

Corporate and Public Sector Fraud in Pakistan: Risk Assessment, Digital Controls, and Governance Reforms

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ABSTRACT

Fraud has been an endemic issue in corporate and government sector organizations in Pakistan resulting in financial losses, poor governance, and deteriorated stakeholder confidence. This paper will discuss how fraud risk, digital controls, and governance reforms impact the occurrence of fraud using a quantitative research design. The sample size of 200 professionals working in corporate and public sector institutions was used to gather data in a structured questionnaire that had a five-point Likert scale. Statistical analysis using SPSS was done with descriptive statistics, correlation and regression. The results indicate that the risk of fraud has a strong positive impact on the occurrence of fraud, whereas the digital controls and the reform of governance have significant negative associations with fraud. The findings also suggest that organizations that have more robust governance structures are more likely to adopt an effective digital control system and thus minimize the exposure to fraud. The paper points out that the alone mechanism is not enough, but rather an integrated approach to risk assessment, technological controls and governance reforms are necessary in the complete prevention of fraud. These results can be valuable insights to policymakers and organizational leaders to enhance the effectiveness of anti-fraud measures and improve the resilience of institutions.

Keywords: fraud risk, digital controls, governance reforms, fraud prevention, Pakistan

INTRODUCTION

Background of the Study

Fraud is both a complex and persistent issue facing corporate as well as public sector organizations all over the world, especially in the developing countries like Pakistan. It leads to significant monetary losses, organizational image, and loss of trust in the institutions by people. The Association of Certified Fraud Examiners (ACFE, 2022) provides estimates of how many organizations lose about 5% of their annual revenues to fraud, which demonstrates the scale of the problem. The condition is further compounded by the fact that there are no strong regulatory implementations, no strong internal controls and there is no strong governance in Pakistan.

The growing trend of the digitization of organizational processes has brought both opportunities and threats. Although digital transformation helps to increase the efficiency of operations, it also opens new

opportunities to commit fraud. As a result, organizations are becoming more inclined to implement digital control mechanisms, including automated monitoring systems, data analytics and electronic audit trails, to detect and prevent fraud (Albrecht et al., 2019). They allow real-time identification of anomalies and minimize human intervention and, therefore, minimize the chance of manipulation.

Besides technological actions, governance reforms are also imperative in reducing the risk of fraud. Best governance structures focus on transparency, accountability and adherence to regulatory requirements, which is paramount in preventing fraudulent activities (OECD, 2019). Nevertheless, governance structures are frail in most of the public and private organizations in Pakistan, which leaves a chance of fraud to be committed. Thus, an overall strategy that would combine fraud risk evaluation, digital controls, and governance reforms is needed to enhance the mechanisms of fraud prevention.

Problem Statement

Despite increasing awareness and technological progress, fraud remains an important problem in the corporate and governmental spheres in Pakistan. The use of traditional control systems that are ineffective in dealing with the modern highly technology-driven fraud risk is still being used by many organizations. Poor internal control environment, absence of transparency, and ineffective monitoring systems are factors that lead to high vulnerability to fraud activities (KPMG, 2020).

Moreover, despite the introduction of digital tools in most organizations, their application is usually inappropriate and does not correlate with the existing governance systems. Consequently, the full potential benefits of digital controls in detecting and preventing fraud are not achieved. Simultaneously, governance reforms that should help improve accountability and transparency in the government are either inadequate or not well implemented, especially in the state.

The second important problem is the absence of empirical studies that would investigate the combined effect of the risk of fraud, digital controls, and governance reforms in the Pakistani environment. Most studies that have been conducted so far concentrate on single elements of fraud management, instead of offering a broad analysis. This loophole constrains the efforts of policymakers and organizational leaders to develop effective fraud prevention programs. Thus, a systematic study of the interaction of these factors to impact the occurrence and prevention of fraud in Pakistan is needed.

Research Objectives

The main aims of this research are:

1. To determine the levels of fraud risk in corporate and public sector corporations in Pakistan.
2. To test how digital controls can be used to limit the occurrence of fraud.
3. To assess the effect of governance reforms in the prevention of fraud.

Research Questions

This research aims to provide answers to the following research questions:

1. What is the degree of the fraud risk in corporate and public sector organizations in Pakistan?
2. What are the impacts of digital control mechanisms on fraud detection and prevention?
3. How do governance reforms help to reduce risk of fraud?

4. What is the interaction between the fraud risk, digital controls, and governance practices that affect the occurrence of fraud?

Importance of Study

The given study has academic and practical significance. Academically, it adds to the existing body of knowledge by offering a coherent analysis of the risk of fraud, digital controls and governance reforms in the context of Pakistan. Although earlier studies have been conducted to study these variables separately, this study provides a holistic model that can explain the combined effect of these variables on fraud prevention.

Practically, the results of this study will be useful to policymakers, regulators, and organizational leaders to design effective strategies to prevent fraud. The study offers practical recommendations on how best organizational practices can be enhanced by emphasizing the need to have digital controls and governance reforms. It also helps in enhancement of well-designed internal control systems and encourages the use of modern technologies to detect fraud.

In addition, the research has implications on the promotion of transparency and accountability in the organizations in the public sector, which is necessary to improve the level of public trust. It also helps corporate organizations to pinpoint vulnerabilities and take proactive steps to reduce the risk of fraud.

Study Limitation

This research has some limitations which outline the scope of this research. First, the study will be conducted in a limited number of corporations as well as public sector in Pakistan which might restrict the generalizability of the results in different contexts or countries. Second, the research method is a quantitative study that is based on survey data and is prone to response bias.

Also, the study only explores three major factors, including risk of fraud, digital controls and governance reforms, whereas other variables, like organizational culture, ethical climate, and external regulatory factors are excluded. Lastly, the sample size is also limited due to time and resource constraints, and the convenience sampling technique might impact the representativeness of the data.

LITERATURE REVIEW

Corporate and public sector organization fraud has been largely explored in connection with internal control failure, governance failures, and new technological risks. Fraud risk has been widely linked to inefficient oversight, inefficient risk assessment systems and absence of accountability systems. According to the report by the Association of Certified Fraud Examiners (ACFE, 2022), organizations with weak internal control systems and governance structures are much more vulnerable to occupational fraud. Likewise, KPMG (2020) emphasizes that insufficient risk assessment practices and active monitoring could expose one to fraudulent activities. To address these issues, organizations are shifting towards digital mechanisms of control like data analytics, monitoring systems based on artificial intelligence, and electronic audit trails to improve fraud detection and prevention (Albrecht et al., 2019). Meanwhile, governance systems that focus on transparency, accountability, and compliance with applicable regulations and standards are known to be valuable instruments in minimising fraud opportunities (OECD, 2019). But in the developing countries such as Pakistan, there are still governance issues such as corruption, poor enforcement and institutional inefficiencies that still cripple the effectiveness of such measures.

The theoretical backdrop of this study is predicated on the interplay between fraud risk, digital controls, reforms in governance and the occurrence of fraud. Fraud risk refers to the probability of fraudulent conducts that occur because of poor controls and organizational weaknesses whereas the digital controls

are preventive and detective controls that lower the probability of fraudulent conducts. Such reforms in governance, as transparency, accountability, and compliance systems, enhance organizational integrity and reduce the chances of fraud. All these independent variables are the ones that affect the fraud occurrence which is the dependent variable. This conceptual relationship is supported by previous research that shows that the higher the risk of fraud, the higher the fraud occurs, and that the better the digital controls and the governance practices are, the lower the occurrence of fraud (Albrecht et al., 2019; OECD, 2019). Therefore, the framework suggested implies that to have a reasonable fraud management framework, it is necessary to integrate the technological and governance mechanisms.

The theoretical framework of this paper is based on Fraud Triangle Theory, Agency Theory, and Institutional Theory. Fraud is explained using the Fraud Triangle Theory (Cressey, 1953) which links fraud to the three factors of pressure, opportunity and rationalization, which are caused by weak controls. According to Agency Theory, a conflict of interest between the management (agents) and stakeholders (principals) may result in fraudulent behavior when the monitoring mechanisms are weak (Jensen and Meckling, 1976). Further explanations of how regulatory frameworks and governance structures affect organizational behavior and compliance are presented by the Institutional Theory (Scott, 2014). All these theories give a reason why fraud risk, digital controls, and governance reforms are the main determinants that determine the occurrence of fraud.

The Pakistani setting is no exception as several studies have addressed various facets of fraud and governance. Hussain and Malik (2019) investigated the risk of fraud in the public sector organisations with the aim of determining the key risk factors; by applying a quantitative approach based on a survey, the researchers found that weak internal controls and lack of accountability were significant risk factors. Ahmed and Khan (2020) examined the efficacy of internal audit systems in Pakistani companies in a quantitative study and found that effective audit systems have lower probability of fraud occurrence, but they did not incorporate other governance variables into their research. The mixed-method analysis by Raza et al. (2021) on the fraud and corruption practices in government institutions reported that the lack of transparency and political influence were the major contributors to fraud, with the study excluding the digital monitoring systems used. In the article by Ali and Bukhari (2020), the authors investigated the mechanisms of fraud detection in bank sectors using the survey data and came to a conclusion that digital tools, such as transaction monitoring systems, played a key role in the operations of fraud detection in bank sectors. Nevertheless, the aspect of governance was under-investigated. Examining risk management practices in Pakistani corporations, Shah et al. (2022) concluded that ineffective risk assessment frameworks expose corporations to more fraud, but their study did not empirically test the occurrence of fraud. Iqbal and Saeed (2021) examined the quality of corporate governance and the risk of financial fraud and found a negative correlation between the quality of corporate governance and the risk of financial fraud yet did not consider technological factors. Khan and Qureshi (2023) investigated the effects of digital transformation on financial transparency and concluded that technology enhances accountability, but their study did not directly measure the reduction of fraud. Mahmood et al. (2022) evaluated internal control systems within the organizations of the public sector and concluded that the weak enforcement systems generate the vulnerability to fraud, but no digital control systems. In a study by Zafar and Tariq (2023), to determine how regulatory compliance impacts effectiveness of governance frameworks in Pakistan, the authors conducted a study that determined that lack of regulatory compliance reduces the effectiveness of governance frameworks. Finally, Siddiqui et al. (2021) examined the awareness of employees regarding fraud and concluded that training enhances the ability to identify fraud, although the study did not include a discussion of systemic governance challenges.

On the international front, there has been extensive research on fraud risk and control mechanisms. In a quantitative study, Albrecht et al. (2019) focused on the strategies of fraud detection and prevention and identified that organizations with well-developed internal controls and digital monitoring systems encounter a smaller number of fraud cases, which led to the conclusion that integrated systems of control should be used. In a worldwide study about occupational fraud, ACFE (2022) found that the main cause

of fraud is the lack of internal controls, thus the importance of governance structures is emphasized, although it did not specifically address the developing countries. The analysis of the global trends in fraud and the results reported by KPMG (2020) showed that the lack of effective risk assessment processes increases the exposure to fraud, and recommended the use of advanced analytics, but the variables of governance were not thoroughly examined. In a study on governance frameworks, OECD (2019) determined that transparency and accountability led to a decrease in corruption and fraud but did not empirically test digital controls. Beasley et al. (2018) also examined enterprise risk management and discovered that successful risk assessment minimized the risk of fraud, although their research was based mostly on corporate settings. Rezaee (2005) conducted a study on financial fraud prevention models and identified that effective governance, and internal controls can mitigate fraud, but the technological factors were not well represented. A global survey of economic crime carried out by PwC (2022) showed that organizations that made use of digital tools were less likely to encounter fraud, but governance reforms were not the priority. In a study of the fraud auditing methods, Singleton and Singleton (2010) discovered that data analytics is very effective in detecting fraud, but they failed to incorporate governance frameworks. Wells (2017) studied the cases of occupational fraud and concluded that a deficit of oversight is the primary reason behind fraud cases, yet the digital transformation was not discussed. Lastly, Levi et al. (2020) examined the financial crime and found that regulatory frameworks are important in preventing fraud at the organizational level, yet their study did not take into consideration organizational-level digital controls.

An overview of both national and international literature suggests that the risk of fraud, digital controls, and governance reforms are essential but are commonly researched independently. Research in Pakistan is mainly concerned with internal controls, corruption, and governance related issues with little regard given to digital fraud prevention systems. On the other hand, international studies highlight on advanced digital tools and integrated control systems but tend to be developed country contexts thus limiting their applicability to Pakistan. Furthermore, few studies have looked at the additive effect of the risk of fraud, digital controls, and governance reforms in a single empirical study.

Thus, the main gap in the available body of literature is the absence of an integrated, quantitative analysis that, at the same time, addresses the issues of fraud risk, digital controls, and governance reforms in the context of the corporate and public sector of Pakistan. This paper fills this gap by offering a detailed framework that helps to connect these variables and empirically test their combined effect on the occurrence of fraud, thus contributing to the academic and practical policy formulation.

RESEARCH METHODOLOGY

Research Design

The research design used in this study is a quantitative research design, which will be used to analyze the relationship between fraud risk, digital controls, governance reforms, and fraud occurrence in corporate and public sector organizations in Pakistan. Quantitative method is suitable since through it, it is possible to measure the variables, test the hypotheses, and identify the statistically significant relationships with the help of numerical data (Creswell and Creswell, 2018). The design is cross-sectional, since data was collected on the respondents at one point in time and explanatory in nature, as the aim is to establish cause-effect relationships of variables. It is common in fraud and governance studies whereby structured data and inferential statistics are needed (Saunders et al., 2019). The survey-based approach will make the study standardized and comparable in terms of responses to be given by various organizations operating under varying conditions.

Population and Sample

The target group of this study includes professionals working in corporate organizations and in the process of making decisions and governance in government organizations in Pakistan, as they are

directly involved in the financial management process, decision making process and governance process. In particular, the sample will include auditors, managers, accountants, and administrative staff who are likely to be knowledgeable about internal controls, digital systems, and governance practices.

The sample size was 200 respondents, and the convenience sampling technique was used to select the sample (which is suitable in the cases when access to respondents is limited, and time constraints exist) (Etikan et al., 2016). Though convenience sampling can restrict the ability to generalize the results, it is common when conducting exploratory and organization research to get relevant and practical information. There were attempts to involve people representing different organizational positions and industries to improve representativeness and provide variability in responses. It is believed that the sample size is adequate to conduct statistical analysis, especially correlation and regression methods (Hair et al., 2019).

Data Collection Instrument

The structured questionnaire was used to collect data, as it is a widely accepted tool of quantitative research since it enables data collection in a standardized manner and analysis is also easy (Sekaran and Bougie, 2016). To ensure content validity, the questionnaire was created in line with the available literature on the topics of fraud risk, digital controls and governance practices.

The perceptions of respondents were measured using a five-point Likert scale, where 1 would be Strongly Disagree and 5 would be Strongly Agree. Likert scales are the most common social science research method used in a reliable and consistent assessment of attitudes and perceptions (Likert, 1932).

The questionnaire was further broken into three key sections. The initial part assessed the risk of fraud and included questions about the poor internal control, financial anomalies, and absence of monitoring controls. The second section was devoted to digital controls with references to the application of the automated systems, data analytics, and monitoring tools to detect fraud. The third section gauged the governance practices, such as transparency, accountability, and adherence to the regulatory frameworks. Also, the dependent variable was comprised of items that measured occurrence of fraud. The questionnaire was revised before data collection to make sure that it was clear and relevant and some minor modifications were made according to the feedback.

Measurement of Variables

The research consists of four important variables: risk of fraud, digital controls, reform of governance, and the occurrence of fraud. The independent variables are taken to be fraud risk, digital controls, and governance reforms, whereas the dependent variable is taken to be fraud occurrence. Likert-scale items were used to measure all variables that were modified and adapted to earlier research to ensure reliability and consistency.

The measurement of fraud risk was done using the indicators like internal control weaknesses, financial mismanagement, and lack of oversight. Digital controls were gauged against the degree to which technological devices like automated monitoring system and data analytics were implemented. The reforms in governance were evaluated based on transparency, accountability, and compliance with the regulatory policies. The occurrence of fraud was determined using a perception of how frequent and probable fraud is in their organizations.

The internal consistency of the constructs may be evaluated with the help of Cronbachs alpha where a value over 0.70 is generally acceptable (Hair et al., 2019). This aids in ensuring that the measures employed in the measurement of each variable are consistent and reliable.

Data Analysis Techniques

The data collected were subjected to analysis using Statistical Package for Social Sciences (SPSS) which is widely employed in the analysis of quantitative data in research in social sciences. The analysis was done in various steps to be able to interpret results comprehensively.

To summarize the data and provide the overview of the respondent's perceptions of fraud risk, digital controls, governance practices, and fraud occurrence, descriptive statistics, including mean, frequency, and standard deviation were used (Field, 2018). This is done to get an idea of broad trends and patterns in the data.

Second, correlation analysis was done to analyze the strength and direction of the relationship among the variables. Correlation coefficients can tell whether variables are positively or negatively correlated and give the initial stimulus to the proposed hypotheses (Hair et al., 2019).

Lastly, the hypotheses were tested using regression analysis which helped establish the effect of the independent factors (fraud risk, digital controls, governance reforms) on the dependent variable (fraud occurrence). Regression analysis can be used to estimate the magnitude and significance of relationships, which can be used to make causal inferences (Creswell and Creswell, 2018).

Ethical Considerations

In this research ethical issues were considered keenly to uphold the integrity of the research process. There was voluntary participation, and the respondents were informed about the intent of the study prior to data collection. The anonymity and confidentiality of respondents were ensured and the data gathered were not utilized in any other way. In studies that involve human subjects, ethical principles are imperative to achieve trust and transparency (Saunders et al., 2019).

RESULTS AND ANALYSIS

This area gives quantitative results on the survey data. The analysis involves descriptive statistics, reliability test, correlation, and regression analysis to investigate the relationships between fraud risk, digital controls, governance reforms and fraud occurrence. All the analyses were done with SPSS.

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev
Fraud Risk	3.80	0.65
Digital Controls	3.50	0.70
Governance Reforms	3.20	0.75
Fraud Occurrence	3.60	0.68

Interpretation

The mean scores show that respondents perceive the risk of fraud ($M = 3.80$) and the presence of fraud ($M = 3.60$) as rather high, which means that fraud is still a serious problem in the organizations under study. Conversely, the effectiveness of governance reforms ($M = 3.20$) is relatively low, which means that governance practices are not the strongest. The average degree of digital controls ($M = 3.50$) indicates partial engagement of technological controls. The values of standard deviation suggest that the variability is acceptable, and it reveals that responses are relatively consistent.

Table 2: Reliability Analysis (Cronbach's Alpha)

Variable	Cronbach's Alpha
Fraud Risk	0.82
Digital Controls	0.79
Governance Reforms	0.84
Fraud Occurrence	0.81

Interpretation

The alpha values of the measurement scales are higher than 0.70, which demonstrates a strong level of internal consistency and reliability of the measurement scales (Hair et al., 2019). The most reliable questionnaire items are governance reforms (0.84), and then there is fraud risk and fraud occurrence (0.63 and 0.65, respectively).

Table 3: Correlation Analysis

Variables	Fraud Risk	Digital Controls	Governance
Fraud Risk	1	-0.45	-0.50
Digital Controls	-0.45	1	0.60
Governance	-0.50	0.60	1

Interpretation

The results of correlation illustrate that the digital controls (-0.45) and governance reforms (-0.50) have negative associations with the fraud risk. It means that the opportunity of a lower fraud risk is associated with the stronger digital systems and governance practices. Moreover, the positive correlation (0.60) between digital controls and governance reforms indicates that organizations that have good governance structures have the highest probability of implementing effective technological controls.

Table 4: Model Summary (Regression Analysis)

Model	R	R ²	Adjusted R ²	Std. Error
1	0.68	0.46	0.44	0.52

Interpretation

The model summary indicates that the independent variables account for about 46% of the variance (R² = 0.46) in the occurrence of fraud. This implies that the explanatory power of all the factors (fraud risk, digital controls, and governance reforms) is moderate, and it suggests that collectively, all these factors have a significant effect on the occurrence of fraud. The stability of the model is checked by the value of adjusted R² (0.44).

Table 5: ANOVA (Model Significance)

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	42.80	3	14.27	52.10	0.000
Residual	50.20	196	0.26		
Total	93.00	199			

Interpretation

The results of the ANOVA show that the regression model is statistically significant ($F = 52.10, p < 0.001$). This confirms that there is a significant effect of the independent variables in the occurrence of fraud and that the model is appropriate in testing the hypothesis.

Table 6: Regression Coefficients

Variable	Beta	t-value	Sig.
Fraud Risk	0.52	6.85	0.001
Digital Controls	-0.38	-4.90	0.002
Governance Reforms	-0.41	-5.30	0.001

Interpretation

The regression coefficients imply that fraud risk has a positive and significant effect ($\beta = 0.52, p < 0.01$) on the presence of fraud. Digital controls ($-0.38, p = 0.01$) and reforms in governance ($-0.41, p = 0.01$) have negative significant effects and H2 and H3 are supported. This implies that robust digital systems and practices of governance minimize the occurrence of fraud.

Table 7: Hypothesis Testing Summary

Hypothesis	Statement	Result
H1	Fraud risk is positively associated with fraud occurrence	Supported
H2	Digital controls negatively affect fraud occurrence	Supported
H3	Governance reforms reduce fraud risk	Supported

Interpretation

All hypotheses are accepted and prove that fraud risk promotes the occurrence of fraud, and digital controls and governance reforms decrease it significantly. These results confirm the conceptual framework of the research suggested.

Overall Analysis

All results indicate that fraud has been a major challenge in the corporate and public sectors in Pakistan largely due to high risk of fraud and a poor governance structure. Although digital controls are moderately deployed, they are critical towards mitigating fraud. The negative association existing between governance reforms and fraud presence indicates that transparency and accountability are important in eliminating fraud risk.

The regression model also supports the thesis that a coordinated strategy that includes risk assessment, digital controls, and governance reforms is the key to effective fraud prevention. These findings give empirical evidence that the theoretical frameworks applied in the study, especially the Fraud Triangle Theory and Agency Theory, focus on the need to diminish opportunities and enhance controls to prevent fraud.

DISCUSSION

This paper has explored how the risk of fraud, digital controls, and governance reforms in Pakistan affect the occurrence of frauds in the corporate and public sectors in Pakistan. The empirical findings

offer consistent evidence that the presence of higher fraud risk and lower fraud risk reduction are the drivers behind the upward movement of fraud occurrence, and the downward movement of fraud occurrence. By combining these results, a more evidence-based and better understanding of how prevention really works in practice can be obtained.

First, the descriptive findings indicate a relatively high mean score of fraud risk ($M = 3.80$) and fraud occurrence ($M = 3.60$), with the relatively weak governance reforms ($M = 3.20$) and only moderate controls of digital ($M = 3.50$). This trend implies an imbalance in the structure: the exposure to risks of fraud is high, and mechanisms that should help to reduce these risks, in particular, governance, are not equally strong. This is consistent with international evidence that an organization with less robust governance and control environment is more susceptible to fraud (ACFE, 2022; KPMG, 2020). The imbalance in the Pakistani context is probably an uneven enforcement of the policy, inadequate capacity, and partial digitization.

Second, correlation analysis shows that there is a negative relationship between the risk of fraud and digital controls ($r = -0.45$) and governance reforms ($r = -0.50$), but there is a positive relationship between digital controls and governance ($r = 0.60$). Substantively, this implies that stronger governance organizations will also have superior digital controls, and collectively this minimizes the exposure to fraud. The nature of the governance-digital controls relationship implies that it is complementary, but not substitutionary: the existence of governance structures allows to effectively adopt, implement, and utilize technological controls (OECD, 2019). This aligns with previous research that indicated that analytics and automated monitoring are most effective when integrated into the sound governance systems (Albrecht et al., 2019).

Third, these relationships are refined by the regression findings which estimate the direct effects such relationships have on the occurrence of fraud. There is a positive and significant impact of fraud risk (0.52) $p < .01$) that means that as the vulnerability of fraud risk increases, the occurrence of fraud increases. This is a direct reflection of the opportunity component of the Fraud Triangle where weak controls create an environment conducive to fraud (Cressey, 1953). The rather high coefficient also shows that risk conditions are the most influential factor in the model, and the critical role of sound risk assessment and control environments can be pointed out.

In contrast, digital controls have a significant negative effect ($\beta = -0.38$, $p < .01$) on fraud occurrence. This result demonstrates that technologies like continuous auditing, anomaly detection and transaction monitoring significantly deter fraud by decreasing the chances of detection and the extent to which the fraud can be perpetrated. In the Agency Theory, these tools serve to create monitoring systems that eliminate information asymmetry between principals and agents, and to deter opportunistic behavior (Jensen and Meckling, 1976). Nonetheless, the effect size, although significant, is less than that of the risk of fraud, which indicates that technology reduces but does not eliminate underlying vulnerabilities.

Likewise, the governance reforms have a large negative impact ($\beta = -0.41$, $p < .01$) on the occurrence of fraud. This implies that enhanced transparency, accountability and compliance systems are strongly linked to lower levels of fraud. The scale of this impact, which is on par with digital controls, underscores governance as a key preventing lever. Following the Institutional Theory, regulatory and normative frameworks that are stronger shape the organizational behavior to be submissive and ethical (Scott, 2014). Notably, the findings also suggest that not only are governance reforms directly associated with the reduction of fraud, but it is also likely that the governance reforms also contribute towards making the digital controls effective, given that the positive inter-correlation of the governance reforms and the development of the digital controls is observed.

The explanatory power ($R^2 = 0.46$) of the model shows that the three predictors are collectively effective in explaining a significant amount of the variance in fraud occurrence. Meanwhile, more than half of the variance that was not explained by the model suggests that there are other influences,

including an organizational culture, ethical climate, and integrity of the leadership and external enforcement, which were omitted in the model. This can be aligned with the previous literature suggesting that behavioral and cultural factors cause fraud beyond formal controls (Wells, 2017).

Combined, this evidence corroborates a complementary, systems-based explanation: fraud prevention is most effective when organizations coexist (a) by minimizing underlying risk conditions, (b) by implementing effective digital controls, and (c) by enhancing the effectiveness of governance structures. It is not enough to rely on any of the mechanisms. Where there is weak governance, the use of digital controls can be underutilized or even avoided, and conversely, in an environment where the governance is strong, but the technology does not support it, then the digital controls may not be used or may not be used as promptly as possible. The fact that governance has a positive relationship with digital controls in this study highlights the necessity of similar implementation.

Practically, the implications of the results are that Pakistani organizations need to focus on closing control gaps (to reduce the high positive effect of fraud risk), and scale integrated digital monitoring in a strong governance model. This combination strategy is a direct response to the empirical trend in the data: high risk exposure in conjunction with only moderate controls. By rebalancing such a system, by strengthening governance and enhancing digitalization, organizations can get more significant decreases in the incidence of fraud.

CONCLUSION

This paper examined how the risk of fraud, online controls and governance reforms impact the prevalence of fraud in the corporate and government sector of Pakistan. Based on the empirical findings and the above discussion, it is evident that the primary driver in the occurrence of fraud is clearly the risk of fraud, and the secondary causal factor is the digital controls and governance reforms, which are the secondary mitigating factors. The relatively high means scores of the fraud risk and fraud occurrence, along with rather weak governance reforms and only moderate levels of digital control adoption, point to a structural imbalance of the current organizational practices.

The regression results substantiate the idea that the higher the risk of fraud, the higher the possibility of fraud occurrence is, which proves the primary role of internal control weaknesses and oversight gaps. On the other hand, digital controls (e.g., automated monitoring and data analytics) will prevent instances of fraud much more effectively, as they will detect it and decrease the chances of fraudulent activities. Simultaneously, the reforms in governance, especially transparency, accountability and compliance show strong negative relationship with fraud, indicating the significance of institutional integrity in preventing unethical conduct. The similarity between the impact of digital controls and the influence of governance reforms on an effective fraud prevention system indicates that both are necessary and complementary elements of an efficient fraud prevention system.

Notably, the findings also show that there is no one mechanism that is adequate on its own. Although digital technologies enhance monitoring and detection, their success depends on whether there are effective governance structures that will guarantee appropriate implementation and enforcement. Likewise, reforms in governance without proper technology assistance will not be efficient in identifying complex or real-time fraud schemes. Consequently, this paper finds that to effectively prevent fraud, a combined, system-based strategy that combines risk assessment, digital controls, and governance reforms is required.

Moreover, explanatory power of the model indicates that, although such factors are critical, there are other dimensions that could influence the occurrence of fraud, which points to areas of future studies. Within the Pakistani environment, the findings highlight the importance of organizations to go beyond disjointed efforts and adopt a coordinated approach, which simultaneously involves addressing vulnerabilities, improving oversight and leveraging technology.

To sum up, this research paper adds value to the body of literature by offering an integrated empirical model explaining how fraud occurs through a combination of risk, technology and governance. In practice, it provides clear guidance to policymakers and leaders of organizations: mitigate the underlying risk of fraud, enhance the quality of governance systems, and expand the scope of effective digital controls together. This is necessary in the creation of strong institutions that can reduce fraud and allow stakeholders to regain confidence in both the corporate and the public sector set-ups.

RECOMMENDATIONS

Based on the findings and conclusion of the current study, a set of integrated and actionable recommendations is proposed to enhance the fraud prevention in the corporate and state sector organizations in Pakistan.

To begin with, organizations must formalize elaborate risk assessment frameworks relating to fraud as a normal management practice. Since fraud risk was found to be the strongest predictor of fraud occurrence, it becomes necessary to systematically identify, assess, and prioritize the vulnerabilities in relation to the financial processes, procurement system, and administrative operations. These may be through the practices of enterprise risk management (ERM), a regular internal audit, and risk-based monitoring practices. On-going risk evaluation will enable the organizations to deal proactively with weaknesses before they can be harnessed.

Second, a dire necessity to improve and increase the use of digital control mechanisms exists. Some of the advanced technologies that organizations should invest in include real-time transaction monitoring system, data analytics system, artificial intelligence-based fraud detection system, and automated audit trail. These tools not only enhance the process of detecting anomalies but also minimise the use of manual processes that are more prone to manipulation. Nonetheless, digital systems should be effectively incorporated into the current workflow and kept up to date to continue being effective in combating emerging fraud schemes.

Third, organizations need to enhance the governance structure through enhancing transparency, accountability, and compliance mechanisms. This involves coming up with clear policies, implementing internal controls and making sure that roles and responsibilities are well defined. Whistleblowing systems, independent audit committees and stringent regulatory compliance procedures should be put in place as a means of creating a culture of accountability. Good governance systems eliminate chances of fraud and promote ethical conduct at all organizational tiers.

Fourth, to ensure the effectiveness of digital controls, it is necessary to align them with governance practices. The research points out that digital tools are the most effective when they are backed by good governance structures. Thus, the organizations are to make sure that the technological systems are implemented, as well as monitored, evaluated, and governed with the help of formal policies and oversight mechanisms. Such a fit will make the most out of the total effectiveness of fraud prevention efforts.

Fifth, organizations ought to invest in employee training and employee awareness programs to increase knowledge of risks associated with fraud, and prevention mechanisms. Training on how to identify frauds, how to effectively use digital systems, and to observe ethical conduct should be instilled in employees at all levels including management and administrative staff. When there is an increased level of awareness, the chances of human error are decreased, and the overall control environment is enhanced.

Sixth, governments and regulators are advised to enhance the implementation of governance reforms, especially in the government. Regulatory authorities should make certain that they adhere to the anti-

fraud policies and provide a stringent penalty on non-compliance. Also, institutions in the public sector ought to borrow best practices in the corporate sector to enhance efficiency and accountability.

Lastly, organizations must promote an ethical organizational culture that would deter fraudulent activity. Leadership is a major component of establishing an atmosphere of integrity and transparency. Organizations can establish a setting where fraud is less prone to happen by promoting ethical values, encouraging open communication, and providing protection to whistleblowers.

In short, to effectively prevent fraud, one should adopt a holistic and integrated approach that entails risk management, digital innovation, reforms of governance, and development of human resources. These recommendations can help organizations in Pakistan to considerably decrease the risk of fraud, promote the openness of the operations and, ultimately, improve the overall performance of the organization.

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