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## Which Dimensions of Corporate Social Responsibility Drive Internal Control Effectiveness ? Evidence from Listed Non-Financial Firms in Pakistan

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### ABSTRACT

The theorization of CSR as a precursor of good governance infrastructure has steadily gained traction, instead of being a result of a good governance infrastructure, yet internal-control literature has insisted on treating CSR as a unitary construct, as though it were not a real question whether it is a good organizational control system or a bad one that is influenced by its constituent dimensions. It breaks down the Carroll CSR pyramid into seven dimensions, the economic dimension, legal dimension, ethical dimension, philanthropic dimension, environmental dimension, stakeholder engagement dimension and governance-oriented responsibility dimension, and tests the different dimensions with varied impact on the internal control effectiveness (ICE), operationalized by the five components of the COSO Integrated Framework, across listed non-financial firms in Pakistan. Chief financial officers, finance managers, and internal auditors of 268 manufacturing, textile, cement, sugar and chemical industry firms listed on the Pakistan Stock Exchange (PSX) were surveyed in the primary survey to obtain the survey data. SmartPLS 4 was used to test seven hypothesized relationships with partial least squares structural equation modeling (PLS-SEM). The measurement model has shown acceptable levels of reliability, convergent and discriminant validity in all constructs. The results of the structural models show that governance-oriented CSR ( $\beta = 0.312$ ,  $p < .001$ ), ethical CSR ( $\beta = 0.241$ ,  $p < .001$ ) and lawful CSR ( $\beta = 0.198$ ,  $p < .01$ ) have the greatest positive influence on internal control effectiveness, and the impact of philanthropic CSR is relatively weak and statistically insignificant at the traditional 5% level ( $\beta = 0.084$ ,  $p = .073$ ). The effects of economic, environmental and stakeholder-engagement dimensions have moderate, statistically significant positive impacts. The seven CSR dimensions together account 63.4 percent of the variance in internal control effectiveness ( $R^2 = .634$ ;  $Q^2 = .401$ ), which is very high level of explanatory and predictive power. The findings enhance the stakeholder, agency, and legitimacy theory by showing that not every type of socially responsible behavior is equally relevant to control infrastructure and provide PSX-listed companies and regulators with a dimension specific roadmap to bolster internal control by making targeted CSR investment and not generic CSR spending.

### Introduction

The research was based on the following external elements: Corporate social responsibility no longer remains a peripheral issue in corporate strategy, but rather it has become a governance issue in the last 20 years, as regulators, investors, and other stakeholders in emerging markets increasingly look at CSR disclosure and behavior as indicators of the quality of underlying

control environment in a firm (Khan et al., 2021; Rahman and Alam, 2022). CSR practices and internal control disclosures mandated by Section 208 of the Companies Act 2017 have been formalized by Pakistan Securities and Exchange Commission of Pakistan CSR Voluntary Guidelines and the Code of Corporate Governance 2019 that have pushed listed companies to formalize CSR practices and internal control disclosures in Pakistan (Hussain et al., 2020). This convergence in regulation has resulted in a sizeable literature connecting aggregate CSR engagement to firm-level performance, including financial performance, cost of capital, and earnings quality (Ahmed and Chaudhry, 2021; Bashir et al., 2023), and a smaller yet emerging literature on CSR as a predictor of internal control effectiveness (ICE) specifically (Farooq et al., 2022; Nasir and Ali, 2023). The overwhelming trend in this literature has been to conceptualize CSR either as unidimensional or composite, usually as an aggregated disclosure score or an overall CSR index (Zubair et al., 2021). However, CSR, as initially defined by Carroll (1979, 1991) and that later developed by Turker (2009), is multidimensional in nature which includes economic, legal, ethical, and philanthropic responsibilities and which has since been extended in the sustainability literature to encompass environmental stewardship, stakeholder engagement, and governance-oriented responsibility (Rehman et al., 2021; Iqbal and Saeed, 2022). Reducing these two dimensions to one score presumes that they are equally relevant to organizational performance like internal control effectiveness, which, however, has rarely been directly tested in the Pakistani setting where companies vary widely in the degree to which they focus on legal compliance and philanthropic giving versus environmental disclosure (Khattak and Rehman, 2022). The structural backbone by which the CSR commitments are, in fact, transferred into verifiable organizational practice, internal control effectiveness, which is operationalized here in terms of the five interrelated components of the COSO (2013) Integrated Framework control environment, risk assessment, control activities, information and communication, and monitoring activities (Ashraf and Khattak, 2026a). A company can announce the comprehensive CSR activity, and without a control environment that can install codes of ethics in day-to-day activities, or monitoring systems that can check environmental adherence, then such disclosure is prone to be cosmetic more than substantive (Bibi & Shah, 2023). Knowledge of the particular CSR dimensions that most firmly build internal control infrastructure can thus not be an academic pursuit of construct refinement; it has immediate consequences to board, audit and regulatory priorities of CSR investment.

### **Problem Statement**

Although both constructs are theoretically and regulatively salient, the Pakistani corporate governance literature has not broken down CSR into its constituent dimensions in modelling the relationship between CSR and internal control effectiveness. Earlier research by this study has determined that an aggregate CSR index mediates and moderates the relationship between CSR and the financial performance due to the effectiveness of internal control (Ashraf and Khattak, 2026a, 2026b), and that the relationship between CSR and the financial performance is predicted by an aggregate CSR index as a broad variable (Ashraf et al., 2026). The big question that has not yet been answered is whether all seven CSR dimensions have equal impact on this aggregate relationship, or whether individual dimensions, e.g. governance-oriented CSR or ethical CSR, have disproportional effect and some dimensions, like philanthropic CSR, have a relatively smaller impact on control infrastructure. Despite this evidence at the dimension level, boards and regulators would have the lack of granularity to focus CSR resources on the practices that are most likely to enhance internal control, and researchers would be over-generalizing the results of composite CSR indices.

### **Research Gap**

This study is inspired by three gaps. First, a measurement gap: most CSR-internal control studies in South Asia adopt an archival, single-item, or composite disclosure-based CSR gauge instead of validated, multidimensional survey-based CSR measurement (Farooq et al., 2022; Malik and Nawaz, 2023). Second, a theoretical gap: Each of the above theoretical perspectives (e.g., stakeholder theory, agency theory, legitimacy theory, resource-based view) has been utilized individually to explain the CSR-internal control relationship, yet no study has taken the perspective of integrating these lenses in explaining why certain aspects of CSR (e.g., governance, ethical) seem to theoretically hold more influence about control effectiveness than others (e.g., philanthropic) (Saeed & Riaz, 2021). Third, a gap in context: the very few dimension level CSR studies that exist are centered in a developed-market or East Asian context (Chen and Wang, 2020; Kim et al., 2022), and it remains unclear whether the same dimensional hierarchy can be applied in a frontier market with a unique regulatory enforcement regime, like that of Pakistan (Yousef et al., 2023).

### **Research Objectives**

The four objectives of this study are as follows (1) to study the effect of economic CSR on the internal control effectiveness of PSX-listed non-financial companies; (2) to study the effect of legal CSR on internal control effectiveness; (3) to study the effects of ethical, philanthropic, environmental, stakeholder-engagement, and governance-oriented CSR on internal control effectiveness; and (4) to rank the relative strength of these seven CSR dimensions in explaining the internal control effectiveness, which in turn identifies the dimensions to receive prior investment emphasis as a governance perspective.

## Research Questions

RQ1: Is there a statistically significant positive influence of the economic dimension of CSR on the internal control effectiveness, legal dimension of CSR on the internal control effectiveness, ethical dimension of CSR on the internal control effectiveness, philanthropic dimension of CSR on the internal control effectiveness, environmental dimension of CSR on the internal control effectiveness, stakeholder-engagement dimension of CSR on the internal control effectiveness, and governance dimension of CSR on the internal control effectiveness of PSX-listed non-financial firms? RQ2: Which dimension(s) of CSR have the most apparent and least apparent impacts on internal control effectiveness, and what are the theoretical reasons behind this ranking?

## Significance of the Study

This work contributes in three aspects. Theoretically, it is one of the first to combine, in a single model, stakeholder, agency, legitimacy, and resource-based view theorizing to explain the difference between CSR-dimension effects on internal control effectiveness, extending previous work, by far, at the aggregate level by this research program (Ashraf et al., 2026). It methodologically adds a multidimensional CSRICE survey instrument that has been validated and can be replicated in other frontier markets. In practice, the findings that are dimension specific can provide PSX-listed companies, audit committee and the Securities and Exchange Commission of Pakistan with an evidence based foundation on how they resources on CSR to the dimensions that are most likely to enhance their internal control infrastructure, but not to use CSR expenditure as a uniform governance indicator.

## Literature Review and Hypotheses Development

### Theoretical Framework

In this paper, four lenses are used in a complementary manner. Based on the stakeholder theory (Freeman, 1984), it is argued that companies maintain legitimacy and long-term performance, when they manage commitments to a wide audience of stakeholders, rather than a small group of shareholders; in this case, the dimensions of stakeholder-oriented CSRs are likely to necessitate and, therefore, drive more elaborate internal information and communications systems that can follow along multiple stakeholder claims (Rehman et al., 2021). Internal control is understood within agency theory (Jensen and Meckling, 1976) as a tool to mitigate information asymmetry and align the actions of management with the interests of the owners; CSR dimensions that are related to consistent legislative and governance-focused CSR in specific areas fit best on this control-alignment role (Saeed and Riaz, 2021). According to the legitimacy theory (Suchman, 1995), firms are expected to engage CSR activities, such as symbolic acts of philanthropy, to achieve a social license to operate, which anticipates that philanthropic CSR can be decoupled at a comparatively lower degree of relative compliance-oriented dimension (Bibi and Shah, 2023). Lastly, the resource-based perspective (Barney, 1991) considers a robust internal control system as a valuable and rare and inimitable organizational resource that firms develop over time by investing in ethical culture, risk management capability, and governance systems - investments that overlap significantly with ethical and governance CSR (Iqbal and Saeed, 2022). The combination of these four theories suggests a differentiated as opposed to a uniform effect of dimensions of CSR on internal control effectiveness, which this study empirically tests.

### Corporate Social Responsibility: Conceptualization and Dimensions

The pyramid by Carroll (1979, 1991) separates CSR into economic, legal, ethical and philanthropic responsibilities and contends that, firms must be profitable, then law-abiding, then ethical, and only then can philanthropy make sense. Turker (2009) operationalized CSR to various groups of stakeholders and offers item pools subsequently used in environmental and governance dimensions in the emerging-market studies (Khan et al., 2021; Zubair et al., 2021). In keeping with this cumulative tradition, the current paper operationalizes CSR in seven dimensions, namely, economic responsibility (profitability and the requirement of shareholder value), legal responsibility (adherence to corporate, labor, tax, environment-related law), ethical responsibility (behavior that goes beyond minimum legal expectations), philanthropic responsibility (investment in the community that is at discretion), etc. environmental responsibility (resource utilization, emission, and administration of ecological impact), stakeholder-engagement responsibility (formal conversation with employees, suppliers, and customers), and governance-related responsibility (board control, clarity, and anti-corruption practice) (Rehman et al., 2021; Malik and Nawaz, 2023).

### Internal Control Effectiveness

The effectiveness of internal controls in this study is conceptualized based on the five components of the COSO (2013) Integrated Framework: (1) the controls environment, the tone-at-the-top and commitment of the organization to act ethically; (2) risk assessment, identification and analysis of the risk to meeting the organizational objectives; (3) control activities, the policies and procedures that control the identified risks; (4) information and communication, the systems that capture and relay

information that is relevant to the control functions; and (5) monitoring activities, the ongoing assessments ensuring that the control parts are effective in the long-term. The five-component structure has been extensively applied in prior studies of internal control in South Asia, such as internal control effectiveness modelling internal control effectiveness as a mediator and moderator of the CSR-financial performance relationship (Ashraf and Khattak, 2026a, 2026b; Farooq et al., 2022).

### **Economic CSR and Internal Control Effectiveness**

Economic CSR describes an organizations dedication to long term profitability, and good management of resources as a basis of all other social responsibilities (Carroll, 1991). Companies that focus on economic responsibility are likely to invest in performance-monitoring, budgetary controls, and financial reporting infrastructure that directly overlap the control-activities and monitoring elements within COSO (Ahmed and Chaudhry, 2021). Resource-based perspective, the capacity to facilitate profitability such as forecasting, variance analysis, internal audit, is mostly fungible with the capacity required to run an effective internal control system (Nasir and Ali, 2023). Accordingly:

**H1:** Economic CSR has a huge positive impact on internal control effectiveness.

### **Legal CSR and Internal Control Effectiveness**

Legal CSR describes the orientation of a firm to the compliance with labor law, tax law, environmental law and corporate law (Turker, 2009). In compliance-oriented firms, compliance is supposed to be the case as per the agency theory. institutionalize control practices - documented approval structures, segregation of duties, compliance monitoring teams - due to legal exposure, which generates powerful incentives to minimize control loopholes which may lead to regulatory penalties (Hussain et al., 2020). In empirical studies, the banking and manufacturing industries in Pakistan have discovered that companies that mention greater legal-compliance orientation report on older internal audit functions (Khattak and Rehman, 2022). Accordingly: H2: There is a strong positive influence of legal CSR on the effectiveness of internal controls.

### **Ethical CSR and Internal Control Effectiveness**

Ethical CSR indicates behaviour that goes beyond the law requirement such as codes of conduct, whistle blowing provisions and fair-dealing provisions (Carroll, 1991). According to the resource-based view, an ethical organizational culture is a control-environment resource (the first and most basic element of COSO) in its own right since integrity and ethical values establish a tone, according to which the subordinate control activities are actually adhered to rather than just recorded (Bibi and Shah, 2023; Iqbal and Saeed, 2022). Companies that engage in high ethical CSR are thus likely to demonstrate an enhanced control effectiveness that is internalized as opposed to the one that is superficial. Accordingly: H3: Ethical CSR positively and significantly affects internal control effectiveness.

### **Philanthropic CSR and Internal Control Effectiveness**

Philanthropic CSR involves voluntary community investment like giving of charity and sponsorship (Carroll, 1991). According to the legitimacy theory, philanthropic activity is frequently sought in such a way that it concerns gaining external legitimacy and reputational gain more than establishing internal organizational capacity (Suchman, 1995; Bibi & Shah, 2023), which indicates that the philanthropic activity is relatively weak and may be symbolically connected to the internal control infrastructure compared to compliance- or governance-based dimensions. However, to the extent that philanthropic programs involve budgeting, approval and impact-reporting, it is possible to assume some positive correlation with control effectiveness, albeit less than, other dimensions. Accordingly: H4: Internal control effectiveness is strongly positively influenced by a philanthropic CSR.

### **Environmental CSR and Internal Control Effectiveness**

Environmental CSR includes emissions control, resource optimization, and ecological adherence (Rehman et al., 2021). Companies that strive to be environmentally responsible in their manufacturing and textile operations of Pakistan, where the imposition of environmental regulations is growing in importance, usually need special risk-assessment and monitoring procedures to ensure that the company adheres to environmental regulations, effluent discharge limits, and emission targets (Yousef et al., 2023). These needs are aligned with the risk-assessment and monitoring aspects of COSO. Accordingly:

**H2:** Internal control effectiveness is positively related to environmental CSR.

### **Stakeholder-Engagement CSR and Internal Control Effectiveness**

Stakeholder-engagement CSR is a structured communication with employees, suppliers and customers (Freeman, 1984; Turker, 2009). According to the stakeholder theory, the wider the engagement mechanism, the more developed the corresponding

information-and-communication system the firm develops (grievance channels, supplier audit, customer feedback loop, and so on) that directly reinforces the information-and-communication aspect of COSO is strengthened (Rehman et al., 2021; Malik and Nawaz, 2023). Accordingly:

**H3:** The stakeholder-engagement CSR positively affects internal control effectiveness significantly.

### **Governance-Oriented CSR and Internal Control Effectiveness**

Governance-based CSR is the quality of the board oversight, transparency, and anti-corruption practice (Iqbal and Saeed, 2022). It is the conceptually nearest to internal control per se, as board oversight and anti-corruption controls are direct inputs to the control-environment and monitoring parts of COSO (Saeed and Riaz, 2021). The agency theory predicts such a dimension to exhibit the highest correlation with internal control effectiveness, as governance-oriented CSR and internal control have similar structural effects in this respect, namely audit committees, internal audit reporting lines, and board risk oversight (Ashraf et al., 2026). Accordingly: H7: Governance-based CSR has a strong positive impact on internal control effectiveness.

### **Summary of Hypothesized Relationships**

Combined, the above seven hypotheses suggest that all of the dimensions of CSR have a positive influence on internal control effectiveness, but with different theoretical mechanisms and, respectively, the magnitude of the expected effects as well. The most significant impact is anticipated in governance and legal CSR since their organizational activities such as board oversight, audit committees operation, and regulatory compliance official monitoring are structurally enshrined in the same COSO components that are applied to operationalize internal control effectiveness itself (Saeed and Riaz, 2021; Hussain et al., 2020). The impact of ethical CSR is likely to demonstrate similarly robust effect in terms of influence on the control environment, which is the basic COSO element, based on which all other control processes occur (Iqbal & Saeed, 2022). The economic, environmental, and stakeholder-engagement CSR will exhibit moderate impact and will work via a less broad functional pathway (performance monitoring, risk assessment, information-and-communication systems, respectively) (Nasir and Ali, 2023; Yousaf et al., 2023; Rehman et al., 2021). The least expected effect is on philanthropic CSR, which is in agreement with the legitimacy theory that defines philanthropic activity as focused on the management of their external image, but not on capacity-building (Suchman, 1995). This ordering represents falsifiable, dimension-specific prediction that any composite-CSR model would not have been able to specify, and the prediction that is empirically tested in the rest of the paper.

### **Conceptual Framework**

The theoretical framework places the seven CSR dimensions of economic, legal, ethical, philanthropic, environmental, stakeholder engagement and governance as exogenous latent constructs that predict a single endogenous latent construct, internal control effectiveness, to be operationalized by its five COSO components. The figure 1 (not presented here in the table form) shows seven direct paths (H1 through H7) having a meeting point of internal control effectiveness and is expected to be in line with the theorizing of integrated stakeholder-agency-legitimacy-RBV as put across above.

## **Research Methodology**

### **Research Design and Philosophy**

The given study will have the positivist research philosophy and the cross-sectional survey research design, which is consistent with the previous PLS-SEM-based studies within the framework of this research program (Ashraf and Khattak, 2026a, 2026b). It is deductive: it tests seven hypotheses, which are stakeholder, agency, legitimacy, and resource-based-view theorizing based on primary survey data, through variance-based structural equation modeling.

### **Population and Sample**

The population consists of non-financial firms listed on the Pakistan Stock Exchange (PSX) with manufacturing, textile, cement industries, sugar and chemical industries as fiscal year 2025. After the previous surveys of the Pakistani firm-level governance (Farooq et al., 2022; Malik and Nawaz, 2023), the unit of analysis is the individual respondent - the chief financial officer, finance manager, and internal auditor- who serves as a knowledgeable key informant regarding the CSR practices and internal control system of their firm. A sample of 153 was needed with the a-priori analysis of Krejcie and Morgan (1970) table and a G\*Power model with seven predictors with a medium effect size  $f^2 = .15$ ,  $\alpha = .05$ , and power = .95. A total of 340 potential respondents identified through PSX sector directories were given questionnaires through a proportionate stratified random sampling process; 284 responses were returned (83.5% response rate) with 16 responses eliminated due to excessive missing data or straight-lining, leaving 268 viable responses and an effective response rate of 78.8%.

## Data Collection Procedure

The study period was 2026 (Feb-June) and a structured, self-administered questionnaire was used to sample finance and internal-audit staff at sampled firms, both electronically and face-to-face. The respondents were granted anonymity and informed that their responses would be applied in academic research, and this was based on the usual ethics of conduct of surveys used in the overall research program (Ashraf et al., 2026). To further narrow down item wording to ensure a good face validity, a pilot test with 30 respondents was conducted before the full-scale distribution. Electronic distribution exchanged links using Google Forms distributed by corporate email addresses, retrieved via PSX sector directories and membership lists of professional accountancy bodies and in-person distribution at three regional finance-professional networking events in Lahore, Karachi, and Peshawar to enhance the geographic representativeness over firms with headquarters in one city. Non-respondents received two follow-ups with reminders at a two-week interval, which is in line with the recommended practice of enhancing response rates in organizational survey research (Malik and Nawaz, 2023). Before analysis, data screening was performed in three steps: deletions of incomplete responses (over 10% of items left out in the scale), deletions of straight-lined responses (it is the same response in all items), and Mahalanobis distance screening out of multivariate outliers at  $p < .001$ , which all together explained the 16 responses that were dropped in the final analytic sample.

## Measurement Instrument

Constructs were assessed with multi-item scales already shown to have high levels of construct validity and rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Carroll (1991) CSR pyramid was operationalized by Turker (2009) by adapting some items to the economic, legal, ethical, and philanthropic CSR items; Rehman et al. (2021) adapted some items to environmental and stakeholder-engagement CSR items; and Iqbal and Saeed (2022) adapted some items to governance-oriented CSR items. A scale of 15 items measured internal control effectiveness, an adaptation of Ashraf and Khattak (2026a) that measures the five elements of COSO (2013). Four to five items were used to measure every one of the seven CSR dimensions, and the internal control effectiveness was measured using 15 items, which loaded on the five sub-components, making a total of 47 items. Table 1 in Section 4 provides demographics of respondents, and Table 3 provides complete item-level statistics of reliability.

## Common Method Bias

The fact that all constructs were assessed in the face of one self-administered measure, hence, provided answers to common method bias (CMB) on both a procedural and statistical level. Procedurally, the order of items was randomized and anonymity was ensured to the respondents and psychologically different scale anchors were assigned to predictor and criterion items (Podsakoff et al., 2003). The single factor test, as reported by Harman statistically, resulted in 32.7% of the total variance explained by the first unrotated factor, which fell short of 50% and a full collinearity VIF test (Kock, 2015) produced all inner VIF values of less than 3.3 (Table 6), which would indicate that CMB would hardly materially bias the results.

## Data Analysis Technique

Data were measured in SmartPLS 4 (Ringle et al., 2024) using partial least squares structural equation modeling (PLS-SEM): first, measurement (outer) model was assessed with regard to the measurement reliability indicators, internal consistency reliability, convergent and discriminant validity; second, structural (inner) model was assessed with regard to collinearity, significance of path (with 5,000-subsample bootstrapping), coefficient of determination ( $R^2$ ), predictive relevance ( $Q^2$  through blindfolding), and effect sizes ( $f^2$ ). The use of PLS-SEM instead of covariance-based SEM was based on the prediction-based purpose of the study (ranking the relative explanatory power of seven predictors) in line with methodological advice of theory-extending models with an exploratory goal (Hair et al., 2021; Sarstedt et al., 2022) and aligning with the analytic tool employed in the present research program.

## Data Analysis and Results

### Respondent Profile

Table 1 shows the demographic features of the 268 respondents. The sample was mostly male (79.9%), which is indicative of the gender distribution of senior jobs of finance and audit in Pakistani listed companies, and largest age group was between 30 and 40 years (40.3%). Most (61.2%) of them had a master degree, and the highest number of respondents was finance managers (45.1%), then the internal auditors (35.4%) and chief financial officers (19.4%). The most represented industry was the manufacturing industry (28.4%), which is also in line with their dominance in PSX-listed non-financial firms.

**Table 1. Demographic Profile of Respondents (N = 268)**

| Characteristic    | Category                | Frequency | Percentage (%) |
|-------------------|-------------------------|-----------|----------------|
| <b>Gender</b>     | Male                    | 214       | 79.9           |
|                   | Female                  | 54        | 20.1           |
| <b>Age</b>        | Below 30 years          | 42        | 15.7           |
|                   | 30–40 years             | 108       | 40.3           |
|                   | 41–50 years             | 86        | 32.1           |
|                   | Above 50 years          | 32        | 11.9           |
| <b>Education</b>  | Bachelor's Degree       | 58        | 21.6           |
|                   | Master's Degree         | 164       | 61.2           |
|                   | MPhil / PhD             | 46        | 17.2           |
| <b>Position</b>   | Chief Financial Officer | 52        | 19.4           |
|                   | Finance Manager         | 121       | 45.1           |
|                   | Internal Auditor        | 95        | 35.4           |
| <b>Experience</b> | Less than 5 years       | 49        | 18.3           |
|                   | 5–10 years              | 112       | 41.8           |
|                   | More than 10 years      | 107       | 39.9           |
| <b>Sector</b>     | Manufacturing           | 76        | 28.4           |
|                   | Textile                 | 68        | 25.4           |
|                   | Cement                  | 42        | 15.7           |
|                   | Sugar                   | 38        | 14.2           |
|                   | Chemical                | 44        | 16.4           |

Note. N = 268. Percentages may not total exactly 100 due to rounding.

### Descriptive Statistics

Means and standard deviations and normality diagnostics are reported in Table 2 of all the eight constructs. The skewness and kurtosis value of all constructs were within the  $\pm 2$  value that Hair et al. (2021) suggest to avoid abnormalities in the structural equation modelling, which imply no extreme violations of the normality assumptions interfering with the bootstrapping tests of the significance tests

**Table 2. Descriptive Statistics for Study Constructs**

| Construct                            | Mean | SD   | Skewness | Kurtosis |
|--------------------------------------|------|------|----------|----------|
| Economic CSR (ECO)                   | 3.87 | 0.68 | -0.42    | 0.31     |
| Legal CSR (LEG)                      | 3.94 | 0.71 | -0.51    | 0.28     |
| Ethical CSR (ETH)                    | 3.78 | 0.74 | -0.38    | -0.14    |
| Philanthropic CSR (PHIL)             | 3.52 | 0.82 | -0.21    | -0.36    |
| Environmental CSR (ENV)              | 3.61 | 0.77 | -0.29    | -0.22    |
| Stakeholder-Engagement CSR (STK)     | 3.69 | 0.73 | -0.33    | -0.09    |
| Governance CSR (GOV)                 | 3.81 | 0.69 | -0.45    | 0.18     |
| Internal Control Effectiveness (ICE) | 3.85 | 0.63 | -0.47    | 0.42     |

### Measurement Model Assessment

After measuring the indicators reliability, internal consistency reliability, convergent validity, and discriminant validity, following Hair et al. (2021), the measurement model was estimated on the basis of structural model.

### Reliability and Convergent Validity

All outer loadings were above the 0.70 level (range 0.712 -0.891) and all the Cronbachs alpha, rho A and composite reliability (CR) were above 0.70, which implies satisfactory internal consistency reliability. The value of average variance extracted (AVE) was more than the 0.50 standard which indicates convergent validity (Table 3).

**Table 3. Measurement Model: Reliability and Convergent Validity**

| Construct                            | Items | Loading Range | Cronbach's $\alpha$ | rho_A | CR    | AVE   |
|--------------------------------------|-------|---------------|---------------------|-------|-------|-------|
| Economic CSR (ECO)                   | 4     | 0.741-0.832   | 0.812               | 0.818 | 0.877 | 0.641 |
| Legal CSR (LEG)                      | 4     | 0.762-0.849   | 0.834               | 0.839 | 0.889 | 0.667 |
| Ethical CSR (ETH)                    | 5     | 0.718-0.837   | 0.861               | 0.865 | 0.899 | 0.640 |
| Philanthropic CSR (PHIL)             | 4     | 0.712-0.821   | 0.798               | 0.803 | 0.868 | 0.622 |
| Environmental CSR (ENV)              | 5     | 0.726-0.819   | 0.849               | 0.853 | 0.892 | 0.624 |
| Stakeholder CSR (STK)                | 5     | 0.734-0.826   | 0.856               | 0.860 | 0.897 | 0.636 |
| Governance CSR (GOV)                 | 5     | 0.751-0.868   | 0.872               | 0.876 | 0.906 | 0.659 |
| Internal Control Effectiveness (ICE) | 15    | 0.719-0.891   | 0.911               | 0.914 | 0.923 | 0.601 |

Note. CR = composite reliability; AVE = average variance extracted. All values exceed recommended thresholds ( $\alpha$ , CR > .70; AVE > .50).

### Discriminant Validity

The Fornell-Larcker criterion and heterotrait-monomethod (HTMT) ratio of correlations were both used to measure discriminant validity. Table 4 has indicated that the square root of the AVE of each of the constructs (diagonal bolded) was

higher than the correlation of each of the constructs with all the other constructs. Table 5 affirms that all the HTMT ratios were lower than the conservative 0.85 (Henseler et al., 2015) which is convergent evidence of discriminant validity on both criteria.

**Table 4. Discriminant Validity: Fornell-Larcker Criterion**

|      | ECO   | LEG   | ETH   | PHIL  | ENV   | STK   | GOV   | ICE   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
| ECO  | 0.801 |       |       |       |       |       |       |       |
| LEG  | 0.412 | 0.817 |       |       |       |       |       |       |
| ETH  | 0.389 | 0.478 | 0.800 |       |       |       |       |       |
| PHIL | 0.298 | 0.321 | 0.356 | 0.789 |       |       |       |       |
| ENV  | 0.367 | 0.402 | 0.411 | 0.334 | 0.790 |       |       |       |
| STK  | 0.385 | 0.398 | 0.422 | 0.345 | 0.398 | 0.797 |       |       |
| GOV  | 0.421 | 0.456 | 0.467 | 0.312 | 0.389 | 0.441 | 0.812 |       |
| ICE  | 0.478 | 0.512 | 0.534 | 0.329 | 0.456 | 0.467 | 0.589 | 0.775 |

*Note. Diagonal elements (bold values shown as plain text) are the square roots of AVE.*

**Table 5. Discriminant Validity: Heterotrait-Monotrait (HTMT) Ratios**

|      | ECO   | LEG   | ETH   | PHIL  | ENV   | STK   | GOV   |
|------|-------|-------|-------|-------|-------|-------|-------|
| LEG  | 0.489 |       |       |       |       |       |       |
| ETH  | 0.452 | 0.548 |       |       |       |       |       |
| PHIL | 0.356 | 0.378 | 0.412 |       |       |       |       |
| ENV  | 0.428 | 0.467 | 0.478 | 0.389 |       |       |       |
| STK  | 0.447 | 0.452 | 0.489 | 0.398 | 0.456 |       |       |
| GOV  | 0.486 | 0.519 | 0.534 | 0.356 | 0.445 | 0.498 |       |
| ICE  | 0.541 | 0.578 | 0.612 | 0.378 | 0.521 | 0.534 | 0.672 |

*Note. All HTMT values are below the 0.85 threshold, supporting discriminant validity.*

#### Collinearity Assessment

The smallest inner variance inflation factors (VIF) of all seven CSR dimensions that are used to predict inner control effectiveness ranged between 1.623 and 2.211, which is far less than both the conservative 3.3 (Kock, 2015) and the traditional 5.0 (Hair et al., 2021) thresholds and demonstrates that multicollinearity does not artificially inflate the structural path estimates presented in Section 4.5.

**Table 6. Collinearity Statistics (Inner VIF Values)**

| Predictor Construct | VIF   |
|---------------------|-------|
| Economic CSR (ECO)  | 1.812 |
| Legal CSR (LEG)     | 1.945 |

|                          |       |
|--------------------------|-------|
| Ethical CSR (ETH)        | 2.104 |
| Philanthropic CSR (PHIL) | 1.623 |
| Environmental CSR (ENV)  | 1.789 |
| Stakeholder CSR (STK)    | 1.856 |
| Governance CSR (GOV)     | 2.211 |

## Structural Model Assessment

### Path Coefficients and Hypothesis Testing

The structural model estimation was done based on 5,000-subsample bootstrapping with the bias-corrected and accelerated (BCa) confidence interval method in the SmartPLS 4.

**Table 7. Structural Model: Path Coefficients and Hypothesis Testing**

| Hypothesis | Path                   | $\beta$ | SE    | t-value | p-value | Decision      |
|------------|------------------------|---------|-------|---------|---------|---------------|
| H1         | ECO $\rightarrow$ ICE  | 0.146   | 0.052 | 2.808   | 0.005   | Supported     |
| H2         | LEG $\rightarrow$ ICE  | 0.198   | 0.058 | 3.414   | 0.001   | Supported     |
| H3         | ETH $\rightarrow$ ICE  | 0.241   | 0.061 | 3.951   | 0.000   | Supported     |
| H4         | PHIL $\rightarrow$ ICE | 0.084   | 0.047 | 1.797   | 0.073   | Not Supported |
| H5         | ENV $\rightarrow$ ICE  | 0.129   | 0.049 | 2.633   | 0.008   | Supported     |
| H6         | STK $\rightarrow$ ICE  | 0.137   | 0.051 | 2.686   | 0.007   | Supported     |
| H7         | GOV $\rightarrow$ ICE  | 0.312   | 0.063 | 4.952   | 0.000   | Supported     |

Note. Bootstrapping based on 5,000 subsamples. Significant at  $p < .05$  unless otherwise noted; ICE = Internal Control Effectiveness.

### Coefficient of Determination, Predictive Relevance, and Effect Sizes

The seven CSR dimensions alone described 63.4% of the variance in internal control effectiveness ( $R^2 = 0.634$ ) which is larger than the 0.45-threshold of Cohen (1988) of a significant effect. The  $Q^2$  value of the blindfolding procedure (omission distance  $D = 7$ ) = 0.401, which is greater than zero, demonstrates that the model predicts the model relevance of the endogenous construct. The effect size ( $f^2$ ) analysis shows the following governance CSR ( $f^2 = 0.187$ ), ethical CSR ( $f^2 = 0.129$ ), legal CSR ( $f^2 = 0.081$ ), and philanthropic CSR ( $f^2 = 0.014$ ) have a medium effect, a small-to-medium effect, a medium effect, and a negligible effect, respectively.

**Table 8. Coefficient of Determination ( $R^2$ ), Predictive Relevance ( $Q^2$ ), and Effect Sizes ( $f^2$ )**

| Construct          | $R^2$ | $Q^2$ | $f^2$ (on ICE) | Effect Size  |
|--------------------|-------|-------|----------------|--------------|
| Economic CSR (ECO) | —     | —     | 0.034          | Small        |
| Legal CSR (LEG)    | —     | —     | 0.081          | Small-Medium |

|                                      |       |       |       |             |
|--------------------------------------|-------|-------|-------|-------------|
| Ethical CSR (ETH)                    | —     | —     | 0.129 | Medium      |
| Philanthropic CSR (PHIL)             | —     | —     | 0.014 | Negligible  |
| Environmental CSR (ENV)              | —     | —     | 0.028 | Small       |
| Stakeholder CSR (STK)                | —     | —     | 0.032 | Small       |
| Governance CSR (GOV)                 | —     | —     | 0.187 | Medium      |
| Internal Control Effectiveness (ICE) | 0.634 | 0.401 | —     | Substantial |

Note.  $f^2$  thresholds follow Cohen (1988): 0.02 = small, 0.15 = medium, 0.35 = large.

### Summary of Hypotheses

**Table 9. Summary of Hypothesis Testing Results**

| Hypothesis | Statement                                   | Result        |
|------------|---------------------------------------------|---------------|
| H1         | Economic CSR → ICE (positive)               | Supported     |
| H2         | Legal CSR → ICE (positive)                  | Supported     |
| H3         | Ethical CSR → ICE (positive)                | Supported     |
| H4         | Philanthropic CSR → ICE (positive)          | Not Supported |
| H5         | Environmental CSR → ICE (positive)          | Supported     |
| H6         | Stakeholder-Engagement CSR → ICE (positive) | Supported     |
| H7         | Governance CSR → ICE (positive)             | Supported     |

### Importance-Performance Map Analysis (IPMA)

In order to convert the path-coefficient findings into practically relevant managerial priorities, an analysis of an importance-performance map (IPMA) was carried out using the methodology of Ringle and Sarstedt (2016). IPMA takes the sum of the predictors total effect to the target construct (its importance), and the rescaled mean score on a scale of 0-100 (its performance), and finds dimensions that have a high importance to internal control effectiveness but are currently performing poorly - and thus are the focus of managerial intervention. Governance CSR is the most evident priority to targeted investment, since, as it is evidenced in Table 10, it has the highest importance (0.312) and moderate performance (70.25). The performance of legal CSR is the highest (73.50) and the moderately important meaning that firms are already relatively good or strong in terms of legal compliance as compared to the marginal contribution of legal compliance to internal control effectiveness. The low-importance, low-performance CSR quadrant is the root cause of path-coefficient evidence that it is the least consequential dimension in the effectiveness of internal control in this sample.

**Table 10. Importance-Performance Map Analysis (Target Construct: Internal Control Effectiveness)**

| Construct                | Importance (Total Effect) | Performance (0-100 Rescaled Mean) |
|--------------------------|---------------------------|-----------------------------------|
| Economic CSR (ECO)       | 0.146                     | 71.75                             |
| Legal CSR (LEG)          | 0.198                     | 73.50                             |
| Ethical CSR (ETH)        | 0.241                     | 69.50                             |
| Philanthropic CSR (PHIL) | 0.084                     | 63.00                             |
| Environmental CSR (ENV)  | 0.129                     | 65.25                             |

|                       |                           |                                   |
|-----------------------|---------------------------|-----------------------------------|
| Stakeholder CSR (STK) | 0.137                     | 67.25                             |
| Construct             | Importance (Total Effect) | Performance (0–100 Rescaled Mean) |
| Governance CSR (GOV)  | 0.312                     | 70.25                             |

Note. Importance values are unstandardized total effects on internal control effectiveness; performance values are construct mean scores linearly rescaled from the original 1–5 range to a 0–100 range

## Discussion

The present study broke down CSR into seven dimensions to study the various differences in their influence on internal control effectiveness in PSX-listed non-financial firms, which was left unaddressed by the previous composite-CSR studies in this research program (Ashraf and Khattak, 2026a, 2026b; Ashraf et al., 2026). The observation that the impact of governance-oriented CSR is the most significant ( $\beta = 0.312$ ) is consistent with the predictions of agency theory: governance CSR and anti-corruption monitoring are similar in the structural terms of board oversight, the activity of audit committees, and the control by the board and shareholders, in that order, so that the investment in one area of governance systematically empowers the other (Saeed & Riaz, 2021). This finding aligns with Kim et al. East Asian results (2022) that board-related CSR sub-indices are stronger predictors of internal control quality than other CSR sub-indices and extrapolates their results to a frontier-market, survey-based setting. The resource-based-view argument that an internalized ethical culture serves as a resource of the control environment and not a discrete and independent practice is supported by the strong impact of ethical CSR ( $\beta = 0.241$ ) (Iqbal and Saeed, 2022). This aligns with the qualitative findings of Bibi and Shah (2023) among Pakistani manufacturing companies, where internal auditors explained that ethical tone-at-the-top was a prerequisite that the control activities were adhered to in reality, as opposed to not being adhered to on paper to meet compliance requirements. The high, moderate impact of legal CSR ( $\beta = 0.198$ ) is in line with the compliance-based mechanism suggested within the context of agency theory: companies that are more oriented about legal compliance seem to formalize control processes precisely in order to cope with regulatory risk (Hussain et al., 2020; Khattak and Rehman, 2022). The CSR economic, environmental and stakeholder-engagement each exhibited smaller, yet consistent positive impacts, indicating that the profitability orientation, environmental risk management and stakeholder dialogue mechanisms play an incremental role in controlling infrastructure, but through somewhat narrower channels - respectively, performance-monitoring systems, environmental risk assessment, and information-and-communication systems - than the more structurally overlapping governance and ethical dimensions. The most theoretically meaningful result of the study is the non-significant effect of philanthropic CSR ( $\beta = 0.084$ ,  $p = .073$ ). It confirms the prediction of the legitimacy theory of philanthropic activity is more concerned with external legitimacy and goodwill of the stakeholders than the development of internal organizational capacity and is therefore relatively decoupled with the control infrastructure of the firm (Suchman, 1995; Bibi & Shah, 2023). The pattern of decoupling reiterates the finding by Chen and Wang (2020) in a sample of Chinese listed-firms that philanthropic CSR sub-scores exhibited the weakest of the set of CSR-dimension correlations with internal control quality indices, indicating the pattern may not only be unique to Pakistan but also apply to institutionally dissimilar emerging markets. This general dimensional rank as governance > ethical > legal > stakeholder-engagement  $\approx$  economic > environmental > philanthropic also is useful in reconciling seemingly inconsistent effect sizes in previous aggregate-CSR studies carried out on intersecting PSX samples within this research program (Ashraf and Khattak, 2026a, 2026b). Since composite CSR indices implicitly give equal weight (or by the amount of disclosure) to all the seven dimensions, aggregate-level research can be misleading in its assertion of the actual connection between CSR and internal control efficacy in companies where the CSR activity is focused in the governance and ethical dimension, and overstate it in companies where the CSR activity is largely focused in the philanthropic dimension. This directly affects cross-firm comparability: the same aggregate score of CSR could be significantly different in terms of the underlying internal control environment by different firms depending on what dimension the score is based on, the first time in this body of research that the dimension-level model puts this in explicit terms. Lastly, the moderation-strong intercorrelations among the governance, ethical, and legal CSR dimensions in Table 4 ( $r = .46-.48$ ) imply that the three dimensions could represent a more comprehensive latent compliance-and-integrity orientation that companies follow as a package, which accords with agency-theoretic claims that formal compliance frameworks and informal ethical norms tend to be co-evolving within the same governance regime (Hussain et al., 2020; Saeed and Riaz, 2021). Future studies using higher-order constructs might be able to conduct testable confirmation of whether a second-order construct, which may be termed as compliance CSR, which contains the governance, ethical, and legal CSR, performs better than the three first-order dimensions that are modeled independently here.

## **Theoretical and Practical Implications**

### **Theoretical Implications**

This research gives back to the theory in the following three aspects. First, it empirically shows that the impact of CSR on internal control effectiveness is not consistent across the dimension, disrupting the implicit belief of composite-CSR-index research that all types of socially responsible behavior can add equal contribution to the governance infrastructure (Zubair et al., 2021). Second, it shows that agency theory (via governance and legal CSR), the resource-based view (via ethical CSR), stakeholder theory (via stakeholder-engagement CSR), and legitimacy theory (via the weak philanthropic effect) each explain a distinct slice of the dimensional hierarchy, suggesting these theories are complementary rather than competing when applied at the CSR-dimension level. Third, when they apply the previous aggregate-level mediation and moderation results of this research program (Ashraf and Khattak, 2026a, 2026b) to the dimension level, they make it clear that the aggregate level results are disproportionately caused by governance, ethical, and legal CSR as opposed to philanthropic activity.

### **Practical and Managerial Implications**

In the case of boards and audit committees of PSX listed companies, the findings indicate that allocation of CSR budgets to enhance internal control should be skewed towards governance-based programs (board training, audit committee capacity, anti-corruption systems) and ethical-culture programs (codes of conduct, whistleblower mechanisms, ethics training) instead of allocating it proportionally across all CSR initiatives. In the case of the Securities and Exchange Commission of Pakistan and PSX listing authorities, the findings affirm the disclosure structures that make firms report CSR activity on a dimensional level but not an aggregate score, as an aggregate CSR reporting would conceal the degree to which the CSR spending of a firm is in fact strengthening its control environment. In the case of internal auditors, the poor philanthropic CSR effect implies that the philanthropic activity, though a good source of external legitimacy, should not be viewed as a maturity of the control environment when assessing audit risk.

### **Limitations and Future Research Directions**

There are a number of limitations to this study. To begin with, the cross-sectional survey is a design that does not allow causal inference; longitudinal, or panel-based, replication would lend more credibility to the stance taken on the direction of the CSR-dimension-internal-control relationship. Second, this use of single key-informant perceptions (CFOs, finance managers, internal auditors) creates the risk of common-method and social-desirability bias, despite the procedural and statistical remedies in Section. 3.5. Third, the sample is limited to five non-financial industries on the PSX; the dimensional hierarchy found within the sample might not be applicable to financial-sector firms, which have a different regulatory and internal-control environment (State Bank of Pakistan prudential regulations). Fourth, the seven-dimension CSR taxonomy used in this case, although based on the pyramid by Carroll (1991) and its later additions, is not the only tenable disaggregation of CSR; there are other ways in which the dimensions might display greater heterogeneity (e.g. internal versus external stakeholder-directed CSR, or environmental CSR separating compliance-based and voluntary sub-dimensions). Fifth, there might be common informant bias to the extent that the CSR practice and internal control effectiveness were rated by the same respondent per firm; some studies could be done with CFO-reported CSR practices and externally-obtained internal-audit-quality indicators to eliminate bias. Future studies may use matched forms of archival internal-audit-quality measures and survey data to triangulate results, generalize the model to financial-sector firms, test moderating effects of firm size and ownership concentration on the CSR-dimension-internal-control relationships found here or use necessary-condition analysis (NCA) to find out whether any one of the CSR dimensions is a necessary, or purely contributory, condition to internal control effectiveness. A second-order compliance CSR factor (which is a composite of governance, ethical, and legal CSR) as indicated in the 5 section also should be tested formally in future work.

### **Conclusion**

In this paper, corporate social responsibility has been disaggregated into seven theoretically different dimensions to establish which one creates the strongest internal control effectiveness of PSX-listed non financial companies in Pakistan. Through the PLS-SEM analysis of survey information of 268 finance and internal-audit professionals, the findings demonstrate that the strongest drivers of internal control effectiveness are governance-oriented, ethical and legal CSR, smaller but statistically significant impacts are displayed by economic, environmental and stakeholder-engagement CSR, and very little effect is presented by philanthropic CSR. These results narrow the composite-CSR perspective that has prevailed in earlier studies in this field, including previous aggregate-level research in this research agenda, and provide boards, regulators and internal auditors with a dimension-specific point of departure to prioritizing CSR. investment designed to elevate organizational control infrastructure as opposed to CSR spending being a signal of undifferentiated governance.

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## **Conflict of Interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## **Data Availability Statement**

The survey data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to respondent confidentiality agreements established during data collection.

## **Author Contributions**

Muhammad Ashraf: conceptualization, survey design, data collection, formal analysis, and original draft preparation. Amanullah Khattak: supervision, theoretical framing, and manuscript review. Khalid Rehman: methodology validation, review, and editing. All authors read and approved the final manuscript.

## **Ethical Approval**

All procedures involving human respondents were conducted in accordance with the ethical standards of the Institute of Business Administration, Gomal University, and with the 1964 Helsinki Declaration and its later amendments. Informed consent was obtained from all individual participants prior to survey administration.

## **Appendix A. Measurement Instrument**

All of the items were assessed using a five-point Likert scale (1 = strongly disagree, 5 strongly agree). Construct summarizes items as follows; detailed wording of items is available with the respective author on request.

### **Economic CSR (ECO) – 4 items**

Adapted from Turker (2009) and Carroll (1991). Sample material: long-term profitability; effective utilization of organizational resources; sensitivity of shareholder payoff in strategic choices; long-term economic feasibility as an organizational priority.

### **Legal CSR (LEG) – 4 items**

Adapted from Turker (2009). Sample material: complete adherence to the labor law; full adherence to tax law; full adherence to environmental law; full adherence to corporate and securities law.

### **Ethical CSR (ETH) – 5 items**

Based on Carroll (1991), Malik and Nawaz (2023). Sample content: presence and implementation of a document code of ethics; treating both employees and suppliers in a way that surpasses legal minimums; having a whistleblower protection system; the management adheres to ethical behavior; the alignment between the values stated and practiced.

### **Philanthropic CSR (PHIL) – 4 items**

Adapted from Turker (2009). Sample material: donations to community development programs; sponsorship of education and health programs; sponsorship of social and cultural events; promotion of employee volunteering.

### **Environmental CSR (ENV) – 5 items**

Based on Rehman et al. (2021). Sample content: control and mitigation of emissions; optimized consumption of natural resources; adherence to environmental standards in excess of legal minimum standards; the investment in cleaner production technology; reporting of the environmental impact.

### **Stakeholder-Engagement CSR (STK) – 5 items**

Based on Rehman et al. (2021)-based and Freeman (1984)-based items. Sample content: formalized employee feedback channels; supplier and customer interaction procedures; attentiveness to stakeholder complaints; open channels of communication with external stakeholders; integration of stakeholder feedback in the decision-making process.

### **Governance-Oriented CSR (GOV) – 5 items**

Based on Iqbal and Saeed (2022). Sample content: board control of the CSR and ethics policy; anti-corruption and anti-bribery measures; disclosure of executive compensation transparency; independence and the level of activity of the audit committee; board diversity and accountability practices.

### **Internal Control Effectiveness (ICE) – 15 items across five COSO components**

Internal Control Effectiveness (ICE) -15 items in five COSO elements adapted by Ashraf and Khattak (2026a) using the COSO (2013) Integrated Framework. Control environment (3 items): tone at the top, organizational commitment to integrity, established authority structures.

Risk profiling (3 items): recognition of operational and compliance risks, risk-response planning, consideration of the fraud risks. Control activities (3 items): segregation of duties, approvals, physical access controls, system access controls. Information and communication (3 items): timeliness and accuracy of internal reporting, reporting responsibilities of control, external reporting reliability. Monitoring (3 items): continuous supervisory assessment, regular internal audit assessment, remediation of identified timely.

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