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Impact of Corporate Governance on Investment Efficiency Through Audit Quality in Firms of Pakistan

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Abstract
This study investigates the impact of Corporate Governance (CG) on Investment Efficiency (IE) through Audit Quality (AQ) in Pakistani Firms from 2012 to 2022. Acknowledging the critical role that CG plays in organizational success, highlighting the importance of strong governance structures in improving audit quality and investment Efficiency. The data was gathered from 200 firms listed on the PSX. The study uses Principal Component Analysis (PCA) to develop a Corporate Governance Index (CGI). This study applies GMM (Generalized Method of Movement) to measure IE. The study uses a structural equational model to test the hypothesis. The research finds a significant and positive association between AQ and IE, explaining how a dedication to excellent audits correlates with greater investment success. The results indicate that AQ functions as a mediator, as demonstrated by the positive and extremely significant coefficient for AQ and the negative and significant coefficient for CG. Even if CG directly impacts IE, the presence of excellent audits made possible by efficient CG processes increases IE. The study contributes to a better knowledge of how these interrelated determinants influence company performance and investment outcomes in the Pakistani environment.

Key Words: Corporate Governance, Investment Efficiency, Audit Quality, Principal Component Analysis, Generalized Method of Movement

Introduction

A key component of modern business environments is CG, which is described as the procedures and mechanisms that govern how businesses are run. The effectiveness of CG becomes critical in influencing strategic decisions as organizations traverse changing marketplaces and intricate financial environments, especially when it comes to investments (Ltifi & Hichri, 2022). This research explores the complex relationship between IE and CG, looking at AQ's mediating function. CG is a crucial component of every commercial organization since it impacts its performance, standing in the community, and long-term viability (Rehman & Hashim, 2020). A system of rules, guidelines, and practices known as CG is intended to direct how a company is managed and governed. A firm's governance approach depends on some aspects, such as the efficiency of management, the art of work, board structure (board independence, board size, board duality, board gender), Board ownership (managerial ownership and institutional ownership) compensation received by the CEO, audit committee quality of reporting, and motivation for external control (Ramadan & Hassan, 2022). This research will measure governance based on board ownership and board structure.

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The relationships between management and shareholders are the foundations for a company's success and sustainability in the dynamic world of modern business. This interaction, though, is not always pleasant. The conflict between shareholders and management can affect a company's performance and long-term prospects. The idea of CG arises as a beacon of order and transparency in this environment, where conflicts and informational inequalities might be exceptionally high. The foundation of corporate governance may be found in Berle and Means's influential work (1932), which developed the idea of separating ownership from administration. This idea serves as the basis for contemporary CG. The agency theory developed by Jensen and Meckling (1976) gives a vivid picture of the complex relationship between principals (owners) and agents (managers). This lens system clarifies the agency relationship as a complicated web where managers may not always be vigilant guardians of shareholders' interests due to self-interest and personal ambition. Other behavior finance theories that provide the base for this study model are stakeholders, stewardship, and signaling theory. CG's main goal is to increase an organization's accountability and transparency to its stakeholders, such as shareholders, clients, employees, and regulators. Effective CG practices have been associated with improved IE and better financial performance (Akingunola, 2013). Financial performance and greater IE have been linked to effective corporate governance procedures. With AQ acting as a mediating factor, this study aims to investigate how CG affects IE.

Anything purchased to generate or obtain other benefits is considered an investment. "Investment efficiency" is a term used to gauge the appropriate level of investment (Li & Wang, 2010). Two investment effectiveness scenarios exist the underinvestment scenario, in which the firm missed investment possibilities that can bring positive NPV or a production capacity shortfall. In the second situation, overinvestment, there is a negative net present value (NPV), or the firm will have loads that should not even be there (Islami, 2017; Siregar & Nuryanah, 2019). Information asymmetry (IA) presents the factors that affect IE (Salin et al., 2018). IA aids managers in choosing investment opportunities that are not in the owners' best interest but are advantageous to managers since they prevent efficient investment due to the disparity in information levels between connected parties (Verdi, 2006). Possessing effective CG systems, which validate corporate management's legitimacy, is one factor determining IE. Excellent CG processes may increase financial statements' reliability, accuracy, and trustworthiness, making it easier for auditors to do their duties, as AQ shows (Mandal, 2023). Poor CG procedures, on the other hand, increase the likelihood that the company will be mismanaged, damage the firm's reputation, and promote fraud and unethical behavior (Karim et al., 2018). Firm scandals brought on by fraud in untrustworthy financial accounts follow these principles, undermining public trust in financial statements (Mandal, 2023). Through AQ, CG mechanisms can positively or negatively impact investments' effectiveness.

Regarding the direct impact, CG procedures set boundaries on managerial conduct and regulate managerial choices, which is reflected in the effectiveness of investment choices by supplying a structural design of accountability. According to Chen et al. (2017) and Salin et al. (2018), these methods must guarantee that the company's assets are managed effectively. However, the relationship between CG mechanisms and investment effectiveness is only

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indirect because of AQ. Achieving better AQ entails lowering IA, which gives management the push and sureness to make the right decisions, and improving AQ implies having excellent CG mechanisms, which create a good environment for boosting AQ (Clinch et al., 2012).

Literature Review

Numerous studies have studied the relationship between investment effectiveness and CG. Agyei-Mensah (2021) and Tawfik et al. (2022) found a positive correlation between investment efficacy and corporate governance. They proposed that businesses with strong corporate governance policies are more likely to invest in increasing investors' profits. Three sets of previous studies examined how CG affected AQ. All CG or examined mechanisms are shown in the first group to associate with AQ. Okaro and Okafor (2015) demonstrate the beneficial effects of board size and board diligence on AQ for Nigerian listed banks. Controlling shareholders benefits AQ for public companies in Indonesia (Anafiah et al., 2017). Suryanto et al. (2017) discovered that the characteristics of the audit committee and board have a beneficial impact on AQ for Indonesian listed companies. For listed companies on the Dhaka Stock Exchange, Haque et al. (2019) demonstrate that CG and AQ have a favorable relationship. For the sample of Indonesian-listed companies, Sailendra et al. (2020) demonstrate that CG mechanisms positively impact AQ with a moderating influence of benevolence.

The findings from the second group demonstrate that while some CG processes have a considerable impact on AQ, others do not. Audit committees, CEO duality, and board independence all have an impact on AQ, according to Soliman and Abd Elsalam (2012). However, managerial ownership and institutional investors do not impact AQ for a sample of the listed Egyptian enterprises. According to research by Dwekat et al. (2018), organizations with a big board of directors, a significant degree of ownership concentration, and an audit committee are likelier to have high AQ. AQ, however, is unaffected by director ownership, board independence, or CEO duality for the sample of Palestinian-listed companies. The third group demonstrates how CG processes impact AQ. For the sample of Malaysian listed enterprises, Kasim et al. (2016) concur that there is no consistently positive correlation between good CG systems and AQ.

Corporate Governance

The significance of CG in determining the performance of a corporation and the effectiveness of investments has been acknowledged. It discusses an organization's policies, procedures, and guidelines (Larcker & Tayan, 2020). Effective risk management, increased accountability and transparency, and protecting the interests of all parties involved—shareholders, staff, clients, and the public—are the goals of good corporate governance processes (Iqbal et al., 2021). Accordingly, the effectiveness of investments has been greatly impacted by several CG mechanisms, including ownership concentration, board independence, CEO duality, and AQ (Ali et al., 2019; Khan et al., 2019).

Audit Quality

AQ is one of the key CG mechanisms that can impact the effectiveness of investments. The ability of an auditor to find and disclose major misstatements in a company's financial statements is referred to as AQ (DeFond & Zhang, 2014). Good auditing can boost investor

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confidence, lessen information asymmetry, and raise the accuracy and dependability of financial reporting—all of which can promote IE. Conversely, poor auditing can decrease IE and damage the credibility of financial reporting (Francis et al., 1999; Javed et al., 2023).

Investment Efficiency

IE is the capacity of businesses to distribute their resources to maximize their profit (Gul et al., 2018; Biddle et al., 2016). It is a crucial component of business performance and has a favorable relationship with the quality of financial reporting and CG methods (Ali et al., 2019; Iqbal et al., 2021). Consequently, it is crucial to investigate how CG mechanisms and AQ affect IE to comprehend the variables influencing company performance in Pakistan.

CG and IE

A sample of Chinese-listed companies that use CG experience reduced IE. It has been established by Chen et al. (2017) that ownership concentration and investment effectiveness are negatively correlated. Therefore, incentive-based remuneration enhances IE for a sample of Chinese-listed enterprises. According to Felix (2018), more external directors result in higher levels of IE. Salin et al. (2018) discovered that managerial ownership, board size, and board independence all impact the investment level of the top 200 Malaysian listed companies. Most Egyptian-listed companies rely on institutional ownership to decrease IA and facilitate investment decision monitoring (Rashed et al., (2018). According to Lai et al. (2020), managers are more likely to choose profitable investments in companies with insufficient internal control over financial reporting.

Recent research into the connection between CG mechanisms and investment effectiveness has produced evidence that CG mechanisms favorably impact investment effectiveness. To the researcher's knowledge, no attempt was made to examine AQ's role in mediating this association. Finally, the research does a good job of identifying several factors that affect investment effectiveness, but there are significant gaps. First, little is known about how these characteristics affect developing or emerging economies. Second, prior work has not established a connection between CG and AQ in emerging countries. Hence, the primary inquiry in this work is whether CG and AQ impact IE. In a more recent study, Bzeouich et al. (2019) emphasize the value of board oversight in lowering agency costs and guaranteeing the effectiveness of business investments in the French setting. Their findings indicate that the association between IE and earnings management is moderated by board attributes such as gender diversity, independence, and size, all of which positively correlate with IE. These results imply that when company governance is robust, managers are more guided by the profitability quality when making investment decisions.

CG and AQ

The makeup and organization of a company's board of directors significantly influence how well its internal control systems work, especially how well the audit process is done (Almashhadani & Almashhadani, 2022). This literature study examines the main conclusions from academic studies examining the connection between AQ, board structure, and board ownership. The board of directors' independence is one of the main topics covered in the literature. One characteristic of independent boards is that most directors are not connected to the business. Board independence and AQ are positively correlated. According to research

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conducted by (Lu & Zhu, 2020), boards that are too big may have trouble coordinating and providing efficient supervision. On the other hand, very small boards might not have the variety of expertise required for in-depth talks about audits. The CEO-chair duality, which divides the responsibilities of the CEO and board chair, affects the quality of audits. Companies with distinct CEO and board chair responsibilities typically have better AQ (Guizani & Abdalkrim, 2021). This division enables the board to rigorously monitor financial reporting procedures and the audit process by keeping potential conflicts of interest to a minimum.

AQ and IE

Two earlier studies examined how AQ affected the effectiveness of investments. The first group supports this connection. For a sample of Iranian public companies, Saghafi and Motamedi (2011) find that companies with high investment potential employ high AQ. Dashtbayaz and Mohammadi (2016) demonstrate a favorable correlation between AQ and investment effectiveness for a sample of publicly traded Iranian companies. According to research presented by Elaoud and Jarboui (2017), auditor specialization is one method for improving the effectiveness of investments in underinvestment scenarios. Che et al. (2020) conducted research and suggested that relying on one of the Big 4 audit firms boosts IE. Using the quality of financial statements, Chen et al. (2019) confirm AQ's beneficial impact on investment effectiveness. Masrouki and Houcine (2019) discovered that auditor knowledge favors IE for a sample of Tunisian-listed enterprises. Siregar and Nuryanah (2019) confirm that AQ favours IE for a sample of Indonesian-listed companies. The second group does not support a full correlation between AQ and investment effectiveness. Overinvestment and auditor specialty are inversely related, according to (Moeinadin et al., 2013). For a sample of Iranian-listed enterprises, there is no correlation between overinvestment and the length of the auditors' employment. Islami (2017) provides evidence that investments in companies with industry-specialised auditors had no impact on IE for a sample of Indonesian-listed companies. Boubaker et al. (2018) demonstrate that auditor knowledge reduces investment with an overinvestment case for a sample of French-listed enterprises.

The Mediating Role of AQ Between CG and IE

Current research emphasizes the function of AQ as a mediator in the connection between IE and CG frameworks. Academics contend that good CG procedures favor IE, with AQ as a significant mediating factor (Qawqzeh et al., 2021). According to Bakri (2021), information asymmetry is lessened by transparent financial reporting, which is a sign of excellent AQ and helps to produce more accurate appraisals of investment prospects. According to Al-Olimat and Al Shbail (2021), the mediation framework suggests that strong AQ serves as a medium through which CG systems have a greater influence on the best use of resources and the making of investment decisions. This study adds to our understanding of how CG and AQ work together to influence IE.

Research Objectives and Hypotheses Development

The above literature sets the primary goal of this paper, which is to investigate how CG and AQ affect IE as factors that determine IE. This primary goal is broken down into four sub-goals: first, examining the impact of CG on AQ; second, examining the impact of AQ on IE;

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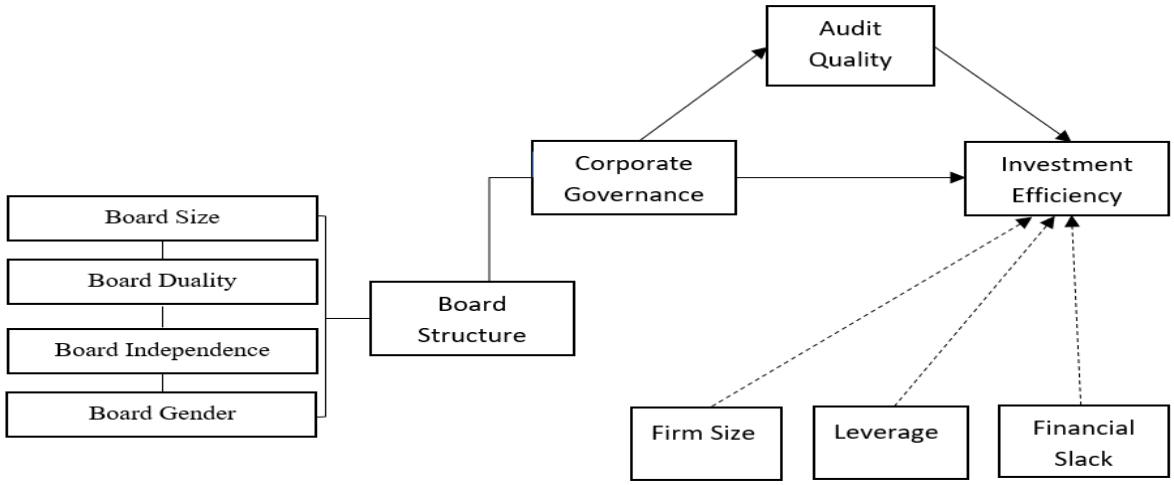
third, examining the direct impact of CG on IE; and fourth, examining the integration of CG and AQ on IE.



The following are the hypotheses based on the objective and literature review groups:

H1: Enhancing CG Improves AQ

CG is essential to guaranteeing the quality of audits. According to our hypothesis, the impact on AQ increases with the strength of CG practices. Companies can boost investor confidence by presenting their financial statements accurately and transparently and implementing efficient governance frameworks.

H2: Stronger AQ Translates into Better Investment Performance

A quality audit can make all the difference in the fiercely competitive investing world. According to our premise, businesses prioritizing and investing in AQ have a higher chance of succeeding in the marketplace. Investors can increase the effectiveness of their investments by making well-informed judgments about where to place their money when financial statements are clear and accurate.

H3: Effective CG Results in Efficient Investments

Efficient CG can increase IE and is essential to the quality of audits. According to our theory, businesses can better match investor interests with company plans by implementing good governance processes. This may result in more effective resource allocation and higher IE.

H4: AQ is a Mediator Between CG and IE

According to the idea, AQ is critical in mediating the interaction between CG and IE. By guaranteeing that financial statements are truthful and transparent, audits can assist investors in making more informed decisions about a company's performance and prospects. Robust governance protocols augment audits' efficacy, potentially enhancing information extraction.

Empirical Models

The following models will test our hypothesis of the study.

$$InvEff_{i,t} = \beta_0 + \beta_1 CG_{i,t} + \sum_{i=2}^{n}(\beta_i)\text{Control} + \varepsilon_{i,t} \quad (1)$$

$$InvEff_{i,t} = \beta_0 + \beta_1 AQ_{i,t} + \sum_{i=2}^{n}(\beta_i)\text{Control} + \varepsilon_{i,t} \quad (2)$$

$$InvEff_{i,t} = \beta_0 + \beta_1 CG_{i,t} + \beta_2 AQ_{i,t} + \sum_{i=3}^{n}(\beta_i)\text{Control} + \varepsilon_{i,t} \quad (3)$$

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In the above models, control variables are the firm's size, age, financial slack, and investment volatility.

Research Method

The population of this research study is the firms registered in PSX. This research used convenience sampling to select 200 nonfinancial sector firms from 2012 to 2022. The above model represents the AQ's mediating role in the relationship between CG mechanisms and investment effectiveness variables for research. This study applies GMM (Generalized Method of Movement) to measure IE. The study uses a structural equational model to test the hypothesis.

Research Variables

First: Measurement of Dependent variable IE

Assessment of the dependent variable (investment efficiency) (Inv. Eff.) Biddle and Hilary (2006) define IE as a divergence from the ideal investment. Overinvestment occurs when the residual is positive, while underinvestment happens when the residual is positive (Biddle et al., 2009). A panel data approach is used in this model. The study's findings include standard error-adjusted coefficients. That is the crucial equation for calculating investment:

$$Invest_{i,t} = \beta_0 + \beta_1 Sale\ Growth_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

Here $Invest_{i,t}$ Mean total capital expenditure on purchase of fixed assets excluding the sale of fixed tangible assets. While $Sale\ Growth_{i,t-1}$ signifying a change in the sale. $\varepsilon_{i,t}$ represent residual value that assesses the divergence of the firms from expected investment. This amount will be calculated for each firm on an industry basis.

Second: Measuring Mediation Variables AQ

In this study, Auditor independence is the proxy of AQ, which means the existence of an independent auditor (auditor independence) serves as a surrogate for AQ. An independent auditor can analyze the annual reports from all angles. An impartial auditor can examine the yearly reports from every perspective (Landers and Behrend, 2023). According to the study, having an independent auditor present can serve as a stand-in or gauge for the quality of the audit that is carried out. Fees are one way to gauge an auditor's independence. We allocate 1, if not 0, if the amount of these fees is made public.

Third: Measuring the independent variable CG

The following CG mechanisms are combined in this study:

Board Duality: CEO duality is a business strategy in which a company's CEO also acts as the board of directors chairman or someone who serves as a director for multiple companies (Widodo & Armstrong, 2016). Board Size: Salami (2011) and Rashed et al. (2018) calculated the total shares of shareholders with more than 5% of the outstanding shares.

Board Independence (Board Ind.): Chen et al. (2017), Felix (2018), Salin et al. (2018), and Rashed et al. (2017) The number of independent outside directors who were not related to an executive was calculated as a natural logarithm by.

4. Board Gender Diversity: The male and female members of the board (Reddy & Jadhav, 2019; Bernile et al., 2018).

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Control Variables

The control variables of the study are firm size, financial leverage, and financial slack. Here, the firm size means the logarithm of the firm's assets. The ratio of cash in the balance and investment for a short period lagged by total assets is slack.

Empirical analyses

A balanced panel of 200 PSX-registered enterprises makes up our sample. The information is available for the years 2012 through 2022. We started investigating AQ's function as a mediator between CG and IE in 2012. Following Houcine et al. (2022), we restrict the scope of our research to non-financial enterprises to increase sample uniformity. Financial businesses are not included due to the nature of their accruals, the unique features of the structure of their assets and liabilities, the nature of their investments, and the various rules that apply to them. We also exclude companies that have not disclosed information on investment, such as capital and research and development expenditures, or that have not reported information for less than five years. We narrowed the original sample of 300 organizations to a final sample of 200 companies based on these selection criteria. The accounting and financial information comes from the companies' annual reports. Data on CG were manually gathered from annual reports obtained from the companies' websites.

Results and Interpretation

Descriptive Statistics and Correlation Analysis

The descriptive statistics on the studied variables in Pakistan are presented in Table I. According to Table 1, the descriptive statistics reveal that the firms in PSX had moderate IE on average (IE = 0.3113), with a significant range (Std. Dev. = 0.2831). With an AQ score of AQ = 0.7682, the metric is steady and has a little variation (Std. Dev. = 0.2348). The high Corporate Governance Index scores indicate strong governance processes with little variability (CG = 0.8686; Standard Deviation = 0.0688). There is a significant range in the average company size, which is 15.5574 (FS) (Min = 10.5912, Max = 20.4575). Financial slack (SLACK) is relatively high (Mean = 0.5565) with considerable dispersion (Std. Dev. = 0.2219), while leverage (LEV) is moderate (Mean = 0.5122) with substantial variability (Std. Dev. = 0.1714). These facts lay the foundation for comprehending the connections between auditing, IE, and corporate governance in Pakistani companies.

Table No. I Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
IE	2200	0.3112931	0.2830761	0	2.4488
AQ	2200	0.768189	0.2348158	0	1
CG	2200	0.8685621	0.0688317	0.6074	1.053
FS	2200	15.5574	1.708054	10.5912	20.4575
LEV	2200	0.5121967	0.1714408	0.1082	0.7894
SLACK	2200	0.5565054	0.2218892	0.0004	0.9994

IE=Investment Efficiency, CG=Corporate Governance Index, FS=Firm size, Lev=Leverage, S. D=Standard deviation, Slack= Financial Slack

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Several intriguing patterns among the variables under study are shown by the correlation analysis in Table No. 2. There is a marginally positive association between IE and CG (-0.0319) and Audit AQ (0.0512). There is a little negative connection (-0.0693) between Firm Size (FS) and Corporate Governance but an insignificant positive correlation (0.0140) between FS and AQ. Leverage (LEV) shows a moderate positive connection (0.0910) with AQ and a slight negative correlation (-0.0588) with IE. There is a negative correlation between Financial Slack (SLACK) and CG (-0.0693), AQ (-0.1559), and IE (-0.0957). The correlation coefficients offer a preliminary understanding of plausible associations and avenues for more exploration concerning the intricate dynamics of corporate governance, auditing procedures, and financial measures in Pakistani enterprises.

Table No. 2 Correlation Analysis

Variables	IE	AQ	CG	FS	LEV	SLACK
IE	1					
AQ	0.0512	1				
CG	-0.0319	0.0029	1			
FS	0.0111	0.0140	-0.0693	1		
LEV	-0.0588	0.0910	-0.0388	-0.0500	1	
SLACK	-0.0957	-0.1559	-0.0693	0.0627	0.0446	1

IE=Investment Efficiency, CG=Corporate Governance Index, FS=Firm size, Lev=Leverage, S. D=Standard deviation, Slack= Financial Slack

According to Dion (2008), a strong correlation (greater than 0.90) between the explanatory variables suggests a multi-co-linearity problem. Weak correlations between our study's explanatory and control factors suggest no significant multi-co-linearity problem when using all the variables for additional analysis.

Testing of Hypothesis by Applying Generalized Method of Moments (GMM)

Path A (Two-step results)

Table No. 3 Testing of Hypothesis

AQ	Coefficient	Std. err	Z	P> Z	[95% Conf. Interval]	
AQ L1	1.382432	0.00109	1257.13	0.000	1.380276	1.384587
CG	0.183120	0.013124	13.95	0.000	0.157396	0.208843
FS	-0.000032	0.000474	-0.07	0.946	-0.00096	0.000898
LEV	0.049303	0.002206	22.35	0.000	0.044978	0.053628
SLACK	0.064028	0.002065	30.99	0.000	0.059979	0.068077
_Cons	-0.506424	0.014129	-35.84	0.000	-0.534116	-0.478731

IE=Investment Efficiency, CG=Corporate Governance Index, FS=Firm size, Lev=Le3verage, S. D=Standard deviation, Slack= Financial Slack

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Path B (One-step results)

Table No. 4 Testing of Hypothesis						
IE	Coefficient	Std. err	Z	P > Z	[95% Conf.	Interval]
IE L1.	0.7142607	0.027145	26.31	0.000	0.6610602	0.7674612
AQ	0.0547439	0.014846	3.69	0.000	0.0256452	0.0838427
FS	0.0128239	0.00212	6.05	0.000	0.0086687	0.0169791
LEV	0.0061161	0.0213698	0.29	0.775	-0.035768	0.0480002
SLACK	-0.121239	0.01668	-0.73	0.467	-0.0448161	0.0205684
_Cons	-0.1548954	0.0389279	-3.98	0.000	-0.2311927	-0.078598
IE=Investment Efficiency, CG=Corporate Governance Index, FS=Firm size, Lev=Le3verage, S. D=Standard deviation, Slack= Financial Slack						

Path C (One-step results)

Table No. 5 Testing of Hypothesis						
IE	Coefficient	Std. err	Z	P > Z	[95% Conf.	Interval]
IE L1.	0.7478671	0.0324684	23.03	0.000	0.6842302	0.8115039
CG	-3.564256	0.5805155	-6.14	0.000	-4.7020420	-2.426463
FS	0.0217883	0.0026976	8.08	0.000	0.0165011	0.0270755
LEV	0.0422206	0.0213698	1.71	0.087	-0.0061585	0.0905996
SLACK	0.0494703	0.0214801	2.30	0.021	0.0073701	0.0915705
_Cons	2.7831820	0.4754511	5.85	0.000	1.8513150	3.7150480
IE=Investment Efficiency, CG=Corporate Governance Index, FS=Firm size, Lev=Le3verage, S. D=Standard deviation, Slack= Financial Slack						

Step 4th (Two Step Result)

Table No. 4 Testing of Hypothesis						
IE	Coefficient	Std. err	Z	P > Z	[95% Conf.	Interval]
IE L1.	0.7994021	0.0030791	259.62	0.000	0.7933671	0.8054371
CG	-0.992502	0.0416304	-23.84	0.000	-1.074096	0.9109079
AQ	0.0491261	0.0033885	14.50	0.000	0.0424847	0.0557674
FS	0.0145075	0.0004827	30.05	0.000	0.0135613	0.0154536
Lev	0.0024940	0.0054074	0.460	0.645	-0.0081040	0.0130923
SLACK	0.0162755	0.0049157	3.310	0.001	0.0066409	0.0259100
_Cons	0.6453106	0.0342953	18.82	0.000	0.5780930	0.7125281
IE=Investment Efficiency, CG=Corporate Governance Index, FS=Firm size, Lev=Le3verage, S. D=Standard deviation, Slack= Financial Slack						

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The study article examined how AQ functions as a mediator between CG and IE in Pakistani enterprises. The study assessed its four hypotheses using a structural equation model using the GMM on a sample of 200 nonfinancial sector enterprises from 2012 to 2022. Because panel data are applicable in this investigation, the hypothesis is tested using GMM, and lagged explanatory variables are used as instrumental variables. Endogeneity and unobserved heterogeneity can be effectively addressed by utilizing GMM (Busch & Lewandowski, 2018). The first hypothesis (H1), according to which improving CG enhances AQ, is supported by the two-step analysis (Path A) in Table 3 results, which show a positive and statistically significant association between CG and AQ. Furthermore, the hypothesis that more efficient investments are the outcome of effective CG (H3) is validated by the positive and considerable impact that CG has on IE. The impact of control factors, such as business size, financial leverage, and financial slack, in determining IE also differed.

The second hypothesis (H2), according to which improved AQ leads to improved investment performance, is supported by the one-step analysis (Path B) in Table 4. AQ's highly substantial and positive coefficient indicates that organizations that invest in this area are more likely to see favorable market results. Results of Table 5, which take AQ into account as a mediator (Path C) and use CG as the independent variable and IE as the dependent variable, show a negative and very significant correlation for CG. This suggests that more efficient investments could not necessarily result from good CG alone. Their positive and significant coefficients highlight the significance of AQ, firm size, and financial slack in explaining IE. Table 6 (Step 4) proves that AQ mediates between IE and CG. The complex link between these factors is highlighted by the negative and extremely significant coefficient for CG and the positive and highly significant coefficient for AQ. This implies that although CG directly reduces IE, excellent audits facilitated by efficient CG procedures can enhance the efficacy of investments.

Conclusion

This research study examined the complex interactions between IE, AQ, and CG in Pakistani enterprises. From 2012 to 2022, the study examined 200 nonfinancial sector companies to achieve four distinct sub-goals. The study first examined how CG affected AQ, confirming that better CG leads to higher-quality audits (H1). It also examined how AQ affected IE and discovered a large positive correlation, supporting the idea that higher AQ leads to greater investment performance (H2). Third, an investigation into the direct influence of CG on IE confirmed that more efficient investments are the outcome of successful CG (H3). The study's final analysis examined the impact of CG and AQ integration on IE, confirming that AQ mediates the relationship between IE and CG (H4). The empirical models investigated these hypotheses using a structural equation model and the GMM. Significant correlations between the variables were found in the data, underscoring the important functions of CG, AQ, and other control factors. The findings highlighted how CG positively affects AQ, which positively influences IE. The study clarified the complex processes at work by identifying AQ's mediating function in the link between CG and IE. In the context of Pakistani firms, this research offers significant insights into CG, AQ, and IE. The results highlight the value of sound CG procedures in raising AQ since higher-quality audits are

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essential to more cost-effective investment decisions. The findings offer a framework for comprehending how these variables interact, assisting researchers and industry professionals in making defensible choices about business plans and investment methods in Pakistan's commercial environment.

Discussion

The research finds a positive correlation between CG, audit AQ, and IE in Pakistani enterprises. More specifically, it implies that companies with superior CG procedures are likelier to have greater AQ, which raises IE. Findings align with agency theory, stewardship theory, and stakeholder theory. According to the study (H1), raising CG raises AQ. This is consistent with the body of research highlighting how crucial sound CG procedures are to guarantee the quality of audits. For example, studies by AlQadasi and Abidin (2018) and Gerged, A. M. (2021) emphasize the importance of CG mechanisms, such as ownership concentration and board independence, in determining AQ. However, other research, like that conducted on Malaysian listed businesses by Alyaarubi et al. (2021), raises the possibility that there is not always a direct link between high-quality CG systems and AQ.

Differences in the governance frameworks of various businesses and geographical areas may explain this discrepancy. Better investment performance is correlated with improved AQ, according to the study (H2). This result is in line with studies on Pakistani-listed businesses conducted by Ali et al. (2019) and other studies that highlight the contribution of excellent auditing to increased IE. Studies like those by Yang and Yang (2013) provide support against the idea that there is a negative correlation between auditor specialization and overinvestment. This suggests that there may be a complex and context-dependent link between AQ and IE. The hypothesis that efficient investments follow from good CG is supported by the study (H3). This aligns with studies by Omri and Hadj (2020) that show a positive correlation between sound CG frameworks and wiser investment choices. The hypothesis that AQ acts as a mediator between IE and CG is presented in the study (H4). This is consistent with a growing body of research highlighting AQ's function as a mediator in the connection between investment outcomes and CG practices. The mediation approach is highlighted by Elzahaby (2021), who contends that CG systems have a higher influence on resource allocation and investment decisions through the medium of strong AQ.

Implications of the Research

The study offers insightful information about the complex interactions between CG, AQ, and IE in Pakistani businesses. The study's trustworthiness is increased by its meticulous approach, well-organized hypotheses, and lucid presentation of results. The results bear significance for scholarly investigations and pragmatic decision-making about CG and IE in Pakistan.

Limitations and Future Aspects

One of the study's limitations is that its convenience sampling may impact how broadly applicable the results are. Furthermore, the study does not specifically address any endogeneity concerns, and the selection of the control variables may have been justified in another way. Furthermore, the study does not look at how the relationships under study are

affected by traits unique to the firm. Future research may investigate how CG and high-quality reporting affect IE.

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