

Integrating Role of Risk Function and ESG Practices: An Operational Perspective in Manufacturing Organizations

Ananya Khyati

Scholar, PGDRM, Global Risk Management Institute, Gurgaon

Priya Jain

Scholar, PGDRM, Global Risk Management Institute, Gurgaon

Kriti Shree

Scholar, PGDRM, Global Risk Management Institute, Gurgaon

Nidhi Kesari¹

Associate Professor

Shaheed Sukhdev College of Business Studies

University of Delhi

Abstract

This study examines the operational perspective of the role of the risk function in the Environmental, Social, and Governance (ESG) in the Indian manufacturing organizations, with a focus on business processes. The study aims to identify ESG material issues embedded within key business processes – order-to-cash, scrap management, procure-to-pay, and human resources – and to explore the role of the risk function in addressing these issues. A mixed-methods approach was employed, integrating the thematic analysis of interview data alongside the descriptive analysis of survey data. Key findings highlight vendor compliance, carbon emission reductions, responsible customer practices, scrap disposal, and fair remuneration, training and development, workplace health and safety, diversity, and inclusion as ESG material issues. The risk function predominantly plays a strategic role, with operational ESG responsibilities distributed across respective departments. The findings also underscore the nascent stage of ESG risk management in Indian manufacturing organizations, particularly among smaller firms, due to challenges such as limited prioritization, cost-benefit constraints, and a reluctance to lead ESG initiatives.

While the use of convenience sampling and a focus on larger organizations may limit generalizability, the inclusion of both small and large firms provides diversity to the findings. This research contributes to the limited body of knowledge on ESG risk management by offering insights into its operational dimensions and the evolving role of the risk function. Recommendations for future research include expanding sample sizes and increasing the number of interviewees to enhance understanding and generalizability. This study provides a robust foundation for further research and practical guidance on ESG integration within key business processes in the manufacturing sector, while emphasizing the role of the risk function in the ESG journey.

Keywords: ESG, sustainability, ESG risk management, ESG material issues, ESG in manufacturing organizations.

¹ Corresponding Author: Associate Professor, Department of Management Studies, Shaheed Sukhdev College of Business Studies, University of Delhi, Delhi, India.

Corresponding Author Email id: nidhikesari@sscbsdu.ac.in

Corresponding Author Mobile no: +91-8860550930

1. Introduction

Environment, Social, and Governance (ESG) considerations encompass multiple facets of business operations. Earlier studies emphasize strategic importance of ESG and critical role of ESG risk management (Becchetti et al., 2022; Miao, 2024). However, limited research has explored the role of the risk function in driving the ESG journey of organizations from an operational standpoint. Risk function implies expertise required for handling risk in an organization. It is a necessary practice for the organization. This study investigates the contribution of the risk function to the ESG initiatives of Indian manufacturing organizations, with a specific focus on key business processes such as order to cash, scrap management, procure-to-pay, and human resources. This section lays the groundwork for the study by providing the background and context, clearly articulating the research problem, research questions, outlining the aim, and objectives. It also emphasizes the study's relevance and concludes with a summary of the paper's overall structure.

Background

The Environmental, Social, and Governance (ESG) framework in India is influenced by both global and national priorities. At the international level, agreements like the Sustainable Development Goals (SDGs) and 2015 Paris Agreement highlights the critical need to integrate sustainability into policies and practice (Mishra, 2021). Domestically, India has committed to achieving net-zero emissions by 2070, striving to balance its developmental objectives and poverty alleviation efforts with climate change mitigation goals (Press Information Bureau, 2023).

At the micro level, regulatory frameworks such as the National Guidelines on Responsible Business Conduct (Ministry of Corporate Affairs, 2019) and mandatory CSR requirements under the Companies Act, 2013 (Khanna and Dharmapala, 2016) underscore India's dedication to sustainable corporate governance. Stakeholders, including investors, suppliers, and customers are increasingly driving ESG adoption, with evidence suggesting that non-investor stakeholder actions can enhance shareholder value (Cornell and Shapiro, 2021). The manufacturing sector, which accounts for approximately 17% to India's emissions is next to the power and agriculture sectors faces significant ESG risks (Chateau et al., 2023; Gupta et al., 2022). This underscores the urgent need for robust ESG risk management practices within manufacturing organizations.

2. Literature Review

This section examines the existing academic literature on ESG risk management to identify key trends, theoretical developments, and gaps in current research. It provides a conceptual framework that underpins the qualitative inquiry in the following sections and concludes by emphasizing the research gaps.

The Fluid Nature of ESG Definitions: Industry-Specific Variations

Li et al. (2021), in their comprehensive literature review on ESG spanning from 2004 to 2020, found that the definition of ESG varies across industries. Numerous studies also highlight the absence of standardized ESG definitions (Billio et al., 2021; Pollman, 2022). Gartner Inc., an America based consulting and technological research firm defines ESG as “a set of corporate performance evaluation criteria that assess the strength of a company's governance mechanisms and its ability to effectively manage its environmental and social impacts.” Li et al. (2021) suggest that ESG has evolved from CSR, to the extent that the two terms are often used interchangeably. In their paper, Garcia et al. (2017) also used ESG and CSR interchangeably. However, ESG is broader and more inclusive than CSR (Gillan et al., 2021). Alareeni and Hamdan, (2020) view CSR as a subset of ESG, primarily covering the social pillar, while Karwowski and Raulinajtys-Grzybek, (2021) treat the two concepts as distinct, analyzing CSR's role in mitigating ESG-related risks (Alareeni and Hamdan, 2020; Karwowski and Raulinajtys-Grzybek, 2021).

Definitions of Materiality

Eccles et al. (2012) argued that materiality should be defined in a manner that is sector-specific. They also observed that the concept of materiality in non-financial reporting aligns closely with that in financial reporting, with the key difference being that the users of material information in non-financial reporting are stakeholders rather than shareholders (Eccles et al., 2012). However, NYU Stern (2019) stresses the importance of distinguishing materiality for financial reporting from that of sustainability reporting.

According to International Financial Reporting Standards (2018) material information could impact the primary user's decision-making, if omitted or misstated, in the financial statements. In contrast, materiality in sustainability reporting implies to the issues having significant consequences for the company (NYU Stern, 2019). Eccles et al., (2012) suggested that material ESG issues across companies within the same industry are often comparable due to similar business models, regulatory environments, and approaches to externalities. However, some material issues may be specific to companies (Bala et al., 2020). Additionally, in industries with multiple sub-sectors, distinct material issues may emerge at the sub-sector or entity level (European Financial Reporting Advisory Group Sustainability Reporting Technical Expert Group, 2022).

Overview of Material ESG Issues

The Morgan Stanley Capital International (MSCI) ESG Ratings, through their industry materiality map, highlight several material ESG issues. These include "carbon footprint of the product, carbon emissions, toxic emissions and waste, climate change vulnerability, financing environmental impact, water stress, biodiversity and land use, raw material sourcing, electronic waste, packaging material and waste, green building, opportunities available in clean technology, and renewable energy as material environmental issues. Social issues identified include human capital development, health and safety, chemical safety, labour management, product safety and quality, supply chain standards, consumer financial protection, responsible investment, privacy and data security, controversial sourcing, community relations, access to healthcare, access to financial services, and opportunities available in nutrition and health. Governance issues encompass control and ownership, board structure, accounting practices, remuneration, business ethical practices, and transparency of taxes (Morgan Stanley Capital International, 2020).

However, no research has explored where these material issues are situated within specific business processes. This study emphasizes to approach the gap by identifying material ESG issues within vital business processes – limited to order-to-cash, procure-to-pay, human resources, and scrap management – specifically for manufacturing organizations in India.

ESG is a Risk Management Technique

As organizations shift their focus from purely financial performance to broader value creation, ESG has become a critical mechanism for risk mitigation, protecting against litigation, and fostering stronger relationships with stakeholder. P. Koh et al., (2014) explored the insurance value of corporate social performance (CSP), finding that financially robust organizations, especially those in high-litigation-risk industries with few social disputes, derive significant value from CSP by using it to build moral capital with stakeholders. Similarly, Henisz et al., (2019) emphasised that ESG serves as an insurance mechanism, with robust ESG practices supporting long-term corporate success. While existing literature highlights the role of ESG as a risk management tool (Henisz et al., 2019; P.-S. Koh et al., 2014), it does not specifically address the role of the risk function in driving the ESG journey. This study addresses the gap by providing a comprehensive examination of the role of risk function in advancing ESG initiatives in the Indian manufacturing organizations from an operational perspective.

Gaps in Literature

This study addresses two key gaps:

1. While existing literature explores the definitions of materiality and material issues, there is limited research identifying the material issues embedded within business processes.
2. Although earlier research has examined ESG as a risk management tool, there remains a significant gap in understanding the role of the risk function in the ESG progression of organizations.

This study aims to bridge these gaps by conducting an investigation into the role of risk function in the ESG journey of Indian manufacturing organizations, focusing on an operational perspective. Specifically, the study emphasizes main business processes, including order-to-cash, procure-to-pay, scrap management, and human resources.

Research Problem

Despite significant global and national advancements in ESG, its integration into organizational business processes remains limited. Existing research predominantly explores broad ESG frameworks (Hodge, 2021; Pérez et al., 2022), ESG as a tool for risk management (Henisz et al., 2019; P.-S. Koh et al., 2014), the relationship between ESG disclosure and firm performance (Albitar et al., 2020; Carnini Pulino et al., 2022; Farooq, 2015; Huang, 2021; Wasiuzzaman et al., 2022), ESG materiality (Bala et al., 2020; Eccles et al., 2012; Sheehan et al., 2023), and financial advantages of ESG practices (Bansal and Gangopadhyay, 2003; Raimo et al., 2021). However, there is limited research on the role of risk function in advancing the ESG agenda within Indian manufacturing organizations from an operational perspective.

The Research Questions, Aims, and Objectives

The study addresses the following research questions:

RQ 1 – What ESG material issues are embedded within main business processes, specifically in order-to-cash, procure-to-pay, scrap management, and human resources?

RQ 2 – What role does the risk function play in addressing ESG material issues within these key business processes?

This study examines the role of risk function in the ESG journey of Indian manufacturing organizations from an operational perspective. The study focuses specifically on four key business processes: order-to-cash (O2C), procure-to-pay (P2P), scrap management, and human resources management. The objectives established to achieve this aim are as follows:

Objective 1 – To identify ESG material issues embedded within key business processes outlined in the study's scope.

Objective 2 – To examine the role of the risk function in addressing ESG material issues within key business processes.

Significance of the Study

This study seeks to deepen the understanding of ESG risk management by exploring the role of the risk function in the ESG journey of Indian manufacturing organizations, with a focus on key business processes identified within the study's scope. By addressing a critical gap in the literature, this study endeavours to offer indispensable insights for the corporations and industry practitioners in India's manufacturing sector – a major contributor to emissions and highly susceptible to various ESG risks.

The structure of this study is as follows: section one introduces the study's background, setting the foundation for the research. Section two, reviews the relevant literature to establish the theoretical context and identify gaps, research questions, objectives, and significance. Section three presents and justifies the theoretical framework, research methodology, and design employed in the study.

Section four, presents the details of the findings derived from the study. Section five, discusses and interprets the observations in alignment with the research objectives. Section six, concludes the study by highlighting its limitations and proposing future research.

3. Methodology

This section elaborates on the research design, discusses methodological constraints, and concludes with an overarching summary. The research design follows Saunders' Research Onion Model. We adopted pragmatism as our research philosophy, which aligns with a mixed-methods approach, allowing for the integration of multiple methodologies to evolve a holistic insight of the topic. Given the limited research in this field, an inductive approach was deemed appropriate, enabling a bottom-up analysis where data informs the development of theoretical insights.

The study employs a mixed-methods approach, combining both qualitative and quantitative techniques. Descriptive analysis is applied to survey data for quantitative insights, while thematic analysis is used to analyze interview data and extract key themes. Together, these complementary methods provide a robust foundation for addressing the research questions. A cross-sectional time horizon was chosen to match with the objectives of the research and facilitates data collection.

Data collection was carried out through surveys and interviews. Given the specialized nature of the target respondents, initial attempts at random sampling were not effective. As a result, convenience sampling was adopted to overcome practical challenges and time constraints. The final target respondents were individuals from Indian manufacturing organizations including professionals with experience servicing such organizations, specifically those at middle to top levels in operations, risk management, production, or ESG domains. The survey sample size ($n=30$) and the number of interviews ($n=4$) were chosen to balance depth and feasibility, in line with the study's descriptive and exploratory objectives.

Following data collection, descriptive analysis was used to summarize the survey data. Subsequently, thematic analysis was performed based on Braun and Clarke, (2012) six-phase framework: (i) data familiarization, (ii) primary code generation, (iii) identification of theme, (iv) review of theme, (v) defining theme, and (vi) production of report. In accordance with the inductive approach, an inductive thematic analysis was performed, allowing codes and themes to emerge directly from the data. NVivo was employed for manual coding, facilitating a comprehensive examination of the interview responses.

The thematic analysis process began with data preparation, where interview audio files were transcribed using MS Word's transcribe feature, and subsequently corrected manually for accuracy. The transcriptions were then imported into NVivo for analysis. Initially, structural coding was applied to organize the data based on the research questions. This was followed by descriptive coding to identify underlying concepts (latent codes). The codes were iteratively grouped into potential themes, which were then reviewed, defined, and refined. Finally, data extracts were collated under the assigned codes for each theme, resulting in a comprehensive thematic overview. Although convenience sampling was adopted due to practical constraints, which introduced a selection bias skewing survey data toward larger organizations, strategic selection of interview participants ensured diverse perspectives. The interviewees represented both established and emerging firms across public and private sectors, thereby enriching the qualitative insights. While thematic analysis is inherently interpretative, rigor was maintained by adhering to Braun and Clarke's six-phase framework. This systematic and transparent approach helped mitigate potential biases in theme identification and ensured the reliability of the findings.

To summarize, this study uses a mixed-methods technique to examine the role of risk function in the ESG journey of Indian manufacturing organizations, with a specific focus on business processes. Guided by pragmatic philosophy, the study integrates descriptive analysis and thematic analysis for survey data ($n=30$) and interview data ($n=4$) respectively. Despite limitations such as selection bias due to convenience sampling, the approach successfully captures diverse organizational

perspectives. To ensure rigor, thematic analysis followed Braun and Clarke's framework, providing a systematic and transparent process to mitigate potential biases in theme identification.

4. Results

This section begins by presenting demographic data to offer insights into the sample composition and its representativeness. It then details the results of the study, structured around the objectives of the research. Finally, the section concludes with a summary of the results, providing a foundation for the subsequent 'Discussion' section.

Sample Demographics

The study included 30 participants from various industries within the manufacturing sector, as well as some from consulting or non-manufacturing industries with prior experience servicing manufacturing companies. To adhere to confidentiality protocols, the identities of participants and the names of their organisations are not disclosed. However, the respondents represent a diverse range of industries, including electrical equipment, tyre manufacturing, stainless steel, machinery, phosphatic fertilizers, food and beverages, fashion accessories, chemicals, engineering, shipping, aviation and aerospace components, automotive, automobiles, and agricultural products.

Of the respondents, 63% held top-level management positions, such as Chairman, Partner, President, Independent Director, Senior Director, and CXO roles, while the remaining 37% were from middle management. This distribution highlights the inclusion of varied perspective across organizational hierarchies.

Findings

Quantitative Analysis – Descriptive

Among the 30 participants, 80% affirmed that the risk function plays a proactive role in managing ESG material issues. However, only 43% reported conducting third-party ESG reviews as part of vendor screening, 53% include carbon emission reduction clauses in contracts, and 53% implement controls for scrap disposal.

Qualitative Analysis - Thematic

The thematic analysis of the interview data revealed three key themes. First, the identification of ESG material issues inherent in business processes, including order-to-cash, procure-to-pay, scrap management, and human resources. Second, strategic vs operational role of risk function. While the risk function plays a proactive role at the strategic level, its involvement at the operational level is limited. Third, evolving nature of ESG risk management. Participants emphasized the dynamic and continuously evolving landscape of ESG risk management practices.

The interview data was subjected to a word frequency analysis, resulting in creation of a word cloud (Figure 1), capturing high frequency terms that reflect the central concepts discussed by participants.

Figure 1: Word cloud of the interview data



Figure 1 illustrates the top 100 high-frequency words appearing in the interview data, filtered to include words with a minimum length of five characters to exclude common verbs. This word cloud was generated using NVivo.

Figures 2, 3, and 4 depicts the code-to-theme visualizations for the identified themes.

Figure 2: Code-to-theme visualization for Theme A

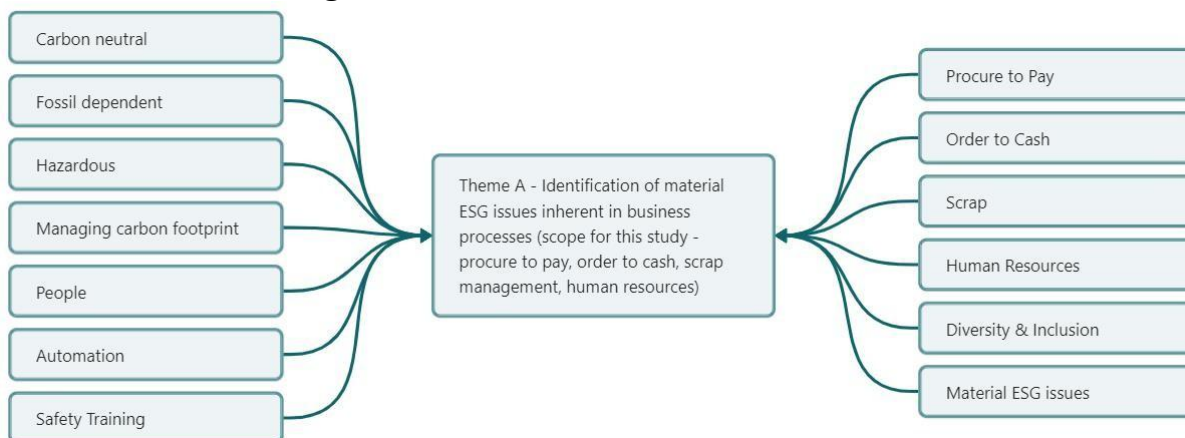


Figure 2 illustrates the code-to-theme visualization for Theme A, titled “Identification of Material ESG issues embedded in business processes (procure-to-pay, order-to-cash, scrap management, and human resources).”

Figure 3: Code-to-theme visualization for Theme B

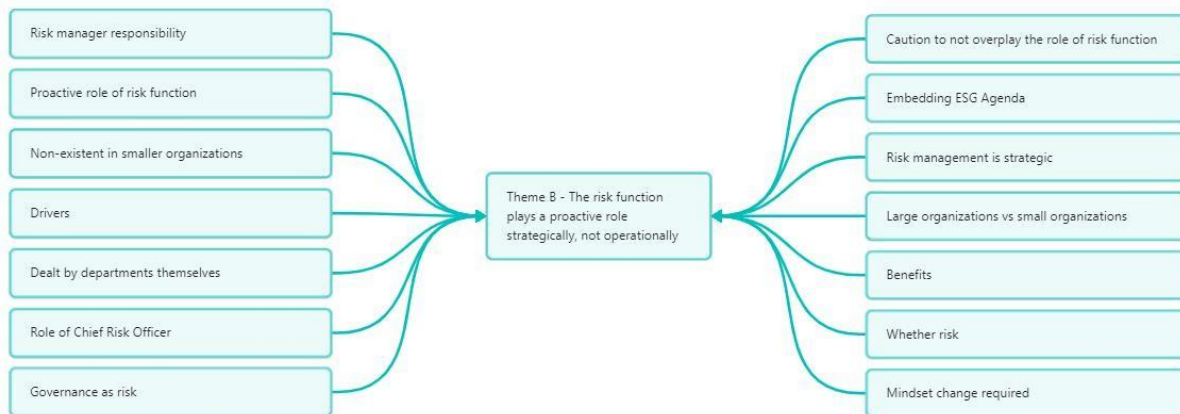


Figure 3 illustrates the code-to-theme visualization for Theme B, titled “The risk function plays a proactive role strategically but not operationally.”

Figure 4: Code-to-theme visualization for Theme C

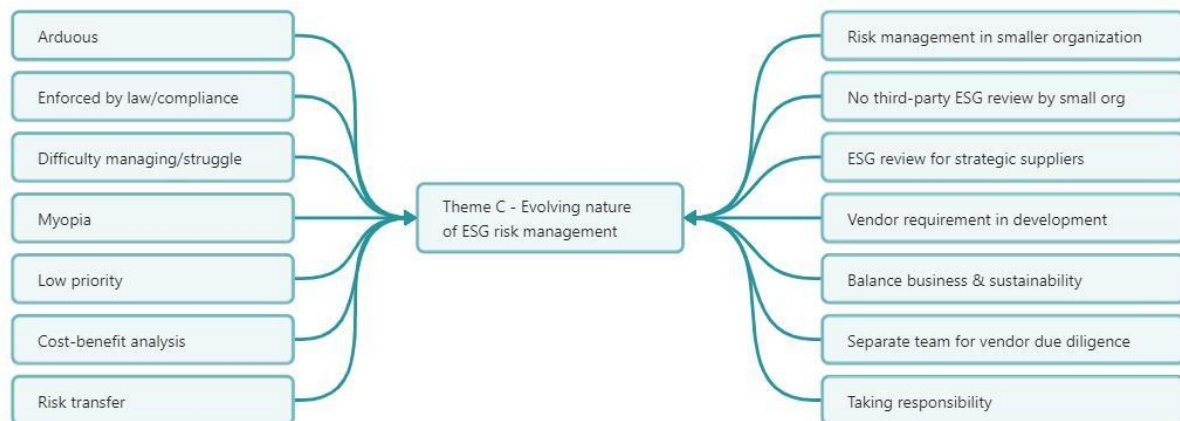


Figure 4 illustrates the code-to-theme visualization for Theme C, titled “Evolving nature of ESG risk management.”

Theme A: Identification of ESG material issues inherent in business processes (order-to-cash, procure-to-pay, scrap management, human resources)

This theme identifies ESG material issues embedded within business processes, specifically focusing on order-to-cash, procure-to-pay, scrap management, and human resources, as defined by the scope of this study.

Order-to-Cash Process:

In the order-to-cash process, customer best practices are evaluated, including their responsible use of materials.

“With order-to-cash, it’s about monitoring our customers and their business practices. For instance, if I’m selling to a retailer or distributor, we assess how they distribute, store, and dispose of the cement. In many cases, we have even taken back damaged cement to ensure it isn’t discarded improperly. This is vital because improper cement storage could lead to environmental pollution. Additionally, we evaluate their labour practices—whether they use proper headgear and breathing protection. Monitoring these activities is critical.” – Interviewee A

Procure-to-pay Process:

The interview findings highlight the critical role of vendor selection in the procure-to-pay process.

“The vendors would sign a commitment to not engage in unfair practices, avoid child labour, and adopt safe business practices.” – Interviewee A

“The cement industry is also transitioning to electric fleets, encouraging transportation vendors to use battery-operated trucks.” – Interviewee A

Despite these advancements, the findings reveal that many companies have yet to integrate third-party ESG reviews into their vendor screening process.

“This is a relatively new topic for most companies in India. We are in the process of developing tools, standards, and requirements of our vendors. Currently, most companies are pursuing their own initiatives and establishing methods to measure and report ESG performance.” – Interviewee C “Every company understands that vendors play a crucial role in driving ESG initiatives, but it’s a balancing act between business priorities and sustainability goals.” – Interviewee C

“We have a dedicated team for vendor due diligence. Sustainability is a significant objective for us, and we focus on ESG areas across all functions.” – Interviewee D

“Larger companies ensure they conduct due diligence, at least for their key vendors, because the risks are high. If a key vendor defaults, it can disrupt the entire supply chain. Both smaller and larger organizations apply this approach to critical components, especially those that are not easily replaceable.” – Interviewee B

Scrap Management Process:

Proper disposal of scrap is regarded as essential due to its significant environmental implications:

“With respect to scrap, as I mentioned earlier, we now dispose of it through vendors who are authorized to handle such collections - government-approved vendors who recycle most of the material. They ensure it re-enters the value chain by extracting metals, glass, iron, and other components from the scrap, all while adhering to proper environmental practices.” – Interviewee A

Human Resources Process:

Key ESG material issues in human resources include fair remuneration, workplace health and safety, training and development, and diversity and inclusion:

“In human resources, it’s about managing manpower effectively - retaining them, providing fair remuneration, and ensuring they are regularly trained and upskilled.” – Interviewee A

“In corporate offices, branch offices, sales offices, and regional offices located in cities, there’s been a noticeable increase in women taking up roles such as order collection, sales, and dealer management. This shift has been driven by both management initiatives and the proactive efforts of women entering these roles.” – Interviewee A

“Safety is paramount. Workers must use the proper protective gear, including masks, footwear, gloves, safety belts, and safety hooks. Training everyone on the ground is critical, as safety cannot be treated as a fragmented or isolated issue.” – Interviewee A

Theme B: The risk function plays a proactive role strategically, not operationally

This theme explores the strategic involvement of the risk function in the ESG journey of Indian manufacturing organizations and examines the reasons for its limited role in operational activities.

When discussing third-party ESG risk reviews as part of vendor screening and selection, Interviewee B remarked:

“People do handle this proactively, but whether the risk function plays a role is unclear. Typically, this is managed by the procurement team, and within that team, there may be a risk officer or someone responsible for conducting the assessment. It's not usually the company's main risk officer who gets involved in this process.” – Interviewee B

In operational and routine matters, the emphasis on speed limits the direct involvement of the risk

function, which is more suited for strategic tasks requiring thorough evaluation and analysis:

“I would caution us not to overplay the role of risk management as ESG initiatives work in the space of routine activities and strategic matters. I believe the risk function should help evaluate strategic initiatives and assist companies in making better choices... For routine matters, speed is key. However, for strategic decisions, deeper thought and analysis are crucial.” – Interviewee C

Theme C: Evolving nature of ESG risk management

This theme explores the factors contributing to the nascent stage of ESG risk management in Indian manufacturing organizations and contrasts the perspectives of small and large organizations.

Interview findings highlighted the evolving nature of ESG risk management in Indian manufacturing organizations:

“There’s a psychology of, ‘I won’t be the first to act; let others do it, and I’ll follow once the benefits are clear.’” – Interviewee A

“It’s not that people don’t want to take action, but it tends to fall low on their priority list, right? It’s treated as an ancillary or auxiliary agenda... Unless a cost-benefit analysis is done and the benefits outweigh the costs; industries are usually reluctant to move forward...” – Interviewee A

“We need to collectively understand that the goal isn’t to transfer the problem but to eliminate it. We need to focus on how we can collectively reduce these impacts.” – Interviewee A

For smaller organizations, ESG risk management remains at a preliminary stage, as explained by Interviewee B:

“Smaller companies are still in the early stages, and most are just scratching the surface and are far from fully integrating ESG risk management.” – Interviewee B

The findings highlight that while most organizations recognize the proactive and strategic role of the risk function in addressing ESG material issues, its involvement in operational matters is limited. The key themes identified include the recognition of ESG material issues, the strategic focus of the risk function, and the evolving nature of ESG risk management.

5. Discussion

This section of the study summarizes the key findings, providing a detailed interpretation of the results in line with the objectives of the research. It then situates these findings within the existing literature and concludes with a summary of key insights from the discussion.

Key Findings

For research objective one, the findings reveal that ESG material issues in procure-to-pay are primarily addressed during vendor selection. Specifically, 43% of respondents conduct third-party ESG reviews, and 53% include carbon reduction clauses in contracts. In the order-to-cash process, organizations focus on monitoring customer practices, while scrap management emphasizes proper disposal, with 53% of respondents implementing scrap disposal controls. In human resources, key ESG considerations include fair remuneration, training, workplace safety, diversity, and inclusion. For research objectives two, the risk function’s role is predominantly strategic. ESG risk management, however, is recognised as being in an evolutionary stage, reflecting its developing nature within Indian manufacturing organizations.

Interpretation

The preceding section summarizes the key findings. This section examines their implications in relation to the research questions and situates them within the broader context of existing literature.

Objective 1 – To identify ESG material issues embedded within key business processes outlined in the study's scope.

In the procure-to-pay process, ESG material issues predominantly relate to vendor practices. The thematic analysis of interview data underscores that vendors are assessed for their environmental, social, and governance practices during selection and monitored throughout the contract period. According to one interviewee, vendor contracts often include clauses addressing carbon emission reduction (environmental concerns), safe labour practices (social concerns), and regulatory compliance with fair business practices and labour laws (governance concerns).

Survey findings support these insights, with 43% of the respondents reporting the inclusion of third-party ESG reviews during vendor screening, and 53% confirming the integration of carbon emission reduction clauses in vendor contracts. These findings highlight a growing emphasis on embedding ESG principles within procurement practices, aligning with literature that underscores the critical role of supply chain sustainability in achieving broader ESG goals.

The interview findings corroborate the survey results, highlighting that many companies do not incorporate third-party ESG reviews as a part of their vendor screening process. Further exploration identified four primary reasons for this: i) ESG reviews are still a new and developing area, ii) Businesses face the challenge of balancing commercial priorities with sustainability goals, iii) large companies often have dedicated vendor due diligence teams, while smaller organizations are still in the early stages of learning, exploring, and adapting, iv) priority is frequently given only to key components and critical vendors.

In the order-to-cash process, customer best practices are assessed and monitored. Insights from interviews indicate a focus on the responsible usage and disposal of materials and products. Additionally, customer practices related to labour and employee safety are evaluated to ensure compliance with ESG standards.

In scrap management, proper disposal through authorized vendors is deemed critical, particularly from an environmental perspective.

In human resources, material issues include fair remuneration, workplace health and safety, training and development, and diversity and inclusion.

The identified material issues align with the industry materiality map developed by Morgan Stanley Capital International (MSCI), underscoring their relevance to the broader ESG landscape.

Objective 2 – To examine the role of the risk function in addressing ESG material issues within key business processes.

Survey findings revealed that 80% of participants affirmed the risk function's proactive role in managing ESG material issues. Insights from the thematic analysis of interviews aligned with this finding but offered a nuanced perspective. While the risk function is indeed proactive, its role is primarily strategic rather than operational. ESG risks within business operations are typically managed by the relevant departments, with the risk function focusing on boarder, long-term strategic matters rather than routine or operational issues.

Theme C delved into factors contributing to the nascent stage of ESG risk management in Indian manufacturing organizations: i) hesitation to be a first mover – organizations often adopt a “wait-and-see” approach, ii) ESG agendas viewed as secondary – ESG initiatives are often treated as ancillary or auxiliary and not given priority, iii) cost-benefit considerations – businesses prioritize actions where short-term benefits outweighs costs, iv) Risk transfer – organizations sometimes shift risks to third parties, which fails to address the root problems.

Additionally, smaller organizations are still in the early stages of developing ESG risk management practices, further reflecting the evolving nature of this domain. While the academic literature does not yet fully address the emerging nature of ESG management, this study contributes to the discourse by identifying and analyzing key factors driving its evolution.

To summarize, the findings highlight ESG material issues across vital business processes –order-to-cash, procure-to-pay, scrap management, and human resources. These include vendor practices, monitoring customer practices, proper scrap disposal, and key human resource concerns such as fair remuneration, workplace health and safety, training and development, and diversity and inclusion. While the risk function plays a proactive role at a strategic level rather than in operational activities, the study underscores the nascent stage of ESG risk management, particularly in smaller organizations. By addressing gaps in existing literature, this study enhances understanding of the evolving dynamics of ESG risk management in Indian manufacturing organizations.

6. Conclusion

The study examined the role of the risk function in the ESG journey of Indian manufacturing organizations, with a focus on operational perspectives. The primary objectives were to identify ESG material issues within vital business processes –order-to-cash, procure-to-pay, scrap management, and human resources – and to evaluate the role of the risk function in addressing these issues. The findings identified key ESG material issues such as vendor compliance, carbon emission reductions, responsible customer practices, scrap disposal, fair remuneration, workplace health and safety, training and development, and diversity and inclusion. The risk function was found to play a strategic role, while ESG risk management remains in its early stages in Indian manufacturing organizations.

Limitations

Data collection was conducted through known sources, which led to a bias toward larger companies. However, the inclusion of interviewees from both small and large organizations ensured a degree of diversity. The use of convenience sampling may limit the generalizability of the findings. Expanding the number of interviewees in future research could provide more comprehensive insights.

Recommendations for Future Research

Future research should focus on increasing the sample size to enhance the generalizability of the findings and offer a more nuanced understanding. Increasing the number of interviewees could build on this study's findings, providing deeper insights into the role of the risk function in the ESG journey.

To conclude, this study offers understanding into the role of the risk function in the ESG journey of Indian manufacturing organizations from an operational perspective. Despite its limitations, it offers a strong foundation for future research and contributes to the growing understanding of ESG integration within key business processes.

References

1. Alareeni, B. A., & Hamdan, A. (2020). ESG Impact on Performance of US S&P 500-listed firms. *Corporate Governance: The International Journal of Business in Society*, 20(7), 1409–1428. <https://doi.org/10.1108/CG-06-2020-0258>
2. Albitar, K., Hussainey, K., Kolade, N., & Gerged, A. M. (2020). ESG Disclosure and Firm Performance before and after IR: The Moderating Role of Governance Mechanisms. *International Journal of Accounting & Information Management*, 28(3), 429–444. <https://doi.org/10.1108/IJAIM-09-2019-0108>
3. Bala, G., Birman, S., Cardamone, J., Kuh, T., Salvatori, A., & Stelea, N. (2020). ESG Materiality Factors in the Fourth Industrial Revolution—Measuring Stakeholder Externalities via Dynamic Materiality (SSRN Scholarly Paper 3751058). <https://doi.org/10.2139/ssrn.3751058>
4. Bansal, S., & Gangopadhyay, S. (2003). Tax/subsidy Policies in the Presence of environmentally aware consumers. *Journal of Environmental Economics and Management*,

- 45(2), 333–355. [https://doi.org/10.1016/S0095-0696\(02\)00061-X](https://doi.org/10.1016/S0095-0696(02)00061-X)
5. Becchetti, L., Bobbio, E., Prizia, F., & Semplici, L. (2022). Going Deeper into the S of ESG: A Relational Approach to the Definition of Social Responsibility. *Sustainability*, 14(15), Article 15. <https://doi.org/10.3390/su14159668>
6. Billio, M., Costola, M., Hristova, I., Latino, C., & Pelizzon, L. (2021). Inside the ESG ratings: (Dis)agreement and performance. *Corporate Social Responsibility and Environmental Management*, 28(5), 1426–1445. <https://doi.org/10.1002/csr.2177>
7. Braun, V., & Clarke, V. (2012). Thematic Analysis. In *APA Handbook of Research Methods in Psychology*, 2, 57–71. <https://doi.org/10.1037/13620-004>
8. Carnini Pulino, S., Ciaburri, M., Magnanelli, B. S., & Nasta, L. (2022). Does ESG Disclosure Influence Firm Performance? *Sustainability*, 14(13), Article 13. <https://doi.org/10.3390/su14137595>
9. Chateau, J., Dang, G., MacDonald, M. M., Spray, J. A., & Thube, S. D. (2023). A Framework for Climate Change Mitigation in India. *International Monetary Fund*.
10. Cornell, B., & Shapiro, A. C. (2021). Corporate Stakeholders, Corporate Valuation and ESG. *European Financial Management*, 27(2), 196–207. <https://doi.org/10.1111/eufm.12299>
11. Eccles, R. G., Krzus, M. P., Rogers, J., & Serafeim, G. (2012). The Need for Sector-Specific Materiality and Sustainability Reporting Standards. *Journal of Applied Corporate Finance*, 24(2), 65–71. <https://doi.org/10.1111/j.1745-6622.2012.00380.x>
12. European Financial Reporting Advisory Group Sustainability Reporting Technical Expert Group [EFRAG SR TEG]. (2022). Proposed methodology for determining material topics in sector-specific ESRS. <https://www.efrag.org/system/files/sites/webpublishing/Meeting%20Documents/2212090814197713/01.03%20SR%20TEG%20221213%20Materiality%20approach%20to%20Sector%20Specific%20ESRS.pdf>
13. Farooq, O. (2015). Financial Centers and The Relationship Between ESG Disclosure and Firm Performance: Evidence from an Emerging Market. *Journal of Applied Business Research (JABR)*, 31(4), Article 4. <https://doi.org/10.19030/jabr.v31i4.9298>
14. Garcia, A. S., Mendes-Da-Silva, W., & Orsato, R. J. (2017). Sensitive Industries Produce Better ESG Performance: Evidence from Emerging Markets. *Journal of Cleaner Production*, 150, 135–147. <https://doi.org/10.1016/j.jclepro.2017.02.180>
15. Gartner. (n.d.). Definition of Environmental, Social and Governance (ESG)—Gartner Finance Glossary. Gartner. Retrieved on August 30, 2024. <https://www.gartner.com/en/finance/glossary/environmental-social-and-governance-esg->
16. Gillan, S. L., Koch, A., & Starks, L. T. (2021). Firms and Social Responsibility: A Review of ESG and CSR Research in Corporate Finance. *Journal of Corporate Finance*, 66, 101889. <https://doi.org/10.1016/j.jcorpfin.2021.101889>
17. Gupta, R., Sankhe, S., Unni, N., & Malik, D. (2022). Charting a Pathway for Sustainable Growth. *McKinsey Sustainability*.
18. Henisz, W., Koller, T., & Nuttall, R. (2019). Five ways that ESG Creates Value— ProQuest. *McKinsey Quarterly*, 1–12.
19. Hodge, M. (2021). The ESG Reporting Journey: Take the first steps ... before it's too late - ProQuest. *The CPA Journal*, 91(8/9). <https://www.proquest.com/openview/6c213cb124f9d5f1c3e3e845792ec185/1?pq-origsite=gscholar&cbl=41798>
20. Huang, D. Z. X. (2021). Environmental, Social and Governance (ESG) Activity and Firm Performance: A Review and Consolidation. *Accounting & Finance*, 61(1), 335–360. <https://doi.org/10.1111/acfi.12569>
21. International Financial Reporting Standards [IFRS]. (2018). Project Summary and Feedback Statement: Definition of Material [Amendments to IAS 1 and IAS 8]. <https://www.ifrs.org/content/dam/ifrs/project/definition-of-materiality/definition-of-material->

feedback-statement.pdf

22. Karwowski, M., & Raulinajtys-Grzybek, M. (2021). The Application of Corporate Social Responsibility (CSR) Actions for Mitigation of Environmental, Social, Corporate Governance (ESG) and Reputational Risk in Integrated Reports. *Corporate Social Responsibility and Environmental Management*, 28(4), 1270–1284. <https://doi.org/10.1002/csr.2137>
23. Khanna, V. S., & Dharmapala, D. (2016). The Impact of Mandated Corporate Social Responsibility: Evidence from India's Companies Act of 2013. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2808366>
24. Koh, P., Qian, C., & Wang, H. (2014). Firm Litigation Risk and the Insurance Value of Corporate Social Performance. *Strategic Management Journal*, 35(10), 1464–1482.
25. Koh, P.-S., Qian, C., & Wang, H. (2014). Firm Litigation Risk and the Insurance Value of Corporate Social Performance. *Strategic Management Journal*, 35(10), 1464–1482. <https://doi.org/10.1002/smj.2171>
26. Li, T.-T., Wang, K., Sueyoshi, T., & Wang, D. D. (2021). ESG: Research Progress and Future Prospects. *Sustainability*, 13(21), 11663.
27. Miao, X. (2024). Challenges and Responses to ESG Risk Management. *Modern Management Science & Engineering*, 6(1), 55. <https://doi.org/10.22158/mmse.v6n1p55>
28. Ministry of Corporate Affairs [MCA]. (2019). National Guidelines on Responsible Business Conduct. https://www.mca.gov.in/Ministry/pdf/NationalGuideline_15032019.pdf
29. Mishra, L. (2021). Corporate Social Responsibility and Sustainable Development Goals: A study of Indian companies. *Journal of Public Affairs*, 21(1), e2147. <https://doi.org/10.1002/pa.2147>
30. Morgan Stanley Capital International [MSCI]. (2020). ESG Industry Materiality Map. <https://www.msci.com/our-solutions/esg-investing/esg-industry-materiality-map>
31. NYU Stern. (2019). Sustainability Materiality Matrices Explained.
32. Pérez, L., Vivian-Hunt, D., Samandari, H., Nuttall, R., & Bellone, D. (2022). How to make ESG Real McKinsey. *McKinsey Quarterly*. <https://www.mckinsey.com/capabilities/sustainability/our-insights/how-to-make-esg-real>
33. Pollman, E. (2022). The Making and Meaning of ESG (SSRN Scholarly Paper 4219857). <https://papers.ssrn.com/abstract=4219857>
34. Press Information Bureau [PIB]. (2023). Net Zero Emissions Target. Press Release: PIB. <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1945472>
35. Raimo, N., Caragnano, A., Zito, M., Vitolla, F., & Mariani, M. (2021). Extending the Benefits of ESG Disclosure: The Effect on the Cost of Debt Financing. *Corporate Social Responsibility and Environmental Management*, 28(4), 1412–1421. <https://doi.org/10.1002/csr.2134>
36. Sheehan, N. T., Park, H.-U., Powers, R. C., & Keyes, S. (2023). Overseeing the Dynamic Materiality of ESG risks: The Board's Role. EBSCO host. <https://doi.org/10.1111/jacf.12551>
37. Wasiuzzaman, S., Ibrahim, S. A., & Kawi, F. (2022). Environmental, Social and Governance (ESG) Disclosure and Firm Performance: Does National Culture Matter? *Meditari Accountancy Research*, 31. <https://doi.org/10.1108/medar-06-2021-1356>