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Macro Research Report: 2023

On

The Impact of Supply Chain Financing (SCF) on MSME Performance in India: with special reference to recent regulatory amendments to TReDS

Submitted to

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Dr. Leena S.

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Executive summary

MSMEs are the largest employers in developing countries, contributing significantly to the economy but facing numerous challenges like lack of infrastructure, technology adoption, and limited access to credit. In India, MSMEs generate significant employment, with 99.47% being micro-enterprises. Despite their importance, they struggle with obtaining funding due to high service costs and limited collateral, leading to a credit gap and stunted growth. Only 10% of MSMEs in India can access formal funding, pushing them to rely on Supply Chain Financing (SCF) and innovative solutions to bridge this gap.

The Reserve Bank of India (RBI) addressed MSME financing challenges with the Trade Receivables Discounting System (TReDS), supported by legal and payment frameworks like the IT Act, Factoring Act, SIDBI's MSME Bill discounting scheme, and the Payment and Settlement Systems Act.

To enhance access to finance, the government has implemented several policy initiatives. Notable among these is the Factoring Regulation (Amendment) 2021, which removed the threshold limit for Non-Banking Financial Companies (NBFCs) engaging in factoring, effective from August 23, 2021. Additionally, since November 2018, it has been mandatory for companies with a turnover exceeding ₹500 crores to register with TReDS. In February 2023, the RBI expanded the scope of TReDS by allowing General Insurance Companies to participate as a fourth party, providing coverage for financiers against losses from non-payment on discounted invoices. Furthermore, in October 2023, IRDAI amended the Trade Credit Insurance Guidelines to permit financiers to obtain insurance for buyer defaults on invoices financed through TReDS, specifically addressing "reverse factoring" transactions and enabling financiers to act as a "Fourth Participant" on TReDS platforms.

MSMEs use three TReDS platforms—M1xchange, Invoicemart, and RXIL—for invoice discounting. These platforms streamline and digitize payments, enhance transparency, minimize paperwork, and lower operational costs, ultimately helping MSMEs get paid on time and at lower costs. This Reserve Bank of India-backed TReDS platform reported significant growth in 2023, with invoices financed by lenders reaching ₹1.16 lakh crore, a 55% increase from ₹75,000 crore in 2022. This surge highlights the growing adoption of invoice discounting as a financing tool for MSMEs.

The objectives of this study are to examine the supply chain finance (SCF) landscape in India, focusing on its current state, stakeholders, and regulatory frameworks. It also aims to identify the key factors that influence the adoption of TReDS and SCF by MSMEs, including technology access, awareness, and regulatory support. Furthermore, the study will compare and contrast the challenges faced by MSMEs in adopting TReDS across well-served and under-served regions, highlighting disparities in digital access and financial infrastructure. Lastly, it will evaluate the impact of TReDS on MSME performance, assessing improvements in financial health, working capital management, and overall business growth.

This study uses both primary and secondary data analysis to meet the research objective. Primary data was collected via a survey of Indian MSMEs to gauge their experiences with TReDS and SCF adoption. MSME performance data was also gathered from survey respondents. Secondary data was collected from RBI website and TReDS exchanges (M1xchange, Invoicemart, RXIL) to analyse the TReDS performance.

The research followed a three-phase methodology to identify and prioritize factors influencing TReDS/SCF adoption among MSMEs. Initially, an extensive survey was conducted to determine these factors. This was followed by expert interviews using the Delphi technique to finalize them, and the Analytic Hierarchy Process (AHP) was used to rank and prioritize the factors.

The study then tested hypotheses using Partial Least Squares Structural Equation Modeling (PLS-SEM) to evaluate how factors like credit quality, partner integration, organizational policies, IT, and the macro environment impact TReDS/SCF adoption and performance. It also analyzed whether MSMEs' SCF performance positively affects their overall performance and if SCF performance moderates the relationship between TReDS/SCF adoption and MSME performance. Finally, Hierarchical Component Analysis using Smart PLS was used to examine the relationship between TReDS/SCF adoption and MSME performance.

The results revealed that India's supply chain financing landscape is rapidly evolving, driven by technological innovation, government initiatives, and changing market dynamics. The ongoing emphasis on technology, support for MSMEs, and enhancing global competitiveness is expected to shape the future of supply chain financing in the country.

The study identified several key factors affecting TReDS adoption among MSMEs. Integration with partners emerged as the most critical factor, accounting for 48.90% of the influence, highlighting the need for mandatory buyer acceptance to increase financier confidence. Credit quality, with a weightage of 23.00%, is also crucial, as MSMEs face limitations on financing and bank credit. Organizational policies, contributing 14.4%, play a significant role in overcoming adoption barriers, with incentives needed to encourage digital transactions. Macro-environmental factors, at 9.10%, such as government schemes like RBI’s RAMP, are vital for improving MSME cash flow and payment processes. Lastly, trade digitization, with a 4.70% weightage, is important for streamlining business processes, and MSMEs acknowledge that the benefits of adopting digital solutions outweigh the associated costs.

On comparing the adoption challenges between well-served & under-served regions - results show a notable rise in TReDS adoption across various regions, with 63.1% of MSMEs in the Northeast, 86.2% in Karnataka, and 94.4% in Maharashtra either having started or planning to implement TReDS, indicating a positive trend. However, challenges remain, particularly due to uncertainty about buyer registration on TReDS platforms, which limits MSMEs' access to financing. Additionally, the lack of clear guidance on which TReDS platform buyers are using, especially in the Northeast, complicates the registration process for MSMEs. A potential solution could be implementing a single portal registration system and ensuring interoperability among all TReDS platforms to ease participation and improve access to financing for MSMEs.

To evaluate the impact of TReDS on the MSME performance in India, the data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). Structural equation modeling was performed in two stages: measurement model assessment and structural model assessment. TReDS/SCF adoption was treated as a formative higher-order construct, which is reflective-formative in nature, and was evaluated based on four lower-order constructs: Integration with Partners (IP), Macro Environment (ME), Credit Quality (CQ), and Trade Digitization (TD).

The results show that TReDS/SCF adoption positively impacts MSME performance in the regions studied. The study confirms that adopting TReDS/SCF can lead to improved performance outcomes for MSMEs. It also suggests that SCF performance may moderate the relationship between TReDS/SCF adoption and MSME performance, potentially enhancing MSME growth. The research highlights that digital SCF solutions like TReDS are crucial in unlocking this potential by providing greater efficiency, transparency, and accessibility in financial transactions. By utilizing these digital platforms, MSMEs can improve their financial management, optimize cash flow, and access financing more effectively.

The Impact of Supply Chain Financing(SCF) on MSME performance in India: With special reference to recent regulatory amendments to TReDS

Abstract

MSMEs, or Micro, Small, and Medium-Sized Enterprises (MSMEs) have long emphasized the need for easy access to capital, lower interest rates, quick realization of sales, and predictable cash flow. The Reserve Bank of India (RBI) has found a solution to these challenges with Trade Receivables Discounting System (TReDS). Indian MSMEs are discounting their sales invoices at a large scale using the TReDS platforms.

The government has launched several policy efforts to make it easier for MSMEs to get financing. First off, the RBI has simplified the requirements for Non-Banking Finance Companies (NBFCs) and predicts the move to increase NBFC numbers from 7 to 182. As a result, NBFCs and other firms will be permitted to engage in factoring, which is anticipated to enhance the amount of funding available to MSMEs. Second, the government mandated all businesses with a turnover greater than 500 crores to register with TReDS, to address the ongoing issue of delayed payments encountered by MSMEs.

This research aims to explain the supply chain finance landscape in India in the first section. The second section will highlight TReDS, a Government-backed supply chain financing solution that has been steadily implemented in Indian markets over the past five years. Section three shall address the determination of various factors that affect the adoption of the TReDS. The next section compares and contrasts the various challenges faced by MSMEs in both well-served states (Karnataka and Maharashtra) & under-served states (Assam and Meghalaya) concerning TReDS implementation. The factors influencing TReDS and its impact on SCF Performance as well as MSME's performance in India will be evaluated in the end. The last section details the experts opinion collected through a detailed interview schedule with the subject matter experts, regulators, and other facilitators.

1. Introduction

According to the Annual MSME report 2022-23, India's 6.3 crore MSMEs sector contributes significantly towards the socio-economic development of the country. The sector has contributed 30 percent to India's GDP and has created 11.10 crore jobs. With an increase in the number of MSMEs by a CAGR of 18.5 percent from 2019-2020, MSME exports surged 21.8 percent from $155.9 billion during FY20 and 31.9 percent from $143.9 billion during FY21 to $190 billion during FY22.

According to World Bank data, MSMEs are the largest employers in developing countries despite having the least financial & regulatory support. MSMEs are the second largest employers of human capital after agriculture in our country. 6.33 crore MSMEs were generating 11.09 crore employment in the country. Out of 6.33 crore MSMEs, 630.52 lakh were micro enterprises (99.47%), 3.31 lakh were small enterprises (0.52%) and 0.05 lakh were medium (0.01%) enterprises.

Despite the MSME sector contributing significantly to the economy, it continues to face several challenges. The major challenges include physical infrastructure bottlenecks; absence of formalisation; inertia to technology adoption; capacity building; backward and forward linkages; lack of access to credit and risk capital; and the perennial problem of delayed payments.

MSMEs ability to survive and thrive is dependent on their ability to obtain sufficient funding. However, banks limit their exposure to MSMEs due to the high cost of service and the risk of lending without adequate collateral. Credit risk assessment is complex for lenders due to a lack of structured financial information, historical cash flow position, repayment trends data, etc. This leads to a credit gap for MSMEs that pulls them into a vicious cycle of high costs, low profitability, and stunted growth. Adding to this, the COVID-19-induced disruptions have further tightened credit terms from lenders.

Nevertheless, a substantial impediment to the growth of MSMEs is their exclusion from conventional lending channels. Merely 10% of India's MSMEs, numbering between 6 and 10 million, can avail themselves of official funding sources, despite contributing 40–50% of the total credit extended to the industry. Consequently, MSMEs rely on Supply Chain Financing (SCF) to empower themselves and narrow this gap through the introduction of innovative products and technological advancements.

Receivables Financing plays a crucial role in supporting MSMEs in the evolving digital landscape by reducing their financing expenses and enhancing business efficiency. These solutions democratize financial access, promote financial resilience among MSMEs, and facilitate the seamless operation of their business cycles.

The surge in transaction volumes within Trade Receivables Discounting System (TReDS) platforms underscores the growing acceptance of receivable financing. This trend highlights the integration of financing into business processes and cycles through digital tools, potentially enabling a leapfrog effect in financial accessibility and efficiency.

1.1. Methods of Receivables financing available to MSMEs

Receivables financing is critical to filling the credit gap for MSMEs efficiently. Factoring, Invoice Discounting, Bill Discounting and supply chain financing (SCF) are different means adopted by MSMEs for raising cash with the underlying asset as - accounts receivables. But they are not the same.

Invoice discounting uses unpaid invoices to act as collateral for a loan. These loans are relatively short-term because the company can pay them back as soon as the invoice is paid. After going through invoice discounting, the company will receive a loan that is smaller than the amount of the outstanding invoices (usually 80% or any invoices that are less than 90 days old).

Bill discounting entails selling unpaid invoices to a financier who will then pursue payment. When the company sells their unpaid invoices to a financier, they do so by offering them a discount. The point of doing this is to gain access to short-term financial assistance.

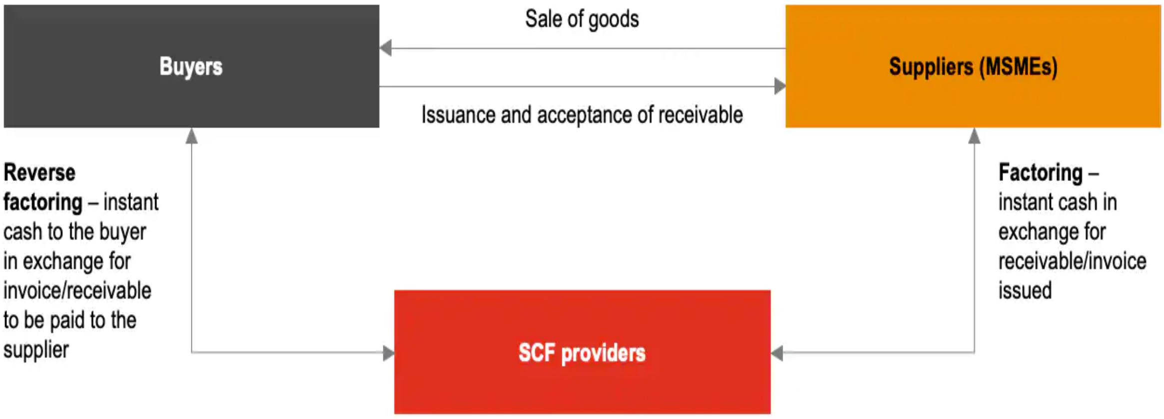
Factoring, meanwhile, means that you sell your receivables to a third-party - usually someone else in business like you - who then pays you back once they have collected them from your customer.

Factoring and invoice/bill discounting are two different forms of financing. The main difference is that factoring takes place before a company sells its products or services, while invoice/bill discounting occurs after the company has sold its products or services.

1.2. Supply chain financing: A technology-based solution

Supply chain financing (SCF) is critical to filling the credit gap for MSMEs cost-effectively and efficiently. SCF refers to technology-based solutions to lower financing costs and increase business efficiency for buyers & sellers in a sales transaction. SCF aims to finance suppliers by using invoices and receivables as intermittent collaterals. Two common SCF methods are factoring and reverse factoring. Factoring is a financial transaction wherein suppliers sell their accounts receivable to a third party (a bank or FinTech) at a discount. Reverse factoring is also an accounts receivable financing mechanism, but in this case, the transaction is initiated by the buyer. SCF strengthens the buyer-supplier relationship.

Figure 1: Process of Factoring & Reverse factoring



Source: PWC Report on "Unlocking credit for MSMEs: Innovations in supply chain finance", 2019.

SCF can enable MSME suppliers and distributors to increase their working capital and, thereby, make them globally competitive. This type of financing helps lenders extend working capital finance to MSMEs. It also helps large corporates improve their working capital management and enables financiers to assess, measure, and manage the risks of extending financing to MSMEs more effectively.

1.3. Supply chain finance v/s Invoice/bill discounting v/s Factoring

Parameters	Supply chain finance	Invoice/bill discounting finance	Factoring
Credit control	The financier gains control of the business's sales ledger.	The financier does not gain any control over the business's sales ledger.	Invoice factoring service providers gain full control over the company's sales ledger.
Confidentiality	The financier approaches the customer to collect the payment, making it impossible to maintain confidentiality.	In invoice discounting, the customer is not aware of the financier's involvement.	There is no confidentiality maintained in this financing option as customers pay directly to the factoring service provider.

Suitability	This financing is more suitable for small and medium-sized businesses and helps to access funds quickly.	Suitable for big and medium-size businesses, and helps to meet the working capital gap successfully.	Suitable for medium and small businesses.
Collection	The financier is responsible for collecting payment from the customer on behalf of the company.	The business is responsible for collecting payment from the customer.	The factoring service provider is responsible for collecting payments from customers on behalf of businesses.
Value raised	Businesses can avail up to 85% of the invoice's value.	The amount of value raised through invoice discounting depends on several factors like – the customer's creditworthiness, invoice amount, applicant's eligibility, etc.	One can raise to 85% of the outstanding payment via factoring.
Cost	Mostly cheaper than discounting and factoring	In case the financing is non-recourse, it is somewhat expensive.	In most cases, it is cheaper than discounting

Source: KredX.com

Supply Chain Finance (SCF) offers a lifeline to this sector in these difficult times. Supply Chain Finance (SCF) is a system that provides enterprises with short-term working capital arrangements. This involves three main parties—the supplier/seller, the buyer, and the bank/financial institution offering finance. Enterprises get their supplier payments financed by an external financier.

Businesses and suppliers are now taking advantage of selling their invoices to obtain short-term credit for their working capital needs. Companies can quickly secure the funds they need by selling their high-value invoices to financial institutions. Buyers must consent to their suppliers' invoices for a lender to provide the operational capital needs of an organization.

This arrangement provides advantages for both the supplier and the buyer; the supplier obtains speedy access to payments due to them, while the buyer receives more time to make their payments.

On the due date, the buyer pays the financier the total price, and the FI gains from the difference between the discounted price paid to the seller and the total price received from the buyer.

Micro, Small, and Medium Enterprises (MSMEs) have long expressed the necessity for conventional financing, lower interest rates, the prompt realization of sales, and predictability of cash flows. The Reserve Bank of India (RBI) found a solution to these challenges with the Trade Receivables Discounting System (TReDS). Sound foundational elements operating on behalf of TReDS solutions include an enabling legal and payment framework, including legal acceptability of digital documents, digital signatures made valid under the IT Act, Factoring Act laying ground rules, MSME Bill discounting scheme of SIDBI, the Payment and Settlement Systems Act, and NPCI's robust payment system.

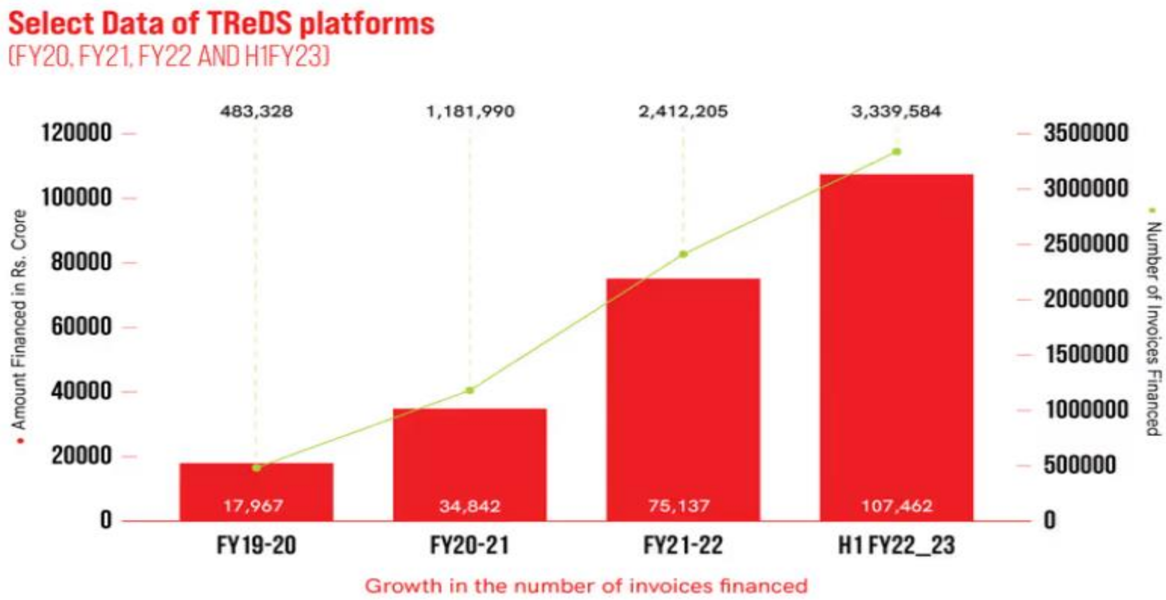
Three TReDS platforms or exchanges—M1xchange, Invoicemart, and RXIL—are used by MSMEs to benefit from invoice discounting and getting early payments at competitive interest rates. This helps corporates to streamline and digitize payments to MSMEs and pay them on time. These exchanges provide a transparent trading platform, with increased transparency, minimal paperwork, and reduced operational costs.

For the MSME Sellers, the biggest advantage is that they can discount their invoices at the best discount rate due to competitive bidding made possible through the participation of multiple financiers in the auction. For the buyers, besides compliance with the MSMED Act of 2006, participation in the auction on the exchanges leads to better payment cycles and efficient cash flow management. Financiers participating in the exchanges get access to a wider market with qualified instruments and better portfolio diversification. In this process the exchanges also provide various useful reports to the MSME sellers, buyers, and financiers, thereby bringing transparency into the trade credit market in India.

The acceptance and implementation of digital technology in corporate and commercial banking are still in their early stages; TReDS is an example of a successful digital supply chain financing model. This platform facilitates MSMEs in achieving access to finance thus creating a level playing field. This can have a beneficial effect on thousands of small businesses which offer the majority of job opportunities.

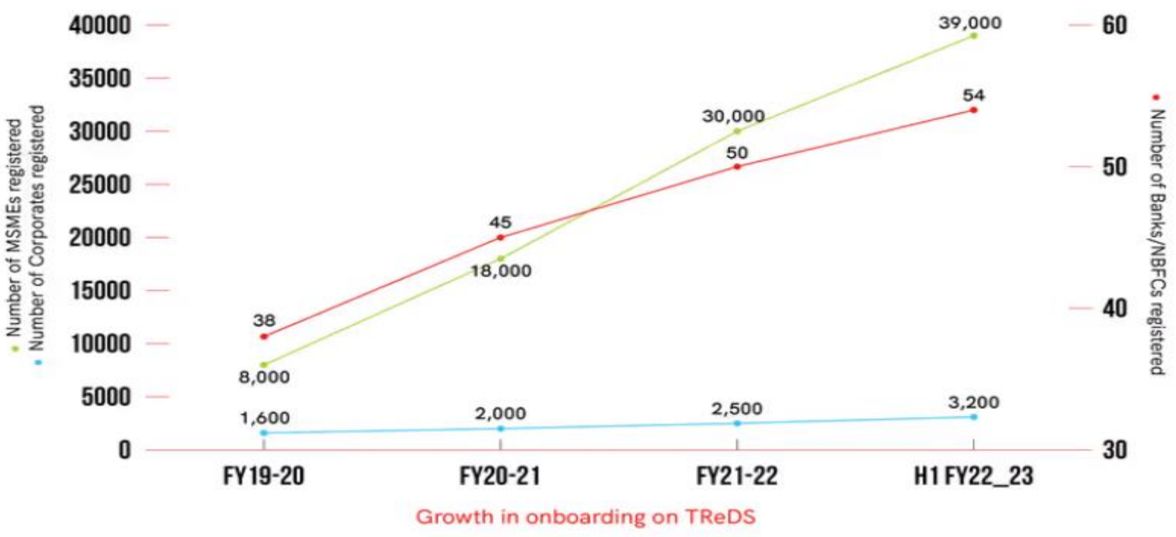
Large corporates and MSMEs have embraced TReDS in recent years and the adoption is rising. Indian MSMEs are discounting their sales invoices at a large scale using the TReDS platforms.

Figure 2: Growth in the number of invoices financed on TReDS



Source: Report on "Why digital supply chain finance under TReDS is a force multiplier" by Rajesh Parthasarathy.

Figure 3: Growth in onboarding in TReDS



Source: RBI Report on TReDS

1.4. Introduction to Factoring

Factoring is a financial tool that provides the seller of goods (client) with an advance against the accounts receivable. It improves liquidity, leads to better working capital management, and is also easier to obtain than traditional bank finance, especially for small and medium enterprises. Hence, factoring is a comprehensive financial service that includes credit protection, accounts receivable bookkeeping, collection services, and receivables financing.

There are various types of factoring in financial services, and businesses can choose the one most suitable for them based on the exigencies of the businesses.

Factoring can be domestic or export. The process of export factoring is almost similar to domestic factoring except in respect of the parties involved. In domestic factoring, three parties involved namely customers (buyer), client (seller supplier), and factor(financial intermediary) are domiciled in the same country, while four parties are involved in a cross-border factoring transaction. They are (1) exporter (client), (2) importer (customer), (3) export factor and (4) import factor.

The process flow between the parties involved in cross-border factoring (also called international or export factoring):

- The exporter informs the export factor about the export of goods to a particular import client domiciled in a specified country. The goods are sold on open credit.
- The export factor writes to the import factor (domiciled in the country of the importer) enquiring about the credit worthiness, reputation, etc of the importer.
- On getting satisfactory information on the import factor, the exporter delivers the goods to the importer, and the relevant invoices, bills of lading, and other supporting documents are delivered to the export factor. The export receivables on a non-recourse basis are factored in.
- The export factor contracts out the work of credit checking, sales ledgering ad collection to the import factor concerning the customers located in the country of imports.
- The import factor collects the payment from the importer (customer) and effects payment to the export factor on assignment/maturity/ collection as per the terms of assignment in the currency of the invoice.
- Finally, the export factor makes payment to the exporter up on assignment or maturity or collection depending upon the type of factoring arrangement between them.

Factoring can be done either on a ‘‘non-recourse’’ or ‘‘recourse’’ basis against the factor’s client (the sellers). In non-recourse factoring, the lender not only assumes title to the accounts but also assumes most of the default risk because the factor does not have recourse against the supplier if the accounts default. Under recourse factoring the factor has a claim (i.e., recourse) against the seller for any account payment deficiency. Therefore, losses occur only if the underlying accounts default and the seller cannot make up the deficiency. In developed countries, it appears that factoring is more frequently done on a non-recourse basis. In Italy, for example, 69% of all factoring is done on a nonrecourse basis (Muschella, 2003). Since in emerging markets, it is often problematic to assess the default risk of the underlying accounts, typically factoring is done on a recourse basis so that the factor can collect from the seller in the case that the buyer defaults. For instance, a survey of factors in eight EU-accession countries finds that most factoring in the region is done with recourse (Bakker et al., 2004).

Ordinary factoring has in general not been profitable in emerging markets. First, if good historical credit information in unavailable, then the factor takes on a large credit risk. For instance, in many emerging markets, the credit information bureau is incomplete (i.e., may not include small firms) or non-bank lenders, such as factors, are prohibited from joining.

Second, fraud is a big problem in this industry – bogus receivables, nonexisting customers, etc. – and a weak legal environment and non-electronic business registries and credit bureaus make it more difficult to identify these problems. An alternative often used in emerging markets is for the factor to buy receivables ''with recourse'', which means that the seller is accountable in the case that a buyer does not pay its invoice, and that the seller of the receivables retains the credit risk. However, this may not successfully reduce the factor's exposure to the credit risk of the seller's customers, since in the case of a customer's default, the seller may not have sufficient capital reserves to repay the factor.

One solution to these factors to factoring is the technology often referred to as ''Reverse Factoring''. In this case, the lender purchases account receivables only from specific informationally transparent, high-quality buyers. The factor only needs to collect credit information and calculate the credit risk for selected buyers, such as large, internationally accredited firms. Like traditional factoring, which allows a supplier to transfer the credit risk of default from itself to its customers, the main advantage of reverse factoring is that the credit risk is equal to the default risk of the high-quality customer, and not the risky SME. This arrangement allows creditors in developing countries to factor ‘‘without recourse’’ and provides low-risk financing to high-risk suppliers.

1.4.1. Factoring services – Global scenario

The factoring Chain International world factoring statistics report dated May 24, 2023, reports the following highlights.

The report highlights that the factoring and receivables finance industry once again grew at a double-digit rate. 2022’s increase of 18.3% surpasses 2021’s growth of 12.3%. It is estimated that this industry will grow by €3,659 billion in 2022.

Europe, which once again was the largest contributor to the industry, represented 68% of global volume. In 2022, the European region contributed €2,499 billion, which is an increase of 18% from 2021.

The Asia Pacific region represents approximately 24% of global volume with €881 billion, which experienced an increase of 17% over 2021.

The Americas region continued its upward trajectory from 2021, with a remarkable growth rate of 47%. In terms of market share, the Americas represent 6% of the total world factoring volume, with an overall figure of €228 billion.

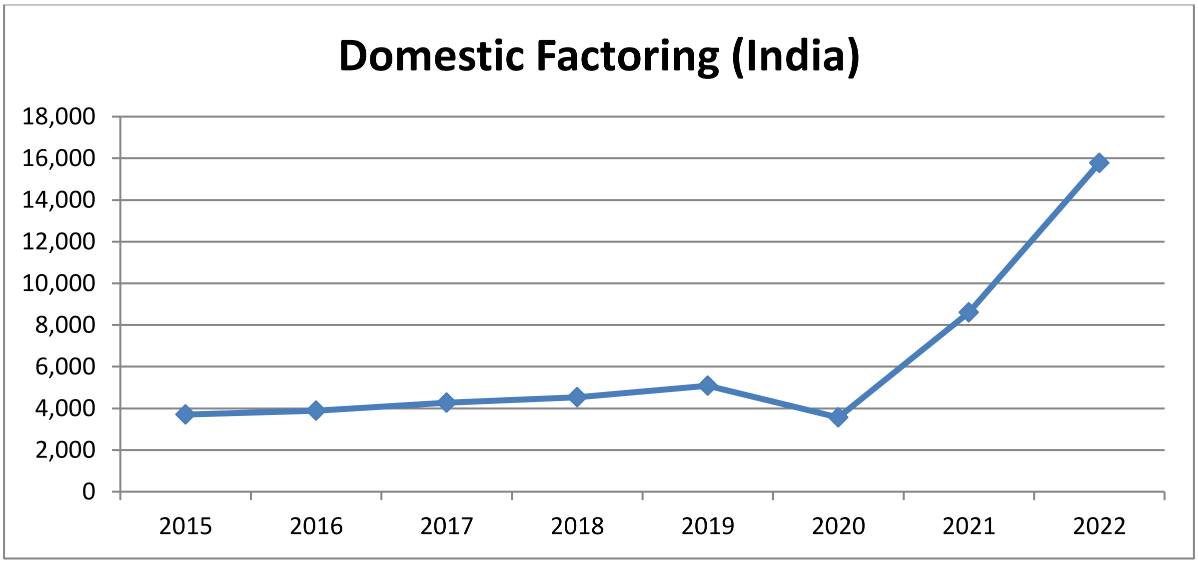
Africa accounted for 1% of the total world factoring volume in 2022, amounting to €41 billion, indicating a significant growth rate of 29% compared to 2021, which is consistent with the previous year’s increase.

Table 1: Global Factoring Turnover (2022) in millions of EUR

	2015	2016	2017	2018	2019	2020	2021	2022
Domestic Factoring	3,700	3,881	4,269	4,532	5,089	3,562	8,600	15,771
Global Factoring	23,67,790	23,75,968	25,98,298	27,67,068	29,17,105	27,26,728	30,93,706	36,59,204

Source: Factoring Chain International, Annual Review Report 2023

Figure 4: Domestic Factoring Turnover (2022) in millions of EUR



Source: Factoring Chain International, Annual Review Report 2023

1.4.2. Factoring Services – Indian Scenario

Although factoring as a service has been around for a long time in India, it has only recently started gaining popularity as an alternative to traditional ways of securing finance against trade receivables. SBI Factors and Commercials Limited was the first factoring company to start its operation in India in April 1991. Today, however, MSMEs can choose between several bank and non-bank entities for their factoring requirements.

MSMEs enjoy two distinct benefits under factoring. Firstly, since a factoring solution involves a direct transfer of credit risk to the factoring company, its far less risky for the MSME seller who can focus on the core areas of the business instead of worrying about getting paid. Secondly, a good factoring company, with a strong global presence acts in an advisory capacity, due to their global expertise that spans several industries, factoring companies can advise MSMEs on the best action plan.

The Banking Regulation Act, 1949 was amended in 1991 facilitating banks in setting up factoring services. Factoring business is dominated majorly by public sector banks and few NBFCs in India.

Table 2: The list of NBFC Factors registered with RBI as of January 2022.

SI.No	Regional Office	Name of the Company
1	Bengaluru	Canbank Factors Limited
2	New Delhi	IFCI Factors Ltd.
3		Bibby Financial Services (India) Pvt. Ltd.
4	Mumbai	SBI Global Factors Ltd. [Formerly: Global Trade Finance Limited]
5		India Factoring & Finance Solutions Pvt Ltd
6		Siemens Factoring Private Limited
7	Patna	Pinnacle Capital Solutions Private Limited

Source: RBI website

1.4.3. Costs involved in Factoring

In India, these are usually the costs to be considered to weigh the factoring service. However, these industry-standard factoring costs are not uniform and change as per the industry, business type, and also from factoring agency to agency.

- Interest or Discount Rates: the interest rates on factoring are generally calculated monthly and can range anywhere between 0.7% per month for good credit profiles, all the way up to 1.5% per month for borderline credit profiles. Depending on the indicative date of receipt of the trade payables, the factoring company (factor), will provide for some interest deductions + a buffer amount and will pay out only a percentage (%) of the invoice. The rest of the amount will be paid once the factor receives the payments from the buyer.

- Processing Fees: Almost all factoring companies in India charge a processing fee, which is generally calculated on the total sanctioned facility. This ranges from 0.3% to 1% of the total amount.
- Overdue Interest: This is unique to recourse-based factoring programs wherein the obligation of ensuring repayment falls upon the seller. In case of delays in receiving payments, the factor can charge overdue interest, which can be as high as 1-2% per month
- Opportunity Costs: Factoring is generally slightly more expensive than traditional trade financing solutions like bank loans. However, other financing techniques are far more cumbersome and long-term in their payment timelines. The opportunity cost of securing delayed capital should also be considered while weighing the viability of a factoring solution.
- Maintenance Fees: Some factors also charge a miscellaneous fee for some services like pulling credit reports on the buyers, advisory services - which is very popular in export factoring transactions, and collection fees (in case of collection factoring)

1.4.4. Pricing Aspects in Factoring

Factoring companies follow differential pricing techniques, which means that not all customers are charged the prices. The actual pricing will vary depending on the perceived risks for the factor, size of the facility, nature of the business, etc.

Some of these aspects that a factoring company may consider before finalizing a price can include;

- Financials: The financial statements, including balance sheets and income statements from the borrowing companies, are requested to evaluate the health of the business, the growth trajectory, and the company's ability to successfully execute orders profitably. An over-leveraged balance sheet or diminishing profitability is construed as a risky transaction that will warrant higher pricing.
- Business Vintage: Much older businesses with a proven vintage are far more likely to enjoy better pricing as opposed to nascent companies.
- Number of Shipments: A significant factor to consider, especially in the case of international factoring, the number of shipments that a supplier ships out to other countries is a noteworthy aspect that factoring firms take into account before making disbursements.
- Credit Profile of the buyer: Since the ultimate party that is making the payment is the buyer from the importing company, factoring companies may sometimes charge higher pricing for buyers that they deem particularly risky or may even outright reject them

1.4.5. How is factoring cost calculated?

Factoring fees are usually calculated by applying the discount/interest rate to the amount advanced against the invoice. But in some cases, it can be charged against the total invoice value, this is something that borrowers need to watch out for.

The first step of the calculation is based on the interest/discounting rate.

Factoring rates can be quoted as flat rates or variable rates. Under flat rates, one single rate is charged irrespective of the period for which the invoice remains open.

Example 1: Invoice face value: INR 1,000, Advance rate: 80% (*Advance rate is the percentage of invoice value that is extended as advance). The remaining 20% of the amount that the factor will receive at the due date along with the entire amount will be kept as a buffer to cover overdue interest, processing fees, etc.

Amount advanced: ₹ 800

Quoted discount rate: 1.5%

If calculated on amount advanced = ₹ 800 x 1.5% = ₹ 12

If calculated on invoice value =₹1000 x 1.5% = ₹15

Most well-known factoring companies charge interest rates based on the factoring amount value. If not, the borrowers should consider this as a red flag and investigate further.

Example of flat rate: Quoted discount rate: flat 4% for 60 days.

Amount advanced: ₹100

The fee on your ₹ 100 invoice if it's paid in 60 days would be:

₹ 100 x 4% = ₹ 4.00

Total factoring fee = ₹ 4

Example of variable rate:

Quoted discount rate: 2% flat discount Rate for the first 30 days and an additional 1% flat discount rate for every 30 days afterward.

The fee on your ₹ 100 invoice if it's paid in 60 days would be:

First 30 days: ₹ 100 x 2% = ₹ 2.00

the next 30 days: (₹100 x 2%) +(₹ 100 x 1%) = ₹ 3.00

Total factoring fee = ₹ 2 + ₹ 3 = ₹ 5

The processing fees and maintenance fees on either the overall sanctioned facility or the advanced amount can be calculated as a simple percentage and added to the total factoring cost.

1.5. Legislations Involved

The Factoring Regulation Act,2011

The Factoring Regulation Act 2011, which took effect in February 2012, governs the Factoring industry in India and provides the country with a valid framework for factoring. This act provides the procedure for the registration of assignments of receivables. It sets out the rights and obligations of parties to an assignment contract and covers matters connected with the assignment itself or incidental thereto.

The fundamental goal of this act is to tackle the payment delays and liquidity issues that micro, small, and medium-sized businesses encounter, and to also establish a framework that will allow for easy accessibility to working capital financing.

The Act also removed stamp duty on factory transactions to stimulate more transactions by eliminating the burden of excessive duties that otherwise would have applied to moveable property transfers.

Definitions

Under the Factoring Regulation Act, of 2011, a factoring business is a business where an entity (referred to as factor) acquires the receivables of another entity (referred to as assignor) for an amount. Receivables are the total amount that is owed or yet to be paid by the customers (referred to as the debtors) to the assignor for the use of any goods, services, or facility. Factor can be a bank, a registered non-banking financial company, or any company registered under the Companies Act. Note that credit facilities provided by a bank against the security of receivables are not considered as factoring business.

- Factor registration

Every factor must apply for registration to the RBI in the prescribed form and format. Every applicant for a certificate of registration as a factor shall comply, for registration, with all requirements to be fulfilled by an applicant for a certificate of registration as an NBFC under the RBI Act 1934, and all provisions of the Act.

- Assignment of receivables

A seller (assignor) may assign any receivable due and payable to him by any debtor to any factor(assignee), for such consideration as agreed upon, with a necessary disclosure for its settlement.

- Non-applicability of the Act

Provisions of this Act shall not apply to any assignment of receivables arising from A merger, acquisition, or restructuring of business activities, or a sale or change in the ownership, transaction that takes place on a stock market or a commodity exchange, Financial contracts governed by netting agreements, Foreign exchange transactions except for receivables in any foreign currency, Money in the bank, a letter of credit or a third-party assurance and securitization transactions.

- Rights and duties

The rights and obligations of the parties to a contract for the assignment of receivables are addressed in the Act. The debtor has the right to notice of assignment before the assignee makes any demand on the debtor, and until the debtor receives notice, the debtor is entitled to make payments to the assignor in respect of the assigned receivable following the original contract, and such payment fully discharges the debtor from corresponding liability under the original contract.

- Registration of assignments

The factor must file the particulars of every transaction in his favor with the Central Registry established under the SARFAESI Act, 2002 within 30 days of the date of such assignment in Form 1 and pay a fee of Rs. 500. A record called the central register shall be kept at the Head

Office of the Central Registry for entering the particulars of the transaction relating to assignment or a loan.

- Inspection by the general public

On payment of a stipulated price, the central registry in electronic form shall be open for examination by any person via electronic media during business hours as specified by the central registry.

- Wrongdoing and penalties

The company and any officer of the company who fails to register assignments will be fined up to Rs.5000/- per day if the default persists. If any factor fails to comply with any RBI directive, the RBI may impose a penalty of up to Rs.5 lakhs, plus an additional punishment of up to Rs.10,000/- for each day the default continues.

The Factoring Regulation (Amendment) Act, 2021

- The Factoring Regulation (Amendment) Act was passed by the Rajya Sabha on 9th August 2021. The Bill seeks to amend the Factoring Regulation Act, of 2011 to bring changes in the legislation aimed at helping the Micro, Small, and Medium Enterprises (MSME) sector.
- Change in the definition of receivables: The Act defines receivables as (all or part of or undivided interest in) the monetary sum which is the right of a person under a contract. This right may exist, arise in the future, or be contingent arising from the use of any service, facility, or otherwise. The Bill amends the definition of receivables to mean any money owed by a debtor to the assignor for toll or the use of any facility or services.
- Change in the definition of assignment: The Act defines assignment to mean the transfer (by agreement) of the undivided interest of any assignor in any receivable due

from the debtor, in favor of the factor. The Bill amends the definition to add that such a transfer can be in whole or in part (of the undivided interest in the receivable dues).

- Change in the definition of factoring business: The Act defines a factoring business to mean the business of (i) acquisition of receivables of an assignor by accepting assignment of such receivables, or (ii) financing against the security interests of any receivables through loans or advances. The Bill amends this to define factoring business as the acquisition of receivables of an assignor by assignment for consideration. The acquisition should be for the collection of the receivables or financing against such assignment.
- Registration of factors: Under the Act, no company can engage in factoring business without registering with the Reserve Bank of India (RBI). For a non-banking financial company (NBFC) to engage in a factoring business, its: (i) financial assets in the factoring business, and (ii) income from the factoring business should both be more than 50% (of the gross assets/net income) or more than a threshold as notified by the RBI. The Bill removes this threshold for NBFCs to engage in factoring business.
- Registration of transactions: Under the Act, factors are required to register the details of every transaction of assignment of receivables in their favor. These details should be recorded with the Central Registry setup under the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002 within 30 days. If they fail to do so, the company and each officer failing to comply may be punished with a fine of up to five thousand rupees per day till the default continues. The Bill removes the 30 days. It states that the period, manner of registration, and payment fee for late registration may be specified by the regulations.

- Further, the Bill states that where trade receivables are financed through the Trade Receivables Discounting System (TReDS), the details regarding transactions should be filed with the Central Registry by the concerned TReDS, on behalf of the factor.
- RBI to make regulations: Further, the Act empowers the Reserve Bank of India to make regulations prescribing the manner of granting a certificate of registration and prescribing the manner of filing of assignment of receivables transactions by TReDS on behalf of the Factors.

1.6. Latest Amendments

The Trade Receivables Discounting System has been introduced in The Factoring Regulation (Amendment) Act, 2021. TReDS is an electronic platform that helps businesses get financing for their trade receivables. This can be done through several lenders, which makes it a convenient way to get loans for small businesses. To improve operational efficiency, the Trade Receivables Discounting System (TReDS) is authorized by the Act to report the specifics of receivables assignment transactions to the Central Registry on behalf of the Factors.

In the exercise of the powers conferred under the Act, the Reserve Bank has issued the following regulations:

Registration of Factors (Reserve Bank) Regulations, 2022

(with effect from January 14th, 2022)

- Reserve Bank of India made regulations about the manner of granting Certificate of Registration (CoR) to companies that propose to do factoring business. All existing non-deposit-taking NBFC-Investment and Credit Companies (NBFC-ICCs) with asset size of ₹1,000 crore & above and Net Owned Funds(NOF) of INR 5 crore will be permitted to undertake factoring business subject to satisfaction of certain conditions.

This will increase the number of NBFCs eligible to undertake factoring business significantly from 7 to 182[3].

- Every company seeking registration as NBFC-Factor shall have a minimum Net Owned Fund (NOF) of INR 5 crore, or as specified by the Reserve Bank from time to time.
- Principal Business Criteria (PBC): An NBFC-Factor shall ensure that its financial assets in the factoring business constitute at least fifty percent of its total assets and its income derived from the factoring business is not less than fifty percent of its gross income.
- NBFC-Factor or eligible NBFC-ICC which has been granted CoR by the Reserve Bank under these regulations, shall commence factoring business within six months from the date of grant of CoR[2].

Registration of assignment of receivables Regulations, 2022

(with effect from January 14th, 2022)

- Any trade receivables financed through a Trade Receivables Discounting System (TReDS); the concerned TReDS on behalf of the Factor shall, within ten days, from the date of such assignment or satisfaction thereof, as the case may be, file with the Central Registry the particulars of
    - Assignment of receivables in favor of a Factor in Form I,
    - Satisfaction of any assignment of receivables on full realization of the receivables in Form II,
- Both forms I & II are to be authenticated by the authorized person using a valid electronic signature and shall be accompanied by the fee as prescribed by the Government of India and the same shall be paid to the Central Registrar.[4]

1.7. TReDS: An RBIs initiative to expedite cash flows of MSMEs

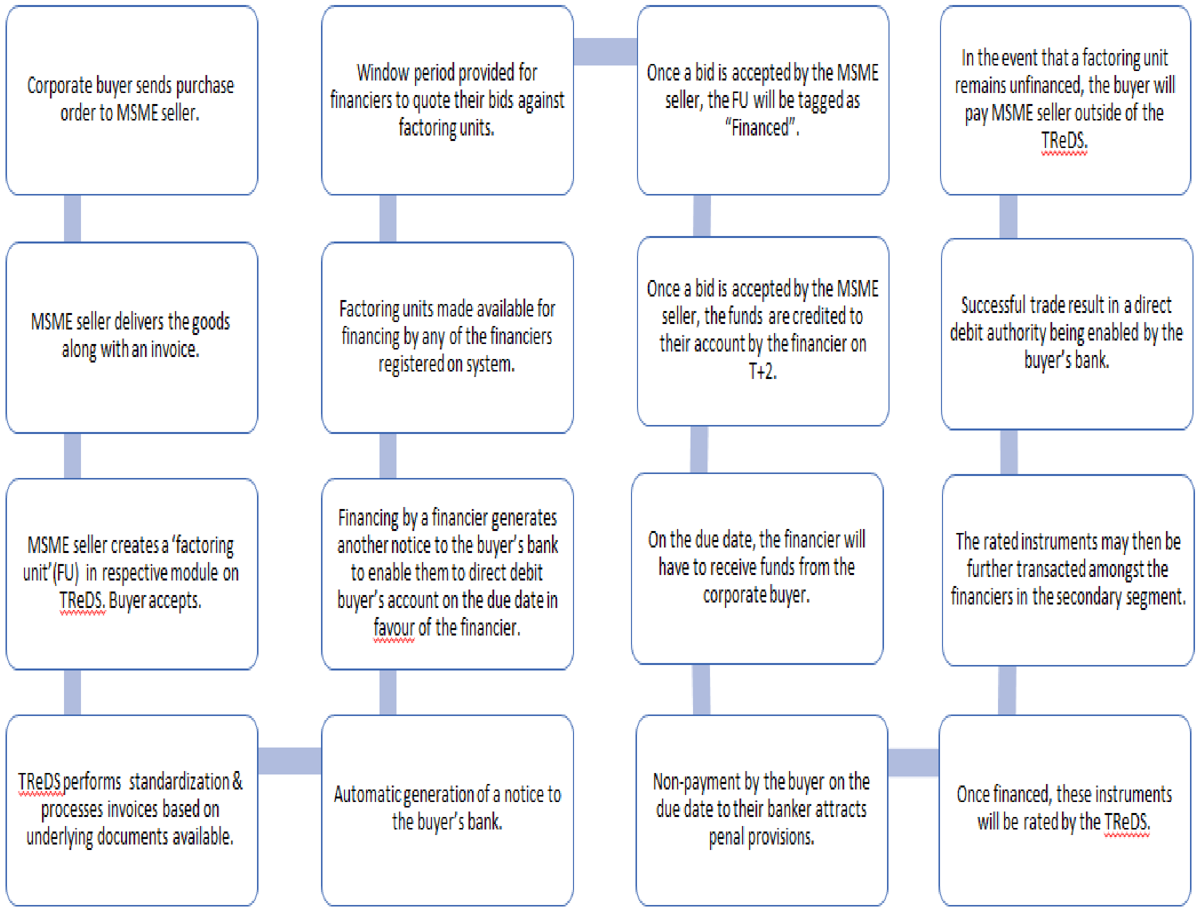
To address the perennial issue of delayed payments, the Reserve Bank of India introduced the Trade Receivables e-Discounting System (TReDS) in 2014. TReDS is an electronic platform where receivables of MSME sellers drawn against buyers (large corporates, PSUs, Government departments) are financed through multiple financiers (banks, NBFC-Factors, and other financial institutions, as permitted) at competitive rates. This is done through an auction-based mechanism. It is a platform for uploading, accepting, discounting, trading, and settling invoices/bills of MSMEs and facilitating both receivables as well as payables factoring (reverse factoring). All transactions processed under this system are '"without recourse" to MSMEs.

In 2018, the Government made it mandatory for all companies with a turnover greater than ₹ 500 crores to register with TReDS.

In the Union Budget 2020-21, the Government has announced app-based invoice financing products to obviate the problem of delayed payments of MSME. The mechanism may prove complementary to the TReDS platform and would further alleviate the problem of delayed payments.

1.7.1. Process flow under TReDS

Figure 5: Process flow under TReDS



Source: Authors own construction based on RBI guidelines.

1.7.2. Exchanges under TReDS

Between December 2016 and July 2017, three receivables exchanges were launched in India. RBI has given license to these three exchanges and they are governed by the Payment and Settlement Systems Act, 2007. These are:

1. Receivables Exchange of India, which is a joint-venture between the National Stock Exchange and SIDBI (known as RXIL). RXIL is the first entity to receive approval from RBI on December 01, 2016, to launch India's First TReDS Exchange.

2. Mynd Solution (known as M1 exchange) - Mynd Solutions Pvt Ltd set up the TReDS platform 'M1xchange' on April 7th, 2017 to facilitate discounting of invoices and Bills of exchange for MSMEs on a PAN India basis. M1xchange was launched on 7th April 2017 to service the finance needs of MSMEs across India.
3. A.TREDS Ltd, a joint-venture between Axis Bank and Mjunction Services. (Known as Invoicemart). They received the license for the platform on June 29, 2017, and started operations on July 5, 2017.

These exchanges provide an online platform for discounting under factoring (discounting initiated by the seller and cost borne by the seller) and reverse factoring (discounting initiated by the buyer and cost borne by the seller/buyer) and ensuring payment to the MSME sellers. They also have the responsibility of on boarding as many MSME sellers, buyers, and financiers as possible. A large number of buyers would ensure a competitive bidding for the invoices.

The exchanges have managed to provide a transparent trading platform, with increased transparency, minimal paperwork, and reduced operational costs. For the MSME Sellers, the biggest advantage is that they can discount their invoices at the best discount rate due to competitive bidding made possible through the participation of multiple financiers in the auction. For the buyers, besides compliance with the MSMED Act of 2006, participation in the auction on the exchanges leads to better payment cycles and efficient cash flow management. Financiers participating in the exchanges get access to a wider market with qualified instruments and better portfolio diversification. In this process the exchanges also provide various useful reports to the MSME sellers, buyers, and financiers, thereby bringing transparency into the trade credit market.

1.7.3. Establishment and Operational Criteria of TReDS

To operate and manage TReDS, an entity must first meet certain requirements as follows:

1. Budget Requirements

- Since TReDS is not authorized to take up credit risk, the minimum paid-up equity (capital) requirement is INR 25 crores.
- Other than the promoters, no entity will be permitted to own more than 10% of the TReDS' equity capital.
- In the case of foreign ownership, the TReDS will be subject to and governed by the current foreign investment policy.

2. Due Diligence of Promoters

- According to the SEBI's Issue of Capital and Disclosure requirements regulation from 2009, any organization (or their promoters) serving as TReDS must be 'fit and suitable.'
- The applicants' status will be evaluated by the RBI based on their previous records (sound financial credentials and record integrity) for at least 5 years.
- Other enforcement/regulatory agencies, such as the CBI, the Income Tax Department, the Enforcement Directorate, and the SEBI, may also request feedback on the candidates who have applied.

3. Technology Capabilities

- To ensure smooth operations, the TReDS must have strong technical capabilities. It must be able to provide all of its participants with a digital platform.
- It should have a proper business plan in place that includes surveillance capabilities as well as a disaster recovery site that monitors all data such as prices, positions, and volumes to ensure no system manipulation occurs.

1.7.4. TReDS Advantages

For Buyers:

- By enrolling on TReDS, the buyer can properly track its cash flow.
- It ensures that payment cycles are smooth and error-free.
- It only takes a small amount of paperwork and money. Transparency is essential.
- Better negotiation with MSME vendors
- Lower administrative cost
- Compliant with MSMED Act, 2006

For Sellers:

- MSMEs have the option to choose the best bid
- TReDS platform helps in eliminating the funnel of following up with buyers for payment
- Wider financial options
- TReDS portal allows T+1 payment on successful auction
- It only takes a small amount of paperwork and money

For Financer:

- The Financer may have access to a broader market.
- TReDS ensures instrument qualification.
- facilitates lowers operational costs.

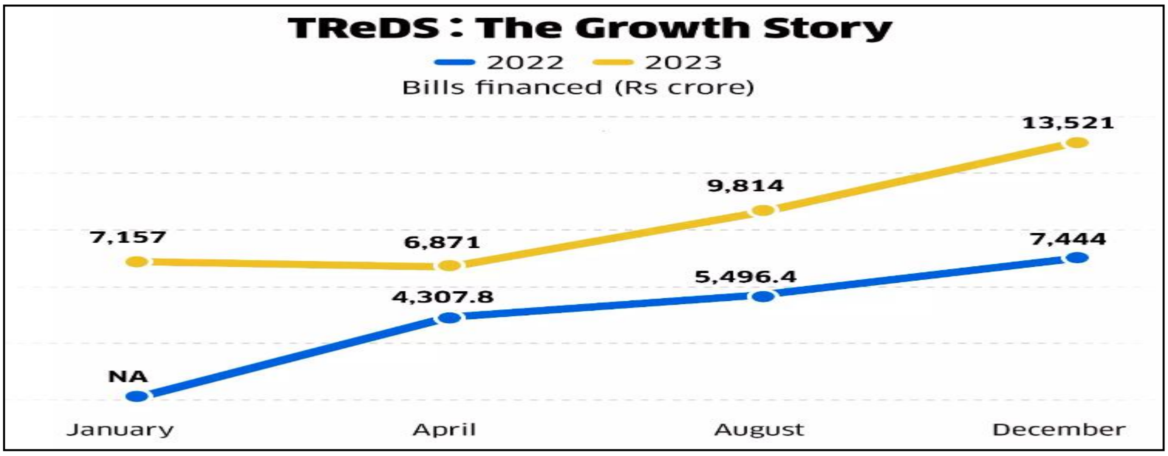
1.7.5. TReDS Drawbacks

- The identity of MSME suppliers is a source of concern for large corporations. Large firms are hesitant to file invoices online for fear of their competitors discovering their MSME suppliers
- TReDS is a transparent system; buyers are concerned that they must settle supplier invoices within 45-60 days of receiving goods or services.

1.7.6. TReDS Statistics

Reserve Bank of India-backed invoice discounting platform TReDS (Trade Receivables electronic Discounting System) has reported a jump in invoices financed by lenders in 2023. In 2023, total bills financed on the TReDS platform stood at Rs 1.16 lakh crore, up by 55% from around Rs 75,000 crore in 2022. (*Figure 6: Comparison of bills financed on TReDS*)

Figure 6: Comparison of bills financed on TReDS



Source: RBI database on entity-wise trade receivables discounting system (TReDS) statistics for December 2023

(Retrieved from: https://m.rbi.org.in/Scripts/TREDSStatisticsView.aspx?TREDSid=22)

Note: RBI data has been available since March 2022 to date

Table 3: TReDS statistics as of December 2023

Entity-wise Trade Receivables Discounting System (TReDS) statistics for the month of December 2023											
S. No.	Entity	Number of MSME sellers registered as at the end of the month (in actuals)	Number of buyers (corporates/other buyers including Govt. Depts./PSUs) registered as at the end of month (in actuals)	Number of financiers registered as at the end of month		Factoring Units (FUs) uploaded during the month			Factoring Units (FUs) financed during the month		
				Banks	NBFC Factors and other Fis	No. of FUs (in actuals)	Value (in Rs'000)		No. of FUs (in actuals)	Value (in Rs'000)	
1	A.TREDS Limited	26,211	1,602	54	7	21,946	₹	5,07,07,318	20,396	₹	4,76,45,716
2	Mynd Solutions Private Limited	24,316	1,446	49	6	19,097	₹	4,64,52,961	17,009	₹	4,41,78,601
3	Receivables Exchange of India Limited	21,785	1,345	53	11	31,391	₹	4,79,71,927	22,321	₹	4,33,93,434
					Total	72,434		14,51,32,206	59,726		13,52,17,750

Source: RBI database on entity-wise trade receivables discounting system (TReDS) statistics for December 2023

(Retrieved from: https://m.rbi.org.in/Scripts/TREDSStatisticsView.aspx?TREDSid=22)

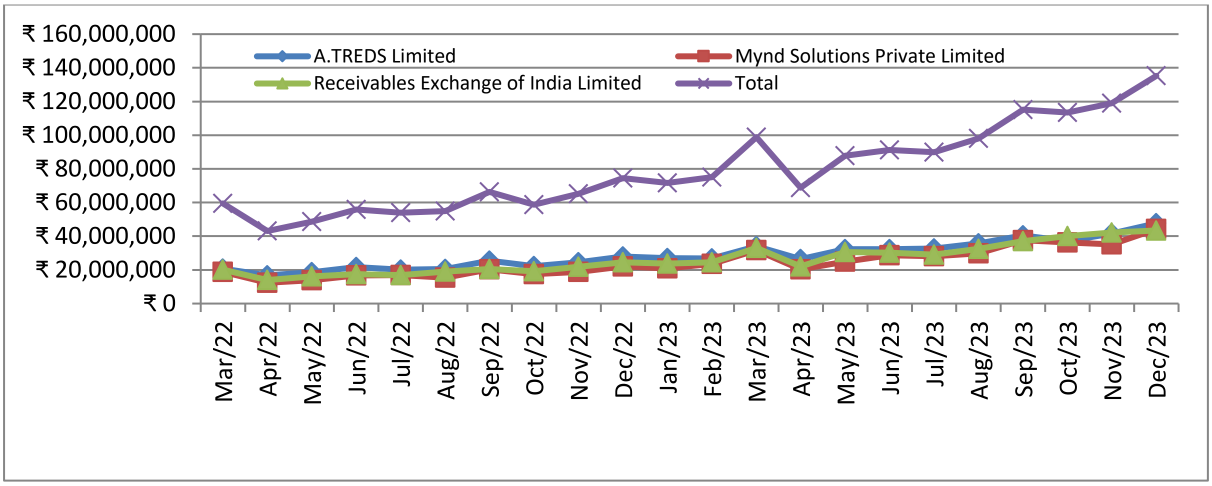
Table 4: Entity-wise TReDS monthly volume from Mar 2022-Dec 2023 (Value in Rs'000)

Month	A.TREDS Limited (Invoice Mart)	Mynd Solutions Private Limited (M1xchange)	Receivables Exchange of India Limited (RXIL)	Total
Mar-22	2,06,34,122	1,87,34,985	2,00,87,697	5,94,56,804
Apr-22	1,67,51,629	1,23,66,412	1,39,60,692	4,30,78,733
May-22	1,86,04,494	1,37,87,859	1,61,90,641	4,85,82,994
Jun-22	2,16,63,571	1,67,38,227	1,74,60,473	5,58,62,272
Jul-22	2,00,80,570	1,69,94,313	1,69,72,027	5,40,46,910
Aug-22	2,04,64,646	1,54,47,886	1,90,51,550	5,49,64,082
Sep-22	2,54,37,636	2,02,94,025	2,05,08,449	6,62,40,111
Oct-22	2,21,66,108	1,74,05,289	1,91,24,720	5,86,96,117
Nov-22	2,45,72,575	1,87,66,780	2,18,40,428	6,51,79,783
Dec-22	2,79,56,585	2,20,60,506	2,44,22,060	7,44,39,151
Jan-23	2,70,47,696	2,08,23,291	2,36,95,373	7,15,66,360
Feb-23	2,68,72,174	2,36,43,808	2,45,27,808	7,50,43,790
Mar-23	3,39,51,036	3,16,99,539	3,31,08,555	9,87,59,130
Apr-23	2,64,76,391	2,02,74,470	2,19,64,701	6,87,15,561
May-23	3,22,45,968	2,49,54,105	3,06,58,811	8,78,58,885
Jun-23	3,23,39,661	2,86,94,009	3,02,10,259	9,12,43,929
Jul-23	3,27,19,169	2,81,26,176	2,89,95,984	8,98,41,329
Aug-23	3,57,41,920	2,98,72,703	3,25,33,690	9,81,48,313
Sep-23	4,05,56,317	3,76,84,376	3,69,71,361	11,52,12,054
Oct-23	3,70,88,844	3,63,18,773	4,00,84,504	11,34,92,121
Nov-23	4,16,14,721	3,52,05,746	4,22,30,141	11,90,50,608
Dec-23	4,76,45,716	4,41,78,601	4,33,93,434	13,52,17,750

Source: RBI database on entity-wise trade receivables discounting system (TReDS) statistics for December 2023

(Retrieved from: https://m.rbi.org.in/Scripts/TREDSStatisticsView.aspx?TREDSid=22)

Figure 7: Entity-wise TReDS monthly volume from Mar 2022-Dec 2023 (Value in Rs'000)



Source: RBI database on entity-wise trade receivables discounting system (TReDS) statistics for December 2023

(Retrieved from: https://m.rbi.org.in/Scripts/TREDSStatisticsView.aspx?TREDSid=22)

1.7.7. Recent Amendments to TReDS

To facilitate easy access to finance various policy initiatives and schemes have been undertaken by the government. Some of them include 'Factoring Regulation (Amendment) 2021'- a bill that was passed to expedite the payment ecosystem for MSMEs with the below THREE amendments:

1. Removal of threshold limit for Non-Banking Financial Company (NBFC) - As per earlier provisions, for NBFC to get engaged in the factoring business must have financial assets in the factoring business and income from the factoring business of more than 50% of the total assets / gross income or more than the threshold as notified by the Reserve Bank. The said condition is removed from 23rd August 2021.
2. In November 2018, the Government made it mandatory for all companies with a turnover greater than ₹ 500 crores to register with TReDS.
3. In February 2023, RBI expanded the scope of TReDS by allowing General Insurance Companies to act as the fourth participant on TReDS other than MSME sellers, Buyers,

and Financiers. The insurers shall cover financiers for losses due to non-receipt of payment from a buyer, against the bills/invoices discounted.

4. In October 2023, prompted by RBI's initiatives and acknowledging the advantages of offering Trade Credit Insurance coverage for "reverse factoring" transactions on TReDS platforms, IRDAI made a significant amendment to the Trade Credit Insurance Guidelines, 2021. The updated guidelines now permit financiers to obtain Trade Credit Insurance coverage for buyer defaults on invoices financed through TReDS platforms. This amendment specifically addresses "reverse factoring" transactions, enabling financiers to participate as a "Fourth Participant" on TReDS.

1.7.8. Recent RBI Circular: Expanding TReDS Horizons

For a wider outreach, the Reserve Bank of India issued a circular dated June 7, 2023, to enhance the scope of the trade receivables discounting system ("TReDS"). The key aspects are set out hereunder:

Particulars	Old provision	New Provision
Insurance	Insurance was not permitted for TReDS transactions	An insurance facility is now permitted for TReDS transactions to enable the financiers to hedge default risks. Insurance companies would be the fourth participant in TReDS after buyers, sellers, and financiers. No insurance premium can be levied on the seller.
Financiers	Only banks, NBFC-Factors, and other financial institutions permitted by RBI could be financiers	All entities permitted to undertake factoring business under the Factoring Regulation Act, 2011 are now permitted to be financiers. This may include any company engaged in the factoring business and with a registration under the Factoring Regulation Act, of 2011.

Secondary transfers	Secondary transfers were not permitted	TReDS platform operators may enable secondary transfers of factoring units within the same TReDS platform, subject to the RBI guidelines for transfer of loan exposures.
Settlement mechanism	Settlement of factoring units that were not discounted or financed had to be done outside the TReDS system.	TReDS platform operators can now undertake settlement of factoring units that are not financed/discounted, using the NACH mechanism for TReDS.
Bid Transparency	Bid details could not be displayed to other bidders	TReDS platform operators have the option to display details of bids placed for a factoring unit to other bidders, without revealing the bidder's name.

1.7.9. The expected outcome of these recent amendments

In the first amendment, the Reserve Bank of India (RBI) has simplified rules for the Non-Banking Finance Companies (NBFCs) and predicts the move to increase NBFC numbers from 7 to 182. This will allow NBFC factors and other entities to undertake factoring and is expected to increase the supply of funds available to small businesses. To address the perennial problem of delayed payments faced by MSMEs, the second amendment was mandated. Finally, a third amendment was introduced to increase the participation of Financiers by ensuring adequate liquidity to financiers who support invoice discounting on TReDS.

2023 Highlights from the MSME Annual Report as stated below further indicates that government continues to implement regulations to promote TReDS.

- A list of 4714 companies having turnover of more than Rs. 500 Crore was identified by the M/o Corporate Affairs and have issued a notification to onboard onto TReDS – of which1673 companies have onboarded

- Department of Public Enterprises(DPE) has mandated all 195 CPSUs to be onboarded on the TReDS Platform.
- Central Public Sector Undertaking (CPSUs) units to make mandatory procurement of 25% instead of 20% from MSMEs. In FY 2022-23 - CPSUs have procured goods and services worth Rs 38,432.29 crore from 1,44,987 MSMEs that's worth to be 35.59% of the total procurement.

1.7.10. Way Forward

To encourage innovation and competition through increased participation, RBI recently allowed 'on tap' authorization to entities desirous of providing platforms for TReDS. Hence, in the coming years, competition in the receivables discounting space is bound to increase with the entry of new players. This requires the corporates, both in the public and private sectors, to join the TReDS platform and make the system more efficient.

Multiple companies have come up with their own TReDS platforms to enable accounts receivable financing. Other FinTechs are leveraging the linking of TReDS to the GST Network (GSTN) to understand the cash flows of MSMEs and offer them invoice financing options.

2. Major existing literature

2.1. International

Waseem, Ahmed, Abbasi., Zongrun, Wang., Asaad, Ahmad, abdelqader, Alsakarneh. (2018) highlights the key financing issues faced by SMEs and also focuses on major supply chain challenges confronted by SMEs. This study emphasized the concept of supply chain finance (SCF) and how SCF could help SMEs to overcome those challenges.

Zericho, R., Marak., Deepa, Pillai. (2021) identifies the critical factors of supply chain finance and the interrelationship between the factors using interpretive structural modeling, and structural models to analyze the relationship between them.

Monica, Bogdan., Adriana, Sava. (2018) stated that Romanian companies are facing the problem of lacking capital and the necessity of reducing their working capital. Until now, the only viable solution was stock reduction, but supply chain finance (SCF) can be the solution to reduce the payment term, reduce risk, working capital optimization, and improve the relationship between supplier and buyer.

Le, Thi, Minh, Hang., Nguyen, Son, Tung. (2019) explores and examines the level of understanding about the monetary supply chain of SMEs based in Danang city and how they can access financial sources for more stable and sustainable business.

Marc, Auboin., Harry, Smythe., Robert, Teh. (2016) shows that factoring has a positive effect in allowing SMEs to access international trade, in countries in which it is available. Factoring also appears to be employed by firms involved in global supply chains. Using an instrumentation strategy, we identify a strong, stable effect of factoring on SMEs' access to capital for some of the main traders in the world.

Jean-François Lamoureux and Todd Evans. (2012) discusses the concept of integrative trade and its importance in global value chains, as well as how supply chain finance solutions can help improve cash conversion cycles while also reducing financial supply chain inefficiencies.

Trong Lam Vu, DuyNhien Nguyen, Tuan Anh Luong, Thi Thanh Xuan Nguyen, Thi Thai Thuy Nguyen, and Thi Diep Uyen Doan. (2021) presents the factors affecting supply chain finance and its influence on both supply chain financing performance and SME performance in Vietnam, based on data collected from 856 small to medium enterprises over 3 months.

Lu, Qiang, Liu, Beini, and Song, Hua. (2020) explores how the innovation capability and market response capability of small and medium-size enterprises (SMEs) affect their supply chain financing performance through the adoption of supply chain financing solutions, while also examining the mechanism by which these solutions reduce information asymmetry.

Zulqurnain Ali, Bi Gongbing, Aqsa Mehreen. (2018) covered the unexplored gap in the previous literature on supply chain management by establishing the relationship between SCF and firm performance empirically while identifying the role of trade digitization as a moderating variable in the context of textile SMEs by employing RBV theory.

Ali et al., (2019) paper indicated that supply chain finance (SCF) has a significant effect on supply chain effectiveness(SCE). Furthermore, all proposed factors of SCF adoption have a positive and significant effect on SCF.

Saaty, (1987) introduced the Analytic Hierarchy Process (AHP) as a method of measurement using ratio scales, showcasing its practical application through two examples. It discusses the fundamental axioms and theoretical basis of AHP and explores concepts such as consistency, and relative measurement, as well as rank preservation. The paper concludes by highlighting the significance of AHP in decision-making and suggests areas for future research and application.

Wuttke et al., (2016) showed that Supply chain finance (SCF) can improve supply chain performance by facilitating longer payment terms for buyers and better access to financing for suppliers in Europe. Despite these clear benefits, there is empirical evidence for some hesitation and resistance to SCF adoption. The degree to which the buyer can influence suppliers in their adoption decisions affects the optimal introduction timing, but not optimal payment terms. Interestingly, our results suggest that, despite the clear benefits, many buyers might be well-advised to postpone their SCF implementations.

Feng Liu et al., (2021) collected data on 4,679 SMEs from the Chinese manufacturing sector. Thereafter, hierarchical linear regression, a complex form of multiple linear regression analysis, is employed to test the hypotheses. The results indicate that an SME's SCF adoption positively impacts its performance but negatively impacts its risk.

2.2. National

Biswa Bhushan Sahoo and Vikas Thakurb. (2018) aims to identify different challenges faced by SCF. The method of interpretive structural modeling (ISM) is used to prioritize the selected factors and subsequently level them. The study found that a long cash conversion cycle is a vital challenge, and the lack of SCF training is the less prioritize challenge faced by SCF.

Dileep More Preetam Basu. (2013) examined the different challenges that confront supply chain finance (SCF) and developed a hierarchical model to analyze their complex relationship dynamics.

Aswin Alora and Mukesh K. Barua. (2020) conclude that financial and information technology factors are the most prominent in SCF adoption, followed by financial challenges. Among specific factors, disclosure of sensitive company information to competitors is identified as an essential barrier for MSMEs when adopting supply chain finance solutions. Additionally, it was found that the poor technological capability of MSMEs also acts as a major obstacle to the successful implementation of such solutions.

Niti Nandini Chatnani. (2018) reviews the context, working, and potential of Trade Receivables Discounting System (TReDS) exchanges in India for balanced growth and equitable development objectives.

K. Mulchandani, S.S. Jasrotia and K. Mulchandan. (2022) determined the adoption factors for supply chain finance in MSMEs in India, eventually enhancing supply chain effectiveness. This study has considered negotiation, collaboration, the external environment, digitizing trade, and the role of financial institutions. Results indicate that internal factors like negotiation, collaboration, and digitizing trade play an essential role in adopting supply chain effectiveness, and implementing supply chain finance leads to improved supply chain effectiveness.

2.3. Identification of Research gap

- To identify the mismatch between literature and business practices adopted in the Indian supply chain finance landscape.
- There is a need to determine various factors that influence TReDS adoption.
- Lack of detailed analysis of how various factors are affecting TReDS adoption.
- Lack of empirical studies on the relationship between TReDS adoption, SCF Performance, and MSME performance.
- Investigation into the impact of TReDS on MSME's performance in India is needed.
- Furthermore, such solutions could help small businesses with better access to working capital for improved business performance.

3. Research design

3.1. Research Motive

How can MSMEs effectively manage their finances to ensure smooth business operations without facing the constant concern of financing? In the past, SMEs relied on bank loans and collateralized assets, which increased risks and incurred high capital costs. However, there is now an innovative financing solution called Supply Chain Finance (SCF) that encourages MSMEs to obtain loans based on their creditworthiness, thereby reducing the fear of default and lowering capital costs. To stay competitive and manage operations efficiently, MSMEs invest in advanced techniques and technologies. One such factor is trade digitization, which allows organizations to compete in the market and gain a competitive advantage for greater market share. To evaluate the performance of MSMEs, the current study poses the following research question:

- RQ 1: Does TReDS enhance the MSME's performance?
- RQ 2: What are the Major challenges faced by MSMEs in the implementation of TReDS?

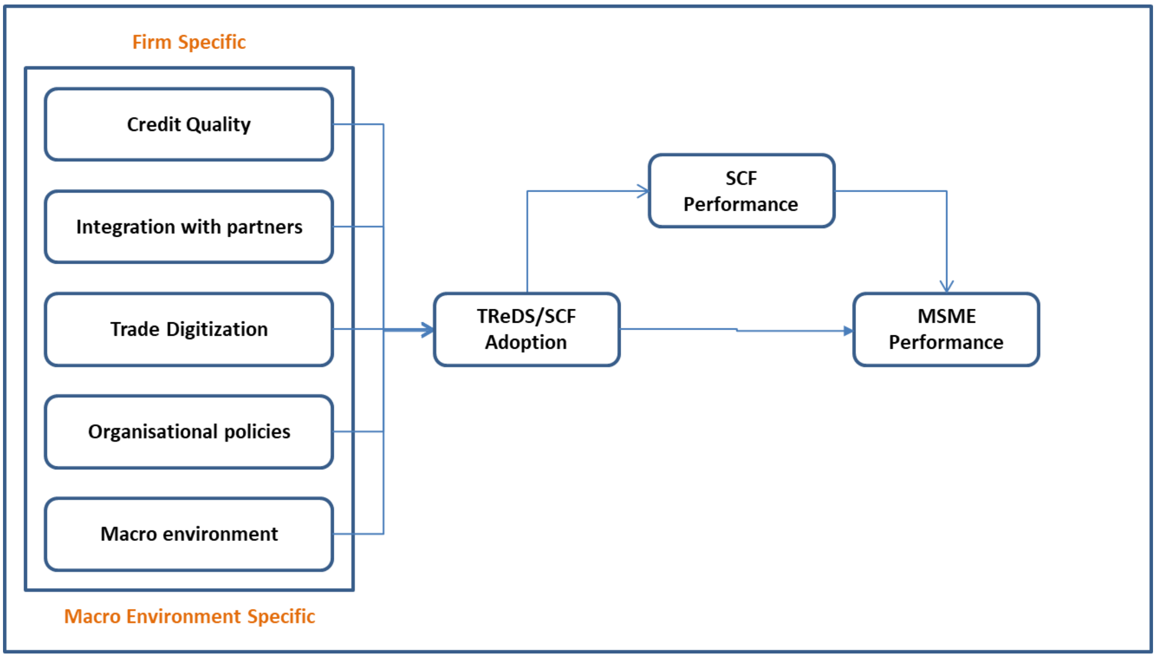
This research aims to explain the Indian supply chain finance environment in the first portion. The second section will highlight TReDS, a supply chain financing solution that has been steadily implemented in Indian markets over the past five years. Section three shall address the determination of various factors that affect the TReDS. The factors influencing TReDS and their impact on Supply Chain performance as well as MSMEs performance in India will be evaluated in the end.

3.2. Research Objectives

1. To study the supply chain finance landscape in India.
2. To identify the major factors that influence TReDS/SCF Adoption.
3. To compare and contrast the challenges encountered by MSMEs in adopting TReDS in both well-served and under-served regions.
4. To evaluate the impact of TReDS on MSME's performance in India.

3.3. Research/Theoretical framework

Figure 8: Theoretical framework of this research study



Source: Author's construction

3.4. Research Hypothesis

- H1: Supply Chain Finance performance (SCF) is positively and significantly related to the MSME performance. (Partial least squares structural equation modeling)
- H2: SCF performance moderates the relationship between TReDS and MSME performance. (Moderation analysis)

- H3: TReDS/SCF Adoption exerts significant positive effects on MSMEs' performance. (Partial least squares structural equation modeling)

3.5. Sampling

The COVID-19 pandemic has had a profound and detrimental effect on MSMEs in India. This impact is particularly significant considering that over 99 percent of businesses in India are micro and small organizations. Consequently, the economic repercussions have been substantial for the Indian economy as a whole (Sahoo & Ashwani, 2020). Hence, the recent regulations implemented by the RBI primarily aim to address the supply chain financing challenges faced by MSMEs.

Therefore, for the current study, we will be using a Judgemental and convenience sampling technique where participants shall be selected from diverse MSMEs located in four regions: Maharashtra from the west, Karnataka from the south forming the two well-served states, Assam, and Meghalaya from North-east forming the two under-served states. The respondents include people from MSMEs, including owners, Executives in the supply chain, and Managers in the supply chain of an MSME.

Maharashtra and Karnataka were chosen due to their status as well-served Top five states comprising of highest number of MSMEs and for the convenience of the author. The Northeastern states such as Assam and Meghalaya shall be included as they are under-served bottom ten states with a smaller number of MSMEs. Also, considering the number of MSMEs located in these regions, we aim to target the MSMEs in the ratio of 75:25 between well-served and under-served regions.

MSMEs in the Northeast region are facing numerous challenges from the global COVID-19 pandemic to increasingly tougher competition – not only against their counterparts from outside the region but also from large entities. Some of these particular challenges facing Northeast

MSMEs that have constrained the growth of the sector are poor infrastructure, lack of capital, and inadequate market linkages. Recently, the Ministry of MSMEs, the United Nations Development Programme (UNDP), and the Department of Public Enterprises (DPE) have increasingly focused on MSMEs in Northeast India to sustain and weather the challenges related to the COVID-19 pandemic.

Therefore, this study aims to compare and contrast the challenges encountered by MSMEs in adopting TReDS in both well-served and under-served regions.

3.6. Data collection

To collect the data, MSMEs whose annual sales turnover does not exceed INR 250 Crores were approached for data collection purposes. A structured questionnaire as approved by IIBF was used to collect responses from the respondents. 1202 questionnaires were distributed to the MSMEs between October to December 2023. However, considering the challenges of connecting with MSMEs, we received back 363 questionnaires by the end of December 2023. Also, considering the number of MSMEs located in these regions, we aimed to target the MSMEs in the ratio of 75:25 between well-served and under-served regions.

A pilot study consisting of 15 participants was undertaken to check the questions understood by the respondents. Furthermore, the questionnaire items were examined by a few experts such as – experts from all three TReDS exchanges –RXIL, Invoice Mart & M1xchange, senior finance Professors from IIMB, experts from MSME Development Institute, and wealth managers of MSMEs in the area of supply chain finance. We did incorporate their suggestions and comments to enhance the readability and understanding of questionnaire items by the participants.

3.7. Measures

An extensive review of the literature was done to explore the relevant constructs for ensuring the correctness, consistency, and worthiness of the research instrument. The measurement scales for the present study were taken from various available literature published in the area to ensure the validity and reliability of the instrument used. Refer to Table 5 to view the list of study measures that have been adopted in this research.

Table 5: Description of various measures used in the study

	Factors influencing TReDS/SCF Adoption	***Sources***
IP	***Integration with partners***	
IP1	*My supplier/buyer is OK to onboard TReDS*	*Viswanathan and Piplani ,2001; Simatupang & Sridharan, 2005;*
IP2	*All my vendors/buyers are OK to transact on TReDS*	*Aswin Alora, 2019;*
IP3	*Partners are concerned about our financial welfare*	*More and Basu,2013;*
IP4	*TReDS requires the participation of 3rd parties such as banks, non-banking financial*	*Hofmann and Belin, 2011; Lamoureux and Evans 2011; Aswin Alora, 2019;*
OP	***Organisational policies***	
OP1	*Managing TReDS activities is complex*	*Jutter et al, 2003*
OP2	*It's the management's decision not to adopt TReDS*	*Aswin Alora, 2019;*
OP3	*Poor intra & inter-organizational networks*	*Hall and Braithwaite,2008;*
ME	***Macro Environment***	
ME1	*My business set up supports me to adopt TReDS*	*Peck, 2005;*
ME2	*Government support in regulating and controlling TReDS*	*Aswin Alora, 2019; Zhang, 2015;*
ME3	*The scope of TReDS has improved*	*Aswin Alora, 2019; Zhang, 2015;*
ME4	*The geographical location of the buyers/suppliers is forcing me to adopt TReDS*	*Peck,2005;*
CQ	***Credit quality***	
CQ1	*Discounting/Interest rates are reasonable*	*Aswin Alora, 2019;*
CQ2	*TReDS Discloses sensitive company information to my competitors*	*Aswin Alora, 2019;*
CQ3	*Flexible lending volume/Period*	*Tagoe et al, 2005; Gomm,2010; Zhang, 2015;*

		Song & Wang, 2013; Ali et al., 2020
CQ4	*Banks DOES NOT provide needed credit*	*Tagoe et al, 2005; Gomm,2010; Zhang, 2015; Song & Wang, 2013; Ali et al., 2020*
CQ5	*Buyers can transact irrespective of their credit ratings*	*Todd Evans, 2010;*
TD	***Trade Digitization***	
TD1	*Digitalizing business processes, such as orders, procurement, shipping, inventory, sales, and distribution is important*	*Choi, 2013*
TD2	*All departments in my business are connected through computer networks*	*Narasimhan & Das, 1999; Tamlinson, 2011;*
TD3	*My business uses systems such as ERP, Tally, quick books, etc for its business*	*Narasimhan & Das, 1999; Tamlinson, 2011;*
TD4	*Implementing TReDS requires high costs*	*Narasimhan & Das, 1999; Tamlinson, 2011;*
SCFP	***SCF Performance***	
SCFP1	*TReDS is a risk prevention system (Strategy).*	*Zhang, 2015; Aswin Alora, 2019; Ali et al, 2020;*
SCFP2	*TReDS improves working capital flow*	*Aswin Alora, 2019;*
SCFP3	*TReDS improves supply chain efficiency.*	*Aswin Alora, 2019;*
SCFP4	*All parties involved can access real-time information and track transactions*	*ADB report, 2023;*
MP	***MSME Performance***	
MP1	*Improves Annual Turnover/sales*	*Kotabe,1990; Matsuno et al, 2000; Ali et al, 2020;*
MP2	*Improves Return on Investments (ROI)*	*Kotabe,1990; Matsuno et al, 2000*
MP3	*Improves Market share*	*Kotabe,1990; Matsuno et al, 2000; Ali et al, 2020;*
MP4	*Reduces production costs*	*Kotabe,1990; Matsuno et al, 2000*

3.8. Data sources

The primary data was gathered through an extensive survey amongst Indian MSMEs to ascertain their perceptions and experiences related to TReDS/SCF adoption. TReDS performance shall be gathered through both survey and RBI reports on TReDS and annual reports of TReDS exchanges such as M1xchange, Invoicemart, and RXIL. Further, the data on MSME performance was gathered from MSME respondents through the survey.

3.9. Methodology

Initially, the research shall adopt a three-phase methodology to identify and prioritize the essential factors that influence TReDS/SCF adoption amongst MSMEs. In the first phase, an extensive survey shall be conducted for Indian MSMEs to identify factors influencing the adoption of TReDS. The second phase involved expert interviews using the Delphi technique to finalize these factors. In the third phase, to rank and prioritize them, the analytic hierarchy process (AHP) methodology shall be used as part of the validation procedure.

Secondly, we shall examine the hypothesis - how selected factors such as credit quality, integration with partners, organizational policies, and information technology and macro environment have a significant impact on TReDS/SCF adoption & performance by using partial least squares structural equation modeling(PLS-SEM).

Further, we shall analyze hypothesis H1– whether MSMEs' SCF performance exerts significant positive effects on MSME performance by applying partial least squares structural equation modeling.

Next, Moderation analysis using PLS-SEM shall be performed to test hypothesis H2- If MSMEs' SCF performance moderates the relationship between TReDS/SCF Adoption and MSME performance.

Finally, we shall examine hypothesis H3 – If there exists a significant positive relationship between TReDS/SCF adoption and MSME performance by using Hierarchical component analysis using Smart PLS.

3.10. Relevance of the study

For policy-making:

This research shall propose solutions and recommendations to policymakers in the following areas:

- Continuing policies that directly support large corporate players and MSMEs to improve their businesses through easy access to short-term working capital needs.
- Focusing more on monetary/credit policy packages to reduce the credit gaps in the Indian market.
- Streamlining structures & processes within the MSME enterprises to increase their efficiency.
- Impact analysis of regulatory norms related to mandatory TReDS implementation to improve the MSME performance thereby reducing the credit gaps.

For MSMEs

- Initiate collaborative approaches across the financing supply chain (TReDS) to reduce total cash conversion cycle time and, in the process, improve the overall financial stability of MSMEs.
- Evaluate the dynamics of TReDS and redefine its relationships and strategies to achieve desired cash flows.
- Increase awareness about best practices for optimizing working capital through increased knowledge of TReDS initiatives among corporate professionals.

4. Results & Discussions

4.1. Supply Chain Finance (SCF) Landscape in India

As India's economy becomes increasingly integrated with global markets, there is a growing emphasis on enhancing supply chain efficiency and competitiveness. This has led to the adoption of international best practices in supply chain financing, including supply chain finance programs offered by multinational corporations operating in India.

Historically, banks have been the primary providers of working capital finance to both suppliers and buyers in India's supply chain financing sector. However, in recent times, fintech companies have introduced innovative solutions aimed at enhancing the efficiency of supply chain financing. These solutions include embedded finance and software as a service (SAAS) offerings, which aim to address inefficiencies in the supply chain and provide capital supply.

Fintech companies harness technology to deliver expedited and streamlined financing options, including invoice discounting, dynamic discounting, and factoring. Additionally, they employ data analytics and machine learning to evaluate the creditworthiness of suppliers and buyers, facilitating quicker and more precise credit assessments.

Different models in supply chain financing prevail in India:

- The first – SCF-focused fintechs reach out to big corporates and onboard their dealers/suppliers. They then connect them with lenders such as banks, NBFCs, or private investors who provide them liquidity against their bills. The credit standing of the corporates helps their suppliers/dealers access loans in a time-bound manner at a lower cost.

- The second - Government-backed initiatives such as the Trade Receivables electronic Discounting System (TReDS) have played a stellar role over the last five years and have now reached an annual business of over 45000 Crores across the three TREDS platforms. These platforms bring in efficiencies by onboarding the corporates and their suppliers and even doing the KYC; lenders do not have to do any additional legwork and can just buy invoices on the platform.
- Lastly, there are the banks/NBFCs who do the entire work of sourcing Corporations/suppliers/dealers themselves and also own their technology for running their SCF operations.

The Indian government has implemented various measures to encourage supply chain financing and enhance credit accessibility for Micro, small, and medium enterprises (MSMEs). One such notable initiative is the introduction of the Trade Receivables Discounting System (TReDS) platform by the Reserve Bank of India (RBI). This platform empowers SMEs to discount their invoices, facilitating prompt payment from financiers.

The supply chain financing sector in India is undergoing rapid transformation, with the emergence of new players and technologies driving innovation and enhancing efficiency. With the ongoing expansion of the Indian economy, there is a growing demand for effective supply chain financing solutions. Alongside government efforts to promote supply chain financing, the Finance Minister of India has underscored the significance of lending to Micro, Small, and Medium Enterprises (MSMEs) in fostering economic growth.

In the Union Budget 2023, the Finance Minister unveiled numerous initiatives aimed at bolstering MSME lending, including the introduction of a dedicated online portal for loan applications and a substantial allocation of Rs. 22,138 crores to the MSME sector. Emphasizing the significance of MSMEs, particularly amidst the economic challenges triggered by the COVID-19 pandemic, the Finance Minister urged banks and financial institutions to ramp up lending to this sector. To aid MSMEs during this period, the government implemented relief measures such as loan repayment moratoriums and a credit guarantee scheme for sector loans.

Additionally, in the Union Budget 2024, the government's pledge to provide timely financial support, deploy relevant technologies, and deliver appropriate training for MSMEs indicates a strategic synchronization with sectoral expansion and Global competitiveness.

Overall, the supply chain financing landscape in India is dynamic and evolving rapidly, driven by technological innovation, government initiatives, and changing market dynamics. The focus on leveraging technology, supporting MSMEs, and improving global competitiveness will continue to shape the future of supply chain financing in India.

4.2. Major factors that influence TReDS/ SCF Adoption

A gap in the existing literature underscores the necessity to investigate the diverse factors that impact the adoption of TReDS/SCF by MSMEs. Furthermore, previous studies have not given significant attention to identifying these factors, which could have been beneficial for MSMEs in strategizing their adoption of supply chain financing. Hence, this research tackles these gaps by employing a two-phased approach of AHP methodology.

(1) Identifying the common factors influencing the adoption of supply chain financing by MSMEs in India through a literature review and survey method, and

(2) Prioritizing and ranking the most critical factors using the Analytic Hierarchy Process (AHP) method.

4.2.1. Introduction to Analytic Hierarchy Process (AHP)

The Analytic Hierarchy Process (AHP) is a commonly utilized multiple-criteria decision-making technique in various business sectors. It employs a structured mathematical framework with consistent matrices, which determine the capability of the right eigenvector to yield accurate or approximate weights (Saaty, 1987). The AHP method defines the problem environment scope using a set of axioms and facilitates the comparison of criteria or alternatives in a natural and pairwise manner (Saaty, 1987). The AHP framework is illustrated in Figure 9.

The objective of AHP is to facilitate comparative assessments, break down goals into parameters, and allocate them accordingly (Podvezko, 2009). In this study, a priority matrix based on AHP was developed for the comparative evaluation of indices, assigning weights to different indices to assess the determinants for TReDS/SCF adoption. Saaty's principal vector method was employed to derive the weights from the matrix for the normalization process. Subsequently, the Consistency Index and consistency ratio were computed post-normalization to ensure the pair-wise matrix consistency in size. According to Saaty (1990), a CR value of 0.10 is deemed acceptable to proceed with the investigation. Conversely, if the CR value exceeds 0.10, a re-evaluation of judgments from the beginning is necessary to identify discrepancies and implement necessary changes. It is suggested that flawless accuracy is attained when the CR value is precisely 0. Nonetheless, in our study, the CR value is 0.089 which is below the threshold of 0.10 (refer to Table 9), warranting the continuation of the research.

4.2.2. Application of AHP

During the pilot study, a comprehensive questionnaire was crafted. This questionnaire was then distributed to five MSMEs. After analyzing the responses gathered from the questionnaires, prevalent factors determining TReDS/SCF adoption were identified and listed. The Analytic Hierarchy Process (AHP) was utilized to gain insights into the most critical factors.

Basis the pilot study, a concrete questionnaire was developed for a two-phase data collection process. Phase 1 focused on exploring common factors to TReDS/SCF adoption in MSMEs, while Phase 2 aimed to identify key factors with the input of SCF experts. Experts' responses were collected using a nine-point scale, as outlined in Table 6. The questionnaire was distributed to 1202 MSME units in India, resulting in 363 responses. Pair-wise comparisons were conducted for the main factors in Phase 1.

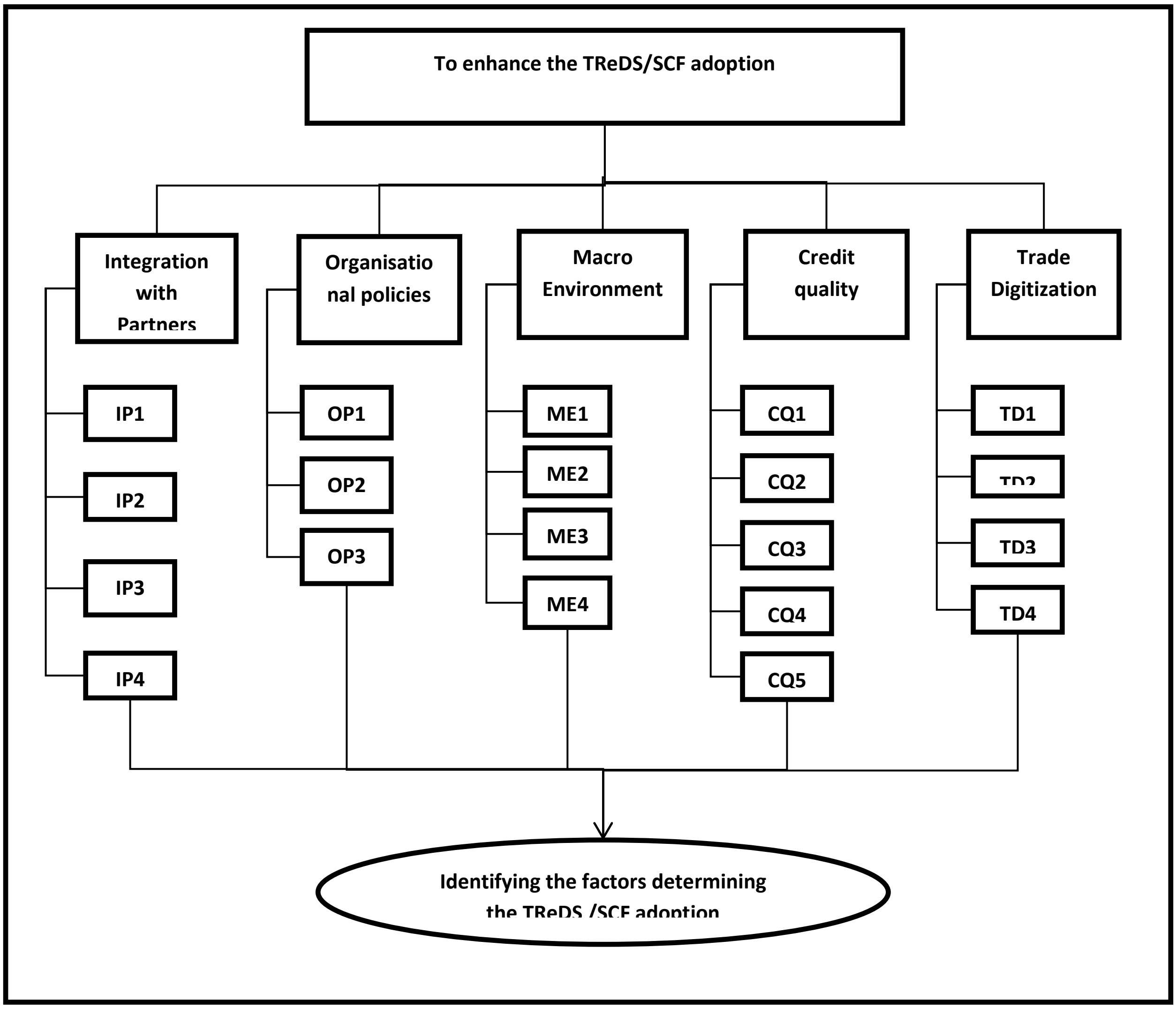
Phase 1: In Phase 1, respondents were asked to indicate the importance of TReDS/SCF adoption factors from a list of 27 common factors, determined with the assistance of subject experts during the pilot study phase. Both mailed questionnaires and interviews were used to gather data. Of the 1202 questionnaires, a total of 434 MSMEs responded to it. Of 434 responses, 71 questionnaires were incomplete, resulting in an overall response rate of 83 percent (363 responses). It's worth noting that a response rate of at least 20 percent is considered accepted for data assessment (Malhotra & Grover, 1998). For further details on the respondents, please refer to Table 10 and Table 11 respectively.

Table 6: Scale of preference between two factors

Preference weights	Definition	Explanation
1	Equally preferred	Equal contribution by two activities to the objective
3	Moderately	Judgment slightly favors one activity over other
5	Strongly	Judgment strongly or essentially favors one activity over other
7	Very strongly	An activity is strongly forced over another
9	Extremely	One activity favors another at its highest degree possible for affirmation
2,4,6,8	Intermediate values	Represents a compromise between preferences
Reciprocals	Reciprocals for inverse comparison	

Source : (Saaty, 1987)

Figure 9: AHP framework for identification of factors determining TReDS/SCF adoption



Phase 2: Phase 2 involved identifying sub-factors through the application of the Analytic Hierarchy Process (AHP) to prioritize key factors to TReDS/SCF adoption. Phase 1 revealed 27 common factors (refer to Table 7) out of the initial 34 identified. The hierarchical decision process encompasses four levels:

Level 1: Objective/Goal

Level 2: Main Adoption Factors

Level 3: Prioritization & Ranking of Main Adoption Factors

Expert consensus was utilized to construct the initial reachability matrix for the Analytic Hierarchy Process (AHP). Nine experts were consulted to finalize the factors determining TReDS/SCF adoption and to formulate the pair wise comparison matrix. Among them, two were supply chain managers in an Indian MSME, two were academicians specializing in operations and supply chain management, three were experts from TReDS exchanges and two were experts from MSME Development & Facilitation Office (MSME-DFO) who facilitate TReDS implementation at MSME units. The pair wise comparison matrix created and the AHP weightage for the main factors are illustrated in Tables 8 and 9 respectively.

Table 7: Description of factors influencing TReDS/SCF adoption

S.No	***Factors influencing TReDS/SCF adoption***	***Sources***
IP	***Integration with partners***	
IP1	*My supplier/buyer is OK to onboard TReDS*	*Viswanathan and Piplani ,2001; Simatupang& Sridharan, 2005;*
IP2	*All my vendors/buyers are OK to transact on TReDS*	*Aswin Alora, 2019;*
IP3	*Partners are concerned about our financial welfare*	*More and Basu,2013;*
IP4	*TReDS requires the participation of 3rd parties such as banks, non-banking financial*	*Hofmann and Belin, 2011; Lamoureux and Evans 2011; Aswin Alora, 2019;*
OP	***Organisational policies***	
OP1	*Managing TReDS activities is complex*	*Jutter et al, 2003*
OP2	*It's the management's decision not to adopt TReDS*	*Aswin Alora, 2019;*
OP3	*Poor intra & inter-organizational networks*	*Hall and Braithwaite,2008;*
ME	***Macro Environment***	
ME1	*My business set up supports me to adopt TReDS*	*Peck, 2005;*

ME2	*Government support in regulating and controlling TReDS*	*Aswin Alora, 2019; Zhang, 2015;*
ME3	*The scope of TReDS has improved*	*Aswin Alora, 2019; Zhang, 2015;*
ME4	*The geographical location of the buyers/suppliers is forcing me to adopt TReDS*	*Peck,2005;*
CQ	***Credit quality***	
CQ1	*Discounting/Interest rates are reasonable*	*Aswin Alora, 2019;*
CQ2	*TReDS Discloses sensitive company information to my competitors*	*Aswin Alora, 2019;*
CQ3	*Flexible lending volume/Period*	*Tagoe et al, 2005; Gomm,2010; Zhang, 2015; Song & Wang, 2013; Ali et al., 2020*
CQ4	*Banks DOES NOT provide needed credit*	*Tagoe et al, 2005; Gomm,2010; Zhang, 2015; Song & Wang, 2013; Ali et al., 2020*
CQ5	*Buyers can transact irrespective of their credit ratings*	*Todd Evans, 2010;*
TD	***Trade Digitization***	
TD1	*Digitalizing business processes, such as orders, procurement, shipping, inventory, sales, and distribution is important*	*Choi, 2013*
TD2	*All departments in my business are connected through computer networks*	*Narasimhan & Das, 1999; Tamlinson, 2011;*
TD3	*My business uses systems such as ERP, Tally, books, etc for its business*	*Narasimhan & Das, 1999; Tamlinson, 2011;*
TD4	*Implementing TReDS requires high costs*	*Narasimhan & Das, 1999; Tamlinson, 2011;*

Table 8: Pair-wise comparison matrix of factors determining TReDS/SCF adoption

	IP Integration with Partners	OP Organisational policies	ME Macro Environment	CQ Credit quality	TD Trade Digitization
IP- Integration with Partners	1	4	5	4	6
OP- Organisational policies	0.25	1	2	0.5	4
ME- Macro Environment	0.2	0.5	1	0.25	3
CQ- Credit quality	0.25	2	4	1	5
TD- Trade Digitization	0.16	0.25	0.33	0.2	1

Table 9: AHP weights for main factors

	Vectors	Priority	Rank
IP- Integration with Partners	0.489	48.90%	1
OP- Organisational policies	0.144	14.40%	3
ME- Macro Environment	0.091	9.10%	4
CQ- Credit quality	0.230	23.00%	2
TD- Trade Digitization	0.047	4.70%	5

Note : Principal Eigen Value = 5.4028 , Consistency Ratio(CR) = 0.089 (8.9%)

Ranking of the factors determining TReDS/SCF adoption

Integration with partners (Alora & Barua, 2019; Dileep More and Preetam Basu, 2013) emerges as the primary determinant with the highest weightage of 48.90% for TReDS adoption, with a particular focus on integration with buyers. Nevertheless, respondents also felt the need for integration with banks, and other financial institutions as the next determinant. The lack of mandatory buyer acceptance in TReDS means that buyers are not legally obligated to accept invoices presented by MSME suppliers for financing through the TReDS platform. This poses a significant challenge because, without buyer acceptance, financiers may be reluctant to provide funding, reducing the effectiveness of TReDS in facilitating timely payments for MSMEs. Mandatory buyer acceptance would ensure that buyers acknowledge and accept the validity of invoices, thereby increasing confidence among financiers and encouraging greater participation in the TReDS system.

The second most crucial factor for TReDS adoption is credit quality (Ali et al., 2020; Pei et al., 2022) with a weightage of 23.00%, which includes considerations such as discounting/interest rates, disclosure of sensitive company information to competitors, flexible lending volumes, limitations from banks in providing necessary credit, buyer credit ratings, among others. MSMEs often encounter restrictions imposed by banks on the maximum financing they can access through this platform. This limitation can hinder the MSMEs' ability to leverage the full potential of TReDS for managing their working capital needs. Addressing these challenges requires collaboration between the MSMEs, TReDS platforms, and the banks involved. It may involve advocating for more flexible and realistic bank limit ceilings to ensure that MSMEs can access the financing they need to thrive and grow through the TReDS platform.

Thirdly, organizational policies (with a weightage of 14.4%) that facilitate the management of TReDS activities, management support for TReDS adoption, and the negative impact of poor intra- and inter-organizational networks affect the adoption process. (Alora& Barua, 2019; Basu, 2013).Many MSMEs are hesitant to adopt TReDS due to various reasons, including onboarding fees, additional paperwork, and concerns about the impact on their relationships with buyers. However, such factors can be overcome by encouraging MSMEs to adopt digital payment systems and formal financial practices by providing incentives and rewards for digital transactions. This can help reduce reliance on cash transactions and facilitate the transition to TReDS for financing needs.

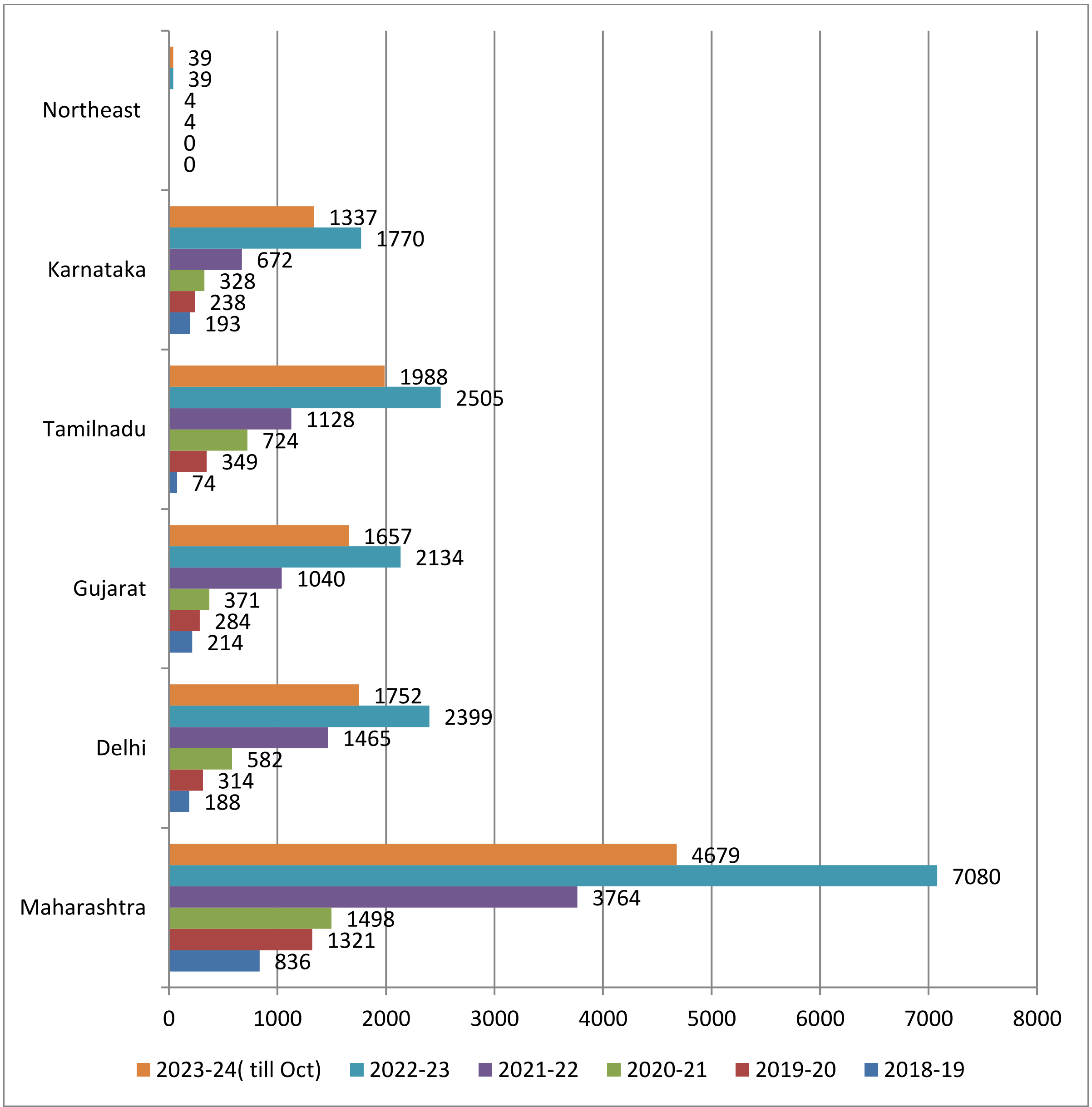
In fourth place are macro-environmental factors (Alora & Barua, 2019; Basu, 2013; Pei et al., 2022) with a weightage of 9.10%. which includes government support in regulating TReDS, expanded scope of TReDS, and the geographical location of buyers/suppliers, which are compelling MSMEs to adopt TReDS. The Raising & Accelerating MSME Performance (RAMP) scheme initiated by the Reserve Bank of India (RBI)will help to reduce delays in payments to MSMEs by providing support for the development of payment systems and dispute resolution mechanisms. This will help MSMEs to improve their cash flow and financial health.

Finally, trade digitization (Alora & Barua, 2019; Basu, 2013; Thomya et al., 2023; Vu et al., 2022)with a weightage of 4.70% emerges as a pivotal determinant, emphasizing the digitization of diverse business processes like orders, procurement, shipping, inventory management, sales, and distribution, along with improved interdepartmental computer networks. Moreover, the MSMEs agreed that the benefits of adoption outweigh the costs involved in its implementation.

4.3. To compare and contrast the challenges encountered by MSMEs in adopting TReDS in both well-served and under-served regions

Figure 11, clearly indicates the State-wise Average discounting value on TReDS (INR in crores). It highlights that Maharashtra, Tamil Nadu, Delhi, Gujarat, and Karnataka are the top five states in successfully implementing TReDS, while north-eastern states are struggling with lower discounting volumes. TReDS is a digital SCF platform facilitating financing for trade receivables of MSMEs and its implementation success could vary based on factors like infrastructure and regulatory support.

Figure 10: State-wise Average discounting value on TReDS (INR in Crores)



Source: Internal records of all 3 Receivables exchanges (Figures are INR in crores)

Table 10: State-wise TReDS Awareness level

States	TReDS Awareness level				
	No	%	Yes	%	Total
North East	62	60.19%	41	39.81%	103
Karnataka	32	27.59%	84	72.41%	116
Maharashtra	22	15.28%	122	84.72%	144
Total	116	31.96%	247	68.04%	363

Table 10 summarises the findings of the survey regarding TReDS awareness in 3 different regions: Northeast, Karnataka, and Maharashtra.

Northeast Region: About 60.19% of respondents lack awareness about "TReDS" while approximately 39.81% are informed, indicating a need for education in this region.

Karnataka: Roughly 27.59% of respondents in Karnataka lack awareness of "TReDS" with 72.41% being aware, indicating a higher level of awareness compared to the Northeast.

Maharashtra: Maharashtra demonstrates the highest awareness level, with only about 15.28% lacking awareness of “TReDS” and approximately 84.72% being aware, suggesting successful awareness efforts in this region.

Access to reliable information about TReDS and its operations may be limited in remote or rural areas of the Northeast. In the absence of resources or guidance, MSMEs may struggle to evaluate the suitability of TReDS for their financing requirements.

In conclusion, although awareness levels vary by region, there is a pressing necessity to improve MSMEs' understanding of "TReDS" particularly in the Northeast. Targeted awareness campaigns are essential to bridge this knowledge gap.

Table 11: Summary of total respondents (363 responses received)

Dimensions	Descriptions	No of Units
Location of the MSMEs :		
North East	Includes all regions of Assam & Meghalaya states	103
Karnataka	Includes all regions of Karnataka state	116
Maharashtra	Includes all regions of Maharashtra state	144
State-wise designation of the Respondents :		
North East	Senior Level	32
	Mid-level	53
	Lower-level	18
Karnataka	Senior Level	30
	Mid-level	57
	Lower-level	29
Maharashtra	Senior Level	44
	Mid-level	66
	Lower-level	34
State-wise MSME types responded :		
North East	Micro Enterprises	68
	Small Enterprises	29
	Medium Enterprises	6
Karnataka	Micro Enterprises	61
	Small Enterprises	45
	Medium Enterprises	10
Maharashtra	Micro Enterprises	60
	Small Enterprises	59
	Medium Enterprises	25
The perspective of MSMEs:		
North East	Supplier	68
	Buyer	7
	Both	28
Karnataka	Supplier	74
	Buyer	4
	Both	38
Maharashtra	Supplier	95
	Buyer	15
	Both	34

Mode of Invoice financing adopted by the MSMEs :		
North East	Borrowings from NBFCs	6
	Direct Bank borrowings	45
	TReDS	31
	Self Financing	21
Karnataka	Borrowings from NBFCs	9
	Direct Bank borrowings	46
	TReDS	51
	Self Financing	10
Maharashtra	Borrowings from NBFCs	8
	Direct Bank borrowings	46
	TReDS	87
	Self Financing	3

TReDS implementation Status at MSMEs:		
North East	Using Since 2-5 years	27
	Implementing this year	16
	Planning to implement in the future	22
	No current plans	36
	Looking for other platforms	2
Karnataka	Using Since 2-5 years	48
	Implementing this year	27
	Planning to implement in the future	25
	No current plans	12
	Looking for other platforms	4
Maharashtra	Using Since 2-5 years	74
	Implementing this year	50
	Planning to implement in the future	12
	No current plans	6
	Looking for other platforms	2

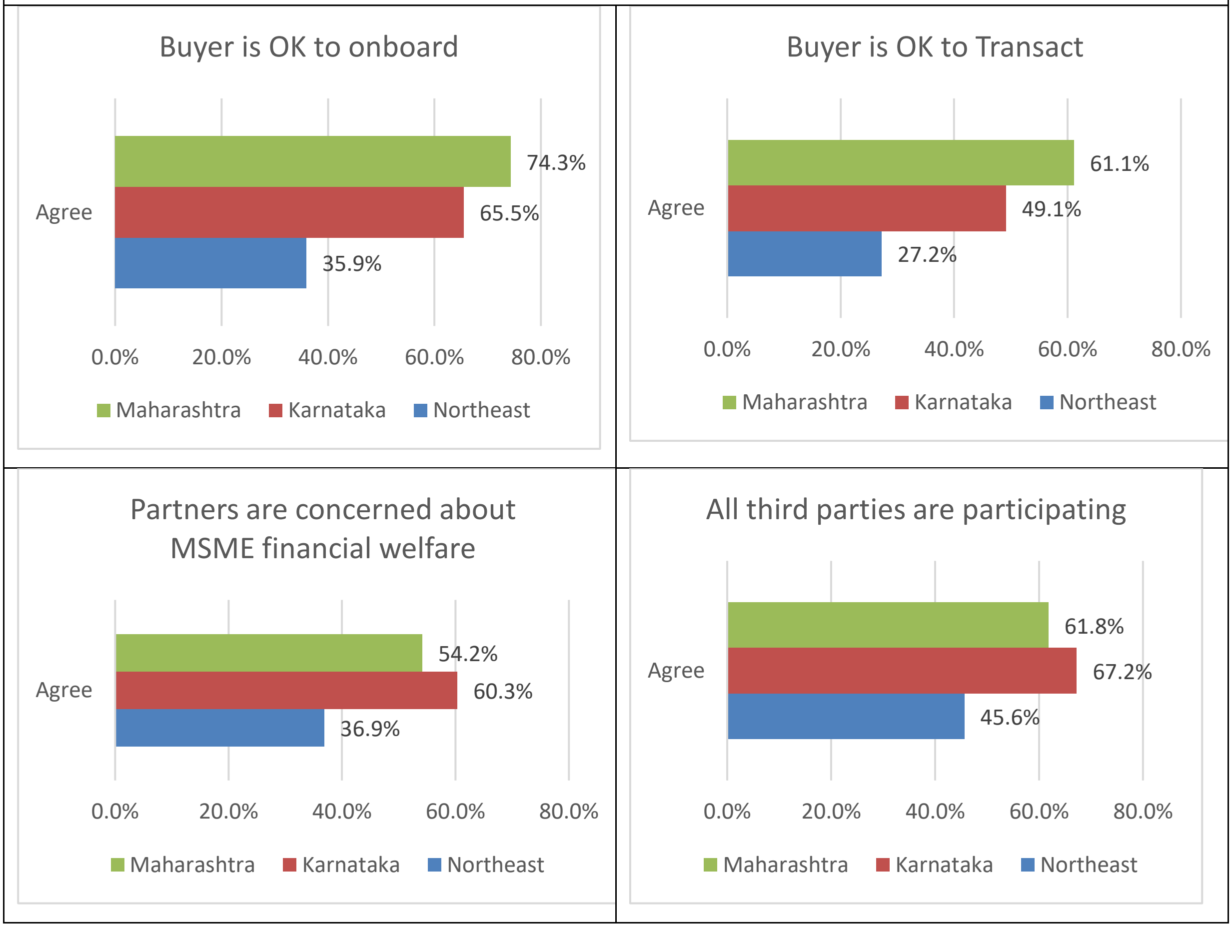
The data provided under “TReDS implementation Status” in Table 11 indicates a notable increase in TReDS adoption across different regions. Approximately 63.1% of MSMEs in the Northeast, 86.2% in Karnataka, and 94.4% in Maharashtra have either initiated or are planning to implement TReDS, reflecting a positive trend.

However, challenges persist for MSMEs, particularly regarding uncertainty about buyer registration on TReDS platforms. This uncertainty hampers their access to financing options. Additionally, the lack of clear guidance on which TReDS platform buyers are using, especially in the north-eastern region, poses a significant obstacle for MSMEs. This lack of clarity complicates the registration process for MSMEs.

Implementing a single portal registration system and ensuring interoperability across all TReDS platforms could offer a viable solution to address these challenges faced by MSMEs, facilitating smoother participation in TReDS and enhancing their access to financing opportunities.

Figure 11: Survey Findings on MSMEs' Integration Challenges with Partners

Integration with Partners



In the Northeast region, about 35.9% of respondents acknowledge that buyers are open to onboarding onto TReDS. However, the willingness of buyers to transact on TReDS decreases to 27.2% thereafter. Similarly, in Karnataka, approximately 65.5% of respondents agree that buyers are willing to onboard onto TReDS, but only 49.1% express readiness to transact on TReDS thereafter. Likewise, in Maharashtra, around 74.3% of respondents indicate that buyers are open to onboarding onto TReDS, with 61.1% expressing willingness to transact on TReDS in the next step.

Convincing Buyers, often larger corporations, to adopt digital processes and accept invoices through TReDS can be difficult. This reluctance can hinder timely payments, impacting the cash flow of MSMEs. Overcoming this challenge requires targeted outreach, education, and potential incentives to encourage broader acceptance and participation from Buyers on the TReDS platform.

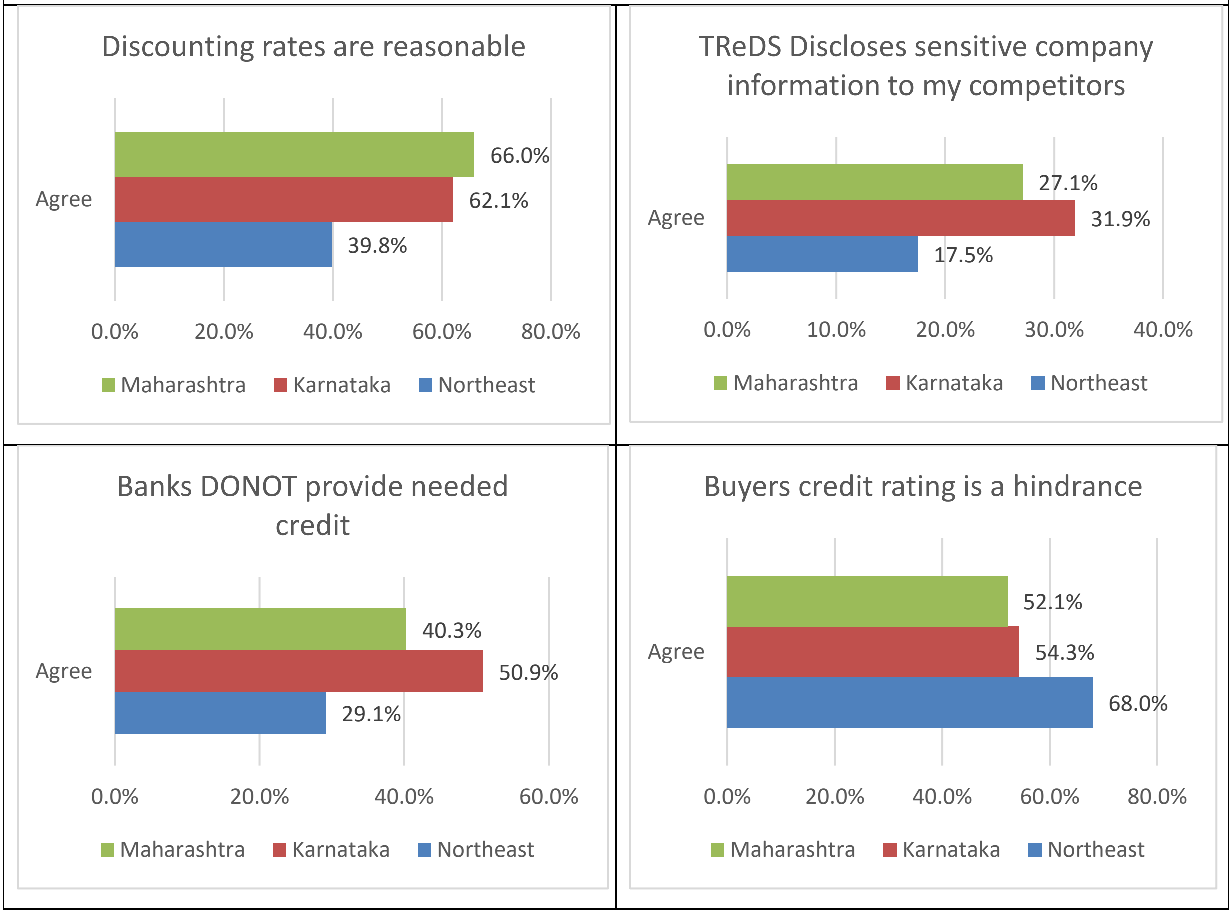
There is a need for an ecosystem that mandates Buyers to transact by either accepting or rejecting invoices on TReDS platforms. This mandatory process would streamline and enforce prompt decision-making by Buyers, ensuring a more efficient and predictable cash flow for MSMEs.

At present, it is obligatory for all CPSEs (Central Public Sector Enterprises) and firms with an annual turnover surpassing Rs 500 crores to enroll on the TReDS platform. However, in north-eastern region one needs to note that Buyers are not Big. Most MSME buyers in the region typically have turnovers ranging between 100-200 crores, making the Rs 500 crores threshold impractical.

Since state PSUs play a significant role as purchasers of MSME supplies in the North-Eastern region, a mandate from State Governments could be crucial in promoting the adoption of TReDS among MSMEs in the area. Such a mandate would ensure compliance and facilitate the seamless integration of TReDS into the procurement processes of these entities. This integration has the potential to improve financial liquidity and efficiency for MSME suppliers.

Figure 12: Survey Findings on credit quality aspects of TReDS

Credit quality

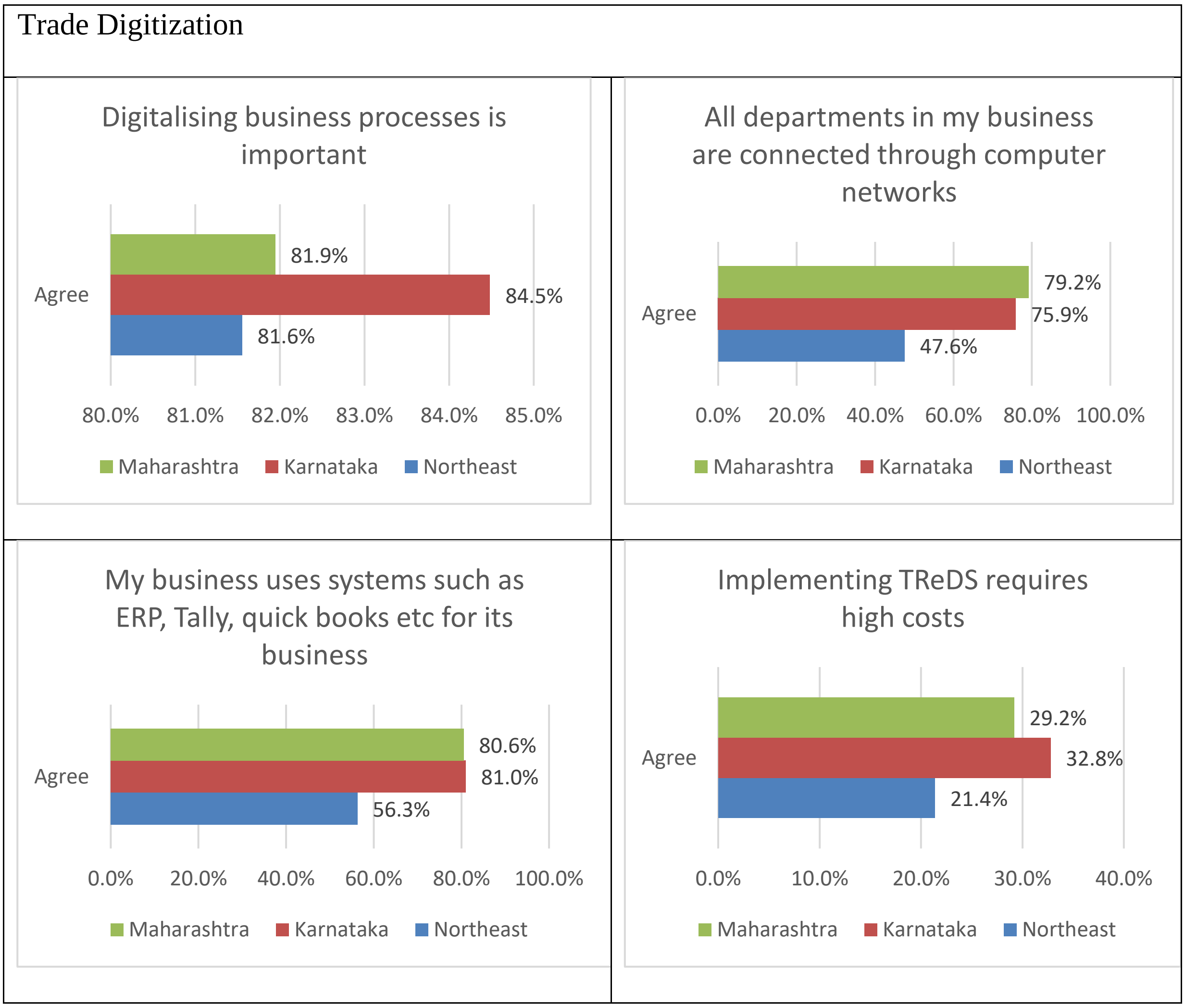


Certainly, approximately 40% of respondents in the Northeast region and roughly 60% of respondents in Karnataka and Maharashtra (Figure 12) concur that the interest rate on the TReDS platform is lower compared to other options for working capital financing. In the competitive marketplace of TReDS, the average interest rate ranges from 6.5% per annum to 10% per annum for the discounting of MSME receivables.

Traditional banks frequently hesitate to provide credit facilities to buyers with credit ratings below BBB+. This sentiment is reinforced by the findings in table 11, where 68% of respondents from the northeast region hold this belief. The inclusion of Non-Banking Financial Companies (NBFCs) in the ecosystem can prove advantageous for both MSMEs and buyers, particularly when traditional banks are reluctant to extend credit facilities.

The recently RBI-approved solution, Small-to-Small (S2S) financing, has the potential to be a game-changer as it surpasses traditional Supply Chain Finance (SCF) methods. This innovative model introduces cash flow-based credit analytics for MSME buyers, departing from the conventional approach of balance sheet-based risk assessment.

Figure 13: Survey findings analyzing the level of trade digitization among MSMEs.



Although 80-90% of the respondents across all regions believe that digitizing their business processes is important, MSMEs in the Northeast may have established relationships with traditional financing methods or informal lenders. Consequently, they might be hesitant to transition to a new digital Supply Chain Finance (SCF) platform like TReDS if they perceive it as unfamiliar or uncertain compared to their existing practices.

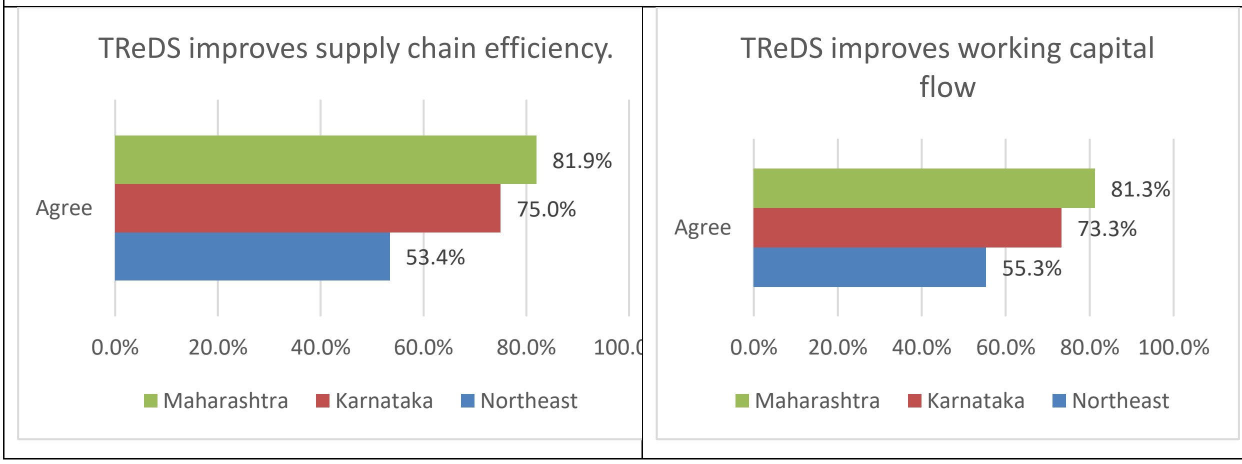
Improving infrastructure in the north-eastern states is essential to enhance connectivity and access to markets. Enhanced communication networks and digital infrastructure can facilitate participation in platforms like TReDS. Encouraging MSMEs in the northeast to adopt digital payment systems and formal financial practices can be achieved by providing incentives and rewards for digital transactions. This approach can help reduce reliance on cash transactions and facilitate the transition to TReDS for financing needs.

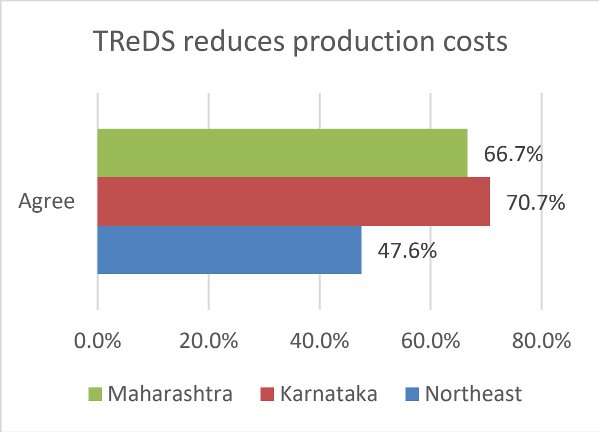
Around 70% of MSMEs in the northeast region are led by women entrepreneurs, who may encounter additional hurdles in accessing and adopting new technologies. Implementing dedicated outreach programs for awareness and support could be beneficial for MSMEs led by women in the region.

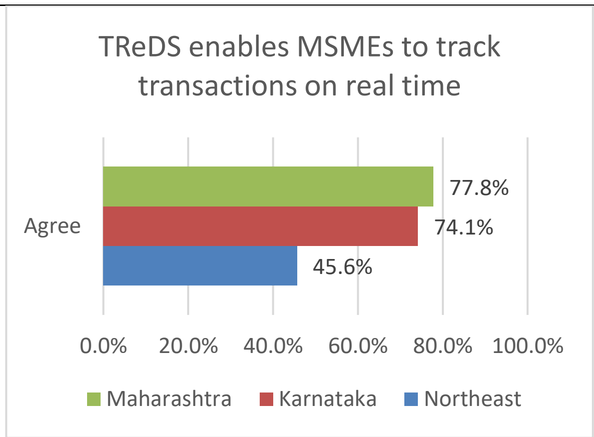
Emphasizing the results from Figure 13 reveals that a minority of MSMEs believe TReDS implementation costs are high. This implies that roughly the rest 80% of MSMEs consider TReDS to offer benefits that outweigh the associated costs.

Figure 14: Survey findings to analyze TReDS as a Supply Chain Finance (SCF) enabler.

TReDS Effectiveness



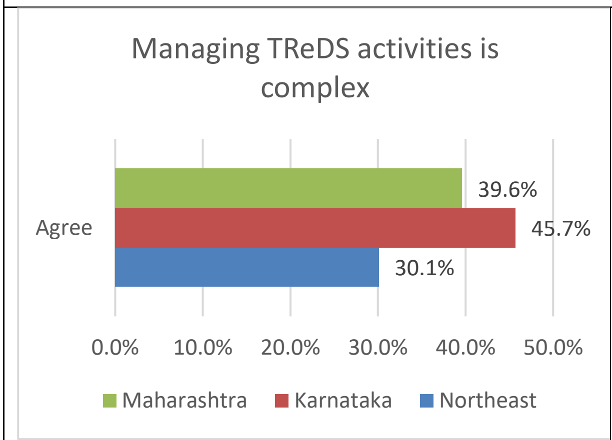


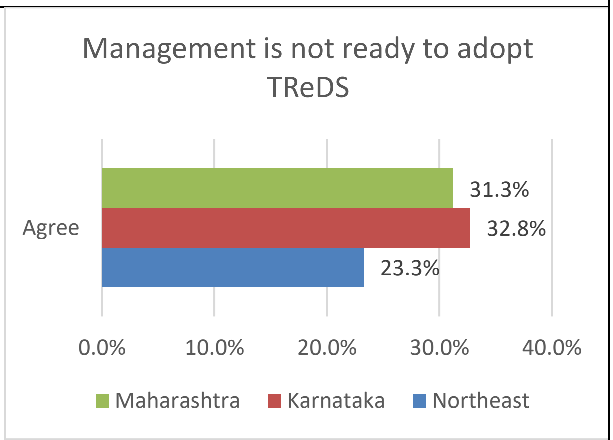


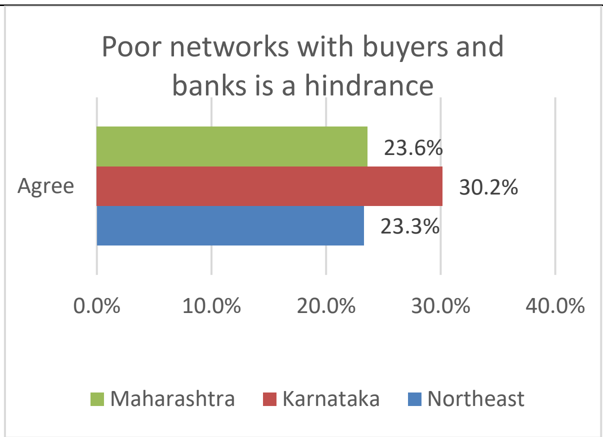
There is a split of 50:50 in responses (Figure 14) among Northeast MSMEs regarding TReDS as a facilitator of Supply Chain Finance (SCF). Around 60.19% of MSMEs in the Northeast have not yet explored TReDS (Table 10). According to Transaction Cost Economics (TCE) theory, the role of information technology in supply chain management is to enhance collaboration, reduce coordination costs, and improve visibility and transparency within the supply chain. TREDS improves the automation of invoice processing, highlighting the importance of leveraging information technology, especially through technological advancements, to optimize supply chain operations, cut costs, and enhance overall corporate performance. This pattern is also observable in Figure 14, where 53-82% of the respondents agree that TReDS enhances supply chain effectiveness.

Figure 15: Survey findings to analyze organizational policy-related challenges.

Organisational policies



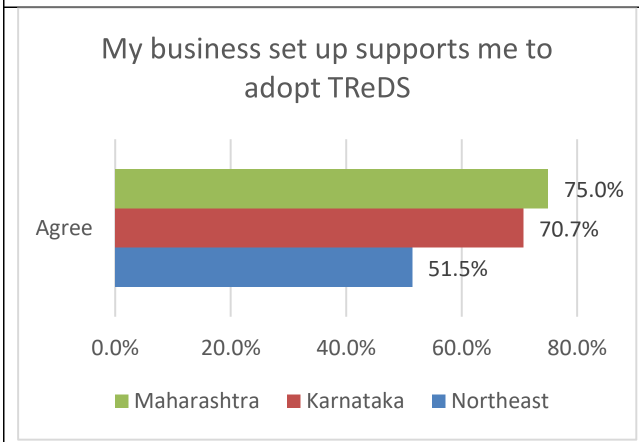


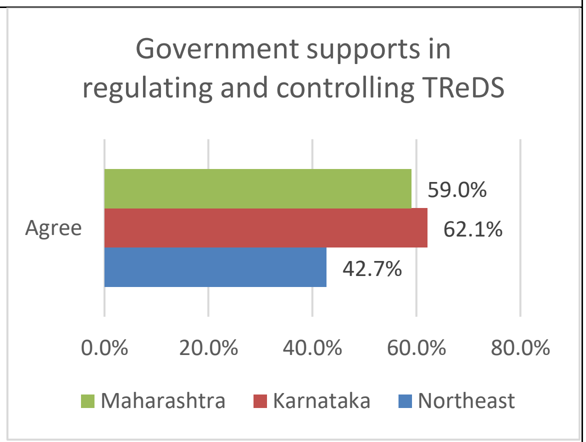


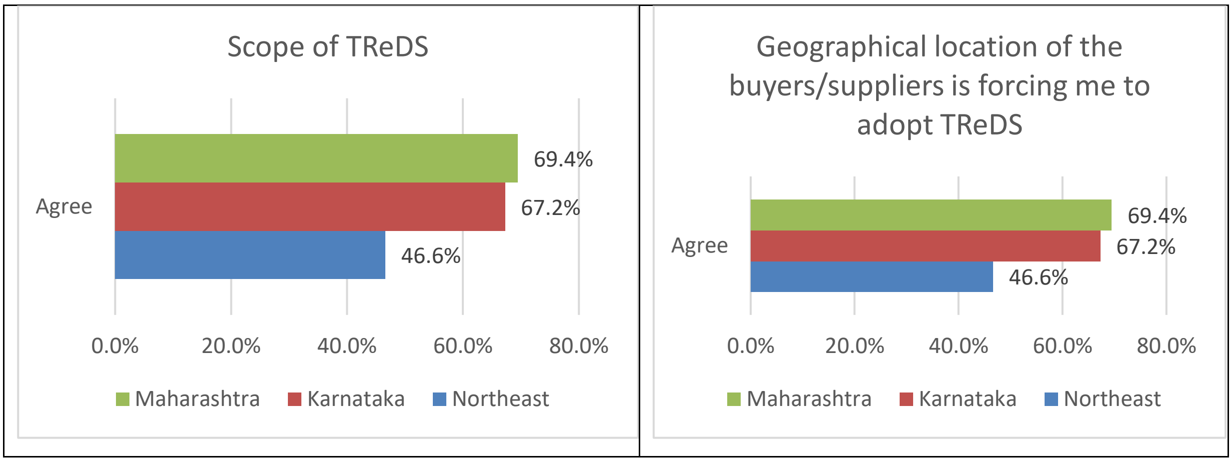
Organizational policies concerning supply chain activities can have various impacts on the organization because SCM processes should be strategically aligned with the overall business strategy to achieve good financial performance (Presutti and Mawhinney, 2007). Since there are no mandatory rules regarding the implementation of SCF strategies in Indian companies, the choice of the management is to stay out of SCF. This is in line with the findings of Sahay and Mohan (2003) which stated that one-third of companies in developing nations such as India have no supply chain strategies (Sahay and Mohan, 2003). We prove that this is true in the case of MSMEs.

Figure 16: Survey findings to analyze Macro environment-related challenges.

Macro environment







Factors under this category appear to have the greater influence on SCF adoption compared to other categories though they are typically beyond the control of companies. This could be attributed to changes in rules, regulations, and tax frameworks varying from one state to another. The geographical location of partners poses another factor of influence, particularly applicable to TReDS, due to the diverse local rules and regulations across regions. Additionally, cultural settings and the overall business networks and settings prevailing in the nation represent another factor.

Meghalaya and Arunachal Pradesh states have certain tax exemptions so many entrepreneurs in these regions may not have the obligation to file taxes and may not possess a PAN (Permanent Account Number). This situation can present challenges in integrating them into systems like TReDS, which often necessitate such documentation for participation.

The cost associated with onboarding onto the TReDS platform may act as a deterrent for cash-strapped MSMEs in the region. Therefore, it may be beneficial if the state government provides fee waivers, concessions, or joining rewards to MSMEs in North Eastern States upon onboarding, to encourage the adoption of the TReDS platform.

Table 12: Glimpse of a few Pain points as shared by the MSMEs

S.No	Any other pain points that you want to share about TReDS platforms, the system, the process, or the regulations?
1	The organization's, buyers are not interested in making payments through TReD We are a 50 cr turnover company, we can not buy through TreD
2	TReDS platform Invoice Mart has helped us in ease of business by improving working capital/cash flow in time & as per requirement
3	most large corporations and government entities have a limited understanding of TREDS. Also, they have a limited understanding of how to structure TREDS-compatible contracts for all use cases apart from pure goods supply
4	It is not user-friendly in day-to-day working
5	This is a waste of time. Not working on the ground. Only in reports and surveys, it is live.
6	the very lengthy process of registering with different bodies
7	Improve the Invoice Mart portal response time.
8	The tenor period must be clarified by both buyer & seller
9	Awareness about TReDS to the Entrepreneurs and ease of procedure should be improved.
10	Many Enterprises do not know this
11	Very Nice system to boost the MSME sector
12	The time taken to upload documents from buyers should be bounded like they should upload bills in 2 days from the date of billing
13	Large companies don't agree to trade on TReDS. Also documentation required is too much and it's complex to start working on Treds
14	it should give us complete access to what invoices are being booked and the complete process flow
15	Very low participation by Private Sector buyers
16	Many of our buyers don't favor TREDs. Govt of India must make it mandatory beyond size to offer TREDs
17	Make all large buyer companies use TREDS
18	The main issue is that only some large customers are forced to use TREDS (which is great, but we require all customers to adopt this) even if customers are MSMEs. We also need support for people who are causing bad debts.
19	Many government organizations are not registered with the TReDS Platform. and many are registered but they do not give acceptance to discount the Bill on the TReDS Platform.
20	Communication regarding invoices being processed and the due date for the same should be informed to the supplier.
21	I have never seen and used TReDS
22	Allow 5 crores turnover buyers to take benefit of TReDS
23	More MSMEs should be encouraged to onboard & transact on TReDS
24	MSMEs below 5 crores should be allowed to onboard
25	Include small turnover buyers
26	Tea suppliers will not be able to use TReDS since our buyers are not onboarded.
27	Plz make TReDS compulsory for all companies below 5 crores TO.

4.4. To evaluate the impact of TReDS on the MSME performance in India

The primary aim of the research is to investigate the factors determining the TReDS/SCF adoption building upon prior work by (Ali et al., 2020; Vu et al., 2022) and following the recommended approach of PLS-SEM as proposed by (Hair et al., 2011).

Data analysis for this study utilized SPSS version 24 and SMART PLS version 4.1.0, employing the method of Partial Least Squares Structural Equation Modeling (PLS-SEM). Structural equation modeling is divided into measurement and structural model assessment. Measurement model assessment includes establishing construct reliability and validity.

Before proceeding with measurement and structural analysis, a thorough check for multicollinearity, missing data, and outliers was conducted, revealing no significant concerns. Collinearity values (VIF) were found to be below the threshold of 5, indicating optimal conditions (James, G., Witten, D., Hastie, T., Tibshirani, 2013). Consequently, the analysis proceeded with the examination of construct reliability and validity through the measurement model, as depicted in Figure 17. The subsequent steps involved structural model analysis and hypothesis testing.

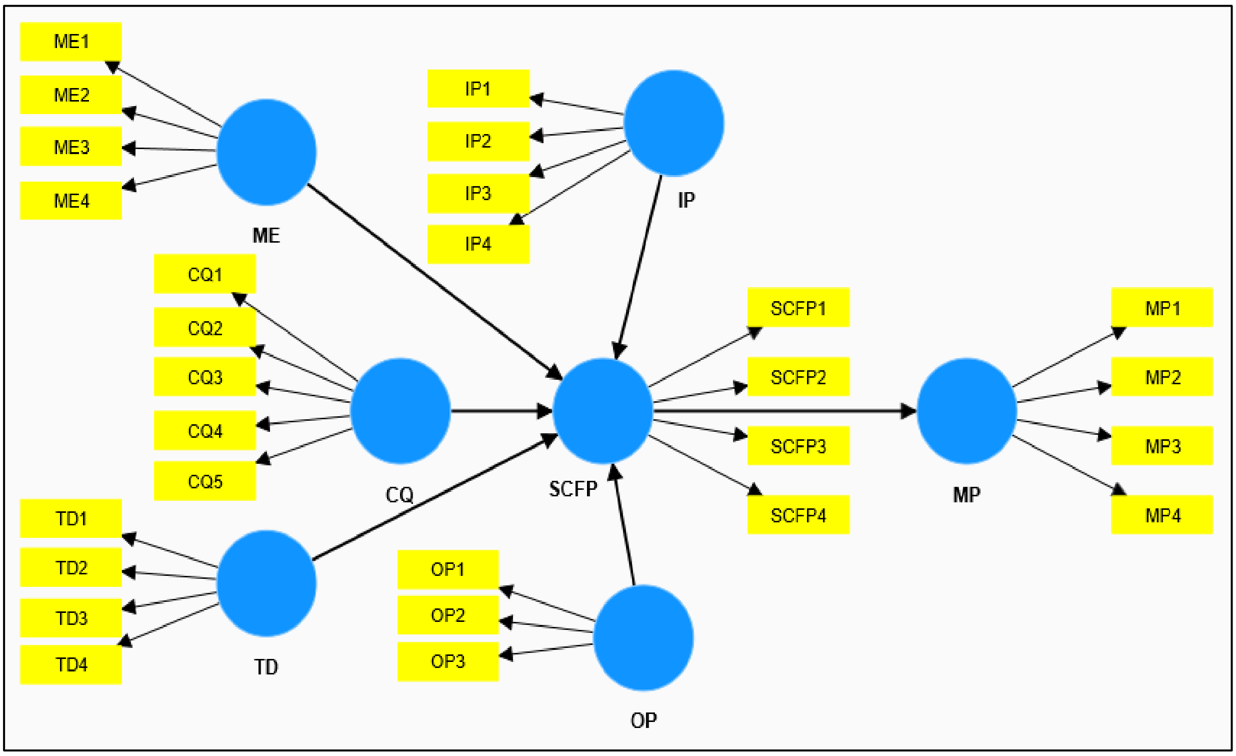
Table 13: VIF Values indicating Multi-Collinearity among Items

Items	**VIF**
CQ1	1.648
CQ2	1.368
CQ3	2.124
CQ4	1.67
CQ5	1.759
IP1	1.971
IP2	2.395
IP3	1.873
IP4	1.378
ME1	1.753

ME2	1.821
ME3	1.826
ME4	1.224
MP1	3.212
MP2	4.035
MP3	2.801
MP4	3.187
SCFP1	1.653
SCFP2	4.328
SCFP3	4.506
SCFP4	2.407
TD1	1.451
TD2	1.728
TD3	1.692
TD4	1.029

4.4.1. Measurement Model

Figure 17: Measurement model of the study



First, the factor loadings of all the items in the model have a value greater than the minimum acceptable value of 0.50 (Hair, Black, Babin, & Anderson, 2010). Although factor loading over 0.7 is desirable (Vinzi, Chin, Henseler, & Wang, 2010), researchers frequently obtain weaker outer loadings (< 0.70) in social science studies. We observe that the construct for organizational policies(OP1= 0.074) and Trade digitization (TD4=0.480) were found with the lowest loadings below the threshold.

Secondly, Construct reliability was established through Cronbach's Alpha and Composite Reliability (CR). The constructs used in the study attained Cronbach's alpha value above the recommended cut-off value of 0.7 (Fornell & Larcker, 1981). The construct for Trade digitization depicted the lowest Cronbach's alpha values at 0.684, which is close to the minimum threshold value (See Table 14). The items thus indicate high internal consistency and reproducibility of the scale (Fornell & Larcker, 1981). The CR for all the constructs was higher than the recommended value of 0.700 except for organizational policies (CR=0.609).

Thirdly, to test the Convergent validity of the scale, the Average Variance Extract (AVE) measures were employed. The results of all constructs depicted a value of more than 0.5, indicating satisfactory convergent validity among constructs (Fornell & Larcker, 1981). However, the AVE values for organizational Policies stood at 0.427 which is below the threshold (See Table 14). Due to the inability of organizational policies to meet the criteria for both construct reliability and convergent validity, we were compelled to remove these scales.

Table 14: Reliability and validity of Constructs

	Loadings	**Cronbach's alpha**	**Composite reliability (rho_c)**	**Average variance extracted (AVE)**
Integration with Partners		0.775	0.852	0.590
IP1	0.716			
IP2	0.800			
IP3	0.806			
IP4	0.748			

Organisational Policies		0.758	0.609	0.427
OP1	0.074			
OP2	0.760			
OP3	0.836			
Macro Environment		0.752	0.840	0.573
ME1	0.844			
ME2	0.789			
ME3	0.796			
ME4	0.569			
Credit Quality		0.759	0.828	0.498
CQ1	0.709			
CQ2	0.496			
CQ3	0.824			
CQ4	0.642			
CQ5	0.807			
Trade Digitization		0.684	0.749	0.497
TD1	0.853			
TD2	0.799			
TD3	0.776			
TD4	0.480			
SCF Performance		0.881	0.919	0.740
SCFP1	0.730			
SCFP2	0.920			
SCFP3	0.928			
SCFP4	0.849			
MSME Performance		0.913	0.939	0.793
MP1	0.881			
MP2	0.916			
MP3	0.860			
MP4	0.905			

Next, the study employed the Fornell and Larcker Criteria (1981) to assess Discriminant validity by comparing the square root values of Average Variance Extracted (AVE) with the correlations between constructs. As illustrated in Table 15, the bold square root values exceed the inter-construct correlation values, indicating that the measurement model ensures discriminant validity, and the constructs under study differ from others. However, recent discussions have raised concerns about the reliability of these criteria in variance-based SEM studies, with researchers such as Voorhees et al. (2016) and Shiu et al. (2011) critiquing their effectiveness. To address this, the Heterotrait and Monotrait ratio of correlations (HTMT) method was utilized to further evaluate Discriminant validity (Henseler et al., 2015). HTMT represents a recent advancement in PLS analysis for assessing the distinctiveness among variables (Carrion et al., 2016). Across all six constructs, the results met the established threshold of < 0.85 (Henseler et al., 2015), as depicted in Table 16, confirming the Discriminant validity.

Table 15: Discriminant Validity using Fornell-Larcker Criteria.

	CQ	IP	ME	MP	SCFP	TD
CQ	**0.706**					
IP	0.488	**0.768**				
ME	0.507	0.599	**0.757**			
MP	0.342	0.351	0.354	**0.891**		
SCFP	0.442	0.392	0.482	0.522	**0.86**	
TD	0.443	0.392	0.449	0.406	0.59	**0.702**

Note: Values in Bold indicate Squared values of AVE Scores; IP-Integration with Partners, ME-Macro environment, CQ-Credit quality, TD-Trade Digitisation, SCFP-SCF Performance, MP-MSME performance

Table 16: Heterotrait-Monotrait (HTMT) ratio of correlations

	CQ	IP	ME	MP	SCFP	TD
CQ						
IP	0.587					
ME	0.669	0.799				
MP	0.366	0.399	0.411			
SCFP	0.477	0.445	0.558	0.572		
TD	0.708	0.571	0.667	0.496	0.688	

4.4.2. Validating higher-order construct (TReDS/SCF adoption)

TReDS/SCF adoption is the formative higher-order construct (reflective-formative type) based on four lower-order constructs -IP-Integration with Partners, ME-Macro environment, CQ-Credit quality, TD-Trade Digitisation (Ali et al., 2020; Bi et al., 2022). This higher-order construct serves as an endogenous construct in the path model. Hence, we apply a disjoint two-stage approach (Sarstedt et al., 2019) under Mode B for formatively specified higher-order constructs (i.e., reflective-formative).

The PLS-SEM algorithm uses two different modes to estimate the measurement models – Mode A and Mode B. When using Mode A (i.e., correlation weights), the bivariate correlations between each indicator and the construct determine the indicator weights used to compute the latent variable scores. In contrast, Mode B (i.e., regression weights) computes indicator weights by regressing each construct on its associated indicators.

The disjoint two-stage approach should be estimated using the standard settings on both stages; that is, Mode A for reflectively specified measurement models and Mode B for formatively specified measurement models. Finally, Becker et al. (2012) also show that the path weighting scheme to estimate the PLS path model produces the overall best parameter recovery in formatively specified higher-order constructs (i.e., reflective-formative and formative-formative types).

Finally, we evaluate the Measurement Model (Reflective-formative and formative-formative) of higher-order constructs by interpreting the relationships between higher-order and lower-order components as weights and assess convergent validity, collinearity, and the significance and relevance of the weights

To validate the higher-order formative construct, first, multi-collinearity was assessed using the Variance Inflation Factor (VIF). VIF values less than or equal to 5 (Hair et al., 2021) indicate no multicollinearity issues. In the present study, collinearity did not pose any threat, as the VIF values were less than 5 (Table 17). Next, the statistical significance and relevance of outer weights were assessed (Sarstedt et al., 2019). The outer weights were found significant (p value<0.05) for most of the indicators except the ME-Macro environment (p value=0.081). Further, outer loadings were found significant for each indicator forming TReDS/SCF adoption (Sarstedt et al., 2019). Hence, the higher-order construct was validated.

Figure 18: Structural model depicting the relationship between various constructs

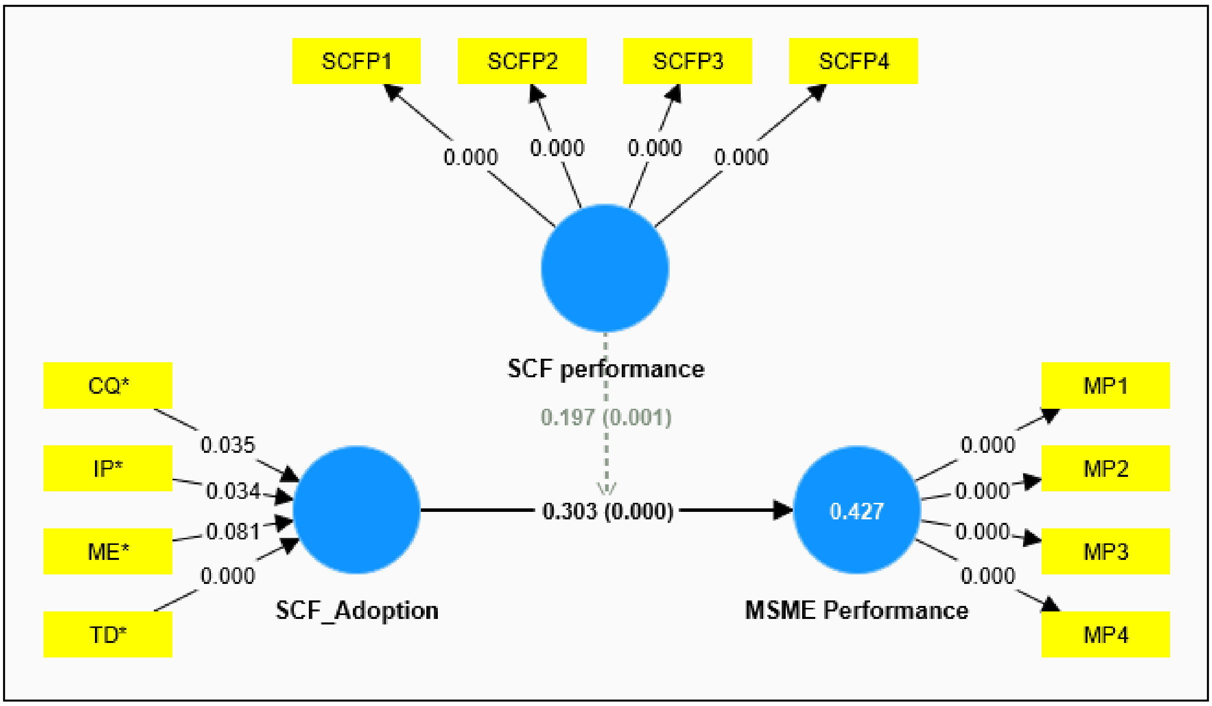


Table 17: Higher-order construct validation (TReDS/SCF adoption)

LOCs	VIF	Outer weights	T statistics	P values	Outer Loadings	P values
CQ* -> SCF_ADOPTION	1.543	0.302	9.295	0.035***	0.720	0.000***
IP* -> SCF_ADOPTION	1.698	0.310	8.942	0.034***	0.738	0.000***
ME* -> SCF_ADOPTION	1.805	0.313	9.784	0.081**	0.747	0.000***
TD* -> SCF_ADOPTION	1.374	0.358	8.230	0.000***	0.853	0.000***

Note: CQ* - Latent variable score of credit quality, IP*- Latent variable score of Integration with Partners, ME*- Latent variable score of Macro environment, TD* - Latent variable score of Trade Digitisation, SCF_Adoption - Formative Higher order construct, LOC – Lower order construct.

4.4.3. Hierarchical Component Analysis

To confirm the proposed relationships, we run a hierarchical analysis by using the smart PLS 4.1.0 version. Currently, many organizations follow a systematic and hierarchical order system for making decisions. Therefore, it is essential to include multilevel theoretical and analytical models in our research approach. The hierarchical component model offers a statistical and conceptual mechanism for examining associations of cross-level analysis (Hair et al., 2007).

Endogenous constructs (MSME Performance) are inserted in Model 1 along with a Higher order construct (TReDS/SCF_Adoption) as an exogenous construct. Retaining the existing model 1, an additional exogeneous construct (SCF Performance) was introduced to constitute model 2. Later, we examined that SCF Performance was moderating the relationship between TReDS/SCF adoption and MSME performance in Model 3. Finally, we also found that SCF Performance was mediating between dependent and independent constructs in Model 4.

Table 18 shows the path coefficients of the proposed relationships of the proposed models. In line with our hypotheses, TReDS/SCF Adoption (R square = 0.427, p-value < 0.05: Model 3) has a significant direct effect on MSME performance. This result depicts that if MSMEs adopt TReDS as their SCF for their Invoice financing, then it is expected to bring an increase in MSMEs performance significantly. The findings are also evident in Model 3 - that SCF Performance positively and significantly moderates the relationship between TReDS/SCF Adoption and MSME performance. This outcome means that the SCF Performance as moderator enhances the MSME Performance with the highest coefficient of determinating the variation of the model (R^2 value = 0.427). Finalising Model 3, we further navigate to the evaluation of this model in PLS-SEM analysis using the bootstrapping method.

Table 18: Hierarchical component analysis result

	Dependent variable as MSME Performance			
Constructs	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Predictor :				
SCF_Adoption	0.477***	0.240***	0.303***	0.230***
SCF Performance		0.370***	0.402***	0.373***
Mediator :				
TReDS/SCF adoption -> SCF Performance				0.649***
Moderator :				
TReDS/SCF adoption * SCF Performance			0.197***	
R^2 value	0.228	0.308	0.427	0.304
Adj R^2 value	0.225	0.302	0.420	0.298

Note: *** indicates that the models are significant(p values < 0.05)

4.4.4. Structural Model

For the structural model analysis, the SEM procedure of PLS is used to analyze the goodness of fit index, R square, hypotheses testing (Path coefficients), and predictive relevance.

4.4.4.1. Validating the Structural Model

To validate that the proposed model is acceptable and achieved the minimum criteria of model fitness suggested by Hensler & sardest (2013), Hu & Bentler(1999) and Lohmoller(1989).

Table 19: Model Fitness Indices

Model Fit Indices	**Saturated model**	**Cut-off values**	**Source**
SRMR	0.051	< 0.10	(Hu & Bentler, 1999)
d_ULS	0.203	< 0.95	(Hensler & sardest, 2013)
d_G	0.154	< 0.95	(Hensler & sardest, 2013)
NFI	0.910	> 0.90	(Lohmoller, 1989)

The model's overall Goodness of Fit (GoF) is 0.5009, obtained from the outlines (Alolah et al., 2014) using the Equation,

$$GoF = \sqrt{AVG\ AVE * AVG\ R^2}$$

Using the equation, the average AVE scores (0.588) of seven constructs and the average R square (0.427) of one endogenous variable (MP-MSME Performance) are taken into consideration. Considering the criteria of GoF values of small at 0.1, medium at 0.25, and large at 0.36 (Esfandiar et al., 2019), we can say that the current model has a good model fit. Furthermore, the Model Fit Indices (See Table 19) highlight good model fit using Standardized Root Means Square (SRMR), indicating a value less than the cut-off limit. Similarly, the Normed Fit Index (NFI) also indicated a good model fit with a value of 0.910.

The next step is to validate the structural model through the coefficient of determination of the model's variation (Coefficient of determination, R^2). The R^2 value is defined as the percentage of variation in endogenous variables that is explained by exogenous variables (Hair et al. 2021). The R^2 value ranges from 0 to 1. The closer R^2 is to 1, the better the model fits the dataset. The closer R^2 is to 0, the less suitable the model is. Therefore, R^2 results are important indicators of the relationship between latent variables in the model and are the main criteria for evaluating structural models (Hair et al., 2021). Henseler et al. (2015) show that the acceptable level of R^2 depends on the research context. However, the rating is still given for reference respectively: strong (0.67), moderate (0.33) and weak (0.19).

According to R^2 coefficients in Table 18, the constructs modeled for the current study explained a moderate variance, with 0.427 variance reported by one endogenous construct (MP-MSME Performance). The Q^2 variance lies at a moderate level of 0.20 to 0.66, as suggested by Henseler et al. (2015). Possible reasons for getting moderate Q^2 values can be the presence of factors not covered in the study due to their scope.

4.4.4.2. Evaluating the structural model

After gaining confidence in the validity of the structural model, the path coefficients and hypotheses testing were performed.

The next step in PLS-SEM analysis is to evaluate the structural model through the Bootstrapping method with a sample size of 10,000 (bootstrap sampling). According to (Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, 2022) proposed indicators in the evaluation of structural models include: 1) The influence factor (ß) includes t values at a significance level of 0.05 and confidence intervals, 2) Degree (intensity) of influence (F^2) 3) The predictive relevance of the Model (Q^2)

Path coefficient estimates

The coefficient of influence (ß) provides information about the strength of the relationship between exogenous and endogenous variables. The value of ß also indicates the directional relationship (positive or negative) of the concept in the research model (Henseler et al., 2015), corresponding to the tested hypothesis. To determine the significance of the relationship, the Bootstrapping approach is proposed (Hair et al. 2014). The Bootstrapping method uses resampled sampling (n=10,000) to estimate the accuracy of the PLS estimates by replacing sampling from the original data set (Hair et al. 2014). The results of the t-statistic can be used to determine the significance level (p-value). Accordingly, the statistical value t = 1.6497 corresponds to the 90% confidence level; t = 1.9676 corresponds to 95% confidence and t = 2.5916 corresponds to 99% confidence.

Degree of influence (Effect size, F^2)

Also according to Henseler et al (2015) to consider the impact of exogenous variables on endogenous variables, it is necessary to evaluate the influence coefficient F^2. When F^2 is at 0.02

levels; 0.15 and 0.35, it can be concluded that the impact level is weak, fair, and strong, respectively.

The predictive relevance of the Model (Q^2)

Q^2 is predictive relevance, which measures whether a model has predictive relevance or not (> 0 is good). Further, Q^2 establishes the predictive relevance of the endogenous constructs. Q^2 values above zero indicate that your values are well reconstructed and that the model has predictive relevance. If the Q^2 value is positive, the prediction error of the PLS-SEM results is smaller than the prediction error of simply using the mean values. In that case, the PLS-SEM models offer better predictive performance.

Both R^2 and Q^2 are used to measure the model fit and consistency. In particular, R^2 is a measure of model fit to the original data, and Q^2 provides an internal measure of consistency between the original and cross-validation predicted data.

Next, the proposed hypotheses are tested. The results (Table 20) revealed that all hypotheses were supported in the complete sample.

Table 20: Significance Testing Results of the Structural Model Path Coefficients

Direct relationships.	Path Coefficients	T statistics	P values	95% Confidence Intervals (With Bias Correction)	Significance (p < 0.05)?
H1 : TReDS/SCF_Adoption -> MSME Performance	0.303	4.065	0.000	0.152 ; 0.442	Yes
H2: SCF Performance -> MSME Performance	0.402	5.455	0.000	0.247 ; 0.537	Yes
H3: SCF performance x SCF_Adoption -> MSME Performance	0.197	3.162	0.002	0.022 ; 0.272	Yes

Next, model explanatory power is assessed. Refer to Table 21, to assess the model explanatory coefficients. R^2 (0.427) indicates that the model is moderately fit. The influence coefficient (F^2) analyses the impact of exogenous variables on endogenous variables. Hence, TReDS/SCF Adoption is witnessed to be the least influencing the MSME performance with the lowest value of 0.093. Predictive relevance was assessed using the Q^2 value. The Q^2 values of the endogenous construct (MP - MSME performance) stood at 0.718. The Q^2 values in the study can be described as strong (Hair et al., 2013).

Table 21: Model Explanatory summary

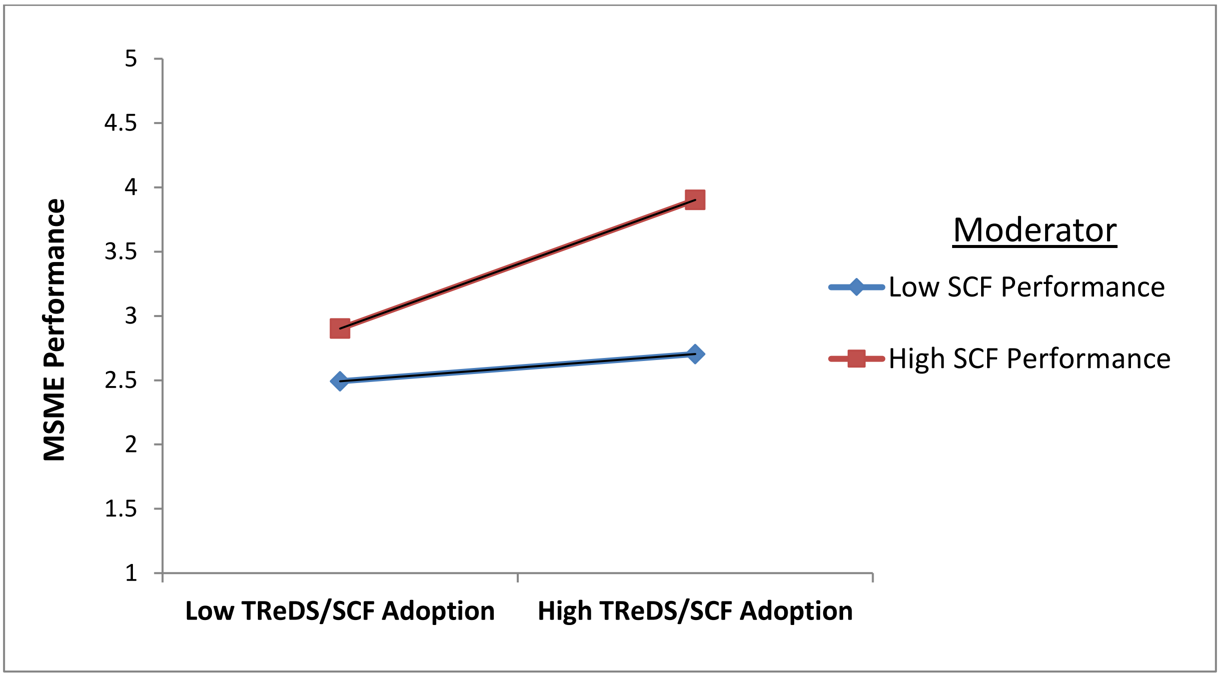
Construct	R^2	F^2	Q^2
MSME Performance	0.427	SCFP (0.167) SCF_Adoption (0.093) SCFP*SCF_Adoption (0.209)	0.718
Findings	R^2 lies between 0.19 -0.66; moderately fit model	SCF_Adoption has the least intensity on the endogenous construct	$Q^2>0$; well-constructed model

4.4.5. Moderation analysis

Moderation analysis was performed to assess the moderating role of SCF Performance on the relationship between TReDS/SCF_Adoption and MSME performance. The findings in Table 20 are evident that SCF Performance positively and significantly moderates the relationship between TReDS/SCF Adoption and MSME performance (H3: β=0.197, t-value=3.162, p-value=0.002), Therefore, hypotheses H3 was supported. This shows that the high SCF Performance strengthens the positive relationship between TReDS/SCF_Adoption and MSME performance.

The results further revealed that without the interaction effect, the R^2 was 0.308. However, with the inclusion of the interaction effect the R^2 significantly improved to 0.427. The effect size statistic (F^2) showed an effect size of 0.209. This shows the interaction has a moderate effect on the outcome (MSME Performance) (Chin et al., 1998).

Figure 19: Interaction effect of SCF Performance (Slope Analysis)



Further to test the significance of the interaction effect, slope analysis was performed to better understand the impact of SCF Performance on the relationship between TReDS/SCF_Adoption and MSME performance. The slope analysis (***Figure 19: Interaction effect of SCF Performance (Slope Analysis)***) reveals the interaction effect. It revealed that the relationship between TReDS/SCF Adoption and MSME performance is much steeper at high SCF Performance. The slope reveals the association between TReDS/SCF Adoption and MSME performance was highly positive at high SCF performance. Therefore, a high-level SCF performance is desirable for improving the MSME performance in the current modernized world. The findings suggest that the performance of supply chain finance can play a crucial role in assisting MSMEs to improve their operational efficiency. By leveraging supply chain finance solutions such as TReDS, MSMEs can optimize their financial processes related to supply chain management, such as inventory financing, invoice financing, or trade credit. This optimization can lead to enhanced business efficiency by providing MSMEs with better cash flow management and access to capital.

Furthermore, the value of R^2 represents that our model significantly explained the 42.7% percent variance by predictors in endogenous construct (i.e. MSME performance) with the interaction effect of the moderator (SCF Performance). Thus, we conclude that our hypothesized model is acceptable.

5. Conclusion

The paper aimed to investigate the impact of TReDS/SCF adoption on MSME performance within the context of micro, small, and medium-sized enterprises (MSMEs) for selected regions such as Karnataka, Maharashtra, and North eastern states. Additionally, it sought to explore the moderating effect of the performance of SCF on the relationship between TReDS/SCF adoption and MSME performance.

The results indicate that TReDS/SCF Adoption has a significant positive effect on MSME performance in the selected regions. This finding aligns with previous research conducted by Terziovski (2010), Ansong (2017), Song et al. (2016), and Lekkakos and Serrano (2016). Terziovski (2010) investigated innovative practices using the Resource-Based View (RBV) framework to predict SMEs' performance. He concluded that adopting innovative practices enhances firm performance, particularly within the manufacturing sector.

Thus, the present study confirms the notion that the adoption of TReDS/SCF can result in enhanced performance outcomes for MSMEs. Furthermore, it indicates that the performance of SCF might act as a moderating factor in strengthening the connection between TReDS/SCF adoption and MSME performance, suggesting the potential for SCF performance to amplify the growth of MSMEs. The implementation of digital SCF solutions such as TReDS is highlighted as a key factor in unlocking this potential. These digital platforms offer increased efficiency, transparency, and accessibility in financial transactions within the supply chain. By leveraging such digital SCF solutions, MSMEs can further enhance their financial management processes, optimize cash flow, and gain better access to financing options.

These findings also complement the research work of Ali et al., (2020); Liu et al., (2021); Wuttke et al., (2016); and Feng Liu et al., (2021) showed that an SME's SCF adoption positively impacts its performance but negatively impacts its risk. Trong Lam Vu,(2021), presents how supply chain finance influences both supply chain financing performance and SME performance in Vietnam. The study investigates three hypotheses, revealing significant relationships between them. Additionally, the findings suggest that MSMEs exhibiting high levels of SCF performance are poised to sustain or enhance their firm performance in the future. These results underscore the capacity of TReDS/SCF to enhance firm performance, attributed to its innovative and digital financing solutions aimed at optimizing working capital for seamless business operations. Notably, the performance of SCF emerges as a critical process that substantially influences the connection between TReDS/SCF adoption and firm performance.

5.1. Theoretical implications

First, the primary contribution of the present study is to determine the factors leading to TReDS/SCF adoption using the AHP approach. This study shows that TReDS/SCF Adoption is influenced by various factors such as integration with partners, organizational policies, credit quality, trade digitization, and the macro environment. However, organizational policies are deemed insignificant due to the Government-backed nature of TReDS. Moreover, its implementation is regulated and monitored jointly by the Reserve Bank of India (RBI) and the Ministry of Micro, Small, and Medium Enterprises (MSME). Consequently, the relevance of internal organizational factors is diminished in this context.

Secondly, this study endeavors to create a formative higher-order construct termed "TReDS/SCF Adoption." This construct is developed by incorporating diverse dimensions of SCF, including integration with partners, credit quality, trade digitization, and macro environment, based on their linkages in the previous literature.

Third, this is the first study that empirically develops the association between TReDS/SCF adoption and MSME performance which was hardly addressed in the previous literature of Supply Chain Finance. The current study expands the perspective of resource-based theory by establishing that SCF is a valuable financial resource available to the firm for fulfilling their financing needs and performing daily business operations smoothly to obtain the best firm performance.

Lastly, this study distinctively focuses on analyzing the moderating impact of SCF performance in reinforcing the relationship between TReDS/SCF adoption and MSME performance. This suggests the capacity of SCF performance to potentially magnify the growth of MSMEs.

5.2. Practical implications

Firstly, this study aims to assist MSME entrepreneurs and supply chain (SC) officials in accessing secure financing digitally without requiring collateral to meet their working capital needs. Additionally, it aims to enhance visibility over SC orders through cost-effective digitization. Our findings suggest that TReDS/SCF serves as a dual-purpose tool, optimized to manage firm working capital, improve firm performance, reduce capital costs, and mitigate default risks. These functions of TReDS/SCF effectively enhance MSME operations.

Secondly, from a managerial perspective, this study will offer a comprehensive understanding of the benefits, potential, and limitations associated with the implemented solution, thereby enriching managers' knowledge and facilitating more informed decision-making. Specifically tailored for managers of MSMEs, this research will shed light on the optimization of working capital and mitigation of liquidity issues through the SCF process. Moreover, it will highlight how SCF can foster improved relationships among stakeholders in the supply chain, enabling managers to capitalize on SCF to cultivate long-term relationships among supply chain participants and enhance the financial flow of goods.

Thirdly, this study seeks to analyse and differentiate the challenges encountered by MSMEs during the implementation of TReDS/SCF. It specifically examines the obstacles faced by MSMEs operating in Karnataka, Maharashtra, and the North-eastern region. These challenges are expected to provide valuable insights for government bodies and task forces responsible for overseeing TReDS implementation. The recommendations proposed could serve as a reference for policymakers to evaluate existing policies and make necessary adjustments.

Fourthly, the adoption of TReDS/SCF enables MSME entrepreneurs and officials to access convenient, low-cost, no-risk, collateral-free finances without recourse for optimizing working capital. This type of financing encourages firms to innovate in core competencies or new product development to achieve their goals and improve performance.

Fifth, this study will assist MSMEs in identifying factors influencing TReDS/SCF and guide MSME managers in making decisions regarding process improvement or the adoption of new processes. Additionally, it will empower MSME owners to secure financing to fulfil working capital requirements and reduce credit risk. Overall, this research will serve as a valuable resource for managers, equipping them with insights to navigate SCF dynamics and optimize supply chain operations for enhanced performance and sustainability. The results show that SCF acts as a success factor for improving SCF performance.

Lastly, our study highlights the opportunity for buyers and suppliers to collaborate and build long-term relationships through TReDS/SCF. It creates a mutually beneficial situation where both parties can cost-effectively address credit shortages. Buyers can access secure financing at low cost and risk, while suppliers can receive payments before predetermined deadlines through TReDS arrangements with agreed-upon financial institutions.

5.3. Limitations and future research

The current study has certain limitations. First, this study was conducted on MSMEs in India specifically operating in well-served regions such as Karnataka and Maharashtra and under-served regions such as Assam and Meghalaya which may result in low generalizability in other settings. so there is a scope of the study by extending the research to other firms for generalization.

Second, a comparison can be drawn between large-scale organizations and MSMEs to see the differences in the adoption factors affecting TReDS/SCF. In the future, other factors like training and knowledge about TReDS to employees, support from top management, and integration of the supply chain in the firm can be included to assess the impact of these on supply chain effectiveness.

Also, the impact of other mediators and moderators can be tested on the model. Furthermore, other related SCF factor aspects, like Supply chain information, supply chain effectiveness, and supply chain agility, can be tested in future studies to extend the current model. Future studies can incorporate the mediating factors that strengthen the relationship between SCF and firm performance.

6. Expert interviews

6.1. Interview with Commissioner, Department of Industry & Commerce, GOK

Dated 27.09.2023

1. Dr. Leena S(LS) - TReDS facilitates the early realization of funds, helping MSMEs improve their cash flow and working capital. Is this facility realized by all MSMEs? What is the level of awareness among MSMEs? What initiatives are taken up by the Government/Ministry of MSME to raise the awareness levels?

   Dr. Vijaya Mahantesh (VM) - We're currently in discussions with the MSME ministry to arrange TReDS workshops in Karnataka. These workshops aim to raise awareness among MSMEs about the benefits of utilizing the TReDS platform.

2. LS - The Indian government and the Reserve Bank of India (RBI) are exploring the integration of the Goods and Services Tax Network (GSTN) with the Trade Receivables Discounting System (TReDS) platforms using an account aggregator. What are your views on this development? How does the integration of GSTN with TReDS help?

   VM - This initiative is commendable as it streamlines the documentation process for financiers. By enabling direct access to data from the portal, MSMEs can secure financing swiftly and efficiently.

3. LS -RBI permitted all institutions that undertake factoring business to participate as financiers in TReDS from June 2023 onwards. Would this increase the market size? Is Invoice Mart prepared to scale up accordingly? Would this expand the pool of financiers?

VM - Absolutely, it will increase market size by allowing the pool of financers.

4. LS -Despite many policy initiatives and boosts from RBI, MSMEs are hesitant to adopt the TReDS platform. What could be the reasons? Could you explain the top 10 challenges faced by MSMEs?

   VM - Certainly there are challenges such as:

   - There is a lack of awareness among MSMEs about TReDS.
   - The participation of MSME businesses can be hindered by the onboarding fee.
   - There is currently no mandate or requirement for banks to provide funding to MSMEs through the TReDS platform. While TReDS offers a valuable avenue for MSMEs to access working capital, banks have the discretion to decide whether or not to participate in financing transactions facilitated by TReDS. This lack of compulsion on banks can sometimes limit the availability of funding options for MSMEs through TReDS.
   - The lack of mandatory buyer acceptance in TReDS means that buyers are not legally obligated to accept invoices presented by MSME suppliers for financing through the platform. This poses a significant challenge because, without buyer acceptance, financiers may be reluctant to provide funding, reducing the effectiveness of TReDS in facilitating timely payments for MSMEs. Mandatory buyer acceptance would ensure that buyers acknowledge and accept the validity of invoices, thereby increasing confidence among financiers and encouraging greater participation in the TReDS system. This issue highlights the need for regulatory measures or industry standards to address this concern and enhance the functionality of TReDS for all stakeholders involved.

- Deliberations during RBI Executive Committee meetings underscore the importance of TReDS in the financial ecosystem and the ongoing efforts to ensure its smooth operation and sustained benefits for stakeholders, particularly MSMEs. However, the implementation process may require additional time to address any remaining challenges and optimize its effectiveness.

5. LS - Your inputs to improve the TReDS adoption in well-served regions such as Karnataka.

   VM - Absolutely, Karnataka's leading position in TReDS adoption underscores its significance nationwide. In alignment with this, resources have been allocated within the RAMP SIP Budget to conduct 124 awareness workshops over the next four years. Each workshop will engage approximately 100 MSMEs, reaching a total of 12,400 MSMEs across the state. These sessions will not only emphasize the advantages and utilization of TReDS but also spotlight various trade promotion and facilitation initiatives. By doing so, we aim to amplify TReDS' positive impact on MSMEs and enhance the overall business ecosystem in Karnataka.

6. LS -What is the role played by your department to spread awareness about TReDS in their respective regions? What’s your stand on this? Could you support RBI/GOI to create the TReDS movement?

   VM -Certainly, initiating collaborations with TReDS exchanges for online awareness sessions is a proactive step. Let's earmark October 18th as the date to kickstart these programs, reaching out to District Industrial Centres (DICs) across Karnataka via online video conferencing. This approach will efficiently leverage technology to disseminate valuable information about TReDS, ensuring that a wider audience within the state's MSME community is engaged and informed.

Following the online awareness sessions with DICs, our next step will involve initiating discussions with the MSME ministry to organize TReDS awareness workshops for key stakeholders. These workshops will target participants including banks, TReDS exchanges, industry associations, state PSUs, and MSMEs. By bringing together these diverse stakeholders, we can facilitate meaningful discussions, share insights, and foster collaboration to further promote the adoption and utilization of TReDS across Karnataka.

6.2. Interview with Senior Director-Sales, M1xchange

Dated 28.09.2023

1. Dr. Leena S(LS): Trade Receivables Discounting System (TReDS) platforms are digital platforms that provide a mechanism for small and medium-sized enterprises (SMEs) to raise funds by selling their trade receivables or invoices to financiers at a discounted rate. How competitive are these discount rates compared to other working capital financing modes?

   Mr. Sanjaya.Dikshit (SD): As of today, M1xchange accommodates 57 financiers, each offering varying but competitive discount rates. These rates are determined based on the following factors:

   - Bank's Asset Liability position
   - Buyer's credit rating
   - Macroeconomic conditions
   - Buyer's industry segment
   - Banks need / gap in priority sector lending
   - As this is a competitive marketplace, the average Rate of interest ranges between 6.5% p.a to 10% p.a for discounting of MSME receivables

2. LS: TReDS facilitates the early realization of funds, helping MSMEs improve their cash flow and working capital. .Is this facility realized by all MSMEs? What is the level of awareness among MSMEs? What initiatives are undertaken by M1 to increase their awareness? To what level does M1 handhold MSME in TReDS adoption?

   SD: Certainly, MSMEs are realizing the benefits of platforms like M1xchange. The trading volume trend reflects this:

   - In 2017, the annual trading volume was 100 crores (approximately).

- By 2020, it had grown to 100 crore per month.
- In 2023, it has surged to approximately 200 crore per DAY, indicating exponential growth and adoption by MSMEs. On Sep 23 Mynd has discounted invoices worth Rs.4000 crs for MSME.

Here's a ranking of the states based on the value of MSMEs concentration manufacturing activities, with the top five (in my opinion):

1. Maharashtra
2. Delhi
3. Gujarat
4. Tamil Nadu
5. Karnataka

These are various ways or methods that are employed by M1xchange to promote awareness and adoption of TReDS among MSMEs:

- Workshops: Conducting workshops where MSMEs can learn about the benefits and processes of TReDS, and get hands-on experience with the platform.
- Awareness Camps: Organizing awareness camps or seminars to educate MSMEs about TReDS, its advantages, and how it can help them with their financial needs.
- Stalls at Vendor's Meet: Setting up information stalls at vendor's meet or industry events where MSMEs gather, providing them with materials and guidance on TReDS.
- District Industries Centre: Collaborating with District Industries Centre to reach out to MSMEs at the district level, offering guidance and support for TReDS adoption.

- Guest Lectures at RBI: Delivering guest lectures or presentations at the Reserve Bank of India (RBI) to inform policymakers and stakeholders about the benefits and impact of TReDS on the MSME sector.
- Awareness through Social media campaigns

These initiatives aim to increase awareness and understanding of TReDS among MSMEs, encouraging them to leverage this financial tool to improve their cash flow and address delayed payment issues.

M1xchange, as a TReDS platform, typically provides several levels of support to handhold MSMEs in adopting TReDS:

- Dedicated one-to-one relationship managers.
- Multilingual customer care support in 15 languages.
- Waiver of onboarding fees for the first year on a case-by-case basis.
- A one-time registration fees.
- No annual fees.
- Pioneering the development of a mobile application.

3. LS: The Indian government and the Reserve Bank of India (RBI) are exploring the integration of the Goods and Services Tax Network (GSTN) with the Trade Receivables Discounting System (TReDS) platforms using an account aggregator. What are your views on this development? How does the integration of GSTN with TReDS help?

   SD: Integrating GST with TReDS is a beneficial process. This will be a game-changing step for the country to be DIGITAL in Trade Finance.

   This integration will help MSMEs to put invoices for discounting on the platform vide GSTN automatically and eliminate the manual step of inputting invoices.

Further, the genuineity of transactions will be enhanced and give more confidence to banks for sanctioning credit limits to TReDS.

4. LS: Financiers place their bids on the TReDS platforms keeping in view the credit rating of buyers. They are generally not inclined to bid for payables of low-rated buyers. To overcome this, an insurance facility is being permitted for TReDS transactions, would this aid financiers to hedge default risks?

   SD: Insurance facilities in TReDS are designed to provide protection and coverage for transactions conducted on the platform. As of today, insurance coverage typically applies to factoring but not reverse factoring. Here's an overview of insurance facilities in TReDS:

   - Factoring Insurance: TReDS platforms often offer insurance coverage for factoring transactions. Factoring insurance provides recourse in case the debtor (buyer) fails to make payment to the factor (financier) within the agreed-upon terms. This insurance helps protect the financier from potential losses due to non-payment.
   - Reverse Factoring Insurance: Reverse factoring transactions, where the supplier (MSME) sells their receivables with the approval of the buyer, may not typically require insurance coverage since the risk of non-payment is often lower due to the buyer's involvement and commitment. However, insurance arrangements can vary based on agreements between the parties involved.
   - Premium Responsibility: The responsibility for paying insurance premiums in TReDS transactions can vary. In factoring, where insurance is more common, it may be the financier (factor) who bears the premium cost.
   - Coverage Terms: The coverage terms and conditions of insurance in TReDS may differ depending on the specific insurance provider and the platform's policies.

Participants need to understand the coverage scope, limits, and conditions associated with the insurance offered on the TReDS platform.

- Risk Mitigation: Insurance facilities on TReDS play a crucial role in mitigating risks associated with delayed payments or non-payment, providing a safety net for businesses engaging in receivables financing.
- Transparency: TReDS platforms typically ensure transparency in insurance-related matters, making it clear who is responsible for premium payments and how the insurance coverage functions in case of payment delays or defaults.

The availability and terms of insurance facilities can vary between different TReDS platforms and regions. It's essential for businesses participating in TReDS transactions to thoroughly review and understand the insurance arrangements associated with the platform they are using and to engage in clear agreements with financiers and buyers regarding insurance responsibilities.

5. LS: RBI permitted all institutions including NBFCs that undertake factoring business to participate as financiers in TReDS from June 2023 onwards. Would this increase the market size? Is the M1 exchange prepared to scale up accordingly? Would this expand the pool of financiers?

SD: Bringing Non-Banking Financial Companies (NBFCs) into the ecosystem can indeed be beneficial for both MSMEs and buyers, especially in cases where traditional banks are hesitant to provide credit facilities. Traditional banks are often hesitant to extend credit facilities to buyers who have a credit rating below BBB+.

Here's how NBFCs can help:

- Broader Access to Financing: NBFCs often have more flexible lending criteria compared to traditional banks. This allows them to extend credit to buyers with lower credit ratings, providing broader access to financing.
- Support for MSMEs: MSMEs may find it easier to secure financing from NBFCs, especially when they have limited collateral or lower credit ratings. This support can be crucial for their working capital needs and growth.
- Quick Approvals: NBFCs can sometimes provide faster loan approvals and disbursements, which can be vital in situations where businesses need timely access to funds.
- Risk Assessment: NBFCs often use alternative methods of risk assessment beyond traditional credit scores, allowing them to evaluate the creditworthiness of buyers more comprehensively.
- Market Competition: The presence of NBFCs in the market increases competition among lenders, potentially leading to better interest rates and terms for borrowers.
- Diversification of Funding Sources: Buyers and MSMEs can benefit from diversifying their sources of financing. Relying solely on banks may limit their options while involving NBFCs provides additional funding alternatives.
- Economic Growth: Overall, the availability of credit through NBFCs can contribute to economic growth by supporting the financing needs of a broader range of businesses.

6. LS: The central bank has also allowed secondary market transactions on the TReDS platform. Is this effective? If not yet, tentative dates for its implementation? Do you foresee any challenges here?

SD: Secondary market operations for TReDS have been recently allowed by RBI.

This has the potential to create more liquidity in the ecosystem for the financing of MSME receivables.

The implementation of this facility is subject to RBI's Master Directions on Transfer of Loan Exposures, 2016 – which advises that the Minimum Holding Period (MHP) before which a financier cannot transfer their portfolio to another is 90-180 days basis the nature of the loan. Since TReDS transactions are for MSMEs which get settled within 45 days – and are not loans – this announcement has to be clarified by the regulator for implementation.

7. LS: What is the volume of Settlement of FUs not discounted/financed? How are these further processed?

   SD: The discounting of invoices for MSME sellers is enabled by way of a credit limit assigned to their Buyer on TReDS (Trade Receivables Discounting System). If the value of invoices exceeds this credit limit, those extra invoices may not be eligible for immediate discounting.

   Undiscounted FUs are mainly for MSME sellers of BBB and below-rated Buyers. The invoices hosted on TReDS are within the range of limits allotted and not beyond.

8. LS: Despite many policy initiatives and boosts from RBI, MSMEs are hesitant to adopt the TReDS platform. What could be the reasons? Could you explain the top 10 challenges faced by MSMEs?

SD: The adoption of TReDS (Trade Receivables Discounting System) by MSMEs can come with several challenges, including:

- Lack of Awareness: Many MSMEs are not aware of TReDS and its benefits, which can hinder their adoption of the platform.
- Lack of Buyer acceptance: Buyers may resist transacting on TReDS, thus not allowing MSMEs to benefit from invoice discounting on TReDS.
- Limited support from PSUs: Buyers who have onboarded TReDS are maximum in the Private sector. Out of Rs.2 Lakh crore volume, 90% of business is done by MSMEs of Private corporate buyers and less than 10% is by PSU Buyers. PSU buyers can demonstrate their commitment to social responsibility by actively joining and conducting transactions on TReDS in significant volumes. This action indirectly fosters the development and expansion of MSME sellers.
- Encouraging All Ministries to Embrace TReDS: All ministries need to consider onboarding onto TReDS to support MSMEs. For instance, even sectors like railways, which are not currently utilizing TReDS, could investigate the platform's potential advantages in ensuring timely payments to MSME suppliers, thereby fostering growth and stability in this crucial sector.

6.3. Interview with Chief Finance Officer, RXIL

Dated 18.10.2023

1. Dr. Leena.S(LS): Trade Receivables Discounting System (TReDS) platforms are digital platforms that provide a mechanism for small and medium-sized enterprises (SMEs) to raise funds by selling their trade receivables or invoices to financiers at a discounted rate. How competitive are these discount rates compared to other working capital financing modes?

   Mr. Kailash Kumar Varodia (KKV): considering there are multiple financiers available on the platform as well as recourse is on the buyer, financier quote their rates taking into the account credit strength of the buyer as well as financier compete between themselves. Financing done on the TReDS platform qualifies for the priority sector lending which encourages the financier to quote competitive rates.

2. LS: TReDS facilitates the early realization of funds, helping MSMEs improve their cash flow and working capital. Is this facility realized by all MSMEs? What is the level of awareness among MSMEs? What initiatives are taken up by the Government/Ministry of MSME to raise the awareness levels?

   KKV: As of now not all the MSMEs have realized the TReDS facilities, across all the TReDS platforms we have registered around 60,000 MSMEs as of 31 Aug 2023. Lots of initiatives are taken by TReDS entities, RBI, Govt / Ministry of MSMEs to create awareness about the benefits of TReDS.

3. LS: The Indian government and the Reserve Bank of India (RBI) are exploring the integration of the Goods and Services Tax Network (GSTN) with the Trade Receivables

Discounting System (TReDS) platforms using an account aggregator. What are your views on this development? How does the integration of GSTN with TReDS help?

KKV: Integration of GSTN with TReDS will be really helpful, which will seamlessly transfer the invoice details to the TReDS platform based on the seller's consent. This will also give the edge to the TReDS platform that authenticated tax invoices are flowing in TReDS. Discussion with GSTN is ongoing.

4. LS: The Reserve Bank of India (RBI) has authorized insurance companies to operate in the trade receivable discounting system (TReDS) in a bid to solve low-rated buyers' payment challenges. How effective is this? Do you think this shall bring exponential growth to TReDS?

   KKV: RBI has just notified about Insurance as a fourth participant on the TReDS platform. We are already in discussion with Insurance Companies on the same. We are awaiting the policy framework from the insurance companies for the TReDS transaction. Trade Credit Insurance will bring more traction to the TReDS platform, it's an early stage to comment on the exponential growth.

5. LS: Financiers place their bids on the TReDS platforms keeping in view the credit rating of buyers. They are generally not inclined to bid for payables of low-rated buyers. To overcome this, an insurance facility is being permitted for TReDS transactions, would this aid financiers to hedge default risks?

   KKV: Yes, up to some extent, as the financier will have their analysis to take credit exposure on particular buyers despite available insurance cover plus insurance will cover 75-90% and balance exposure will be on the financier. Insurance is just a risk-sharing partner.

6. LS: RBI permitted all institutions that undertake factoring business to participate as financiers in TReDS from June 2023 onwards. Would this increase the market size? Is RXIL prepared to scale up accordingly? Would this expand the pool of financiers? The central bank has also allowed secondary market transactions on the TReDS platform. Is this effective? If not yet, tentative dates for its implementation? Do you foresee any challenges here?

   KKV: RBI permitted all institutions that undertake factoring business to participate as financiers in TReDS from June 2023 onwards will bring more financiers on the TReDS platform and expand the pool of financiers. We have started registering the institutions based on the above notification. RXIL has a system in place to cater to said requirement. W.r.t secondary market, we have already started the development, it will be implemented in Q3 FY24. As of now, the refinancing is only available to the financiers defined and registered on TReDS.

7. LS: What's the volume of Settlement of FUs not discounted/financed? How are these further processed?

   KKV: Around 3-4 % of the volumes uploaded on the platform are not discounted or financed on the TReDS. In those cases, most of the time the settlement between buyer and seller happens outside the TReDS platform. RBI has now been allowed to settle the unfinanced invoices through the TReDS platform based on consent from the buyer.

8. LS: Despite many policy initiatives and boosts from RBI, MSMEs are hesitant to adopt the TReDS platform. What could be the reasons? Could you explain the top 5 challenges faced by MSMEs?

KKV: A few limitations are like

a) Buyer presence and acceptance are mandatory for financing so it’s buyer-driven. Many buyers register on the TReDS platform for compliance purposes and perform any transactions as it’s without recourse to the seller and the buyer has to honour the payment through the auto debit mechanism. TReDS platform brings more transparency and discipline.
b) Lower-rated buyers are not getting sufficient limits considering all the resources are with the buyer.
c) Many of the buyers/sellers are not aware of the benefits of TReDS.

6.4. Interview with Chief Executive Officer, Invoice Mart

Dated 17.10.2023

1. Dr. Leena S(LS): Trade Receivables Discounting System (TReDS) platforms are digital platforms that provide a mechanism for small and medium-sized enterprises (SMEs) to raise funds by selling their trade receivables or invoices to financiers at a discounted rate. How competitive are these discount rates compared to other working capital financing modes?

   Mr. Prakash Sankaran (PS): The discount rates are marginally more advantageous, yet uniform across all TReDS platforms since they are provided by banks. However, due to competitive bidding, they have the potential to become slightly more favourable.

2. LS: TReDS facilitates the early realization of funds, helping MSMEs improve their cash flow and working capital. Is this facility realized by all MSMEs? What is the level of awareness among MSMEs? What initiatives are undertaken by M1 to increase their awareness? To what level does M1 handhold MSME in TReDS adoption?

   PS: The gap between the total number of MSMEs registered on the Udyam Registration portal (which is appx 2crs) and those actively registered on the TReDS platform (which is 64000+) highlights an underutilization of the TReDS system among MSMEs. This suggests that a significant number of MSMEs, despite their registration under the Udyam Registration portal, have not engaged with the TReDS platform for their financing or discounting needs.

   There appears to be a low level of awareness among MSMEs regarding TReDS. However, there is a clear need for a substantial and extensive digital outreach or mass awareness campaign to educate MSMEs about the benefits and potential of the TReDS platform.

   Various initiatives are taken to create Awareness about TReDS:

- By Invoice Mart

  Invoice Mart is taking proactive steps to enhance awareness among MSMEs. Initiatives such as industry outreach programs and training sessions at MSME - Development and Facilitation Offices (DFOs) are undertaken to educate MSMEs about the advantages and operations of TReDS.

- By RBI
  - The Reserve Bank of India's (RBI) effort to produce a video on TReDS available in 15 languages is indeed a commendable and inclusive initiative. By providing information about TReDS in multiple languages, the RBI is ensuring that a wider and more diverse group of individuals, including those who speak various regional languages, can access and understand the content of TReDS.
  - On an ongoing basis, RBI FIDD has been including TReDS sessions in NAMCABS and any other MSME-focused workshop it organizes across the country. This has helped in our out-reach to smaller cities and towns
- By Ministry of MSME, Government of India.
  - Raising & Accelerating MSME Performance (RAMP) scheme is a World Bank-assisted program that aims to improve the performance of Micro, Small, and Medium Enterprises (MSMEs) in India. The scheme was launched on 30 July 2022 by Hon'ble Prime Minister Shri. Narendra Modi ji and implemented by the Ministry of MSME, Government of India. The scheme is expected to help MSMEs grow and become more competitive, which will in turn boost the Indian economy.

    Here are some of the specific benefits that the RAMP scheme is expected to provide to MSMEs in India:

- Improved access to markets: The RAMP scheme will help MSMEs access new markets by providing them with support for market research, product development, and export promotion.
- Improved access to credit: The RAMP scheme will help MSMEs access credit by providing them with guarantees and collateral support. This will make it easier for MSMEs to obtain loans from banks and other financial institutions.
- Strengthened institutions and governance: The RAMP scheme will help to strengthen the institutions and governance of the MSME sector by providing support for capacity building, training, and reforms. This will help to create a more conducive environment for MSMEs to operate in.
- Reduced delays in payments: The RAMP scheme will help to reduce delays in payments to MSMEs by providing support for the development of payment systems and dispute resolution mechanisms. This will help MSMEs to improve their cash flow and financial health.
- Increased environmental sustainability: The RAMP scheme will help MSMEs to become more environmentally sustainable by providing support for the adoption of green technologies and practices. This will help MSMEs to reduce their environmental impact and costs.

- The inclusion of a session on TReDS (Trade Receivables Discounting System) in financial literacy programs conducted by MSME - Development and Facilitation Office (DFOs) is a beneficial step. By incorporating TReDS into these programs, MSMEs can gain valuable insights into how to leverage this system for their financing needs.

- Integrating the TReDS registration link within the Udyam Registration portal offers a streamlined process for Micro, Small, and Medium Enterprises (MSMEs) looking to utilize the Trade Receivables Discounting System (TReDS). Udyam Registration portal is primarily designed for MSME registration and to facilitate government schemes aimed at supporting Micro, Small, and Medium Enterprises (MSMEs). This integration enhances the convenience and accessibility for MSMEs, aligning with the government's efforts to empower and assist these enterprises in their financial initiatives.

3. LS: The Indian government and the Reserve Bank of India (RBI) are exploring the integration of the Goods and Services Tax Network (GSTN) with the Trade Receivables Discounting System (TReDS) platforms using an account aggregator. What are your views on this development? How does the integration of GSTN with TReDS help?

PS: The integration of TReDS with GSTN (Goods and Services Tax Network) will undoubtedly lead to a significant boost in transaction volumes from the below perspectives

- Compliance perspective

The increased number of transactions, especially with the direct uploading of invoices through integration, enhances the comfort level of Financiers bidding on TReDS. This direct process reduces the likelihood of duplicate invoices further reassuring the financiers. The seamless integration between TReDS and GSTN not only amplifies transaction efficiency but also minimizes the probability of errors thereby contributing to a more secure and reliable transaction environment.

- Business perspective

Integrating TReDS with the e-invoicing feature of GSTN has the potential to significantly increase transaction volumes. This integration could lead to a transformative impact, akin to the growth trajectory witnessed by successful platforms like Paytm. By optimizing invoicing procedures, this merger of TReDS and GSTN's e-invoicing feature has the potential to drive widespread adoption.

E-invoicing, or electronic invoicing, is a system where B2B invoices and certain documents are authenticated electronically by the GSTN for use on the common GST portal. Initially targeting large enterprises, the system was later extended to cover mid-sized and small businesses. Notably, e-invoicing doesn't involve creating invoices directly on the GST portal but submitting pre-generated standard invoices on a shared e-invoicing portal. This process automates multi-purpose reporting by requiring invoice details to be inputted only once, as designated by the Central Board of Indirect Taxes and Customs (CBIC)

4. LS: Financiers place their bids on the TReDS platforms keeping in view the credit rating of Buyers. They are generally not inclined to bid for payables of low-rated buyers. To overcome this, an insurance facility is being permitted for TReDS transactions, would this aid financiers to hedge default risks?

PS: The inclusion of insurance as the fourth participant in TReDS might result in moderate initial growth. The focus will be on BBB or moderately rated Buyers where Financiers would want to cover the risk. The acceptance is expected to pick up as Financiers start taking higher risks and Insurance companies start offering reasonable risk premiums for the transactions.

In acknowledgment of the RBI's initiatives and the advantages of offering Trade Credit Insurance cover for "reverse factoring" transactions on TReDS platforms, IRDAI has made a significant amendment to the Trade Credit Insurance Guidelines, 2021. The revised guidelines enable financiers to obtain Trade Credit Insurance coverage against the buyer's default for invoices financed on TReDS platforms. This alteration focuses specifically on "reverse factoring" transactions on TReDS and permits the participation of insurers as a "Fourth Participant" on TReDS.

5. LS: RBI permitted all institutions including NBFCs that undertake factoring business to participate as financiers in TReDS from June 2023 onwards. Would this increase the market size? Is Invoice Mart prepared to scale up accordingly? Would this expand the pool of financiers?

PS: Definitely, the Invoice Mart platform is prepared to expand and incorporate more NBFCs. Many top NBFC Factors involved in digital lending are already actively financing on the TREDS platform. However, other large NBFCs, who now have approval/seeking approval to participate as Financiers need to build their infrastructure to adopt digital lending. While they have the necessary infrastructure, resources, and regulatory compliance in place they will now look to integrate and participate on our platform.

LS: The central bank has also allowed secondary market transactions on the TReDS platform. Is this effective? If not yet, tentative dates for its implementation? Do you foresee any challenges here?

PS: Recently, the RBI has granted permission to TReDS platforms to establish a secondary market for the trading of discounted FUs. It should be noted, however, that the RBI has clarified that all transfers of discounted FUs in the secondary markets will be governed by the provisions outlined in the Master Directions – RBI (Transfer of Loan Exposures) Directions, 2021.

TLE Master Directions prescribe a minimum holding period for the transfer of loans, which applies to discounted FUs as well. This minimum holding period is set at three months for loans with a tenor of 2 years and six months for loans with a tenor exceeding 2 years, as outlined in the directions. Therefore, eligible Financiers dealing in discounted FUs will be required to adhere to the specified minimum holding period.

[Note: This was the status at the time of the interview in Oct'23, however, in Dec'23 RBI modified their Guidelines and removed the criteria of minimum holding period]

6. LS: What is the volume of Settlement of FUs not discounted/financed? How are these further processed?

PS: The RBI noticed that some Factoring Units (FUs) on the TReDS platforms were not being discounted. In response to this, the RBI initially required that undiscounted FUs be settled outside the TReDS. However, in a move to enhance the efficiency of factoring on the TReDS platform, the RBI has now authorized the settlement of such undiscounted FUs to also take place within the TReDS platform.

7. LS: Despite many policy initiatives and boosts from RBI, MSMEs are hesitant to adopt the TReDS platform. What could be the reasons? Could you explain the top 10 challenges faced by MSMEs?

PS: Following are the few challenges faced by MSMEs as per our views:

a. Buyer acceptance is a significant challenge for MSMEs on TReDS platforms.

- Convincing Buyers, often larger corporations, to adopt digital processes and accept invoices through TReDS can be difficult. This reluctance can hinder timely payments, impacting the cash flow of MSMEs. Overcoming this challenge requires targeted outreach, education, and potential incentives to encourage broader acceptance and participation from Buyers on the TReDS platform.

- There is a need for an ecosystem that mandates Buyers to either accept or reject invoices on TReDS platforms. This mandatory process would streamline and enforce prompt decision-making by Buyers, ensuring a more efficient and predictable cash flow for MSMEs.
- A letter issued by DPE in 2018 mandating CPSE registration on specific TReDS platforms has resulted in improper penetration amongst MSMEs across the country. It has removed the choice of the TReDS platform from the hands of the MSMEs. There is an urgent need for the issuance of a fresh mandate giving MSMEs to choose the TReDS platform they want to register and enabling the CPSEs to accordingly be available on the respective TReDS platform.
- Also, nodal financial institutions like SIDBI which are focussed on MSMEs, should through their local offices build awareness amongst MSMEs about all three TReDS platforms thereby helping MSMEs to register on the TReDS platform of their choice.

- MSMEs are required to pay an onboarding fee when registering on TReDS platforms, which covers account setup and access to services. While this fee can be negotiated/reduced depending on the MSME's requirement there is a state-level stamp duty that is to be mandatorily collected by the TReDS platform which can be considered for the waiver by the Government thereby reducing the burden on MSMEs.

8. LS: What is the role played by MSME facilitation offices to spread awareness about TReDS in their respective regions? What's your stand on this? Could you support RBI/GOI to create the TReDS movement?

PS: Our active participation in regional, industry, and State Level Bankers Committee (SLBC) meetings, engaging with Banks, corporations, and MSMEs showcases our commitment to support the sector's growth and addresses TReDS adoption challenges collaboratively.

9. LS: What are your inputs to improve the TReDS adoption in well-served regions such as Karnataka & Maharashtra?

PS: Metro cities are experiencing overload, prompting MSMEs to seek solutions like TReDS to alleviate their working capital financing challenges. Adding to this the mandatory onboarding of Corporates with turnover greater than Rs 500crs and CPSEs onto TReDS is expected to significantly boost adoption rates of the platform. The next phase of adoption and growth is expected from beyond the Metro cities so we need to focus on these areas.

10. LS: What are your inputs to improve the TReDS adoption in the under-served regions such as North Eastern States?

PS: Below are a few suggestions for the same:

a. Buyers are not Big: While the RBI mandates companies with turnovers above Rs 500 crores to onboard onto TReDS, this requirement may not effectively apply in the Northeast region due to the predominantly smaller scale of MSMEs. Most MSME buyers in the region typically have turnovers ranging between 100-200 crores, making the Rs 500 crores threshold impractical.

b. Major Buyers are State PSUs: Given that state PSUs are major purchasers of MSME supplies in the North-eastern region, a mandate from State Governments could be instrumental in driving the adoption of TReDS among MSMEs in the area. This would ensure compliance and facilitate smoother integration of TReDS into the procurement processes of these entities, potentially enhancing financial liquidity and efficiency for MSME suppliers.

c. Designating Guwahati, as a major hub: Designating Guwahati as a major hub for implementing TReDS could be a strategic move, given its strategic location and potential to serve as a central point for MSMEs in the north-eastern region. Leveraging Guwahati's infrastructure and connectivity, along with targeted support from local authorities and industry stakeholders, could accelerate the adoption and effectiveness of TReDS in the region.

d. Sector-specific policies tailored to the unique characteristics and needs of the North-Eastern region can be instrumental in fostering economic growth and development. By addressing specific challenges faced by various sectors such as Agriculture, Tourism, Handloom, and Handicrafts, these policies can unlock the potential for sustainable growth of MSMEs in this region.

6.5. Interview with Registrar of Companies, Karnataka

Dated 16.11.2023

1. Dr. Leena S(LS): MSME Ministry vide its MSME Notification bearing S.O. 5621(E) dated November 02, 2018, has mandated all companies (Large Corporations) registered under the Companies Act, 2013 with a turnover of more than Rs. 500 Crore as per the last available audited financial statements and all Central Public Sector Enterprises (CPSEs) to get themselves registered on the TReDS Platform to ensure cash liquidity for MSME Suppliers. However, the Notification does not stipulate any timeline for compliance with the same. What are your views on this?

   Shri. Sanjay Sood (SS): In response to delayed payment issues faced by MSMEs, regulations introduced in 2021 mandated the completion of the MSME e-form for outstanding dues exceeding 45 days, in line with the MSME Development Act, 2006. This form aids in reporting and resolving delayed payments. Additionally, MSMEs are required to align their year-end balance sheets with the e-form for accurate compliance. Non-compliance may result in a penalty of INR 3 lakhs, highlighting the significance of timely and accurate reporting. TReDS is more or less the digital version of this facility which shall bring in financial discipline amongst the Buyers & sellers.

2. LS: The MSME Ministry has appointed the Registrar of Companies (ROC) of each State to serve as the competent authority for monitoring the enforcement of the MSME Regulation by the major corporates and Central Public Sector Enterprises (CPSE) under its jurisdiction. Please advise us on various measures undertaken to support the MSME Ministry or MSMEs on this.

SS: The Registrar of Companies (ROC) oversees TReDS onboarding but lacks enforcement authority. However, a recent industry meeting at the RBI involved a request to share email contacts of large companies with turnovers surpassing 500 crores. This suggests a collaborative effort between regulatory bodies and stakeholders to encourage TReDS adoption and compliance among bigger corporations. As part of this initiative, a list of such large corporates yet to onboard has been submitted to the RBI.

3. LS: As per, the 2023 Highlights from the MSME Annual Report the government continues to implement regulations to promote TReDS. A list of 4714 companies having turnover of more than Rs. 500 Crore was identified by the M/o Corporate Affairs and have issued a notification to onboard onto TReDS in April 2021 – of which 1673 companies have onboarded. Kindly enlighten us about its way forward.

   SS: Looking ahead, the focus will likely remain on encouraging the remaining companies to comply with the mandate and onboard onto TReDS. This could involve continued engagement with regulatory bodies, and industry stakeholders, and targeted outreach efforts to ensure widespread adoption and compliance. Additionally, monitoring and evaluation mechanisms may be implemented to track progress and address any challenges encountered along the way. Ultimately, the goal is to enhance the efficiency of financial transactions for MSMEs and promote their sustainable growth.

4. LS: The Department of Public Enterprises (DPE) has mandated all 195 CPSUs to be onboarded on the TReDS Platform. However, MSMEs have a concern that few PSUs have onboarded but are not transacting. MSMEs shall be benefited only when these CPSEs transact on TReDS. Hence, there is a need for an ecosystem that can bring in financial discipline among all the players of TReDS. What’s your opinion on this?

SS: Integrating GST (Goods and Services Tax), IT (Information Technology), and TReDS can offer comprehensive solutions to many challenges faced by MSMEs. By leveraging the data from these systems, businesses can streamline their invoicing, taxation, and financial processes. Integration can enable real-time tracking of transactions, facilitate faster invoice processing, and enhance transparency in financial operations. This synergy can significantly improve cash flow management for MSMEs, reduce administrative burdens, and mitigate the risk of delayed payments. Overall, the integration of GST, IT, and TReDS has the potential to revolutionize financial management for MSMEs, promoting their growth and sustainability.

5. LS: Since turnover is a qualifying criterion for compulsory registration on the TReDS portal by large corporates, companies whose turnover is below the threshold of Rs. 500 Crore and who have received a notice from the ROC for compliance with the MSME Notice based on total revenue may approach their jurisdictional ROCs to explain the non-applicability of MSMEs. Please clarify the criterion “Turnover”. Is it Sales Revenue or Total Revenue?

   SS: The criterion "turnover" refers specifically to sales turnover when determining compulsory registration on the TReDS portal for large corporates. This means it pertains to the total revenue generated from sales activities within a specified period. Therefore, companies below the threshold of Rs. 500 Crore, who have received notices from the ROC for compliance with the MSME Notice based on total revenue, may approach their jurisdictional ROCs to clarify the non-applicability of MSMEs based on sales turnover.

6. LS: DPE has mandated Central Public Sector Undertaking (CPSUs) units to make mandatory procurement of 25% instead of 20% from MSMEs. In FY 2022-23 - CPSUs have procured goods and services worth Rs 38,432.29 crore from 1,44,987 MSMEs that’s worth

to be 35.59% of the total procurement. This is a fantastic move. But have these CPSUs regularized their payments through TReDS? The answer is “Not All”. What is the way forward?

SS: The move by the DPE to mandate CPSUs to procure 25% instead of 20% from MSMEs is commendable, and the significant procurement of goods and services from MSMEs in FY 2022-23 demonstrates its positive impact. However, the fact that not all CPSUs have regularized their payments through TReDS poses a challenge.

To address this issue, Industry associations representing MSMEs could play a crucial role. They can collaborate as a group to identify CPSUs that have not regularized their payments through TReDS and file complaints with the DPE. By leveraging collective action and advocacy, associations can urge non-compliant CPSUs to adopt TReDS for payment regularization. Additionally, raising awareness among CPSUs about the benefits and importance of TReDS for timely payments to MSMEs could further encourage compliance across the board.

6.6. Interview with Assam Industry associations such as FINER, FICCI &LUB

Dated 16.12.2023 & 17.12.2023

Please Note:

Responses are collected from the below Industry Associations and these responses are consolidated as Assam Industry Associations (AIA)

- Ms. Mayuri Bora, Asst Manager, FINER,
- Mr. Monojith Bhattacharjee, Senior Director, FICCI and
- Mr.AshishDeorah, Asst Manager, LUB

1. Dr. Leena S(LS): Trade Receivables Discounting System (TReDS) platforms are digital platforms that provide a mechanism for small and medium-sized enterprises (SMEs) to raise funds by selling their trade receivables or invoices to financiers at a discounted rate. How competitive are these discount rates compared to other working capital financing modes?

   AIA: Certainly, the rate of interest on the TReDS platform is low, compared to other working capital financing.

2. LS: TReDS facilitates the early realization of funds, helping MSMEs improve their cash flow and working capital. Is this facility realized by all MSMEs? What is the level of awareness among MSMEs? What initiatives are taken up by the Government/Ministry of MSME to raise the awareness levels?

   AIA: We acknowledge that the Ministry of MSME is regularly conducting workshops and seminars via its field offices, including MSME DFO and its branch offices, nationwide, to raise awareness among MSMEs about the TReDS platform. However, the frequency of these sessions is relatively low, resulting in limited awareness. There is a pressing need for additional awareness initiatives in Assam and other north-eastern regions, employing a hybrid approach, to ensure comprehensive outreach to all corners of these areas.

3. LS: The Indian government and the Reserve Bank of India (RBI) are exploring the integration of the Goods and Services Tax Network (GSTN) with the Trade Receivables Discounting System (TReDS) platforms using an account aggregator. What are your views on this development? How does the integration of GSTN with TReDS help?

- AIA: The integration of GSTN with TReDS platforms may present challenges for the north-eastern region, particularly for states like Tripura, Manipur, Mizoram, Nagaland, and Arunachal Pradesh. A certain territory-based exception is made in sections 10 (26), 10(26A), and 10 (26AAA) of the Act whereby income arising to the scheduled tribes of the states of Arunachal Pradesh, Manipur, Mizoram, Nagaland, Tripura, Assam and residents of Ladakh and Sikkim from any source from those areas or states and dividend and interest on securities shall not be liable to tax. In the case of hilly and north-eastern States, if the aggregate turnover is up to INR 10 lakhs, businesses and individuals supplying services can claim GST exemptions.

  In such areas, many MSMEs may not even possess PAN (Permanent Account Number) due to the GST exemptions. This situation could hinder the participation of MSMEs from these states in TReDS transactions and limit their access to financing opportunities through the platform.

4. LS: Despite many policy initiatives and boosts from RBI, MSMEs are hesitant to adopt the TReDS platform. What could be the reasons? Could you explain the top 10 challenges faced by MSMEs?

AIA: To ensure the success of TReDS and to boost business activity in the north-eastern region, a comprehensive industrial policy tailored to the unique needs of the area is essential. Since many MSMEs in the northeast are operated by first-generation entrepreneurs who require more business opportunities, such a policy should focus on the following aspects:

a. **Promotion of MSME Growth:** The industrial policy should prioritize the growth and development of MSMEs in the north-eastern region by providing incentives, subsidies, and technical assistance. This support can encourage entrepreneurship and facilitate the transition to formal financing channels like TReDS.
b. **Awareness and Training Programs:** Implement targeted awareness and training programs to educate MSMEs in the northeast about modern financing tools, including TReDS. Workshops, seminars, and capacity-building initiatives can help MSMEs understand the benefits of TReDS and how to leverage it for their financing needs.
c. **Infrastructure Development:** Improve infrastructure in the north-eastern states to enhance connectivity and access to markets. Better transportation networks, logistics facilities, and digital infrastructure can reduce factors to business growth and facilitate participation in platforms like TReDS.
d. **Incentivizing Digital Transactions:** Encourage MSMEs in the northeast to adopt digital payment systems and formal financial practices by providing incentives and rewards for digital transactions. This can help reduce reliance on cash transactions and facilitate the transition to TReDS for financing needs.

e. **Policy Support for TReDS:** Ensure that the industrial policy includes provisions to support the integration of TReDS into the business ecosystem of the north-eastern region. This may involve collaborating with the central government, financial institutions, and TReDS platforms to tailor policies and regulations that address the specific needs and challenges of MSMEs in the northeast.

f. **Mandatory registration of Central and state PSUs having a turnover of more than Rs 250 crore:** Currently it is mandatory for all CPSEs and companies having an annual turnover of more than Rs 500 crore to register on the TReDS platform. It is suggested that registration should be mandatory for all companies having a turnover of more than Rs 250 crore as it would increase the purview of TReDS.

By incorporating these elements into an industrial policy framework, policymakers can create an enabling environment for MSME growth, facilitate access to modern financing tools like TReDS, and promote economic development in the north-eastern region.

5. LS: Any region-wise specific factors that hinder the adoption of TReDS?

AIA: North-eastern MSMEs may exhibit hesitancy in adopting TReDS for several reasons:

a. Lack of Awareness: Many MSMEs in the northeast may not be familiar with TReDS and its benefits due to limited awareness initiatives or outreach programs in the region. Without adequate information, MSMEs may be hesitant to adopt a platform they don't fully understand.

b. Limited Access to Information: Access to reliable information about TReDS and how it works may be restricted in remote or rural areas of the northeast. Without access to resources or guidance, MSMEs may find it challenging to assess the suitability of TReDS for their financing needs.

c. Preference for Traditional Methods: MSMEs in the Northeast might have longstanding relationships with traditional financing methods or informal lenders. They may be hesitant to switch to a new platform like TReDS if they perceive it as unfamiliar or uncertain compared to their existing practices.

d. Technological Factors: Some MSMEs in the northeast may lack the necessary infrastructure or technological capabilities to participate in digital platforms like TReDS. Limited internet connectivity, outdated hardware, or a lack of digital literacy could hinder their ability to engage with TReDS effectively.

e. Trust and Security Concerns: MSMEs may have concerns about the security of their financial data or transactions on TReDS platforms. Without assurances about data privacy, cybersecurity, or dispute resolution mechanisms, they may hesitate to entrust their receivables to an online platform.

f. Regulatory Uncertainty: Unclear or evolving regulations surrounding TReDS participation may create uncertainty for MSMEs, especially in regions like the Northeast where regulatory awareness may be limited. Concerns about compliance or legal implications could contribute to hesitancy.

Addressing these factors requires a concerted effort from policymakers, financial institutions, and industry stakeholders to improve awareness, accessibility, and trust in TReDS among MSMEs in the north-eastern region.

6.7. Interview with Dy. Director, MSME-DFO, Guwahati

Dated 17.12.2023

1. Dr. Leena S (LS): TReDS facilitates the early realization of funds, helping MSMEs improve their cash flow and working capital. Is this facility realized by all MSMEs? What is the level of awareness among MSMEs? What initiatives are taken up by the Government/Ministry of MSME to raise the awareness levels?

   Mr. Lokesh Kumar Praganiha (LKP): Awareness about TReDS and GEM (Government e-Marketplace) is disseminated by MSME DFO Guwahati and its branch offices during various events e.g., vendor development programs, National workshops, and financial literacy programs organized by MSME-DFO Guwahati in state of Assam, Meghalaya and Arunachal Pradesh. We are instructed by our HQ office to raise awareness about UR, GeM, and TReDS in all events.

2. LS: The Indian government and the Reserve Bank of India (RBI) are exploring the integration of the Goods and Services Tax Network (GSTN) with the Trade Receivables Discounting System (TReDS) platforms using an account aggregator. What are your views on this development? How does the integration of GSTN with TReDS help?

   LKP: Meghalaya and Arunachal Pradesh states have certain tax exemptions so many entrepreneurs in these regions may not have the obligation to file taxes and may not possess a PAN (Permanent Account Number). This factor can contribute to challenges in integrating them into systems like TReDS, which often require such documentation for participation.

Adding to this, the government exempts MSMEs from GST registration if their turnover falls below specified thresholds. For intra-state taxable supply of goods, the threshold is Rs. 40 lakhs (Rs. 20 lakhs for north-eastern states), and for intra-state or inter-state taxable supply of services, it's Rs. 20 lakhs (Rs. 10 lakhs in north-eastern states). This exemption aims to alleviate compliance burdens for micro MSMEs, recognizing their limited resources and operational scale. Notably, the north-eastern region houses a significant majority, around 90%, of micro MSMEs.

TReDS is a digital platform that facilitates the financing of trade receivables of MSMEs through multiple financiers. However, since a significant majority of MSMEs in the northeast fall under the micro category and may remain below the turnover thresholds for GST registration.

This could limit the pool of MSMEs eligible to participate in TReDS, reducing the volume of trade receivables available for financing on the platform. As a result, the effectiveness and reach of TReDS in the northeast region could be impacted, hindering its ability to address cash flow issues and improve liquidity for MSMEs in the region.

3. Despite many policy initiatives and boosts from RBI, MSMEs are hesitant to adopt the TReDS platform. What could be the reasons? Could you explain the top 10 challenges faced by MSMEs?

   LKP: the challenges faced by MSMEs in the north-eastern region regarding the adoption of the TReDS platform may include:

   a. ***Lack of Awareness:*** Limited knowledge about TReDS and its benefits among MSMEs in the northeast may be one reason for hesitation in adoption.
   b. ***Women-Led MSMEs:*** A significant proportion of MSMEs (70% approximately) in the northeast are led by women entrepreneurs, who may face

additional barriers to accessing and adopting new technologies. Dedicated outreach programs for awareness and handholding may be considered for women-based MSMEs in the region.

c. ***Onboarding Fee:*** The cost associated with onboarding onto the TReDS platform may act as a deterrent for cash-strapped MSMEs in the region. So MSMEs in the North Eastern States may be provided fee waivers, concessions, or joining rewards on onboarding to encourage adoption of the TReDS platform.

d. ***Uncertainty About Buyer Onboarding*****:** The lack of certainty about whether their buyers are registered on the TReDS platform creates ambiguity for MSMEs, impacting their access to financing options. Furthermore, the absence of clear guidance on which TReDS platforms their buyers are using, such as RXIL, M1xchange, or Invoice Mart, presents a significant challenge for MSMEs, especially in the north-eastern region. This lack of clarity makes it difficult for MSMEs to determine where to register themselves for TReDS participation. So single portal registration and interoperability in all platforms may be a good solution for MSEs.

e. ***Mandatory Buyer Acceptance:*** The requirement for mandatory acceptance from buyers on the TReDS platform is crucial, as without it, MSMEs perceive limited utility from TReDS. This mandatory acceptance ensures that the buyers acknowledge and accept the invoices, facilitating a smoother and more reliable invoicing and financing process for MSMEs on the platform.

f. ***Lack of Information on Discount Rates:*** MSMEs may be unclear about how discount rates are determined on the TReDS platform and whether the burden is shared between the MSME and the buyer. Online tutorials and booklets in the local language may help entrepreneurs understand concepts better.

g. ***Discount rates should be jointly borne:*** On the TReDS platform, the burden of discount rates is solely borne by sellers, particularly MSMEs, but ideally, it should be shared between both the buyer and the seller.

4. LS: Your inputs to improve the TReDS adoption in the under-served regions such as north-eastern states?

   LKP: The improvement measures could be taken as below:

   a. ***Customized TReDS guidelines for the North-eastern region:*** Considering the unique challenges such as limited access to formal financing, low digital literacy, and specific regulatory contexts in the north-eastern states, tailored guidelines can address these issues and facilitate smoother integration of MSMEs into the TReDS ecosystem. By adapting the guidelines to accommodate the realities of the north-eastern region, TReDS can better catalyse financial inclusion and economic growth in the area. However, the implementation of such schemes in the northeast may face challenges due to factors like infrastructure, connectivity, and the unique socio-economic context of the region.

   b. ***Incentivizing MSMEs:*** Incentivizing MSMEs could significantly boost their onboarding onto platforms like TReDS. By offering incentives such as reduced onboarding fees, access to preferential financing rates, or participation in government subsidy programs, MSMEs may be more inclined to join TReDS.

   c. ***Integration with Udyam Registrations:*** Integrating Udyam registration with platforms like TReDS and GEM would enable MSMEs to seamlessly participate in TReDS for invoice financing and leverage GEM for government procurement contracts.

d. ***Linking both sub-contracts and larger contracts to TReDS:*** Given that many MSMEs operate through sub-contracts under larger projects, it's beneficial to integrate both sub-contracts and major contracts with TReDS. This ensures that MSMEs can access financing against their receivables from both types of contracts, improving their cash flow management.

e. ***RAMP initiative:*** which is having provision for delayed payment recovery among MSMEs as one of its objectives hence it is expected that it may be considered effective in the State Implementation Program (SIP) in Assam.

f. ***Availability of dedicated office, Resource person/ facilitator for North Eastern States:*** Although MSME DFO and other field offices of Min of MSME are creating awareness in various events further follow-up and guidance in the form of Resource person/ facilitator may help easy access for registration and handholding etc. Integrating TReDS with other stakeholders in the MSME Ecosystem can potentially lead to increased adoption and utilization of TReDS, facilitating smoother financing processes and contributing to overall MSME growth in the region.

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