

ESG INTEGRATION IN SOCIAL SECURITY FUND INVESTMENT: AN IMPLEMENTATION STUDY

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Abstract

This study examines how Environmental, Social, and Governance (ESG) principles can be implemented in social security fund investment, using a social security fund institution as a case study. The article addresses the gap between the growing literature on ESG-performance relationships and the practical operationalization of ESG in emerging-market public pension and social security institutions. A qualitative case study method is employed through documentary analysis of ESG investment literature and the ESG implementation final report prepared for the case institution. The findings show that ESG integration is strategically relevant because it can strengthen risk management, portfolio resilience, regulatory alignment, and public legitimacy. Existing investment practices already emphasize liquidity, solvency, prudence, fund security, and adequate returns; however, ESG considerations are not yet explicitly embedded in investment objectives, asset limits, scoring criteria, stewardship, risk management, and capacity building. Risk exposure mapping indicates material ESG issues across equity and bond portfolios, particularly climate vulnerability, greenhouse gas emissions, data security, fair competition, corporate governance, employee engagement, occupational health and safety, and labor practices. This article proposes a phased implementation model: establishing governance and policy foundations, integrating ESG scoring and monitoring into equity and bond investment processes, and optimizing the framework through technology, capacity building, stewardship, and sectoral climate-risk management. The study contributes to sustainable finance by translating ESG theory into an implementation-oriented framework for social security fund investment in Indonesia.

Keywords: ESG integration, social security fund, pension investment, sustainable finance, ESG implementation

INTRODUCTION

Environmental, Social, and Governance (ESG) integration has become an increasingly important element of investment management. ESG refers to the incorporation of environmental issues such as climate risk and resource efficiency, social issues such as labor practices and community impact, and governance issues such as board effectiveness, business ethics, disclosure quality, and risk oversight into investment analysis. For institutional investors, ESG is no longer only a reputational or ethical consideration; it is increasingly understood as a set of financially material information that can affect long-term risk, return stability, and portfolio resilience.

The importance of ESG is particularly relevant for pension funds and social security funds. These institutions manage long-term liabilities and must protect beneficiaries across generations. Their investment decisions are therefore expected to balance return objectives with prudence, liquidity, solvency, fiduciary responsibility, and broader social welfare. In this context, ESG integration can support investment governance by identifying non-financial risks that may later

become financial losses, including climate transition risk, environmental liabilities, cybersecurity failures, labor disputes, weak corporate governance, and reputational controversies. The Indonesian social security investment context strengthens the relevance of this issue. A social security fund institution manages social security funds for workers and must optimize investment by considering liquidity, solvency, prudence, fund security, and adequate returns. At the same time, Indonesia's sustainability agenda, the development of sustainable finance regulations, and global ESG practices among peer institutions create pressure for social security fund institutions to develop a more explicit ESG investment framework. The ESG implementation final report prepared for the case institution highlights that ESG investing can help strengthen risk management, improve fund sustainability, enhance reputation, and position the institution as a leader in responsible investment in Indonesia (PT Deloitte Konsultan Indonesia, 2024).

The research problem addressed in this article is that ESG has often been discussed at the corporate-performance level, while fewer studies explain how ESG can be operationalized in the investment processes of social security or pension fund institutions in emerging markets. In practice, ESG integration requires more than a statement of commitment. It requires a governance structure, investment policy adjustments, risk assessment tools, ESG data, internal capability, stewardship practices, and a phased implementation roadmap. The objective of this study is to analyze how ESG integration can be implemented in social security fund investment by using a social security fund institution as a case study. Specifically, this article aims to: (1) explain the theoretical relevance of ESG in long-term institutional investment; (2) identify current gaps in the institution's ESG investment practices based on available documentary evidence; (3) discuss material ESG risk exposure in equity and bond portfolios; and (4) propose an implementation-oriented ESG investment framework and roadmap. The novelty of this article lies in its focus on translating ESG theory into a practical implementation model for a social security fund institution in Indonesia rather than merely testing the relationship between ESG scores and financial performance.

The contribution of the article is both theoretical and practical. Theoretically, it connects stakeholder theory, legitimacy theory, institutional theory, and modern portfolio theory to explain why ESG integration is relevant for public social security investment. Practically, it provides a structured framework that can help institutional investors embed ESG into investment governance, due diligence, asset selection, risk monitoring, and stewardship. The scope of this article is limited to investment management aspects, particularly the integration of ESG into governance, risk assessment, equity investment, corporate bonds, sovereign bonds, and implementation planning.

LITERATURE REVIEW

ESG Integration in Institutional Investment

ESG integration refers to the systematic consideration of ESG factors within investment analysis and decision-making. It differs from a purely exclusionary approach because it does not only avoid certain sectors; it incorporates ESG information into asset valuation, portfolio construction, risk assessment, monitoring, and ownership practices. The definition used by CFA Institute, GSIA, and PRI emphasizes the ongoing consideration of ESG factors in investment analysis and decision-making with the objective of improving risk-adjusted returns (CFA Institute et al., 2023). This definition is consistent with the OECD view that ESG investing integrates ESG factors into asset allocation and risk decisions to achieve sustainable long-term financial returns (OECD, 2020).

In the context of pension and social security funds, ESG integration has a strong institutional logic. Pension funds are long-horizon investors, and long-term liabilities require them to consider risks that may not be fully reflected in short-term market prices. Alda (2021) shows that ESG inclusion has moved from niche socially responsible investment products into conventional pension fund portfolios. Pedersen et al. (2021) also develop the concept of the ESG-efficient frontier,

showing that responsible investing can be understood within a portfolio choice framework because ESG characteristics may contain information about risk, expected return, and investor preference.

Recent studies increasingly view ESG as a mechanism of resilience and long-term value creation. Lin et al. (2025) find that stronger ESG investment styles can be associated with fund performance through better stock selection and portfolio allocation. Wang (2024) suggests that ESG investment preference can reduce fund vulnerability through investor-attention and fundamental channels. In pension fund settings, Otchere et al. (2025) show that ESG investing has implications for the sustainability of pension systems, although the effect may be influenced by transition costs and market channels.

Recent evidence also strengthens the role of institutional investor stewardship in ESG implementation. Dyck et al. (2019) show that institutional ownership is positively associated with firms' environmental and social performance across countries, suggesting that large asset owners can influence investee behavior. Hoepner et al. (2024) further find that ESG shareholder engagement can reduce firms' downside risk, especially when engagement addresses environmental issues such as climate change. This literature supports the argument that social security fund institutions should not limit ESG to pre-investment screening, but should also develop active ownership, post-investment monitoring, and engagement mechanisms.

Theoretical Foundations

Stakeholder theory argues that organizations need to consider the interests of stakeholders beyond shareholders (Freeman, 1984). For a social security fund, the relevant stakeholders include participants, employers, regulators, government, investee companies, employees, and society. ESG integration supports stakeholder-oriented investment governance by ensuring that investment decisions take into account the broader social and environmental consequences that may affect institutional legitimacy and long-term fund sustainability.

Legitimacy theory provides a second theoretical foundation. Public institutions and financial organizations seek legitimacy by aligning their practices with societal expectations and regulatory norms. ESG adoption can therefore be interpreted as an institutional response to sustainability expectations, especially when investment decisions are made using public or social security funds. This logic is relevant for a social security fund institution because the organization operates under public accountability and manages funds for the welfare of workers.

Institutional theory explains that organizations adopt formal structures, policies, and disclosure mechanisms partly because of coercive pressures from regulation, normative pressures from professional standards, and mimetic pressures from peer institutions. In ESG investment, these pressures appear in sustainable finance regulations, PRI principles, ESG rating methodologies, and practices of global pension peers. Shen et al. (2023) emphasize that the institutional context strongly shapes ESG disclosure, rating, and investing practices.

Modern portfolio theory provides a financial rationale for ESG integration. Traditional portfolio management focuses on expected return, volatility, correlation, and diversification. ESG integration extends this approach by considering material non-financial factors that may affect future cash flows, cost of capital, credit quality, asset impairment, or downside risk. From this perspective, ESG is not separate from financial analysis but can improve risk identification and portfolio construction.

ESG Integration, Risk Management, and Portfolio Performance

A central debate in ESG research concerns whether ESG enhances or reduces investment performance. Earlier meta-analytical evidence by Friede et al. (2015) suggests that the majority of empirical studies report a non-negative relationship between ESG and corporate financial performance. Khan et al. (2016) further argue that firms with strong performance on material ESG issues can outperform firms with weak ESG performance on material issues. This implies that

materiality is crucial: not every ESG issue matters equally in every sector, but financially material ESG issues can provide useful information for investors.

The performance effect of ESG is likely to operate through several mechanisms. First, ESG integration improves the information set used by investors. Second, it supports downside-risk management by identifying hidden liabilities, governance weaknesses, or social controversies. Third, it may enhance stewardship by encouraging investors to engage investee companies on governance, transparency, and sustainability practices. Fourth, it may improve regulatory alignment and reduce greenwashing if supported by credible data and governance.

Climate risk is especially relevant for long-horizon institutions. Krueger et al. (2020) show that institutional investors perceive climate risks as financially material and that many long-term, ESG-oriented investors prefer risk management and engagement over divestment. In social security fund investment, this evidence is consistent with the need to evaluate physical climate risk, transition risk, carbon-related regulation, and sectoral exposure alongside conventional financial indicators.

However, ESG implementation also faces measurement challenges. Berg et al. (2022) document that ESG ratings diverge substantially across providers due to differences in scope, measurement, and weighting. Gibson Brandon et al. (2021) also show that ESG rating disagreement is associated with return variation and risk premia. Therefore, an ESG framework should not rely mechanically on one score but should combine external ratings, materiality mapping, issuer dialogue, and internal investment judgment.

This article does not formulate statistical hypotheses because it uses a qualitative case study approach. Consistent with the ICSEMA template, hypotheses are not mandatory for qualitative research. Instead, the article develops an analytical proposition: ESG integration can strengthen social security fund investment when it is embedded into governance, risk management, investment analysis, data infrastructure, and stewardship rather than treated as a separate disclosure exercise.

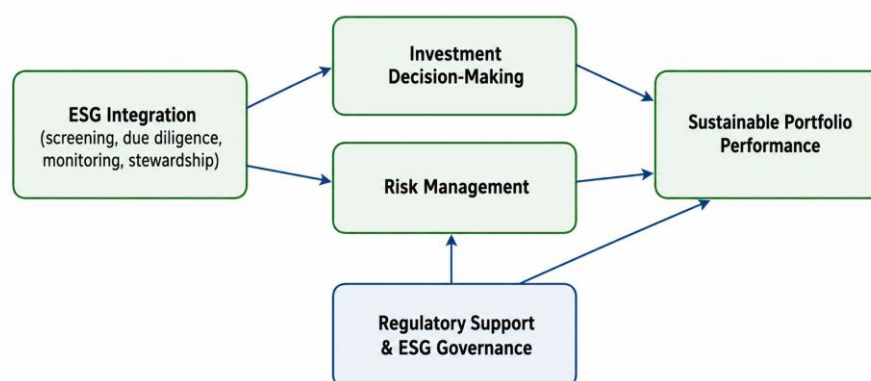


Figure 1. Conceptual framework of ESG integration in social security fund investment

RESEARCH METHODS

This study applies a qualitative case study design. A case study is appropriate because the article seeks to understand how ESG integration can be operationalized in a specific institutional setting rather than measuring statistical relationships across a large sample. A social security fund institution is selected as the case because it is a strategic social security institution in Indonesia and because ESG integration is relevant to its mandate to manage social security funds prudently and sustainably.

The data were collected through documentary analysis. The first source is the initial article draft titled ESG Principles in Pension Fund Investment: An Implementation Study, which provides the theoretical foundation, prior literature, and initial conceptual model. The second source is the

Final Report on ESG implementation for a social security fund institution prepared by PT Deloitte Konsultan Indonesia in December 2024, which provides case-specific inputs on current-state assessment, ESG risk exposure, peer benchmarking, ESG framework, portfolio strategy, and implementation roadmap. These documents were analyzed together to convert a general ESG investment article into a case-oriented ICSEMA paper.

The unit of analysis is the ESG investment management system of the social security fund institution, particularly the alignment among investment objectives, investment limits, governance structure, risk management, asset-level analysis, stewardship, data infrastructure, and implementation capability. The study does not use respondents or primary survey data; therefore, population and sampling procedures are not applicable in the conventional quantitative sense.

The analysis was conducted through thematic content analysis. First, the literature was coded into major themes: ESG integration, pension fund investment, investment decision-making, risk management, portfolio performance, and regulatory support. Second, the case institution's final report was coded into implementation themes: current-state maturity, investment policy gaps, risk exposure mapping, peer benchmarking, governance model, asset-specific strategy, and roadmap. Third, both sets of themes were synthesized to identify theoretical implications and practical recommendations.

To improve validity, this study applies pattern matching between theory and case evidence. For example, stakeholder theory is matched with the social security mandate, modern portfolio theory is matched with the risk exposure assessment, legitimacy and institutional theory are matched with regulatory alignment and peer benchmarking, and stewardship theory is matched with voting and engagement recommendations. The limitation of this method is that the findings are based on documentary evidence and should be validated further through interviews, surveys, or quantitative portfolio testing.

Table 1. Research design and analytical framework

Component	Description	Application in this study
Research design	Qualitative case study	Focuses on ESG implementation in a social security fund institution.
Data source	Documentary evidence	Initial academic draft and Final Report on ESG implementation for investment.
Analytical focus	Governance, risk, portfolio strategy, and roadmap	Examines how ESG can be embedded into investment management processes.
Analysis technique	Thematic content analysis and pattern matching	Links ESG theory with case-specific findings and implementation recommendations.
Output	Implementation-oriented framework	Produces an ICSEMA-formatted article with practical and theoretical contributions.

RESULTS AND DISCUSSION

Strategic Rationale for ESG Integration in Social Security Fund Investment

The first finding is that ESG integration is strategically aligned with the role of the social security fund institution as a long-term social security fund manager. The institution must pursue adequate investment returns while maintaining liquidity, solvency, prudence, and fund security. These objectives are not contradictory to ESG integration. Instead, ESG can strengthen the quality of investment decision-making by expanding the risk information used in portfolio analysis.

The Final Report indicates that ESG implementation is important for the social security fund institution because it can strengthen risk management, improve fund sustainability, enhance reputation, and support leadership in ESG-based investment in Indonesia (PT Deloitte Konsultan Indonesia, 2024). This finding supports stakeholder theory because the organization must protect the interests of participants and broader social stakeholders. It also supports legitimacy theory

because ESG integration helps align investment practice with national sustainability commitments and public expectations.

The strategic rationale is also supported by global peer practices. The Final Report benchmarks institutions such as AustralianSuper, CPP Canada, GIC Singapore, EPF Malaysia, Caisse des Depots, and the National Pension Service. These peers show that ESG implementation generally requires formal policies, ESG rating or assessment tools, governance structures, stewardship practices, internal expertise, and data infrastructure. This benchmark confirms that ESG is not merely a disclosure topic but an investment operating model.

Current-State Maturity and Implementation Gaps

The second finding concerns the gap between existing investment governance and explicit ESG integration. The social security fund institution already has investment policies and asset allocation mechanisms that emphasize prudence, risk management, and return adequacy. However, the Final Report notes that ESG has not yet been explicitly integrated into investment objectives, investment limitations, scoring criteria, risk management, stewardship, and investment monitoring. This suggests that the institution already has a strong prudential foundation but needs additional ESG-specific instruments.

One important gap is governance. The existing governance structure has oversight functions involving the Supervisory Board, Board of Directors, Investment Committee, and Directorate of Investment Development. However, the roles and responsibilities related to ESG investment are not yet specifically formalized. This creates a risk that ESG considerations remain ad hoc rather than embedded in the formal decision-making chain.

Another gap is the investment process. The social security fund institution has criteria and scoring practices for several asset classes and investment partners, but these have not yet fully incorporated ESG criteria. The report also indicates that investment analysis is still largely based on financial data, while ESG data, ESG ratings, and ESG monitoring mechanisms need to be strengthened. As a result, ESG risk may not be systematically reflected in investment due diligence, portfolio construction, and ongoing monitoring.

The third gap relates to stewardship. The existing monitoring of securities, portfolios, and investment partners is oriented toward achieving investment performance targets, while stewardship practices such as voting and engagement on ESG issues have not yet been developed comprehensively. For a long-term institutional investor, stewardship is important because it allows the asset owner to influence investee behavior rather than only selecting or excluding assets.

Table 2. ESG implementation gaps and recommended directions for social security fund institutions

Area	Current condition	Implementation gap	Recommended direction
Vision and objectives	Sustainability is reflected in the broader institutional vision.	Investment objectives and targets have not yet translated ESG into measurable portfolio-level goals.	Define ESG investment objectives, metrics, and short-, medium-, and long-term targets.
Governance	Existing governance includes supervisory and investment decision-making bodies.	ESG roles, escalation mechanisms, and accountability are not yet formalized.	Expand mandates of existing governance bodies and establish an ESG strategy team or working group.
Investment analysis	Financial, market, risk, and technical analysis are used in	ESG scoring and materiality assessment are not yet consistently embedded.	Integrate ESG ratings, sector materiality, controversy screening, and ESG due

	investment processes.		diligence into investment memos.
Risk management	Focus remains on liquidity, market, interest rate, and credit risks.	ESG risks are not yet part of the enterprise and portfolio risk framework.	Develop ESG risk taxonomy, sector heatmap, and portfolio ESG risk limits or thresholds.
Stewardship	Monitoring and evaluation are conducted mainly for performance and compliance.	Voting and engagement policies related to ESG are not yet developed.	Create stewardship principles, voting guidelines, and engagement priorities.
Data and capability	ESG-related capacity is still at an early stage.	Limited ESG data infrastructure and specialized ESG investment training.	Select ESG data providers, build internal dashboards, and implement training programs.

Material ESG Risk Exposure in the Investment Portfolio

The third finding concerns the materiality of ESG risk exposure. The Final Report develops an ESG risk assessment using references from MSCI, S&P Global, and SASB. The assessment maps industries against material ESG topics, identifies 39 ESG risk factors, and uses a scoring approach to evaluate the materiality of each topic. At the portfolio level, risk exposure is calculated by considering the materiality score and portfolio composition. This approach is important because ESG risks differ across sectors and asset classes.

For the equity portfolio at the industry level, the report identifies several sectors with higher ESG risk exposure, including energy, industrials, consumer non-cyclicals, and infrastructure. These sectors require closer attention because they may face material environmental, social, or governance risk factors. Energy and industrials are particularly exposed to environmental and governance risk, consumer non-cyclicals to environmental and social issues, and infrastructure to social dimensions. This supports the idea that ESG integration should be sector-specific rather than generic.

At the issuer level, the equity analysis indicates that some investee companies may have higher risk in particular ESG components. For example, the report notes that Bank Negara Indonesia and Telkom Indonesia have high exposure in one ESG component, while Unilever has a lower overall exposure due to stronger governance practices. This shows that issuer-level ESG assessment adds nuance to industry-level screening because firms within the same market may manage ESG risks differently.

For corporate bonds, ESG risk assessment is linked to the creditworthiness and long-term stability of issuers. The report suggests that basic materials and infrastructure have the highest overall risk exposure among the analyzed industries, while banking and financing institutions have lower exposure. For sovereign bonds, the report identifies corruption as the only topic with high risk, while several other topics are classified as medium risk. These findings indicate that ESG integration should not be limited to listed equity but must also be included in credit analysis and sovereign risk assessment.

The risk exposure findings support modern portfolio theory when extended with ESG materiality. Traditional diversification may reduce market risk, but it may not fully capture concentrated exposure to climate, governance, labor, cybersecurity, or social controversies. ESG risk mapping therefore provides an additional layer of portfolio intelligence. It helps identify sectors, issuers, and instruments that require deeper due diligence, engagement, investment limits, or monitoring.

Table 3. ESG risk exposure implications by asset instrument

Instrument	Key assessment approach	Main case finding	Investment implication
Listed equity	Industry-level and issuer-level ESG risk scoring using sector materiality and issuer practices.	High ESG exposure appears in selected industries such as energy, industrials, consumer non-cyclicals, and infrastructure.	Use ESG score, controversy indicators, and sector heatmaps in stock selection and ongoing monitoring.
Corporate bond	ESG risk integrated into issuer and sector credit analysis.	Basic materials and infrastructure show higher overall exposure, particularly in environmental, social, and governance dimensions.	Incorporate ESG into credit due diligence, covenant review, monitoring, and issuer engagement.
Sovereign bond	Country-level ESG topics assessed using governance, social, and environmental indicators.	Corruption is identified as a high-risk issue; several other topics are medium risk.	Integrate governance and national sustainability indicators into sovereign allocation and risk review.
Portfolio level	Aggregate risk exposure based on materiality score and portfolio composition.	Material ESG issues can accumulate at portfolio level if large exposures exist in high-risk sectors.	Set portfolio ESG thresholds, monitoring dashboards, and periodic review mechanisms.

ESG Investment Framework for Social Security Fund Institutions

The fourth finding is the need for a structured ESG investment framework. Based on the case evidence, the framework should consist of four main components: (1) sustainability purpose and vision; (2) governance and accountability; (3) sustainable investment approach; and (4) key enablers such as data, technology, capability building, reporting, and stewardship. This structure is consistent with peer practices and can be adapted to the institutional mandate of social security fund management.

The first component is sustainability purpose and vision. The institution's vision already contains the idea of sustainability. The next step is to translate that vision into investment-specific targets. Examples include defining ESG risk appetite, identifying priority sectors, setting portfolio monitoring indicators, and establishing long-term climate or sustainability goals where appropriate. However, these targets should remain consistent with the legal mandate and prudential principles of social security fund management.

The second component is governance. The Final Report recommends expanding existing roles rather than creating a completely separate governance system. The Supervisory Board can oversee ESG investment implementation, the Investment Committee can evaluate sustainability impacts alongside financial return and risk, the Director of Investment can integrate ESG strategies into fund management, and an ESG strategy team can support research, methodology development, monitoring, and implementation. This approach is practical because it uses existing governance structures while adding ESG accountability.

The third component is the sustainable investment approach. Considering the current maturity level, the most suitable starting point is ESG integration, not a full thematic or exclusionary portfolio transformation. ESG integration allows the institution to include ESG issues as additional inputs in investment decisions, while still maintaining financial and prudential considerations. Over time, integration may be complemented by negative screening for highly controversial sectors,

stewardship practices, and thematic exposure to sustainable opportunities such as green bonds or sustainable infrastructure.

The fourth component is key enablers. ESG implementation requires data availability, analytical tools, human resources, training, reporting, and technology. Without these enablers, ESG may remain a policy statement rather than a practical investment process. Data providers such as Sustainalytics, S&P Global, MSCI, or Refinitiv can be compared based on coverage, methodology, scoring system, and relevance for Indonesian securities. Internal training is also required so that investment analysts, portfolio managers, risk managers, and decision-makers can interpret ESG data properly.

The additional literature confirms the importance of data governance in the proposed framework. Because ESG ratings may vary across providers, the institution should validate external scores against sector-specific materiality and internal risk tolerance. This strengthens the case for using ESG ratings as input, not as an automatic decision rule. It also supports the recommendation to establish an internal ESG risk-assessment methodology that aligns global standards such as MSCI, S&P Global, and SASB with the domestic sustainable finance taxonomy.

Asset-Specific ESG Investment Strategy

An implementation-oriented ESG strategy should be tailored to the characteristics of each asset instrument. For listed equity, the institution can use ESG ratings, controversy indicators, sector materiality, and governance quality as additional screening and monitoring tools. This does not mean that all companies in higher-risk sectors must be excluded. Rather, it means that the institution should understand whether the company has credible policies, targets, mitigation practices, and governance mechanisms to manage material ESG risk.

For corporate bonds, ESG integration should be linked to credit analysis. Environmental fines, governance controversies, weak labor practices, cybersecurity incidents, and transition risks can affect issuer creditworthiness and refinancing ability. ESG due diligence can therefore improve the assessment of default risk, downgrade risk, and long-term cash flow stability. For issuers with elevated ESG risk but credible improvement plans, engagement may be more appropriate than immediate exclusion.

For sovereign bonds, ESG integration should consider national governance, social stability, climate policy, fiscal resilience, and institutional quality. In Indonesia's case, sovereign bonds remain important for regulatory and prudential reasons. ESG assessment should therefore function as a risk lens rather than a simple exclusion mechanism. The institution can also prioritize sustainable sovereign instruments such as green sukuk or sustainability bonds when they meet return, risk, liquidity, and regulatory requirements.

For direct investment and real assets, ESG due diligence should include environmental compliance, land and community issues, health and safety, governance structure, conflict-of-interest risk, stakeholder impact, and long-term sustainability. This is particularly important because direct investment is less liquid and exposes the investor to operational and reputational risks. ESG assessment should be embedded in feasibility studies, investment committee papers, legal documentation, and post-investment monitoring.

From an active ownership perspective, listed equity and corporate bond holdings should also be accompanied by engagement priorities. Engagement can focus on governance quality, climate-transition readiness, cybersecurity, labor practices, and disclosure improvement. This approach is consistent with evidence that institutional investors can influence environmental and social performance and that ESG engagement may reduce downside risk.

Three-Phase Implementation Roadmap

The fifth finding is that ESG implementation should be phased. A phased approach is more realistic because ESG integration requires organizational learning, data acquisition, policy revision, methodology development, and governance adaptation. The Final Report proposes a three-year roadmap consisting of a foundation phase, an integration and application phase, and an enhancement phase.

The foundation phase should focus on governance, policy, training, data provider selection, risk assessment framework, and initial reporting. These are quick-win actions because they establish the minimum infrastructure for ESG integration. The integration phase should embed ESG scoring into equity, corporate bond, and sovereign bond processes, develop stewardship guidelines, and set short- and long-term targets. The enhancement phase should optimize policies and systems, deepen internal capability, and adopt more advanced technology such as climate scenario analysis or portfolio ESG dashboards.

After the three-year roadmap, the institution can move toward a more advanced model in which ESG becomes part of core business growth and institutional strategy. This may include board-level ESG performance reviews, internal ESG audit mechanisms, climate and ESG oversight committees, formal ESG career paths, ESG-linked incentives, sectoral decarbonization targets, and thematic investments aligned with national priorities.

Table 4. Proposed phased roadmap for ESG investment implementation

Phase	Main objective	Priority actions	Expected output
Phase 1: Foundation	Build minimum ESG infrastructure.	Formalize ESG governance, develop ESG investment policy, conduct basic training, select ESG data provider, and design risk assessment methodology.	Clear governance mandate, initial ESG policy, data access, and basic risk framework.
Phase 2: Integration and application	Embed ESG into investment processes.	Apply ESG scoring to listed equity, corporate bonds, and sovereign bonds; develop stewardship policy; set ESG targets; and integrate ESG into investment memos.	Operational ESG analysis in due diligence, portfolio monitoring, and decision-making.
Phase 3: Enhancement	Optimize and institutionalize ESG practices.	Review and update policies, develop advanced training, improve technology, conduct scenario analysis, and strengthen reporting.	More mature ESG investment system with measurable targets, dashboards, and continuous improvement.
Post-roadmap development	Move toward strategic ESG leadership.	Develop sectoral climate-risk plans, ESG-linked incentives, thematic investment products, and stronger engagement with portfolio companies.	ESG becomes part of long-term strategic investment advantage.

Theoretical and Practical Implications

Theoretically, this study shows that ESG integration can be understood as a bridge between stakeholder responsibility and financial risk management. Stakeholder theory explains why social

security funds should consider broader social and environmental impacts, while modern portfolio theory explains why these considerations can be financially relevant. Legitimacy and institutional theory explain why ESG governance, policy, and reporting are necessary for public accountability and regulatory alignment.

The practical implication is that the institution should treat ESG as an investment process, not merely as a sustainability report. ESG needs to appear in the investment cycle: strategic asset allocation, tactical allocation, due diligence, investment committee decisions, scoring, risk limits, monitoring, stewardship, and reporting. The implementation should start with integration and monitoring, then gradually move to more advanced approaches such as thematic allocation, climate scenario analysis, and active ownership.

The discussion also suggests that regulatory support has an enabling role. ESG implementation becomes more effective when disclosure standards, taxonomy, sustainable bond regulation, carbon market rules, and supervisory expectations are clear. Regulatory clarity can improve data comparability, reduce greenwashing, and support consistent investment decision-making. Therefore, ESG investment policy should be aligned with Indonesian sustainable finance regulations and international good practices.

CONCLUSION

This article concludes that ESG integration is relevant and necessary for social security fund investment, particularly for social security fund institutions. ESG is not a substitute for financial analysis, prudence, liquidity, solvency, or fund security. Instead, it strengthens those principles by adding a forward-looking risk and opportunity lens to investment decision-making. The case analysis shows that the social security fund institution already has a prudential investment foundation, but ESG is not yet explicitly embedded in investment objectives, limits, scoring tools, stewardship mechanisms, risk management, and capability development.

The main findings indicate that ESG implementation should prioritize governance formalization, ESG risk assessment, portfolio monitoring, data infrastructure, internal capability, and asset-specific integration. The material ESG risk analysis demonstrates that equity, corporate bond, and sovereign bond portfolios require different ESG approaches. Listed equity requires sector and issuer-level ESG scoring; corporate bonds require integration into credit analysis; sovereign bonds require country-level governance and sustainability assessment; and direct investments require deeper ESG due diligence because of their illiquidity and operational exposure.

The practical recommendation is to implement ESG through a phased roadmap. In the short term, the institution should establish ESG governance, policy foundations, training, data access, and risk assessment tools. In the medium term, it should integrate ESG scoring into investment processes and develop stewardship practices. In the longer term, it should optimize the system through advanced technology, sectoral climate-risk management, ESG-linked accountability, and thematic sustainable investments that remain consistent with regulatory and fiduciary obligations.

The limitation of this article is that it relies on documentary analysis and does not include interviews, survey data, or econometric testing of portfolio performance. Future research can expand this study by conducting interviews with investment professionals, testing the effect of ESG risk scores on portfolio returns and volatility, comparing ESG implementation across social security institutions, and developing a quantitative model to evaluate how ESG integration affects risk-adjusted returns in Indonesia's institutional investment market.

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