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The Effect of Social Risk, Intellectual Capital, and HR Policies on ESG Performance of Financial Technology Companies in West Java

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ABSTRACT

This study investigates the influence of Human Resource (HR) Policies, Intellectual Capital, and Social Risk on Environmental, Social, and Governance (ESG) Performance within the fintech industry. As ESG factors increasingly shape stakeholder expectations and regulatory frameworks, fintech companies must adopt sustainable practices not only through technology but also through strategic human and intellectual resource management. Using a quantitative approach with data analyzed via Structural Equation Modeling–Partial Least Squares (SEM-PLS), the findings demonstrate that all three variables—HR Policies, Intellectual Capital, and Social Risk—positively and significantly affect ESG Performance. HR Policies emerged as the most influential factor, followed by Social Risk and Intellectual Capital. The model also shows strong explanatory and predictive relevance. These results highlight the crucial role of human capital development and risk mitigation in driving sustainability efforts in fintech firms.

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1. INTRODUCTION

In recent years, Environmental, Social, and Governance (ESG) performance has become an essential benchmark for assessing the sustainability and ethical impact of companies, particularly in the rapidly evolving financial technology (fintech) sector. As fintech firms disrupt traditional financial services through innovation and digital platforms, they face increasing scrutiny not only regarding financial performance but also in terms of their ESG commitments, including how they manage social responsibilities, develop human capital, and apply ethical governance practices in a technology-driven environment. The integration of ESG criteria in fintech is now recognized as critical for sustainability assessment. Empirical studies present nuanced insights: [1]found a positive

correlation between the Social pillar and firm performance in Chinese firms, indicating that social investments can enhance financial metrics, whereas [2]revealed that among global high-tech firms, ESG performance had a negative association with financial sustainability overall, although the Governance pillar contributed positively, while Environmental and Social pillars had adverse effects. Despite challenges such as greenwashing and resource demands, ESG practices offer fintech firms opportunities for better risk management, improved capital access, and stronger reputations [3]. High ESG scores are also linked to financial resilience and innovation, especially in sectors with high resource demands, highlighting their strategic value for long-term competitiveness [4]. Thus, policymakers and corporate leaders are urged to formulate strategies that optimize ESG investments to enhance both financial sustainability and corporate responsibility [2], [4].

One of the key challenges in achieving strong ESG performance is addressing social risk—the potential negative impact of company operations on society, including issues such as customer privacy, employment conditions, financial inclusion, and community relations. In the fintech sector, where digital transactions and automation dominate, managing social risk becomes crucial for maintaining stakeholder trust and ensuring long-term business viability. Integrating Environmental, Social, and Governance (ESG) principles into fintech operations enables firms to mitigate these risks through the adoption of responsible and ethical practices. Fintech companies face unique challenges stemming from their technological infrastructure, which directly affects privacy, labor conditions, and community engagement. By applying ESG frameworks, fintech firms can better manage social risks and align operations with stakeholder expectations. Increasingly, fintech companies are embedding ESG factors into their risk assessment and financial management strategies to strengthen business resilience and trust [5]. Case studies of companies like Microsoft and Tesla illustrate that ESG-driven transformations can enhance financial performance, operational efficiency, and brand value [6]. Nonetheless, the fintech sector faces hurdles such as the lack of sector-specific ESG standards and limited sustainability expertise [7]. Even so, innovations in digital payments and decentralized finance promote financial inclusion and empower consumers, offering significant potential for positive social impact [7]. In emerging markets, fintech development has been linked to improved corporate ESG performance, especially for small firms and tech-driven enterprises [8], while the creation of tailored ESG rating systems—focusing on areas like data stewardship and ethical AI—can guide investment and governance toward more sustainable fintech practices [7].

Intellectual capital—comprising human, structural, and relational capital—is a strategic intangible asset that plays a pivotal role in driving innovation, enhancing service quality, and strengthening adaptive capabilities, making it essential for the effective development and implementation of Environmental, Social, and Governance (ESG) strategies. Companies that leverage intellectual capital effectively are better positioned to innovate responsibly and align their operations with sustainable development goals, thereby maintaining competitiveness in an increasingly dynamic global market. Human capital contributes by supplying the skills, knowledge, and creativity necessary for developing new products and services [9], [10], while also enhancing a company's adaptability to changing market conditions and technological advancements, which supports sustainable growth [11]. Structural capital—comprising organizational processes, patents, and databases—optimizes operational efficiency and underpins the successful integration of ESG strategies into core business activities, ensuring that innovation remains aligned with sustainability imperatives [9], [12]. Meanwhile, relational capital strengthens market positioning and customer loyalty, both of which are crucial for sustaining long-term innovation and service

excellence [9], while also enabling collaboration with external stakeholders to support responsible innovation and the achievement of sustainable development objectives [13].

Human resource (HR) policies play a critical role in shaping a firm's Environmental, Social, and Governance (ESG) performance, particularly within fintech companies where talent and organizational agility are key competitive advantages. Inclusive HR practices, employee well-being programs, continuous learning, and ethical recruitment policies not only improve employee satisfaction and retention but also enhance broader ESG metrics such as diversity, equity, and governance standards. Inclusive HR frameworks that embed ethical decision-making and corporate social responsibility foster diversity, equity, and transparent workplace environments [14], while recruitment and training initiatives centered on inclusion contribute to a purpose-driven culture that strengthens engagement and satisfaction [15]. Employee well-being programs, including work-life balance and career development support, are pivotal for cultivating supportive organizational cultures that sustain long-term commitment and performance [16]. Continuous learning opportunities, particularly those aimed at developing sustainable changemakers and sustainability-focused leadership, ensure alignment with ESG goals and promote innovation in HR practices [15]. Furthermore, ethical recruitment policies reinforce fairness and transparency in hiring processes, contributing to stronger organizational governance [14], while green HRM practices enhance organizational performance and reputation by encouraging employee participation in sustainability initiatives [17]. Collectively, these HR strategies are essential in creating resilient, responsible, and sustainability-aligned fintech organizations. Despite the growing emphasis on ESG, empirical research linking social risk, intellectual capital, and HR policies to ESG performance in the fintech industry—especially in developing economies such as Indonesia—is still limited. West Java, as one of the economic hubs in Indonesia with a thriving digital economy, provides a relevant context for this investigation. Understanding how these internal and external factors affect ESG outcomes can offer valuable insights for policymakers, investors, and fintech executives seeking to align innovation with sustainable practices. Therefore, this study aims to analyze the effect of social risk, intellectual capital, and HR policies on the ESG performance of fintech companies in West Java.

2. LITERATURE REVIEW

2.1 ESG Performance

Environmental, Social, and Governance (ESG) performance is increasingly recognized as a critical determinant of long-term success and stakeholder trust in the fintech industry, a sector where technology and ethics intersect under mounting pressure to innovate responsibly. ESG integration not only enhances corporate reputation but also attracts investors and consumers, reducing operational risks and improving competitiveness. Like other industries, fintech is expected to embed ESG considerations into strategic planning to support sustainable development. Companies with strong ESG performance typically experience greater corporate value and competitiveness, as they are more adept at risk management and meeting investor expectations [18], [19], while ESG initiatives often create a synergistic balance of economic and social benefits, fostering sustainable innovation and collaborative growth [20]. ESG outcomes are influenced by both internal factors—such as executive characteristics and governance structures—and

external drivers like regulatory environments and investor attention [21], all of which must be carefully managed by fintech firms to maintain stakeholder trust and ensure long-term viability [20]. However, challenges remain, especially for small and medium-sized enterprises (SMEs) that may struggle with the financial burden of implementing ESG practices [19]. To overcome these hurdles, companies must develop clear ESG strategies and robust evaluation systems to effectively communicate progress with stakeholders and enhance internal awareness and commitment [22].

2.2 *Social Risk*

Effectively managing social risks in fintech is essential for improving ESG outcomes, especially as fintech firms face heightened issues like data privacy, algorithmic bias, and financial exclusion. Addressing these risks is key to sustaining consumer trust and long-term success. Innovations in financial services and technology integration enhance operational efficiency and responsiveness to social needs [23], while effective data management and stakeholder collaboration support sustainability [23]. Fintech also promotes financial inclusion and social equity, though open social innovation strategies must navigate ethical challenges [24]. Models like the Integrative Justice Model (IJM) and Open Social Innovation (OSI) help ensure stakeholder interests and systemic change [24]. Despite its benefits, fintech faces risks such as cybersecurity and data governance, making ESG integration in risk management crucial for sustainable finance [25].

H1: Social risk has a significant negative effect on ESG performance.

2.3 *Intellectual Capital*

Intellectual capital, comprising human, structural, and relational capital, is pivotal in the fintech industry for fostering innovation, speed, and digital agility. Aligned with the Resource-Based View (RBV), intellectual capital is considered a valuable, rare, inimitable, and non-substitutable resource that drives superior performance and strengthens ESG outcomes, especially by enabling the development of sustainable innovations, ethical platforms, and inclusive financial services. As a fundamental source of value and competitiveness, intellectual capital supports firm growth and delivers superior stakeholder value [26], representing the intangible asset base that differentiates a firm's total value from its tangible resources [27]. Empirical studies show that intellectual capital positively influences financial performance and firm value, with financial performance acting as a mediating variable [28], [29], particularly in fintech where operational effectiveness and responsible governance are essential for ESG alignment. The evolution of intellectual capital is deeply rooted in the resource-based view, dynamic capabilities, and knowledge-based theories, which emphasize the strategic importance of mobilizing and exploiting intellectual resources for sustaining long-term competitive advantage [26].

Hypothesis 2: Intellectual capital has a significant positive effect on ESG performance.

2.4 *Human Resource (HR) Policies*

Human Resource (HR) policies are vital in shaping Environmental, Social, and Governance (ESG) outcomes, especially in fintech sectors where expertise and ethical conduct are essential. Covering areas such as recruitment, training, diversity, engagement, health and safety, and compensation, these policies reflect the social and governance dimensions of ESG by promoting equity, ethical standards, and employee welfare. According to institutional theory, adopting sustainable HR practices helps firms gain societal legitimacy. In fintech, HR directly influences ESG by fostering positive work environments and aligning employee goals with sustainability targets. HR has become a strategic driver of ESG, with many firms integrating HR in their ESG initiatives [30]. Sustainable talent acquisition, engagement, and diversity practices enhance brand value and align workforce strategies with ESG goals [31]. High-performance sustainable work practices—such as training, inclusion, and ethical governance—support employee trust, advocacy, and innovation [31], [32]. In Brazil, high-ESG firms adopt workforce policies, though areas like supply chain and safety still need improvement [33]Ultimately, HR policies shape employee behavior, influencing satisfaction, commitment, and performance essential for achieving ESG and organizational success [34].

Hypothesis 3: HR policies have a significant positive effect on ESG performance.

2.5 *Previous Studies*

Previous studies have consistently supported the relationship between social risk management, intellectual capital, and HR policies with ESG performance. Effective social risk management has been shown to significantly enhance social and governance outcomes by addressing issues like labor protection and unemployment, while poor social cohesion and high corruption levels hinder ESG progress [35]. Similarly, intellectual capital plays a critical role in advancing ESG performance, as firms with strong ESG practices tend to innovate more and shield their business models from competition; this relationship is further reinforced by national-level patents and trademarks that reflect a firm's intangible assets [36]. Strategically integrating intellectual capital into ESG initiatives not only boosts innovation but also strengthens stakeholder confidence and long-term sustainability [36]. In the HR domain, strategic policies are pivotal in fostering environmentally and socially responsible corporate behavior, particularly when aligned with ESG goals through sustainable employee practices [19]. Moreover, internal organizational factors such as executive diversity and the presence of female leaders positively contribute to ESG performance, highlighting the importance of inclusive governance structures [35]

2.6 *Conceptual Framework*

Based on the theoretical and empirical literature, the conceptual framework of this study posits that ESG performance is influenced by three main factors: social risk (negative relationship), intellectual capital (positive relationship), and HR policies (positive relationship). These relationships are tested using Structural Equation Modeling to evaluate the strength and significance of each effect within the fintech sector in West Java.

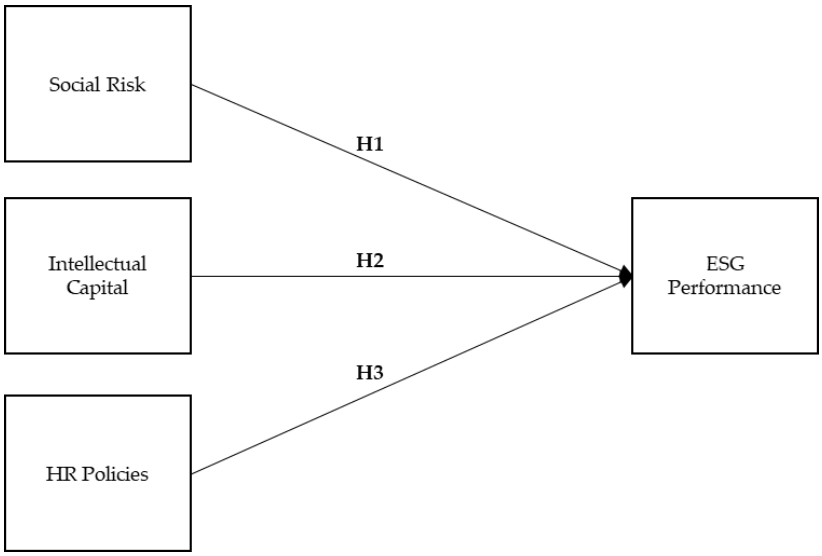

Figure 1. Conceptual Framework

3. METHODS

3.1 Research Design

This study employs a quantitative research design to test the hypothesized relationships between social risk, intellectual capital, human resource (HR) policies, and ESG performance in financial technology (fintech) companies. Utilizing a causal research approach, the study examines the direct effects of the three independent variables on the dependent variable—ESG performance—through explanatory analysis aimed at identifying cause-and-effect relationships using statistical methods. The research population consists of employees, managers, and ESG-related personnel from fintech companies operating in West Java, Indonesia. A total of 140 respondents were selected using purposive sampling, focusing on individuals with relevant experience in ESG practices, HR policy implementation, intellectual capital development, or social risk management within their organizations. The sample size of 140 is deemed adequate for analysis using Structural Equation Modeling–Partial Least Squares (SEM-PLS), particularly given the relatively small number of indicators per latent construct, in accordance with the minimum requirements outlined by Hair et al. (2017).

3.2 Data Collection

Primary data were collected through the distribution of structured questionnaires using both online and offline channels. The questionnaire was self-administered and targeted mid-level to senior-level personnel in fintech firms. Respondents were informed about the purpose of the study and confidentiality of their responses.

3.3 Measurement Instruments

The constructs in this study were measured using items adapted from validated instruments in previous research, with minor modifications to suit the fintech context. All items were assessed using a 5-point Likert

scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The measurement constructs include: Social Risk, evaluated through indicators such as data privacy concerns, inclusivity issues, reputational risks, and customer trust (adapted from Kytle & Ruggie, 2005); Intellectual Capital, measured via human capital (employee knowledge and skills), structural capital (organizational processes and technologies), and relational capital (stakeholder networks) (adapted from Edvinsson & Malone, 1997); HR Policies, assessed based on employee engagement, diversity and inclusion, training and development, and ethical hiring practices (adapted from Gond et al., 2011); and ESG Performance, which was measured through indicators of environmental responsibility, social commitment, and governance transparency (adapted from Friede et al., 2015). Each construct consisted of 3 to 5 indicators to ensure both reliability and parsimony in measurement.

3.4 Data Analysis

Data analysis was performed using SmartPLS 3 software by applying Partial Least Squares Structural Equation Modeling (PLS-SEM), which consisted of two primary stages. The first stage, Measurement Model Evaluation (Outer Model), assessed indicator reliability (factor loadings > 0.7), construct reliability (Cronbach's Alpha and Composite Reliability > 0.7), convergent validity (Average Variance Extracted [AVE] > 0.5), and discriminant validity using the Fornell-Larcker Criterion and cross-loadings. The second stage, Structural Model Evaluation (Inner Model), involved testing the direct effects of social risk, intellectual capital, and HR policies on ESG performance through path coefficients, supported by T-statistics and P-values obtained via bootstrapping with 5,000 resamples (significance threshold: $t > 1.96$; $p < 0.05$). Additionally, the model's explanatory power was evaluated using the Coefficient of Determination (R^2), while effect size (f^2) and predictive relevance (Q^2) were used to assess model strength and predictive accuracy.

4. RESULTS AND DISCUSSION

4.1 Demographic Profile of Respondents

A total of 140 valid responses were collected from employees in various fintech companies operating in West Java. The demographic characteristics of the respondents are summarized below:

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	82	58.6%
	Female	58	41.4%
Age	20–30 years	56	40.0%
	31–40 years	52	37.1%
	41–50 years	23	16.4%
	>50 years	9	6.4%
Position	Staff	67	47.9%
	Middle Management	50	35.7%
	Top Management	23	16.4%
Years of Experience	< 3 years	41	29.3%
	3–5 years	45	32.1%
	> 5 years	54	38.6%

Based on the demographic data of respondents in this study, the majority were male (82 respondents or 58.6%) and female respondents totaled 58 (41.4%), indicating a relatively balanced gender representation that reflects the involvement of both sexes in the growing fintech sector in West Java. In terms of age, the 20–30 age group dominated with 56 respondents (40.0%), followed by 31–40 years (52 respondents or 37.1%), while those

aged 41–50 and over 50 accounted for 16.4% and 6.4%, respectively, showing that the industry is primarily driven by a young and productive workforce, aligned with the sector's technological and innovative nature. Regarding job position, nearly half of the respondents were staff (47.9%), followed by middle management (35.7%) and top management (16.4%), suggesting that while most insights come from operational levels, strategic perspectives from managerial levels are also well represented. In terms of work experience, 38.6% had more than 5 years of experience, 32.1% had 3–5 years, and 29.3% had less than 3 years, demonstrating a balanced mix of experienced and newer professionals. The sample distribution reflects a well-rounded representation of fintech professionals, with a dominant proportion having at least 3 years of experience, making them suitable for assessing variables related to ESG performance, social risk management, intellectual capital, and HR policy implementation.

4.2 Measurement Model (Outer Model) Evaluation

The measurement model was evaluated to assess the reliability and validity of the constructs, including Social Risk, Intellectual Capital, HR Policies, and ESG Performance, through an analysis of indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Indicator reliability was determined by examining the loading factors of each item, where values above 0.70 were considered acceptable (Hair et al., 2017). Internal consistency reliability was measured using Cronbach's Alpha and Composite Reliability (CR), with both metrics required to exceed 0.70 to be deemed reliable. Convergent validity was assessed using the Average Variance Extracted (AVE), with a threshold value above 0.50 indicating that a construct explains more than half of the variance of its indicators, thereby confirming satisfactory validity.

Table 1. Measurement Model Assessment

Variable	Code	Loading Factor	Cronbach's Alpha	Composite Reliability	Average Variant Extracted
Social Risk	SR.1	0.896	0.905	0.939	0.837
	SR.2	0.946			
	SR.3	0.903			
Intellectual Capital	IC.1	0.719	0.798	0.880	0.713
	IC.2	0.899			
	IC.3	0.901			
HR Policies	HP.1	0.825	0.826	0.884	0.656
	HP.2	0.751			
	HP.3	0.843			
	HP.4	0.818			
ESG Performance	EP.1	0.855	0.864	0.907	0.709
	EP.2	0.839			
	EP.3	0.866			
	EP.4	0.806			

Source: Data Processing Results (2025)

The evaluation of the measurement model shows that all constructs—Social Risk, Intellectual Capital, HR Policies, and ESG Performance—meet the required thresholds for reliability and validity. For indicator reliability, all item loadings exceed the minimum acceptable value of 0.70 (Hair et al., 2017), with Social Risk indicators ranging from 0.896 to 0.946, Intellectual Capital from 0.719 to 0.901, HR Policies from 0.751 to 0.843, and ESG Performance from 0.806 to 0.866, confirming strong measurement reliability. Internal consistency reliability, assessed using Cronbach's Alpha and Composite Reliability (CR), also meets the criteria, with all constructs scoring above 0.70: Social Risk

(0.905; 0.939), Intellectual Capital (0.798; 0.880), HR Policies (0.826; 0.884), and ESG Performance (0.864; 0.907), indicating high internal consistency. Convergent validity, measured through Average Variance Extracted (AVE), further supports construct validity, with all values exceeding the 0.50 benchmark: Social Risk (0.837), Intellectual Capital (0.713), HR Policies (0.656), and ESG Performance (0.709). These results confirm that the indicators reliably and validly measure their respective constructs.

1. Discriminant Validity

Discriminant validity ensures that each construct in the model is empirically distinct from the others, confirming that the constructs measure different concepts. In this study, discriminant validity was assessed using the Fornell-Larcker Criterion, which compares the square root of the Average Variance Extracted (AVE) for each construct with its correlations with other constructs. According to this criterion, discriminant validity is established when the square root of a construct's AVE (diagonal values) is greater than the inter-construct correlations (off-diagonal values), indicating that each construct shares more variance with its own indicators than with other constructs in the model.

Table 2. Discriminant Validity

	EP	HP	IC	SR
ESG Performance	0.812			
HR Policies	0.803	0.810		
Intellectual Capital	0.379	0.350	0.834	
Social Risk	0.246	0.137	0.690	0.845

Source: Data Processing Results (2025)

The interpretation of the Fornell-Larcker Criterion confirms that discriminant validity is established for all constructs in the model. For ESG Performance (EP), the square root of AVE (0.812) is greater than its correlations with HR Policies (HP) at 0.803, Intellectual Capital (IC) at 0.379, and Social Risk (SR) at 0.246, indicating acceptable discriminant validity. HR Policies also demonstrate discriminant validity with √AVE = 0.810, which exceeds its correlations with EP (0.803), IC (0.350), and SR (0.137). Intellectual Capital meets the criterion with √AVE = 0.834, higher than its correlations with EP (0.379), HP (0.350), and SR (0.690); although the correlation with SR is moderately high, it remains below the √AVE value. Lastly, Social Risk shows strong discriminant validity with √AVE = 0.845, exceeding its correlations with EP (0.246), HP (0.137), and IC (0.690). These results confirm that each construct is empirically distinct from the others in the measurement model.

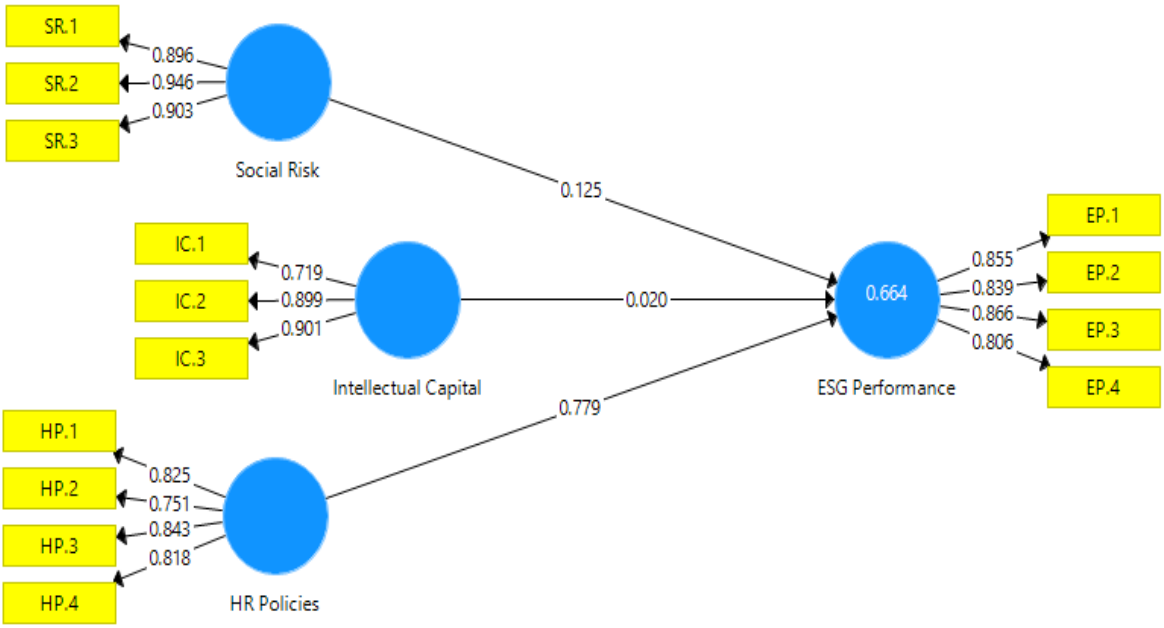

Figure 2. Model Results

Source: Data Processed by Researchers, 2025

4.3 Model Fit

Model fit assessment in Partial Least Squares Structural Equation Modeling (PLS-SEM) is different from covariance-based SEM. While PLS-SEM prioritizes prediction and path relationships over model fit indices, recent developments (Hair et al., 2019) have introduced model fit criteria to evaluate how well the model reproduces the observed data.

This study evaluates model fit using several key indices from both the saturated model (which includes all possible relationships among constructs) and the estimated model (which includes only the specified relationships).

Table 3. Model Fit Results Test

	Saturated Model	Estimated Model
SRMR	0.099	0.099
d_ULS	1.033	1.033
d_G	0.503	0.503
Chi-Square	325.075	325.075
NFI	0.728	0.728

Source: Process Data Analysis (2025)

The interpretation of model fit indices indicates that the structural model demonstrates an acceptable level of fit. The Standardized Root Mean Square Residual (SRMR) value of 0.099 is below the conservative threshold of 0.10, suggesting a good average agreement between observed and predicted correlations. The d_ULS and d_G values, at 1.033 and 0.503 respectively, are within acceptable ranges, indicating reasonable model approximation, with lower values generally reflecting better fit and consistency between the saturated and estimated models. The Chi-Square value of 325.075, while included for completeness, is descriptive in the context of PLS-SEM and is not interpreted using the same significance standards as in covariance-based SEM. Finally, the Normed Fit Index (NFI) of 0.728 exceeds the minimum threshold of 0.70, indicating a moderate but acceptable model fit when compared to a null model. Collectively, these indices support the adequacy and stability of the proposed model.

Table 4. Coefficient Model

	R Square	Q2
ESG Performance	0.664	0.656

Source: Data Processing Results (2025)

The Coefficient of Determination (R^2) for ESG Performance in this study is 0.664, indicating that 66.4% of the variance in ESG Performance can be explained jointly by the independent variables—Social Risk, Intellectual Capital, and HR Policies. According to Chin (1998), an R^2 value of 0.664 is considered substantial, reflecting strong explanatory power within the context of social sciences (Hair et al., 2017). This result suggests that the model effectively captures the key determinants of ESG performance in fintech companies. Additionally, the model's Predictive Relevance (Q^2) for ESG Performance is 0.656, derived through the blindfolding procedure, indicating strong predictive capability. A Q^2 value above 0 reflects predictive relevance, and based on Hair et al. (2019), values of 0.02, 0.15, and 0.35 represent small, medium, and large predictive relevance, respectively. Thus, a Q^2 of 0.656 surpasses even the threshold for large predictive relevance, confirming that the model has high predictive power for ESG outcomes in the fintech industry.

4.4 Hypothesis Testing

This section evaluates the significance of the path coefficients in the structural model by examining the Original Sample (O), t-statistics, and p-values. The hypothesis testing results are used to determine whether the independent variables significantly influence the dependent variable (ESG Performance) at a significance level of 5% ($\alpha = 0.05$).

Table 5. Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
HR Policies -> ESG Performance	0.779	0.782	0.032	24.237	0.000
Intellectual Capital -> ESG Performance	0.320	0.317	0.079	3.259	0.002
Social Risk -> ESG Performance	0.525	0.533	0.081	6.553	0.000

Source: Process Data Analysis (2025)

The hypothesis testing results demonstrate that all three proposed relationships are supported and statistically significant. H1 reveals that HR Policies have a strong and significant positive effect on ESG Performance, with a path coefficient of 0.779, a t-statistic of 24.237, and a p-value of 0.000, indicating that enhancements in HR practices—such as diversity, employee welfare, and safety—are closely linked to improved ESG outcomes. H2 confirms that Intellectual Capital positively influences ESG Performance, with a moderate path coefficient of 0.320, a t-statistic of 3.259, and a p-value of 0.002, suggesting that organizational knowledge, innovation, and learning capabilities play a meaningful role in advancing sustainable practices. H3 shows that Social Risk has a substantial and statistically significant impact on ESG Performance, with a path coefficient of 0.525, a t-statistic of 6.553, and a p-value of 0.000, emphasizing that proactive management of social risks—such as labor issues, stakeholder engagement, and community impact—is crucial to achieving strong ESG performance. These findings validate all three hypotheses and highlight the importance of HR strategies, intellectual capital, and social risk mitigation in driving ESG success within the fintech industry.

Discussion

1) HR Policies and ESG Performance

The results revealed that HR Policies have the strongest positive effect on ESG Performance, indicating that well-developed HR practices—such as fair labor treatment, inclusivity, employee well-being, and continuous training—are critical for enhancing ESG metrics. This finding aligns with existing literature, which suggests that companies prioritizing employee welfare and ethical labor standards tend to achieve higher sustainability ratings. In the fintech sector, where talent and innovation are key competitive advantages, strategic HR practices not only boost employee satisfaction and productivity but also strengthen governance and social responsibility [37], [38]. Companies that implement fair labor practices and foster inclusive work environments see improved ESG outcomes through elevated employee engagement [37], [38]. Additionally, investments in employee well-being and technology-driven training support alignment with long-term sustainability goals [38]. The evolving role of HR from a purely administrative function to a strategic driver of ESG integration is also crucial, as HR departments increasingly lead corporate sustainability initiatives [30]. In fintech, effective human capital management enhances not only social and governance practices but also contributes to better ESG disclosures and corporate reputation through stress management, gender diversity, and inclusive leadership [37], [38].

2) Intellectual Capital and ESG Performance

Intellectual Capital also demonstrated a significant positive effect on ESG Performance, indicating that firms leveraging knowledge assets—such as employee expertise, technological innovation, and organizational learning—are better equipped to integrate sustainable practices into their operations. Intellectual Capital enables the creation of environmentally friendly innovations, ethical governance structures, and socially responsible business models. In the rapidly evolving fintech sector, where digital transformation is essential, these intellectual resources provide the strategic agility needed to meet ESG objectives effectively. Firms with strong ESG performance often see a boost in intellectual capital, particularly when supported by innovation assets like patents and trademarks, reinforcing their competitive advantage [36]. Moreover, human and relational capital have a direct positive impact on financial performance, especially when enhanced by digital transformation, underscoring the importance of intellectual capital in realizing ESG goals in a digitally driven environment [39]. Technologies such as AI and big data further support ESG integration by improving efficiency and enabling firms to tackle environmental and governance challenges [40]. The synergy between intellectual capital and knowledge management also facilitates the adoption of sustainability practices, emphasizing the strategic role of intangible assets in sustainable development [41]. However, organizations must navigate challenges like technological integration and internal cultural shifts to fully leverage these advantages [40], and in developing markets, the link between ESG and firm value may be less evident due to the predominant focus on economic growth, indicating that the benefits of intellectual capital in ESG integration can vary across different economic contexts [42]

3) Social Risk and ESG Performance

The impact of Social Risk on ESG Performance is significant and positive, underscoring the critical role of managing stakeholder relationships and broader societal impacts. In the fintech sector—where digital visibility is high and users are sensitive to ethical concerns—addressing issues like data privacy, digital inclusion, and community relations helps reduce reputational and regulatory risks, thereby enhancing ESG outcomes. Firms that proactively manage social risks are perceived as more trustworthy and responsible by stakeholders and investors. Data privacy, a cornerstone of ESG in fintech, is essential for mitigating risks and

improving transparency, as effective data management aligns with global sustainability standards and provides competitive advantages (Seremeti et al., 2024). Additionally, fintech innovations such as digital payments and decentralized finance can drive financial inclusion and empower underserved communities, contributing to ESG-aligned social progress [43]. Building strong community relations through transparent and responsible business practices further reinforces stakeholder trust and ESG credibility [44]. Sustainable ratings and ESG data also play a crucial role in identifying responsible fintech leaders, guiding investment decisions, and promoting the development of a sustainable financial ecosystem [7], [45].

The R^2 value of 0.664 for ESG Performance indicates that 66.4% of the variance in ESG outcomes can be explained by HR Policies, Intellectual Capital, and Social Risk. This suggests a strong explanatory capability of the model. Moreover, the Q^2 value of 0.656 confirms that the model also has good predictive relevance, demonstrating that the constructs are not only statistically significant but also practically meaningful for forecasting ESG outcomes.

4) Practical Implications

The findings of this study offer important implications for various stakeholders. For management, the results underscore the strategic importance of integrating ESG objectives into HR and knowledge management practices, highlighting the role of human resources and intellectual capital in driving sustainability initiatives. For policymakers, the study emphasizes the need to develop regulatory frameworks that encourage firms to invest in their workforce and intangible assets as key components of national ESG agendas. Meanwhile, for investors and stakeholders, the strong positive relationship between social risk management and ESG performance suggests that companies actively addressing social challenges are more likely to deliver long-term value, stability, and responsible business conduct.

5. CONCLUSION

This study concludes that HR Policies, Intellectual Capital, and Social Risk significantly and positively influence ESG Performance in fintech companies. The strongest determinant is HR Policies, underscoring the importance of ethical, inclusive, and development-oriented workforce practices in sustainability strategy. Intellectual Capital contributes by enhancing innovation and adaptive capabilities, while effective Social Risk management supports reputation, compliance, and stakeholder trust. The model explains a substantial proportion of the variance in ESG outcomes and shows good predictive power, offering a reliable framework for fintech firms aiming to align with ESG standards. These findings provide valuable insights for executives, policymakers, and investors focused on promoting sustainable, human-centric, and risk-aware practices in the digital financial sector. Future research could explore external moderating variables such as regulatory environment or market maturity to further enrich understanding of ESG dynamics in fintech.

REFERENCES

[1] J. Zhang, "The dual impact of ownership concentration and financial performance on ESG activities: evidence from Chinese listed companies: J. Zhang et al.," *Electron. Commer. Res.*, pp. 1–25, 2025.

[2] M. Nazir, M. Akbar, X. Yu, A. Hussain, and L. Svobodová, "Environmental, social, and governance performance as an influencing factor of financial sustainability: Evidence from the global high-tech sector," *Corp. Soc. Responsib. Environ. Manag.*, vol. 31, no. 5, pp. 4746–4758, 2024.

[3] E. A. Gavilanes-Carranza, M. B. Tapia-Urbina, M. L. Rodríguez-Benavides, and E. N. Delgado-Flores, "Sostenibilidad Financiera en las Empresas: Criterios ESG: Financial Sustainability in Companies: ESG Criteria," *Multidiscip. Lat. Am. J.*, vol. 2, no. 3, pp. 1–16, 2024.

[4] A. Quintiliani, "Why and How ESG Practices Shape Firms' Financial Performance," *Int. J. Acad. Res. ACCOUNTING, Financ. Manag. Sci.*, vol. 14, no. 4, pp. 958–987, 2024.

[5] K. Pavani, "A study on risk assessment and financial management on ESG," *Int. J. Res. Publ. Rev.*, vol. 5, no. 5, pp. 3624–3632, 2024.

[6] I. Blagova, T. Romanishina, A. Bobovnikova, I. Kushelev, and Y. Myagkova, "ESG business transformation as a way to mitigate corporate risks," in *E3S Web of Conferences*, EDP Sciences, 2024, p. 1006.

[7] A. Sharma and B. Mishra, "A study on sustainability in the fintech banking industry and the evolution of sustainable ratings in fintech," *Sachetas*, vol. 3, no. 4, pp. 16–24, 2024.

[8] D. Wang, K. Peng, K. Tang, and Y. Wu, "Does FinTech development enhance corporate ESG performance? Evidence from an emerging market," *Sustainability*, vol. 14, no. 24, p. 16597, 2022.

[9] N. Martens, "Do Integrated Circuits Make for an Integrated Supply Chain? a Network Analysis of Trade Flows." Duquesne University, 2023.

[10] M. Atalay and N. Anafarta, "Enhancing innovation through intellectual capital: A theoretical overview," *J. Mod. Account. Audit.*, vol. 7, no. 2, p. 202, 2011.

[11] S. Mudjijah, "Modelling the Impact of Intellectual Capital on Firm Sustainability: A Case of Indonesian Consumer Goods Companies," *J. Ecohumanism*, vol. 3, no. 4, pp. 1315–1327, 2024.

[12] S. K. Saw, S. K. Ooi, and A. Amran, "Intellectual capital as a key driver of corporate responsible innovation," *Int. J. Sustain. Strateg. Manag.*, vol. 10, no. 1, pp. 78–89, 2022.

[13] M. del C. C. Alvarado, G. C. S. Martínez, M. G. Pérez, and J. C. P. García, "El Rol del Capital Intelectual en la innovación de las empresas (Artículo De Revisión)," *Eur. Sci. J.*, vol. 10, no. 28, 2014.

[14] N. P. Onyekwelu, C. Ezeafulukwe, O. R. Owolabi, O. F. Asuzu, B. G. Bello, and S. C. Onyekwelu, "Ethics and corporate social responsibility in HR: A comprehensive review of policies and practices," *Int. J. Sci. Res. Arch.*, vol. 11, no. 1, pp. 1294–1303, 2024.

[15] A. Chandel, M. Yadav, and T. M. N. Luu, "The Role of Purpose-Driven Leadership: how can purpose-driven leadership promote sustainable happiness?," in *Insights on Wellbeing and Happiness in the Workplace*, IGI Global Scientific Publishing, 2025, pp. 255–282.

[16] B. Badaruddin, S. Surianto, and F. Fatmasari, "Work-Life Balance and Professional Development: Their Impact on Employee Performance," *Parad. J. Ilmu Ekon.*, vol. 7, no. 4, pp. 409–424, 2024.

[17] F. Zhao, L. Wang, Y. Chen, W. Hu, and H. Zhu, "Green human resource management and sustainable development performance: organizational ambidexterity and the role of responsible leadership," *Asia Pacific J. Hum. Resour.*, vol. 62, no. 1, p. e12391, 2024.

[18] Y. Miao, Y. Shi, and H. Jing, "Effect of servitization on performance in manufacturing firms: A mediating effect model of digitalisation moderated by ESG performance," *Heliyon*, vol. 9, no. 10, 2023.

[19] Z. Zhai, "Institutional investors' corporate site visits and corporate social responsibility," in *Proceedings of the 2021 12th International Conference on E-business, Management and Economics*, 2021, pp. 592–609.

[20] M. Liu, "ESG Performance, Rent-Seeking and Corporate Innovation," *Frontiers (Boulder).*, vol. 5, no. 5, 2024.

[21] Y. Xue, P. Lakkanawanit, M. Suttipun, and S.-Z. Huang, "ESG Performance and Enterprise Value in Chinese Tourism Companies: The Chained Mediating Roles of Media Attention and Green Innovation," *Sustainability*, vol. 16, no. 23, p. 10372, 2024.

[22] F. Wu, C. Wang, H. Ibrahim, and J. Zhao, "Research on the spatial and temporal evolution and spatial spillover effects of regional green innovation in China under the ESG context," *J. Clean. Prod.*, vol. 520, p. 146116, 2025.

[23] M. Z. AlQudah *et al.*, "Financial technology's role in advancing social responsibility: a bibliometric review of research progress and future opportunities," *Int. J. Law Manag.*, 2024.

[24] F. Kaefer, G. L. Mora, and N. J. C. Santos, "Socially Responsible Fintech Using Open Social Innovation," *J. Macromarketing*, vol. 45, no. 1, pp. 105–112, 2025.

[25] S. Singhvi and M. Dadhich, "Fintech revolution and future of sustainable banking: opportunities and risks analysis," *Int. J. Manag. Dev. Stud.*, vol. 12, no. 04, pp. 12–21, 2023.

[26] T. Radjenović and B. Krstić, "Intellectual capital as the source of competitive advantage: the resource-based view," *Facta Univ. Ser. Econ. Organ.*, pp. 127–137, 2017.

[27] M. Ahlgren, "What is intellectual capital?," *UNLV Gaming Res. Rev. J.*, vol. 15, no. 2, p. 4, 2011.

[28] K. Wiryawati, R. Rinofah, and A. Maulida, "Pengaruh Modal Intelektual terhadap Nilai Perusahaan dengan Kinerja Keuangan sebagai Variabel Intervening pada Perusahaan Manafaktur yang Terdaftar di BEI Periode 2018-2020," *Al-Kharaj J. Ekon. Keuang. Bisnis Syariah*, vol. 5, no. 3, pp. 1062–1079, 2023.

[29] A. Irsyahma and N. Nikmah, "Intellectual capital, firm value, and financial performance," *AFEBI Account. Rev.*, vol. 1, no. 1, pp. 29–43, 2016.
[30] M. Sahu, S. Sourav, and B. Bhat, "The Evolving Role of HR in Environmental, Social, and Governance (ESG) Initiatives".
[31] M. A. Mottalib, M. A. Hossain, M. I. Hossain, M. N. Amin, M. M. Alam, and C. K. Saha, "Assessment of cost-benefit parameters of conservation agricultural machinery for custom hires entrepreneurship in the southern region of Bangladesh," *Agric. Eng. Int. CIGR J.*, vol. 21, no. 3, pp. 94–103, 2019.
[32] U. P. Makhecha and S. Mariappanadar, "High-performance sustainable work practices for corporate ESG outcomes: Sustainable HRM perspective," *NHRD Netw. J.*, vol. 16, no. 2, pp. 159–163, 2023.
[33] M. V. Schleich, "What are the human resources policies and practices most used by companies with the best ESG ratios in Brazil?," *Rev. Adm. Empres.*, vol. 62, pp. e2021-0370, 2022.
[34] S. U. Kant, "Agro-Processing Industries: Potential, Constraints and Task Ahead," Indian Institute of Management Ahmedabad, Research and Publication Department, 1989.
[35] D. Xiao and S. Chen, "Does Executive Environmental Cognition Promote Corporate ESG Performance? Evidence from China," *J. Knowl. Econ.*, pp. 1–29, 2025.
[36] C.-V. Pham, S.-F. Liu, and S.-H. Chen, "Corporate ESG performance and intellectual capital: International evidence," *Asia Pacific Manag. Rev.*, vol. 29, no. 3, pp. 306–346, 2024.
[37] M. R. do Amaral, I. V. A. Willerding, and É. M. Lapolli, "ESG and sustainability: the impact of the pillar social," 2024.
[38] X. Cai, H. Xiang, I. Neskorodieva, and A. Durmanov, "Interrelation between human capital management and ESG engagement: evidence from S&P 500 firms," *Humanit. Soc. Sci. Commun.*, vol. 11, no. 1, pp. 1–17, 2024.
[39] J. Yin and J. Xu, "Intellectual capital, digital transformation and firms' financial performance: Evidence from ecological protection and environmental governance industry in China," *PLoS One*, vol. 20, no. 1, p. e0316724, 2025.
[40] S. Yang, M. Hussain, R. M. Ammar Zahid, and U. S. Maqsood, "The role of artificial intelligence in corporate digital strategies: evidence from China," *Kybernetes*, vol. 54, no. 5, pp. 3062–3082, 2025.
[41] L. da Silva Nascimento and J. H. de Sousa Júnior, "Relacionando capital intelectual, gestão do conhecimento e sustentabilidade: um modelo conceitual," *Navus-Revista Gestão e Tecnol.*, vol. 9, no. 2, pp. 92–104, 2019.
[42] F. Nur Fauziah, G. Chandrarin, and D. S. Cahyaningsih, "The Effect of Environmental Social Governance, Research and Development, Intellectual Capital, and Leverage on Firm Value.," *KnE Soc. Sci.*, 2024.
[43] J. Junaedi, "Understanding the Role of Finance in Sustainable Development: A Qualitative Study on Environmental, Social, and Governance (ESG) Practices," *Golden Ratio Financ. Manag.*, vol. 4, no. 2, pp. 113–130, 2024.
[44] A. Shala and V. Berisha, "The impact of Fintech on the achievement of environmental, social, and governance (ESG) goals," in *Sustainable Development Goals: The impact of sustainability measures on wellbeing*, Emerald Publishing Limited, 2024, pp. 55–77.
[45] A. K. Kalyanam, "Integration of ESG Data in the Financial Sector (Essential for Sustainable Investment and Risk Management)," 2024.