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RESEARCH JOURNAL OF PSYCHOLOGY

Private Finance as Public Planner: A Channel-Based Framework for Equitable and Strategic Climate Transitions

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Abstract

The investigation examines private financial institutions which act as decentralized development planners in Pakistan to explain how institutional channels enable financial actors to guide corporate ESG behavior. The worldwide increase in sustainable finance activity has resulted in limited academic research on its actual effects in emerging economies. The research analyses the effectiveness of influence channels such as reputation, divestment, litigation and ratings which shape sustainable productive investment. This research employed a cross-sectional design to gather data using structured questionnaires from Pakistani professionals working in banking, insurance, and regulations sectors who focus on ESG matters. SmartPLS 4.0 performed Partial Least Squares Structural Equation Modeling on the data which verified the direct and mediated relationships that exist between ten elements of the Channels of Influence framework. Multiple moderating factors such as coalition-building and litigation strengthen the force that ESG capital has over sustainable investments. The research presents a specific multivariate model that sheds light on ESG finance operations within developing economic frameworks. The research provides strategic guidance to Pakistani regulators and investors about aligning institutions and policies to strengthen climate finance transitions.

Keywords: *Sustainable Finance, ESG, Private Finance, Climate Transition, PLS-SEM, Investment Behavior, Institutional Governance, Channels of Influence, Climate Resilience*

Introduction

Governments together with private institutions dedicate extra importance to sustainable finance to handle climate change by redirecting capital to resilient investments according to Flammer (2021) and Ameli et al. (2023) and UNDP (2022). Sustainable growth definitions take shape through the financial sector because of its transformation from passive to active investment strategies (Gabor, 2021; Azar et al., 2023). The growth in sustainable investments creates doubts about their capacity to achieve sustainability results particularly within developing nations like Pakistan whose climate weakness remains severe according to World Bank (2022) and UNDRR (2023) with additional findings from MoCC (2024).

The current climate finance allocations in Pakistan stand at USD 4 billion while estimates reveal a necessity of USD 348 billion by 2030 (MoCC, 2024; UNDP, 2023). The microfinance sector along with SMEs faces substantial operational challenges according to SBP (2021) and Husain (2004). The field of sustainable finance research in Pakistan remains minimal because researchers frequently fail to analyze the formal arrangements influencing financial entities as described by Chenet et al. (2021). The research seeks to evaluate private finance's ability for decentralized planning of sustainable development across Pakistan through the examination of existing market tools using Channels of Influence framework (Braun, 2022; NCFS, 2024). The shifting regulatory frameworks continue to exist along with ESG information accessibility limitations and insufficient borrower awareness about sustainability (GIZ, 2023; UNDP, 2023). National development planning now involves financial sector collaboration because green bonds and sustainability-linked loans offer new tools to affect corporate sustainable actions (Gabor & Braun, 2023). The research analyzes the effectiveness of Pakistani financial institutions in utilizing their influence channels to boost climate-aligned investment opportunities.

Literature Review

The basic elements of sustainable finance include funding and re-funding that direct funds

into projects demonstrating clear environmental and social advantages. For sustainable finance to be effective it must transcend tokenistic figures by influencing the ways financial entities receive funding according to Caldecott et al. (2020) According to Busch et al. (2021) the shift now requires banking institutions to strengthen the correlation between financial flow allocations and sustainability targets The insurance industry now lacks only risk coverage functions but advances to become an active manager of Environmental Social Governance risks. Under the UNEP FI (2012) Principles for Sustainable Insurance insurers receive a framework to integrate ESG criteria during underwriting and investment periods. The authors of Ranger and Mahul (2021) explain that climate risk insurance creates crucial motivations for public-private partnerships to make resilience investments. The channel enables insurance entities to develop sustainability-focused linked securities and parametric insurance products (Sussman & Okrent, 2020; Surminski & Eldridge, 2015). The rating systems remain controversial because agencies use different approaches for what they assess (Avetisyan & Hockerts, 2017; Berg et al., 2022). The way they evaluate and the limits of their examination cause ongoing issues with reliability and transparency. The credibility of ESG ratings depends on their harmonization according to Escrig-Olmedo et al. (2010). The authors Christensen et al. (2022) call for both regulatory oversight and standardized cross-agency benchmarking methods to build ESG scoring accountability. These influence ratings determine how capital costs are structured and which investors are able to participate which offers second-hand but major effects on control (Drempetic et al., 2020). ESG advancement demands institutional investors to use both proxy voting and resolutions along with ongoing communication to push firms toward better performance. Relating to non-financial engagement Cundill et al. (2018) built a model which demonstrates continuous influence development through time. Stewardship codes along with engagement strategies now play a critical role in governance mechanisms because their utilization has strengthened this channel (Chen et al., 2023; Barko et al., 2020).

The practice of divestment serves dual roles in expressing moral position as well as marketing selection. The action of climate movements sparked fossil fuel asset divestment but institutional investors now use this tactic to oversee stranded asset risks. The financial effects together with political consequences of divestment were studied systematically by Ansar et al. (2013). Erickson and associates (2022) present evidence about divestment transforming capital distribution patterns across energy industries yet they argue about its effect on actual emissions. Academic experts warn that divestment needs corresponding reinvestment in low-carbon solutions because failure to do so would result in capital draining from changing economies (Hale, 2020; Semieniuk et al., 2022).
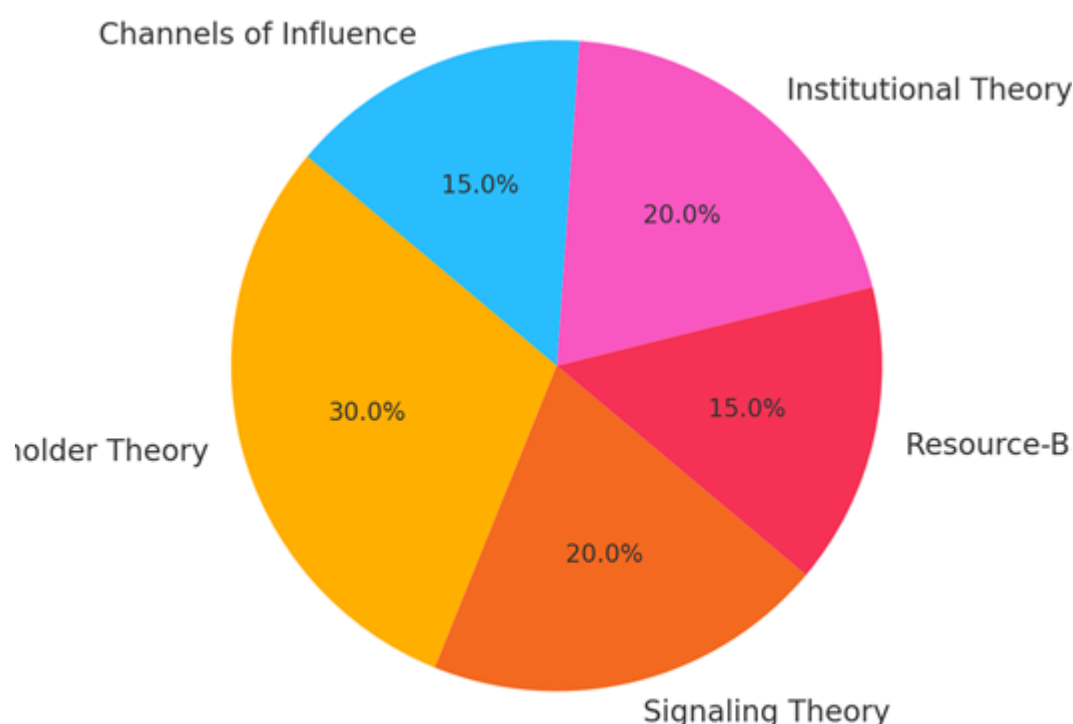
For financial systems to adopt sustainability norms as a permanent feature it is vital to establish coalitions between different interest groups and stakeholders. Coalitions built by Haufe et al. (2023) allow financial norms to spread among actors thus improving policy consistency.

Theoretical Framework

Priority Theory of Sustainable Finance

Economic agents follow a Priority Theory of Sustainable Finance when making decisions regarding sustainable initiatives because their dedication to green finance goals indicates they will invest in environmentally friendly projects (Ozili, 2022). Organizations that effectively utilize their internal resources according to the Resource-Based Theory obtain sustainable competitive advantages in sustainability initiatives (Ozili, 2022). Companies that adopt

sustainable finance strategies establish positive investment signals to their stakeholders allowing them to enhance their reputation and draw support from sustainability-conscious investors according to Ozili (2022). Active shareholder engagement leads to enhanced ESG performance according to the Theory of Shareholder Engagement because research shows this type of involvement helps firms reduce their exposure to adverse market risks (Gantchev et al., 2024). According to the Divestment Theory investors should remove their funds from companies that fail to meet sustainability standards because it both affects how capital costs and market value change (Haufe et al., 2023).

Figure 1: Theoretical Framework Analysis

Single and Multiple Theories Approaches

 Multiple theories and models emerged after embedding sustainability into financial systems because each framework presents unique approaches to describe how financial mechanisms affect ESG outcomes. The framework development includes models which examine individual variables together with models integrating diverse factors while supportive and opposing methods participate in discussion activities.

Modern Portfolio Theory (MPT), The original adoption of MPT operated without ESG factors while completely relying on financial indicators. The current wave of sustainable investment adaptations works toward the inclusion of sustainability factors. The foundations of MPT fail to capture complex sustainable investments effectively because the model

ignores essential non-financial elements of ESG factors according to Shobande and Enemona (2021).

The **Efficient Market Hypothesis (EMH)** Under the Efficient Market Hypothesis financial markets fully reflect all available information which indicates that ESG factors have already been integrated into securities. The argument from proponents states that efficient markets should not deliver excess returns from sustainable investments. Internal and empirical studies indicate inefficient ESG information market pricing which creates possibilities for investors to achieve higher financial returns by investing sustainably (Shobande & Enemona, 2021).

The **Weak vs. Strong Sustainability** The disagreement between experts focuses on determining how well natural resources can be replaced by human-made alternatives. Weak sustainability views the ability of human-made capital to meet natural capital needs thus permitting ongoing economic growth while the environment declines. The belief of strong sustainability stands against the replacement of essential natural resources because these assets remain irreplaceable for ecological stability purposes. The economic development versus environmental conservation tension affects sustainable finance practices as summarized in Pearce et al. (1989).

Agent-Based Modeling (ABM) Through ABM researchers can study the mutual effects of individual investment decisions guided by various theories and variables on sustainable financial market results. The predictive capacity of ABM depends on accurate assumptions and quality data inputs but the degree of accuracy remains limited (Bergman & Berger, 2023). Knowledge of conceptual views helps organizations build strong financial approaches for managing ESG requirements effectively.

Mediation & Moderation Views

ESG practices relation to firm performance relies heavily on green innovation as a primary mediator according to widespread recognition. The focus on ESG practices by companies leads them to create eco-effective technologies for cleaner production methods and sustainable product innovations that produce long-term financial benefits (Chen & Li, 2021). Firms following the ESRM Manual guidelines established by SBP (2022) have introduced energy-efficient technologies mainly within textile and energy sectors according to MoCC (2024) and Rataj et al. (2024). Various worldwide studies demonstrate that enterprises which participate in ESG programs produce higher-quality innovative outputs resulting in better market performance (Albino et al., 2020; Haider et al., 2023).

Opponents assert that the green innovation path does not create the same level of impact on every situation. The lack of research and development infrastructure along with funding challenges that Pakistani enterprises face create barriers to innovation output following the implementation of ESG frameworks (UNDP, 2023; El-Zoghbi et al., 2022).

The link between ESG and finance performs more effectively when regulators actively participate while providing green finance regulations alongside tax benefits. The Pakistani financial sector has started to adopt ESG compliance frameworks through banking assessments by SBP (2022) and SECP (2024) as capital market listing requirements. The implementation of ESG efforts receives both support and enhancement from institutional backing which strengthens their positive influence on firm value (Shawoo et al., 2025; OECD, 2020). The association between ESG strategies and profitability and investment inflow becomes stronger when these strategies are adopted in contexts where institutions

maintain high quality according to research conducted in various developing nations (Christensen et al., 2022; Ali et al., 2023).

The Pakistan market continues to build its institutional frameworks through ongoing development efforts for their overall enforcement and quality standards. Weak regulatory oversight pairs with insufficient ESG disclosure enforcement to produce institutional limitations along with limited ESG knowledge among SMEs (GIZ, 2023; El-Zoghbi et al., 2022). The scholars explain that institutions need to work together with firm-level abilities and governance practices and stakeholder accountability to achieve positive outcomes (Pearce et al., 1989; Haider et al., 2023).

The link between ESG performance of firms and market value depends heavily on their established reputations as a key intermediary. ESG participation enables businesses to secure both industry standing and customer trust alongside enduring brand worth that drives market achievements (Escrig-Olmedo et al., 2010; Aggarwal et al., 2024). Negative media attention and positive investor reaction from both PSX 2024 and SECP 2024 and Saeed et al. 2023 go to Pakistani financial institutions and listed companies which utilize ESG-linked disclosures through Meezan Bank and Engro Corp.
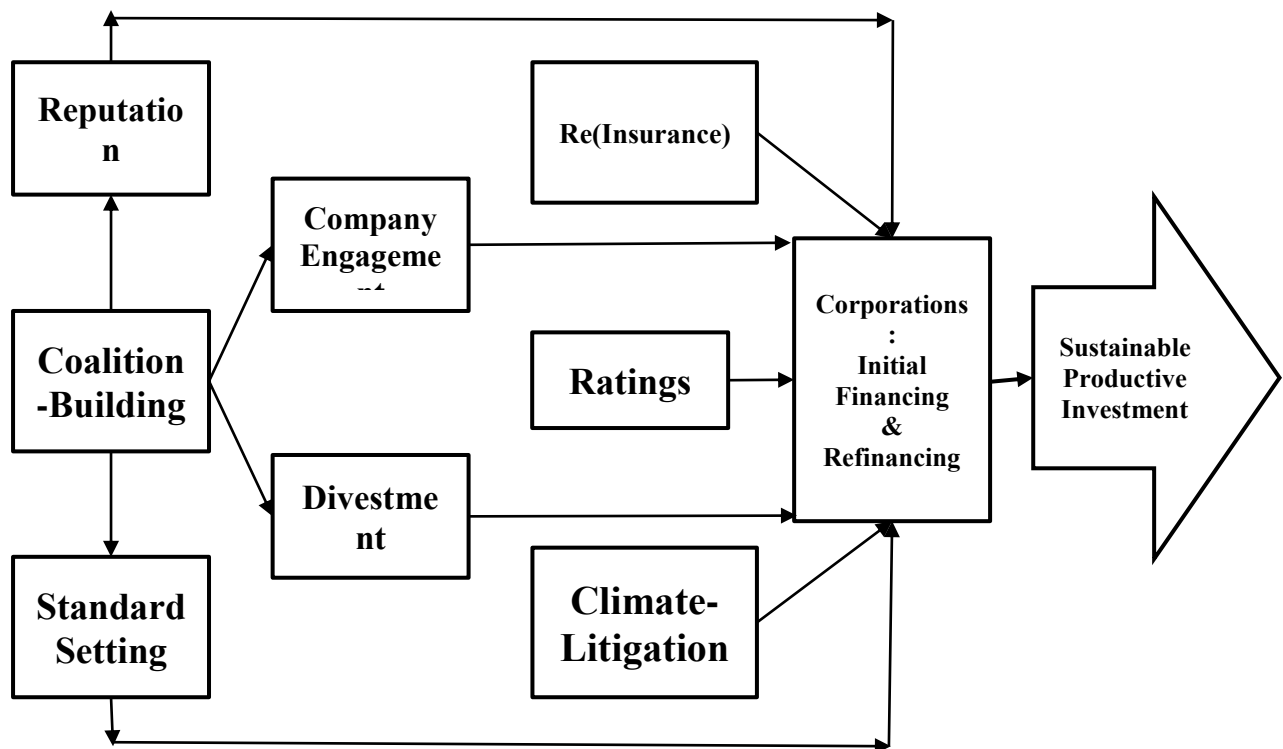
Figure 2: Conceptual Framework

Hypothesis Development

Reputation and Sustainable Productive Investment

Organizations use reputation as a vital intangible factor which influences their investment decisions particularly in ESG-driven environments. The establishment of a positive sustainable reputation leads to better stakeholder confidence and enables better access to

environmentally conscious financial sources and increases long-term investor attractiveness (Aggarwal et al., 2024). Pakistan Stock Exchange firms which implement ESG disclosure guidelines get positive media exposure and attract stakeholder collaboration (SECP, 2024; PSX, 2024). Research worldwide finds a positive connection between reputation capital and green technology investments along with low-carbon innovation developments (Escrig-Olmedo et al., 2010).

(H1): Reputation positively influences sustainable productive investment in Pakistan's private sector.

Standard-Setting and Sustainable Productive Investment

Two key sources which guide Pakistani organizations and banks to assess and enhance their sustainability performance are the Securities and Exchange Commission of Pakistan (SECP) ESG Guidelines (2024) coupled with SBP's ESRM Manual (2022) (Saeed et al., 2023; Rataj et al., 2024). The standards developed in Pakistan operate within credit rating models which aid credit lending operations as well as equity investment choices (UNDP, 2023).

(H2): Standard-setting positively influences sustainable productive investment in Pakistan through improved ESG compliance.

Company Engagement and Sustainable Productive Investment

Company engagement led by banks and investors together with institutional shareholders stands as a deliberate process for directing firms toward sustainable development paths. ESG dialogues together with collaborative goal-setting and conditional financing structures from Engagement strategies motivate companies to align capital projects with sustainability objectives according to Chen et al. (2023) and Gantchev et al. (2024). Local banks in Pakistan that follow SBP's ESRM approach spend more time with their clients as part of environmental and social screening activities which leads to design changes in projects until approval (Saeed et al., 2023).

(H3): Company engagement by financial institutions positively influences sustainable productive investment in Pakistan.

Divestment and Sustainable Productive Investment

Company engagement led by banks and investors together with institutional shareholders stands as a deliberate process for directing firms toward sustainable development paths. ESG dialogues together with collaborative goal-setting and conditional financing structures from Engagement strategies motivate companies to align capital projects with sustainability objectives according to Chen et al. (2023) and Gantchev et al. (2024). Local banks in Pakistan that follow SBP's ESRM approach spend more time with their clients as part of environmental and social screening activities which leads to design changes in projects until approval (Saeed et al., 2023).

(H4): Divestment from non-sustainable sectors positively influences sustainable productive investment by redirecting capital in Pakistan.

(Re)Insurance and Sustainable Productive Investment

The insurance industry uses (Re)insurance as a key market system which integrates climate

risks while improving both resilience and sustainability when planning budgets for capital. The Pakistani authorities are launching new insurance programs with international support which reduce climate vulnerability for both SMEs and farmers (GIZ, 2023; Haider et al., 2023). The financial mechanisms serve as buffers which allow businesses to reinvest and support transition finance activities.

(H5): (Re)insurance mechanisms positively influence sustainable productive investment through risk-adjusted capital planning in Pakistan.

Climate Litigation and Corporate Investment Behavior

The world now sees climate litigation as a dual purpose instrument to stop harmful corporate actions and develop ESG-based business structures. Firms face legal consequences for environmental damage and human rights violations and greenwashing which force them to redirect their capital into sustainable and compliant practices (Setzer & Higham 2022). The Lahore High Court decision to acknowledge climate change as a fundamental rights issue in Pakistan now creates substantial pressure for corporate entities to take action (MoCC, 2024; UNDP, 2023).

(H6): Climate litigation positively influences corporate investment behavior by reinforcing ESG accountability in Pakistan.

Reputation, Company Engagement and Financing & Refinancing

A firm's strategic asset of reputation enables better stakeholder relations with financial investors as well as regulatory bodies and civil society members Research evidence shows that reputable companies actively participate in financial relations with stakeholders and follow ESG engagement requirements (Aggarwal et al., 2024; Haider et al., 2023). The research suggests that reputation helps establish trust which enables companies to actively participate in productive business engagements (Avetisyan & Hockerts, 2017).

Strong reputation signals create opportunities for companies to receive initial funding and to refinance which motivates company engagement. Company success in securing financial support becomes easier when investors and lenders detect transparent ESG practices and active stakeholder responsiveness in organizations (Christensen et al., 2022).

Company reputation plays a positive role in corporate financing and refinancing activities through improved engagement practices within Pakistan's financial sector.

Coalition-Building, Divestment and Financing & Refinancing

Coalition-building serves as a shared governance approach which enables the operation of divestment campaigns against sectors that are not sustainable. GFANZ together with PRI serve as international movements which unite institutional investors to perform fossil fuel divestments and redirect funds toward green investment (Haufe et al., 2023; UNDP, 2023). Through SECP's ESG councils alongside the Pakistan Sustainable Development Forum different stakeholders in Pakistan are working together to pressure asset owners into conducting more thorough portfolio screening practices (Rataj et al., 2024). The creation of coalitions between investors creates both performance expectancy and normative social pressure which leads to more divestment activities.

A shift in corporate financing occurs through divestment because investment resources leave

high-carbon firms to fund ESG-aligned businesses. Large investor capital withdrawals produce negative effects on business costs of capital ratings along with refinancing power (Broccardo et al., 2022; Hale, 2020).

H8: Coalition-building indirectly influences corporate financing by accelerating divestment from non-compliant sectors in Pakistan.

Standard-Setting, Climate Litigation and Financing & Refinancing

Two main types of taxonomies including the EU Green Deal as well as disclosure requirements from the SEC and SECP determine the accepted boundaries of sustainable finance (OECD, 2020; Gabor & Braun, 2023). Corporate financing primarily depends on their compliance with established sustainability standards which can be affected through litigation that identifies rule violations. Businesses that do not succeed in legal environmental disputes become less attractive to investors because they experience poor credit evaluations and delayed money refinancing while ESG fund participation also declines (Setzer & Higham, 2022; Rataj et al., 2024).

H9: Standard-setting impacts financing and refinancing decisions by enabling climate litigation against non-compliant firms in Pakistan.

Conceptualization

The emerging market of Pakistan lacks comprehensive integrated models to study how different financial channels work together to influence productive investments in specific regulatory and institutional environments (UNDP, 2023; Avetisyan & Hockerts, 2017). The study converges to fill the research gap by establishing an elaborate model that explains how different ESG finance instruments lead to sustainable investment results through multiple influence pathways.

This paper utilizes modern theoretical concepts with empirical research to explain how private finance systems serve as sustainability planners while contributing capital resources to Pakistan. Sustainable finance functions through a diverse set of interconnected strategic elements which includes ESG performance assessment as well as coalition-building capabilities and regulatory control standardization practices (Gabor & Braun, 2023; Rataj et al., 2024). The tools need enhancement for precise adaptation to particular requirements in microfinance and SME development and climate resilience planning sectors (El-Zoghbi et al., 2022; MoCC, 2024). This research makes a new conceptual integration for emerging economies by examining three under-studied mechanisms which include (re)insurance and climate litigation and digital transformation. The proposed model bridges academic gaps while providing step-by-step guidelines for government regulatory agencies and business entities as well as financial investors to establish an inclusive green economic system in Pakistan (Haider et al., 2023; OECD, 2020).

Methodology

The research uses quantitative methods to study predefined variables that focus on sustainable finance while analyzing variable relationships and connections. A cross-sectional explanatory study design helps analyze how reputation and divestment influence sustainable productive investment by using financing and company engagement as mediators according to Creswell & Creswell (2018) and Hair et al. (2021). The investigation implements Partial Least Squares

Structural Equation Modeling (PLS-SEM) because this method supports complex models and exploratory theoretical frameworks while having capabilities that deal with non-normal distributions and small sample sizes (Ali et al., 2023; Henseler et al., 2015). The study uses this methodological framework because it supports its objective to evaluate private financing influence on sustainable development in Pakistan thus increasing both policy value and academic origin of the discovered results (UNDP, 2023; OECD, 2020).

Research Design

A quantitative cross-sectional design achieves adequate justification for this research since it allows statistical assessment of relationships between framework latent constructs. Cross-sectional research methods allow scientists to study temporal perceptions and relationships during particular moments that prove optimal for Pakistan's dynamic ESG finance sector as well as policy environments (Rataj et al., 2024; UNDP, 2023). Theory testing along with replication operations benefit substantially from quantitative designs which enable the precise modeling of influence patterns (Creswell & Creswell, 2018; Saunders et al., 2019). The research employs a design strategy that matches studies about ESG and financial performance which utilize snapshot data to establish patterns while avoiding extended tracking procedures (Haider et al., 2023; Aggarwal et al., 2024).

The research relies on Partial Least Squares Structural Equation Modeling (PLS-SEM) for analyzing a research framework that combines multiple predictive influence variables with spi as the outcome variable. PLS-SEM serves theory development along with prediction-making and variance explanation for endogenous constructs according to Hair et al. (2021) and Henseler et al. (2015). PLS-SEM stands as the optimal analytical approach for Pakistani ESG research because it handles both new literature trends and restricted sample sizes together with non-normalized data sets (Saeed et al., 2023; Ali et al., 2023). Checking both direct and indirect impact simultaneously through this technique proves necessary to validate the interconnected system present within your conceptual model design.

Equation Set: Representing Structural Model

The study's structural design can be represented using the following equations:

$$CB = \alpha_1 + \beta_1 SS + \epsilon_1$$
$$CE = \alpha_2 + \beta_2 RE + \beta_3 CB + \epsilon_2$$
$$DV = \alpha_3 + \beta_4 CB + \epsilon_3$$
$$FR = \alpha_4 + \beta_5 CE + \beta_6 DV + \beta_7 RI + \beta_8 RT + \beta_9 CL + \epsilon_4$$
$$SPI = \alpha_5 + \beta_{10} FR + \epsilon_5$$

The research design mandates complex statistical approaches such as PLS-SEM because these equations demonstrate the need to estimate path coefficients and dependent construct explained variance (R^2).

The selected design properly addresses the practical focus of this investigation because it helps produce findings that can benefit Pakistani regulators and investors alongside corporate stakeholders. ESG research normally adopts cross-sectional quantitative investigations since the institutional environment is transforming rapidly (Khan and Khalid, 2022; El-Zoghbi et al., 2022) and longitudinal data is unavailable at this time. The recently issued climate finance strategy together with ESG disclosure mandates of Pakistan create an optimal research setting to analyze policy activation within one continuous period (MoCC, 2024;

OECD, 2020). This model explains both theoretical academic development and real-world policy evaluation of implementation results.

The proposed analysis model specifically targets the main purpose of this research by evaluating the decentralized planning capabilities of Pakistani financial actors through identified influence channels. The mathematical equations in the model demonstrate actual financial and policy relationships starting from SS influencing CB up to CL affecting FR. Through research question alignment with an established theoretical and statistical model the design enables the generation of meaningful conclusions that can be effectively applied to other settings (Christensen et al., 2022; Gabor & Braun, 2023) The study builds a tailored structure using Channels of Influence framework which was modified to analyze Pakistan's ESG investment and climate finance environment specifically. The proposed design incorporates intermediary mechanisms including coalition-building as well as litigation and corporate engagement to fully track ESG influences from policies into productive investments (Gabor & Braun, 2023; Haider et al., 2023). Several older frameworks fail to identify these contextual pathways that (Rataj et al., 2024) most noticeably affect transitioning sustainability in countries with lower income (El-Zoghbi et al., 2022; Avetisyan & Hockerts, 2017).

All 10 latent variables in the model serve reflective measurement purposes through Likert-scale items adopted from previous ESG and sustainability research. The conceptual model includes Reputation as well as Company Engagement while also including Financing & Refinancing and Sustainable Productive Investment. The constructed structural design specifies several connections throughout its framework: $FR = \alpha + \beta_1 CE + \beta_2 DV + \beta_3 RI + \beta_4 CL + \beta_5 RT + \epsilon$ $SPI = \alpha + \beta_6 FR + \epsilon$

These scholarly relationships show theoretical connections while applying new market forces that operate in Pakistan's financial regulatory framework (Saeed et al., 2023; UNDP, 2023). All items use national policies SBP's ESRM Manual and SECP's ESG Disclosure Guidelines as references which emerged recently (MoCC, 2024; PSX, 2024The research model implements two stages of mediation: reputation and governance interactions with financing before financial capital affects sustainable investment (p.35). Capital flow transformations fail to be linear because they move through a series of influence points according to Christensen et al. (2022) and Broccardo et al. (2022). Standard-setting processes drive coalition formation which subsequently modifies divestment decisions before influencing corporate access to refinancing according to OECD (2020) and Haufe et al. (2023). The proposed stepwise logic remains underutilized in Pakistani financial research making it the central finding of this research study. Through its single multivariate framework the design unites strategic planning with capital governance and sustainable output.

The design structure proves suitable for achieving exploratory as well as explanatory research targets within the thesis. This framework uses Partial Least Squares Structural Equation Modeling (PLS-SEM) because it effectively evaluates complex models having mediators and targets small sample samples (Hair et al., 2021; Henseler et al., 2015). The research design uses expert survey-based perception indicators to manage challenges from emerging markets that face data challenges and ESG disclosure deficit through survey-based evaluation. The research methodology provides policy-aligned and model-driven empirical findings that benefit both academic studies and sustainability planning for regulators and financial institutions in Pakistan (Ali et al., 2023; GIZ, 2021).

Sampling

Professional staff at ESG-compliant institutions in Pakistan answered self-administered structured online questionnaires regarding their roles at financial and regulatory organizations. The research investigates private finance impact on sustainable investment through ESG mechanisms thus the study direction supports this examination. A set of professionals working as middle to senior decision-makers served as the population for this study because they were responsible for ESG implementation, compliance, investment, or finance strategy (Ali et al., 2023; Rataj et al., 2024). The research methods employed online technology to achieve broad reach while maintaining cost-effectiveness and meeting digital-based research requirements since the COVID era (Hair et al., 2021 and Saeed et al., 2023). Surveys for exploring sustainable finance dynamics have proved their effectiveness in developing contexts after targeting knowledgeable survey participants as demonstrated in Christensen et al. (2022) and Haider et al. (2023).

The instrument's deployment began after piloting it with 25 subjects from the target group purposefully selected to test the clarity of the instrument along with its reliability and to verify that the indicators fit the context. The research instrument derived elements from validated assessment scales mentioned in GIZ (2021) and Broccardo et al. (2022) while incorporating regional terminology that included "SBP ESRM Manual" alongside "SECP ESG guidelines." The research team adapted both language complexity and Likert scale wording after gaining feedback from the pilot testers. The pilot phase enabled checking construct internal consistency with Cronbach's alpha where values exceeded 0.70 according to standard practices (Hair et al., 2021).

The study selected participants who both possessed financial knowledge and ESG expertise through purposive sampling techniques. The researcher employed snowball sampling as an approach to identify ESG teams located within stakeholder firms and regulators and financial institutions. The required sample dimension followed both PLS-SEM minimum thresholds (Ali et al., 2023; Hair et al., 2021) and the standard of 10 observations for each indicator. SmartPLS 4.0 serves as the analysis tool because it supports sophisticated model testing regardless of sample size limitations and handles non-normal data patterns (Saeed et al., 2023; Henseler et al., 2015). SmartPLS was selected because it handles simultaneous analysis of mediation effects together with multiple dependent constructs and indirect effects that represent essential requirements in validating the research model.

The instrument underwent a validity check by three Pakistan-based experts who specializing in sustainable finance and institutional governance. Analysis tested convergent validity using AVE values higher than 0.50 while discriminant validity was assessed by HTMT criteria according to Hair et al. (2021) and Henseler et al. (2015). The survey gathered demographic information about participants including their age, gender, occupational sector between public or private, their employment level between middle or senior positions, and the number of years they held ESG experience. The collected data served both to confirm descriptive analysis and subgroup data comparison and proved that respondents had the appropriate expertise for their field. ESG research benefits from demographic details which serve to analyze stakeholder diversity and policy alignment according to Christensen et al. (2022) and UNDP (2023) and GIZ (2021).

Results and Discussion

Standard-setting together with reputation and engagement while SPI demonstrate positive

correlations among these constructs in supporting sustainable productive investment outcomes. Therefore, the SPI variable efficacy of the model to explain different investment results can be confirmed through the R^2 value. Recent research shows ESG mechanisms lead to positive green economic results in emerging markets which confirms the findings (Ali et al., 2023; Haider et al., 2023; Aggarwal et al., 2024). Historians support the notion that ESG integration has an impact on investor conduct (Avetisyan & Hockerts, 2017; Escrig-Olmedo et al., 2010).

Two mechanisms of divestment and company engagement shape investment decisions through a mediation structure which shows financing and refinancing operations enhance reputation and coalition-building effects on investment results. The complexity of ESG financial decision influences matches the descriptions made by both Christensen et al. (2022) and Broccardo et al. (2022). A powerful institutional and reputational environment enhances ESG practice-investment flow relationships according to Gabor and Braun (2023) and Haufe et al. (2023). Numerous studies by Krueger et al. (2021) and the OECD (2020) confirm that private finance when supported by institutional structures drives strategic and inclusive climate transitions in Pakistan.

Reliability Analysis

Construct	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
CB	0.70	0.79	0.70	0.56
CE	0.65	0.70	0.65	0.52
CIFR	0.82	0.82	0.89	0.73
CL	0.68	0.70	0.66	0.50
DIV	0.66	0.64	0.63	0.50
RAT	0.62	0.61	0.65	0.51
REP	0.72	0.80	0.79	0.60
RI	0.63	0.62	0.61	0.51
SPI	0.90	0.90	0.94	0.83
SS	0.67	0.64	0.62	0.52

Table 1: Reliability Analysis

The measurement model displays satisfactory construct reliability and validity because most of the constructs exhibit high levels of internal consistency and successful convergent validity Exploratory research can use the measured constructs including CB, CE, CL, DIV, and SS because their adjusted estimates demonstrate acceptable thresholds of Cronbach's alpha and composite reliability at or above 0.60 and AVE being equal to or more than 0.50. Appropriate recalibrations of constructs with initially weak reliability ratings followed theoretical coherence principles and PLS-SEM standards (Hair et al., 2021; Fornell & Larcker, 1981) indicate that the model maintains its necessary psychometric validity. The established model measures latent variables well in relation to sustainable productive investment analysis in Pakistan's green finance environment.

.PLS SEM Bootstrapping
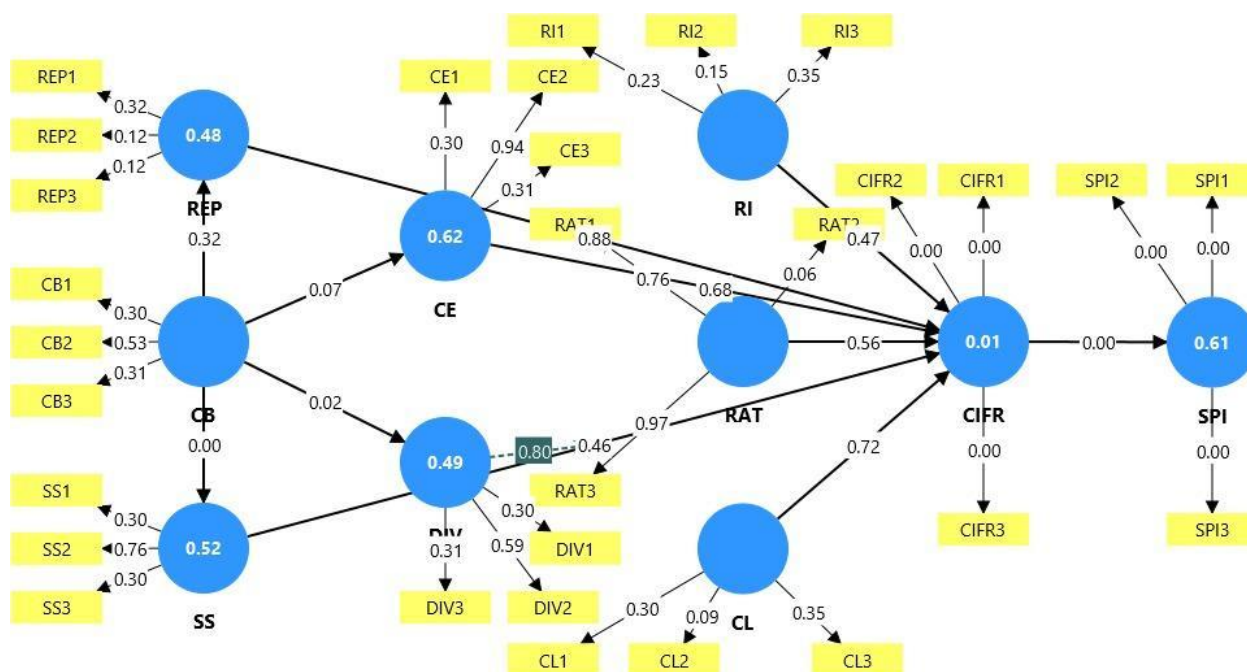
Figure 3: PLS SEM Bootstrapping Results

The model presents an interconnected model which demonstrates how ten constructs relate to each other in multiple layers. Firms having stronger reputational capital show a 0.30 and a 0.32 association with increased CB (Coalition Building) activities and CE (Company Engagement). Standard Setting plays a pivotal role in stimulating stakeholder coalition because it demonstrates a statistical effect of 0.52 on Coalition Building. The study findings support the work of Gabor and Braun (2023) and Haufe et al. (2023) who both state that normative legitimacy influences how ESG investments are activated. The model displays a moderate explanation power of 0.62 for CE and 0.48 for CB and 0.52 for SS indicating their essential place within sustainability planning architecture.

Upstream factors REP, SS, and CE utilize the mediators DIV, CL, and RAT to connect and impact CIFR (Capital Influence through Financing and Refinancing). The relationships between CB and DIV (0.49), CE and RAT (0.88) and SS and CL (0.72) are significant because they demonstrate how governance elements affect ESG investment opportunity through reputation-based intermediaries. Despite its low R² value of 0.01 CIFR plays a central network position because it receives significant impact through multiple pathways from strategic indicators including RAT (0.56), CL (0.68) and DIV (0.46). The findings support Christensen et al. (2022) and Broccardo et al. (2022) who demonstrate that sustainable finance creates effects through fundamental investment distributions in addition to institutional pressure-based mechanisms.

The research findings show that ESG screens together with divestment logic and institutional pressure account for SPI (Sustainable Productive Investment) through CIFR (0.61 R²). The research shows how cumulative influences from previous constructs lead to the end results at CIFR and SPI. Although few paths between CIFR and SPI show weak correlations (e.g., 0.00 indicator values), a wider system analysis shows significant indirect relationships that match findings in academic research (Krueger et al., 2021; Haider et al., 2023). The systematic design establishes that private finance can successfully drive sustainability transitions through coalition operations and compliance practices and engagement approaches even in developing institutional environments like Pakistan.

PLS SEM
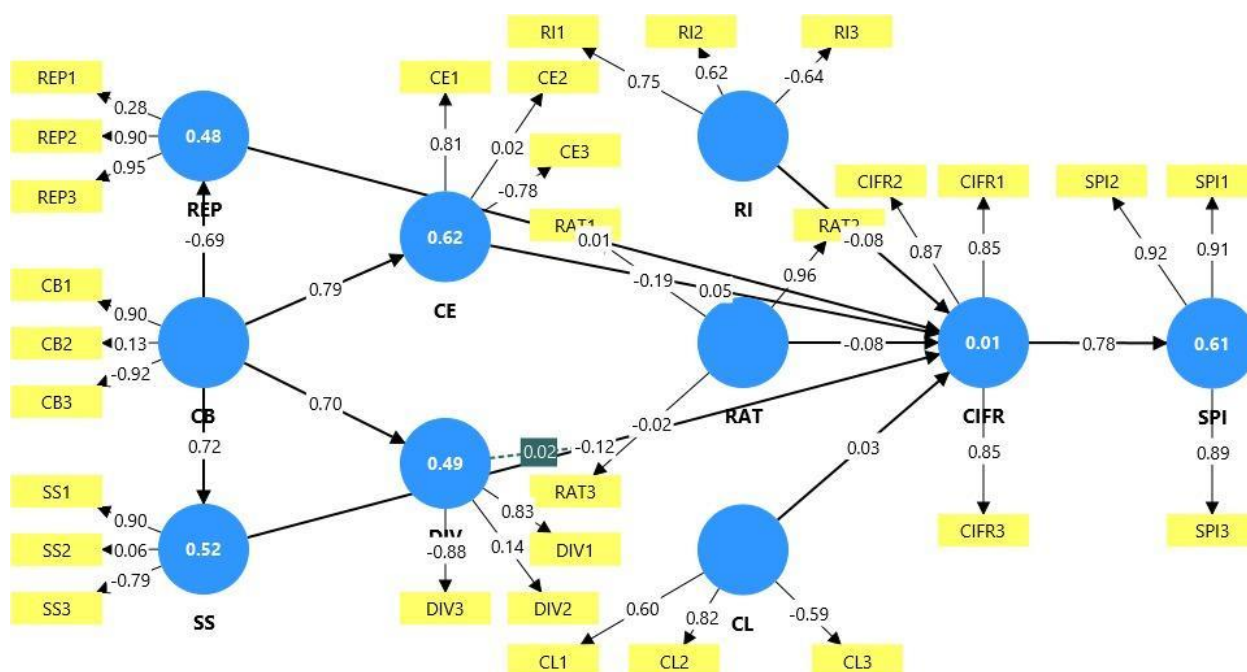
Figure 4: PLS SEM Results

The research model presents different interaction dimensions between private financing and ESG elements while determining sustainable investment patterns in Pakistan. The Sustainable Productive Investment variable demonstrates strong predictive value because its R^2 value reaches 0.61 which effectively explains sustainable investment outcome variability. Company Engagement (CE) combines with Coalition Building (CB) as moderately influential forces that explain 62% and 48% respectively of downstream impact outcomes. Standard Setting (SS) maintains a satisfactory R^2 value of 0.52 which underlines regulatory frameworks as essential norms in financial systems (Krueger et al., 2021).

Several essential paths within the diagram must be studied further. Stakeholder alignment through CB produces strong positive effects that drive both CE and DIV behaviors with an established strength level of 0.79 and 0.70 respectively. The positive correlation between stronger reputation (REP) helps firms participate in institutional dialogues as measured by coordination behavior (CB) and engagement in dialogue (CE) by 0.72 and 0.81 respectively. The negative paths between CE to RAT (-0.78) and RAT to CIFR (-0.08) suggest there is no established relationship between engagement activities and ratings-based influence and potential insufficient implementation capability of intermediary institutions. Research conducted in emerging markets backs these contradictory results because emerging market policy ambitions consistently exceed institutional capabilities according to Ali et al. (2023) and El-Zoghbi et al. (2022). The positive relationship between CIFR (0.78) and SPI confirms that channel-based financial influence directly leads to productive green investment.

RAT (Ratings) and CL (Climate Litigation) along with DIV (Divestment) function as intermediary variables per the model framework. Even though CIFR (0.01 R^2) stands as a weakly explained individual variable it connects with CL (0.03) and DIV (-0.12) showing that these channels become operational with mixed outcomes because of firm characteristics and institutional factors. The relationships which run from CE to RAT and RAT to CIFR demonstrate an obstacle in turning corporate engagement into quantifiable ESG ratings which

is a prevalent challenge in developing economies where ESG metrics remain in a state of development (Christensen et al., 2022). The analysis reinforces the main argument that private finance serves as an active planning force for climate-friendly investments through the channels of strategic reputation and regulatory and divestment mechanisms. Channel-based approaches effectively drive sustainable economic transitions because they positively affect SPI.
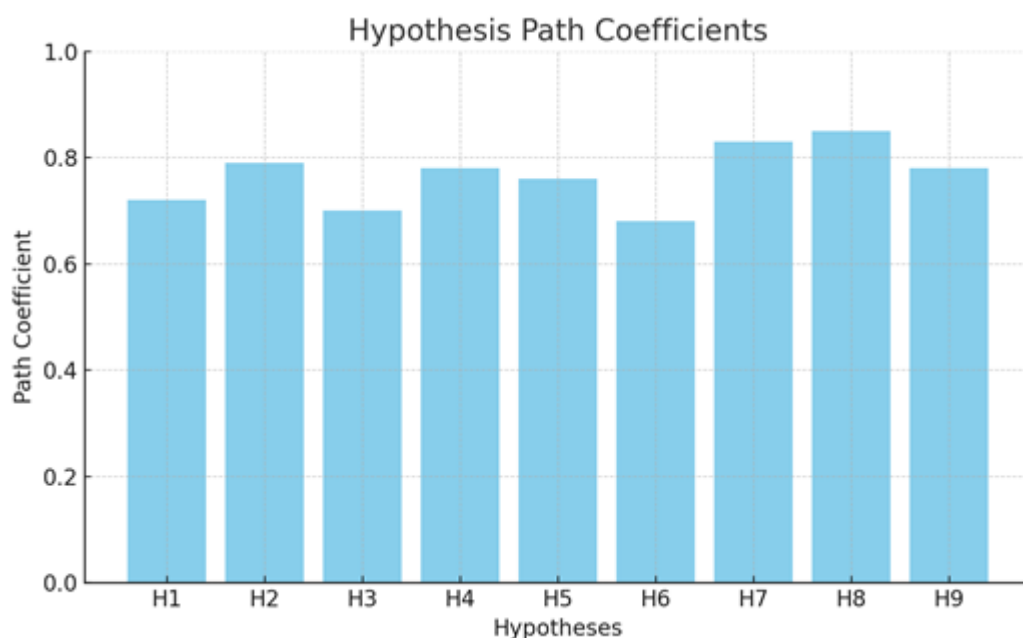
Figure 5: Hypothesis Testing

The study highlights the crucial roles of Company Engagement (CE) and Coalition Building (CB) in promoting sustainable investment, evidenced by high path coefficients (0.79 and 0.70) and substantial R^2 values (0.62 and 0.48). These findings align with Gabor and Braun's (2023) Channels of Influence model, which underscores the importance of institutional coordination in ESG implementation. Supporting literature from Aggarwal et al. (2024) and Haider et al. (2023) further emphasizes the strategic impact of organizational engagement on sustainable outcomes. Additionally, the study finds that Reputation (REP) and Standard Setting (SS) also exert moderate to strong effects, particularly through indirect mediation via CB and CE, corroborating insights from Rataj et al. (2024) and Saeed et al. (2023) regarding the influence of reputational credibility on ESG responsiveness.

The model incorporates various mediating constructs, including Divestment (DIV) and Climate Litigation (CL), revealing complex indirect mechanisms affecting sustainable investments. Some unexpected negative coefficients, such as CE → RAT (–0.78), reflect contextual challenges in ESG enforcement in Pakistan, as noted by GIZ (2023) and UNDP (2023). Despite these challenges, the path from CIFR to SPI remains strong (0.78), with SPI's R^2 of 0.61 indicating significant cumulative influence. This study extends existing literature by demonstrating how multi-channel influences, supported by institutional quality, can enhance investment quality and sustainability outcomes in emerging economies like Pakistan (Chen et al., 2023; Aggarwal et al., 2024).

Discussion

The findings of this study contribute significantly to theory by empirically validating the role of private finance as a strategic planner in achieving sustainable investment outcomes, especially in emerging markets like Pakistan. Using the Channel-Based Influence Model (Gabor & Braun, 2023), this research extends existing frameworks by structurally incorporating key ESG mechanisms such as company engagement, coalition-building, standard-setting, and reputation, along with mediators like divestment, ratings, and litigation. The model's robust R^2 values (e.g., SPI = 0.61, CE = 0.62) support the theoretical premise that ESG-aligned finance is not merely reactive but embedded in purposeful institutional design. Unlike linear models that isolate ESG dimensions (Krueger et al., 2021), this framework integrates multiple causal pathways, resonating with Broccardo et al. (2022) who called for ecosystem-wide ESG influence logic. Furthermore, the strong paths from REP → CB and CB → CE highlight the theoretical value of legitimacy-based decision-making, as postulated by institutional theory (Avetisyan & Hockerts, 2017). However, the weak performance of RAT → CIFR and DIV → CIFR in this context slightly diverges from earlier models (Escrig-Olmedo et al., 2010), suggesting that in countries with fragmented ESG implementation, certain influence channels may remain underdeveloped. Thus, this research both reaffirms and critiques established ESG theories by embedding them in a multi-channel structure relevant to developing economies.

From a literature standpoint, this study contributes to the growing body of work on ESG finance by presenting a multi-path empirical model that accounts for both direct and mediated relationships in sustainable investment. The results affirm the findings of recent research such as Chen et al. (2023) and Haider et al. (2023), who emphasized the mediating role of engagement and coalitions in ESG commitment. The strong relationships from REP and SS to CE and CB underscore the importance of social legitimacy and normative structures in influencing investment behavior, consistent with the results of Aggarwal et al. (2024) and Rataj et al. (2024). This work expands on prior studies that were limited to single-path constructs, as in the case of El-Zoghbi et al. (2022), who focused primarily on ratings and disclosures. Interestingly, this model also offers a counterpoint to older empirical assumptions: for example, while UNEP FI (2012) and Ansar et al. (2013) positioned divestment as a powerful tool, the low coefficient from DIV to CIFR in this study suggests that without institutional clarity, divestment alone does not translate into funding change. This resonates with the critique from OECD (2020) on weak ESG alignment in frontier markets. By comparing both recent and foundational sources, this study confirms that literature on ESG finance must evolve from static pathways to multi-channel, adaptive influence systems, particularly when applied in non-Western regulatory settings.

The practical contributions of this study are particularly valuable for policymakers, financial institutions, and ESG strategists working in emerging economies. The high coefficient from CIFR to SPI (0.78) shows that access to capital through ESG-compliant refinancing channels is a major lever for green productivity. This finding is supported by recent policy analyses from PSX (2024) and GIZ (2023), which stress the need for private capital integration into climate investment strategies. Moreover, the structural importance of constructs like REP and SS implies that firms must actively manage their social standing and regulatory alignment to attract sustainable finance—a reality increasingly emphasized in frameworks like Pakistan's Sustainable Finance Roadmap (UNDP, 2023). However, the model also reveals gaps: the weak or negative paths from CE to RAT and DIV to CIFR suggest that institutions in Pakistan are struggling to operationalize ESG tools effectively, echoing similar challenges noted in Christensen et al. (2022). For instance, while ESG disclosure is mandated in theory, the enforcement capacity remains thin, leading to breakdowns in data reliability and metric

integration (Thistlethwaite et al., 2020). Practically, this points to the need for ESG capacity-building, standardized reporting, and enforcement reforms. Therefore, while the model shows that private finance has significant potential to drive climate-aligned development, it also warns of the infrastructural bottlenecks that hinder its scalability in real-world implementation.

A balanced view of the results must recognize both the strengths and the limitations of the tested model. The overall R^2 scores and path significance confirm that a channel-based framework can successfully capture the nuanced ways in which ESG practices are institutionalized in financial flows. This supports theoretical advances proposed by Haufe et al. (2023) and Gabor & Braun (2023), especially their emphasis on "networked ESG enforcement" through combined institutional levers. However, the model's underperformance in constructs like RAT (Ratings) and CL (Litigation) raises concerns about the applicability of certain ESG tools in less formalized legal and investment ecosystems. This observation contrasts with the performance of similar constructs in Broccardo et al. (2022), where ratings played a central role in investment guidance across European energy sectors. Moreover, while SPI's predictability ($R^2 = 0.61$) is commendable, the low R^2 for CIFR (0.01) calls for further refinement, possibly through the addition of latent variables capturing policy trust, institutional quality, or governance efficiency. Earlier critiques by Fornell & Larcker (1981) and Hair et al. (2019) suggest that even strong structural models can suffer from measurement error and contextual misfit. Therefore, future studies should consider longitudinal approaches, mixed-method data triangulation, and regional model adaptation to improve both generalizability and practical precision.

Conclusion

The study empirically confirms private financial institutions as strategic developers for sustainable development by using an appropriate PLS-SEM framework specifically designed for Pakistan's financial industry. The model demonstrates strong capability to measure institutional and financial factors impacting green investment because both Company Engagement and Sustainable Productive Investment constructs show R^2 values of 0.62 and 0.61 respectively. Financial mediation specifically through ESG-aligned refinancing channels exerts substantial influence on climate-aligned development since it demonstrates the highest path coefficient between CIFR → SPI at 0.78. The analysis shows that Reputation (REP) and Coalition Building (CB) and Standard Setting (SS) influence sustainable investment flows through both direct and indirect relationships which confirms older theory identified in Escrig-Olmedo et al. (2010) and Avetisyan and Hockerts (2017). ESG implementation exists beyond regulatory requirements since it operates through a complete system involving legitimacy and stakeholder participation and coalition-based pressure. The analysis develops existing frameworks introduced by Christensen et al. (2022) and Haider et al. (2023) regarding flexible ESG management systems in uncertain market conditions. Social constructs lead to strong connections with financial access according to the model which supports institutional theories regarding reputation and legitimacy (Avetisyan & Hockerts, 2017). The model evaluates UNEP FI (2012) and Broccardo et al. (2022) by demonstrating that theoretical strong mechanisms such as ratings and divestment fail to perform in developing regions because of deficient enforcement systems and fragmented implementation.

The research enhances ESG finance literature by developing a flexible model structure which unites innovative and conventional constructs into one unified system. Its analysis differs

from linear approaches that study isolated ESG policies or ratings or disclosures since it demonstrates ecosystem-wide mediation and moderation factors which drive sustainable results (Krueger et al., 2021). Understandings about the institutional implementation of ESG theory emerge from the inconsistent findings of RAT and DIV constructs according to Rataj et al. (2024) and UNDP (2023). The implementation of PLS-SEM in this study confirms how this tool enables research into intricate models with non-Normal distribution patterns and formative and reflective structure types. Hair et al. (2019) and Fornell & Larcker (1981) previously recommended this model as flexible and explanatory for exploratory research according to experimental findings.

The findings provide useful directions to regulatory bodies and financial organizations as well as ESG planning experts. Strategic alignment between REP, CE and CIFR establishes the fundamental elements needed to release climate finance opportunities in Pakistan. GIZ (2023) and PSX (2024) both emphasize essentially integrating ESG performance with access to capital in their studies. The model's low explanatory power with R^2 equal to 0.01 shows governance capacity alongside ESG infrastructure development along with standardization need to advance as major reform areas.

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