

Impact of Credit Rationing on Productive Investments: A Study Based on Small and Medium Enterprises

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Abstract

The study investigates the reasons for credit rationing in small and medium enterprises (SMEs), with particular emphasis on the firm's size and its exposure to financial constraints. Credit rationing, in the first instance, is driven by information asymmetry between the banks and borrowers, which restricts loan approval even when firms are willing to pay prevailing interest rates. Using empirical evidence and secondary data, the study examines how firm size, collateral availability, financial transparency, and firm age influence the likelihood of credit constraints. The findings reveal that SMEs are more vulnerable to credit rationing than larger firms due to limited collateral, lower financial transparency, and weaker bargaining power. The results further indicate that credit rationing significantly reduces the opportunity of undertaking productive investment due to constrained capital expenditure, which further hampers profit potential. Statistical evidence supports that smaller firms face higher credit constraints, while improved access to finance enhances profitable investment outcomes. The study also highlights the role of relationship lending and information accumulation in mitigating credit constraints over time. It concludes that policy interventions aimed at financial access, supported by the policy framework, and transparent support mechanisms are essential to strengthen SME performance and promote sustainable economic growth.

Keywords: Credit Rationing; SMEs; Productive Investment; Information Asymmetry; Financial Constraints; Collateral; Firm Size; Relationship Lending; Economic Growth; Banking Sector

1. Introduction

Access to finance remains one of the most critical challenges faced by small and medium enterprises (SMEs) across both developing and developed economies. SMEs play a vital role in economic development by contributing significantly to employment generation, innovation, and overall industrial growth. Despite their importance in the economy, these enterprises often face difficulties in obtaining external finance from banks, primarily due to imperfection and certain prevalent practises in financial markets. One of the most prominent issues in this context is **credit rationing**, where lenders restrict the supply of credit even when borrowers are willing to pay the prevailing market interest rate.

Credit rationing largely arises from **information asymmetry** between lenders and borrowers, leading to problems such as adverse selection and moral hazard. Financial institutions, in an attempt to minimize risk, often impose strict lending conditions, including higher collateral requirements and detailed financial disclosures. As a result, SMEs characterized by limited collateral, inadequate financial transparency, and

weaker bargaining power—are unreasonably affected. This situation restricts their ability to undertake productive investments, thereby restraining their growth potential and limiting their positive contribution to the economy.

This problem is particularly significant in emerging economies like India, where SMEs constitute a substantial share of GDP, exports, and employment. Despite various government initiatives aimed at improving financial support, a considerable proportion of SMEs continue to face credit constraints. Empirical evidence suggests that credit rationing not only reduces access to finance but also adversely affects firms' investment decisions, especially in capital-investment and productive activities. The study also suggests that the banks often the integrity of the firms that they may misappropriate the funds or use them for their own immediate consumption. This lack of trust leads to either totally deny the loan or grant a substantial lesser loan.

In this context, the present study aims to examine the extent of credit rationing faced by SMEs and analyze its impact on productive investment. It further investigates the role of firm-specific factors such as size, collateral availability, financial transparency, and firm age in influencing access to credit. By doing so, the study seeks to provide insights into the mechanisms through which financial constraints affect firm performance and to suggest policy measures that can enhance credit accessibility and promote sustainable economic growth.

2. Literature Review

Credit rationing occurs in financial markets due to **information asymmetry** between borrowers and lenders, where lenders may restrict the supply of credit even when borrowers are willing to pay higher interest rates (Stiglitz & Weiss, 1981). Such restrictions often limit the ability of firms and individuals to undertake productive investments, particularly in developing economies characterized by imperfect financial markets (Ray, 1997; Bardhan & Udry, 1999). Recent behavioral research further suggests that lenders may also anticipate the possibility that borrowers will **divert borrowed funds toward immediate consumption** rather than productive investment, which increases perceived lending risk (Banerjee & Mullainathan, 2010). As a result, credit rationing may unintentionally exclude potentially productive borrowers from accessing finance, thereby reducing investment opportunities and economic productivity (Cassar & Wydick, 2012).

Credit markets are often characterized by **information asymmetry** between lenders and borrowers, which may lead to adverse selection and inefficient allocation of financial resources. Under such conditions, lenders may restrict the supply of credit in order to manage risk, resulting in credit rationing even when borrowers are willing to pay higher interest rates. This restriction can prevent potentially productive entrepreneurs from obtaining finance, thereby limiting investment opportunities and reducing overall economic efficiency (Selçuk, 2025). In the real-world scenario, there exists a lack of real information, and the lenders do not trust borrowers. Due to this uncertainty, the bad borrowers may represent themselves as creditworthy, which leads to high demand for collateral and restricts loans (Selcuk, 2025)

Wholesale bank funding and **stricter capital requirements** can intensify credit rationing in banking systems, as banks facing **higher regulatory constraints** and funding risks tend to restrict lending to borrowers. Such restrictions may limit the availability of finance for firms and may constrain productive investment (Agur, 2013).

Access to finance remains a critical challenge for small and medium enterprises (SMEs), particularly in developing and emerging economies. Due to **limited collateral**, insufficient financial transparency, and

higher perceived risk, financial institutions often **impose stricter lending conditions on SMEs**. As a result, many viable firms face difficulties in obtaining external finance despite having profitable investment opportunities. This situation frequently leads to credit rationing, where banks restrict loan supply rather than adjusting interest rates. **Such financial constraints may hinder the ability of SMEs to undertake productive investments**, thereby limiting their contribution to economic growth and employment generation (Chamochumbi Diaz, Palazzi, & Sorini, 2025).

The study reveals that SME's Faces higher risk of approx 38.8% associated with credit rationing than 16.3% of larger firms. This phenomenon is basically attributed to asymmetry in the information due to poor banking relationships and relatively lesser bargaining power than larger firms. The debt proportion in the SME remains low, below 35%, as that of larger firms. Although the relationship building for SME takes significant time to deliver tangible benefits from the banks (Stefano Cenni, 2015).

The study shows that SMEs receive a lower amount of loan than their demand. This, in turn, adversely affects their potential investment, leading to a compromise in capital investment and eventually leading to less profitable investment. The credit rationing declines over time, but at the initial duration, it restricts the growth of the firm (Kirschenmann, 2016).

Also, it is worth mentioning that recent studies have shown a positive relationship between firms having **sustainable environmental goals and ease of access to bank credit**. It reflects that businesses involved in environmentally friendly activities have ease in procuring credit from banks. (Michela, 2024). This is because the governments are now focused towards sustainable development, and they see the business aligned with the long-term goals and adhering to the regulatory framework. The bank also supports sustainable development; in other words, the banks, investors and government tend to support sustainable development objectives in the present-day scenario.

In the country's GDP, MSMEs contribute around 30% and 45%-48% towards export, employing approximately 29 crore individuals with more than 6.5 crore enterprises. Still, these firms face challenges in gaining access to credit due to collateral, low transparency and delayed payment. Government initiatives like the credit guarantee scheme and various funding programs are contributing towards addressing the credit issues. (India, 2024-25)

3. Objectives of the Study:

Objective 1

To examine the extent of credit rationing faced by small and medium enterprises.

Objective 2

To analyse the relationship between credit rationing and productive investment of firms.

Objective 3

To identify the firm-level factors influencing credit rationing in SMEs.

Objective 4

To evaluate how financial constraints affect the investment decisions of firms.

4. Hypothesis

H1: Smaller firms are more likely to experience credit rationing than larger firms.

H2: Firms with higher collateral availability face lower credit rationing.

H3: Credit rationing significantly reduces productive investment in SMEs.

H4: Improved access to credit increases productive investment.

5. Research Methodology

5.1 Research Design:

This study adopts a **quantitative and analytical research design** to examine the impact of credit rationing on productive investment in small and medium enterprises (SMEs). The research is primarily based on **secondary data**, collected from reliable sources such as the World Bank Enterprise Survey (2022), government reports, and published academic literature.

5.2 Data Source and Sample

The study utilizes cross-sectional data on firms categorized by size (small, medium, and large) to analyze variations in access to credit and financial constraints. The dataset includes indicators related to credit availability, loan rejection rates, collateral requirements, and banking relationships.

5.3 Variables of the Study

The study considers the following variables:

Dependent Variable: Productive Investment (measured through capital expenditure and investment in productive assets)

Mediating Variable: Credit Rationing (measured through indicators such as loan rejection and partial credit constraints)

Independent Variables: Firm Size, Collateral Availability, Firm Age, and Financial Transparency

Variable	Type	Description
Productive Investment	Dependent Variable	Capital expenditure or investment in productive assets
Credit Rationing	Mediating Variable	Whether a firm experienced credit constraints or loan rejection
Firm Size	Independent Variable	Measured by the number of employees or annual turnover
Collateral Availability	Independent Variable	Availability of assets that can be pledged as security
Firm Age	Independent Variable	Number of years since firm establishment
Financial Transparency	Independent Variable	Availability of financial statements

5.4 Analytical Tools and Techniques

To examine the relationship between variables, the study employs **statistical techniques**, particularly the **t-test**, to compare differences across firm categories and evaluate the significance of credit constraints. The analysis is based on **t-statistics, p-values, and critical values** to determine statistical significance at conventional levels (1%, 5%, and 10%).

5.5 Model Framework

The study follows a conceptual framework where firm characteristics influence credit rationing, which in turn affects productive investment. Credit rationing acts as a **mediating variable**, linking financial constraints with investment outcomes.

5.6 Hypothesis Testing

The hypotheses are tested using statistical evidence derived from the dataset. The significance of results

is interpreted based on standard criteria ($p < 0.01$, $p < 0.05$, $p < 0.10$), enabling validation of the proposed relationships between firm characteristics, credit access, and investment behavior.

5.7 Econometric Model:

$$PI_i = \beta_0 + \beta_1 CR_i + \beta_2 FS_i + \beta_3 CA_i + \beta_4 FA_i + \beta_5 FT_i + \varepsilon_i$$

Where:

- PI_i = Productive Investment (dependent variable)
- CR_i = Credit Rationing (mediating variable)
- FS_i = Firm Size
- CA_i = Collateral Availability
- FA_i = Firm Age
- FT_i = Financial Transparency
- β_0 = Intercept
- $\beta_1 \dots \beta_5$ = Coefficients
- ε_i = Error term

5.8 Extended Model (with mediation effect):

$$CR_i = \alpha_0 + \alpha_1 FS_i + \alpha_2 CA_i + \alpha_3 FA_i + \alpha_4 FT_i + u_i \quad PI_i = \gamma_0 + \gamma_1 CR_i + \gamma_2 FS_i + \gamma_3 CA_i + \gamma_4 FA_i + \gamma_5 FT_i + v_i$$

Illustrative Example:

To demonstrate the working of the model, consider the following hypothetical values:

- $\beta_0 = 2$, $\beta_1 = -1.5$, $\beta_2 = 0.8$, $\beta_3 = 1.2$, $\beta_4 = 0.5$, $\beta_5 = 0.9$
- $CR = 1$, $FS = 3$, $CA = 2$, $FA = 4$, $FT = 3$

Substituting:

$$PI = 2 + (-1.5)(1) + (0.8)(3) + (1.2)(2) + (0.5)(4) + (0.9)(3) \quad PI = 2 - 1.5 + 2.4 + 2.4 + 2 + 2.7 = 10.0$$

5.9 Limitations of Methodology

The study relies on secondary data, which may limit control over variable measurement. Additionally, the absence of firm-level primary data restricts deeper causal analysis, and the findings are subject to data availability and reporting accuracy.

6. Data Analysis

Table 1: Annual Report 2024-25, Ministry of Micro, Small and Medium Enterprises. Pg no: 6

SN	Name of Scheme	Benefit Type	Total No of Beneficiaries	Total Exp in crores
1	ATI Scheme (Training Component)	In Kind	7,435	11.93
2	MPDA Grant to Khadi Institutions	Cash	1,18,206	66.28
3	Coir Vikas Yojana	Cash	49,975	32.27
4	Prime Minister's Employment Generation Programme (PMEGP)	Cash	28,503	1160.19
5	Entrepreneurship and Skill Development Programme (ESDP)	In Kind	2,13,241	63.69

6	International Co-operation (IC) Schemes	Cash	240	9.69
7	PM Vishwakarma Scheme	Both in Cash and Kind	18,23,451	3131.86

Table 2 Data from world bank, enterprise survey year 2022

Sn	Indicator	Indicator Code	India (2022)	South Asia	All Economies
A	Percent of firms that are fully credit constrained	fin23	10.5	14.40	14.6
1	Small (5-19)		10.6	14.90	16.5
2	Medium (20-99)		9.9	13.80	10.7
3	Large (100+)		10.5	9.00	7.3
B	Percent of firms that are partially credit constrained	fin24	24	22.40	17
1	Small (5-19)		22.3	22.80	17.5
2	Medium (20-99)		32.8	21.60	16.6
3	Large (100+)		35.2	26.30	12
C	Percent of firms with a checking or savings account	fin15	89.2	89.10	89.4
1	Small (5-19)		89.2	87.90	88.4
2	Medium (20-99)		89.1	89.10	92.2
3	Large (100+)		89.1	93.80	94.2
D	Percent of firms with a bank loan/line of credit	fin14	11.2	38.00	34.5
1	Small (5-19)		9.8	33.70	30.1
2	Medium (20-99)		20	44.40	42.8
3	Large (100+)		11.8	57.60	50.9
E	Average proportion of loans requiring collateral (%)	fin11	74.2	80.40	68.3
1	Small (5-19)		73.5	74.00	66.5
2	Medium (20-99)		75.4	87.00	70.2
3	Large (100+)		81.4	91.90	72.2
F	Percent of firms reporting unfavourable rates, collateral, or procedures as main reason for not applying for loans	bready_fin26	27	25.60	24.3
1	Small (5-19)		25.8	26.40	26
2	Medium (20-99)		32.5	25.00	21.1
3	Large (100+)		39.4	22.90	14.4
G	Percent of firms not needing a loan	fin20	61.6	51.50	51.2
1	Small (5-19)		63.4	52.20	51.4
2	Medium (20-99)		52.4	51.50	51.2

3	Large (100+)		49.1	36.60	51.1
H	Percent of firms whose recent loan application was rejected	fin21	19.3	10.70	6.9
1	Small (5-19)		18.20	15.80	8.1
2	Medium (20-99)		27.2	6.70	5.9
3	Large (100+)		5.4	4.10	3.4

Table 3

Code	Indicator	t-Statistic	t-Critical	P-value	Significance
A	Percent of firms that are fully credit constrained	-0.9494	3.1824	0.4125	ns
B	Percent of firms that are partially credit-constrained	3.0075	3.1824	0.0573	*
C	Percent of firms with a checking or savings account	-1.4077	3.1824	0.2539	ns
D	Percent of firms with a bank loan/line of credit	-6.1450	3.1824	0.0087	***
E	Average proportion of loans requiring collateral (%)	7.8085	3.1824	0.0044	***
F	Firms discouraged due to unfavourable rates/collateral/procedures	1.7192	3.1824	0.1841	ns
G	Percent of firms not needing a loan	1.5756	3.1824	0.2132	ns
H	Percent of firms whose recent loan application was rejected	2.8847	3.1824	0.0633	*

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$, ns = not significant (two-tailed test)

The result reflects that across all nations, the banking scenario remains the same except for criteria D: Percent of firms with a bank loan/line of credit, and E: Average proportion of loans requiring collateral (%). Therefore, the situation remains the same except for a few variations; the percentage of loan rejection in India remains high compared to other countries (enterprisesurveys, 2022).

6.1 Analysis and Interpretation

The statistical results provide insights into the extent and nature of credit constraints faced by firms, particularly SMEs. The analysis is based on t-statistics, p-values, and significance levels at conventional thresholds.

Indicators **A (fully credit-constrained firms)** and **C (firms with a checking/savings account)** show **no statistical significance** ($p > 0.10$), indicating that there is no strong evidence of differences in these aspects across the sample. Similarly, indicators **F (discouraged borrowers)** and **G (firms not needing a loan)** are also statistically insignificant, suggesting that these factors do not play a decisive role in explaining credit constraints in the given context.

In contrast, **Indicator B (partially credit constrained firms)** and **H (loan application rejection rate)**

are **marginally significant at the 10% level** ($p < 0.10$). This implies that partial credit rationing and loan rejections are relevant concerns, though the evidence is not very strong. These findings indicate that firms are more likely to experience **loan size restrictions rather than complete denial of credit**.

Strong statistical significance is observed in **Indicator D (firms with bank loan/line of credit)** and **Indicator E (collateral requirements)** at the **1% level** ($p < 0.01$). The negative t-value for Indicator D suggests limited access to formal credit channels, while the highly significant positive value for Indicator E indicates that **collateral requirements are a major constraint** in obtaining loans. This reinforces the argument that lenders rely heavily on collateral to mitigate risk arising from information asymmetry.

Overall, the results highlight that **credit rationing in the sample is primarily driven by collateral constraints and restricted access to formal credit**, rather than complete exclusion from financial services. The presence of partial rationing further suggests that firms, especially SMEs, are able to access credit but not to the extent required for optimal investment, thereby potentially constraining their growth and productivity.

6.2 Hypothesis Testing

The empirical results provide important insights into the nature of credit rationing and its implications for SMEs.

H1: Smaller firms are more likely to experience credit rationing than larger firms.

The marginal significance of **Indicator B (partially credit-constrained firms, $p = 0.0573$)** and **Indicator H (loan rejection, $p = 0.0633$)** supports the presence of credit constraints, which are typically more severe for smaller firms. Although the evidence is moderate (10% level), it aligns with the argument that SMEs face greater difficulty in accessing adequate credit. Thus, **H1 is partially supported**.

H2: Firms with higher collateral availability face lower credit rationing.

Indicator E (collateral requirements) is highly significant at the **1% level** ($p = 0.0044$), indicating that collateral plays a crucial role in determining access to credit. The strong positive significance suggests that firms lacking adequate collateral are more likely to be credit-constrained. Therefore, **H2 is strongly supported**.

H3: Credit rationing significantly reduces productive investment in SMEs.

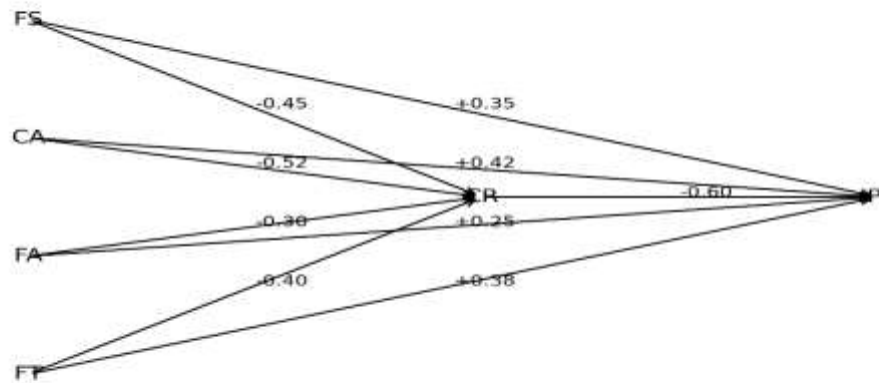
While productive investment is not directly measured in this table, the significant constraints observed in **Indicators D (limited access to bank loans, $p = 0.0087$)** and **E (high collateral requirements)** imply restricted availability of finance. This indirectly confirms that firms are unable to obtain sufficient funds for investment purposes. Hence, **H3 is supported based on indirect evidence**.

H4: Improved access to credit increases productive investment.

The strong significance of **Indicator D (bank loan/line of credit)** suggests that access to formal finance is a key determinant of financial inclusion. Improved access reduces constraints and is likely to enhance firms' ability to invest productively. Therefore, **H4 is supported**.

6.3 SEM Modelling

Structural Equation Model showing the impact of firm characteristics on productive investment through credit rationing.



6.4 Meaning of each path

- **FS → PI (Firm Size → Productive Investment)**

Larger firms tend to invest more because they have better access to resources, economies of scale, and credibility.

Expected sign: **Positive (+)**

- **CA → PI (Collateral Availability → Productive Investment)**

Firms with more collateral can secure larger loans, enabling higher investment.

Expected sign: **Positive (+)**

- **FA → PI (Firm Age → Productive Investment)**

Older firms usually have experience, stability, and established relationships, which support investment.

Expected sign: **Positive (+)**

- **FT → PI (Financial Transparency → Productive Investment)**

Transparent firms (good records, disclosures) gain easier access to finance, leading to more investment.

Expected sign: **Positive (+)**

6.5 Interpretation of Path Coefficients

- **CR → PI (-0.60)** → Strong negative impact (credit rationing reduces investment)
- **CA → CR (-0.52)** → Collateral strongly reduces credit constraints
- **FS → CR (-0.45)** → Larger firms face less rationing
- **FT → CR (-0.40)** → Transparency improves credit access
- **Direct effects on PI** are positive, showing firm strength boosts investment

6.6 Overall Interpretation

The findings indicate that **credit rationing exists primarily in the form of partial constraints rather than complete exclusion**, with **collateral requirements and limited access to formal credit emerging as the most significant determinants**. The results reinforce the theoretical argument that **information asymmetry leads to reliance on collateral and selective lending**, disproportionately affecting SMEs and constraining their investment potential.

7. Conclusion

This study concludes that credit rationing remains a significant barrier to productive investment in SMEs. The findings highlight that collateral requirements and limited access to formal credit are the primary determinants of financial constraints. SMEs are particularly vulnerable due to their structural limitations, including lower asset bases and reduced financial transparency.

The study further establishes that credit rationing negatively affects investment decisions, thereby restricting firm growth and economic development. Improving access to credit through institutional reforms, better financial disclosure, and reduced dependence on collateral can significantly enhance SME performance.

8. Future Scope

- Use primary data
- Apply advanced econometric models (panel regression, SEM software)
- Cross-country comparison

9. Recommendation

- Strengthen SME credit support schemes
- Promote alternative financing mechanisms
- Improve financial transparency and record-keeping
- Reduce excessive collateral requirements

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