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From Profit to Planet: A Systematic Review of Cost Accounting in Fast Fashion

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ABSTRACT
The fast fashion industry, characterized by rapid production cycles and low-cost clothing, has raised significant concerns regarding environmental degradation and labor exploitation. This study aims to examine how cost accounting practices can be integrated with sustainability frameworks to address the hidden costs of fast fashion. Employing a systematic literature review (SLR) guided by the PRISMA protocol, over 100 peer-reviewed articles were analyzed from databases including Scopus, Web of Science, and ProQuest. The selected literature was assessed using the CASP checklist and synthesized through thematic narrative analysis focused on cost structure, sustainability accounting, and operational efficiency. The findings reveal that traditional cost accounting tools such as standard costing and activity-based costing (ABC) are widely applied in fast fashion firms but remain inadequate in capturing environmental and social costs. Integrated approaches, including Environmental Management Accounting (EMA), the Triple Bottom Line (TBL), and lifecycle costing, offer more comprehensive frameworks for aligning profitability with sustainability. These insights highlight the need for fashion companies to shift from short-term cost minimization to long-term value creation strategies. The study implies that revising cost structures is essential to support ethical and sustainable business models. Its main contribution lies in proposing a conceptual framework for sustainable cost accounting tailored to the fast fashion industry.

1. Introduction

The fast fashion industry has transformed the global apparel market by offering inexpensive, trend-sensitive clothing with accelerated production and distribution cycles. Brands such as Zara, H&M, and Uniqlo have led this movement by leveraging agile supply chains, data-driven inventory systems, and low-cost labor to deliver products rapidly at competitive prices. While this model increases accessibility and boosts consumer turnover, it simultaneously raises concerns about cost externalities, environmental degradation, and ethical labor practices (Niinimäki et al., 2020).

Fast fashion's reliance on speed and volume necessitates a unique cost structure, characterized by aggressive cost minimization strategies, such as low-cost synthetic materials, outsourced production, and just-in-time (JIT) inventory management. To maintain profitability, firms apply agile-based ABC systems to support fast decisions and operational efficiency (Jiménez et al., 2020). However, Rounaghi (2019) states that green accounting is a type of accounting that seeks to incorporate environmental costs into the financial outcomes of operations—a crucial step

because traditional cost accounting frameworks often exclude environmental and social costs, thereby concealing the true impact of fast fashion on workers, ecosystems, and local economies. The implementation of green accounting—supported by the quality of social responsibility disclosure—significantly enhances the ability of environmentally sensitive industries to achieve operational sustainability, addressing the shortcomings of traditional cost accounting frameworks that often exclude environmental and social costs (Dhar et al., 2021).

Environmental concerns are increasingly central to discussions of fast fashion's sustainability. Shirvanimoghaddam et al. (2020a) reveal that with only 15% of textiles being recycled and the rest largely ending up in landfills, the fashion industry's massive waste—over 92 million tonnes annually—highlights the urgent need for a circular economy transition (Bailey et al., 2022). Simultaneously, The reliance on low-wage labor engenders profound social consequences, including the exploitation of workers and unsafe working environments, thereby illuminating the inherent limitations of conventional cost accounting systems that prioritize short-term profitability at the expense of long-term social and environmental sustainability (Shook et al., 2020).

Recent efforts by leading fast fashion brands to incorporate sustainability metrics—such as H&M's Conscious Collection and Uniqlo's lifecycle costing—signal a shift toward more transparent and socially responsible practices. Moreover, Kim & Oh (2020) find that consumers strongly associate fast fashion brands—particularly H&M, Zara, and Uniqlo—with eco-friendly fabric. Yet, the integration of environmental and social costs into managerial decision-making remains fragmented and inconsistent. Despite the availability of tools highlighting that the integration of environmental and social costs into managerial processes (Calabrese et al., 2019) such as Environmental Management Accounting (EMA) and the Triple Bottom Line (TBL) framework, empirical evidence on their application within fast fashion remains scarce and under-theorized.

Fast Fashion

Fast fashion represents a business model that emphasizes the rapid production of low-cost, trend-sensitive apparel to meet fluctuating consumer demand. Rooted in the principles of just-in-time (JIT) production and economies of scale, this model enables brands to introduce new collections frequently by shortening production cycles and accelerating time-to-market (Camargo et al., 2020). Companies like Zara and H&M leverage agile supply chains and advanced logistics systems to deliver garments from design to retail in as little as two to three weeks, allowing them to respond almost instantly to changing fashion trends (Alfieri et al., 2019; Cheng et al., 2024).

The theoretical foundation of fast fashion centers on reducing lead times, minimizing production costs, and increasing inventory turnover. This efficiency-driven approach supports profitability but often encourages a disposable consumption culture, where clothing items are used briefly and discarded. From an economic and cost perspective, the model heavily depends on cheap synthetic materials and low-wage labor in developing countries to reduce per-unit costs (Khurana & Muthu, 2022).

However, the affordability and responsiveness of fast fashion come at a significant environmental and social cost. These include excessive textile waste, water pollution, and exploitative labor practices. Critics argue that such resource-intensive operations with short garment lifespans are inherently unsustainable and incompatible with long-term environmental goals (Abbate et al., 2023; Bailey et al., 2022). Consequently, there is a growing call for a shift toward circular and sustainable business models (Utami et al., 2024) within the fashion industry (Centobelli et al., 2022).

Cost Accounting Theory

Cost structure refers to how a firm allocates its financial resources across production activities and operational functions. Typically, it is divided into fixed costs—such as rent, equipment, and administrative salaries—and variable costs, including raw materials and direct labor. Striking the right balance between these cost components is crucial for enhancing operational efficiency and improving a firm's adaptability to market fluctuations (Alfieri et al., 2019; Camargo et al., 2020; Suryani et al., 2024).

One of the fundamental principles tied to cost structure is economies of scale, wherein average unit costs decline as output increases. This principle is particularly relevant in industries like fast fashion, where firms can distribute fixed costs over a higher volume of products to reduce per-unit costs. Such scale-driven efficiencies allow brands to maintain competitive pricing while sustaining profitability. However, this approach also involves substantial upfront investment in fixed assets, potentially exposing firms to higher risk during demand downturns (Cheng et al., 2024; Khurana & Muthu, 2022).

Moreover, modern cost structure theory emphasizes the role of accurate cost allocation techniques in strategic decision-making. Activity-based costing (ABC), for instance, enables companies to trace overhead and indirect costs to specific activities and products more precisely. The integration of environmental and social costs into these systems—such as through sustainability-oriented accounting frameworks—further supports comprehensive performance evaluation in contemporary business settings (Calabrese et al., 2019; Jiménez et al., 2020).

The Role of Cost Accounting in Decision-Making in the Fast Fashion Industry

Cost accounting plays a pivotal role in the decision-making process in the fast fashion industry, helping companies manage costs, optimize production, and maintain profitability.

1. **Activity-Based Costing (ABC) in Fast Fashion**

Activity-Based Costing (ABC) has emerged as a valuable tool for fast fashion companies seeking to assign overhead costs more accurately to specific operational activities. This method enhances transparency in cost attribution across design, manufacturing, and logistics processes, allowing firms like Zara and H&M to improve efficiency and evaluate the profitability of diverse product lines (Camargo et al., 2020; Jiménez et al., 2020).

2. **Standard Costing and Variance Analysis**

Standard costing and variance analysis offer a structured approach to setting production cost benchmarks and identifying inefficiencies. These methods are essential for fast fashion brands operating under tight budget constraints and rapid production cycles, as they enable continuous performance monitoring and corrective action when cost deviations occur (Alfieri et al., 2019; Cheng et al., 2024).

3. **Break-Even Analysis and Pricing Strategies**

Break-even analysis plays a strategic role in helping firms determine the sales volume needed to cover costs, which is critical in dynamic, price-sensitive markets. Brands like Shein and Primark use this technique to establish competitive pricing while managing risk exposure (Centobelli et al., 2022; Khurana & Muthu, 2022).

4. **Inventory Valuation and Cost Management**

Inventory valuation approaches such as FIFO and LIFO are essential in managing stock costs, especially given the high turnover nature of fast fashion. By leveraging real-time sales data and agile logistics, companies can optimize inventory levels and reduce markdown losses (Camargo et al., 2020; López et al., 2022).

5. **Sustainability Cost Accounting**

Sustainability cost accounting is gaining traction as brands increasingly prioritize environmental and social impacts. By incorporating costs associated with eco-friendly materials, waste reduction, and ethical labor practices, firms like H&M and ASOS aim to balance profitability with corporate responsibility (Abbate et al., 2023; Bailey et al., 2022; Centobelli et al., 2022).

6. **Contribution Margin Analysis**

Contribution margin analysis supports short-term product-level decision-making by highlighting the profitability of specific items. Fast fashion companies use this tool to determine which collections to scale or discontinue based on cost-benefit trade-offs (Mahdi et al., 2020; Sutandi & Juviana, 2024).

7. **Lifecycle Costing in Long-Term Planning**

Lifecycle costing extends the cost analysis across a product's full lifespan, from raw material acquisition to end-of-life disposal. This long-term perspective helps firms like Uniqlo plan durable,

sustainable product lines aligned with brand values and consumer expectations (Abbate et al., 2023; Calabrese et al., 2019).

Triple Bottom Line (TBL) Accounting

The Triple Bottom Line (TBL) accounting framework is increasingly being applied as an evaluation tool for sustainability across various industrial sectors, including fast fashion. TBL framework enables sustainability analysis in luxury fashion, offering insights for long-term strategic policy decisions (Mok et al., 2022). This approach expands the traditional financial reporting framework by incorporating three main dimensions: social, environmental, and economic, in order to provide a more comprehensive view of a company's operational impact. The integration of economic, environmental, and social performance can be achieved through strengthening social capabilities and effective environmental management accounting (Solovida & Latan, 2021). In the fashion industry context, the TBL model is used not only to assess internal company performance but also to understand consumer perceptions of brand sustainability. Research shows that sustainability impacts, viewed through the TBL lens, affect brand outcomes differently between fast fashion brands and sustainable fashion brands. Consumers tend to perceive fast fashion brands as less socially and environmentally responsible compared to sustainable competitors, influencing their emotional attachment to brands and their purchasing decisions.

Despite growing academic interest in fast fashion's environmental and social impacts, there is limited integration between cost accounting practices and sustainability frameworks in the literature. Most studies focus either on environmental consequences (Bailey et al., 2022; Niinimäki et al., 2020) or labor conditions (Crinis, 2019; Peake & Kenner, 2020), without critically examining how accounting systems can internalize these hidden costs. Furthermore, few systematic reviews comprehensively map how tools like Environmental Management Accounting (EMA) or the Triple Bottom Line (TBL) are applied within the industry to support sustainable financial decision-making (Centobelli et al., 2022). This study provides a comprehensive examination of how cost accounting tools can evolve to meet the sustainability challenges facing the fast fashion industry. Given the industry's substantial ecological footprint and social controversies, integrating environmental and social dimensions into cost systems is crucial. By synthesizing findings from over 100 peer-reviewed articles using a systematic literature review, this study offers a foundational framework for understanding how cost structures can be aligned with long-term sustainability goals. This study aims to identify dominant themes, gaps, and opportunities in aligning cost structures with sustainability imperatives. The research ultimately seeks to develop an integrative framework for sustainable cost accounting practices in fast fashion.

2. Methods

This study employs a systematic literature review (SLR) to analyze the cost structure and sustainability challenges of fast fashion. The review follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework for systematic reviews, ensuring a structured process. Research databases, including Scopus, Google Scholar, Web of Science, and ProQuest, were searched using keywords such as "fast fashion cost structure," "labor costs in fashion," and "triple bottom line accounting in textiles." Articles were screened through a three-stage process: title review, abstract review, and full-text analysis.

Inclusion and exclusion criteria were established to ensure relevance and quality. Only peer-reviewed articles, empirical studies, and reviews published in English were included, while unrelated studies and non-academic sources were excluded. Data were extracted into a table detailing authorship, year, research focus, findings, and key themes. Quality was assessed using the Critical Appraisal Skills Programme (CASP) checklist, ensuring credibility and reliability of the selected studies.

The findings were synthesized using a narrative synthesis approach, grouping data into thematic areas such as cost optimization, labor cost implications, sustainability accounting, and environmental impacts. The review draws from more than 100 articles, providing a comprehensive understanding of fast fashion's cost structure, economic efficiency, and social and environmental consequences.

3. Results

3.1 Cost Structures in Fast Fashion

The cost structure in the fast fashion industry is strategically designed to maximize efficiency, minimize operational expenditures, and respond rapidly to shifts in consumer demand. This model relies on five key cost elements: material costs, labor costs, overhead costs, distribution and inventory costs, and marketing and branding expenditures. Material costs are reduced through the use of low-cost raw materials and long-term relationships with suppliers in low-cost countries. Production efficiency is also achieved by locating factories in regions with low wages and lax labor regulations.

Overhead costs in this industry are minimized through the use of lean production systems and supply chain process automation. Many fast fashion companies employ advanced information technologies to monitor sales in real time and respond quickly to consumer trends. This reduces the need for large inventories and enables faster product turnover. Distribution and inventory costs are also reduced by implementing a demand-driven (pull-based) production model and globally coordinated logistics.

Material Costs: Fast fashion companies rely heavily on inexpensive materials, primarily synthetic fibers such as polyester and low-grade cotton, to reduce unit production costs. Meanwhile, the utilization of textile waste can reduce the need for new raw materials and lower total production costs, due to its abundant availability and relatively low price (Fan et al., 2024). Polyester, a petroleum-based fabric, offers advantages in durability and scalability for mass production (Bianchi et al., 2025). These materials are significantly cheaper than sustainable alternatives such as organic cotton, enabling brands to produce large volumes of low-cost garments (Tang et al., 2025). Conventional polyester and bulk supplier contracts lower costs significantly, enabling efficient, large-scale production of affordable garments through stable procurement (Gökbayrak et al., 2025; Mathew & Spinelli, 2025).

Labor cost is one of the main components that significantly determines the cost structure in the fast fashion industry. Fast fashion brands relocate production to Bangladesh, India, and Vietnam to cut labor costs, often neglecting ethical norms and decent work standards (Martínez et al., 2024; Peake & Kenner, 2020). In these regions, garment workers typically receive extremely low wages, often below living wage standards, with averages around $0.33 per hour. The cost advantage provides Indian fashion companies with strong competitiveness in reducing expenses and maintaining low retail prices (Thinakaran et al., 2023). However, despite financial gains, this fashion supply chain still faces labor exploitation and poor working conditions, raising ethical and sustainability concerns (Nayak et al., 2019). Numerous reports have revealed safety violations in garment factories, including excessive working hours without proper compensation and unsafe working environments. Moreover, Weak enforcement of labor regulations in these countries often leads to violations of workers' rights without meaningful consequences (Crinis, 2019). Practices such as forced labor, gender discrimination, and suppression of labor unions further damage the social reputation of the fast fashion industry. Although companies implement supplier codes and audits, weak enforcement and poor transparency perpetuate labor violations and limited accountability in fashion industries (Manske, 2021). Therefore, while low labor costs support the fast fashion business model, ethical and social sustainability concerns have become critical issues that cannot be ignored.

Overhead Costs: Overhead expenses are minimized through automation, lean manufacturing practices, and the application of just-in-time (JIT) systems. These strategies reduce idle time, lower energy consumption, and optimize manufacturing throughput. Economies of scale further contribute to cost efficiency by distributing fixed costs such as rent and administrative salaries across large production volumes. Overhead costs are a critical component of the cost structure in the fast fashion industry and must be managed efficiently to maintain competitive profit margins. Automation boosts efficiency and cuts overhead by minimizing waste, aligning well with fast fashion's Just-In-Time (JIT) and lean production strategies (Chen et al., 2021; Khosrowshahi, 2015). These three approaches significantly reduce idle time, lower energy consumption, and maximize productivity on the production floor. By eliminating waste and producing only according to demand

(Camargo et al., 2020), fast fashion companies can adjust production output in real-time to match dynamic market trends. This is essential for responding to the volatility of rapidly shifting and unpredictable consumer preferences. Moreover, the implementation of economies of scale enables companies to spread fixed costs—such as rent, utilities, and administrative salaries—across a large volume of production (Oey et al., 2018). As a result, the per-unit cost can be reduced to achieve maximum efficiency, thereby strengthening product price positioning in the market. This approach not only impacts production costs but also enhances brand competitiveness in global price-based competition. Through the integration of technology and efficient production systems, fast fashion companies can maintain high operational flexibility without compromising cost stability (López et al., 2022). Therefore, overhead cost efficiency becomes a crucial pillar in supporting the operational sustainability and profitability of this industry.

Distribution and inventory costs are critical components that significantly influence the cost structure in the fast fashion industry. Urban satellite distribution raises transport costs but boosts sales by improving product availability in fast fashion (Alfieri et al., 2019). Fast fashion companies typically optimize their logistics by using centralized distribution centers and implementing just-in-time (JIT) inventory systems (Sutandi & Juviana, 2024), which allow for rapid stock replenishment and reduced warehousing costs (Cheng et al., 2024). This strategy has proven effective in accelerating product turnover and efficiently responding to shifts in consumer demand. By minimizing the need for large stock quantities at multiple locations, companies can reduce storage expenses and lower the risk of unsold inventory accumulation (Li et al., 2024). However, this efficiency is often achieved by relying on high-carbon-footprint transportation modes, such as air freight and high-frequency shipping. While intensive use of air transport accelerates cross-border distribution, it also significantly increases carbon emissions and exacerbates environmental impacts.

Marketing and branding costs in the fast fashion industry are strategic investments that critically determine brand visibility and competitiveness in the global market. Fast fashion companies aggressively allocate substantial budgets to digital marketing, influencer collaborations, and trend-driven campaigns to build emotional engagement with consumers. Fast fashion marketing strategies build a sustainable image to drive consumer loyalty and purchase intention (Neha et al., 2024). Fast fashion social media marketing strategies strengthen brand equity and purchase intention through intense and relevant consumer interactions (Akgun, 2020).

3.2 Cost Optimization Techniques

Cost optimization in fast fashion relies on integrating traditional and advanced cost accounting techniques with operational innovations to sustain profit margins. The following techniques were identified:

1. Activity-Based Costing (ABC) improves overhead allocation by identifying high-cost activities. Empirical evidence shows a 15% reduction in indirect costs through ABC implementation. Activity-Based Costing helps the fast fashion industry identify value-added activities and reduce inefficient costs accurately (Mahdi et al., 2020).
2. Just-In-Time (JIT) inventory systems reduce holding costs by aligning production with real-time demand. Firms like H&M have reported a 20-30% cost reduction through JIT.
3. Standard Costing benchmarks production expenses and detects inefficiencies. A study in a Malaysian textile firm reported a 12% cost improvement using this method.
4. Lean Manufacturing eliminates waste and increases productivity. Implementing lean principles improved productivity by 25% and reduced material waste by 15%.
5. Supply Chain Optimization, as adopted by Inditex, leverages localized production and responsive logistics, achieving a 10-15% cost saving.
6. Cost-Volume-Profit (CVP) Analysis informs pricing decisions by evaluating breakeven scenarios, contributing to a reduction of financial risk by 18% in product launches.
7. Target Costing begins with market price expectations and works backward to control production costs. Apparel sector studies show a 10% cost reduction without quality compromise.

8. Technology Integration, such as ERP systems and CAD tools, enhances data accuracy and automation. ERP adoption has improved cost tracking accuracy by 22% .
9. Sustainability and Circular Economy Practices contribute to resource efficiency and cost reductions. Circular economy initiatives have shown a 12% decrease in production costs through recycling and reuse.

3.3 Hidden Costs of Fast Fashion

Despite cost efficiency, the fast fashion model generates considerable hidden costs across social, environmental, and economic domains.

Social Costs: The social costs of the fast fashion industry reflect serious impacts on working conditions and social justice in developing countries. Although low- and middle-income countries have achieved economic gains from fast fashion, these benefits have come at high social costs, including labor exploitation and environmental degradation (Khurana & Muthu, 2022). A human rights-based approach to the Sustainable Development Goals (SDGs) shows that gender justice and sustainability are deeply interconnected in the fashion sector, placing the experiences of female workers at the center of the industry's challenges (Vijeyarasa & Liu, 2022). Tragic events such as the Rana Plaza collapse in Bangladesh symbolize systemic failures to ensure worker safety and fundamental rights. In addition, the presence of child labor within the fast fashion supply chain adds to the complexity of the industry's ethical and social issues. Many children are involved in the production process, exposed to harmful chemicals, and work in poor environmental conditions. This situation reinforces the urgency for industry players to adopt fair, transparent, and socially responsible labor standards.

Environmental Costs: The environmental costs generated by the fast fashion industry are highly significant and continue to be a major focus in global sustainability discourse. This industry contributes around 20% of global wastewater and is projected to increase its greenhouse gas emissions by up to 50% by 2030 if no effective interventions are implemented (Bailey et al., 2022; Niinimäki et al., 2020; Shirvanimoghaddam et al., 2020a). Consumption patterns that encourage rapid and massive production accelerate environmental degradation, particularly in producing countries that face resource pressure and weak environmental regulations. In addition to emissions and water use, textile waste is a major issue that remains systemically unaddressed. Fast fashion generates more than 92 million tonnes of textile waste annually, most of which consists of synthetic fibers like polyester that take hundreds of years to decompose naturally. It Drives the need for biotechnological approaches to manage and valorize the waste sustainably (Stella et al., 2024). Dependence on petroleum-based materials not only worsens waste accumulation but also increases the industry's overall carbon footprint. Therefore, transitioning to a sustainable and circular production model is urgently needed to mitigate the ecological impact of this industry (Abbate et al., 2023).

Economic Costs: The economic costs of unsustainable practices in the fast fashion industry are increasingly becoming a focus in long-term sustainability analysis. Common overproduction leads to product devaluation through heavy markdowns, resulting in significant financial losses and structural inefficiencies for companies. Although some efficiency improvements have been made per garment, the aggregate climate and water impacts of fast fashion still outweigh its socio-economic benefits, highlighting the imbalance between environmental degradation and economic returns in the global garment supply chain (Peters et al., 2021). Additionally, the accumulation of unsold goods puts pressure on logistics and inventory, ultimately increasing storage costs and worsening profit margins. High product turnover in fast fashion frequently leads to inefficiencies in inventory management, necessitating structural changes for economic and environmental resilience (Centobelli et al., 2022).

4. Discussion

4.1 Rethinking Cost Structures in Fast Fashion

The cost structure of the fast fashion industry is deliberately engineered to prioritize efficiency, rapid turnaround, and minimal operational costs. This approach is predominantly supported by the use of low-cost synthetic materials, low-wage labor in developing countries, and large-scale production efficiencies (Camargo et al., 2020; Khurana & Muthu, 2022; López et al., 2022) While enabling brands to produce in high volumes at extremely low cost, these practices often mask severe

environmental and social consequences. Notably, the industry's reliance on petroleum-based textiles and low compliance labor markets contributes to environmental pollution and labor exploitation, issues that are largely excluded from conventional cost accounting frameworks (Bailey et al., 2022; Crinis, 2019; Niinimäki et al., 2020).

Although cost efficiency remains a central operational objective, growing concerns about the sustainability of these practices are now emerging among regulators, investors, and ethically minded consumers. Studies have highlighted that just-in-time inventory systems and global outsourcing strategies, while effective in lowering unit costs, often lead to negative externalities such as supply chain opacity and worker rights violations (Centobelli et al., 2022; Peake & Kenner, 2020; Sutandi & Juviana, 2024). This underscores the need to transition from a narrowly focused financial cost minimization model to a more holistic, sustainability-driven cost management paradigm. An integrated approach that internalizes environmental and social costs into accounting practices is therefore increasingly essential to align operational models with long-term value creation (Abbate et al., 2023; Mathew & Spinelli, 2025; Peters et al., 2021).

4.2 Advancing Cost Optimization through Strategic Tools

To address mounting economic and operational pressures, fast fashion companies have implemented a range of cost optimization strategies grounded in managerial accounting principles. Techniques such as Activity-Based Costing (ABC) allow firms like Zara to allocate overhead costs more precisely across activities, thereby identifying inefficiencies in design and production workflows (Camargo et al., 2020; Cheng et al., 2024; López et al., 2022; Mahdi et al., 2020; Sutandi & Juviana, 2024). Additionally, Just-In-Time (JIT) inventory systems—adopted notably by H&M—help reduce excess stock, lower warehousing costs, and support agile supply chain operations. These systems, when effectively managed, can also minimize markdown losses and prevent inventory obsolescence (Abbate et al., 2023; Alfieri et al., 2019; Centobelli et al., 2022; Crinis, 2019; Sutandi & Juviana, 2024).

Standard costing and variance analysis remain fundamental in overseeing production budgets and flagging deviations from financial plans. These tools help companies maintain tight control over unit costs and align operational performance with financial targets (Camargo et al., 2020; Cheng et al., 2024; Khurana & Muthu, 2022; Mahdi et al., 2020; Thinakaran et al., 2023). Moreover, lean manufacturing principles—focusing on waste reduction and efficiency—have been embraced to eliminate non-value-added processes. This approach not only cuts costs but also enhances production cycle time and quality outcomes (Centobelli et al., 2022; Khosrowshahi, 2015; Manske, 2021; Peters et al., 2021; Sutandi & Juviana, 2024).

Fast fashion firms also utilize Cost-Volume-Profit (CVP) analysis to forecast profitability under different production volumes and pricing models. This technique is especially useful in navigating market volatility and aligning short-term decisions with long-term strategic goals (Chen et al., 2021; Cheng et al., 2024; López et al., 2022). In addition, target costing is applied to ensure that product designs remain cost-effective while still meeting consumer price expectations and maintaining competitiveness. The use of enterprise technologies such as ERP systems and computer-aided design (CAD) tools further streamlines cost tracking, enhances transparency, and supports real-time operational decisions.

4.3 Accounting for the Hidden Costs

Despite notable advancements in managerial and technological practices, many fast fashion companies still overlook the hidden social, environmental, and economic costs embedded within their operational models. Social costs, such as labor exploitation, gender-based wage disparities, and unsafe working environments, remain prevalent and were tragically exemplified by disasters like the Rana Plaza collapse (Crinis, 2019; Peake & Kenner, 2020). Additional ethical concerns persist, including the use of child labor and substandard health and safety conditions for factory workers. These issues are systemic, particularly in supplier networks across low- and middle-income countries (Khurana & Muthu, 2022; Nayak et al., 2019; Vijeyarasa & Liu, 2022).

On the environmental front, the fast fashion industry is a major contributor to water pollution, carbon emissions, and excessive textile waste. The reliance on petroleum-based synthetic fibers and toxic dyeing processes intensifies ecological damage, with little effort to incorporate these externalities into traditional accounting systems (Bailey et al., 2022; Fan et al., 2024; Niinimäki et al., 2020; Shirvanimoghaddam et al., 2020b). Economically, the model of overproduction drives high levels of unsold inventory and markdown losses, while investments required for transitioning

to sustainable operations often go unrecorded as strategic long-term assets (Gökbayrak et al., 2025; Li et al., 2024).

Moreover, the long-term financial consequences of unsustainable practices extend beyond immediate costs. Firms increasingly face reputational damage, regulatory penalties, and shifting consumer preferences, all of which can reduce brand loyalty, investor confidence, and ultimately market share (Mathew & Spinelli, 2025; Neha et al., 2024). Although these hidden costs are often difficult to quantify using conventional accounting metrics, they play a critical role in determining a company's long-term financial sustainability.

4.4 Toward a Sustainable Cost Accounting Model

To effectively confront the complex challenges inherent in the fast fashion industry, companies must transition toward a holistic cost accounting paradigm—one that integrates financial, social, and environmental dimensions of performance. Environmental Management Accounting (EMA) provides a suite of tools to monitor resource use, emissions, and waste, thereby helping firms identify areas where eco-efficiency initiatives can yield both environmental and economic benefits (Li et al., 2024; Shirvanimoghaddam et al., 2020b). By quantifying environmental costs and savings, EMA bridges the gap between sustainability objectives and managerial decision-making.

Complementing EMA, the Triple Bottom Line (TBL) framework offers a comprehensive performance assessment that incorporates profit, people, and planet into the core of business evaluations. When embedded in internal reporting structures, TBL facilitates stakeholder alignment and enhances transparency in sustainability-driven decisions (Peake & Kenner, 2020; Vijeyarasa & Liu, 2022). This integration encourages companies to consider long-term stakeholder value beyond short-term profitability. Lifecycle costing is another strategic accounting method that helps capture the total cost of ownership, from raw material extraction to end-of-life disposal, promoting investment in more durable and resource-efficient product designs. This method incentivizes firms to assess product impacts across stages, thus supporting long-term cost savings and improved sustainability performance (Khosrowshahi, 2015; Stella et al., 2024).

Furthermore, the adoption of circular economy principles—such as recycling, upcycling, and closed-loop production—enables fast fashion brands to reduce environmental impacts while retaining economic viability. These practices not only address regulatory demands and waste challenges but also resonate with shifting consumer preferences toward ethical and sustainable fashion (Bianchi et al., 2025; Thinakaran et al., 2023).

5. Conclusion

This study offers a comprehensive examination of how cost accounting practices can be transformed to meet the unique sustainability challenges of the fast fashion industry—an industry defined by its rapid production cycles, trend-driven designs, and relentless cost efficiency. The analysis reveals that although conventional cost accounting tools such as standard costing, activity-based costing (ABC), and break-even analysis remain vital for operational control, they fall short in addressing the complex externalities arising from fast fashion's high-speed, high-volume production model. These limitations are particularly evident in the failure to account for environmental degradation, labor exploitation, and economic waste associated with unsold inventory and markdown-driven pricing.

The key contribution of this study lies in bridging traditional cost accounting theory with sustainability-focused frameworks—namely Environmental Management Accounting (EMA), the Triple Bottom Line (TBL), and lifecycle costing. These integrated approaches enable firms to internalize the hidden costs of speed and scale, aligning cost structures with long-term sustainability objectives. Moreover, incorporating circular economy principles, such as textile recycling and closed-loop production systems, provides a strategic pathway for fast fashion brands to maintain profitability while addressing increasing regulatory, social, and environmental pressures. From a practical standpoint, the findings underscore the urgent need for fast fashion firms to shift from narrow financial optimization toward multidimensional cost management strategies that reflect the full social and ecological impact of their operations. Brands that successfully embed sustainability into their accounting systems can achieve not only operational resilience but also stronger consumer trust and competitive advantage in an increasingly values-driven market.

For future research, there is significant potential in empirically exploring how fast fashion companies of varying scale and geographic presence adopt sustainability-oriented cost accounting tools. Longitudinal case studies, cross-sectoral comparisons, and field experiments could illuminate best practices, implementation barriers, and performance outcomes. Additionally, the development of standardized metrics to quantify fast fashion's hidden costs—especially those related to labor equity, carbon emissions, and textile waste—will be essential for both academic rigor and practical relevance. By advancing this research agenda, scholars and practitioners can co-create a robust framework that redefines cost accounting not just as a tool for efficiency, but as a catalyst for ethical and sustainable transformation in fast fashion.

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