. Audit opinion (AO) is negatively correlated with DA and PADA, but the correlations are very weak and insignificant. The Family Control variable (FAMILY) is

positively correlated with DA (0.085) and PADA (0.055), significant at 1 per cent and 10 per cent levels, respectively. BIG 4 is significantly negatively correlated with FAMILY (−0.312) at the 1 per cent level.

Table 4. Pearson correlation matrix.

	DA	PADA	AO	BIG4	FAMILY	SIZE	LEV	CFO	ABSTA	LOSS
DA	1									
PADA	0.700 ***	1								
AO	−0.004	−0.006	1							
BIG4	0.036	0.041	−0.049	1						
FAMILY	0.085 ***	0.055 *	0.015	−0.312 ***	1					
SIZE	0.095 ***	0.092 ***	−0.055 *	0.368 ***	−0.236 ***	1				
LEV	−0.165 ***	−0.149 ***	0.064 **	−0.170 ***	0.004	−0.218 ***	1			
CFO	−0.080 ***	−0.046	0.006	0.147 ***	−0.155 ***	0.040	−0.029	1		
ABSTA	0.009	0.001	0.107 ***	0.020	−0.053	−0.022	0.039	0.126 ***	1	
LOSS	0.031	−0.067 **	0.021	−0.301 ***	0.079 *	−0.041	0.114 ***	−0.301 ***	−0.002	1

* Significant at 10% level (2-tailed); ** Significant at 5% level (2-tailed); *** Significant at 1% level (2-tailed).

As no correlation coefficient is higher than 0.80, multi collinearity does not appear to be an issue in multivariate regression analysis (Gujarati 2003; Tsipouridou and Spathis 2012), where the simultaneous effects of all the variables will be analyzed.

6.2. Regression Results for Hypothesis 1

As the univariate results do not account for factors that could potentially affect the level of discretionary accruals, we run multiple regression with the control variables discussed in Section 4.2. We test the relation between discretionary accruals, DA, as estimated by cross-sectional modified Jones model developed by P. M. Dechow et al. (1995), performance-adjusted discretionary accruals, PADA, estimated by Kothari et al. (2005) model; our proxies for earnings management and the size of the audit firm, BIG 4. The results of OLS regression for a sample of 907 firm-year observations are presented in Table 5.

Table 5. Regression results of audit firm size and control variables on discretionary accruals.

Variables	Expected Sign	DA		PADA	
		Coefficient	t-Statistics	Coefficient	t-Statistics
BIG4	?	−0.015	−0.05	−0.022	−0.08
SIZE	?	0.171	1.86 *	0.149	1.78 *
LEV	?	−1.818	−4.64 ***	−1.354	−3.80 ***
CFO	−	−2.324	−2.37 **	−1.929	−2.16 **
LOSS	−	0.281	0.86	−0.603	−2.04 **
ABSTA	+	0.668	0.84	0.352	0.48
Constant		−3.678	−1.82 *	−3.029	−1.65 *
F-value			6.26 ***		6.16 ***
R ²			0.04		0.03

DA: discretionary accruals estimated using modified Jones model developed by (Dechow et al. 1995); PADA: performance-adjusted discretionary accruals estimated using (Kothari et al. 2005) model; BIG 4: dummy variable equal to 1 if the firm is audited by Big 4 auditor 0 otherwise; SIZE: the natural logarithm of total assets; LEV: the ratio of total debt to total assets; CFO: cash flow from operations scaled by lagged total assets; LOSS: dummy variable equal to 1 if the firm has current year loss 0 otherwise; ABSTA: absolute value of total accruals scaled by lagged total assets. * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level.

DA is the dependent variable in the first model, while PADA is the dependent variable in the second model. We are interested in sign and significance of the coefficient β_1 . The coefficient of the independent variable BIG 4 is negative, but not significantly different from zero, in both models. Thus, our hypothesis is accepted. Audit firm size is not significantly associated with discretionary accruals and is insignificant in explaining variation in discretionary accruals. Given the institutional settings in Pakistan, there is no significant difference in audit quality of Big 4 and non-Big 4 auditors,

and auditors are unable to restrain aggressive earnings management practices. Our results are consistent with the findings of (Bauwhede and Willekens 2004; Jeong and Rho 2004; Othman and Zeghal 2006; Peasnell et al. 2005; Tsipouridou and Spathis 2012; Yasar 2013), who provide evidence that there is no difference in discretionary accruals of Big 4 and non-Big 4 audited firms.

Most of the control variables are significantly related to discretionary accruals and as per their predicted sign. Cash flow, CFO, is negatively related to discretionary accruals and is significant at 5% level in both models. This finding is consistent with previous studies (Becker et al. 1998; Iatridis 2011; Jeong and Rho 2004; Tsipouridou and Spathis 2012), implying that firms with lower levels of cash flow would engage in earnings management practices. Leverage, LEV, is negative and significant in both models, consistent with the results of H. DeAngelo, DeAngelo, and Skinner (DeAngelo et al. 1994), suggesting that financially distressed firms are more likely to engage in earnings reducing management due to contractual renegotiations. LOSS is negatively associated with discretionary accruals and is significant at 5 per cent in the performance-adjusted discretionary accruals, PADA, model. Absolute value of total accruals is positively associated with DA and PADA, but insignificant in both models. Size is positively and significantly associated with discretionary accruals in both models at 10 per cent level, implying large firms engage in earnings management practices because of regulatory threat and political cost.

The interpretation of this result, however, is only applicable in the specific economic environment and institutional settings in Pakistan. When the litigation risk is non-existent, enforcement mechanisms to discipline auditors are meagre, and penalties imposed on auditors for low-quality audit are minimal, auditors do not have incentives to provide high-quality audits. Rather, economic bonding of auditors with their clients leads them to earn more revenue and compromise their independence and objectivity, especially if the client is large and the auditor is appointed for all the firms in the business group. This argument is strengthened in the context of Pakistan, where the audit market is small, investor protection laws are weak, Big 4 auditors are operating through their associates, and there is lower risk of reputational loss.

6.3. Regression Results for Hypothesis 2

The results of logistic regression for models (6a) and (6b) are presented in Table 6. Both models have the same dependent variable, Audit Opinion, AO, whereas the independent variables are different with discretionary accruals, DA, and performance-adjusted discretionary accruals, PADA, estimated using modified Jones model developed by P. M. Dechow et al. (1995) and Kothari et al. (2005), respectively. Although the sign of coefficient β_1 is different in both models, we are interested in the significance of the coefficient. As expected, this coefficient is not significant in both models, implying that audit opinion is not issued in response to the level of discretionary accruals employed by firms. Taking the results of both Hypothesis 1 and 2, we find that the size of audit firm does not affect the level of earnings management and the audit opinion is not issued in relation to the management's opportunistic behavior.

BIG 4 is also negatively associated with Audit Opinion, AO, but the relationship is not significant, which lends support to the argument that Big 4 auditors are not likely to issue qualified opinion. This result is consistent with the previous studies who found no significant relation between Big 4 auditors and audit opinion qualification (Bartov et al. 2000; Chan et al. 2006). Audit qualification is also not explained by the firm's financial characteristics as all control variables are insignificant with the exception of absolute accruals, ABSTA which is positive and significant, which means that firms with high accrual-generating capacity are more likely to receive a qualified opinion.

Table 6. Logistic regression results of discretionary accruals and control variables on audit opinion.

Variables	Expected Sign	AOModel (5c)		AOModel (5d)	
		Coefficient	z-Statistics	Coefficient	z-Statistics
DA	?	−0.002	−0.19		
PADA	?			0.001	0.10
BIG4	?	−0.242	−1.05	−0.243	−1.06
SIZE	?	−0.026	−0.37	−0.027	−0.37
LEV	+	0.265	1.39	0.266	1.39
CFO	−	0.133	0.22	0.139	0.23
LOSS	+	0.073	0.35	0.074	0.35
ABSTA	+	1.149	3.13 ***	1.150	3.12 ***
Constant		−1.131	−0.72	−1.131	−0.72
Wald			20.32 ***		20.43 ***
PseudoR ²			0.02		0.02

AO: Dummy variable equal to 1 if audit opinion is qualified 0 otherwise; DA: discretionary accruals estimated using modified Jones model developed by (Dechow et al. 1995); PADA: performance-adjusted discretionary accruals estimated using (Kothari et al. 2005) model; BIG 4: dummy variable equal to 1 if the firm is audited by Big 4 auditor 0 otherwise; SIZE: the natural logarithm of total assets; Size: the natural logarithm of total assets; LEV: the ratio of total debt to total assets; CFO: cash flow from operations scaled by lagged total assets; LOSS: dummy variable equal to 1 if the firm has current year loss 0 otherwise; ABSTA: absolute value of total accruals scaled by lagged total assets.*** Significant at 1% level.

6.4. Regression Results for Hypothesis 3 and 4

Hypothesis 3 tests the relationship between family firm control and earnings management, while Hypothesis 4 examines the monitoring role of Big 4 auditors in family controlled firms. The results of OLS regression for models (7a) and (7b) are presented in Table 7. Discretionary accruals (DA) is the dependent variable in model (7a), whereas performance-adjusted discretionary accruals (PADA) is the dependent variable in model (7b). We are primarily interested in the sign and significance of coefficient β_1 . Both models give similar results for our independent variable, FAMILY, which is positive and significant in both DA and PADA models at 1 per cent and 5 per cent levels, respectively. This means that Hypothesis 3 is accepted, and the variation in discretionary accruals, DA, and performance-adjusted discretionary accruals, PADA, is explained by the family firm dominance, FAMILY, variable. Family-dominated firms are engaged in earnings management practices, as they control the flow of information and expropriate the wealth of minority shareholders in the absence of investor protection laws. This result is consistent with previous studies, which report that earnings management is pervasive in family-controlled firms (Chi et al. 2015; Fan and Wong 2002).

We use the interaction term of family firm control and Big 4 auditors, FA X BIG4, to examine the monitoring role of Big 4 auditors in family controlled firms. As predicted in Hypothesis 4, Big 4 auditors fail to moderate the relation between family control and earnings management. The interaction of FAMILY and BIG4 is still positively associated with DA and PADA. Although the relation is insignificant in presence of Big 4 auditors, the positive association between FA X BIG4 and DA and PADA indicates that Big4 auditors are ineffective at reducing earnings management in family-controlled firms. The other control variables, size (SIZE), leverage (LEV) and cash flow from operations (CFO), are significant and the signs of the coefficients are in the expected direction.

Given the results of previous hypotheses taken together, we conjecture that Big4 auditors are ineffective in constraining earnings management in the presence of family control and fail to monitor the opportunistic behavior of controlling owners.

Table 7. Regression results of family firm ownership and effect of Big 4 auditors on discretionary accruals in family-controlled firms.

Variables	Expected Sign	(DA)		(PADA)	
		Model (1)	Model (2)	Model (3)	Model (4)
FAMILY	+	0.810 *** (2.74)		0.536 ** (1.99)	
FAXBIG4	?		0.112 (0.34)		0.114 (0.36)
BIG 4	?		−0.014 (−0.04)		−0.017 (−0.07)
SIZE	?	0.229 *** (2.58)	0.171 ** (1.98)	0.186 ** (2.30)	0.149 * (1.88)
LEV	?	−1.733 *** (−4.45)	−1.802 *** (−4.59)	−1.297 *** (−3.65)	−1.338 *** (−3.76)
CFO	−	−1.974 ** (−2.01)	−2.335 *** (−2.39)	−1.702 ** (−1.90)	−1.943 ** (−2.20)
LOSS	−	0.256 (0.78)	0.281 (0.85)	−0.619 ** (−2.07)	−0.598 ** (−1.98)
ABSTA	+	0.756 (0.95)	0.674 (0.84)	0.409 (0.56)	0.357 (0.49)
Constant		−5.489 *** (−2.68)	−3.670 ** (−1.92)	−4.205 ** (−2.25)	−3.026 * (−1.73)
F-value		7.58 ***	6.31 **	5.86 ***	5.18 ***
R ²		0.06	0.05	0.05	0.04

DA: discretionary accruals estimated using modified Jones model developed by (Dechow et al. 1995); PADA: performance-adjusted discretionary accruals estimated using (Kothari et al. 2005) model; FAMILY: dummy variable equal to 1 if the firm is family controlled firm 0 otherwise; BIG4: Dummy variable equal to 1 if the firm is audited by Big 4 auditor 0 otherwise; SIZE: the natural logarithm of total assets; LEV: the ratio of total debt to total assets; CFO: cash flow from operations scaled by lagged total assets; LOSS: dummy variable equal to 1 if the firm has current year loss 0 otherwise; ABSTA: absolute value of total accruals scaled by lagged total assets. * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. *t*-statistics are in parenthesis.

7. Robustness Tests

To ensure the robustness of our results, we estimate discretionary accruals by using an alternative model, the Dechow and Dichev (2002) model. We re-run our empirical models using discretionary accruals estimated by this model. The results of these models are presented in Tables 8 and 9.

The use of these alternative models does not yield considerably different results. The results are similar to those reported in Section 6. Regarding models (5a) and (5b), BIG4 is insignificant in explaining discretionary accruals, DA (Dechow). FAMILY is positive and significant at 1 per cent level and interaction of FAMILY and BIG4 is positively associated with discretionary accruals, DA (Dechow).

The results of the audit opinion model are presented in Table 9, and are robust to the use of alternative models for estimation of discretionary accruals. DA (Dechow) is negative and insignificantly associated with AO. BIG4 is also negative and insignificant, similar to our main results. The remaining control variables are also similar in sign and significance as those reported in the main results in Section 6.

Table 8. Regression results of audit firm size, family ownership and control variables on discretionary accruals using Dechow and Dichev (2002) model.

DA (Dechow)				
Variables	Expected Sign	Model (1)	Model (2)	Model (3)
BIG 4	?	−0.004 (−0.01)		
FAMILY	+		0.791 *** (2.71)	
FAXBIG 4	?			0.108 (0.32)
BIG 4				−0.013 (−0.04)
SIZE	?	0.166 * (1.83)	0.223 *** (2.55)	0.168 * (1.97)
LEV	?	−1.772 *** (−4.59)	−1.691 *** (−4.40)	−1.760 *** (−4.54)
CFO	−	−2.303 *** (−2.38)	−1.957 *** (−2.02)	−2.312 *** (−2.43)
LOSS	−	0.283 (0.87)	0.258 (0.80)	0.284 (0.87)
ABSTA	+	0.643 (0.82)	0.729 (0.93)	0.651 (0.86)
Constant		−3.571 * (−1.79)	−5.359 *** (−2.66)	−3.599 * (−1.86)
F-value		6.16 ***	7.44 ***	6.20 ***
R ²		0.04	0.05	0.05

DA: discretionary accruals estimated using (Dechow and Dichev 2002) model; FAMILY: dummy variable equal to 1 if the firm is family controlled firm 0 otherwise; BIG4: Dummy variable equal to 1 if the firm is audited by Big 4 auditor 0 otherwise; SIZE: the natural logarithm of total assets; LEV: the ratio of total debt to total assets; CFO: cash flow from operations scaled by lagged total assets; LOSS: dummy variable equal to 1 if the firm has current year loss 0 otherwise; ABSTA: absolute value of total accruals scaled by lagged total assets. * Significant at 10% level. ** Significant at 5% level. *** Significant at 1% level. *t*-statistics are in parenthesis.

Table 9. Logistic regression results of discretionary accruals estimated using Dechow and Dichev (2002) model and control variables on audit opinion.

AO			
Variables	Expected Sign	Coefficient	z-Statistics
DA Dechow	?	−0.001	−0.11
BIG4	?	−0.243	−1.05
SIZE	?	−0.026	−0.37
LEV	+	0.265	1.39
CFO	−	0.134	0.22
LOSS	+	0.073	0.35
ABSTA	+	1.149	3.13 ***
Constant		−1.132	−0.72
Wald			20.35 ***
PseudoR ²			0.02

AO: Dummy variable equal to 1 if audit opinion is qualified 0 otherwise; DA: discretionary accruals estimated using (Dechow and Dichev 2002) model; BIG 4: dummy variable equal to 1 if the firm is audited by Big 4 auditor 0 otherwise; SIZE: the natural logarithm of total assets; Size: the natural logarithm of total assets; LEV: the ratio of total debt to total assets; CFO: cash flow from operations scaled by lagged total assets; LOSS: dummy variable equal to 1 if the firm has current year loss 0 otherwise; ABSTA: absolute value of total accruals scaled by lagged total assets. *** Significant at 1% level.

8. Discussion and Conclusions

This study examined the role of auditors in monitoring managers' earnings management practices after the adoption of IFRS in the period from 2009 to 2013. Further, we investigated earnings management practices in family-controlled firms and the monitoring role of Big 4 auditors in the presence of controlling family ownership. As a proxy for earnings management, we used discretionary accruals estimated by modified Jones P. M. [Dechow et al. \(1995\)](#) and [Kothari et al. \(2005\)](#) model, and as a measure for audit quality, we used audit firm size (Big 4 vs. non-Big 4) and audit opinion type (unqualified vs. qualified).

Empirical evidence shows that there is statistically no significant difference between discretionary accruals of firms audited by Big4 and non-Big4 auditors in the context of Pakistan, where institutional settings do not provide incentives to auditors to deliver high quality and constrain manager's opportunistic behavior. Economic bonding of auditors with their clients leads them to behave opportunistically and undermine their independence and objectivity. A small audit market, weaker investor protection laws, ineffective enforcement mechanisms to discipline auditors combined with minimal litigation risk leads them to lower audit quality and pursue revenue seeking behavior. As for audit opinion, audit qualification is not issued in response to the level of discretionary accruals employed by firms. Audit qualification is also not explained by a firm's financial characteristics. Earnings management is pervasive in family-controlled firms and Big 4 auditors are ineffective in constraining earnings management in the presence of family-controlling ownership. This probably explains the reasons for insignificant difference in audit quality between Big 4 and non-Big 4 auditors. Big 4 auditors are unable to exert their independence and objectivity in the presence of influential family ownership. Economic bonding of auditors coupled with poor enforcement mechanisms and investor protection undermine their independence.

This study has implications for policy makers and practitioners, suggesting that the reliability of financial statements cannot merely be achieved by hiring Big 4 auditors. Regulators and policy makers should be mindful of the fact that earnings management still exists despite implementation of IFRS, and auditors may not be able to curb earnings management behavior. Each country has its own institutional environment and distinctive characteristics that need to be taken into account for integration of financial reporting and auditing standards ([Tsipouridou and Spathis 2012](#)). Regulators have to strengthen enforcement mechanisms and develop rules and regulations that constrain earnings management behavior of firms and provide incentives to auditors to deliver higher quality.

Despite the adoption of IFRS, financial reporting quality has not improved and peculiar economic and institutional environment of Pakistan has an effect on auditor independence and objectivity in determining financial reporting quality. Our results are peculiar to economic and institutional environment of Pakistan and cannot be generalized to other settings. The limitation of this study is that the models for estimation of discretionary accruals have been subject to criticism for providing unreliable estimates and researchers are still not in consensus on any one particular model ([Stubben 2010](#)). Second, using audit firm size as a measure for audit quality also has its limitations, as it is unlikely that all Big 4 and non-Big 4 auditors will offer the same level of audit quality across different time periods. Future research could focus on non-audit services provided by auditors, and the bearing they could have on auditors' independence and objectivity in determining financial reporting quality in presence of influential family business groups.

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