

1. Introduction

1.1 Research Background

Globalisation has fundamentally restructured international economic relations, creating an increasingly interconnected yet fiercely competitive world market that presents both opportunities and challenges for developing economies like Indonesia. Over the past two decades, the accelerating pace of global economic integration has forced nations to constantly innovate and adapt to remain competitive in an environment where trade barriers have diminished and production networks have become truly globalized. Recent scholarly work on globalisation and international trade, particularly Siddiqui's (2020) comprehensive analysis, defines this phenomenon as encompassing not just trade openness but also deep structural integration with the world economy across multiple dimensions including capital flows, technology transfer, and labor mobility. In practical terms, this economic integration manifests most visibly through international trade relationships, whether through export-oriented growth strategies or import-dependent production systems. For Indonesia, as with many developing nations, engagement with these global trade networks has been a double-edged sword. While providing access to larger markets and advanced technologies, it has also exposed domestic industries to intense international competition. The textile sector provides a particularly telling case study of these dynamics. According to OECD statistics from 2023, Indonesia exported approximately \$3 billion worth of textile products, earning the distinction of being the world's 13th largest textile exporter. Textiles ranked as Indonesia's sixth most important export commodity that same year, demonstrating the sector's continued significance to the national economy. However, beneath these seemingly positive aggregate figures lies a more troubling trend: between 2008 and 2023, Indonesia's textile exports actually contracted by 12%, accompanied by widespread factory closures and significant job losses across the industry. This decline suggests that Indonesia's textile sector has been struggling to maintain its competitive position in the face of changing global market conditions and the rise of alternative production hubs in Asia and Africa.

The structural challenges facing Indonesia's textile export sector have reached critical levels in recent years, with industry leaders and analysts warning of a perfect storm of declining demand, financial instability, and growing environmental compliance costs that threaten the industry's long-term viability. The Chairman of the Indonesia Filament Yarn and Fiber Producers Association (APSyFI) issued particularly sobering assessments of sector performance in 2024, documenting a persistent negative trend in global demand that has forced manufacturers to implement painful production cuts and workforce reductions simply to remain financially viable (Ramdan, 2024). The human and

economic costs of this downturn have been most dramatically illustrated by the collapse of PT Sri Rejeki Isman Tbk (Sritex), once considered a crown jewel of Indonesia's textile industry. Established in 1961, Sritex had grown to become a major player in international textile markets before succumbing to bankruptcy due to chronically low production volumes caused by evaporating demand (Manilet, 2024). The company's demise sent shockwaves through Indonesia's manufacturing sector and raised serious questions about the competitiveness of Indonesia's textile producers. Compounding these purely economic challenges is the growing international emphasis on environmental sustainability, which has placed additional compliance burdens on an already struggling industry. Groundbreaking research by Haseeb et al. (2020) has quantified the substantial environmental impact of textile and clothing manufacturing across Asia, demonstrating that the sector makes significant contributions to CO₂ emissions throughout the region. Their findings carry particularly important implications for Indonesia, suggesting that even relatively minor adjustments in environmental regulations could have outsized effects on export competitiveness and foreign exchange earnings. This creates a difficult balancing act for policymakers, as Indonesia's economy remains heavily dependent on textile exports while simultaneously being highly vulnerable to the physical impacts of climate change. The textile sector thus finds itself caught between immediate economic pressures and longer-term sustainability imperatives, with no easy solutions apparent.

Confronted with these multidimensional challenges, the Indonesian government has dramatically scaled up its environmental policy commitments in recent years, implementing an ambitious suite of climate measures that will necessarily transform the operating landscape for the textile industry and other manufacturing sectors. The current Nationally Determined Contribution (NDC) sets a target of reducing greenhouse gas emissions by 29% by 2023 compared to business-as-usual scenarios, which translates into absolute terms as a reduction of 834 million tons of CO₂ across all economic sectors (Climate Transparency, 2022). However, recognizing the need for more aggressive action, the Indonesian government submitted a substantially enhanced NDC to the UNFCCC Secretariat in September 2022. This revised commitment raises Indonesia's unconditional emission reduction target to 31.89% and its conditional target (dependent on international support) to 43.20%, representing one of the most ambitious climate pledges among developing nations (Ministry of Environment and Forestry, 2023). To provide a strategic framework for achieving these goals, Indonesia has developed its comprehensive Long-Term Strategy for Low Carbon and Climate Resilience 2050 (LTS-LCCR), which outlines a detailed roadmap for aligning national development priorities with climate mitigation and adaptation objectives. Within this broader policy architecture, the manufacturing sector assumes particular importance as it accounts for approximately 28% of Indonesia's total emissions. The sector

encompasses several high-emission subsectors including chemicals, cement, pulp and paper, food and beverage, iron and steel, plastics, soaps and detergents, and—critically for this analysis—textiles (Puspita & Hartono, 2021). For Indonesia's textile industry, already reeling from adverse global market trends, these evolving policy requirements introduce additional complexity. Companies must now navigate increasingly stringent sustainability expectations while remaining financially viable in a competitive export market. The recent introduction of the IFRS S2 standard on climate-related disclosures further raises the stakes, emphasizing the need for robust environmental reporting and performance tracking even as many firms continue developing their capacity to accurately measure and report energy use and emissions data (Christi et al., 2025). This regulatory environment creates both challenges and opportunities for textile producers willing and able to invest in sustainable production methods.

In this context of economic pressures and environmental transformation, Foreign Direct Investment (FDI) has emerged as an increasingly critical factor in determining the future trajectory of Indonesia's textile industry, potentially serving as a bridge between immediate competitiveness concerns and longer-term sustainability goals. The past decade has witnessed profound changes in the global FDI landscape, with developing economies like Indonesia attracting growing shares of international investment flows. As a driver of economic development, FDI brings multiple potential benefits including capital infusion, technology transfer, managerial expertise, and enhanced integration into global value chains. The numbers tell a compelling story: Indonesia's FDI inward stock has mushroomed from US Dollars 14,871,400 thousand in 2008 to US Dollars 50,267,512.3 thousand in 2023, according to UNCTAD statistics (2024). This growth reflects broader trends that have seen developing countries and transition economies capture more than 30% of global FDI flows, as investors seek both market opportunities and production efficiencies in emerging markets. In Indonesia, the Investment Coordination Board (BKPM) serves as the central government agency responsible for regulating and facilitating foreign investment across all sectors of the economy (Mahadika et al., 2017). BKPM data reveals that Foreign Direct Investment in Indonesia has expanded at an impressive average annual rate of 9.96% from 2008 to 2023, with total flows increasing from US Dollars 14,871,400 thousand to US Dollars 50,267,512.3 thousand over this period. These figures underscore Indonesia's growing attractiveness as an investment destination and its emergence as one of Southeast Asia's most dynamic emerging markets. Several factors explain this appeal, including the country's large and growing domestic consumer market, improving infrastructure, relatively stable macroeconomic environment, and strategic location within ASEAN. For the textile sector specifically, FDI represents a potentially transformative force that could address multiple challenges simultaneously—providing

capital for modernization, facilitating technology transfer for cleaner production, and enhancing access to international markets through global production networks.

A closer examination of Foreign Direct Investment patterns in Indonesia reveals that the textile industry occupies a strategically important position within the country's secondary industrial sector, benefiting from both market forces and deliberate policy support that recognize its economic significance. Indonesia's FDI recipients are typically categorized into three broad groups: primary (extractive industries), secondary (manufacturing), and tertiary (services), with the textile industry firmly situated within the secondary sector. This relative prominence reflects the industry's designation as one of five priority sectors targeted for special development attention under Indonesia's industrial policy framework. The selection criteria for this privileged status were carefully designed to identify industries with both strong growth potential and strategic importance to national development objectives. First, policymakers evaluated the practical feasibility of transformation by assessing existing industrial infrastructure and manufacturers' demonstrated willingness to adopt new technologies and processes. Second, they analyzed each sector's potential contribution to GDP growth through successful implementation of Industry 4.0 technologies and production methods. The textile industry's current economic footprint justifies this focused attention: it accounts for 5.8% of Indonesia's manufacturing GDP and 0.98% of total GDP, representing a substantial component of the country's industrial base. In global terms, Indonesia contributed 1.65% of total textile exports worldwide in 2022, with export values reaching US\$15.5 billion and earning the country the position of 14th largest textile exporter globally. There is growing consensus among researchers and policymakers that foreign direct investment has played a pivotal role in shaping the evolution of Indonesia's manufacturing sector generally and the textile industry specifically. To fully understand the nature and extent of FDI's impact on the global competitiveness of Indonesia's textile exports—particularly in relation to pressing environmental compliance challenges—it is essential to systematically review and synthesize the substantial body of existing research from both domestic and international sources, identifying key findings and methodological approaches that this study seeks to address.

1.2 Research Significance and Objectives

Existing research on Indonesia's textile industry has extensively analyzed export performance but neglected critical aspects of export competitiveness and its relationship with foreign investment. While numerous studies have examined the sector's export volumes and trends (Bustaman et al., 2022; Sutduean et al., 2019; Xaverius David Ardiyanto & Kudo, 2020), few have specifically investigated the determinants of export competitiveness. Similarly, although scholars have explored Foreign Direct

Investment (FDI) in textiles (Prasetyani et al., 2020; Situmorang et al., 2024), its direct impact on competitive positioning remains understudied. Environmental considerations add complexity to this underexplored area of the literature, as studies like Rokhmawati's (2021) show that export growth can lead to increased greenhouse gas (GHG) emissions, which in turn reduce competitiveness. Nihayah et al. (2022) reinforce these findings by establishing causal links between economic growth, exports, FDI and short-term emissions. However, the precise mechanisms through which Indonesia's CO₂ emissions affect textile export competitiveness, particularly when combined with FDI inflows, require deeper investigation. This literature review consequently identifies the urgent need for research that simultaneously addresses FDI's competitive effects and environmental constraints in Indonesia's textile sector during an era of growing sustainability demands.

This study aims to complete the research environment by systematically analyzing how FDI influences textile export competitiveness under emerging carbon constraints. The research will develop a comprehensive conceptual framework integrating FDI, CO₂ emissions, and other economic variables that shape competitive advantage in Indonesia's textile sector from 2008 to 2023. Through rigorous empirical analysis, the project will identify patterns connecting FDI inflows, emission levels, and textile export competitiveness indices. These findings will provide policymakers with evidence-based insights for balancing economic development with environmental sustainability in one of Indonesia's most important manufacturing sectors. The theoretical contribution lies in advancing our understanding of how foreign investment interacts with carbon constraints to reshape competitive dynamics in developing country textile industry facing simultaneous pressures for growth and decarbonization.

1.3 Research Content and Methods

This study systematically investigates Indonesia's textile export competitiveness through a comprehensive literature review of nine key commodities. The textile products include spun yarn, man-made staple fibers, woven fabrics, other textile articles, man-made filament fibers/yarns/strips, knitted fabrics, textile fibers, embroidery fabrics, and silk. By evaluating variables such as foreign direct investment (FDI), CO₂ emissions, and other control variables the review establishes foundational insights into the sector's challenges and opportunities.

The research employs mixed methods to quantify relationships between competitiveness determinants and propose actionable strategies. Qualitative analysis via Porter's Diamond Model deciphers interactions between dependent and independent variables, framing comprehensive competitive advantage. Quantitative linear regression of 2008–2023 time-series data isolates four key

explanatory variables' impacts on export competitiveness. These empirical results will inform targeted policy recommendations, with the full conceptual framework illustrated in Figure 1 to visually integrate the study's components.

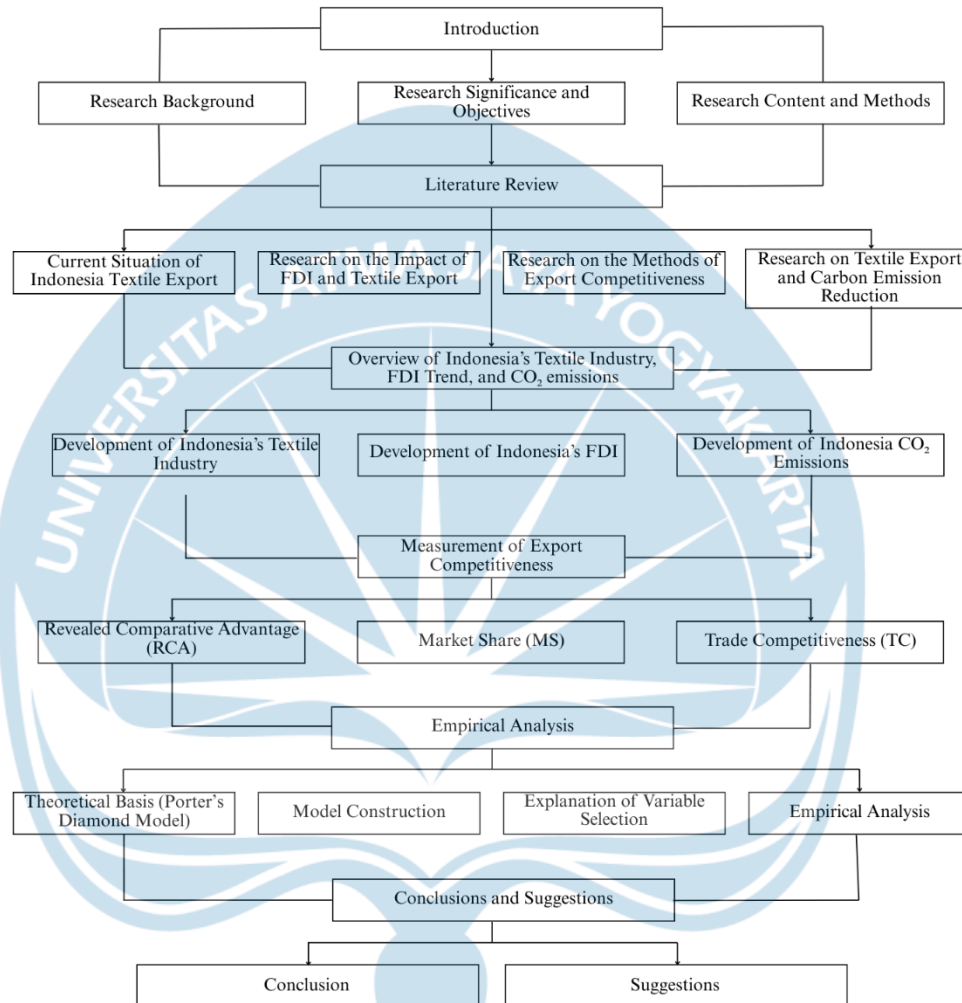


Figure 1. Research framework of the paper