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The Impact of Audit Committee Characteristics on the Risk-taking Behavior of Firms in Pakistan

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ABSTRACT

Several steps to bring corporate governance (CG) in place and operation, but the efficient working of the audit committee is an effective component for success. This study aims to examine the impact of the audit committee characteristics and, gender-diverse audit committee on corporate risk. This study analyses the risk behavior of non-financial firms listed on the Pakistan Stock Exchange from the financial year 2010 to 2018. The findings of the study indicate that the audit committee characteristics have a negative and significant relation with idiosyncratic risk. Furthermore, gender diverse audit committee has a significant negative relationship with the capital expenditure. Our results show that the effect of audit committee characteristics such as audit committee independence, audit committee size, and, gender diversity is insignificantly associated with total risk. While audit committee independence, audit committee size, and gender diverse audit committee do support reducing corporate risk, and, they play a vital role in managing idiosyncratic risk. The findings of the analysis could help executives and boards in making appropriate choices regarding the audit committee's independence, size, and corporate governance structure and policies to improve the efficiency of the organization and mitigate risk.

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Introduction

Corporate governance is one of the important topics of today's corporate world. Research has observed the impact of various CG reforms on corporations (Ghafoor, Zulfiqar, & Khurshid, 2019b). An audit committee is considered a distinct element for CG and has earned wide attention worldwide (Adhikary & Mitra, 2016). The audit committee's role as regards accountability is further strengthened by the SOX act. The SOX Act (2002) was established to mitigate corporation weaknesses and failures. According to the Linck, Netter, and Yang (2009), the primary objectives of this act is to enhance corporate governance and reinforce the independence of the audit committee and the board.

Corporate governance tends to lead towards the development and stability of corporations by strengthening investor trust. Audit committee play a crucial role in contributing integrity to disclosures and enhancing the trust of potential investors (R. M. Alqatamin, 2018). The presence of an impartial audit committee also signals the organization's commitment about effective corporate governance (Adhikary & Mitra, 2016). Although in many countries it is mandatory for all publicly owned companies to has an audit committee and most non-public corporations also set up audit committee for greater control and accountability of the financial result. Nginyo, Ngui, and Ntale (2018) argue that the audit committee plays a key role in corporate governance, regarding supervision and transparency of the company. Supervision and transparency are considered the pillar of effective corporate governance. Growing public and legislative importance of the audit committee in corporate governance, especially after the dot.com bubble incident (A. M. Mohammed, 2018). The audit committee is seen as an important element for corporate governance and has gained wide-ranging worldwide publicity. Policymakers, international bodies, and government officials, and have all stated that they see the audit committee as a highly effective tool that can improve the reliability and disclosure of financial information (Bosse & Phillips, 2016). Bansal and Sharma (2016) articulate that the audit committee as the eyes and ears of the board and plays a key role in helping to avoid and counteract the surge in reported fraudulent activities worldwide.

The role of the independent audit Committee has become more important due to numerous financial scandals in corporations such as Enron and WorldCom (Salehi & Shirazi, 2016). Such scandals have created a great deal of uncertainty for corporations and the effects of these financial collapses have contributed to shaking investor confidence (Lang & Jagtiani, 2010). Poor performance by the board of directors was one of the key reasons for the scandals (Akbar, Kharabsheh, Poletti-Hughes, & Shah, 2017). The fraud of the Taj Quran Company has happened in Pakistan. "Securities and Exchange Commission of Pakistan" released the CG code to ensure transparency and accountability in the public & private sector (Ayaz, 2017). Corporate governance is now a priority in emerging countries after the financial collapses of the past, which have led to the need for better corporate governance policies (Paulinus, Oluchukwu, & Somtochukwu, 2017). After the financial scandals there is a continuous improvement in corporate governance.
The audit committee has quite a significant role in improving the consistency of financial statements, evaluating and analyzing the internal control structure and controlling the collaboration between the executive and various stakeholders (Omar, Rahman, & Hamid, 2018). According to the Contessotto and Moroney (2014), the audit committee maintains the credibility of financial reporting and thus improving the consistency of the published figures. Younas, Klein, Trabert, and Zwergel (2019) find that the proportion of independent directors on board had a negative effect on corporate risk.

Another aspect of corporate governance, which has gained growing recognition to improve transparency and creditability, is gender diversity in different executive committees. Females are perceived to have high moral principles and more risk averse than men particularly when it comes to engaging in financial matters. Unlike men, females are more concerned with fairness and accountability and rely on regulations. Ali, Liu, and Su (2018) examine that inclusion of women on board would mitigate default risk. Wilson and Altanlar (2009) argue that the probability of insolvency is negatively linked to the percentage of female directors. Beck, Behr, and Guettler (2013) suggest that the recovery of debts issued by the female staff is far less expected to go into arrears. There have been few research that look into the relationship between corporate governance, independent audit committees, and risk. Sheikh (2019) looks on how CEO authority affects company risk. As a result, this variable has a considerable and favourable impact on business risk, but only when there is a high level of market competition or strong corporate governance. Tai, Lai, and Yang (2018) investigate the audit committee's and board's roles in corporate risk. The board of directors, particularly the audit committee, has a significant influence on the corporation's hedging decisions, including whether and how much to hedge. This study is unusual in the context of Pakistan because, despite extensive research, the influence of a gender-diverse independent audit committee on business risk has yet to be investigated in Pakistan. Due to the existing lack of conclusive findings and a literature gap, this study examines whether the independent audit committee and the inclusion of women on the audit committee help to decrease risk faced by businesses. The research predicts that an independent audit committee and female representation on the audit committee will have an impact on corporate risk, based on agency theory.

Literature review and hypothesis development

Corporate Governance

Governance is commonly accepted as a major factor of all organizational practices' effectiveness and failure. The framework of corporate governance, depending on the country and implemented internationally with various features (Almaskati, Bird, & Lu, 2020). Corporate governance provides different motives for various individuals in various ways. It includes the framework by which company's targets are developed and the mechanism to meet those targets and monitor results (Kusi, Gyeke-Dako, Agbloyor, & Darku, 2018).

Due to the growing concern about corporate fraud & false financial statements, the idea has become famous for developing and emerging economies. Pakistan has reported numerous corporate frauds. Corporate governance has become the main determinants of the stability of a company's structure and strength to endure economic shocks. Corporate governance has become the structure in which organizations are monitored and controlled. Good accountability and governance guidelines offer a collaborative framework for corporate governance activities (Rani & Gautam, 2017). It is been found from previous studies that a firm's management and business longevity are aligned with the governance style and economic landscape demands strong corporate governance (Jabeen & Oudah, 2018). The principle of corporate governance is based primarily on the answerability of directors to stockholders (Mlambo, 2017). So corporate governance system lays out the division of rights and duties between various organizational members, such as the board, executives, principal and other investors, and lays out the principles and protocols for the verdict- on organizational issues.

Ayandele and Emmanuel (2013) state that corporate governance encourages transparency and answerability. The corporate investor expects a hefty amount of return, which is possible due to a good and effective framework of corporate governance, whereas poorly regulated companies face risk. Spanos (2005) find that corporate governance has important consequences for the economic potential, as good management decreases investor risk, and increases corporation performance. Sarbah and Xiao (2015) state that strong corporate governance leads to sustainable business growth by improving organization efficiency and increasing access to outside resources and investment. Investors tend to work with businesses with the best corporate practices.

Most of the popular ideas which have already been commonly used throughout corporate governance as well as risk reduction research known as agency theory. Agency theory describes the interaction among two groups such as the corporate managers and owners whom interests are not compatible with one another (Banks, Woznyj, Kepes, Batchelor, & McDaniel, 2018). Wagana and Nzulwa (2017) describe that this relationship the transfer of certain decision-making rights to managers. The enterprise is not a person but a lawful fiction in which conflicting goals of persons are put in balance through the system of contractual relations (Eisenhardt, 1989). The purpose of these agreements is that both parties are working for the benefit of company and to reduce the costs of the agency. As a result, owners have the right to recruit executives, so they would need a plenty of details to determine manager performance. A company is a network of contractual relationships (Jenson & Meckling, 1976), according to agency theory, consisting of different stakeholders that have varied interests (Bosse & Phillips, 2016). This theory offers a mechanism to understand how to set up an appropriate control and reward program in the light of ambiguity and limited information. Shi (2019) remark that a good framework of governance can demote the dispute between the executive and shareholder. He proposes two solutions to mitigate issue between principal and executive. The first solution provides a logical result-based contract, where the agent's activities can be verified. the second principal requires establishing a clear information system under which the shareholder is conscious all the details regarding the behavior of the managers and cannot mislead the principal (Chen, 2010). Effective corporate governance policies balance the priorities of shareholder and managers with that of the shareholders and turn them into successful risk control approaches (Elbahar, 2016).

Corporate Governance and Corporate Risk

Risk can often be interpreted as just an opportunity in which yields outcomes distinct from those initially expected. Risk is categorized as manageable (unsystematic) and unmanageable (systematic) risk. Systematic/ unmanageable risk is a business risk that affects the whole economy, not individual businesses, and that is caused by extrinsic factors: rampant inflation, unemployment and recession (Ullah, Hashim, Khan, & Safi, 2017). Unmanageable risk cannot be managed but could be attenuated through diversification. Corporate governance has impact on corporate risk. The good system of corporate governance will mitigate corporate risk. In fact, a company that does not show good corporate governance appears to impose less constraints on executives and, as a result, executives are granted more discretion to make business decisions that prevent compromising their personal interests. Corporate governance encompasses many facets, including problems to be resolved in the organization, the legal structure the allocation of ownership rights or the interests of monetary and non-monetary stakeholders (Ghafoor et al., 2019b). Tahir, Afzal, Liaqat, Tahir, and Ullah (2019) find that corporate governance is characterized as a system containing of protocols for business management, enhancing performance, oversight and accountability and acting in the interests of all participants. Jiraporn, Chatjuthamard, Tong, and Kim (2015) explore how the consistency of corporate governance affects risk. They note that more efficient corporate governance contributes significantly reduced corporate risk. Cohen, Dey, and Lys (2013) examine the influence of the SOX Act on organizational risk-taking. Bargeron, Lehn, and Zutter (2010) find convincing proof of changes in corporate investment and hazard-taking behavior. They record the reduction in enterprise risk-taking actions after SOX. Studies around the world have shown that good corporate governance procedures play a diversified position in risk reduction. Błach (2010) describe that risk is interpreted as the disparity between real gain and the desired gain.

Independence of the Audit Committee and Corporate Risk

An audit committee is a committee of an organization's body which is responsible for surveillance of the financial reporting process and internal control system (Toumeh & Yahya, 2017). The audit committee is authorized to act on behalf of the "board of directors" by performing a vital task of accountability in corporate governance. It aim to safeguard capital providers and to ensure transparency for businesses (Hasibuan & Auliya, 2019). The concept of agency theory implies that the beneficial oversight function of management practices is most often carried out through independent directors in the audit committee (Chariri & Januarti, 2017). After numerous corporations failures around the world ,the importance of creating an effective and independent audit committee in order to strengthen corporate governance has been recognized more and more (Al-Najjar & Abed, 2016). Menon and Williams (1994) find that corporations have reduce their corporate costs and problems by taking part in a greater overseeing activity through audit committees. So, audit committee plays an important role in corporate governance mechanisms and reduces the risk of the organization and reducing the information gap through transparent financial reporting (Bassiouny, 2016). Financial reporting is a primary way of disclosing the financial position of a business to investors so the audit committee can play a vital role in reducing the information gap between investors and corporate managers (Khlif & Samaha, 2016).

One of the audit committee's initial function is to manage the process of financial reporting. An independent audit committee executes a higher quality of monitoring, which results in improved financial reporting. Bédard and Gendron (2010) report that independent directors have no personal or economic relationship with management and for this reason can operate independently without any management influence. According to the Pérez-Cornejo, de Quevedo-Puente, and Delgado-García (2019) independent directors are independent in the sense that they do not have any material relationships with either managers or owners. Allegrini and Greco (2013) find that having an independent audit committee provides an increased possibility of monitoring and reduces the opportunities for management to withhold information for its advantage. DeFond and Francis (2005) examine that independent director within the audit committee are more efficient at reviewing than their counterparts. Having an independent audit committee will improve the business by increasing its reputation and providing unbiased decision-making (Haniffa & Cooke, 2002).

The actions of the audit committee are the best tool for minimizing the risks and complexities found in the current business climate. Poretti, Schatt, and Bruynseels (2018) state that the independence of the audit committee is viewed as crucial to its successful monitoring functions. The independent audit group minimizes the risk of enterprise failure (Carcello & Neal, 2003). Ghabayen (2012) remark that the role of the audit committee and its operations within the corporation encourage prospective investors and reduce the corporate and operational risk of the business. Ullah et al. (2017) state that corporate governance negatively impacts on solvency risk. He also finds that audit committees and board independence negatively impact on solvency risk.

Audit Committee Size and Corporate Risk

The committee's magnitude is the total of team members selected by regulatory bodies. Li, Mangena, and Pike (2012) describe that the audit committee has been one of the central and important protagonists in corporate governance because it helps the board carry out its duties in overseeing corporate governance. The exact number of representatives of the audit committee is important for monitoring executives and detecting misleading conduct. According to the Tarus, Tenai, and Komen (2019) size of the AC strengthens the mechanism of financial reporting consequently reducing the asymmetric facts between executives and stakeholders. Lipton and Lorsch (1992) note that the audit committee 's monitoring capacity boosts as the number of its representatives' increases. Yermack (1996) remark that a smaller size of the audit committee increases the efficiency of corporations. This stance is consistent with Jensen (1993)'s statement that a limited audit committee increases the efficiency by which the audit committee plays a vital role in supervision and accountability. Anderson, Mansi, and Reeb (2004) state that the big size audit committee spends an ample amount of time reviewing the process of financial reporting and internal control. The audit committee retains and enhances public confidence in the accuracy and integrity of financial reporting. Consequently, the size of the AC would be necessary to properly evaluate its role in the business for the enforcement of key decisions regarding the organization's risk management policy (Tarus et al., 2019). The size of the AC is about to be related to the actual execution of its responsibilities. At least three members in the AC as stated in the code of corporate governance 2012 of Pakistan (Khan, Ali, & Boudiab, 2017). The size of the AC seems to be the most important feature of AC as it instantiates all the other characteristics such as independence and knowledge (Dhaliwal, Naiker, & Navissi, 2010) . Madawaki and Amran (2013) find in his study larger audit committees hold more authority, reputation and resources, thereby enhancing monitoring and improving the detection of problems and fraud resulting in enhanced internal control. It is noted that the appropriate size of the AC may have been more effective in dealing with organization issues (Sultana, Singh, & Van der Zahn, 2015). However, small-size AC has wide range of expertise and can ensure adequate monitoring (Bédard & Gendron, 2010). Yatim's (2009) findings state a significant and positive relationship between the audit committee size and risk management. He demonstrates that broad audit committees can influence internal control efficiency, thus encouraging the design of risk management systems.

Gender Diversity of Audit Committee and Corporate Risk

The past few years have shown a dramatic rise in the concentration of females amongst top management and boards of directors in companies (Chijoke-Mgbame, Boateng, & Mgbame, 2020). Gender diversity is likely to impact the decisions of a business and recommend that females have distinct viewpoints and require different details from males (R. Alqatamin, Aribi, & Arun, 2017). Several feminist experts claim that females are more likely to be ethical and neutrals than are males (Nelson, 2012). In recent years, both investors and society have started a campaign for the hiring of women directors on company boards. Study conducted by the American Institute of Certified Public Accountants regarding Work, life, and female initiatives over 50% of recent graduates is females. In the majority of countries, the percentage of women in top executive positions is still low (Keiran, 2017). Smith, Smith, and Verner (2006) find numerous cases for emphasizing the importance of females on the boards. Various, studies regarding the effects of corporate governance expect that the presence of women on audit committees may enhance oversight activities (Ittonen, Miettinen, & Vähämaa, 2010). Byrnes, Miller, and Schafer (1999) find that the presence of females on board provides positive results in corporate monitoring. The membership of females on the boards would produce a healthier image of the overall view of a business and it will make a positive effect on the performance of the company. Risk-taking assessment is very important for the company's performance (Nakano & Nguyen, 2012), specifically in improving the efficiency and value of the firm which consequently increases the shareholder's value (Firdaus & Adhariani, 2017). Diversity in boards of directors is also required to help the mission and thorough decision-making because it can bring many perspectives (Faccio, Marchica, & Mura, 2016). In the context of agency theory, diverse directors can improve the capacity of the supervisory and decision-making mechanism of the board of directors to influence company outcomes (Carter, D'Souza, Simkins, & Simpson, 2010).

Gold, Hunton, and Gomaa (2009) summarize sociological and psychological studies on gender differences indicate that women avoid risk and are more ethical than males. Croson and Gneezy (2009) report three fundamental differences about risk perceptions, social perceptions, and competitive preferences based on gender. According to their survey report, women have been generally risk-averse. A gender-diverse committee may aid to negate unnecessary and extreme risk-taking. Lenard, Yu, York, and Wu (2014) find that presence of females on the BOD impacts on to decrease stock yield volatility. Female board members tend to have a clear understanding of enterprise in contrast to male counterparts. Burgess and Tharenou (2002) suggest that the ratio of corporate scandals may be lessened by increasing the females as directors on the board.

Role of Agency Theory in CG & AC

Agency theory provides a sound basis on which to justify the value of the independence of the auditor. That means one important method to regain the interest of investors is to get an impartial auditor reporting on the financial statements (Chariri & Januarti, 2017). All businesses need to prepare a reliable report on financial details. Quality of financial reporting is treated as the most important element in the statement of financial performance. According to the Alzeban and Sawan (2015), independence of AC representatives is one of most important factors in enforcing internal audit mechanism. Audit offers a dual added quality for the disclosure of financial statements. Al-

Shaer, Salama, and Toms (2017) find that corporations with higher quality ACs present of higher quality financial disclosures. The independence of auditors is essential for the accuracy and uprightness of the financial statements. Kanagaretnam, Krishnan, and Lobo (2010) describe that the independent audit committee with experience are more capable of identifying misrepresented parts of financial statements which can impact the client due to their accurate representation, so that the outcome is to provide credible financial information. Further professional auditing increases the precision of the information presented and helps investors to predict greater accurately than in the business (Paydarmansh & Khorrami, 2014). Independent AC executes more efficient monitoring roles. Kamarudin, Ismail, and Samsuddin (2012) find a strong association between an impartial AC as well as the quality of the financial reports. It can also be argued that an autonomous AC can conduct its supervisory role more efficiently with in the corporate governance system of a company and thus increase the quality and reliability of financial reporting. Autonomous members of the audit committee can adequately monitor manager's activities to enhance CSR disclosure and, minimize agency issues. Allegrini and Greco (2013) further claims that independence of the audit committee could benefit the business by providing integrity, experience and unbiased decision-making. Corporations have more independent auditors are often more likely to disclose flaws in internal control. According to the By Kantudu and Samaila (2015) overseeing the financial reporting process carried out by management will be transparent through the involvement of an independent audit committee. It's because autonomous audit committees are accountable to the board committee (Setiany, Hartoko, Suhardjanto, & Honggowati, 2017). Businesses with elevated-quality reporting more follow accounting practices because good accounting practices facilitate the disclosure of their superior quality (Dyczkowska, 2014). He argues that these corporation are able to take advantage of open contact with investor in order to show their competitive edge. For the future, businesses with poor-quality reports will seek to conceal these reports and thus make a limited degree of disclosures.

Role of Signaling Theory in CG & AC

Spence originated the signaling term in 1973, based on Akerlof's article 1970. Signals are communication signals that are transmitted from one group to another to affect the intended results (Taj, 2016). Signaling theory has often been used in corporate governance research to describe individual actions towards information asymmetry (Bergh, Connelly, Ketchen Jr, & Shannon, 2014). Stakeholders can access predict risk through financial reporting (Sulistyaningsih & Gunawan, 2018). In addition, numerous scandals have reinvigorated attention to corporate accountability. According to signaling theory, businesses with high-information transparency indicate strong corporate governance. Wang (2009) examine that the transparency increases the corporate's value and gives an indication to stakeholders that executives work efficiently in their interest. It indicates that financial reporting provides details that is beneficial to investors in evaluating the corporation 's effectiveness and prospects. In the sense of corporate governance, AC which is mainly responsible for overseeing the mechanism of financial reporting is likely to send valuable signals to participants in the capital market. When it comes to the accuracy of the information, fund providers are more concerned about the characteristics of ACs because it provides as essential signals about the integrity of internal monitoring mechanisms (Appuhami, 2018). Despite the roles delegated to ACs as main decision-making authorities, so it is a chance of a lawsuit if there are factual errors in the financial reports (Dao, Huang, & Zhu, 2013). The presence of an independent audit committee also transmits a signal about the attention of organization's good corporate governance.

Hypothesis development

Acknowledging the importance of an independent audit committee and female members of the AC on corporate risk, it is important to provide research focused on the improvement of corporate governance structure and procedures within Pakistani companies. The Independent audit committee is much better than the non-independent audit committee because they have more capability to bear the pressure by the executives and higher management (R. M. Alqatamin, 2018). Zulfikar, May, Suhardjanto, and Agustiningsih (2017) independent directors are independent in the sense that they do not have any material relationships with either managers or owners. The actions of the audit committee are the best tool for minimizing the risks and complexities found in the current business climate. Cost-related problems occurring in corporation reduced with the help of an independent audit committee (Mohammed, 2019) . The independent audit group minimize the risk of enterprise failure (Carcello & Neal, 2003). Ghabayen (2012) remark that the role of the audit committee and its operations within the corporation encourage prospective investors and reduce the corporate and operational risk of the business.

Various studies (Damak, 2018; Groening, 2019; Oremus, 2020) have led to the conclusion that females are found to be more engaging and beneficial to be considered as a member of the board and committee. They are known to be more risk-averse, more active, and responsible as compared to men (Hurley & Choudhary, 2020). Therefore, it is suggested that the independent audit committee, and the presence of females as AC member, highly contribute to minimizing the risk of the corporation. The key objective of this analysis is to examine the position of the independent audit committee, gender diverse audit committee and, audit committee size, to reduce the risk of the listed company in Pakistan.

H1: There is a negative relationship between Audit Committee Characteristics and Corporate risk.
H2: There is a negative relationship between Gender Diverse Audit Committee and Corporate Risk

Methodology
Methodology characterizes the method used in studying the research area. Different methods and the way are used. The appropriate methodology for this study is quantitative, as it aims to collect and analyze empirical data to understand and check the impact between observed variable corporate risk and explanatory variables gender diverse independent audit committee and audit committee size. The study sample size is 102 non-financial companies and which time duration from 2010-2018. The sample consists of various non-financial manufacturing sectors of the economy such as oil and gas, paper and board, personal use and food, sugar, chemical, textile, miscellaneous, power and distribution, fertilizer, gas, and ceramics tobacco, pharmaceutical, technology, and communication, tanneries, and leather. To collect appropriate empirical data I use the data collection strategy of (Ghafoor et al., 2019b). One-shot data provides details on both time and space (Zia, 2017).

Sample Size
This study considered non-financial firms of PSX (Pakistan stock exchange). However, financial firms were excluded due to different regulatory framework. The study also excluded those firms having less than seven years of data.

Table 1: Description of sample selection

Total Firms on (PSX)	**559**
Firms excluded having less than 9-year data	**140**
Financial Firm Excluded	**158**
Firms with incomplete data	**159**
Firm for Final analysis	**102**

Measurement of variables

The dependent variable of this study is the corporate risk. Risk is measured as the standard deviation of daily stock returns and the standard deviation of the residuals from the (Fama French Carhart four factor) model estimated from daily returns. Previous studies (Cain & McKeon, 2016; Ferris, Javakhadze, & Rajkovic, 2019; Low, 2009; Pathan, 2009; Sheikh, 2019) use idiosyncratic risk and total risk to measure corporate risk. To calculate the residuals of the Fama–French four factors model, first, daily stock returns were calculated for listed firms. The book to market ratio and the market capitalization is also arranged for these funds. Then, in each year, firms were independently allocated to two size groups based on the market capitalization. Firms were also independently allocated, three book-to-market groups. Six portfolios were then created from the intersection of two sizes and three book-to-market groups. Value weighted daily returns were calculated for these six portfolios. These six portfolios were used to find the small minus big (SMB) factor and high minus low (HML) factor. Further, the momentum factor, firms were classified into winners and losers based on their cumulative 11-months returns, the winner minus loser stocks created the momentum factor. To find the residuals of the Carhart 4 factor model, the risk-free rate was deducted from the daily stock returns. Then for each stock, a regression of excess stock returns was estimated for each stock in each year, and its residuals were obtained. The standard deviation of the residuals was then obtained for each firm. This figure is then used as a proxy for risk. Another proxy of risk is the standard deviation of the daily stock returns for each within each year. To examine the effect of audit committee characteristics on corporate risk we use idiosyncratic risk, total expenditure and capital expenditures as a proxy of corporate risk. The independent variables of this study are the independent audit committee and females board members. Independent audit committee measured as the number of independent directors divided by total audit committee size in the firm i in year t and female on AC measure as a number of females in AC. Nine control variables used in this study firm age, return on assets, sale growth, market to book value surplus cash, leverage, and firm size.

Table 2: Operational Measurement of Variables

Variable	Symbol	Description	Author
X1	ACIND	The proportion of independent directors who are members of the audit committee.	(Hasan, Molla, & Khan, 2019)
X2	AC Size	Total number of AC members	(Appuhami, 2018)
X3	GDAC	Percentage of female members on the audit committee.	(R. M. Alqatamin, 2018)
X4	Total Risk	Standard deviation of daily stock returns.	(Sheikh, 2019)
X5	Idiosyncratic risk	Standard deviation of the residuals from the Fame French Carhart four Factor Model	(Sheikh, 2019)

X6	CAPEX	Net capital expenditure to assets	(Liu, Gan, & Karim, 2020)
X7	Firm Age	The difference between the current fiscal year and the year founded.	(Tarus, Tenai, & Komen, , 2019)
X8	Leverage	Total liabilities divided by the total assets.	(Liu et al., 2020)
X9	Size of the Firm	As logarithm of total assets.	(Tarus et al., 2019)
X10	MTBV	The market value of total assets to the book value of total assets (market to book ratio)	(Liu et al., 2020)
X11	NetPPE	Net, property, plant, and, equipment to total assets	(Liu et al., 2020)
X12	Sales Growth	Log (Sales t/Sales t−1)	(Liu et al., 2020)
X13	Stock Return	Annual return over the fiscal year	(Liu et al., 2020)
X14	ROA	Return on total assets	(Liu et al., 2020)

Data Analysis

Table 3 provides a descriptive analysis of this study. This section provides descriptive statistics for all variables in this research for the period 2010 to 2018. The finding from correlation analysis is presented in table 4. Table 5, 6 and 7 presents the findings of the regression analysis.

Table 3: Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Dependent Variable					
Total Risk	865	0.590017	0.510877	0.004678	4.499108
Idiosyncratic Risk	865	0.031294	0.018253	0.003606	0.168171
Capital Expenditures	853	1.48E+09	4.89E+09	-4.15E+09	6.63E+10
Independent Variables					
AC_Size	918	3.539216	0.771697	3	7
Proportion of_IND	918	0.207843	0.182266	0	0.8
Proportion of_FAC	918	0.091158	0.163537	0	0.666667
Control Variables					
Return on Asset	870	0.067219	1.842893	-54.0543	2.184888
Leverage	870	0.563176	0.460878	0.007218	8.790163
Stock Return	914	0.55072	0.388162	0.005943	7.465228
Market to Book Value	679	4.071256	12.99577	-12.3936	248.212
Firm Age	918	37.04031	14.60365	8	69
Net Property & Plant	870	0.388919	2.939999	-85.6023	0.997542
Surplus cash	870	0.052553	0.0901	0.000177	0.751854

Table 4: Correlation matrix

Variables	Tota_risk	Idiosyn_risk	CAPEX	R&D	Leverage	AC_Size	Pro_InD	Pro_FAC	ROA	Stock Return	MtBV	Firm_Age	Net PPT	Surplus cash
Tota_risk	1													
Idiosyn_risk	0.8062*	1												
CAPEX	-0.1049*	-0.1816*	1											
Leverage	0.0529	0.1314*	-0.1046*	-0.0355	1									
AC_Size	-0.0649	-0.1680*	0.1207*	0.0292	-0.0755*	1								
Pro_InD	0.0442	-0.0253	0.1980*	0.0408	-0.0025	0.0403	1							
Pro_FAC	0.0462	0.0934*	-0.0830*	-0.0316	-0.0072	-0.1398*	-0.056	1						
ROA	-0.1231*	-0.1952*	0.0182	0.0189	0.0173	0.0325	0.0383	0.0103	1					
Stock Return	0.0106	0.0265	0.0583	-0.0584	0.0261	-0.0172	-0.0052	-0.0121	-0.0121	1				
MtBV	-0.0067	-0.0214	0.0583	-0.0584	0.1411*	0.0537	0.0287	-0.0237	0.3006*	-0.0882*	1			
Firm_Age	-0.0505	-0.0941*	-0.0095	0.051	-0.0740*	0.0278	0.1200*	-0.1145*	-0.0026	-0.0393	-0.0418	1		
Net PPT	0.0039	-0.0047	0.1903*	0.0803*	-0.0614	0.0301	-0.017	0.027	-0.0076	0.0195	-0.0196	0.0044	1	
Surplus cash	-0.0348	-0.1368*	0.0181	0.0058	-0.0881*	0.1536*	0.0067	-0.0552	0.0386	-0.0769*	0.0192	0.0864*	-0.014	1

t-statistics indicate significant level p<0.01 ***, p<0.05 **, p<0.1*

Table 5: Regression analysis

Variables	Idiosyncratic Risk		
	Model 1	**Model 2**	**Model 3**
Audit Committee Size	-0.003***		
Proportion of IND		-0.007*	
Proportion of Females AC			-0.0003***
Return on Asset	-0.025***	-0.026***	-0.027***
Leverage	-0.001	-0.001	-0.001
Market to Book Value	0.0001***	0.005***	-0.0001***
Firm Age	0.000	0.659	0.000
Net PPT	-0.0001***	-0.0001***	-0.0001***
Surplus cash	-0.004	-0.007	-0.006
fixed year effect	Yes	Yes	Yes
Constant	0.041***	0.032***	0.031***
N	644	644	644
R-Square	0.0974	0.0974	0.0974

t-statistics indicate significant level p<0.01 ***, p<0.05 **, p<0.1 *, Dependent Variable: Idiosyncratic risk

Independent variable: Audit committee Characteristics and Gender Diverse Audit Committee

As presented in Table 5 Model 1 which described the relationship between audit committee size and idiosyncratic risk. It is noted that the audit committee size, is negatively and significantly associated with idiosyncratic risk at the level (P<0.01).

As per the results indicated in table 5 the association between audit committee size and idiosyncratic risk is significant. Audit committee size is an important element of corporate governance. (Ghafoor et al., 2019; Jiraporn et al., 2015) who find a significant association between corporate governance and idiosyncratic risk. Previous literature shows the relation between corporate governance and idiosyncratic risk while this study shows the further contribution of the audit committee in this regard. Model 2 which described the relationship between an audit committee's independence and idiosyncratic risk. It is noted that the audit committee's independence, is negatively and significantly associated with idiosyncratic risk at the level (p< 0.01).

The association between audit committee independence and idiosyncratic risk is significant. Hamza and Mselmi (2017) underline that the independence of the audit committee leads to greater accountability and reduced idiosyncratic risk. The effect of corporate governance on the risk-taking of US firms is examined by (Jiraporn et al., 2015). Their measure of corporate risk comprises idiosyncratic risk and total risk. They find that corporate governance reduces the corporate risk of the organization significantly. Previous literature (Ghafoor, Zulfiqar, & Khurshid, 2019a; Jiraporn et al., 2015) shows the relation between CG and idiosyncratic risk while this study shows further contribution of the audit committee in this regard.

As indicated in table 5 Model 3 describes the relationship between the gender diverse audit committee and idiosyncratic risk. It is noted that the gender diverse audit committee is negatively and significantly associated with idiosyncratic at the level (p< 0.01).

According to the result association between the gender diverse audit committee and idiosyncratic risk is significant. Our result consistent with (Nadeem, Suleman, & Ahmed, 2019) who find that gender diversity reduces idiosyncratic risk. Gender diverse audit committee representation decreases the unavoidable risk of misleading misstatements (Ittonen et al., 2010). Table 5 depicts the results of the regression analysis of idiosyncratic risk on audit committee characteristics and gender diverse audit committee. Ullah et al. (2017) find that corporate governance negatively impacts on solvency risk. He finds that audit committees and board independence negatively impact on solvency risk. Tai et al. (2018) explore the role of the audit committee and the board on corporate risk. He finds that the audit committee plays a major role in the hedging decisions of the corporation, including whether and to what degree to hedge. Our first Hypothesis states that there is a negative relationship between audit committee characteristics and corporate risk. While the second Hypothesis postulates that there is a negative relationship between the gender diverse audit committee and corporate Risk. Our results show that audit committee characteristics and gender diverse audit committee have a significantly negative link with idiosyncratic risk a proxy of corporate risk. This result accepts our H1 and H2.

Table:6 Regression analysis

Variables	Capital Expenditure		
	Model 1	**Model 2**	**Model 3**
Audit Committee Size	0.635***		
Proportion of IND		5.780*	
Proportion of Females AC			-2.050***
Return on Asset	6.200***	5.780***	6.650***
Leverage	1.040*	1.210**	1.010*
Stock return	-0.022	-0.005	-0.018
Market to Book Value	-0.021	-0.017*	-0.021**
Firm Age	0.059***	0.052***	0.055***
Net PPT	0.019	0.030*	0.27*
Surplus cash	-7.280***	-6.210***	-6.840***
fixed year effect	Yes	Yes	Yes
Constant	-5.450	-4.210	-2.930
N	598	598	598
R-Square	0.084	0.084	0.084

t-statistics indicate significant level p<0.01 ***, p<0.05 **, p<0.1 *, Dependent Variable: Capital Expenditures Independent variables: Audit committee Characteristics and Gender Diverse Audit Committee.

Mode 1 describes the link between audit committee size and capital expenditure, as shown in table 6. Capital expenditures are a proxy for corporate risk that we employ. Capital expenditures are a high-risk investment with an uncertain return (Liu et al., 2020). According to the findings, there is a substantial relationship between audit committee size and capital spending, implying that the variation in capital expenditure can be explained by audit committee size. The association between audit committee independence and capital expenditure is significant at the level (p0.1), as shown in model 2. The link between a gender diverse audit committee and capital expenditure is significant at the level (p0.01). The gender diversity of the audit committee is found to be negatively and significantly associated with capital expenditure. The regression analysis of the association between audit committee features (independence, size), gender diverse audit committee, and capital spending is presented in Table 6. There is a considerable and positive relationship between audit committee qualities and capital expenditure. While the data corroborate H2, they also demonstrate a strong and unfavourable relationship between a gender diverse audit committee and business risk.

Table 7: Regression Analysis

Variables	Total Risk		
	Model 1	**Model 2**	**Model 3**
Audit Committee Size	-0.036		
Proportion of IND		-0.093	
Proportion of _Females AC			-0.026
Leverage	0.024	0.019	0.018
Return on Asset	-0.439**	-0.449**	-0.469**
Market to Book value	0.001*	0.001	0.001
Firm Age	0.005	0.000	0.000
Net PPT	-0.001*	-0.001**	-0.001**
Surplus cash	0.147	0.106	0.119
Fixed year effect	Yes	Yes	Yes
Constant	0.601***	0.495***	0.485***
N	643	643	643
R-Square	0.108	0.108	0.108

t-statistics indicate significant level p<0.01 ***, p<0.05 **, p<0.1 *, Dependent Variable: Total risk

Independent variable: Audit committee Characteristics and Gender Diverse Audit Committee.
It is noted that the audit committee size is negatively and insignificantly associated with total risk. According to the result association between the audit committee size and total risk is insignificant, which means that the variation in the total risk cannot be explained by the audit committee size. This result is consistent with previous studies; (Bates & Leclerc, 2009; Elamer, AlHares, Ntim, & Benyazid, 2018; Fraser & Henry, 2007), who conclude that due to time constraints, AC faces challenges in managing risk with proper perspective and concentration because they have already been assigned heavy responsibilities in the extensive range of internal control work. KPMG survey data reveal that the audit committee concentrates on monitoring financial statements and associated compliance risks instead of a broader risk management scope and that the audit committee is not comfortable doing so (Brown, Steen, & Foreman, 2009). As presented in model 2 which described the relationship between audit committee independence and total risk. It is noted that the audit committee's independence, is negatively and not significantly associated with total risk.

As per the results indicated in table 7 the association between audit committee independence and total risk is insignificant. This result is consistent with (Fraser & Henry, 2007) who find that the independent AC members lack comprehensive information about the risk that a business faces and how the risk is being managed. The reason behind the insignificant association between audit committee independence and total risk is audit committee members lack comprehensive information about the risk that a business face. The important element of corporate governance is independence (Ameer, 2013). But there's no concept of autonomous directors in Pakistan. Independent directors are practically absent in Pakistan corporations. Many businesses in Pakistan present a number of their directors as independent and claim to be independent, but none of them is independent in fact (Ameer, 2013). She finds that most of the businesses are controlled by families. And they generally tend to stay aside from directors that they can't monitor.

Model 3 which describe the relationship between gender diverse audit committee and total risk. The association between gender diverse audit committee and total risk is insignificant. The mechanisms and rules involved in corporate governance are not playing significant role in shaping organizations (Shafique, Idress, & Yousaf, 2014). According to Őnday (2016), Pakistan is one of the lowest rank of gender diverse and female economic participation countries in the world, where Pakistan score only 22 %. (Javeria Ameen (2017)) find that all firms listed on Pakistan Stock Exchange only 25 percent of the firms has one woman in board. Due to limited involvement in board and its sub-committee gender diverse audit committee insignificant association with total risk. The regression analysis 7 does not give support for Hypothesis 1 and Hypothesis 2. Consequently, Hypothesis 1 and Hypothesis 2 are not accepted. Sheikh (2019) investigates the impact of CEO power on corporate risk. Thus, the impact of this variable is significant and positive on corporate risk but this positive association stays significant only when there is a high market contest or strong corporate governance. Previous study literature describes association between corporate governance and total risk while this study shows the further contribution of audit committee characteristics and gender diverse audit committee in this regard.

Conclusion

Corporate governance is essential in our current business scenario after the worldwide corporation scandals. Corporate governance has obtained a considerable range of importance and has become a focus of public discussion in both developed and emerging nations. In the context of the corporation's supervision, accountability, and transparency, audit committee characteristics play an important role in corporate governance. The purpose of this study is to see if having an independent audit committee, having a large audit committee, and having a gender diverse audit committee are all linked to a significant reduction in corporate risk. From 2010 to 2018, this study looked at the risk behaviour of non-financial firms listed on the Pakistan Stock Exchange. We discovered that having an independent audit committee, having a gender diverse audit committee, and having a large audit committee have a negative and significant relationship with idiosyncratic risk. Furthermore, our research demonstrates that audit committee independence, audit committee size, and gender diversity are all significantly and positively linked with capital expenditures, whereas gender diverse audit committees are inversely associated with capital expenditures. According to the findings of this study, there is a strong and negative relationship between certain audit committee characteristics and corporate risk in Pakistani non-financial firms. This study results important for the government entities and companies to see how they can execute corporate governance policies and avoid risk.

Implications of the study

Recent scandals, such as the fall of Enron, have highlighted the importance of strong corporate governance. The size of the audit committee, the independence of the audit committee, and the gender diversity of the audit committee are all significant aspects of corporate governance. As a result, this research is crucial. The following are some of the study's practical implications: The purpose of this research is to assess the influence of monitoring methods such as an independent audit committee, audit committee size, and gender diversity on audit committees. Decision-makers can assess the role of various monitoring methods and their perceptions of the organization's corporate governance. The relationship between the elements of corporate governance and the corporate risk of non-financial enterprises in Pakistan is investigated in this study. The information offered in this study about the components of corporate governance and their impact on company risk can help management make the best decisions possible about their boards in order to increase their efficiency and business value. Corporate governance bodies, particularly in Pakistan, can use this study as practical and plausible evidence to develop more corporate governance rules and recommendations.

Limitation of the Study

The present research has certain weaknesses that need to be identified when evaluating the results of the analysis. The following segment addresses these limitations. Firstly, this study selected Pakistan as a single country for research. The study's scope was confined to the 102 listed firms in the Pakistan stock exchange. Financial companies have been excluded from this study. The current study relies on a quantitative approach for data collection and analysis. The current study did not follow the qualitative approach. However, the use of qualitative methods, such as interviews and, questionnaires in contrast to the qualitative method, may enhance the understanding of corporate risk and the independent audit committee issues. Although these limitations are recognized these limitations are not diverting attention from the benefits of this study and the relevance of its results. The limitations primarily provide future study avenues several of which are explained in the next section.

Future Research

The future researcher will apply the same model in other regions of different countries and their financial sector and non-financial sector. Moreover, this study selects Pakistan as a single country so in-depth research can collect data from the other two or three countries and conduct a comparative analysis. In this research work, no moderator has been applied but furthermore, the researcher can take family ownership as a moderator. The corporate risk in this model has been used as a dependent variable so the future researcher can take voluntary disclosures, financial distress, and risk management as a dependent variable in the same model. In this research work has been taken out a sample of 9 years of data so future researchers can take more years of data for the fairness of study findings. This study has only tested the link with the values obtained on an independent audit committee, a gender diverse audit committee, and corporate risk. Analyzing the same parameters with different datasets can recommend other important statistical tests which might enable additional insight. A recommendation may be to examine whether there was a similar connection between year-to-year transitions in corporate governance elements and corporate risk. Another study could also examine the association that exists furthermore, for example, analyzing whether a possible causal correlation exists between these parameters.

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