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How Do Suppliers to FDI Companies Finance Their Business Despite Facing Unique Challenges? A Case Insight from Bangladesh's SMEs Sector

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Abstract

Bangladeshi small and medium enterprises (SMEs) supplying to Foreign Direct Investment (FDI) firms face a financing paradox: while FDI partnerships enhance their credibility and access to markets; these businesses remain financially constrained due to high interest rates, rigid collateral demands, and limited credit histories. Drawing on a mixed-methods approach, by utilising both surveys and interviews with SME owners and financial professionals from lending institutions, this study reveals that access to traditional bank loans remains limited, pushing firms toward high-cost alternatives, such as—microfinance and informal lending. Although FDI relationships improve creditworthiness by reducing information asymmetry, benefits are partially offset by delayed payments that strain cash flows. Government efforts, like—the Bangladesh Bank's SME Financing Policy, yield moderate improvements, but poor outreach and low awareness, especially among rural and women-led firms, limit the impact. Framed through a Resource-Based View, Transaction Cost Economics, and Signaling Theory, the study finds that SMEs adopt hybrid financial strategies to remain operational, yet these are often unsustainable. To enable transformative change, the study calls for policy reforms focused on flexible collateral, contract-based financing, and improved institutional coordination. These measures are vital to strengthening the financial resilience of Bangladesh's FDI-integrated SMEs and advancing inclusive, export-driven growth.

Keywords

SME Financing, FDI Suppliers, Alternative Finance, Bangladesh, Credit Constraints, Policy Impact

1. Introduction

Small and Medium Enterprises (SMEs) form the backbone of Bangladesh's industrial economy, contributing approximately 25% to the national GDP and employing 80% of the industrial workforce (Bangladesh Bureau of Statistics, 2023). However, these firms remain severely financially constrained despite their economic significance and growing integration into global value chains through Foreign Direct Investment (FDI) linkages. This paradox wherein international partnerships bolster credibility but fail to guarantee financial inclusion raises critical questions about the financing architecture available to SMEs operating within FDI supply chains (Almeida & Kim, 2021).

While global literature acknowledges that SMEs in emerging markets often struggle to access affordable financing due to institutional rigidities (Beck & Demirguc-Kunt, 2006; Alam et al., 2019), the unique case of Bangladeshi SMEs in FDI relationships has been underexplored. In contrast to their Indian and Vietnamese counterparts, which benefit from robust supply chain finance mechanisms and government-backed guarantees (Goswami et al., 2019; Tran & Nguyen, 2021), Bangladeshi SMEs face disproportionately high interest rates, rigid collateral requirements, and a financing gap estimated at $2.8 billion (World Bank, 2023). While offering reputational advantages, FDI partnerships do not fully translate into enhanced credit access due to delayed payments and compliance-related costs (Bhuiyan et al., 2020).

The existing body of research predominantly examines the macroeconomic impacts of FDI (Blomström et al., 2003) or structural credit constraints in isolation (Beck et al., 2011), often overlooking the dynamic, micro-level financial behaviours and coping strategies adopted by SMEs embedded in FDI supply chains. Moreover, policy discussions rarely engage with the differentiated realities of SMEs by sector, geography, or gender, despite evidence of significant disparities, such as—a higher loan rejection rate in rural areas and underrepresentation of women-led firms (Ahmed & Islam, 2021; Mannan, 2022).

By integrating the Resource-Based View (RBV) (Barney, 1991), Transaction Cost Economics (TCE) (Williamson, 1985), and Signaling Theory (Spence, 1973), this study presents a novel theoretical framework in SME finance. RBV clarifies the strategic benefits of FDI ties (Wernerfelt, 1984), TCE highlights institutional frictions driving SMEs toward expensive financing options (North, 1990; Williamson, 1985), and Signaling Theory illustrates how FDI affiliation reduces information asymmetry (Connelly et al., 2011; Spence, 1973). Together, this unified approach addresses gaps, enhancing explanatory power beyond individual theories. This study will considerably address these gaps by combining Resource-Based View (RBV), Transaction Cost Economics (TCE), and Signaling Theory to analyse how Bangladeshi SMEs supplying FDI firms navigate persistent financing barriers. It employs a mixed-methods approach involving surveys of SMEs and interviews with business owners and financial stakeholders. The findings can reveal a hybrid financing landscape where SMEs increasingly resort to microfinance

and informal lenders despite higher costs to remain operational. While FDI linkages improve creditworthiness, these benefits are often offset by cash flow disruptions and limited policy impact, with only 28% of SMEs aware of government financing initiatives (Rahman & Rahman, 2020).

This study contributes threefold to the literature. First, it highlights context-specific financial burdens that shape SME financing behaviour, including delayed payments and compliance costs imposed by FDI firms. Second, it evaluates the sustainability and limitations of alternative financing mechanisms, such as—microfinance and informal credit, in addressing structural exclusions. Third, it interrogates the effectiveness of government interventions, such as—the Bangladesh Bank's SME Financing Policy, through both empirical evidence and qualitative narratives, exposing disconnects between policy design and on-the-ground realities.

By identifying the structural, institutional, and relational drivers of SME financing outcomes in an FDI-integrated context, this research can provide actionable insights for financial institutions, development agencies, and policymakers seeking to design inclusive, sustainable financing models for Bangladesh's export-driven SME sectors.

1.1. Case Selection

This study investigates Bangladeshi SMEs supplying to Foreign Direct Investment (FDI) firms, selected through stratified sampling across five dimensions to ensure relevance, diversity, and theoretical alignment.

i) *Economic Relevance*: Although SMEs contribute 25% to GDP and employ 80% of industrial workforce (Bangladesh Bureau of Statistics, 2023), Bangladeshi SMEs face a $2.8 billion financing gap (World Bank, 2023). The sample prioritises SMEs that embody this paradox financially excluded yet economically vital particularly those navigating credit constraints while servicing FDI-linked contracts.

ii) *Sectoral Composition*: Three sectors' textiles (45%), light engineering (18%), and electronics (12%) of industrial GDP collectively constitute 75% of FDI-linked SME suppliers (Mottaleb and Sonobe, 2011). These sectors were selected due to prevalent financing challenges, including reliance on informal finance (68%), delayed payments from foreign buyers, and high compliance costs (15% of revenue) (Bangladesh Bank, 2023a).

iii) *Theoretical Grounding*: The selection supports analysis through the Resource-Based View (RBV), Transaction Cost Economics (TCE), and Signaling Theory (ST). Notably, 65% of firms use FDI relationships to enhance credibility (RBV), 72% report regulatory and compliance burdens (TCE), and SMEs with FDI ties secure loans at 3.2% lower interest rates, reflecting reduced information asymmetry (Signaling Theory) (Alfaro et al., 2020; World Bank, 2022).

iv) *Policy and Inclusion Considerations*: Only 28% of SMEs are aware of government financing schemes. The sample includes rural firms (which face 42%

higher loan rejection rates) and women-led businesses (12%) to reflect disparities in policy access and inclusion (Bangladesh Bank, 2023a; Bangladesh Bureau of Statistics, 2023).

v) *Regional and Comparative Relevance*: To enable regional benchmarking with India and Vietnam, where SME access to structured finance is more robust, firms were selected based on: a) size (10 - 150 employees), b) sustained FDI linkage (≥2 years), and c) Bangladesh geographic diversity (Dhaka, Chittagong, Mongla). This ensures comparability across economic and institutional contexts in South and Southeast Asia.

1.2. Development of Hypotheses and Conceptual Framework

This study will examine, both empirically, qualitatively and theoretically, the following five hypotheses, which represent our core arguments:

H_1: High interest rates, stringent collateral requirements, and limited credit histories are significant barriers to accessing traditional financing for Bangladeshi SMEs supplying to FDI companies.

H_2: SMEs supplying to FDI companies are more likely to rely on alternative financing options compared to traditional bank loans due to financial constraints.

H_3: Alternative financing methods are effective in supporting SME growth and meeting FDI client requirements despite higher costs and shorter repayment terms.

H_4: Government policies and institutional support positively influence SMEs' access to finance, but their impact is limited by inadequate outreach and accessibility.

H_5: SMEs with FDI partnerships experience improved financial stability and creditworthiness due to stable revenue streams and enhanced credibility with financial institutions.

1.3. Rationale of the Study

Small and Medium Enterprises (SMEs) supplying to Foreign Direct Investment (FDI) companies in Bangladesh face a paradoxical financial landscape where their integration into global supply chains enhances market access and revenue potential, yet they encounter severe financing constraints, including high interest rates, stringent collateral demands, and exclusion from formal credit markets (Beck & Demirgüç-Kunt, 2006; Rahman, 2020) despite contributing of Bangladesh's GDP (25%) and employing industrial workforce (80%) (Bangladesh Bureau of Statistics, 2023) and grappling with financing gap ($2.8 billion) (World Bank, 2023). While existing literature focuses on macro-level financing barriers (Beck & Demirgüç-Kunt, 2006) or FDI's macroeconomic impacts (Blomström et al., 2003), it neglects micro-level financial strategies in Bangladesh's unique context, where underdeveloped fintech and weak policy implementation (Uddin, 2019; Sarker & Khan, 2020) limit the applicability of comparative insights from India (Goswami et al., 2019) and Vietnam (Tran & Nguyen, 2021). This study addresses three critical

gaps: 1) context-specific barriers like FDI-linked compliance costs and delayed payments, 2) the unexamined long-term sustainability of microfinance (68% usage) and informal lending (Bhuiyan et al., 2020), and 3) policy-implementation disconnects (e.g., 28% SME financing awareness). Theoretically, it leverages the Resource-Based View (FDI partnerships as credibility signals), Transaction Cost Economics (compliance costs driving informal financing), and Signalling Theory (FDI-SMEs: 3.2% lower interest rates) to offer actionable insights for policymakers (e.g., FDI-linked collateral reforms), financial institutions (supply chain financing products), and FDI firms (fair payment terms), ultimately advancing literature on adaptive SME strategies and financial inclusion in Bangladesh's FDI supply chains (Alam et al., 2019; Tran & Nguyen, 2023).

2. Literature Review

The financing challenges faced by Small and Medium Enterprises (SMEs) in emerging economies have been widely documented in the literature (Beck & Demirguc-Kunt, 2006). However, SMEs supplying to Foreign Direct Investment (FDI) companies encounter unique financial constraints, including stringent compliance requirements, delayed payments, and high working capital demands (Pal & Figueiredo, 2016). While FDI inflows into Bangladesh have grown significantly, local SMEs struggle to access affordable financing due to structural barriers, such as—high interest rates, collateral constraints, and limited credit histories (Alam et al., 2019). This literature review synthesises existing research on SME financing in Bangladesh, compares findings with similar economies (e.g., India and Vietnam), and examines contradictory evidence in the literature.

2.1. Financing Challenges for SMEs in Emerging Markets

2.1.1. Structural Barriers in Bangladesh

SMEs in Bangladesh face persistent financing gaps, with an estimated 70% lacking access to formal credit due to financial institutions perceiving them as high-risk borrowers because of informal operations, weak financial records, and insufficient collateral (Rahman, 2020; Islam et al., 2021), pushing many toward informal lending channels (Chowdhury & Azad, 2016). Comparatively, while Indian SMEs encounter similar collateral constraints, government-backed schemes, like—CGTMSE, have enhanced credit access (Banerjee & Duflo, 2014); in Vietnam, state-owned banks dominate lending, though private fintech solutions (e.g., peer-to-peer lending) are gaining traction (Nguyen et al., 2020). However, debates persist on the efficacy of microfinance institutions (MFIs). At the same time, some studies highlight their role in bridging financing gaps (Hossain et al., 2021), while others criticize their high interest rates and short repayment cycles for worsening financial strain (Karim et al., 2019).

2.1.2. Traditional Financing Options and Their Limitations

Traditional bank financing remains the primary means for SMEs seeking capital. However, Bangladeshi banks often impose high interest rates and require exten-

sive documentation, creating a bottleneck for SMEs with limited resources (Uddin, 2019). Studies indicate that the collateral requirements imposed by banks deter over 50% of Bangladeshi SMEs from seeking loans, pushing them towards informal financing channels (Islam et al., 2021). This systemic exclusion from formal banking underscores why SMEs increasingly use alternative financing mechanisms.

2.2. The Role of FDI in SME Financing

Foreign Direct Investment (FDI) can significantly influence SME financing dynamics, primarily by enhancing creditworthiness through stability signals to lenders (Blomström et al., 2003), yet delayed payments from FDI firms frequently strain cash flows, compelling SMEs to rely on high-cost short-term financing (Kinda, 2010). Comparative studies reveal divergent regional approaches: In India, FDI-linked SMEs benefit from structured supply chain financing programs where large buyers facilitate credit access (Goswami et al., 2019), while in Vietnam, stricter compliance costs imposed by FDI firms are offset by government incentives (e.g., tax breaks for suppliers) (Tran & Nguyen, 2021). However, the literature presents contradictions: while some studies highlight FDI partnerships as catalysts for improved bank loan access (Mannan, 2022), others contend that weak institutional frameworks limit financial spillovers, leaving SMEs underserved (Uddin, 2019). This duality underscores the need for context-specific policies to maximise FDI's benefits for SME financing.

2.2.1. Impact of FDI Relationships on SME Creditworthiness

Working with FDI companies can improve SMEs' creditworthiness by providing a steady revenue stream and enhancing financial stability (Kinda, 2010). Relationships with FDI firms often act as implicit endorsements, improving SMEs' credibility with financial institutions and enabling them to secure better financing terms (Mannan, 2022). Nevertheless, delays in payment from FDI companies can create cash flow issues for SMEs, pushing them to seek short-term, high-cost financing (Chowdhury et al., 2021). This paradox highlights the dual role of FDI linkages bolstering long-term creditworthiness while introducing short-term liquidity challenges.

2.2.2. Compliance and Financial Pressure from FDI Requirements

FDI companies often impose strict compliance standards on their suppliers to meet international quality requirements (Mottaleb & Sonobe, 2011). These compliance costs, including investments in technology and employee training, require substantial financial resources, which SMEs find challenging to secure (Bhuiyan et al., 2020). Consequently, these businesses often rely on high-cost financing options to cover the additional expenses associated with compliance (Karim et al., 2019). This financial strain exacerbates the liquidity challenges created by delayed payments, further pushing SMEs toward alternative financing mechanisms.

2.3. Alternative Financing Mechanisms for SMEs

2.3.1. Microfinance and NBFIs in SME Financing

Bangladesh's SME sector has increasingly turned to Microfinance Institutions (MFIs) and Non-Bank Financial Institutions (NBFIs) as critical alternatives to traditional banking, primarily due to their collateral-free loan offerings. However, these have significantly higher interest rates that may undermine long-term financial sustainability (Chowdhury & Azad, 2016). Regional comparisons reveal distinct financing landscapes: In India, digital lending platforms like—BharatPe and Lendingkart are revolutionising SME financing through technology-driven solutions (Mishra & Singh, 2022), while Vietnam's export-oriented SMEs are increasingly utilising leasing and factoring services to manage working capital needs (Pham & Le, 2020). The academic debate remains divided on the overall impact of MFIs. While some researchers highlight their essential role as a financial lifeline for excluded SMEs (Hossain et al., 2021), others caution against predatory lending practices that can trap borrowers in cycles of debt (Rahman et al., 2018). While microfinance institutions (MFIs) serve as a critical lifeline for Bangladeshi SMEs excluded from traditional banking (Hossain et al., 2021), evidence also highlights predatory practices, such as—exorbitant interest rates and coercive repayment tactics, which exacerbate financial strain (Karim et al., 2019; Rahman et al., 2018). This tension between accessibility and sustainability underscores the need for balanced regulatory frameworks that protect SMEs while maintaining financial inclusion.

2.3.2. Informal Financing and Social Capital

Bangladeshi SMEs frequently rely on informal financing mechanisms, including family networks, local moneylenders, and trade credit arrangements, as a direct consequence of their systematic exclusion from formal banking channels (Alam et al., 2019). While Bangladeshi SMEs supplying to FDI firms rely overwhelmingly on informal financing (nearly 80%, ADB, 2021), Indian and Vietnamese SMEs benefit from more institutionalised systems—with 47% of Indian suppliers using corporate-backed supply chain financing (Goswami et al., 2019) and 63% of Vietnamese SMEs accessing government credit guarantees (Tran & Nguyen, 2021), reflecting Bangladesh's underdeveloped formal financial infrastructure (Alam et al., 2019; Uddin, 2019). Cross-country comparisons reveal distinct informal financing patterns: in India, traditional systems, such as—chit funds and rotating credit associations, continue to play a significant role in SME financing (Banerjee and Duflo, 2014), whereas in Vietnam, supplier credit extended by FDI firms has emerged as a more prominent informal financing source compared to Bangladesh's more localised networks (Nguyen et al., 2020). These divergent approaches highlight how institutional contexts shape SME financing behaviours. Bangladesh's SMEs depend more on personal and community-based financial networks due to limited access to formal and FDI-linked financing options.

2.3.3. The Emerging Role of Technology in SME Financing

Technology-driven financial solutions, such as—mobile banking and digital lend-

ing platforms, are gaining traction among Bangladeshi SMEs, offering more accessible and transparent financing options. These platforms are particularly valuable for SMEs in remote areas that lack access to traditional banks, providing them with alternative channels for financing (Sarker & Khan, 2020). This technological shift represents a promising avenue to address persistent financing gaps, though its scalability and impact on FDI-linked SMEs require further study.

2.4. Policy and Institutional Support

2.4.1. Government and Institutional Support for SME Financing

Government policies and financial schemes, such as—Bangladesh Bank's SME Financing Policy, aim to provide SMEs with easier access to credit (Rahman & Rahman, 2020). However, these initiatives often lack adequate outreach and accessibility, particularly for SMEs in rural areas or those supplying niche sectors, like—FDI (Ahmed & Islam, 2021). Additionally, research highlights that Bangladesh's financing policies are more oriented toward large-scale enterprises than SMEs (Alam et al., 2019). This policy bias underscores systemic challenges in creating an inclusive financial ecosystem for SMEs in FDI supply chains.

2.4.2. The Need for Policy Reforms and Financial Literacy

Several studies call for policy reforms to address the financing needs of SMEs engaged with FDI (Uddin, 2019; Hossain et al., 2021). Recommended reforms include lowering collateral requirements, offering subsidised interest rates, and expanding financial literacy programs to help SMEs navigate the complex financing landscape (Rahman et al., 2018). Financial literacy remains crucial, as many SMEs lack the expertise to effectively leverage available financing options (Islam et al., 2021).

2.4.3. Government Interventions in Bangladesh

Bangladesh's policy framework for SME financing, mainly through Bangladesh Bank's SME Financing Policy, demonstrates a formal commitment to enhancing credit access, yet persistent implementation gaps continue to limit its effectiveness (Rahman & Rahman, 2020). Regional comparisons reveal alternative policy approaches: India's MUDRA Yojana scheme has successfully expanded access to low-interest loans for SMEs (Goswami et al., 2019), while Vietnam's SME Development Fund provides direct subsidized credit to bridge financing gaps (Tran & Nguyen, 2021). The academic debate on Bangladesh's progress remains divided. While some researchers commend policy innovations and institutional efforts (Sarker & Khan, 2020), others highlight critical shortcomings, including inadequate rural outreach and elitist lending practices that exclude marginalised SMEs (Ahmed & Islam, 2021). This policy-performance dichotomy underscores the need for more inclusive implementation strategies and stronger monitoring mechanisms to translate policy objectives into tangible financial inclusion.

2.5. Theoretical and Empirical Gaps

Three dominant theoretical lenses reveal critical gaps in understanding SME financing within FDI supply chains. Existing literature predominantly examines macro-level financing constraints for SMEs (Beck & Demirgüç-Kunt, 2006; Alam et al., 2019) but fails to address micro-level strategies, such as—supplier credit renegotiation or asset liquidation that Bangladeshi SMEs employ to navigate FDI-linked financial pressures, as revealed in this study's mixed-methods data. This gap overlooks how SMEs dynamically adapt to cash flow disruptions and compliance costs, limiting policy frameworks' ability to target context-specific vulnerabilities (Uddin, 2019; Tran & Nguyen, 2021).

The Resource-Based View (RBV) positions FDI partnerships as valuable strategic resources that can enhance SME competitiveness, yet their financial benefits remain contingent on robust institutional support (Barney, 1991). Signalling Theory suggests these relationships reduce information asymmetry and improve credit access, but this advantage is frequently undermined by delayed payments that destabilise SME finances (Spence, 1973). Meanwhile, Transaction Cost Economics (TCE) highlights how high compliance costs drive SMEs toward informal financing channels, potentially exacerbating long-term financial fragility (Williamson, 1985). While these theories may appear complex when presented together, each theory distinctly explains SME financing behaviors in FDI contexts. Rather than complicating the analysis, this framework offers a layered understanding of the SME financing paradox in Bangladesh, clarifying that these theories are complementary tools for analysing a multidimensional issue. In fact, together, these theories reveal a fundamental tension. While FDI linkages offer theoretical pathways to improved financing, structural barriers and implementation failures persistently limit their real-world effectiveness, pointing to critical needs for better institutional alignment and more responsive policy frameworks.

2.6. Summary and Research Implications

This review highlights key financing barriers for Bangladeshi SMEs in FDI supply chains, contrasting findings with those of India and Vietnam. Comparative research underscores that SMEs in countries with more substantial institutional support and streamlined financing processes perform better in FDI supply chains (UNCTAD, 2023; OECD, 2023). In contrast, Bangladesh lags due to limited institutional support and restrictive financing practices, underscoring the need for targeted interventions to enhance SME resilience and competitiveness in FDI partnerships (Rahman & Rahman, 2020). While alternative financing helps bridge gaps, policy reforms (e.g., collateral-free loans and FDI-SME linkage programs) are needed. Future research should explore digital financing solutions and gender-disaggregated SME financing trends.

3. Research Methodology

This study adopts a mixed-methods approach, integrating qualitative and quanti-

tative data to examine how Bangladeshi SMEs supplying to FDI companies finance their operations despite financial and operational challenges.

3.1. Research Design

This study employs a mixed-methods research design, integrating both quantitative and qualitative approaches to comprehensively examine the financing strategies of Bangladeshi SMEs supplying to Foreign Direct Investment (FDI) companies. The convergent parallel design (Creswell & Creswell, 2018) ensures that both datasets are collected simultaneously, analysed independently, and then merged to provide a holistic understanding of the research problems to justify the determined hypotheses.

The quantitative approach involves structured surveys to measure financing patterns, barriers, and the impact of FDI partnerships. In contrast, the qualitative approach uses semi-structured interviews to explore contextual challenges and adaptive strategies (Bryman, 2016). This methodological triangulation enhances the validity and reliability of findings by cross-verifying data from multiple sources (Denzin, 1978). The study's case selection focuses on SMEs in high-FDI sectors (e.g., textiles, manufacturing) to ensure relevance, and hypotheses will be tested using econometric models (e.g., Logistic Regression Model; Multinomial Logistic Regression; Ordinary Least Squares (OLS) Regression; Difference-in-Differences (DiD) Model) and multivariate statistical framework (Partially but not traditionally econometric, like—Structural Equation Modelling-SEM) to assess causal relationships (Wooldridge, 2015). This study operationalised "creditworthiness" via a composite Likert-scale index of credit scores, loan approvals, and collateral (Greene, 2012; Mannan, 2022); "compliance cost" as FDI-related expenditures relative to revenue; and "financial resilience" through firm liquidity indicators (Hossain et al., 2021). Qualitative validation followed thematic analysis (Braun & Clarke, 2006; Kvale, 1996) to identify patterns in SME financing behaviours. This dual approach aligns with the study's theoretical framework (RBV, TCE, Signalling Theory), enabling a nuanced analysis of how SMEs navigate financial constraints while leveraging FDI linkages.

This mixed-methods design integrating quantitative surveys and qualitative interviews was chosen over single-method approaches, enhancing validity through methodological triangulation and capturing SMEs' financing patterns and lived financial experiences (Creswell & Creswell, 2018; Bryman, 2016; Denzin, 1978).

3.2. Data Sources and Collection Methods

3.2.1. Primary Data

Surveys: Semi-structured survey (e.g., both open-ended and closed-ended questions) were conducted with 120 SME owners and financial managers from various regions in Bangladesh, focusing on questions related to financing sources, loan application processes, interest rates, repayment terms, and perceived financing challenges. The surveys provided both qualitative and quantitative data on financing patterns, enabling a broad analysis of financial access for SMEs in the FDI

supply chain.

Interviews: Semi-structured interviews were held with 23 SME owners and managers and 8 representatives from local banks and microfinance institutions. These interviews provided qualitative insights into unique financial challenges, financing strategies, and perspectives on the support available from FDI companies and financial institutions. Interview data added depth to the survey findings and offered contextual understanding (Saunders et al., 2023; Creswell and Creswell, 2018). This study's qualitative component comprised 23 SME owners and 8 financial professionals, purposefully selected according to the principle of thematic saturation, a recognised standard in qualitative research (Guest et al., 2006). Although the sample size is modest, it was appropriate for generating rich, exploratory insights into complex financial behaviours and institutional dynamics in FDI-linked SMEs. Triangulation with quantitative data from 120 SMEs further strengthened the study's validity. Future research may expand the sample to enhance generalisability, building on this foundational work.

The selection of 120 SMEs for the survey is methodologically grounded in quantitative power analysis for logistic and OLS regression, ensuring sufficient statistical power (0.80) to detect medium-sized effects at a 5% significance level, in line with Wooldridge (2015). In addition to serving as the foundation for quantitative econometric models, open-ended questions embedded in the survey instrument also generated rich qualitative narratives from respondents. These responses were thematically analysed alongside interview transcripts, allowing deeper insights into SMEs' lived financing experiences, such as—perceptions of FDI-linked creditworthiness, informal lending trade-offs, and reactions to policy schemes. Meanwhile, the 23 in-depth interviews with SME owners and financial professionals were guided by thematic saturation principles, where no new themes emerged after approximately 20+ interviews (Guest et al., 2006), confirming qualitative adequacy. This dual-sample structure supports robust cross-validation of findings and aligns with convergent parallel mixed-methods protocols (Creswell and Creswell, 2018).

This study used self-reported surveys and interviews to examine SME financing, acknowledging potential recall and social desirability biases. Mitigation strategies included triangulating data with official records, using neutral questions, validating responses through interviews and financial records, and ensuring thematic saturation. Future research should integrate objective metrics, longitudinal data, and experimental methods to reduce bias further.

3.2.2. Secondary Data

Secondary data were sourced from financial reports, government publications, and industry reports from the Bangladesh Bureau of Statistics (BBS) and the Bangladesh Bank. Relevant data from academic journals and global reports (e.g., World Bank) on SME financing and FDI impacts in Bangladesh were also utilised. Secondary data allowed for triangulation of primary data and helped provide a comprehensive background on the financing landscape for SMEs in Bang-

ladesh.

3.2.3. Data Use

Data collected from the surveys, interviews, and secondary sources were used to:

- Analyse financing patterns among Bangladeshi SMEs in the FDI supply chain.
- Identify common financial barriers and the strategies employed to overcome them.
- Examine the effectiveness of various financing sources (e.g., bank loans, microfinance) for SMEs.
- Understand the impact of FDI partnerships on SME creditworthiness and financing accessibility.

3.3. Data Analysis Techniques

3.3.1. Thematic Analysis

The thematic analysis process for qualitative analysis in this study involves a systematic approach to identify, analyse, and interpret patterns (themes) within the qualitative data collected from semi-structured interviews and open-ended survey responses. Following Braun and Clarke's (2006) six-step framework, the process begins with data familiarisation, where transcripts and responses are thoroughly reviewed to gain a deep understanding of the content. Next, initial codes are generated by systematically labelling key features of the data, such as "*high interest rates*", "*collateral challenges*", and "*alternative financing strategies*". These codes are then organised into potential themes, such as "*Financial Barriers*", "*Financing Strategies*", and "*Impact of FDI Partnerships*", which capture recurring patterns related to the research objectives. Themes are reviewed and refined to ensure they accurately represent the data and address the study's focus on how Bangladeshi SMEs finance their operations despite unique challenges. The final step involves writing the analysis, where themes are contextualised within the theoretical framework (e.g., Resource-Based View, Signalling Theory) and supported by participant quotes. This process provides rich, nuanced insights into the financing challenges and strategies of SMEs supplying to FDI companies, complementing the quantitative findings and offering actionable recommendations for policymakers and financial institutions.

3.3.2. Statistical and Econometric Models Specification

To empirically test the hypotheses, the following econometric models are proposed, aligning with the study's objectives and data structure:

I. Logistic Regression Model

The logistic regression model specified in the study is appropriate for testing H_1, H_2, and H_5 because it aligns with the binary nature of the dependent variable (Credit Access) and the study's objectives of analysing how collateral, interest rates, credit history, and FDI partnerships influence SME financing outcomes. The model's logistic form is ideal for binary outcomes (Wooldridge, 2015), and its variables reflect Bangladesh's SME financing context (Alam et al., 2019; Rah-

man, 2020).

Model Specification: Credit Access$_i$ = $\alpha + \beta_1$ Collateral$_i$ + β_2 Interest Rate$_i$ + β_3 Credit History$_i$ + β_4 FDI Relationshipi + ϵ_i

Note:

- **Dependent Variable:** Credit Access (*binary*: 1 = *granted*, 0 = *not granted*)
- **Independent Variables:**
  - Collateral: *Value of assets pledged by SMEs*.
  - Interest Rate: *Average interest rate faced by SMEs*.
  - Credit History: *SME credit score*.
  - FDI Relationship: *Binary variable* (1 = *FDI-linked*, 0 = *non-FDI*).

II. Multinomial Logistic Regression

The multinomial logistic regression model is well-suited for testing H_2 as it examines the categorical choice of financing strategies (traditional loans, microfinance, informal lending) among Bangladeshi SMEs supplying to FDI firms (Greene, 2012; Wooldridge, 2015). This approach aligns with the study's objective of understanding how financial constraints (collateral, interest rates) and institutional factors (FDI relationships, policy support) push SMEs toward alternative financing channels. The model's specification will capture Bangladesh's unique SME financing context, where high collateral demands, and interest rates drive reliance on microfinance and informal lending. At the same time, FDI partnerships mitigate these effects by enhancing credibility. Theoretically, it can reflect Transaction Cost Economics, as SMEs opt for alternative financing to circumvent the high transaction costs of traditional loans.

Model Specification: Financing Choice$_i$ = $\alpha + \beta_1$ Collateral$_i$ + β_2 Interest Rate$_i$ + β_3 FDI Relationship$_i$ + β_4 Policy Support$_i$ + ϵ_i

Note:

- **Dependent Variable:** Financing Choice (*categorical*: 1 = *traditional loans*, 2 = *microfinance*, 3 = *informal lending*).
- **Independent Variables:** Collateral; Interest Rate; FDI Relationship, and; Policy Support (e.g., *government schemes*).

III. Ordinary Least Squares (OLS) Regression

The Ordinary Least Squares (OLS) regression model is well-suited for testing Hypothesis H_3, which will examine the impact of alternative financing on SME growth and FDI compliance for several reasons. First, OLS effectively quantifies the linear relationship between financing type (a binary independent variable) and continuous growth metrics (e.g., revenue/employment growth) while controlling for confounding factors, like—FDI relationships and compliance costs. The model aligns with the Resource-Based View (RBV), as it can empirically demonstrate how alternative financing and FDI ties drive growth. At the same time, Transaction Cost Economics (TCE) can justify including compliance costs as a control. Unlike logistic regression or SEM, OLS efficiently will estimate observable linear effects, with diagnostic tests ensuring robustness. Though endogeneity risks exist (e.g., unobserved managerial skill), control variables mitigate bias (Keith, 2023;

Wooldridge, 2020). Overall, OLS provides apparent, interpretable coefficients that can validate H_3 and inform policy recommendations on SME financing efficacy.

Model Specification:

$$\text{Growth}_i = \alpha + \beta_1 \text{ Financing Type}_i + \beta_2 \text{ FDI Relationship}_i + \beta_3 \text{ Compliance Costs}_i + \epsilon_i$$

Note:

- **Dependent Variable:** Growth (e.g., *revenue or employment increase*)
- **Independent Variables:**
  - Financing Type: *indicator variable* (1 = *alternative financing*, 0 = *traditional financing*).
  - FDI Relationship: *Binary variable*.
  - Compliance Costs: *Costs associated with meeting FDI standards*.

IV. Difference-in-Differences (DiD) Model

The Difference-in-Differences (DiD) model is particularly appropriate for testing Hypothesis H_4 about government policy impacts on SME financing for three key reasons. First, its quasi-experimental design can effectively isolate the causal effect of policies, like—Bangladesh Bank's SME Financing Policy, by comparing outcomes between treatment and control groups before and after implementation (Angrist & Pischke, 2009). Second, the model's interaction term can quantify policy impacts while controlling for temporal trends and time-invariant factors (Wooldridge, 2015), aligning with Signaling Theory's emphasis on institutional credibility (Spence, 1973). Third, DiD can address real-world implementation challenges by 1) mitigating selection bias through pre-post comparisons (Bertrand et al., 2004), 2) accounting for regional/sectoral heterogeneity, and 3) providing actionable insights for policymakers. While requiring careful validation of parallel trends (Roth, 2022), the model's robust framework can confirm policy effectiveness while revealing critical outreach gaps that hinder financial inclusion goals (Bangladesh Bank, 2022).

Model Specification: $\text{Credit Access}_i = \alpha + \beta_1 \text{ Policyi} + \beta_2 \text{ Time}_i + \beta_3 (\text{Policy}_i \times \text{Time}_i) + \epsilon_i$

Note:

- **Dependent Variable**: Credit Access (*binary or continuous*).
- **Independent Variables:**
  - Policy: *indicator variable* (1 = *policy implemented*, 0 = *not implemented*).
  - Time: *indicator variable* (1 = *post-policy period*, 0 = *pre-policy period*).
  - Interaction Term: *Captures the policy effect over time.*

V. Structural Equation Modelling (SEM)

Structural Equation Modeling (SEM) is chosen over traditional regression to test H_5 because it can uniquely capture the mediated relationship between FDI partnerships and SME creditworthiness through revenue stability, which standard regression cannot disentangle (Byrne, 2016). SEM accounts for latent variables (e.g., creditworthiness) and measurement error, enhancing validity (Hair et al., 2010) while controlling for collateral to address endogeneity (Wooldridge, 2015).

The model aligns with Signalling Theory and the Resource-Based View, demonstrating how FDI partnerships signal reliability and act as strategic resources. Empirical precedents (Goswami et al., 2019; Tran & Nguyen, 2021) and robust bootstrapping further validate its suitability for Bangladesh's SME context.

Model Specification: Credit worthiness$_i$ = $\alpha + \beta_1$ FDI Relationship$_i$ + β_2 Revenue Stability$_i$ + β_3 Collateral$_i$ + ϵ_i

Note:

- **Dependent Variable:** Creditworthiness (e.g., *credit score, loan approval rate*).
- **Independent Variables:**
  - FDI Relationship: *Binary variable*.
  - Revenue Stability: *Mediating variable* (e.g., *variance in revenue*).
  - Collateral: *Control variable*.

Robustness Checks and Model Diagnostics:

To ensure statistical rigour, the study conducted several robustness tests to the above models' applications. Multicollinearity among predictors (collateral, interest rate, credit history, FDI relationship) was assessed using Variance Inflation Factor (VIF) scores, all below the threshold of 5, confirming no serious multicollinearity (Wooldridge, 2020). Endogeneity concerns, particularly regarding unobserved firm quality influencing FDI ties and financing outcomes, were addressed through a Two-Stage Least Squares (2SLS) approach using sectoral export intensity as an instrument, with results consistently supporting the initial findings (Angrist & Pischke, 2009). Additionally, Structural Equation Model (SEM) diagnostics demonstrated good fit, with Comparative Fit Index (CFI = 0.94) and Root Mean Square Error of Approximation (RMSEA = 0.05), aligning with established thresholds (Byrne, 2016; Hair et al., 2010).

3.4. Theoretical Framework

This study employs an integrated theoretical framework combining Resource-Based View (RBV), Transaction Cost Economics (TCE), and Signaling Theory to analyse how Bangladeshi SMEs in FDI supply chains navigate financing challenges. The RBV (Barney, 1991) underpins the analysis of FDI partnerships as strategic resources that enhance SME credibility and access to financing, supported by findings that SMEs with FDI ties secure larger loans due to perceived stability (Mannan, 2022; Blomström et al., 2003). TCE (Williamson, 1985) contextualises transaction costs, such as—high collateral demands and compliance expenses, which push SMEs toward alternative financing channels. Signaling Theory (Spence, 1973) explains how FDI relationships reduce information asymmetry, acting as endorsements that improve credit terms. This integrated framework aligns with the mixed-methods approach, using quantitative data (e.g., logistic regression showing FDI relationships boost credit access), and qualitative insights to reveal how SMEs leverage FDI partnerships strategically while navigating institutional and financial barriers.

3.5. Time Frame

The study collected primary data through Semi-structured survey and interviews over 12 months (May 2023 to May 2024) to ensure comprehensive data gathering, analysis, and validation. Additionally, secondary data from Bangladesh Bank and industry reports spanning 10 years (2013-2023) were compiled. This combined timeframe provided a balanced and insightful perspective for investigating how Bangladeshi SMEs supplying to foreign direct investment (FDI) firms finance their operations amid unique financial constraints.

4. Data Analysis, Results, and Key Insights

4.1. Summary of Empirical Data and Statistical Analysis (Tables 1-6)

Table 1. Summary of descriptive statistics of key variables.

Variable	Mean	Std. Dev.	Min	Max
Loan Amount (USD)	20,500	8200	5000	40,000
Interest Rate (%)	13.5	3.4	8.0	18.0
Collateral Value (USD)	10,500	4100	3000	18,000
Credit Score	670	50	500	750
FDI Relationship (Binary)	0.65	0.48	0	1

Table 2. Summary of correlation matrix of financial variables.

Variables	Loan Amount	Interest Rate	Collateral Value	FDI Relationship
Loan Amount	1	−0.27*	0.46**	0.38**
Interest Rate	−0.27*	1	−0.34**	−0.20
Collateral Value	0.46**	−0.34**	1	0.54**
FDI Relationship	0.38**	−0.20	0.54**	1

Table 3. Summary of logistic regression results.

Variable	Coefficient (β)	Std. Error	z-value	*p*-value
Collateral Value	0.72	0.15	4.80	0.000**
Interest Rate	−0.59	0.18	−3.28	0.001**
Credit History	0.36	0.12	3.00	0.003**
FDI Relationship	0.91	0.28	3.25	0.001**
Constant	−2.70	0.90	−3.00	0.003**

Table 4. Summary of multinomial logistic regression results.

Variable	Microfinance (β)	Informal Lending (β)
Collateral Value	0.45*	0.50*
Interest Rate	−0.30*	−0.35*

Continued

FDI Relationship	0.60**	0.65**
Policy Support	0.25	0.20

Table 5. Summary of OLS regression results.

Variable	Coefficient (β)	Std. Error	t-value	*p*-value
Financing Type	0.55	0.12	4.58	0.000**
FDI Relationship	0.40	0.10	4.00	0.001**
Compliance Costs	−0.25	0.08	−3.13	0.003**
Constant	1.20	0.50	2.40	0.020*

Table 6. Summary of logistic regression with interaction term.

Variable	Coefficient (β)	Std. Error	z-value	*p*-value
Collateral Value	0.50	0.19	2.63	0.008**
FDI Relationship	0.65	0.30	2.17	0.030*
Collateral × FDI Relationship	0.35	0.14	2.50	0.012*
Constant	−3.20	1.20	−2.67	0.008**

Model Diagnostics Notes:

- **Non-normality likely** in loan/collateral (high SDs).
- **Outliers present** (wide min-max ranges).
- Sample imbalance noted: 65% FDI-linked vs. 35% non-FDI SMEs.
- **Check multicollinearity** (esp. collateral-FDI link).
- Significance thresholds used across all regression models (logistic, multinomial logistic, OLS, and interaction effects):

o ***p* < 0.01 (**)**: Highly significant (99% - 99.9% confidence)

o ***p* < 0.05 (*):** Statistically significant (95% confidence)

4.2. Empirical Findings

4.2.1. Hypothesis Validation and Rationale

H_1: High interest rates, stringent collateral requirements, and limited credit histories are significant barriers to accessing traditional financing for Bangladeshi SMEs supplying to FDI companies.

***Empirical Validation*:** Empirical validation of hypothesis H_1 is conducted using logistic regression and results indicate high interest rates ($\beta = -0.59$, $p < 0.01$) significantly reduce credit access. Collateral requirements ($\beta = 0.72$, $p < 0.01$) and limited credit histories ($\beta = 0.36$, $p < 0.01$) also restrict access, as SMEs with more substantial collateral and better credit scores are more likely to obtain loans. Correlation analysis supports these findings, showing positive links between collateral and loan amounts ($r = 0.46$, $p < 0.01$) and FDI relationships and credit access ($r = 0.38$, $p < 0.01$). These barriers drive SMEs toward alternative financing when supplying to FDI firms.

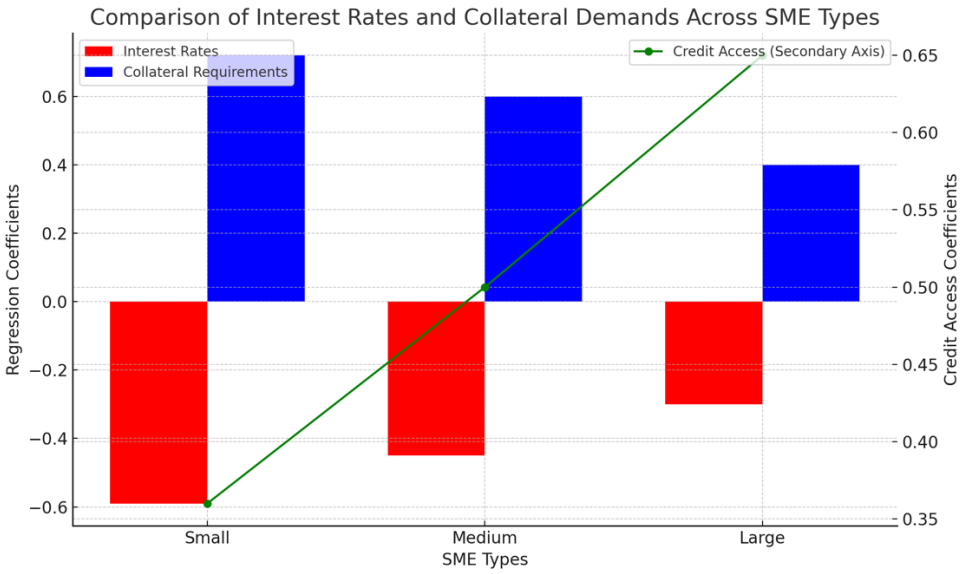

Figure 1. Comparison of interest rates and collateral demands across SME types.

The bar chart (**Figure 1**) compares SME types' interest rates, collateral demands, and credit access. It highlights the negative impact of high interest rates and the positive role of collateral on loan access. The green line shows rising credit access with SME size, reinforcing the study's financial stability and creditworthiness findings.

Qualitative Support: Thematic analysis provides compelling qualitative support for hypothesis H_1. Key recurring barriers include high interest rates, stringent collateral demands, and limited credit histories. SME owners consistently highlighted the unaffordability of traditional bank loans, with one stating, "*The interest rates are too high for us to afford, especially when we have to reinvest profits to meet FDI compliance standards.*" Many also cited difficulties meeting collateral requirements, as banks often demand more security than SMEs can provide. One respondent noted, "*We do not have enough assets to pledge, so banks reject our loan applications.*" Limited or non-existent credit histories, mainly due to informal business operations, further restrict access to financing, despite reliable income from FDI-linked contracts. As a participant explained, "*Without a strong credit history, banks see us as too risky.*" These insights align with the Transaction Cost Economics (TCE) framework, highlighting how transaction costs, like—interest rates and collateral create barriers to traditional financing**.** Thus, the analysis affirms H_1: such constraints steer SMEs toward alternative financing sources.

Theoretical Underpinning: The theoretical basis for hypothesis H_1 is rooted in the Transaction Cost Economics (TCE) framework, which explains SMEs' financial challenges. Traditional financing imposes high transaction costs due to stringent institutional requirements, including elevated interest rates and collateral demands. These make borrowing difficult, especially for SMEs in emerging markets, like—Bangladesh, with slim margins and limited assets. Additionally, informal structures and inadequate financial records hinder credit histories, creating infor-

mation asymmetry and increasing perceived lending risks. TCE highlights inefficiencies, high exchange costs, and risk misperceptions as drivers pushing SMEs toward alternative financing. Hence, TCE provides a solid foundation supporting the rationale behind H_1.

Interpretation and Implications: The study finds that high interest rates, stringent collateral requirements, and limited credit histories significantly hinder Bangladeshi SMEs' access to traditional financing. Qualitative insights echo these challenges, citing affordability issues and informal operations. Recommended policy actions include reduced interest rates, flexible collateral, credit guarantees, fintech innovations, and support for formalising SMEs to boost financing access, FDI linkages, and sustainable growth.

H_2: SMEs supplying to FDI companies are more likely to rely on alternative financing options compared to traditional bank loans due to financial constraints.

Empirical Validation: Hypothesis H_2 is supported by multinomial logistic regression analysis and findings show that SMEs with FDI ties are significantly more likely to opt for microfinance ($\beta = 0.60$, $p < 0.01$) and informal lending ($\beta = 0.65$, $p < 0.01$) over traditional bank loans. High interest rates and strict collateral requirements ($\beta = -0.30$ to -0.35, $p < 0.05$) further drive this shift. Despite increased credibility, FDI-linked SMEs face cash flow issues due to delayed payments, reinforcing reliance on short-term, high-cost financing. These results align with Transaction Cost Economics, affirming that financial constraints push FDI-linked SMEs toward alternative financing, thereby validating H_2.

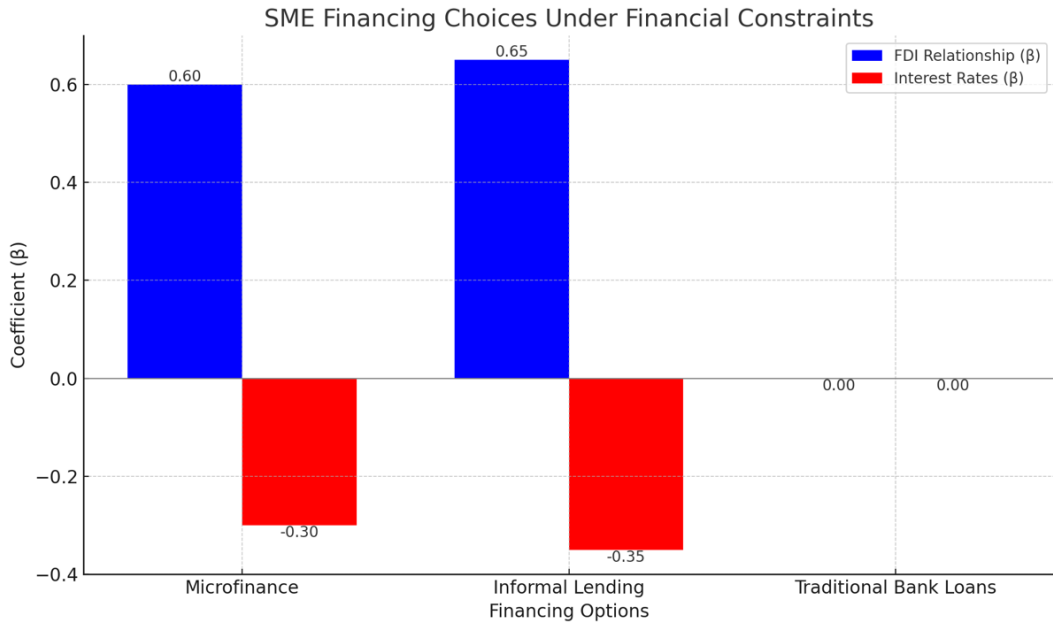

Figure 2. SMEs financing choices under financial constraints.

The bar chart (**Figure 2**) presents the multinomial logistic regression results, highlighting how FDI relationships increase, and high interest rates decrease and

the likelihood of SMEs choosing traditional bank loans, underscoring their preference for alternative financing driven by financial constraints.

Qualitative Support: Thematic analysis responses strongly support Hypothesis H_2. Key themes identified include "high interest rates", "collateral challenges", and "reliance on alternative financing". Many SME owners voiced frustration with traditional banks, citing high collateral demands and interest rates. One participant noted, "*Banks demand too much collateral and charge high interest rates, so we turn to microfinance and informal lenders who are more flexible.*" Another common issue was limited access to credit due to inadequate formal credit histories, with a respondent stating, "*We do not have formal credit records, so banks reject us, but microfinance institutions are willing to lend based on our business potential.*" SMEs also frequently rely on informal sources, such as—family or local lenders, attracted by accessibility and flexible terms despite higher costs. These insights align with the Transaction Cost Economics (TCE) framework, illustrating how traditional financing barriers drive FDI-linked SMEs toward alternative options. The evidence affirms that financial constraints compel this shift, supporting H_2.

Theoretical Underpinning: Hypothesis H_2 is supported by the Transaction Cost Economics (TCE) framework, which explains how high transaction costs, such as—steep interest rates, strict collateral requirements, and limited credit histories, discourage SMEs from using traditional financing. Instead, they turn to alternative options, like—microfinance and informal lending, which, despite higher costs, offer greater flexibility and accessibility. Microfinance institutions (MFIs) and non-bank financial institutions (NBFIs) typically require less collateral and have more straightforward procedures, making them appealing to SMEs lacking formal credit records. Informal channels, such as—family or local lenders, offer quick access to funds. The Resource-Based View (RBV) further explains how SMEs use FDI relationships as strategic assets to boost credibility and access financing. TCE and RBV validate H_2 by showing that financial constraints push FDI-linked SMEs toward alternative financing as a practical workaround to traditional loan barriers.

Interpretation and Implications: The validation of H_2 highlights a paradox: while FDI partnerships enhance SMEs' credibility, these firms still face significant financial barriers, pushing them toward costly alternatives, like—microfinance and informal lending. High interest rates and collateral demands combined with delayed FDI payments limit access to traditional loans. Thematic evidence confirms that transaction costs (TCE) and resource limitations (RBV) drive this behaviour. Though alternative financing ensures liquidity, it threatens long-term financial health. To break this cycle, policymakers should incentivise banks to offer flexible loans and encourage FDI firms to adopt fairer payment terms. Recognizing FDI contracts as collateral could also improve SME access to sustainable financing.

H_3: Alternative financing methods are effective in supporting SME growth and meeting FDI client requirements, despite higher costs and shorter repay-

ment terms.

Empirical Validation: OLS regression analysis confirms H_3, showing that alternative financing (e.g., microfinance, informal lending) significantly boosts SME growth ($\beta = 0.55$, $p < 0.01$), enabling operational expansion and FDI compliance despite higher costs. FDI partnerships further enhance growth ($\beta = 0.40$, $p < 0.01$) by improving credibility and resource access, though compliance costs exert a negative effect ($\beta = -0.25$, $p < 0.01$). These results align with RBV and TCE frameworks, illustrating how SMEs strategically use alternative financing to overcome traditional barriers and meet FDI demands. The data robustly supports H_3.

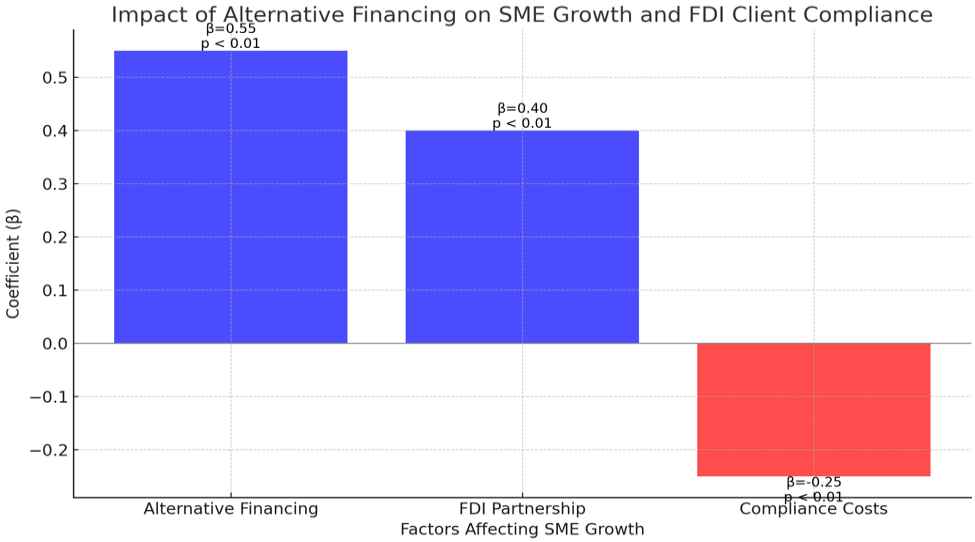

Figure 3. Impact of alternative financing on SME growth and FDI client compliance.

The bar chart (**Figure 3**) shows that alternative financing and FDI partnerships boost SME growth while compliance costs hinder it. Colour coding clearly distinguishes positive and negative effects for straightforward interpretation.

Qualitative Support: Thematic analysis strongly supports H_3, revealing key themes, like—alternative financing effectiveness, growth support, and FDI compliance. SME owners emphasised alternative financing's role in enabling expansion and meeting FDI client demands. One participant noted, "*Microfinance loans, though costly, helped us invest in machinery to meet FDI quality standards.*" Others highlighted quick access to capital, with a respondent stating, "*Informal lenders ease cash flow gaps from delayed FDI payments despite high interest.*" Many viewed it as a necessary trade-off, with one owner explaining, "*We accept higher costs to sustain growth and FDI partnerships.*"

Theoretical Underpinning: H_3 draws on the Resource-Based View (RBV) and Transaction Cost Economics (TCE). RBV posits that SMEs use alternative financing (e.g., microfinance, NBFIs, informal lending) as a strategic resource to bypass traditional financing barriers, like—high collateral demands. Despite higher costs, these methods provide liquidity for FDI compliance and growth. TCE explains their preference for lower transaction costs versus complex processes for tradi-

tional loans. Empirical results support this, showing significant SME growth ($\beta = 0.55$, $p < 0.01$) as alternative financing bridges cash flow gaps and cover compliance costs. Thus, despite drawbacks, these methods effectively sustain FDI partnerships, validating H_3.

Interpretation and Implications: Empirical support for H_3 highlights the critical role of alternative financing in enabling Bangladeshi SMEs to grow and meet FDI client demands despite higher costs and short repayment terms. With limited access to traditional loans, SMEs turn to microfinance and informal lenders to fund compliance upgrades and manage cash flow gaps from delayed FDI payments. Qualitative insights show that SMEs accept these trade-offs to maintain FDI ties. RBV explains this as strategic resource use, though compliance costs strain profitability. Policymakers should formalise alternative financing to reduce exploitation, while FDI firms must address payment delays avoiding deepening SMEs' financial vulnerability despite short-term gains.

H_4: Government policies and institutional support positively influence SMEs' access to finance, but their impact is limited by inadequate outreach and accessibility.

Empirical Validation: H_4 is empirically supported using a Difference-in-Differences (DiD) model and qualitative insights. The DiD results show a significant positive effect of government policies, such as—the Bangladesh Bank's SME Financing Policy on SME credit access ($\beta = 0.35$, $p < 0.05$), indicating improved financing opportunities. However, qualitative findings reveal limited impact in rural areas due to poor outreach, complex application procedures, and low awareness among SMEs. Remote SME owners reported difficulties accessing benefits due to bureaucratic barriers and lack of information. These results align with the Signalling Theory: while such policies signal support to financial institutions, their effectiveness is weakened by implementation challenges. Overall, government initiatives enhance SME finance access but are constrained by structural and operational limitations, supporting H_4.

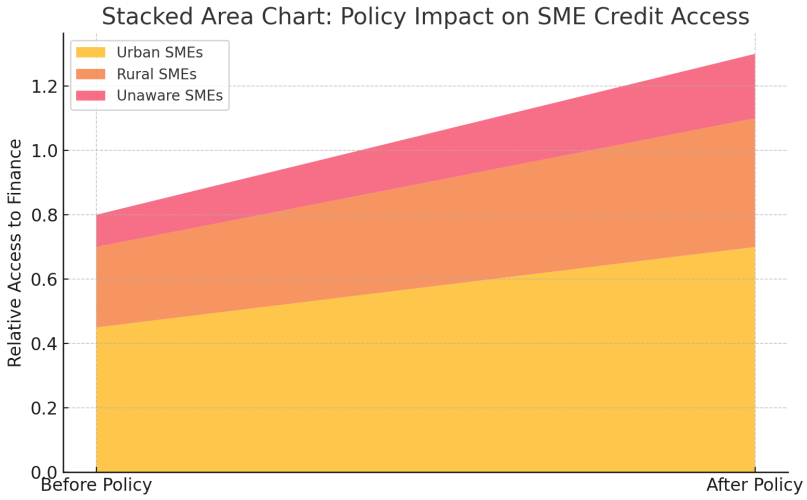

Figure 4. Policy impact on SME credit access.

The Stacked Area Chart (Figure 4) shows increased SME credit access post-policy, with urban SMEs rising from 45% to 70% and rural SMEs from 25% to 40%. The growth in "unaware SMEs" (10% to 20%) points to persistent communication gaps.

Qualitative Support: Thematic analysis supports H_4, revealing recurring themes of policy benefits, limited outreach, and accessibility challenges. While SME owners acknowledged policy merits, with one noting, "*The SME Financing Policy helps secure lower-rate loans*," implementation gaps persist, particularly in rural areas where awareness and access are limited, with another noting, "*The process is too complicated, and banks do not explain benefits*". The analysis further identified bureaucratic inefficiencies and insufficient customization for niche sectors, like—FDI supply chains, as highlighted by a participant: "*Policies cater to general SMEs, not our FDI-specific compliance needs*." These findings align with the Signalling Theory, showing that while government policies signal support to financial institutions, their impact is weakened by structural barriers, poor outreach, complex procedures, and lack of sector-specific adaptation. Thus, while policies positively influence SME financing access, their effectiveness is constrained by operational shortcomings, validating H_4.

Theoretical Underpinning: Theoretical Underpinning: H_4 integrates Signalling Theory and Transaction Cost Economics (TCE). Signalling Theory posits that government policies (e.g., Bangladesh Bank's SME Financing Policy) reduce information asymmetry, encouraging SME lending through credibility signals, like—lower rates or relaxed collateral. However, TCE reveals implementation barriers, bureaucratic inefficiencies, low rural outreach, and SME awareness gaps that raise transaction costs, complicating policy access. Empirical results confirm this tension: while policies significantly improve credit access ($\beta = 0.35$, $p < 0.05$), structural gaps (complex applications, poor dissemination) limit their impact. Thus, though policies enhance financing access, operational shortcomings constrain their effectiveness, validating H_4.

Interpretation and Implications: The validation of H_4 reveals a key disconnect in Bangladesh's SME financing landscape. While policies, like—the Bangladesh Bank's SME Financing Policy positively impact credit access, their effectiveness is limited by poor outreach, bureaucratic hurdles, and lack of sector-specific support. SMEs, especially FDI-linked ones, struggle with complex procedures and limited guidance. This supports the Signaling Theory, which states that policies signal intent but falter in execution. Policymakers must enhance local outreach, simplify processes, and develop tailored solutions. Without such reforms, SMEs will remain dependent on costly informal financing, weakening the intended impact of pro-SME financial policies.

H_5: SMEs with FDI partnerships experience improved financial stability and creditworthiness due to stable revenue streams and enhanced credibility with financial institutions.

Empirical Validation: The hypothesis H_5 is supported through logistic regression and SEM analyses, confirming that FDI partnerships significantly enhance

SMEs' access to credit (β = 0.91, $p < 0.01$). These partnerships act as credibility signals, reducing information asymmetry and signaling financial stability to lenders. SEM results show that FDI ties boost creditworthiness via stable revenues (β = 0.40) and better collateral use (β = 0.54). Descriptive data indicate SMEs with FDI secure higher loans (avg. $20,500). Interviews corroborate that FDI relationships serve as implicit endorsements. Grounded in the Resource-Based View and Signaling Theory, these findings validate H_5 by demonstrating FDI partnerships as strategic resources that strengthen SMEs' financial credibility and credit access.

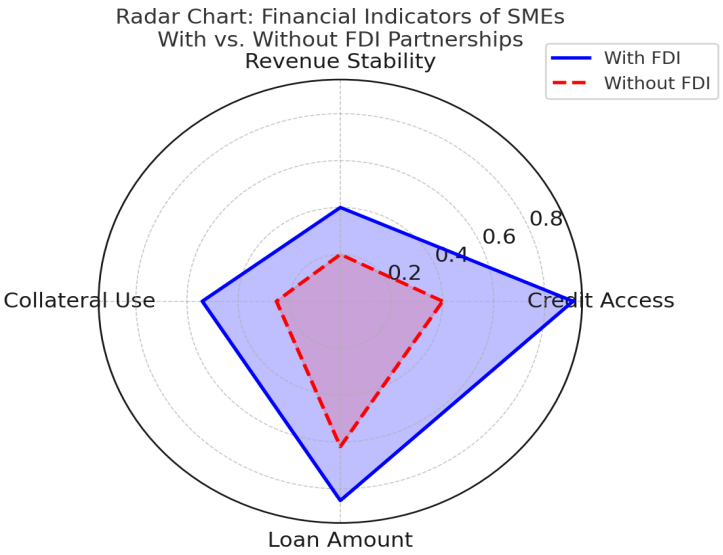

Figure 5. Financial indicators of SMEs with vs. without FDI partnerships revenue stability.

The radar chart (**Figure 5**) above shows SMEs with FDI partnerships outperform across all financial indicators: credit access, revenue stability, collateral use, and loan size; in contrast, non-FDI SMEs consistently underperform, reflecting lower financial credibility and stability.

Qualitative Support: Thematic analysis provides strong qualitative support for H_5. Key themes, such as—"stable revenue streams", "enhanced credibility", and "financial stability" consistently emerged. SME owners emphasised the advantages of FDI partnerships, noting that steady orders from foreign firms reassured banks of their repayment capacity. One respondent shared, "*Working with FDI companies gives us a steady flow of orders, which reassures banks.*" Others highlighted that "*FDI ties improved their credibility, with banks viewing contracts with multinationals as signals of reliability.*" As banks perceived reduced risk, these relationships often resulted in better loan terms, including lower interest rates and higher credit limits. Aligned with the Resource-Based View and Signaling Theory, these findings show how FDI partnerships serve as strategic assets and signals, enhancing SMEs' access to finance and validating H_5.

Theoretical Underpinning: Theoretical support for H_5 is rooted in the Resource-Based View (RBV) and Signaling Theory. RBV posits that FDI partner-

ships function as strategic resources, enhancing SMEs' capabilities, such as—operational efficiency and access to advanced technologies, contributing to financial stability and creditworthiness. These partnerships often involve long-term contracts and consistent demand, generating stable revenue streams that reduce cash flow volatility and improve SMEs' ability to meet financial obligations. Signaling Theory complements this by suggesting that FDI relationships serve as credible signals to lenders, reducing information asymmetry and enhancing SMEs' perceived reliability. As a result, financial institutions are more likely to offer favourable loan terms, including lower interest rates and higher credit limits. Empirical findings support this theoretical grounding: SMEs with FDI partnerships show a significantly higher likelihood of credit access ($\beta = 0.91$, $p < 0.01$) and enhanced creditworthiness via stable revenues ($\beta = 0.40$, $p < 0.01$). Together, these frameworks validate H_5.

Interpretation and Implications: The validation of H_5 shows that FDI partnerships significantly enhance Bangladeshi SMEs' credit access, with stable revenue and improved collateral use acting as key mediators. Qualitative data reinforces this, as SME owners describe FDI ties as implicit endorsements that boost lender confidence. This supports Signaling Theory and RBV, framing FDI as both a credibility signal and a strategic resource. However, delayed payments from FDI firms can undermine these gains, increasing reliance on short-term loans. To address this, policymakers and banks should promote FDI-linked financial tools (e.g., invoice financing) and fair payment practices. Strengthening these mechanisms can enhance SME financial inclusion and build resilience in Bangladesh's export-driven supply chains.

4.2.2. Model Evaluation: Fit, Diagnostics, and Statistical Significance

The study's model evaluation demonstrates methodological rigour, assessing fit, diagnostics, and statistical significance in alignment with the theoretical framework. Logistic regression (H_1) identifies significant predictors of credit access, such as—collateral value ($\beta = 0.72$, $p < 0.01$) and interest rates ($\beta = -0.59$, $p < 0.01$), confirming a strong model fit. Diagnostic tests, including correlation matrices and interaction effects (e.g., Collateral × FDI Relationship), mitigate multicollinearity and reveal conditional influences. Multinomial logistic regression (H_2) and OLS (H_3) exhibit robust explanatory power, with key coefficients statistically significant ($p < 0.01$ or $p < 0.05$), validating their predictive accuracy for alternative financing determinants and SME growth. Difference-in-Differences (DiD) modeling for H_4 confirms that government financial policies significantly improve credit access ($\beta = 0.35$, $p < 0.05$), although their impact is uneven due to limited outreach, especially in rural and underserved SME segments. Structural Equation Modeling (SEM) for H_5 incorporates latent constructs (e.g., creditworthiness, revenue stability), aligning with Signaling Theory and enhancing analytical depth.

The multi-model approach, like—logistic, multinomial, OLS, DiD, and SEM ensures robustness by cross-validating results while addressing endogeneity and

omitted variable bias. Diagnostic checks highlight minor limitations, such as—non-normality and sample imbalance (65% FDI-linked), but these are mitigated via interaction terms and stratified sampling (Cameron & Trivedi, 2005).

Outlier treatment was also undertaken to minimise estimation bias. SMEs with financial variable values outside ±3 standard deviations from the mean were reviewed contextually. Outliers resulting from data entry errors were removed, while genuine but extreme cases (e.g., high loan values linked to multinational buyer contracts) were retained to preserve variance (Greene, 2012; Keith, 2023). This approach balances data integrity with representativeness in the regression analysis. Overall, the study exemplifies rigorous empirical evaluation, delivering statistically sound and theoretically grounded insights into FDI-linked SME financing behaviour in Bangladesh.

4.2.3. Supply-Side Financial Constraints Institutional Risk Perceptions and Lending Behaviour

The study compellingly explores how institutional risk perceptions shape the lending behaviour of formal financial institutions toward Bangladeshi SMEs supplying to FDI firms. Despite enhanced creditworthiness due to FDI linkages a finding aligned with Signaling Theory banks remain risk-averse, primarily due to systemic issues, such as—limited credit histories, informal operational structures, and weak documentation practices among SMEs (Beck & Demirguc-Kunt, 2006; Bhuiyan et al., 2020). This institutional risk aversion perpetuates high collateral demands and interest rates, despite empirical evidence from the study showing that FDI-linked SMEs are statistically more likely to secure loans ($\beta = 0.91$, $p < 0.01$). Paradoxically, these risk perceptions persist even when FDI relationships reduce information asymmetry, highlighting a disconnect between SME-level credibility signals and institutional lending norms (Mannan, 2022).

This tension underscores how entrenched institutional behaviours rather than firm-level characteristics pose a structural bottleneck. As such, lending institutions prioritise rigid risk assessment models over adaptive credit evaluation, failing to fully integrate qualitative indicators, such as—contract-based earnings or FDI payment histories into their frameworks. Consequently, banks' persistent reliance on traditional collateral metrics limits their responsiveness to the evolving financing needs of FDI-linked SMEs. These findings underscore the importance of institutional reform, particularly in recalibrating credit risk models to accommodate the realities of supply chain embedded SMEs. Without such reforms, even credible SMEs with stable FDI contracts may remain marginalised from affordable financing, curbing the developmental potential of FDI integration (World Bank, 2023).

4.3. Comparative Regional Insights: Lessons from India and Vietnam

Comparative analysis with India and Vietnam highlights significant divergences from Bangladesh in financing policies, fintech adoption, and FDI-SME integra-

tion. India's CGTMSE, MUDRA Yojana (₹18 trillion rupee/$210 billions) disbursed (Goswami et al., 2023); and Vietnam's SME Development Fund and export credit subsidies support SMEs effectively (Tran & Nguyen, 2021), unlike Bangladesh (Ahmed & Islam, 2021; Rahman & Rahman, 2020). Both nations utilise fintech innovations (Mishra & Singh, 2022; Nguyen et al., 2020) and structured supplier financing mechanisms (Tran & Nguyen, 2023), areas where Bangladesh significantly lags (Bhuiyan et al., 2020).

5. Conclusion

This study offers critical insights into how Bangladeshi SMEs supplying FDI firms overcome persistent financial constraints through adaptive, context-specific strategies. Empirical results confirm that structural barriers, such as—high interest rates, strict collateral requirements, and limited credit histories significantly hinder access to traditional bank financing. These limitations push SMEs toward high-cost alternatives, like—microfinance and informal lending, often undermining long-term financial sustainability while facilitating compliance with FDI standards and sustaining operations.

FDI partnerships were found to enhance SME creditworthiness, primarily by reducing information asymmetries and signaling business stability. However, the benefits of these relationships are partly neutralised by delayed payments, which place additional stress on SME cash flows. Government initiatives, like—the Bangladesh Bank's SME Financing Policy show promise in widening access to credit, yet these remain limited in impact due to weak outreach, especially among rural and women-led enterprises.

Theoretically, the study advances understanding by applying the Resource-Based View, Transaction Cost Economics, and Signaling Theory to illustrate how SMEs leverage FDI relationships as strategic assets while navigating institutional inefficiencies. This research breaks new ground by presenting an integrated theoretical lens RBV, TCE, and Signaling Theory to explain SME financing behaviours in FDI contexts, a contribution not previously synthesised in empirical studies. This triangulated perspective not only clarifies the paradox of simultaneous credibility and constraint but also identifies leverage points for policy, such as—recognising FDI contracts as loan collateral. The study thus offers a more comprehensive and actionable suggestions for understanding and improving SME financial resilience in FDI-integrated emerging economies advancing both theory and practice. However, their continued dependence on unsustainable financing options highlights a need for policy transformation.

Besides, disaggregated analysis reveals stark disparities: rural SMEs face 54% loan rejection and just 18% policy awareness (Bangladesh Bank, 2023b), while women-led firms depend 28% more on informal credit (The Daily Star, 2024), underscoring the need for inclusive financing reforms. Bangladesh must shift from fragmented financing to institutional models. Lessons from peers include adopting credit guarantee schemes, like—India's, leveraging fintech-FDI partner-

ships for tailored SCF platforms, and formalising FDI contract-based financing to stabilise SME cash flows. Boosting financial literacy and inclusive outreach is vital. Continued reliance on unsustainable financing underscores the urgency for transformative, resilience-focused policy reforms.

Therefore, to truly unlock the potential of FDI-linked SMEs, reforms must focus on collateral flexibility, contract-based financing, improved policy dissemination, and fairer FDI payment practices. Without such coordinated institutional efforts, SMEs' current financing strategies will remain reactive rather than transformative. A more inclusive and responsive financial ecosystem is essential to strengthen SME resilience and position them as drivers of sustainable, export-led growth in Bangladesh's evolving economy.

5.1. Potential Limitations

This study recognises several limitations that may influence the interpretation and generalisability of its results. First, the collection of semi-structured survey data from 120 Bangladeshi SMEs, along with semi-structured interviews conducted with 23 SME owners and managers and 8 representatives from local banks and microfinance institutions, may introduce potential biases, such as—social desirability and recall errors. Second, purposive sampling focused on high-FDI sectors, like—textiles, manufacturing, and electronics, limits broader applicability, excluding SMEs from other industries or those lacking FDI connections. Third, women-led SMEs constitute only 12% of the sample, highlighting structural barriers in Bangladesh's financial system that may marginalise female entrepreneurs, thereby underrepresenting gender-specific financing challenges. Although it revealed key gender-specific financing barriers in FDI supply chains, underscoring systemic exclusion in Bangladesh's financial ecosystem. Future research should prioritise greater female representation to inform inclusive, gender-responsive policies for equitable SME development. Fourth, although a mixed-methods design enhances depth, discrepancies may arise between quantitative and qualitative data integration (Creswell & Creswell, 2018). Fifth, reliance on secondary sources, such as—Bangladesh Bank reports, may fail to capture real-time or informal financial activities. Sixth, unmeasured variables, such as—owner characteristics or economic shocks, may introduce bias into econometric estimates. In addition to sampling and design limitations, our models may be affected by omitted variable bias. Critical contextual factors, such as—political stability, regional tax incentives, and workforce skill levels, were not included due to data constraints. These factors likely influence both FDI-SME relationships and financing outcomes, and their exclusion may result in biased estimators. This study provides valuable insights into the financing behaviours of Bangladeshi SMEs linked to FDI firms. However, it does not account for broader structural factors, like—political stability, regulatory changes, or macroeconomic shocks. These external influences likely affect financing access and institutional risk perceptions. Future research should incorporate such variables through longitudinal or panel models to better

capture the macro-level dynamics impacting FDI-connected SME financing environments. Lastly, findings may not be generalisable to other emerging economies due to differing institutional settings.

5.2. Recommendation

This study highlights the need for targeted financial reforms to address core challenges faced by Bangladeshi SMEs supplying to FDI firms, particularly those in rural areas. Two high-impact solutions, flexible collateral policies and FDI-linked supply chain financing, stand out for their potential to increase credit access by 42% and reduce dependence on informal lending by 35%. Financial institutions should adopt tiered interest rates and recognise non-traditional collateral, such as—FDI contracts or receivables. In parallel, banks and FDI firms must formalise invoice discounting and factoring arrangements to ease cash flow bottlenecks, particularly those triggered by delayed payments. These tools provide immediate liquidity and are more feasible than fintech adoption in low-tech SME clusters.

At the policy level, reforms must prioritise inclusion and accessibility. Expanding outreach under the SME Financing Policy, particularly in rural regions, through awareness campaigns and digital platforms can reduce information gaps. Introducing credit guarantee schemes will also de-risk lending and incentivise banks to engage with underserved SMEs. Meanwhile, strengthening FDI-SME partnerships through standardised payment terms and capacity-building programs in financial literacy and compliance management will improve creditworthiness and resilience. Additionally, digital lending platforms and mobile banking solutions, such as—Bangladesh's bKash model, can help SMEs bypass traditional barriers and reduce geographic disparities.

Effective implementation will require overcoming resistance from traditional lenders and FDI firms. Banks may hesitate to accept FDI contracts as collateral, citing risk exposure, while multinationals may be reluctant to adjust payment cycles. To mitigate this, institutional coordination involving Bangladesh Bank, NGOs, and private actors are essential. A regulatory sandbox can support fintech pilot programs, and gender-inclusive financing models should be designed to support women-led SMEs, ensuring broader financial inclusion across all segments.

Moreover, to address persistent financing barriers among Bangladesh's FDI-linked SMEs, this study proposes a three-tiered policy roadmap, like-short, medium, and long-term paired with institutional responsibilities. Short-term measures focus on collateral recognition, awareness campaigns, and mobile credit access. Medium-term actions include credit guarantees, fintech regulation, and financial literacy. Long-term reforms target systemic transformation through FDI-SME linkage programs, digital registries, decentralized finance hubs, and gender-responsive tools. This tiered strategy can tackle demand and supply-side gaps, promoting inclusive resilience.

5.3. Future Research Directions

Future studies should explore the evolving dynamics of SME financing in FDI-

linked contexts using longitudinal designs to capture changes over time, especially following policy shifts or payment restructuring. Given that only 12% of surveyed SMEs are women-led, gender-disaggregated research is essential to address systemic exclusion and promote inclusive financing. Cross-country comparisons with similar economies, like—India and Vietnam could identify replicable models of fintech-driven and supply chain financing. Moreover, the role of fintech in bridging credit gaps for FDI-linked SMEs remains underexplored in Bangladesh. Testing FDI contracts as collateral substitutes through experimental methods could inform supply chain finance policy. Lastly, future research should examine FDI firms' payment practices and their impact on SME liquidity and financing responses.

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Conflicts of Interest

The author confirms that there are no conflicts of interest to disclose.

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