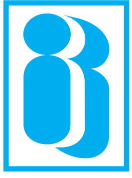

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Bank Quest

(ISSN 00194921)

The Journal of Indian Institute of Banking & Finance (ISO 21001:2018 Certified) खंड / Vol 95 / अंक / No 03 - जुलाई - सितंबर 2024 July - September 2024

Emerging Trends in International Trade and Banking

IIBF - PUBLICATION LIST

Sr. No	Examination	Medium	Name of the Book	Edition	Published by	Price (Rs.)
1	CAIIB	English	Advanced Bank management	2023	Macmillan Education	930.00
2	CAIIB	English	Advanced Business & Financial Management	2023	Macmillan Education	810.00
3	CAIIB	English	Banking Regulations & Business Laws	2023	Macmillan Education	860.00
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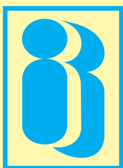

Volume 95, Number : 3

July-September 2024

(ISSN 00194921)

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The mission of the Institute is to develop professionally qualified and competent bankers and finance professionals primarily through a process of education, training, examination, consultancy / counselling and continuing professional development programs.

ध्येय

संस्थान का ध्येय मूलत: शिक्षण, प्रशिक्षण, परीक्षा, परामर्शिता और निरंतर विशेषज्ञता को बढ़ाने वाले कार्यक्रमों के द्वारा सुयोग्य और सक्षम बैंकरों तथा वित्त विशेषज्ञों को विकसित करना है ।

Printed by Mr. Biswa Ketan Das, **published by** Mr. Biswa Ketan Das on behalf of Indian Institute of Banking & Finance, and **printed at** Onlooker Press 16, Sasoon Dock, Colaba, Mumbai-400 005 and **published from** Indian Institute of Banking & Finance, Kohinoor City, Commercial-II, Tower-I, 2nd Floor, Kirol Road, Kurla (W), Mumbai - 400 070. **Editor** Mr. Biswa Ketan Das.

Editorial

Mr. Biswa Ketan Das
Chief Executive Officer,
IIBF, Mumbai

Dear Readers,

We are glad to share with you that the Institute held its 97th Annual General Meeting (AGM) for FY-2023-24 on 21st September, 2024. Shri. A. K. Goel, Managing Director & CEO, Punjab National Bank delivered the President's address entailing the significant developments about the Institute during the pervious year. We are publishing it in this issue of Bank Quest in the best interest of our members.

International Trade opens the avenues for investment & economic growth leading to social upliftment. As a result of continuous reforms to enhance trade, there has been significant increase in the share of trade (goods and services) in GDP. The trade openness indicator rose from 37.5 in FY05 to 45.9 in FY24[1]. This indicate efficient allocation of resources through comparative advantage.

India's trade has been catching up with global levels, the adverse trade environment in 2023 is expected to ease somewhat this year and the forthcoming year indicating thrust in goods trade in 2024 and 2025. As per the UNCTAD's report, global trade trends turned positive in the first quarter of 2024, with the value of trade in goods increasing by around 1% quarter-over-quarter and services by about 1.5%. The growth was primarily driven by increased exports from China (9%), India (7%) and the USA (3%). Significant positive trends have been evidenced in International Trade due to emergence of new practices in international trade such as 'decoupling', 'nearshoring' 'derisking', 'reshoring' and 'friend sharing'.[2] India is also adding more export destinations, signalling regional diversification of exports.

Our Institute makes conscious efforts for providing our members suitable platform for reading and learning for their continuous professional development. Considering the perennial relevance of International trade, we would like to bring out this issue of Bank Quest on the theme, "Emerging trends in International Trade and Banking".

This issue features an article, "Emerging Trends in International Trade and Banking" penned by Mr. M. K. Kadaiah, Senior Vice-President, Axis Bank Ltd. The article highlights emerging trends in International trade and various Government schemes that played an instrumental role in boosting International trade.

The next article on the theme of the Bank Quest is written in Hindi by Mr. Sarad Kumar Yadav, Assistant Professor, Shaheed Bhagat Singh Evening College, New Delhi on "अंतरराष्ट्रीय व्यापार और पर्यावरणीय संपोषणीयता: व्यापार का हरितकरण". The article discusses in detail the important aspects regarding International Trade and environmental sustainability.

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[1]Economic Survey of India, 2023-24.
[2]World Economic Forum.

The Institute organises Micro Research Paper Competition for its Life Members who are presently working in banks and financial institutions. Through Micro Research papers, members present their original ideas, thoughts and best practices in areas of their interest. We are also carrying prize winning articles under "Micro Research Competition, 2023-24" in this issue.

The I Prize under Micro Research Competition, 2023-24 was awarded jointly to Mr. Srihari Subudhi, Chief Manager, Assam Grameen Vikash Bank (on deputation from Punjab National Bank) & Ms. Pooja Pursani, Senior Manager, Punjab National Bank for their paper on "Financial Frauds – How to alleviate customer grievances". This paper explores strategies to alleviate customer grievances stemming from financial frauds within the dynamic landscape of Indian banking.

The II Prize under Micro Research Competition, 2023-24 was awarded to Ms. Raiba Spurgeon, Chief Manager (Research), State Bank Staff College, Hyderabad, State Bank of India. for her paper on "Climate Risk – Whether banks are ready for transition". In this paper, Ms. Spurgeon discussed in detail the role of Indian Banks in Climate-Resilient Finance.

The III Prize under Micro Research Competition, 2023-24 was awarded to Mr. Rupinder Kaur Sodhi, Chief Manager (Research), State Bank of India for her paper on "A Deep Dive into Credit Risk and Default Prediction Technologies". Ms. Sodhi's paper elaborates the potential of innovative technologies for Credit Risk and Loan Default Prediction. She concluded that use of technology in accessing the credit risk brings lot of opportunities to improve traditional methods and introduce new methods, at the same time, it comes with the responsibility to ensure these are used ethically, transparently and inclusively.

This issue also features Summary of AMP Project Report (2023-24) by Mr. Navneet Bhushan, Chief Manager, Union Bank of India on "Cash Flow-Based Credit Underwriting Models for MSMEs: A Paradigm Shift in Credit Access and Financial Inclusion".

As we wrap up this edition, I hope that the articles we have explored reflect the complexities and dynamism of our current landscape. Each piece invites us to think critically and motivates us to engage with the banking world around us.

Thank you for joining us in our academic explorations. We look forward to continuing support for future editions.

Biswa Ketan Das

Shri A. K . Goel
President, IIBF and MD & CEO, Punjab National Bank

Dear Members,

It gives me great pleasure to place before you the highlights of the Institute's performance during the Financial Year (FY) 2023-24. I would like to commence my message with a brief on India's growth story, followed by the opportunities and challenges for the banking sector in India.

Economic Outlook

India has crossed many milestones since independence and is poised to become an economic super-power. India grew at a rate of 8.2% during FY 2023-24 and continued to remain one of the fastest growing larger economy in the world. With the mission of 'Viksit Bharat', India aims to attain the status of a developed nation by 2047.

The Central Budget 2023-24 prioritises inclusive development, green growth, financial sector reforms and investment in infrastructure. The vision of 'Amrit Kaal' includes job creation, focus on youth and opportunities for citizens.

Banking Update

The financial and economic conditions in the country have largely been stable in FY 2023-24, thus, giving rise to a growth momentum in near-term and long-term.

Scheduled Commercial Banks (SCBs) remained well-capitalised, maintaining capital adequacy above the regulatory minimum as at end - March 2024. Bank credit growth sustained the momentum during 2023-24. The asset quality of SCBs improved further, along with moderation in the Gross Non-Performing Assets (GNPAs) as at end - March 2024. Profitability indicators such as Return on Equity (RoE) and Return on Assets (RoA) were also robust. Scheduled Commercial Banks (SCBs) ended FY24 with a higher non-food bank credit growth of 16.3% against 15.4% in FY23. Banks' credit growth to agriculture and allied activities was robust at 20.1% year-on-year in March 2024.

India's digital payment landscape has seen remarkable growth over the past decade. The impressive growth in digital payments has been driven by various factors, including the swift expansion of digital infrastructure, the widespread popularity of Unified Payments Interface (UPI) and other digital payment instruments, as well as changing consumer preferences towards digital transactions. During 2023-24, the momentum carried on, with UPI,

The address was delivered on the occasion of 97th Annual General Meeting (AGM), held on September 21, 2024.

the country's real-time payment system, recording a remarkable growth of over 50%. The recently announced Unified Lending Interface (ULI) by RBI is likely to have a far-reaching effect on the lending ecosystem.

Indian Fintech industry is estimated to be at US$ 150 billion by 2025. India has the 3rd largest FinTech ecosystem globally and is one of the fastest-growing FinTech markets in the world. This industry has the ability to disrupt the financial ecosystem of India, wherein the banks have to reinvent their products and services to match the FinTech industry. Collaboration, not competition, will shape the future course of action in the BFSI ecosystem.

I will briefly touch upon a few challenges faced by the banking industry in general and public sector banks in particular:

i) *Low deposit growth:* Due to the alternate channels of investment, banks are facing an uphill task to garner deposits to match the robust credit growth.

ii) *Issues relating to compliance:* Regulatory and supervisory compliance has assumed much importance and the regulator is taking punitive actions against non-compliance of rules and regulations.

iii) *Increase in number of frauds:* Banks are facing challenges to tackle the frauds perpetrated through banking channels, mostly digitally. These frauds have the potential to scare the customers and dent the reputation of banks.

iv) *Level of customer service:* Good customer service is a must for the growth of the business of any bank. There is an urgent need for improving customer service and grievance redressal processes.

Performance of the Institute

During the course of FY 2023-24, the Institute has made significant progress in terms of customising and diversifying its academic and training offerings, in line with its 'Vision 2025'.

During the course of last couple of years, the Institute has reinvented itself by adopting technology in a big way, mainly in its training pedagogy and examination processes, in line with the digital paradigm shift experienced by the banking sector as a whole. Facilities such as AI-driven remote proctoring of examinations and training through web-based platforms have emerged as important tools for the Institute.

Some of the major initiatives undertaken by the Institute during the year are provided below:

- The Institute has been involved in rationalizing the number of its Diploma and Certificate courses, realigning the syllabi and updating the coursewares, in cognizance with the practical learning needs and relevant regulatory changes in the domain.
- During the last financial year, the Institute has developed and delivered customized certification programmes for some of the major public sector banks, private sector banks and a major NBFC, in line with the identified training gap/s especially in the domain of AML-KYC and Compliance.
- As per the MoU signed with International Finance Corporation (IFC), World Bank Group, the Institute has launched a first-of-its-kind E-Learning cum certification programme on 'Climate Risk and Sustainable Finance' for banking and finance professionals in India.
- IIBF has also signed an MoU with United Nations Environment Programme Finance Initiative (UNEP FI) to conduct physical workshops on 'Sustainable finance and Responsible banking' in the four major metros in India, namely Mumbai, Delhi, Chennai and Kolkata.
- IIBF continues to be the sole certifying body for Debt Recovery Agents (DRAs) and Business Correspondents/Business Facilitators (BCs/BFs). In FY 2023-24, 72,502 candidates were certified under DRA certification and 2,47,108 candidates were certified under BC certification, thereby, giving a boost to financial inclusion.
- In FY 2023-24 itself, the Institute has conducted a total of 258 training programmes with a total of 9,298 participants across 211 banks, including Cooperative banks and Regional Rural Banks (RRBs).

  These training programmes include both customised and open programs, with thrust on high value customised programs, e.g. Leadership Development Program in collaboration with XLRI, Jamshedpur and Advanced Program on Strategic Management in collaboration with JBIMS, Mumbai.
- The Institute has been promoting research activities in the banking and finance domain by financing Micro and Macro-research initiatives for the bankers in India. Recently, the Institute has signed an MoU with IIM-Mumbai on promoting active research in the domain.

- The Institute continued to leverage on its domestic and international collaborations. The Institute has signed a MoU with Financial Planning Standards Board (FPSB)-India, for a special preference for CAIIB qualified candidates in terms of fees and academic credits, while pursuing the internationally recognised Certified Financial Planner (CFP) qualification in wealth management.

IIBF, as part of its Member Education Series, had organised a series of webinars and seminars on contemporary topics for the benefit of banking & finance professionals. All these webinars have been well-attended and enthusiastically received by the banking fraternity.

Corporate Social Responsibilities

The Institute has taken voluntary Corporate Social Responsibility (CSR) Initiatives, as a measure of good governance. The CSR Policy of the Institute intends to achieve the following objectives.

- Promotion of education including special education and employment enhancing vocational skills among different groups of society.
- During FY 2023-24, IIBF has spent an amount of INR 1,25,00,000 under CSR scheme.

Looking Ahead

The fast-expanding BFSI sector has emerged as one of the largest employer in India. For a knowledge driven industry like BFSI, it is crucial to develop the necessary knowledge and skillsets among the employees. IIBF is poised to play an increasingly pivotal role in this area.

The Institute will continue to keep the interests of its members at the forefront and work towards enhancing their skill and knowledge base. I am sure that the Institute will replicate its robust performance in the ensuing financial year too.

Emerging Trends in International Trade and Banking

M. K. Kadaiah*

Introduction

International trade is a business under which the goods and services are sold and purchased between customer/companies situated in different countries. Machineries, raw materials, consumer goods etc. are sold and bought in the foreign markets. The trade includes Remittances, Export, Import, Merchanting Trade, Overseas Direct Investment (ODI), Foreign Direct Investment (FDI) and outsourcing of job. International trade business increases the demand of local producers and traders. The producers improve their services and products to meet the demands of the global market.

Cross Border trade allows countries to increase their market share and can also access the foreign markets for availing services and purchase of goods which may not be available locally. Foreign Market is very competitive due to international trade which can ultimately leads for more competitive pricing and cheaper products. If Indian customer sells a product to the foreign customer in the global market which is called an Export, in the same way if the Indian customer buys a product from the foreign customer in the global market is called as an Import. Both Exports & Imports transactions are considered by the country in their Current Account section for arriving country's Balance of Payment (BP).

International trade helps for country's growth and Export-Import data is one of the main contributors to a country's Gross Domestic Product (GDP). Every country is trying hard to improve their cross border presence and strengthen its global trade relationships with global leaders.

International Trade and Banking

International trade and banking with the help of various cross border products and services move together on the global platform. The traders i.e. buyer and seller who are sitting in different countries may not know each other or meet across the tables, but they undertake business without any obstacle. Demand & Supply of goods/services, trust between them and monopolistic situation are few of the important factors which are met mutually and amicably. Further, there is a strong link between various stakeholders like exporter, importer, regulator and agents in global business which is called Banking system. There is a concept called Correspondent Banking Arrangement between Indian Banks and Foreign Banks which guides various financial products and services which are used by both "Market Makers" and "Market Users".

Products in International Trade

- ***Advance Remittance against Export/Import***

The exporter can receive advance payment (Inward Remittance) from Foreign Buyer before the shipment is made in which an exporter can minimise the risk of payment default. In the same manner, the importer can also send advance payment to Foreign Supplier

*Senior Vice-President, Axis Bank Limited.

against future import (Outward Remittance) in which an importer may run risk of non-shipment of goods by the supplier. In both the cases, exporter/importer is required to fulfil certain regulatory obligations.

- ***Buyer's Credit***

Buyer's credit is a type of Trade Credit (TC) which helps to bridge the cash flow mismatch of the company. Importer's bank will arrange Buyers Credit from the Foreign Banks or through its branches in Foreign Country by giving a guarantee on behalf of the Indian Importer. Buyers Credit can be availed either in Foreign Currency or in Indian Rupee. As per the extant regulation, the buyer credit is available upto one year from the date of shipment in case of non-capital goods and 3 years for Capital goods.

- ***Supplier's Credit***

Supplier's credit is also a type of Trade Credit under which an exporter provides credit to the buyer in the form of Foreign Letters of Credit opened for more than 180 days tenor.

- ***Letters of Credit***

A Letters of Credit (LCs) is a set of instructions given by the Importer Bank on behalf of his customer to foreign / correspondent bank confirming the payment to the beneficiary provided the terms and conditions stated in the LC have been met and for evidencing the same to present the specified set documents which are mentioned in LC.

- ***Bank Guarantee/Standby Letter of Credit***

It is a type of security and payment commitment given by the bank to the beneficiary provided the agreed promise is met. In the business, bank issue guarantees on behalf of their customers for various purposes. Guarantee enables the principal (customer) or the debtor to acquire goods, buy machinery or obtain loan for the business. In United States of America, the said product is called by name "Standby Letter of Credit" which is similar to Bank Guarantee.

- ***Factoring and Forfaiting***

Factoring is type of finance which comprises purchase of invoices and receivable which involves collection service and book keeping as agreed between exporter and factor.

Forfaiting is also a type of trade finance which permits exporters to get immediate cash by selling their receivable at a discount on a "without recourse" basis.

- ***Documentary Collection***

A Documentary Collection is a method of bill collection process, whereby, the exporter ships the goods to the buyer and forward the documents to foreign bank with an instruction to collect the bill proceeds from the foreign buyer as per the payment instruction provided. Foreign Bank present the documents to its buyer and collect the payment as per the payment instruction and remit the funds to exporter bank. The Documentary Collection Payment term may be either delivery of documents against Acceptance (Usance Bill – DA) or delivery of documents against Payment (Sight Bill-DP).

- ***Open Account***

In the open account transaction, the exporter ships goods directly to the foreign buyer. Upon receipt of shipping documents, the foreign buyer will take delivery of goods from the customs. Thereafter, he may go to his bank for remitting payments to the exporter. In this process, the exporter may run payment risk because he ships the goods before collecting the money. This type of transaction will takes place where there is a mutual trust between the buyer and seller.

• *Capital Account Products*

The familiar products under Capital Account are External Commercial Borrowings (ECBs), Foreign Direct Investment (FDI) and Overseas Direct Investment (ODI).

Emerging Global Trade Trends

After 2008 Financial Crisis the global economy has started showing recovery and volume of transactions have increased. Further, due to increase in volume of transactions the complexity of the transactions has also increased, the reason could be customer behaviour, lack of full proof system in the banking, customs etc. To overcome and meet this rapidly growing trends, we need to have more system driven process rather existing manual process. Further, we need to understand the requirements of various stakeholders. In the increasing global trade, the banking sector is experiencing sudden change driven by regulatory changes, technological advancements, change in customer demand, geopolitical developments etc. Few emerging global trade trends arediscussed below:

• *Invoice Discounting Solutions*

It is a type of Bill Finance extended based on the invoice and receivables of the company. In this process the person who owns the invoices sells it to a third party at a discount. There is also a separate window available for SME clients for invoice discounting which is called "Trade Receivable Discounting System (TReDS)". In this process, there is little loss due to the discount but still the business accepts the loss because of getting immediate cash.

• *Artificial Intelligence & Machine Learning*

The integration of Artificial Intelligence (AI) and Machine Learning (ML) helps in analysing potential disruption, access credit risk and identify data pattern. Also, AI and ML helps to mitigate potential losses in the business. AI and ML allows detection of anomalies in the data proactively.

• *Digitalization of Documents*

To meet the emerging global trade trends, digitization of trade documents is one of the big game changer. The existing paper based document is required to be replaced with digital images of Bill of Lading, Letters of Credit and other trade documents which is gaining more popularity. Digitisation of trade documents not only speed up the documentation process but also reduces the risk of errors. We explain below some of the critical aspects required for digitalisation of documents.

a) There is a requirement of universally accepted common standard for trade documents acceptable to all stakeholders.

b) Also, there is need of a comprehensive legal framework standardising the entire documents and process involved in the trade. For e.g. UK's Electronic Trade Documentation.

c) Additionally, we also need to have a system or interconnected systems through which the information/documents can be shared digitally which is also very critical at this moment.

d) There should be an ecosystem of market-players who may accept above data through systems and facilitate physical movement of goods.

• *Environmental Health, Social Safety and Governance*

Environmental Health and Safety are of utmost importance for most organisations. Now a days, if any entity wants to undertake business, they should follow the regulations related to maintain environmental health and safety to get the permission/ license for doing the business. Regulator, investor and consumers are expecting that the company

should left side and right side should be equal health and safety measures. Sustainable business practices are attracting interests in globala trade finance. Environmental, Social, Governance (ESG) related practices are finding their place into best of their business operations.

• *Supply Chain Finance*

Finance is available to suppliers and buyers at different stages of the supply chain. Supply chain finance helps customer to improve liquidity, reduce working capital gap and improves company's health.

• *Geopolitical Changes*

Global trade trends either directly or indirectly is more dependent on geopolitical behaviour and changes. In the recent and ongoing geopolitical shifts, changes in the trade policies and trade tensions can impact the movement of goods and the terms and conditions of trade agreements. Businesses entities should stay updated on the changes and developments vis-à-vis the geopolitical changes and find out the suitable strategies to sustain uncertainties. To overcome and respond to these geopolitical changes, business should maintain strong and resilient trade operations.

• *Non-bank Financing Solutions*

Normally, only commercial banks are providing the financial support to the entities who are involved in international trade. However, Non-banking institutions like fintech and other trade finance providers have started to finance the international trade business. This may be considered as which is one of the transformative phase in the global trade. We have noticed healthy competition in the industry as both traditional commercial banks and non-banking institutions are financing international trade business.

• *Blockchain in Trade Finance*

Connecting blocks and list of records cryptographically is called Blockchain. Every block is connected by a transaction of the previous block, time stamp and cryptographic hash. It is an open distributed ledger between two entities managed by a peer-to-peer network following a protocol for validating the new blocks. Once the transaction is agreed and completed then alteration would be difficult. This technology is ideal for sensitive information, providing tamper proof storage and safe record keeping.

There are many advantages and disadvantages in Blockchain Technology (BCT), few of them are provided below for reference.

Advantages	Disadvantages
More transparent	More Complex
Transaction completes fast	Suitable for less number of transactions
Cost effective	Require significant power for computer
Mitigate Risk – Financial & Operational	Legal challenges

It reduces the cost involved in cross border trade transactions and increases the speed. It also helps companies to develop products as per their clients' needs which finally improve financial inclusion of companies.

Challenges of International Trade

As the world continues to see a more volatile global trade environment, companies are heading into unchartered territory – facing growing challenges in an increasingly complex trading landscape. The World Trade Organization (WTO) is facing its biggest challenge since inception, multilateral trade liberalization efforts are stalled and the dispute settlement mechanism still faces political impasse.

Bilateral and regional trade regimes continue to proliferate and although some present enticing opportunities, particularly in emerging markets, they also mean varying degrees of different standards, rules of origin and tariff and non-tariff measures, which can be difficult and costly to navigate for businesses. Recently, European Union (EU) has brought new regulation on Deforestation under which the Indian exporter are required to submit proofs stating that the products exported to the EU have been grown on land which has not been deforested after December 31, 2020. We provide below few of the International Trade challenges.

• *Logistics and Shipping*

In an International trade logistics and shipping play a vital role. Products needs to be properly and consistently packaged, meeting of promised delivery time, tracking orders, determining liabilities of goods in-transit have become more challenging in cross-border trade. International trade involves more paper work as compared to domestic trade. If the logistics and shipping are digitised, it may simplify the challenges in planning of routes and track the movement of goods.

• *Customer*

In International trade business the customers expect that their entire business cycle should be easy and fast as per the timeline as domestic business. Both the buyer and seller never met each and however, they want to do the business for which there should be well defined rules and regulations which are common for both. A strong localised check out process is pre-requisite for a successful cross-border trade proposition.

• *Brands*

Branding is one of the important parameter in the international trade through which company can go for advertisement and marketing for their products and get more business in the market. If the market accepts the company's brand then order will flow to the company.

• *Tax and customs*

Many times customer may not be knowing the complete fees and taxes involved in international trade which is also not discussed at the time of concluding the contract. The details of various taxes and fees involved in the business need to be discussed and finalised at the time of concluding the sale itself.

• *Paperwork, regulations and compliance*

International trade involves use of several documents such as Invoice, Packing List, Certificate of Origin, Customs Declarations, Import Licenses, Bill of Lading, Airway Bill, evidence of Import and Export etc., which also varies across countries and markets. Further, custom regulations also varies from country to country. For procuring the above said documents, a lot of time and money is consumed which is not accounted anywhere in the lifecycle of the business.

The logistic partners and customs agents who are specialised in their respective field can be considered and included in the international trade ecosystem to facilitate these requirements efficiently. By streamlining the process of documentation, we may reduce the time and future compliance issues. The details of new regulations, list of barred goods of the particular country and formats in which the custom declaration to be provided etc. may be updated on their respective countries website on real time basis which may help customers who are dealing in international trade.

• *Return of goods*

In the international trade, the goods return process is more complex because of custom duty and tax structure. Customers, may not be fully aware

about goods return policy at the time of shipment of goods. In the present customs practice, if any goods return from the foreign country, whatever the reason, the custom charges/duty will be exorbitant which customer may not be in a position to pay because there are instances where the custom return charges is more than the value of the returned goods. Further, Exporter/Importer does not have visibility and control over the goods return process due to which they cannot plan for reselling of returned goods. In the cross border trade, businesses want to manage their costs and consumers want to protect their choice but striking the balance between them is very difficult.

Recent trends in the cross-border payments system

In a fast-changing macroeconomic environment, financial institutions must ensure quick, efficient and safe payments avenues to customer. There are few emerging trends which are disrupting the global trade such as International payments method, New Technology and Risk Management which are elaborated below:

New payment methods

In the international trade, payment method is one of the important component. International payment methods need to be fast, secure and cost-effective for consumers. As a result, expectations in the cross-border transactions have increased, necessitating transformation for financial institutions.

Examples of new payment methods include:

Payment Rails: New methods of payment rails are developing quickly, including account-to-account payments, pay-to-wallet and real-time rails. In the future, AI may help existing rails improve speed and security.

Central Bank Digital Currencies (CBDCs): Central banks developing digital currencies aim to decrease settlement times and cost while improving visibility into payments status for cross-border payments.

New technology

New technology and innovations are getting improved in international payment process by creating more efficiency and transparency. Banking system who are involved in cross border trade should adopt innovative technology to meet customers' expectations.

Technology advancements to consider include:

Application Programming Interface (API): As the name suggests, it helps two different applications or software to communicate each other. It takes data or information from one computer and sends the same to other computer through a programming interface. API helps in decreasing the cost involved in the process. API can also be used to trigger appropriate workflows in the trade business.

Artificial Intelligence (AI): Artificial Intelligence helps to increase operational efficiency and allows massive amounts of data to be analysed and detects anomalies proactively. Natural language processing interprets and validates regulations and contractual clauses and helps extracting relevant information from dense documents, while learning models enable accurate predictions. It enhances Straight-Through Processing (STP), which is presently more in demand in international trade business.

Risk Management

International trade business involves different regulators, different systems, multiple players like buyer, seller, customs, banking system etc. This leads to complexity of risks related to parties and processes involved.

The various risks involved in international trade

are, Credit Risk, Foreign Exchange Risk, Transport Risk, Country Risk, Political Risk etc. Most of the organizations seek assistance from their banking partners to mitigate the risks particularly these related to Payment frauds.

Export Promotion Schemes – International Trade Enabler

To encourage exporters, the Government of India has brought various export promotion schemes. These schemes will also help in increasing the exports from the country, earning foreign exchange and produce high quality of goods which are competitive in international market.

Some of the schemes are implemented by Department of Commerce and few of the schemes are implemented by Department of Revenue and few more are implemented by other Agencies. We discuss below some of the important schemes.

Various Government Schemes:

• Advance Authorisation (AA)

This scheme is provided by Directorate General of Foreing Trade (DGFT), Government of India. It allows eligible exporters to import inputs which are physically incorporated in an export product without any duty.

• Duty Free Import Authorisation (DFIA)

Similar to the Advance Authorisation (AA) Scheme, Duty Free Import Authorisation (DFIA) allows imports without paying duty on Post Export basis. Inputs Imported under DFIA are only exempted of the Basic Customs Duty.

• Export Promotion Capital Goods (EPCG)

This scheme enables exporter to import capital goods which can be used for producing quality products for exports.

• Deemed Exports

Deemed Exports refers to supplies of goods manufactured in India which do not leave the country and the payment is received either in rupee or in free foreign exchange.

• Status Holder Certificate

Exporters who have contributed more in export and helped for the country's foreign trade have been recognised by issuing a Status Holder Certificate. This certificate will be issued as 1 Star export house to 5 Star export house based on their export performance. The Status Holder Exporter have some special privileges from the Government of India.

• Interest Equalisation Scheme (IES)

This scheme is available for exporter who are availing Pre and Post Shipment Rupee Export Credit from the banking system. In this scheme, exporter will get interest rebate for the finance availed from the bank. For getting the benefit under the scheme, the exporter is required to obtain a Unique IES Identification Number (UIN) from DGFT which is valid for one year. With effect from July 1, 2024, only MSME Exporters would be eligible under the scheme.

• Market Access Initiatives (MAI)

This scheme works as a catalyst for Indian exporter to access International market and promote India's exports to the maximum extent. This scheme is formulated on "focus product–focus country" approach to evolve specific market and specific product through market studies or survey. Under this scheme, financial assistance is provided to eligible agencies for eligible activities.

• Duty Drawback (DBK)

Duty Drawback scheme provide some rebate to the exporter on the duty paid towards goods manufactured in India and Exported.

Few other schemes for facilitating International Trade are:

- Refund of Duties and Taxes on Export Products (RoDTEP)
- Refund of Export of Apparel/Garments and Made-Ups
- Export Development & Promotion of Spices
- Export Promotion – Providing Transit/Freight Assistance for Coffee Exports
- Financial Assistance Scheme

Conclusion

To compete and succeed in the global market, our exporter is required to supply goods to the foreign buyer with an attractive price and best in quality vis-à-vis the other competitive markets in the globe. Before entering the global trade, the Indian customer has to ascertain the foreign buyer creditworthiness. For this, he should evaluate history of his trade and payment through status reports provided by various agencies like Dun & Bradstreet Information Services India Private limited, Experian, Foreign Correspondent Banks etc. Indian Exporter can also obtain Insurance from Export Credit Guarantee Corporation of India for their export of goods and services. International Trade plays an important role in ensuring a healthy economy. Several interventions made by regulators and Government have paved a way for developing an ecosystem for safe, efficient and robust cross-border trade.

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Bank Quest Articles - Honorarium for the Contributors	
Contribution	**Amount**
Article / Research Paper	₹ 7,500/-
Book Review	₹ 3,000/-
Legal Decisions affecting Bankers	₹ 3,000/-

अंतरराष्ट्रीय व्यापार और पर्यावरणीय संपोषणीयता: व्यापार का हरितकरण

शरद कुमार यादव*

प्रस्तावना

अंतरराष्ट्रीय व्यापार और पारिस्थितिक तंत्र के बीच का संबंध काफ़ी जटिल एवं बहुआयामी है। अंतरराष्ट्रीय व्यापार विभिन्न देशों के मध्य वस्तुओं, सेवाओं और पूंजी का प्रवाह हैं जो तुलनात्मक लाभ, बाजार के अवसरों और आर्थिक अन्योन्याश्रय द्वारा संचालित होता है। अंतरराष्ट्रीय व्यापार न केवल वैश्विक आर्थिक विकास में महत्वपूर्ण भूमिका निभाता है, बल्कि यह विविध उत्पादों और प्रौद्योगिकियों को बाजारों तक पहुंच का मंच भी प्रदान करता है। वहीं पर्यावरणीय संपोषणीयता (सस्टेनेबिलिटी) प्राकृतिक संसाधनों का विवेकपूर्ण प्रबंधन की वकालत करता है, ताकि यह सुनिश्चित हो सके कि आने वाली पीढ़ियों की संसाधन-क्षमता को खतरे में डाले बग़ैर वर्तमान आवश्यकताओं की पूर्ति हो। इसके तहत पारिस्थितिकी तंत्र का सुरक्षा, संरक्षण और संवर्धन सम्मिलित हैं। दरअसल, वर्तमान वैश्वीकृत दुनिया में अंतरराष्ट्रीय व्यापार आर्थिक वृद्धि और विकास के लिए लाभदायक तो है, लेकिन ऐसी प्रगति के परिणामस्वरूप पारिस्थितिकी तंत्र को भारी नुकसान उठाना पड़ रहा है, जिससे कई सवाल पैदा होते हैं। मसलन, आर्थिक मोर्चे पर हमारी जितनी सक्रियता बढ़ी है, क्या उसी अनुपात में पर्यावरणीय मोर्चे पर भी हम सक्रिय हुए हैं? दूसरा सवाल यह है कि क्या दुनिया आर्थिक लाभ बनाम पर्यावरणीय सुरक्षा के परस्पर विपरीत द्वन्द में तो नहीं फँस गया है? उपर्युक्त सवालों को ध्यान में रखते हुए, यह लेख अंतरराष्ट्रीय व्यापार और पर्यावरणीय संपोषणीयता के बीच जटिल संबंधों पर गहराई से चर्चा करता है तथा उन विभिन्न कारकों की भी छानबीन करता है जिसकी वजह से पर्यावरण को गंभीर नुकसान पहुँचता है। इसके अतिरिक्त, यह उन संभावित रणनीतियों की भी चर्चा करता है जो इन प्रतिकूल प्रभावों को कम करने में मददगार साबित हो और टिकाऊ भविष्य के लिए व्यापार और पर्यावरण के मध्य संतुलन का मार्ग प्रशस्त कर सके।

व्यापार बनाम पर्यावरण: विमर्शों के इर्द-गिर्द

व्यापार-पर्यावरण विमर्श आर्थिक विकास और पृथ्वी की सुरक्षा के बीच संतुलन खोजने के इर्द-गिर्द घूमती है, जिस पर दशकों से बहस चल रही है और इसमें विभिन्न दृष्टिकोण और हितधारक शामिल हैं। कुछ विद्वान ऐसा तर्क देते है कि व्यापार को बढ़ावा देने से प्राकृतिक संसाधनों का अत्यधिक दोहन होता है, जिससे न केवल प्रदूषण बढ़ता है बल्कि पारिस्थितिक तंत्र का क्षरण भी होता है। अंतरराष्ट्रीय व्यापार और पर्यावरणीय क्षति के बीच संबंध पर अध्ययन करते हुए, कई विद्वानों ने महत्वपूर्ण अध्ययन किए हैं। उदाहरण के लिए, एस्केलैंड और हैरिसन (2003), कोल (2004), टेलर (2004) और शेन तथा अन्य (2019) ने अपने अध्ययनों में पाया है कि अंतरराष्ट्रीय व्यापार का पर्यावरण प्रदूषण में प्रमुख योगदान हैं। व्यापार से जुड़ी गतिविधियां, मसलन उत्पादन, उपभोग और परिवहन इत्यादि प्रदूषण, ग्रीनहाउस गैस उत्सर्जन और प्राकृतिक संसाधनों के दोहन में वृद्धि करती हैं। इसके अतिरिक्त, ली और अन्य (2018) द्वारा किए गए एक अध्ययन ने विशेष रूप से इस बात पर प्रकाश डाला है कि कैसे अंतरराष्ट्रीय व्यापार व्यापक औद्योगिक उत्पादन को बढ़ावा देता है, जिसके परिणामस्वरूप ग्रीनहाउस गैस उत्सर्जन में वृद्धि और प्राकृतिक संसाधनों की कमी होती है।

*सहायक प्राध्यापक, राजनीति विज्ञान विभाग, शहीद भगत सिंह सांध्य महाविद्यालय, दिल्ली विश्वविद्यालय।

अहम बात यह है कि इस तरह की प्रक्रिया को नवउदारतावादी चिंतक अर्थशास्त्री साइमन कुजनेट्स द्वारा प्रतिपादित पर्यावरणीय वक्र की परिकल्पना के आधार पर उचित ठहराते हैं। कुजनेट्स ने तर्क दिया था कि आर्थिक विकास के शुरुआती चरणों में प्राकृतिक संसाधनों के अधिकतम दोहन से अपशिष्ट उत्पादनों का ज़्यादा से ज़्यादा उत्सर्जन होता है। लेकिन जब कोई देश विकास की एक निश्चित अवस्था हासिल कर लेता है तो मैन्युफैक्चरिंग में हुए प्रौद्योगिकीय विकास की वजह से पर्यावरणीय क्षय में गिरावट आने लगती है (टिसडेल, 2001)।

इस तरह के तर्क का समर्थन करने वाले अन्य विद्वान भी यह मानते हैं कि व्यापार पर्यावरण के अनुकूल प्रथाओं और नई तकनीकों को बढ़ावा देकर पर्यावरणीय गुणवत्ता को बेहतर बनाने में मदद कर सकता है। शिराज़ी और मानप (2005) तथा ह्वे तथा अन्य (2013) द्वारा किए गए अध्ययनों में दिखाया है कि जब कोई देश अंतरराष्ट्रीय व्यापार में शामिल होता हैं, तो उसकी राष्ट्रीय आय में वृद्धि होती है। इस आय वृद्धि के परिणामस्वरूप, नागरिक पर्यावरण संरक्षण पर अधिक जोर देते हैं। कुल मिलाकर देखा जाए तो इस धारणा के समर्थकों का तर्क है कि जैसे-जैसे कोई देश वाणिज्य के माध्यम से आर्थिक रूप से प्रगति करता है, वैसे-वैसे पर्यावरण संरक्षण को बढ़ावा देने वाले नियमों और कार्यप्रणालियों की आवश्यकता भी बढ़ती जाती है।

साथ ही इस विचार के समर्थक यह भी तर्क देते हैं कि अंतरराष्ट्रीय व्यापार न केवल आर्थिक विकास को बढ़ावा देता है, बल्कि हरित प्रौद्योगिकियों में निवेश को भी प्रोत्साहित करता है। वैश्वीकरण विकसित देशों से पर्यावरण के अनुकूल तकनीकों और प्रबंधन प्रणालियों के हस्तांतरण को सुगम बनाता है, जिससे वे विकासशील देशों तक पहुंच सकते हैं। प्रदूषण हेलो सिद्धांत बताता है कि कैसे वैश्वीकरण विकसित देशों से विकासशील देशों में स्वच्छ प्रौद्योगिकियों और संपोषणीय प्रथाओं के हस्तांतरण में सहायक होता है। यह हस्तांतरण प्रदूषण को कम करने और पर्यावरण के अनुकूल विकास को गति देने में मदद करता है, हालांकि यह गति धीमी होती है (झोउ और अन्य, 2018)।

उपर्युक्त विश्लेषणों के आधार पर यह कहा जा सकता है कि विभिन्न विश्लेषकों ने इस संबंध को विभिन्न दृष्टिकोणों से देखा है। इस जटिल मुद्दे को बेहतर ढंग से समझने के लिए, व्यापार और पर्यावरण के व्यावहारिक निहितार्थों पर चर्चा करना महत्वपूर्ण हैं जो जमीनी स्तर पर विभिन्न रूपों में प्रकट होता है, जिस पर हम अगले भाग में चर्चा करेंगे।

अंतरराष्ट्रीय व्यापार और पर्यावरणीय चुनौतियाँ

अंतरराष्ट्रीय व्यापार ने वैश्विक आर्थिक विस्तार में महत्वपूर्ण भूमिका निभाई है, लेकिन इसके नकारात्मक पर्यावरणीय प्रभाव को भी देखना महत्वपूर्ण हैं। एक अध्ययन से पता चलता है कि पिछले 30 वर्षों में कोई भी देश अपने नागरिकों की बुनियादी जरूरतें पूरी करने में पर्यावरण को नुकसान पहुंचाए बिना सफल नहीं रहा है। विकसित देशों ने भी अपने संसाधनों का अत्यधिक दोहन किया है। बढ़ते व्यापार, औद्योगिक उत्पादन और लंबी दूरी के परिवहन के कारण वायु प्रदूषण में वृद्धि हुई है, जिसके परिणामस्वरूप मानव स्वास्थ्य और पर्यावरण पर नकारात्मक प्रभाव पड़ा है। विश्व स्वास्थ संगठन के अनुसार, दुनिया की करीब नब्बे फीसदी आबादी दूषित हवा में सांस लेने को मजबूर है। इस रिपोर्ट के अनुसार हर साल 42 लाख मौतों के लिए सीधे तौर पर आउटडोर एयर पोल्युशन ही जिम्मेदार है। जिनमें से करीब 90 फीसदी मौतें गरीब और मध्यवर्गीय देशों में ही होती हैं। जबकि आउटडोर और इंडोर एयर पोल्युशन से होने वाली मौतों के आंकड़ों को जोड़ दिया जाए तो इसके कारण हर साल करीब 88 लाख लोगों की मौत हो जाती है (डबल्यूएचओ, 2018)। जल प्रदूषण, जो औद्योगिक और कृषि अपशिष्टों से उत्पन्न होता है, जल स्रोतों को दूषित करता है और मानव जीवन के लिए गंभीर खतरा पैदा करता है। वांग और अन्य (2024) द्वारा किया गया एक हालिया अध्ययन ने चिंताजनक आंकड़े पेश किए हैं: वर्ष 2050 तक, चार करोड़ वर्ग किलोमीटर से अधिक नदी घाटी क्षेत्र और तीन अरब अतिरिक्त लोग साफ पानी की कमी का सामना करेंगे। यह पहले के अनुमानों की तुलना में काफी अधिक है और यह दर्शाता है कि जलवायु परिवर्तन और अत्यधिक जल निकासी के कारण पानी की कमी की समस्या तेजी से बढ़ रही है (वांग और अन्य, 2024)।

अधिकतम व्यापार को बढ़ावा देने के लिए रासायनिक उर्वरकों और कीटनाशकों पर बढ़ती निर्भरता मिट्टी की गुणवत्ता को नकारात्मक रूप से प्रभावित कर रही है, जिससे वैश्विक खाद्य सुरक्षा के लिए गंभीर खतरा पैदा हो रहा है। लगभग 92.4 करोड़ लोग (दुनिया की आबादी का 11.7%) भयंकर खाद्य असुरक्षा का सामना कर रहे हैं (यूनिसेफ़, 2022)। जैव विविधता के क्षरण में व्यापार भी महत्वपूर्ण भूमिका निभाता है। कृषि भूमि के विस्तार और शहरीकरण के कारण वन्य जीव आवास नष्ट हो रहे हैं, जिससे अनेक प्रजातियों के अस्तित्व पर खतरा मंडरा रहा है। डबल्यूडबल्यूएफ़ की 'लिविंग प्लैनेट रिपोर्ट 2020' के अनुसार, 1970 से 2016 तक स्तनधारियों, पक्षियों, मछलियों, पौधों और कीड़ों की संख्या में औसतन 68 फ़ीसदी की गिरावट आई है, जो पचास वर्ष से भी कम समय में दो-तिहाई से अधिक है (डबल्यूडबल्यूएफ़, 2020)। वन्यजीव उत्पादों की अंतरराष्ट्रीय मांग कई प्रजातियों को विलुप्ति के कगार पर धकेल रही है। वस्तुओं की बढ़ती वैश्विक मांग वनों की कटाई और पर्यावरणीय क्षरण में योगदान दे रही है, जिसके परिणामस्वरूप उत्सर्जन में वृद्धि हो रही है। अनुमान है कि 29 फ़ीसदी से लेकर 39 फ़ीसदी वनों की कटाई अंतरराष्ट्रीय व्यापार से प्रेरित है (पेनड्रील और अन्य, 2019)।

आयातित और निर्यात किए गए वस्तुओं और सेवाओं के उत्पादन और परिवहन से उत्पन्न ग्रीनहाउस गैस उत्सर्जन में वृद्धि एक महत्व पूर्ण चिंता का विषय है। अनुमानों के अनुसार, ये उत्सर्जन वैश्विक ग्रीनहाउस गैस उत्सर्जन के बीस से तीस फ़ीसदी के बीच योगदान करते हैं (डबल्यूटीओ, 2021)। मल्टीनेशनल कंपनियों द्वारा प्रदूषणकारी उत्पादन की आउटसोर्सिंग भी एक चिंताजनक प्रवृत्ति है। ये कंपनियां अक्सर कमजोर पर्यावरणीय नियमों वाले देशों में अपने प्रदूषणकारी कारखानों को स्थापित करती हैं, जिसके परिणामस्वरूप स्थानीय पर्यावरणीय क्षरण और वैश्विक प्रदूषण में वृद्धि होती है (बेन-डेविड और अन्य, 2020)। इस प्रकार, अंतरराष्ट्रीय व्यापार संसाधनों के अति-दोहन, प्रदूषण, जैव विविधता की हानि और जलवायु परिवर्तन के माध्यम से पर्यावरणीय स्थिरता को खतरे में डालता है।

भारत की स्थिति: पर्यावरण और व्यापार में संतुलन

व्यापारिक हितों और पर्यावरण संबंधी चिंताओं के बीच चल रहा टकराव राष्ट्रों के लिए अनेक चुनौतियां प्रस्तुत करता है, भारत भी इसका अपवाद नहीं है। पिछले भाग में प्रस्तुत आंकड़े इस सत्य को और पुष्ट करते हैं तथा उन पर्यावरणीय चुनौतियों को दर्शाते हैं जिनका भारत को भी सामना करना पड़ रहा है। लेकिन, यह भी सच है कि भारत ने संपोषणीय व्यापार को बढ़ावा देने के लिए प्रयास किए हैं, जो न केवल पर्यावरण की रक्षा करने में मदद करती हैं, बल्कि संसाधनों का कुशल उपयोग और समग्र आर्थिक विकास भी सुनिश्चित करती हैं।

ग्रीन तकनीकों के विकास, नवीकरणीय ऊर्जा उत्पादन और जैविक खेती के संवर्धन के माध्यम से, देश ने पर्यावरणीय संपोषणीयता और आर्थिक वृद्धि को संतुलित करने के प्रयास किए हैं। उदाहरण के लिए, राष्ट्रीय सौर मिशन और उजाला योजना ऊर्जा दक्षता को बढ़ावा दे रहे हैं, जबकि राष्ट्रीय पवन ऊर्जा मिशन नवीकरणीय ऊर्जा के उपयोग को बढ़ावा दे रहा है। सिक्किम का पूर्ण जैविक राज्य बनना और स्वच्छ भारत अभियान की पहल भारत की इस दिशा में प्रतिबद्धता को दर्शाती हैं। पेरिस समझौते के प्रति भारत की प्रतिबद्धता कार्बन उत्सर्जन को कम करने और नवीकरणीय ऊर्जा का उपयोग बढ़ाने की दिशा में एक महत्वपूर्ण कदम है। इन पहलों के माध्यम से, भारत न केवल अपने पर्यावरणीय दायित्वों को पूरा कर रहा है बल्कि वैश्विक स्तर पर टिकाऊ विकास के लिए एक उदाहरण भी प्रस्तुत कर रहा है।

भारत ने व्यापार से उत्पन्न पर्यावरणीय प्रभावों को नियंत्रित करने के लिए ठोस उपाय लागू किए हैं। पर्यावरण संरक्षण अधिनियम, 1986, जल (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1974 और वायु (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1981 के तहत कठोर पर्यावरणीय मानकों को स्थापित किया गया है। सतत् आपूर्ति श्रृंखला प्रबंधन को बढ़ावा देने के लिए ग्रीन सर्टिफिकेशन और पर्यावरणीय लेखा-जोखा का पालन किया जा रहा है। नवीकरणीय ऊर्जा के विस्तार के लिए राष्ट्रीय सौर मिशन और राष्ट्रीय पवन ऊर्जा मिशन लागू किए गए हैं, जो कोयला आधारित ऊर्जा

उत्पादन पर निर्भरता को कम करते हैं। उजाला योजना के तहत 37 करोड़ से अधिक एलइडी बल्ब वितरित किए गए हैं, जिससे बिजली की खपत और CO_2 उत्सर्जन में कमी आई है। वही प्रारंभिक उत्सर्जन ट्रेडिंग प्रणाली के माध्यम से विभिन्न उद्योगों को अधिक ऊर्जा-कुशल बनाने की दिशा में कार्य किया जा रहा है।

भारत ने नवीकरणीय ऊर्जा के विकास को बढ़ावा देने के लिए कई महत्व पूर्ण कदम उठाए हैं, जो देश के ऊर्जा परिदृश्य को बदल रहे हैं। ग्रीन एनर्जी कॉरिडोर परियोजना के तहत, एक मजबूत ट्रांसमिशन नेटवर्क का निर्माण किया जा रहा है जो नवीकरणीय ऊर्जा उत्पादकों और उपभोक्ताओं को जोड़ता है, विशेषकर लद्दाख और गुजरात में स्थापित प्रमुख नवीकरणीय ऊर्जा केंद्रों के माध्यम से। वित्तीय प्रोत्साहन जैसे उत्पादन-आधारित प्रोत्साहन और पुनर्नवीकरणीय ऊर्जा प्रमाणपत्र ने इस क्षेत्र में निवेश को आकर्षित किया है, जबकि सोलर रूफटॉप सब्सिडी और वित्तीय अनुदान ने घरेलू और व्यावसायिक स्तर पर सौर ऊर्जा की स्थापना को प्रोत्साहित किया है। इसके अलावा, नवीकरणीय ऊर्जा अनुसंधान और विकास के लिए विशेष बजट आवंटन और राष्ट्रीय नवीकरणीय ऊर्जा प्रयोगशाला के साथ वैज्ञानिक सहयोग ने सस्ती और कुशल ऊर्जा तकनीकों के विकास को संभव बनाया है। प्रौद्योगिकी का उपयोग करके वास्तविक समय में पर्यावरणीय निगरानी को सुदृढ़ किया गया है, जिसमें केंद्रीय प्रदूषण नियंत्रण बोर्ड की ऑनलाइन प्रणालियाँ और राष्ट्रीय वायु गुणवत्ता सूचकांक शामिल हैं। इसके अलावा, उत्सर्जन मानकों का कठोर अनुपालन सुनिश्चित करने के लिए ऑटोमोबाइल और थर्मल पावर प्लांट्स को उन्नत किया गया है।

भारत सर्कुलर इकॉनमी को अपनाकर व्यापार और पर्यावरण के बीच संतुलन स्थापित करने की दिशा में उल्लेखनीय कदम उठा रहा है। सर्कुलर इकॉनमी का मॉडल पारंपरिक लीनियर इकॉनमी (उपयोग और निपटान) के विपरीत, संसाधनों के पुन: उपयोग, पुनर्चक्रण और पुनर्वास पर केंद्रित है। इस मॉडल का लक्ष्य है कि उत्पादों और सामग्रियों के मूल्य को जितना संभव हो सके, आर्थिक प्रणाली में बनाए रखा जाए। स्वच्छ भारत मिशन और स्वच्छ भारत अभियान के तहत कचरा प्रबंधन और स्वच्छता को बढ़ावा दिया गया है, जिसमें कचरे को ऊर्जा में परिवर्तित करने की परियोजनाएँ शामिल हैं। प्लास्टिक और खतरनाक कचरे के प्रबंधन के लिए प्लास्टिक कचरा प्रबंधन नियम, 2016 और ई-कचरा प्रबंधन नियम, 2016 के तहत विस्तारित निर्माता जिम्मेदारी और सुरक्षित पुनर्चक्रण को प्रोत्साहित किया गया है। ये सभी पहलें भारत को एक टिकाऊ विकास मॉडल की ओर अग्रसर करती हैं, जो पर्यावरणीय संरक्षण और आर्थिक विकास दोनों को संतुलित करने में कारागार साबित होगी।

आगे की राह

पिछले चार दशकों में पर्यावरणीय मुद्दों का महत्व विभिन्न मोर्चों पर बढ़ा है। साठ के दशक में, पर्यावरण के प्रति सार्वजनिक चिंता की पहली बड़ी लहर मुख्य रूप से उन्नत अर्थव्यवस्थाओं में औद्योगिक प्रदूषण की समस्याओं पर केंद्रित थी। सत्तर के दशक के उत्तरार्ध में, व्यावसायिक मूल्यांकन में पर्यावरणीय मुद्दों को शामिल करना शुरू हुआ। अस्सी के दशक में उथल-पुथल भरे दौर में, सीमा पार पर्यावरण संबंधी मुद्दों को महत्वपूर्ण व्यापार वार्ताओं में शामिल किया जाने लगा और नब्बे के दशक के आते-आते यह स्पष्ट हो गया कि अलग-अलग पर्यावरण संबंधी नियमों में राष्ट्रों और क्षेत्रों की प्रतिस्पर्धात्मकता को प्रभावित करने की क्षमता है। परिणामस्वरूप, प्रभावी पर्यावरण विनियमन और उनकी तुलनात्मकता का महत्व बढ़ने लगा। इस दौरान, पर्यावरण संबंधी मुद्दों के बारे में बढ़ती चिंताओं ने वैश्विक ध्यान आकर्षित करना शुरू कर दिया (जयदेवप्पा और छत्रे, 2000)।

दरअसल, व्यापार और पर्यावरण के बीच संबंध जटिल और गतिशील है, जो निरंतर विकसित हो रहा है। पिछले कुछ दशकों में हुई प्रगति ने टिकाऊ भविष्य के लिए व्यापार की भूमिका के बारे में नए दृष्टिकोण अपनाने को प्रेरित किया है। ध्यान रहे, व्यापार विभिन्न स्तरों पर पर्यावरण को प्रभावित करता है, जिससे विभिन्न चुनौतियाँ उत्पन्न होती हैं। इन चुनौतियों का समाधान करने के लिए, व्यापार और पर्यावरण गुणवत्ता के बीच के संबंध को समझना आवश्यक

है। व्यापार और पर्यावरण गुणवत्ता के बीच संबंध की जांच तीन अलग-अलग श्रेणियों में की जाती है, जो उत्पादन और उपभोग से उत्पन्न होने वाले पर्यावरणीय मुद्दों द्वारा निर्धारित की जाती हैं। पहली श्रेणी स्थानीय समस्याओं पर केंद्रित है जो एक ही देश में होती हैं, जैसे वायु और जल प्रदूषण, जिन्हें स्थानीय स्तर पर संबोधित करने की आवश्यकता होती है। दूसरी श्रेणी में अंतर-देशीय मुद्दे शामिल हैं जो तब उत्पन्न होते हैं जब कई देश नदियों या वायुमंडल जैसे साझा संसाधन के प्रदूषण में योगदान करते हैं, जिसके समाधान के लिए सहयोग की आवश्यकता होती है। अंत में, ओजोन परत की कमी जैसी वैश्विक समस्याएं पूरी दुनिया को प्रभावित करती हैं और उन्हें कम करने के लिए पर्याप्त अंतरराष्ट्रीय सहयोग की आवश्यकता होती है (जयदेवप्पा एवं छत्रे, 2000)। इन तीन श्रेणियों के बीच मुख्य अंतर यह है कि पहली श्रेणी व्यापार और पर्यावरण को वस्तुओं और सेवाओं के आदान-प्रदान से जोड़ती है, जबकि अन्य दो श्रेणियां सीमा पार प्रदूषण से जुड़ी हैं। हालांकि, ऐसे उदाहरण हो सकते हैं जहाँ ये श्रेणियाँ आपस में जुड़ी हुई हों। यह समझना ज़रूरी है कि ये श्रेणियाँ पूरी तरह से अलग नहीं हैं और कुछ स्थितियों में एक दूसरे से जुड़ सकती हैं। उदाहरण के लिए, जबकि जलवायु परिवर्तन एक विश्वव्यापी मुद्दा है, इसके प्रभाव स्थानीय और अंतरराष्ट्रीय स्तर पर भी अनुभव किए जा सकते हैं (जयदेवप्पा एवं छत्रे, 2000)।

ऐसे में अंतरराष्ट्रीय व्यापार के पर्यावरणीय नकारात्मक प्रभावों को कम करने हेतु बहुस्तरीय और समन्वित रणनीतियों की आवश्यकता है। इनमें प्रमुख नीतियों में पर्यावरण संरक्षण को प्रोत्साहित करने वाली व्यापारिक नीतियाँ सम्मिलित हैं, जैसे पर्यावरणीय शुल्क और ईको-लेबलिंग। पर्यावरणीय शुल्क, जैसे कार्बन टैक्स, उच्च प्रदूषण करने वाले उत्पादों पर अधिक कर लगाते हैं, जिससे उनकी खपत कम होती है। ईको-लेबलिंग उपभोक्ताओं को पर्यावरण-अनुकूल उत्पादों की पहचान करने में मदद करती है, जिससे कंपनियों को हरित उत्पादन विधियों को अपनाने के लिए प्रोत्साहन मिलता है।

अंतरराष्ट्रीय पर्यावरणीय समझौते और नियम, जैसे पेरिस समझौता, क्योटो प्रोटोकॉल, वियना सम्मेलन और जैव विविधता पर कन्वेंशन, देशों को एक साथ काम करने और कानूनी रूप से बाध्यकारी लक्ष्य निर्धारित करने के लिए प्रेरित करते हैं। जो इन समझौतों का उद्देश्य जलवायु परिवर्तन, जैव विविधता संरक्षण और प्रदूषण नियंत्रण जैसे वैश्विक मुद्दों का समाधान करना हैं। ये समझौते देशों को ग्रीनहाउस गैस उत्सर्जन को कम करने और पर्यावरणीय रूप से टिकाऊ तरीके से विकास करने के लिए प्रेरित करते हैं।

अंतरराष्ट्रीय संगठनों, जैसे विश्व व्यापार संगठन और संयुक्त राष्ट्र पर्यावरण कार्यक्रम, की भूमिका भी महत्वपूर्ण है। विश्व व्यापार संगठन व्यापार और पर्यावरणीय नीतियों के बीच तालमेल स्थापित करने के लिए कार्य करता है, जबकि संयुक्त राष्ट्र पर्यावरण कार्यक्रम वैश्विक पर्यावरणीय मुद्दों पर अनुसंधान और नीति विकास में सहायता करता है। ये संगठन टिकाऊ व्यापार प्रथाओं और पर्यावरणीय मानकों के लिए वैश्विक सहयोग और मार्गदर्शन प्रदान करते हैं। कॉर्पोरेट सामाजिक उत्तरदायित्व और हरित आपूर्ति श्रृंखलाएं भी महत्वपूर्ण भूमिका निभाती हैं। कंपनियां अपने उत्पादन और वितरण प्रक्रियाओं को पर्यावरण के अनुकूल बनाकर ग्रीनहाउस गैस उत्सर्जन को कम कर सकती हैं और कचरे को रीसायकल कर सकती हैं। कॉर्पोरेट सामाजिक उत्तरदायित्व कार्यक्रमों के तहत, कंपनियां पर्यावरणीय परियोजनाओं में निवेश कर सकती हैं और स्थायी विकास लक्ष्यों को प्राप्त करने में योगदान दे सकती हैं।

जलवायु परिवर्तन के खिलाफ़ लड़ाई में, व्यापार से जुड़े परिवहन उत्सर्जन में कमी को प्राथमिकता देना बहुत ज़रूरी है। इस लक्ष्य को उन्नत परिवहन तकनीकों के क्रियान्वयन, टिकाऊ ईंधन के उपयोग और परिवहन नेटवर्क के विस्तार के ज़रिए हासिल किया जा सकता है। इसके अलावा, प्रौद्योगिकी, विशेषज्ञता और वित्तीय सहायता का आदान-प्रदान महत्वपूर्ण है। पर्यावरण के अनुकूल प्रौद्योगिकियों के एकीकरण को सुगम बनाना, संधारणीय तरीकों पर ज्ञान प्रदान करना और संधारणीय व्यावसायिक प्रथाओं के लिए वित्तीय सहायता प्रदान करना इस प्रयास में प्रमुख तत्व हैं। छोटे और मध्यम आकार के उद्यमों, विशेष रूप से उच्च कार्बन-उत्सर्जन वाले क्षेत्रों में, वैश्विक मानकों और

पर्यावरण के अनुकूल प्रथाओं के अनुरूप होने में सहायता करना अनिवार्य है। इन उपायों के कार्यान्वयन के माध्यम से, व्यवसाय वैश्विक बाजार में अपनी प्रतिस्पर्धात्मकता बनाए रख सकते हैं और साथ ही पर्यावरण पर अंतरराष्ट्रीय व्यापार के हानिकारक प्रभावों को भी कम कर सकते हैं।

निष्कर्ष

अंतरराष्ट्रीय व्यापार वैश्विक अर्थव्यवस्था का एक महत्वपूर्ण स्तंभ है, लेकिन पर्यावरण पर इसके प्रभावों को नजरअंदाज़ नहीं किया जा सकता है। संपोषणीय व्यापार, आर्थिक विकास, सामाजिक न्याय और पर्यावरण संरक्षण के बीच संतुलन बनाकर, एक स्थायी भविष्य का मार्ग प्रशस्त करता है। इस लक्ष्य को प्राप्त करने के लिए अंतरराष्ट्रीय सहयोग महत्वपूर्ण है। विभिन्न राष्ट्रों, व्यावसायिक समूहों, नागरिक समाज और अंतरराष्ट्रीय संगठनों को मिलकर काम करने की आवश्यकता है ताकि यह सुनिश्चित हो सके कि व्यापार पर्यावरण के अनुकूल और न्यायसंगत हो। यह चुनौतीपूर्ण है, लेकिन यह सब की सामूहिक जिम्मेदारी भी है। आज उठाया हुआ कदम आने वाली पीढ़ियों के लिए एक बेहतर कल साबित होगा। इसलिए, मजबूत राजनीतिक इच्छाशक्ति की आवश्यकता हैं। इसके अतिरिक्त, विशेष रूप से कम संसाधनों वाले देशों को, हरित अर्थव्यवस्था में बदलाव लाने और अपने डीकार्बोनाइजेशन लक्ष्यों को प्राप्त करने के लिए विशेषज्ञता, प्रौद्योगिकी और वित्तपोषण तक पहुंच प्राप्त करने की आवश्यकता होगी। संबंधित हितधारक इस अंतर को कम करने में महत्वपूर्ण भूमिका निभा सकते हैं और देशों को व्यापार के पर्यावरण पर पड़ने वाले नकारात्मक प्रभावों को कम करने और सकारात्मक प्रभावों को अधिकतम करने में सहायता प्रदान कर सकते हैं।

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IIBF organised Banking Conclaves in collaboration with UNEP FI and GIZ

IIBF organised a Banking Conclaves on “Sustainable Finance and Responsible Banking” in collaboration with UNEP FI and GIZ in August 2024 in New Delhi, Kolkata and Chennai. The objective of Banking Conclaves were to delve deeper into the roles and responsibilities of Board members and Senior Management of the Financial Institutions, in promoting climate awareness and disclosures in Banks & FIs, thereby, advancing India’s climate transition. The event was attended by top dignitaries and Senior professionals from Banking & Financial Institutions and was appreciated by the attendees.

I Prize: Micro Research 2023-24

Financial Frauds – How to Alleviate Customer Grievances

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Abstract

The landscape of banking in India is rapidly evolving with the adoption of various technologies, ushering in a new era of convenience and accessibility for customers. End-to-end digital journeys have empowered customers by making banking services readily available at their fingertips. However, this transformation has also been accompanied by a surge in digital transactions, which in turn has led to an increase in financial frauds over the past decades. Consequently, the number of customer grievances has risen significantly, posing new challenges for banks amidst their technological advancements. This article seeks to explore strategies to alleviate customer grievances stemming from financial frauds within the dynamic landscape of Indian banking.

Introduction

In the rapidly evolving landscape of banking in India, technological advancements have revolutionized the way customers interact with financial institutions. With the advent of end-to-end digital journeys, banking services are now conveniently accessible at customers' fingertips, transforming traditional brick-and-mortar institutions into integrated digital platforms. Nevertheless, this shift in paradigm has also introduced a fresh array of challenges, with the most prominent among them being the alarming surge in financial frauds.

Over the past decades, India has witnessed an exponential growth in digital transactions, a trend driven by factors such as increasing internet penetration, the proliferation of smartphones and Government backed Digital India initiatives, thereby, promoting digital finance and online payments. While this digital revolution has undoubtedly expanded access to financial services and enhanced convenience for customers, it has also created fertile ground for fraudulent activities. Cybercriminals, leveraging sophisticated tactics and exploiting vulnerabilities in digital systems have orchestrated a myriad of fraudulent schemes, ranging from identity theft and phishing scams to account takeovers and payment fraud and so on.

Consequently, the incidence of financial frauds has soared, inflicting substantial financial losses on individuals and businesses alike. Yet, perhaps even more concerning is the consequential surge in customer grievances, as victims of fraud grapple with the emotional and financial toll of these illicit activities. From disputed transactions and unauthorized account access to delays in reimbursement and inadequate customer support, the grievances voiced by customers underscore the urgent need for banks to fortify their fraud prevention and resolution mechanisms.

Amidst this backdrop of escalating financial frauds and mounting customer grievances, banks are faced

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with the formidable task of reconciling technological innovation with consumer protection. The rapid pace of digital transformation, while offering unparalleled convenience and efficiency, has also exposed vulnerabilities in traditional security frameworks, necessitating a proactive and adaptive approach to combat fraud.

In response to these challenges, this article endeavours to explore strategies for alleviating customer grievances stemming from financial frauds in the Indian banking sector. Drawing upon insights gleaned from secondary resources and interviews with esteemed senior banking professionals, our study aims to unravel the complex interplay between technology, fraud and customer satisfaction.

Central to our investigation is the role of customer awareness programs in enhancing fraud prevention and resolution efforts. By empowering customers with the knowledge and tools to identify and mitigate potential risks, these programs can serve as a critical line of defence against fraudulent activities. Moreover, we will delve into the potential of emerging technologies, such as Artificial Intelligence (AI) and Generative models, in augmenting fraud detection capabilities and enhancing customer protection.

This study endeavours to provide actionable insights for banks seeking to fortify their fraud management strategies and foster trust among customers. By championing a customer-centric approach and leveraging cutting-edge technologies, banks can navigate the evolving landscape of financial frauds while safeguarding the interests of their clientele and preserving the integrity of the banking ecosystem.

Literature Review

The literature regarding financial frauds and customer grievances within the Indian banking sector provides crucial insights into the unique challenges faced by the industry and offers potential strategies for mitigation.

Financial frauds have emerged as a significant threat to the stability and trustworthiness of Indian banks, propelled by the proliferation of digital transactions and the increasing sophistication of cyber threats. The study by Mishra et al. (2019) highlighted the alarming rise in financial frauds in India, attributing this trend to weaknesses in digital security frameworks and gaps in regulatory oversight. Furthermore, study by Sharma and Gupta (2020) underscored the detrimental impact of financial frauds on the reputation and customer trust of Indian banks, emphasizing the urgency for proactive measures to combat these threats.

Customer grievances, often stemming from fraudulent activities or service-related issues, pose considerable challenges for Indian banks in maintaining customer satisfaction and loyalty. The study by Singh and Tiwari (2018) revealed common grievances reported by Indian banking customers, including unauthorized transactions, delayed resolution of complaints and inadequate customer support. Similarly, study by Patel and Shah (2021) shed light on the significance of effective complaint management systems in addressing customer grievances and preserving brand reputation in the Indian banking context.

In the realm of emerging technologies, Artificial Intelligence (AI) holds promise for bolstering fraud detection and prevention efforts within Indian banks. A study by Srihari Subudhi (2019) delve into the role of AI-driven chatbots in enhancing customer service experiences for Indian banking customers, highlighting the benefits of real-time assistance and personalized interactions in resolving grievances. Further, AI has the ability to identify fraudulent activity in the real-time. Further, study by Kumar et al. (2020) explored the applications of AI in detecting fraudulent

activities in Indian banking transactions, emphasizing its potential to analyse vast volumes of data and identify suspicious patterns with greater accuracy.

Furthermore, Generative models, a subset of AI, offer innovative solutions for data synthesis and analysis that can complement traditional fraud detection methods within Indian banks. The study by Choudhary et al. (2021) investigated the efficacy of Generative Adversarial Networks (GANs) in generating synthetic transactional data for training fraud detection models in the Indian banking context, demonstrating its potential to overcome data scarcity issues and improve model performance. Similarly, study by Sharma et al. (2022) explored the use of Generative models in generating synthetic customer profiles for fraud detection purposes, showcasing its effectiveness in enhancing the resilience and accuracy of fraud detection systems in Indian banks.

The Reserve Bank of India has taken many initiatives in combating with financial frauds. The major tech-driven initiative being Regulatory Sandbox (RS) – Cohorts and Inter-Operable Regulatory Sandbox (IoRS) -in the fourth cohort, targeting 'Prevention and Mitigation of Financial Frauds', six entities are testing products including risk-based authentication and AI/ML models for fraud prevention. This cohort aims to strengthen fraud governance and reduce response time to fraud incidents.

The Reserve Bank of India has also published a booklet titled "Raju and the Forty Thieves" to raise awareness about various types of financial fraud. It uses the character of Raju, a common man taking on different roles, to depict 40 real-life scenarios of frauds as summarized below:

- The 40 stories showcase different fraudulent situations people might face.
- The booklet offers tips and advice (do's and don'ts) to help readers avoid falling victim to such scams.
- It empowers citizens to protect their hard-earned money and themselves from fraudsters.

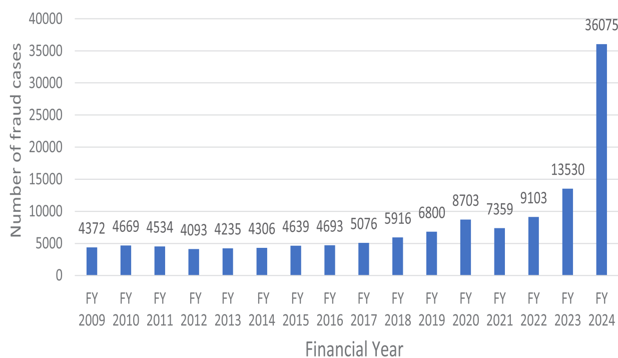
It can be helpful for the banks to have a holistic view on customer awareness programs in order to create a fraud aware culture among customers leading to an effective frontline defence against financial frauds. By empowering customers with the knowledge and tools to identify and mitigate potential risks, these programs can serve as a critical line of defence against fraudulent activities. Banks should have an intensive customer awareness programs that includes workshops, online tutorials and information campaigns with respect to their banking products and services. These initiatives aim to educate customers about common fraud schemes, recognize red flags and empower them to take proactive measures against fraudulent activities. By fostering a culture of vigilance and knowledge among customers, banks can strengthen their frontline defence against financial frauds.

The literature review underscores the imperative for Indian banks to address the challenges posed by financial frauds and customer grievances through a combination of regulatory reforms, technological innovation and customer-centric approaches. By harnessing the potential of emerging technologies such as AI and Generative models, Indian banks can strengthen their capabilities in fraud detection and complaint resolution, thereby, safeguarding the interests of customers and upholding trust in the Indian banking ecosystem.

As per the report on "Number of bank fraud cases

India 2009-2024" published by statista.com, in the financial year 2023, the Reserve Bank of India (RBI) reported a total of more than 13 thousand bank fraud cases across India. This was an increase compared to the previous year and turned around the trend of the last decade. The total value of bank frauds decreased from 1.38 trillion Indian rupees to 302 billion Indian rupees.

Figure 1: Number of bank fraud cases across India during 2009 to 2024



Source: https://www.statista.com/

Innovative ideas to reduce Financial Frauds

Financial fraud is a major concern for Indian bank customers and a swift, efficient response to grievances is crucial. Here are some innovative ideas to tackle this issue:

Prevention & Education

AI-powered Fraud Prediction: Develop AI models that analyse customer behaviour and transaction patterns to predict potential fraud attempts. Real-time alerts can be sent to customers and banks for immediate action.

Interactive Gamified Learning: Create engaging mobile games or simulations that educate customers about different fraud tactics and red flags. This can be particularly effective for reaching younger demographics.

Regional Language Support: Provide educational materials and fraud warnings in local languages to ensure financial literacy reaches a wider audience.

Faster & More Transparent Resolution

Omni-channel Grievance Redressal: Allow customers to register complaints seamlessly through various channels – mobile app, chatbot, phone call or branch visit.

AI-powered Chatbots for First Response: Utilize AI chatbots to handle initial fraud complaints, gather information and direct customers to the most appropriate resolution path.

Real-time Grievance Tracking: Implement a system where customers can track the progress of their fraud case in real-time, with estimated timelines and updates.

Improved Customer Communication & Support

Dedicated Anti-Fraud Specialists: Train specialists to handle fraud cases empathetically and efficiently. These specialists can guide customers through the process and answer questions.

Video Conferencing for Dispute Resolution: Offer video conferencing options for customers to discuss their grievances with bank officials face-to-face, fostering trust and personalized interaction.

Fraudulent Transaction Reversal Guarantee: Consider offering a "no-questions-asked" fraudulent transaction reversal guarantee within a specific timeframe to build trust and reduce customer anxiety.

Collaboration & Public Awareness

Industry-wide Fraud Database: Create a shared database of known fraud tactics and perpetrators across Indian banks. This can help identify trends and improve preventive measures.

Public Awareness Campaigns: Partner with media outlets and community organizations for public

awareness campaigns on financial fraud. This can involve educational workshops, street plays or social media initiatives.

Additionally, leverage blockchain technology for secure and transparent transaction tracking and exploring biometric authentication for high-value transactions to enhance security will also help in prevention of financial frauds.

By implementing these innovative ideas, Indian banks can build a more robust fraud prevention system, improve grievance redressal processes and empower customers to stay financially secure. Remember, a combination of preventive measures, efficient resolution processes and open communication can significantly reduce customer grievances related to financial fraud.

Reasons for increasing Financial Frauds

In the year 2023, the Reserve Bank of India (RBI) documented bank frauds exceeding Rs. 3,500 crore. This marked a decline from the substantial figure of over Rs. 1.3 trillion reported in 2021. The observed decrease reflects a noteworthy shift in the trend of these fraudulent activities.

Frauds in banks happens across various divisions and activities, like Financial statement fraud, Fraud emanating from IT systems in banks (cyber frauds such as Phishing, spoofing, identity theft, etc.), Credit card cloning/fraud, Fraud from social engineering/shoulder surfing, etc., Fraud emanating from transactions/ATM cash replenishment, etc. While fraud is usually detected after it is perpetrated, it would be extremely useful if it is detected, red-flagged and prevented in near real-time.

Figure 2: Fraud Cases – Bank Group-wise

(Amount in ₹ crore)

Bank Group/Institution	2020-21		2021-22		2022-23	
	Number of Frauds	Amount Involved	Number of Frauds	Amount Involved	Number of Frauds	Amount Involved
1	2	3	4	5	6	7
Public Sector Banks	2,888	77,879	3,075	40,015	3,405	21,125
	(39.4)	(58.8)	(33.8)	(66.9)	(25.2)	(69.8)
Private Sector Banks	3,705	45,515	5,332	17,387	8,932	8,727
	(50.5)	(34.4)	(58.6)	(29.1)	(66.0)	(28.9)
Foreign Banks	519	3110	494	1,206	804	292
	(7.1)	(2.4)	(5.5)	(2.0)	(5.9)	(1.0)
Financial Institutions	22	5,853	9	1,178	9	70
	(0.3)	(4.4)	(0.1)	(2.0)	(0.1)	(0.2)
Small Finance Banks	114	30	155	30	312	31
	(1.5)	-	(1.7)	-	(2.3)	(0.1)
Payments Banks	88	2	30	1	68	7
	(1.2)	-	(0.3)	-	(0.5)	-
Local Area Banks	2	-	2	2	-	-
	-	-	-	-	-	-
Total	7,338	1,32,389	9,097	59,819	13,530	30,252
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Source: RBI Annual Report 2022-23, Page-154

A broader perspective on the issue reveals that between June 1, 2014 and March 31, 2023, Indian banks detected approximately 65,017 frauds, resulting in a staggering loss of Rs. 4.69 lakh crore. This information reported by the Reserve Bank of India, underscores the prolonged and significant impact of bank frauds on the financial landscape.

Financial fraud continues to be a major concern in India. Here are ten reasons contributing to its rise:

Weak Internal Controls

Imagine a bank with lax security procedures for approving loans. An employee could exploit this by approving loans for fictitious entities or inflating borrower profiles, leading to defaults and losses.

Collusion

A classic example is collusion between a bank manager and a business owner. The manager might approve unauthorized loans for the business, knowing the owner will use a portion of the money for personal gain or to bribe the manager.

Technological Advancements

Phishing e-mails that mimic legitimate banks or investment companies trick people into revealing personal details. Malware can steal login credentials or inject fake forms on banking websites to capture sensitive data.

Exploiting Regulatory Loopholes

For example, Ponzi schemes, exploit the loophole created due to clear regulations around unregistered investment products. They promise high returns but simply use new investors' money to pay out earlier ones, creating a house of cards that eventually collapses.

Greed and Lack of Ethics

A stockbroker might manipulate client accounts for personal gain, making unauthorized trades with the hope of high returns (and hefty commissions) even if it risks the client's money.

Pressure to Meet Targets

Loan officers under immense pressure to meet unrealistic sales quotas might resort to unethical practices like pressuring customers into high-risk loans that they cannot afford, leading to defaults.

Inadequate Due Diligence

Failing to thoroughly verify a company's financial statements before investing can lead to unknowingly funding a fraudulent operation. Similarly, banks not properly vetting loan applicants can fall victim to fake documentation and inflated income claims.

Cybersecurity Weaknesses

Data breaches can expose customer information like account numbers and passwords, allowing criminals to steal money or commit identity theft. Weak encryption can also make online transactions vulnerable.

Lack of Awareness

Many people lack the financial literacy to recognize red flags in investment schemes. They might be lured by promises of unrealistic returns or pressured into quick decisions without understanding the risks involved.

Corruption

Bribes can incentivize officials to turn a blind eye to suspicious activities or manipulate regulations to benefit certain individuals or companies, creating a breeding ground for larger financial crimes.

These factors create a complex web that allows financial fraud to flourish. It is crucial for institutions to strengthen internal controls, stay vigilant and prioritize ethical practices to combat this menace.

How to Alleviate Customer Grievances?

Alleviating bank customer grievances on financial frauds in India requires a multi-faceted approach that combines technological innovation, regulatory measures and customer education. Here are some innovative ideas:

AI-Powered Fraud Detection Systems: Develop advanced artificial intelligence algorithms capable of detecting fraudulent activities in real-time. These systems can analyse transaction patterns, user behaviour and other relevant data points to identify suspicious transactions promptly.

Blockchain for Secure Transactions: Implement blockchain technology to enhance the security and transparency of transactions. Blockchain can create immutable records of transactions, making it difficult for fraudsters to manipulate data. This can also streamline dispute resolution processes by providing irrefutable evidence of transactions.

Biometric Authentication: Introduce biometric authentication methods such as fingerprint or iris scans for accessing bank accounts and conducting transactions. Biometric data is unique to individuals and significantly reduces the risk of unauthorized access to accounts.

Fraud Awareness Campaigns: Launch extensive nationwide campaigns to educate bank customers

about common fraud schemes and how to protect themselves. This can include workshops, seminars and digital campaigns aimed at raising awareness about phishing scams, identity theft and other fraudulent activities.

Collaboration with Law Enforcement: Foster closer collaboration between banks, regulatory authorities and law enforcement agencies to investigate and prosecute financial fraud cases effectively. This can involve setting up dedicated task forces or hotlines to report fraudulent activities promptly.

Customer Support Enhancements: Improve customer support channels by offering round-the-clock assistance through multiple channels such as chatbots, helplines and dedicated fraud resolution teams. Ensuring quick response times and empathetic handling of customer grievances can help build trust and confidence among bank customers.

Incentivizing Reporting: Encourage customers to report suspicious activities by offering incentives such as rewards or discounts on banking services. Creating a culture where reporting fraud is seen as a civic duty can help in early detection and prevention of fraudulent activities.

Regulatory Reforms: Advocate for regulatory reforms that impose stricter penalties on financial institutions for negligence in preventing fraud and offer better protection for consumers affected by fraud. This can incentivize banks to invest more resources in fraud prevention measures.

Cybersecurity Training for Bank Staff: Provide comprehensive training programs for bank employees to enhance their cybersecurity awareness and equip them with the skills to identify and respond to potential threats effectively.

Crowdsourced Fraud Detection: Develop platforms or apps that allow users to report suspicious transactions or activities anonymously. Leveraging the collective intelligence of a large user base can help in identifying emerging fraud trends and patterns.

Implementing a combination of these innovative ideas can significantly reduce the incidence of financial frauds and alleviate customer grievances in the banking sector in India.

National Payments Corporation of India (NPCI) has issued specific guidelines on the need for effective controls to mitigate frauds and operational lapses within the banking ecosystem in India. It highlights recent incidents where vulnerabilities were exploited, resulting in wrongful credits and subsequent misuse by customers. The recommendations provided focus on operational controls, fraud controls, information security controls and system audits to strengthen processes and prevent financial and reputational losses. These measures include monitoring abnormal variations in key parameters, establishing dedicated fraud monitoring teams, implementing AI/ML capabilities, adhering to secure coding practices, conducting regular audits and system assessments and developing comprehensive incident response plans. Compliance with regulatory norms and standards set by the RBI is also emphasized throughout the guidance note.

To safeguard against financial frauds in India, it is crucial to adopt proactive measures and remain vigilant. Here is a comprehensive guide for the bank customers to prevent financial frauds:

Stay Informed: Educate yourself about common scams and fraud tactics through resources provided by Government agencies and financial institutions.

Verify Identities: Be cautious when sharing personal or financial information and verify the identity of individuals or organizations requesting sensitive details.

Use Strong Passwords: Create strong and unique passwords for online accounts that are not easy to guess.

Enable Two-Factor Authentication (2FA): Add an extra layer of security to your online accounts by enabling 2FA, wherever possible.

Exercise Caution with E-mails and Phone Calls: Be sceptical of unsolicited e-mails and phone calls requesting personal or financial information. Verify the legitimacy of communication channels before providing any sensitive data.

Protect Your Devices: Keep your devices updated with security patches and antivirus software to prevent malware and hacking attempts.

Secure Wi-Fi Connections: Avoid conducting sensitive transactions on public Wi-Fi networks and consider using a VPN for added encryption.

Monitor Bank Statements: Regularly review bank and credit card statements for unauthorized transactions and report any discrepancies promptly.

Research Investment Opportunities: Thoroughly research the investment offers and consult with financial advisors to verify legitimacy and assess risks.

Report Suspicious Activity: If you encounter a financial scam, report it to appropriate authorities such as the local police, Cyber Crime Cell or regulatory bodies like the Reserve Bank of India (RBI).

Stay Informed: Keep abreast of the latest scams and fraud alerts through news sources, Government websites and consumer protection agencies.

Seek Legal Advice: Consult legal professionals or financial advisors if you believe you are the victim to a financial scam to explore recovery options.

By following these proactive steps and remaining vigilant, you can significantly reduce the risk of falling victim to financial frauds in India or anywhere else.

Recommendations for future study

The purpose of this section is to propose few topics that should be explored further as part of the ongoing efforts to fight against financial frauds in Indian banking.

Potential areas for future study include the following

- *Effectiveness of Fraud Detection Technologies:* Conduct studies to assess how effective various detection technologies are, like AI/ML algorithms, biometric authentication and blockchain-based systems, at combating diverse types of financial fraud ranging from cyber-fraud to identity theft.
- *Impact of Regulatory Reforms:* Investigate the extent to which regulatory reforms have influenced incidences of financial frauds within Indian banks. Find out how changes in regulatory frameworks such as stringent compliance measures or new guidelines by Reserve Bank of India (RBI) have affected activities towards prevention and resolution of fraud.
- *Consumer Perceptions and Banking Responsiveness:* Carry out an investigation into customer perspectives on bank responsiveness with respect to fraudulent claims and incidents. Examine factors influencing customer trust and satisfaction in banks' handling of fraud-related issues, including the effectiveness of customer support, reimbursement processes and communication strategies.
- *Integration of Ethical Considerations:* Explore the integration of ethical considerations into fraud prevention and resolution mechanisms within the banking sector. Investigate the ethical implications

of using advanced technologies, such as AI/ML algorithms and biometric authentication, in combating financial frauds and identify best practices to ensure transparency, fairness and accountability.

- *Cross-Sector Collaboration:* Investigate the potential for cross-sector collaboration in combating financial frauds. Explore partnerships between banks, Government agencies, law enforcement authorities and cybersecurity firms to share information, resources and best practices for addressing emerging threats and vulnerabilities.

By addressing these areas, scholars, policymakers and industry stakeholders can advance our understanding of financial frauds in the Indian banking sector and develop effective strategies for prevention and mitigation.

Conclusion

Financial fraud remains a significant issue in India, with various factors contributing to its prevalence. Weak internal controls, collusion between parties, technological advancements enabling phishing and malware attacks and exploitation of regulatory gaps are among the key reasons. Additionally, factors like greed, pressure to meet targets, inadequate due diligence, weak cybersecurity measures, lack of awareness and corruption further exacerbate the problem. To protect against financial fraud, individuals should stay informed, verify identities, use strong passwords and two-factor authentication, exercise caution with communications, protect devices, secure Wi-Fi connections, monitor bank statements, research investments, report suspicious activity, stay updated on scams and seek legal advice, if necessary. These proactive measures are essential for safeguarding finances and combating financial fraud effectively.

AI/ML technologies by the financial institutions offer significant potential in reducing financial frauds in India by enhancing detection, prevention and response mechanisms. These systems can analyse vast amounts of financial data in real-time to detect anomalies and patterns indicative of fraudulent activities. By leveraging predictive analytics, AI can forecast potential fraud risks and trends, enabling proactive intervention. Additionally, AI-powered fraud prevention tools, enhanced authentication methods and cybersecurity defences contribute to strengthening overall security measures. However, it is crucial to ensure proper data privacy, ethical considerations and regulatory compliance when implementing AI/ML solutions in the financial sector.

To alleviate bank customer grievances on financial frauds in India, a multi-faceted approach is needed. This includes implementing AI-powered fraud detection systems and blockchain technology for secure transactions. Biometric authentication methods can add an extra layer of security, while extensive fraud awareness campaigns can educate customers about common schemes. Collaboration between banks, regulators and law enforcement is crucial for effective investigation and prosecution of fraud cases. Enhancements to customer support channels and incentivizing reporting can encourage timely action against fraudulent activities. Regulatory reforms imposing stricter penalties on negligent institutions can drive better fraud prevention measures. Lastly, cybersecurity training for bank staff and crowdsourced fraud detection platforms can further bolster the fight against financial frauds.

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Bank Quest included in UGC CARE List of Journals

The University Grants Commission (UGC) had established a “Cell for Journals Analysis” at the Centre for Publication Ethics (CPE), Savitribai Phule Pune University (SPPU) to create and maintain the UGC-CARE (UGC – Consortium for Academic and Research Ethics). IIBF’s Quarterly Journal, Bank Quest has been included in UGC CARE list of Journals.

Climate Risk - Whether banks are ready for transition

Raiba Spurgeon*

Introduction

In the past 40 years, the proliferation of extreme temperature, droughts and wildfires has more than doubled, amplifying the frequency and ferocity of environmental catastrophes. The incidence of floods and heavy rain has skyrocketed, quadrupling since 1980 and doubling since 2004. Over the last 140 years, global sea levels have surged by 21 to 24 centimetres, with a staggering 10-centimeter surge occurring since 1992 alone. Since 1900, India alone has weathered 756 natural disasters, with a stark escalation in the past two decades. From 1900 to 2000, the country grappled with 402 disasters, whereas, an alarming 354 calamities unfolded in just the last 20 years, marking a staggering 88% surge in comparison.

The Paris Agreement, adopted at the UN Climate Change Conference in 2015 aimed ambitiously to cap global warming at 1.5 degrees Celsius, yet current emissions trajectories paint a bleak picture, with a projected 2.7 degrees Celsius increase by 2100. Meanwhile, economic losses from climate change have soared sevenfold from the 1970s to the 2010s, ballooning from an average of $49 million to a staggering $383 million per day worldwide. Looking ahead, developing countries face a grim outlook, with estimated loss and damage ranging from $290 billion to $580 billion by 2030, a figure set to skyrocket to $1-1.8 trillion by 2050 under the looming spectre of climate change.

Today, there is growing global recognition that climate-related disasters can pose risks to the stability of financial systems. Recently, the World Bank found that over 45 years from 1980 to 2019, severe climate and environmental disaster episodes lead to an increase in the level of system-wide non-performing assets. Over time, climate disasters can pose significant risks to the solvency and profitability of the banking and financial sector. As such, it becomes imperative for banks to include climate risk in their functioning and financing.

The Ripple Effect: Climate Risk Transmission

While we can grasp the immediate impact of shifting weather patterns and the onslaught of more frequent and severe natural disasters, the bulk of potential costs lie far beyond the scope of typical economic analyses. Because of this, quantifying the economic toll of climate change remains an ongoing battle. But what is certain is that the economic ramifications of climate change are poised to accelerate, albeit in a tumultuous manner. Crucially, the extent of this impending devastation hinges on the policy decisions that are made today.

Increasingly, policymakers and investors are awakening to the stark reality of climate change's implications for the financial sector. Climate change

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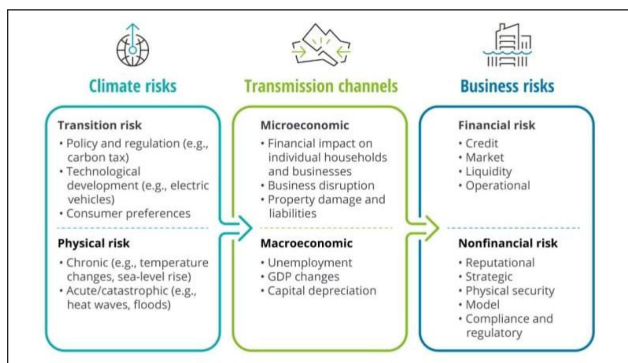
permeates the financial landscape through two primary avenues – physical risks and transition risks (Figure 1). Physical risks stem from damage to property, infrastructure and land. Transition risks are the outcome of shifts in climate policies, technological innovations and shifting consumer and market sentiments amid the transition to a low-carbon economy. Exposures fluctuate dramatically from one nation to the next, lower-and middle-income economies typically bearing the brunt of physical risks.

Figure 1: Climate Risks & Transmission Channels



Source: Deloitte & Touche LLP

For financial institutions, physical risks can materialise both directly and indirectly-directly through their exposure to corporations, households and countries that experience climate shocks and indirectly through the effects of climate change on the wider economy and its after effects within the financial system. Such exposures breed heightened default risks in loan portfolios and asset devaluation. It is possible that in times to come, rising sea levels and an uptick in extreme weather occurrences can result in losses for homeowners and a depreciation of property values, thereby, amplifying the risks within mortgage portfolios. The situation extends to corporate credit portfolios and is demonstrated by the "climate-change bankruptcy" of Pacific Gas and Electric (PG&E), California's largest utility. Swift climatic shifts, including prolonged droughts in California, propelled the risk of wildfires from Pacific Gas and Electric's operations. PG&E's bankruptcy serves as a stark reminder of the genuine economic and financial perils confronting companies and investors amidst shifting climate.

Insurers and reinsurers face significant physical risks on their asset side but liabilities also pose considerable threats as insurance policies yield claims with greater frequency and severity than initially projected. Evidence suggests that losses stemming from natural disasters are already on the rise, potentially rendering insurance costlier or inaccessible in vulnerable regions worldwide. The writing on the wall is clear-insurance may morph into a luxury or, worse still, become altogether unattainable in regions most imperilled by climate change.

Transition risks emerge as a threat to the asset side of financial institutions, exposing them to potential losses due to their exposure to companies operating with business models incompatible with low carbon emissions. In a world increasingly shifting towards a low-carbon economy, fossil fuel companies face the risk of being left with stranded assets, rendering their reserves unusable. Such firms may witness dwindling earnings, operational disruptions and heightened funding costs driven by policy interventions, technological advancements and growing pressures from consumers and investors to align with climate change mitigation policies. For instance, coal producers are already contending with existing or anticipated regulations aimed at reducing carbon emissions, leading several major banks to pledge against financing new coal ventures. The

stock prices of US coal mining companies reflect this "carbon discount" alongside increased financing expenses, resulting in underperformance compared to companies investing in clean energy assets. Moreover, risks may manifest throughout the broader economy, particularly, if the transition to a low-carbon economy occurs suddenly due to past inaction, is inadequately planned or encounters challenges in global coordination. The domino effect of such risks can reverberate across sectors, can disrupt economies globally and can plunge international trade into disarray.

Sustainable Finance Reporting: Opportunities and Challenges

As the regulatory pressure for incorporating climate change policies grows and stakeholders demand greater accountability, banks find themselves at a pivotal point. Sustainable finance reporting standards offer banks the opportunity to bolster their risk management practices, enhance financial performance and foster transparency, all while making a tangible difference in the fight against climate change. For financial institutions, embracing sustainable finance reporting standards is not just a box to tick, it is a game-changer that can revolutionize the banking landscape and provide a plethora of benefits (Figure 2).

Figure 2: Opportunities in Sustainable Finance Reporting

Source: Greenomy

- ***Improved Risk Management and Long-Term Financial Performance***

  By integrating additional financial indicators into their risk management frameworks, banks can gain an eagle-eyed view of ESG risks and opportunities. This means banks will have reduced exposure to environmental and social risks, safeguarding both their bottom line and the planet. Additionally, by identifying sustainable investment opportunities with precision, banks can boost their financial performance while staying true to their values.

- ***Development of Innovative Products and Services***

  By rolling out innovative sustainable finance products like green bonds and sustainability-linked loans, banks can move past their competitors who offer only traditional products. These offerings not only cater to ESG-conscious clients but also help in tapping into new markets while making a meaningful impact.

- ***Enhanced Transparency and Accountability***

  By leveraging regulatory standard definitions of sustainability matters, banks can effectively mitigate the reputational risks associated with greenwashing scandals and redirect their focus towards their core business objectives. This approach not only safeguards the integrity of their brand but also instils confidence among stakeholders, including customers, investors and regulators. By adhering to recognized sustainability standards, banks demonstrate a genuine commitment to responsible practices, earning trust and credibility in an increasingly discerning market. This, in turn, fosters long-term relationships and sustains their competitive advantage in an evolving financial landscape.

- ***Competitive Advantage and Differentiation***

  The strategic alignment with sustainable finance principles enables banks to cultivate a loyal customer base, including younger generations increasingly attuned to environmental and social issues, who expect financial institutions to mirror their values. This proactive approach not only unlocks new revenue streams but also facilitates the expansion of market share. Additionally, embracing sustainable finance practices serves as a magnet for sustainability-conscious talent, a crucial factor in bolstering banks' future competitiveness.

- ***Improved Access to Capital***

  By embracing sustainable finance reporting standards, banks effectively showcase their endeavours to embed ESG considerations across their business operations, risk management practices and investment decision-making processes. This enhances transparency and instills trust and credibility with investors and lenders, consequently, improving access to capital at more favourable rates.

- ***Alignment with Global Sustainable Development Goals***

  Aligning with the Sustainable Development Goals (SDGs) enables banks to showcase their dedication to foster a more sustainable future and underscores their pledge to advancing these universal objectives. These standards furnish banks with lucid and actionable guidance on how they can actively contribute to the attainment of these goals through sustainable funding and investments, all the while mitigating their exposure to unsustainable activities. Moreover, by championing the realization of the SDGs, banks assume a pivotal role in facilitating a just transition towards achieving Net Zero emissions.

Today, sustainable finance reporting standards and frameworks like the EU Taxonomy, the Corporate Sustainability Reporting Directive (CSRD) and the International Sustainability Standards Board (ISSB) are gaining momentum, offering banks a chance to showcase their dedication to sustainability while reaping myriad benefits. Embracing these reporting standards is not just a symbolic gesture; it is a strategic move that can bolster risk management, supercharge financial performance and elevate transparency to unprecedented levels. However, adopting these standards comes with its own challenges.

- ***Data Collection and Management***

  Banks and Financial Institutions (FIs) must become capable of deciphering and reporting on a plethora of client data points to prove their compliance with the standards. However, this demands hefty investments in cutting-edge technology, robust data management systems and the painstaking development of internal policies and procedures. For instance, the EU Taxonomy requires banks to indicate the portion of their financing that aligns with the taxonomy's sustainable activities. This means diving deep into the economic activities of clients, identifying what qualifies as environmentally sustainable and tallying up the loans or investments that fund these activities. It is a huge task, especially for smaller borrowers who may not have the luxury of sophisticated data management systems.

- ***Compliance***

  Compliance with sustainable finance reporting standards demands the establishment of robust governance practices that involve designing and implementing new processes and deployment of state-of-the-art tools that is both time consuming and expensive. Additionally, because

the reporting standards keep evolving, failure to be on track can lead to reputational damage, regulatory fines and even a loss of sustainability-driven clients.

- ***Reporting Implementation***

  The complexity and speed at which sustainability stands evolve makes its implementation a tiresome task for financial market players. The scarcity of experts with the requisite knowledge and the absence of fool-proof solutions to address the amount of information required for reporting are also some of the challenges in implementation. Beyond just collecting and managing data, banks are forced to overhaul their reporting procedures and have to set up systems and tools capable of automating reporting with surgical precision. In essence, it is a race against time, where only those armed with the right expertise, tools and determination can step up to take action.

Credit Risk in a Changing Climate

By transforming their practices, the banking industry has the potential to spearhead the charge against climate change. There are substantial opportunities for them to not only play a pivotal role in advancing the transition to carbon-neutral endeavours, but also to profit from practices that include clean energy generation, clean energy storage and carbon capture technologies. On the flip side, studies indicate that although numerous banks have acknowledged the influence of climate change on their operations, the majority have yet to quantify its impact on their financing portfolios. This suggests that most banks may be undervaluing their vulnerability to climate-related risks. However, world over, the regulatory push for banks to address financial risks linked to climate change is intensifying.

Given the likelihood of climate risk affecting every phase of the credit lifecycle, incorporating climate risk metrics into credit risk management stands as an essential first step toward achieving both robust risk management and a carbon-neutral future. Banks must aim at overhauling their credit risk lifecycle by reorienting credit business strategies; re-evaluating the markets, segments and clientele they serve; the spectrum of products they offer; and the innovative solutions they bring to market. Given that climate risk is poised to infiltrate every facet of the credit lifecycle, integrating climate risk metrics into credit risk management represents a colossal undertaking for most banks, yet it is an imperative stride toward effective risk mitigation and a carbon-neutral future. In its report titled 'Embedding Climate Risk into Banks' Credit Risk Management', Deloitte Center for Financial Services provides a practical roadmap for inclusion of climate risk into the credit lifecycle. The roadmap outlined below is based on current practices of banks as well as improvements that can be made in their credit operations, as a means towards maximising outcomes in a climate-driven environment of financing (Figure 3).

Figure 3: Climate Risk in Credit Lifecycle

Source: Deloitte & Touche LLP

- ***Taxonomy, Strategy and Products***

  Banks need to initiate a comprehensive taxonomy

to map out climate risks and their transmission channels. This entails understanding the macroeconomic implications, capital devaluation and evolving consumer preferences stemming from climate change. By employing scoring systems grounded in emissions or other pertinent metrics, banks can visualize the magnitude of each risk through heatmaps. This allows for insights across various dimensions, including industries, geographic locations and client demographics. Subsequently, banks can align their credit business strategies with appropriate risk appetites, credit risk processes and policies. This alignment involves accelerating product innovation to incorporate climate risk considerations and transitioning toward decarbonizing portfolios. For instance, expanding green-lending offerings, such as green mortgages, incentivizes energy efficiency measures among borrowers.

- ***Origination of Credit***

  Assessing climate risk requires in-depth analysis, especially concerning sector concentration and regional exposure. Banks need to intensify due diligence processes, which includes requesting additional data from clients to understand energy consumption, supply chains and emissions data. Today, some banks across the globe are formalizing strategies to cease financing ventures that harm biodiversity. However, striking a balance between gathering necessary information and not overly burdening clients poses a significant challenge. Relationship managers may lack the expertise to effectively communicate the bank's strategy or identify suitable product offerings. Hence, extensive engagement with high-emission clients is crucial, along with collaboration between credit risk departments and other units to prioritize deals mitigating climate risk.

- ***Credit Underwriting***

  Banks are increasingly developing standalone climate risk scores tailored to individual borrowers. These scores assess exposure to both physical and transitional risks posed by climate change, alongside resilience and mitigation efforts. However, given the technical nature of these assessments, banks may need to recruit specialists with scientific expertise in climate patterns. Innovative technological tools aid in risk assessment, allowing for a more comprehensive understanding of each client's climate risk profile. For instance, big data analytics can identify non-disclosing companies and group them into carbon clusters based on their carbon intensity levels. Some banks are also implementing shadow rating systems in their credit underwriting process, to assess climate-related default probabilities.

- ***Collateral Management***

  Regulatory bodies are advocating for encouraging the integration of climate risk assessments into collateral policies. However, aligning long-term climate change scenarios with loan commitments poses challenges. Banks need to collaborate with counterparties to hedge climate risk effectively. Exploring opportunities to partner with insurance firms and other entities to develop derivative contracts tailored for climate risk mitigation is also essential here.

- ***Portfolio Management***

  Continuous monitoring and innovation in methodologies are essential for quantifying climate

risk in credit portfolios. Techniques such as negative screening, limiting exposure to high-risk sectors and implementing automatic vetoes on credit granting processes in the presence of environmental protection concerns need to be employed by banks. To reconcile the "duration inconsistency" between the longer-term horizon of climate change effects and the shorter-term duration of loan portfolios, banks have to adapt macroeconomic stress tests, as a means of assessing climate risks. Additionally, considering the accelerated emergence of climate risks with shorter-term implications, greater analysis of borrower and counterparty behaviour is to be incorporated.

- ***Default Management***

  Managing defaults influenced by climate risks requires adaptation in recovery processes and data management. Banks should incorporate data on late and default payments resulting from climate change into credit risk appraisals to avoid underestimating risks. While an understanding of root causes for defaults and assessing whether climate is a crucial factor, banks should also be equipped to refine processes for monitoring credit portfolio performance and management of covenants, payments, limits and concentration risks and breaches.

- ***Reporting and Disclosure***

  Regulators are increasingly demanding detailed disclosures of climate-related risks and opportunities. Standard-setters like the Sustainability Accounting Standards Board (SASB) and the Global Reporting Initiative (GRI) offer guidance on environmental reporting. The Sustainable Finance Disclosure Regulation (SFDR) mandates sustainability categorization for financial products in Europe. Compliance with sustainability-linked covenants is essential for banks committed to net-zero ambitions. These covenants aim to incentivize improved corporate behaviour and environmental performance through indicators like energy-efficient infrastructure or the transition to renewable energy sources.

Embedding climate risk into banks' credit risk management framework is a challenging endeavour, but it is becoming increasingly essential in driving the transition to a net-zero economy. By starting with credit and lending operations and expanding implementation of such strategies across all segments of its operations, banks can empower themselves to navigate the challenges posed by climate change and ensure the sustainability of their operations in the long run.

India's Climate Action Plan

India stands at a critical juncture in its development trajectory, facing the dual challenge of economic growth and environmental sustainability. While India is yet to adopt a formal taxonomy, the Reserve Bank of India (RBI) recently unveiled draft guidelines, aimed at establishing a framework for regulated entities to manage climate-related financial risks effectively. This initiative is indicative of the growing recognition of the potential impact of climate change on the financial sector. In its 2022-23 Report on Currency and Finance, the Reserve Bank of India detailed the various policy initiatives taken up by the country as it endeavours to transition to a greener and cleaner economy. The various initiatives are as follows:

- ***Fiscal Policy Initiatives***

  Fiscal policy plays a crucial role in facilitating the transition to a low-carbon economy by reallocating resources from carbon-intensive to green industries. Green fiscal policy employs

instruments such as taxes, subsidies, grants and expenditures to align fiscal policy with climate and environmental goals. India's Union Budget 2023-24 prioritizes "Green Growth," introducing measures such as infrastructure development for renewable energy, the Green Hydrogen Mission and schemes promoting waste management, alternative fertilizers, mangrove plantation and wetland conservation. The country is also exploring carbon pricing mechanisms to incentivize emission reductions and fund green projects. Carbon taxes and emissions trading schemes are also being considered to internalize the environmental costs of carbon emissions.

- ***Innovation and Technology Adoption***

  Government play a pivotal role in fostering innovation and diffusion of green technologies through R&D investment, supportive policies and creating conducive environment for green innovation. India has made strides in adopting sustainable energy solutions such as solar-powered infrastructure, mass transit systems, smart grids and initiatives like the Faster Adoption and Manufacturing of Hybrid Electric Vehicles (FAME India) scheme. India's Long-Term Low Greenhouse gas Emission Development Strategies (LT-LEDS) further highlights its commitment to a low-carbon future. Additionally, India's Smart Cities Mission promotes the use of technology and innovation to improve urban infrastructure, reduce emissions and enhance sustainability in cities.

- ***Trade Policy***

  International trade can facilitate diffusion of green technologies and improve carbon efficiency through measures such as promoting green energy products in regional trade agreements and setting environmental standards and eco-labelling requirements. India has been advocating for the inclusion of green and clean energy products in regional trade agreements. The country is also exploring the adoption of environmental quality standards and eco-labelling schemes to incentivize sustainable production and consumption practices in international trade.

- ***Regulatory Measures***

  Regulatory frameworks aim to make financial institutions resilient to climate risks and incentivize investments in technologies conducive to a low-carbon economy. The Reserve Bank of India has initiated measures to incorporate climate risk into financial regulations, including disclosure frameworks, climate scenario analysis and stress testing. India's Corporate Social responsibility (CSR) legislation also guides businesses toward environmentally responsible practices.

- ***Market-based Solutions***

  Market forces are increasingly driving sustainability initiatives, with investors and firms aligning strategies with Environmental, Social, and Governance (ESG) principles. Private equity firms are integrating ESG factors into investment decisions and Indian companies are matching ESG concerns with actions to support the green transition, reflecting a growing recognition of the link between ESG performance and long-term sustainability.

- ***Monetary Policy***

  Central banks play a crucial role in addressing climate change through monetary policy operations and frameworks. While some central banks have explicitly incorporated climate

considerations into monetary policy, others remain cautious to avoid diluting their primary mandates. Green quantitative easing, which directs central bank asset purchases toward low-carbon sectors and collateral policies for accessing liquidity are among the monetary policy tools being explored by India to promote green finance. Digital currency systems can be more energy-efficient than traditional payment methods and promote sustainable financial practices. As such, India's CBDC initiative aims to reduce the environmental footprint of currency production and transactions.

- ***Nudging Behavioural Change***

  Behavioural change is essential for mitigating climate change, including responsible consumption, circular economy practices and sustainable resource management. India's Mission LiFE aims to nudge individuals and communities toward environmentally sustainable lifestyles for adopting low-carbon products and practices.

Role of Indian Banks in Climate-Resilient Finance

In recent years, the discourse around climate change has evolved from being solely an environmental concern to a critical financial risk. Indian banking, a cornerstone of the country's economy, is increasingly recognizing the need to address climate-related risks in its operations. As the effects of climate change become more pronounced, the banking sector in India is waking up to the reality that ignoring these risks could have significant implications for financial stability.

A 2022 report released by think tank Climate Risk Horizons (CRH) sheds light on the challenges facing Indian banks regarding climate risk. The report titled 'Unprepared: India's Big Banks Score Poorly on Climate Challenge' evaluates the climate risk readiness of the top 34 banks in India based on market capitalization. The findings are stark-while some banks have taken steps to address climate risk, the majority have yet to incorporate climate considerations into their business strategies. One of the key findings of the CRH report is that most Indian banks have not begun to factor climate change into their operations. This includes the lack of mechanisms to address both physical risks, such as those caused by extreme weather events and transition risks such as policy changes and technological advancements. Additionally, the report highlights the absence of robust scenario analyses to test banks' resilience to climate-related changes.

While the report highlights the importance of proactive measures by banks to mitigate climate-related risks, it also finds that only a few banks in India have policies in place to exclude lending to entities involved in activities such as deforestation and human rights violations. Additionally, while some banks have issued green loans and financing towards climate change mitigation and adaptation, there is a need for broader adoption of sustainable finance practices across the sector. The findings of the report call for urgent action from Indian banks to address climate risk. The consequences of inaction could be severe, not only for banks themselves but also for the broader economy.

Recognizing the need for action, the Reserve Bank of India has taken steps to address climate-related risks in the banking sector. In February 2024, the RBI presented draft guidelines on the disclosure framework for climate-related financial risks. These guidelines aim to provide regulated entities with a framework to assess and manage climate risks effectively. By promoting transparency and accountability, the RBI seeks to enhance the resilience of banks to climate-related shocks.

However, in reality, addressing climate risk in Indian banking requires a collective effort from all stakeholders. Banks, regulators, policymakers and industry bodies must collaborate to develop comprehensive strategies for climate resilience. This includes incorporating climate risk considerations into risk management frameworks, enhancing climate-related disclosures and promoting sustainable finance practices. In addition to regulatory initiatives, there is also a growing recognition among investors and customers of the importance of climate risk management. Banks that proactively address climate risk are likely to attract investment and build trust with customers who prioritize sustainability.

Looking ahead, Indian banks must prioritize climate risk management as a strategic imperative. By integrating climate considerations into their operations, banks can not only mitigate financial risks but also contribute to India's transition to a more sustainable and resilient economy. The responsibility now squarely rests on the shoulders of India's banks to not only be prepared but to take the lead in championing and facilitating the execution of transformative initiatives.

- ***Crafting a Transition Plan***

  Indian banks must spearhead the development of a robust transition plan to navigate the risks associated with climate change and to embrace green finance opportunities. The discourse within the banking sector is evolving beyond mere investment in renewables to encompass broader discussions on supporting the decarbonization of heavy industries. This shift aligns with the global trend of accelerating the transition to net zero, which is increasingly being prioritized by financial regulators worldwide. For instance, the UK's Financial Conduct Authority (FCA) has taken proactive steps by launching the Transition Plan Taskforce and preparing mandatory disclosure rules on transition plans. Indian banks can-not afford to lag behind in adopting such proactive measures. Strengthening disclosure requirements for transition bond issuers by the Securities and Exchange Board of India (SEBI) in early 2023 and those recently issued by RBI, reflects the impact of global trends on the Indian financial landscape.

- ***Embracing Low-Carbon Technologies***

  Bankers need to deepen their understanding of emerging low-carbon technologies and investment opportunities to drive India's decarbonization efforts. Achieving India's net-zero target requires swift financing of innovative technologies such as electric vehicles, green hydrogen, battery storage, and low-carbon steel. While these technologies may seem risky due to their lack of commercial scale in India, experts from the country's climate research institutes can provide invaluable insights into technology readiness, India-specific credit risks and opportunities for financing. Indian banks must proactively engage with these experts to seize the opportunities presented by the transition to a low-carbon economy.

- ***Leveraging Partnerships and Blended Finance***

  Collaboration and innovation are key to address the transition risks effectively. As recommended by the Reserve Bank of India (RBI), banks should leverage partnerships and blended finance mechanisms to fund climate projects. Collaborating through industry bodies like the Indian Banks' Association (IBA), banks can develop guidelines for funding

climate projects, instilling confidence among investors and broadening climate investments as India's Sustainable Finance Taxonomy evolves. Moreover, the G20 expert group's recommendation to engage domestic banks using blended finance instruments is a strategic approach to attract private capital. By combining Indian domestic bank debt with concessional finance, banks can scale up blended finance initiatives, as demonstrated by the World Bank's concessional loan to the State Bank of India for financing rooftop solar systems.

- ***Building Expertise and Capacity***

  As banks gear up to address climate risks, investing in human capital is paramount. Establishing dedicated Environmental, Social, and Governance (ESG) and climate teams and upskilling frontline employees are crucial steps in this direction. Leveraging market-tested resources and best practices from global initiatives like the Net-Zero Banking Alliance can provide valuable insights and guidance to Indian bankers. Additionally, establishing sustainability risk committees and ensuring compliance with reporting guidelines are essential for aligning banking operations with sustainable finance principles. As India's largest corporates commit to net zero, banks must swiftly build expertise to meet the growing demand for green finance services, lest they lose out to foreign lenders and non-bank financial institutions.

In essence, Indian banks have a pivotal role to play in addressing climate-related risks and seizing the opportunities presented by the transition to a sustainable economy. By adopting proactive measures, fostering innovation and building expertise, Indian banks can position themselves as leaders in driving India's transition to a low-carbon future.

Navigating Climate Risks in Banking Policy: Road Ahead

Greenwashing, the deceptive practice of presenting a green image while engaging in environmentally harmful activities, remains a persistent challenge within the banking and financial services industry. Recent reports reveal a concerning uptick in instances of greenwashing globally, with European financial institutions notably implicated. According to data from ESG data firm RepRisk, there was a staggering 70% increase in instances of greenwashing by banks and financial services companies in 2023 compared to the previous year. The surge in greenwashing practices highlights the critical need for greater transparency and accountability within the sector.

The yearly Conference of the Parties (COP) are crucial for setting international climate policy and agreements, including finance-related actions. At the COP26, the Net-Zero Banking Alliance made a ground-breaking pledge to align greenhouse gas emissions from lending and investment portfolios with pathways to net-zero by 2050 or sooner. However, concerns persist regarding the lack of concrete action from central banks, particularly in light of the climate crisis (Figure 4). Despite growing pressure to address environmental risks, some central banks remain hesitant to prioritize climate action, citing competing priorities such as inflation management. This reluctance highlights the intricate relationship between banking policy and public policy, where the decisions of central banks have far-reaching implications for global efforts to combat climate change.

Figure 4: Green Central Banking Scorecard 2022 G20 Countries ranked by Green Monetary and Financial Policies

Rank		Country	Research and Advocacy (out of 10)	Monetary Policy (out of 50)	Financial Policy (out of 50)	Leading by Example (out of 20)	Aggregate Score (out of 130)	Grade (A+ to F)
1 (1)	-	France	10	12	31	17	70 (52)	B-
2 (6)	↑	Italy	10	12	31	8	61 (45)	C+
3 (7)	↑	Germany	10	12	30	8	60 (44)	C+
4 (4)	-	European Union	10	12	28	8	58 (47)	C
5 (5)	-	United Kingdom	10	10	27	9	56 (46)	C
6= (2)	↓	Brazil	10	18	18	7	53 (51)	C
6= (3)	↓	China	10	12	31	0	53 (50)	C
8 (9)	↑	Japan	10	6	14	5	35 (25)	D+
9 (8)	↓	Indonesia	10	1	14	5	30 (26)	D+
10 (14)	↑	Canada	10	2	14	2	28 (15)	D
11= (11)	-	Mexico	10	4	4	5	23 (17)	D
12 (10)	↓	India	10	0	10	1	21 (18)	D
13 (11=)	↓	South Korea	10	1	6	2	19 (17)	D-
14 (16)	↑	Russia	8	0	8	2	18 (12)	D-
15 (13)	↓	Australia	10	0	4	3	17 (16)	D-
16 (14=)	↓	United States	10	0	6	0	16 (15)	D-
17 (18)	↑	Turkey	10	0	2	2	14 (4)	D-
18 (17)	↓	South Africa	10	0	2	1	13 (10)	D-
19 (19=)	-	Argentina	6	0	0	0	6 (0)	F
20 (19=)	↓	Saudi Arabia	0	0	0	0	0 (0)	F

Source: PositiveMoney

While COP27 was marked by last-minute disputes over technical details regarding the phase-down of fossil fuels, COP28 in Dubai achieved some notable advancements, such as commitments to replenish the Green Climate Fund and triple global renewable energy capacity. However, its failure to reach a comprehensive agreement on phasing out fossil fuels and establishing a global carbon tax, which experts believe is necessary to effectively combat climate change. According to the International Energy Agency (IEA), global energy-related CO2 emissions grew by 0.9% or 321 million tonnes in 2022, reaching a new high of over 36.8 gigatonnes. This data underscores the urgency of transitioning away from fossil fuels and investing in sustainable energy alternatives. The absence of decisive action on fossil fuels demands a re-evaluation of investment strategies within the financial sector.

Looking ahead, the financial sector's role in combating climate change has never been more crucial. Central banks and financial regulators must prioritize research, advocacy and proactive measures to manage environmental risks effectively. Monetary policy frameworks should be expanded to incorporate green lending facilities and negative screening for environmentally harmful activities. Financial institutions should be held accountable for aligning their operations with the Paris Agreement and environmental goals. It is imperative for Government to collaborate closely with the banking sector to enact policies that facilitate the transition to a low-carbon economy.

In conclusion, the journey toward climate resilience in the banking sector is fraught with opportunities as well as challenges. From navigating sustainable finance reporting standards to grapple with the implications of COP conferences, banks find themselves at the forefront of the battle against climate change. The path to sustainability demands proactive measures, innovative strategies and unwavering commitment from financial institutions worldwide. While initiatives like the Net-Zero Banking Alliance and commitments at COP conferences offer hope for progress, issues related to transmission risks, greenwashing and the absence of universal agreements loom large. The imperative for banks to align their policies with global climate goals becomes ever more urgent. Whether banks are truly prepared to mitigate climate risks and champion a greener future remains to be seen, but one thing is clear - the readiness of banks to effectively manage climate risks will not only define their own resilience but also shape the trajectory of global sustainability efforts for generations to come.

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A Deep Dive into Credit Risk and Default Prediction Technologies

Rupinder Kaur Sodhi*

In the complex world of finance, the assessment and management of credit risk stand as important elements in maintaining the stability and profitability of lending institutions. Credit risk, the possibility that a borrower will default on their financial obligations, has far-reaching implications not only for individual entities but also for the global economy. The history of financial markets is peppered with instances where inadequate credit risk management led to dire consequences, highlighting the critical need for accurate prediction and mitigation strategies. From the savings and loan crisis of the 1980s to the subprime mortgage debacle in 2008, the financial sector has learned hard lessons about the importance of vigilant credit risk assessment.

This article aims to navigate through the evolving landscape of credit risk and loan default prediction, tracing the journey from traditional methodologies to the cutting-edge innovations of today. We may learn a great deal from the mistakes made in the past about the limitations of previous methods and the motivation behind the development of more advanced predictive models.

With the advent of big data, analytics and artificial intelligence, the field of credit risk management is on the cusp of a new era. These technologies offer the promise of more accurate risk assessment, potentially safeguarding against the kind of oversights that led to historical financial crises. Our exploration will not only highlight the current state-of-the-art techniques employed by banks but also speculate on future trends and innovations that may redefine what is possible in credit risk prediction.

Understanding the Credit Risk

At its core, credit risk involves the possibility that a lender may not receive the owed principal and interest, which in turn, leads to disrupted cash flows and increased costs for capital. This risk is inherent in any lending agreement, from personal loans and credit cards to corporate bonds and mortgages. The stakes of effectively managing this risk are high, as failures can lead to significant financial losses and in extreme cases, the collapse of financial institutions.

Types of Credit Risk

- *Credit Default Risk:* The risk of loss arising from a borrower failing to make payments as agreed upon. It is the most straightforward type of credit risk and the primary focus of loan default prediction models.
- *Concentration Risk:* Arises from any single exposure or group of exposures with the potential to produce losses large enough to threaten a financial institution's health or ability to maintain its core operations.
- *Country Risk:* Involves the risk that country-specific economic, political or social events will affect a borrower's ability to meet its financial obligations.

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- *Counterparty Risk:* The risk that the other party in an agreement will default on its contractual obligation before the expiration of the contract, which is a particular concern in derivatives markets.

Impact of Credit Risk on Financial Institutions

The implications of credit risk extend beyond individual loans, affecting the financial health and operational stability of lending institutions. High levels of credit risk can lead to loan losses that deplete capital reserves, necessitating increased borrowing costs and impacting profitability. Moreover, the regulatory capital that banks must hold against potential losses ties up resources that could otherwise be deployed more productively.

The impact of credit risk on financial institutions has become increasingly complex, especially in the wake of the COVID-19 pandemic, which has dramatically altered the landscape of credit risk management. Before the pandemic, financial institutions relied on conventional sources of data for credit-risk assessments, such as historical financial performance and repayment histories. However, the pandemic's onset rendered such data nearly obsolete, highlighting the need for high-frequency, real-time data to evaluate borrower's resilience effectively. The sudden economic downturn exposed many borrowers to unprecedented levels of debt, challenging banks' ability to predict loan defaults accurately under traditional models.

Financial institutions have historically depended on credit-related assets for a significant portion of their total revenues, approximately 40%. However, credit-related costs, including provisions and write-offs, constitute a considerable fraction of expenses. This financial balance underscores the critical importance of managing credit risk effectively, not only to maximize returns but also to minimize costs and sustain value, especially during periods of market volatility. Advanced analytics and optimization of credit processes can substantially reduce operating expenses and risk costs, thereby, improving customer experience in the process.

In summary, the changing dynamics of the global economy, exacerbated by the COVID-19 crisis, have illustrated the vital importance of agile, data-driven credit risk management practices. Financial institutions are now tasked with integrating real-time analytics, reassessing traditional credit assessment models and navigating new regulatory and economic challenges to manage credit risk effectively.

In India, financial institutions use the Ind-AS 109 model for credit loss accounting, aligned with the global International Financial Reporting Standards (IFRS) 9 standard. The Ind-AS 109 model, aligning with the global IFRS 9 standard, was developed in response to the 2008 financial crisis. It aims to provide more accurate reflection of credit risk by requiring the recognition of expected credit losses from the inception of a financial instrument, rather than waiting for a loss event to occur. It emphasizes assessing credit risk at initial recognition and throughout the financial instrument's life, necessitating collaboration between risk, finance and IT departments for effective implementation. The transition to Expected Credit Loss (ECL) under Ind-AS 109 is data-intensive, requiring historical data and a robust validation process for the models used in ECL computation.

Traditional Credit Risk Assessment Methods

Historically, credit risk assessment relied heavily on financial statement analysis, credit scoring models and the expertise of credit analysts. These methods focus on evaluating the borrower's repayment ability based on past financial behaviour, current indebtedness and economic conditions. However, as we will explore, these traditional approaches have limitations, especially in the face of complex and modern financial ecosystems.

Learning from the Past - Failures in Credit Risk Prediction

The journey towards refining credit risk prediction methods is paved with lessons from past failures. These episodes offer invaluable insights into the complexity of financial markets and the challenges of accurately predicting loan defaults. By examining these failures, we can better understand the limitations of traditional prediction models and the necessity for innovation.

Notable Failures in Credit Risk Prediction

- *The Subprime Mortgage Crisis (2007-2008):* At the heart of the 2008 financial crisis was a massive underestimation of credit risk associated with subprime mortgages. Financial institutions and rating agencies relied on historical data and conventional risk assessment models, which failed to account for the bubble in housing prices and the innovative, but ultimately risky, financial products being offered. The collapse of the housing market exposed the fragility of these models, leading to widespread defaults and significant losses for lenders and investors alike.
- *The Savings and Loan Crisis (1980s):* This crisis was partly attributed to poor credit risk management among savings and loan associations. Deregulation allowed these institutions to engage in more commercially risky activities, including speculative real estate lending, without a corresponding enhancement in risk assessment capabilities. Many savings and loans failed to adequately assess the risk of their investments, resulting in a wave of defaults and financial institution collapses.

Lessons Learned

From these failures, several key lessons emerged:

- *The Importance of Stress Testing and Scenario Analysis:* Stress testing of a financial institution's portfolio against extreme but realistic events has become increasingly important. This practice helps in identifying potential vulnerabilities before they lead to crisis.
- *Diversification:* Over concentration of loans in specific sectors was a contributing factor to both crises. Diversification across borrowers, industries and loan types is now recognized as a fundamental risk management strategy.
- *The role of Regulation:* Both crises underscored the need for robust regulatory oversight to ensure that financial institutions maintain adequate capital reserves and follow sound lending practices. Regulations such as Basel III were developed in response to these lessons.
- *Innovation in Risk Prediction Models:* There is a continuous push for innovation in credit risk assessment models to better capture the nuances of borrower's behaviour and broader economic trends. This has led to the adoption of more sophisticated data analytics and machine learning techniques.

Moving Forward

The past failures in credit risk prediction have acted as a catalyst for change, leading to innovations in risk assessment methodologies and technologies. As we delve into the current state of credit risk management, it is clear that the lessons learned from these failures have been instrumental in shaping more resilient financial institutions and more accurate prediction models.

Credit Risk Modelling: Key Components

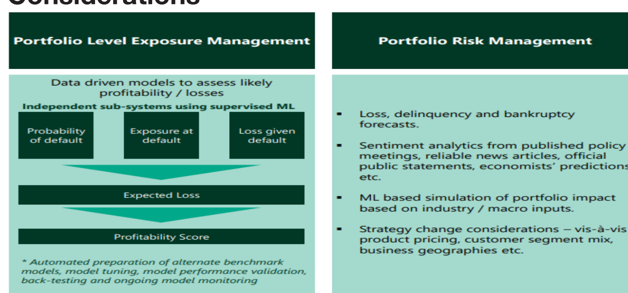
Credit risk modelling, a crucial aspect of financial risk management, employs statistical methods

and analytics to predict the likelihood of borrowers defaulting on their obligations. This model is underpinned by three essential components:

- *Probability of Default (POD):* This measures the likelihood that a borrower will default on a loan within a specified time period. It is a critical indicator of credit risk, helping financial institutions to manage and price the risk associated with lending.
- *Loss Given Default (LGD):* LGD estimates the amount of loss a lender faces if a borrower defaults, after accounting for the recovery of any collateral. It is expressed as a percentage of the total exposure at the time of default.
- *Exposure at Default (EAD):* EAD quantifies the total value exposed to loss at the time of default, incorporating the outstanding balance and potential future credit extended to the borrower.

Each component plays a vital role in the comprehensive assessment and management of credit risk, enabling lenders to make informed decisions and set aside appropriate capital reserves to cover potential losses.

Figure 1: Loan Portfolio Management Considerations



Source: Infosys.com

Loan Default Prediction - Traditional Methods

In the aftermath of financial crises and the valuable lessons learned, the financial industry sought to refine its approach to predict the loan defaults. Traditional methods, though once the cornerstone of credit risk assessment, have evolved, blending historical insights with newer and more dynamic models. Here, we explore these traditional approaches, their benefits and inherent limitations.

Overview of Traditional Prediction Methods

Traditional loan default prediction methods primarily rely on financial data and historical repayment behaviours to assess credit risk. Some of the key methods are mentioned below:

- *Credit Scoring Systems:* Perhaps the most widely used, credit scoring systems like Fair Isaac Corporation (FICO) scores or the more popular ones used in India like Credit Information Bureau (India) Limited (CIBIL), Experian, Equifax etc. aggregate financial data, including credit history, loan amounts owed and payment histories, to assign a score to potential borrowers. Higher scores indicate lower risk.
- *Financial Statement Analysis:* This involves a detailed examination of a borrower's financial statements, assessing liquidity, profitability and leverage ratios to gauge creditworthiness.
- *Expert Judgment:* Lending decisions, especially in the commercial and corporate sectors, often incorporate the expert judgment of credit analysts. These professionals evaluate a borrower's financial health, industry position and even managerial competence to make lending decisions.

Advantages of Traditional Methods

- *Simplicity and Familiarity:* Traditional methods are straightforward and widely understood,

making them accessible to a broad range of financial institutions.

- *Proven Track Record:* Years of application have provided a wealth of data on the effectiveness of these methods, allowing for incremental improvements over the time.

Limitations and Challenges

- *Lack of Flexibility:* Traditional methods often struggle to adapt to rapid changes in economic conditions or borrower's behaviour, as they rely heavily on historical data.
- *Data Limitations:* These methods may not fully capture the complexity of a borrower's financial situation, especially for small businesses or individuals with limited credit history.
- *Overreliance on Qualitative Data:* Traditional models can overlook qualitative factors, such as industry trends or management quality, that may significantly impact a borrower's credit risk.

Case Study: The Dotcom Bubble Burst

A poignant example of the limitations of traditional credit risk prediction methods can be seen in the dotcom bubble burst in the early 2000s. The Dotcom Bubble burst was due to excessive speculation and investment in Internet-based companies. During the late 1990s, investors were eager to invest in any company associated with the internet, leading to inflated stock prices and unsustainable market valuations. Many of these companies, despite lacking solid business models or revenue, went public with high initial stock prices. When it became apparent that expectations of rapid growth were unrealistic, investor's confidence plummeted, resulting in a massive sell-off of tech stocks and the collapse of many dotcom companies.

The growth expectations during the Dotcom Bubble were unrealistic because they were based on the assumption that traditional business metrics (like profitability and cash flow) could be ignored in favour of rapidly increasing market share. Many believed that continuous investment and growth in internet-related businesses would indefinitely lead to profits, overlooking the importance of sustainable business models and actual revenue generation. This resulted in exaggerated valuations that were not supported by the fundamental business success, which caused the bubble to burst.

The Role of Big Data and Analytics in Credit Risk Assessment

The digital era has ushered in a huge volume of data, offering new insights into consumer behaviour, economic trends and financial risk. Big data and analytics have become pivotal in credit risk management, enabling institutions to harness complex datasets to make more informed lending decisions.

Big Data in Credit Risk Management

Big data refers to the vast quantity of structured and unstructured data. In credit risk management, this data encompasses traditional financial metrics, social media activity, transaction history and even geographical information. The comprehensive nature of this data provides a more refined view of a borrower's financial health and potential risk factors.

Analytics Techniques and their Application

Advanced analytics techniques, including predictive modelling, machine learning and data mining have become instrumental in processing and interpreting big data. These methods allow for the identification of patterns, correlations and trends that traditional models might miss. The key applications include:

- *Predictive Modelling:* Uses historical data to predict future outcomes, such as the likelihood of a loan default. These models are continually refined as new data becomes available, enhancing their accuracy.
- *Risk Assessment:* Machine learning models can adapt to changing market conditions and borrower's behaviours, offering risk assessments in dynamic situations.
- *Sentiment Analysis:* Analyzing text data from social media, customer reviews and other sources to gauge public sentiment towards a borrower or industry can be an early indicator of potential financial stress.

Success Stories: Big Data and Analytics in Action

- *Alternative Lending Platforms:* Companies like Kabbage and Lending Club utilize big data and machine learning algorithms to assess the creditworthiness of small businesses and individuals, often providing loans to those who might not qualify under traditional models. These platforms consider a wide range of data, including online sales, shipping information and customer reviews, to make lending decisions.

  A notable fintech example widely used in India is CRED, which focuses on rewarding individuals for their creditworthiness. By paying their credit card bills through the CRED app, users gain CRED coins which can be used for various rewards, encouraging timely bill payments and instilling financial responsibility. This model indirectly assists in credit assessment by promoting and rewarding good credit behaviour among consumers, contributing to a positive credit culture.
- *Dynamic Risk Assessment:* Some banks and financial institutions now employ real-time data analytics to continuously update their risk assessments on borrowers. This approach allows for early detection of potential default risks, enabling proactive management and mitigation strategies.

Challenges and Considerations

While big data and analytics offer significant improvements in credit risk assessment, they also present new challenges. Privacy concerns and data security are critical considerations. Ensuring the ethical use of data and algorithms is paramount to maintain trust and fairness in financial lending practices.

Machine Learning and AI in Loan Default Prediction

The advent of Machine Learning (ML) and Artificial Intelligence (AI) technologies has marked a new era in financial services, particularly in the realm of credit risk assessment. These technologies have the power to analyse vast datasets, learn from trends and patterns and make predictions with a level of accuracy and efficiency that was previously unattainable.

AI and ML in Understanding Credit Risk

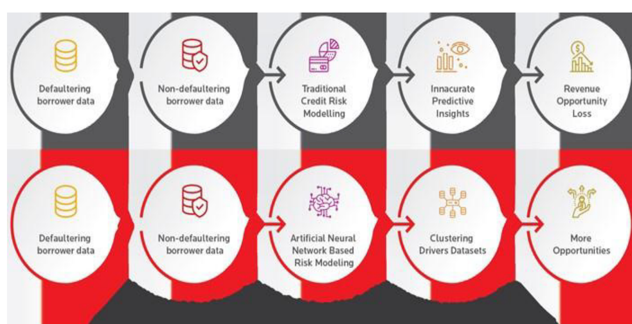
AI and ML models excel in their ability to process the large volumes of complex or diverse data. They can identify subtle patterns and relationships that human analysts and traditional statistical models might overlook. This capability is particularly valuable in predicting loan defaults, where the risk factors are numerous and often interconnected in non-obvious ways.

- *Deep Learning Models:* Deep learning, a subset of ML, can analyze complex data similar to the way human brain operates. In credit risk management, deep learning

models can predict default probabilities by analyzing borrowers' financial transactions, social media activity and even text from financial news.

- *Natural Language Processing (NLP):* NLP is used to understand and interpret human language, allowing AI models to analyze unstructured data like loan application forms, customer support communications and social media posts for insights into borrowers' creditworthiness.

How Machine Learning leads to Revenue Opportunities



Source: Birlasoft.com

Examples of AI and ML in Action

- *JPMorgan Chase & Co.:* The banking giant has implemented machine learning algorithms to analyze legal documents and extract important data points, a process that significantly reduces the time and cost associated with manual reviews. While not exclusively about loan default prediction, this application of ML demonstrates the broader potential for these technologies to transform financial analysis and risk management.
- *ZestFinance:* This company uses machine learning to help lenders make more accurate and fair credit decisions, particularly for borrowers with sparse credit histories. By analyzing thousands of data points, ZestFinance's models can identify patterns that indicate reliability and creditworthiness beyond what traditional credit scores might reveal.
- *HDFC Bank:* HDFC's Electronic Virtual Assistant (EVA) is a prime example of NLP application. While EVA is primarily known for enhancing customer service through chatbots, the underlying NLP technology also aids in analysing customer queries and feedback to identify dissatisfaction or potential financial distress signals. This indirect method can help in predicting loan defaults by flagging customers who may be facing financial difficulties.

Challenges and Ethical Considerations

While the potential of AI and ML in credit risk management is immense, it has also introduced new challenges:

- *Data Privacy and Security:* The use of personal data in ML models raises significant privacy concerns. Ensuring that data is collected and used ethically and in compliance with regulations is crucial.
- *Biasness and Fairness:* When trained on data that contains biases, AI and ML models may unintentionally reinforce or even worsen those prejudices. Therefore, it is essential to develop and implement these models with an awareness of potential biases and to take steps to mitigate them.
- *Complexity and Explainability:* The "black box" nature of some AI and ML models can make it difficult to understand how they arrive at their predictions. This lack of transparency can be a barrier to regulatory approval and public trust.

Moving Forward

The integration of machine learning and AI into the credit risk assessment process represents a significant shift towards more dynamic, accurate and comprehensive risk management strategies. These technologies offer the promise of enhancing the ability of financial institutions to identify and mitigate risks before they lead to defaults. However, the successful implementation of these advanced tools requires careful consideration of their ethical implications, regulatory compliance and the potential impacts on customers.

Regulatory Environment and Ethical Considerations

The use of AI and ML in loan default prediction has raised important questions about regulations, privacy, fairness and accountability. As financial institutions increasingly rely on these technologies, regulatory bodies worldwide are grappling with how to ensure their responsible use without stifling innovation.

Regulatory Frameworks Governing AI and ML

- *General Data Protection Regulation (GDPR) in the European Union:* GDPR has set a precedent for the protection of personal data, including provisions that affect how AI and ML can be used in credit risk assessment. It includes rights to explanation and consent, directly impacting models that use personal data to predict loan defaults.
- *Fair Credit Reporting Act (FCRA) and Equal Credit Opportunity Act (ECOA) in the United States:* These acts are designed to ensure fairness, accuracy and impartiality in the credit reporting process. As AI and ML models are integrated into credit scoring and lending decisions, their compliance with FCRA and ECOA is scrutinized to prevent discriminatory practices.
- *Basel III and IV Frameworks:* While not directly regulating AI and ML, these international banking regulations emphasize risk management, requiring banks to maintain certain levels of capital reserves based on the risk profile of their assets. The accurate prediction of loan defaults using AI and ML can impact how capital requirements are calculated and met.

Regulatory Frameworks Governing AI and ML In India

India's approach to regulate the use of Artificial Intelligence (AI) and Machine Learning (ML) in credit risk management and loan default prediction is still evolving. However, several guidelines, policies and initiatives by regulatory bodies and the Government provide a regulatory backdrop that impacts how these technologies are applied, particularly in the financial sector.

The Reserve Bank of India (RBI), which is the regulatory authority for financial institutions in India, has been actively monitoring and guiding the adoption of emerging technologies like AI and ML in banking and finance. Key aspects of the regulatory environment include:

- *Data Protection and Privacy:* The use of AI and ML in banking, especially for credit risk management, involves processing large volumes of personal and financial data. While India awaits a comprehensive data protection law, the RBI mandates banks to adhere to stringent data privacy guidelines to protect customer information. This is critical for AI and ML applications that rely on data analytics.
- *Cybersecurity Framework:* The RBI has issued guidelines and frameworks to ensure the cybersecurity of the banking sector, which indirectly governs the deployment of AI and ML technologies. Banks are expected

to ensure that their AI and ML systems are secure against cyber threats and do not compromise the integrity of banking systems.

- *Regulatory Sandbox:* The RBI launched a regulatory sandbox framework that allows banks and fintech companies to test their innovative technologies, including AI and ML applications, in a controlled environment. This initiative helps in assessing the implications of such technologies on financial stability, consumer protection and data security.
- *IT Framework and Guidelines:* The RBI requires financial institutions to establish robust IT governance and risk management practices. This includes the use of AI and ML technologies, where banks are expected to implement sound practices in model development and validation.

Other Relevant Policies

- *Digital Personal Data Protection Act, 2023:* The Digital Personal Data Protection Act casts obligations on Data Fiduciaries to safeguard digital personal data, holding them accountable, while also ensuring the rights and duties of Data Principals.
- *AI Ethics and Guidelines:* The Indian Government, through the NITI Aayog (National Institution for Transforming India), has drafted an approach document for the responsible use of AI, which includes ethics, privacy and security considerations. While not legally binding, these guidelines could influence the regulatory framework for AI and ML in banking.

In summary, the regulatory framework in India for using AI and ML in credit risk management and loan default prediction is a combination of existing data protection, cybersecurity measures and evolving guidelines. Banks and financial institutions are navigating this space with a focus on innovation, while ensuring compliance with the regulatory standards set by the RBI and other relevant authorities. As AI and ML technologies continue to mature and their applications in banking become more pervasive, it is likely that the regulatory landscape will become more defined and specific to these technologies.

Moving Forward: Balancing Innovation with Responsibility

The future of AI and ML in credit risk management depends on finding a balance between leveraging these technologies for their immense potential benefits and addressing the ethical and regulatory challenges they present. Financial institutions, regulators and technology providers must work together to develop standards and practices that ensure fairness, transparency and accountability.

- *Ongoing Dialogue:* Regulators and industry leaders are engaging in ongoing discussions about how to adapt existing laws and develop new framework that can accommodate the rapid advancements in technology.
- *Ethical AI Practices:* There is a push towards developing and implementing AI systems in a manner that prioritizes ethical considerations, including the proactive identification and mitigation of biasness.
- *Advancements in Explainable AI (XAI):* Research and development efforts are focused on making AI and ML models more transparent and their decisions more understandable to humans, facilitating compliance with regulatory requirements and building trust with consumers.

Future Trends and Innovations in Credit Risk and Loan Default Prediction

The landscape of credit risk management is on the

cusp of significant transformation, driven by rapid technological advancements and changing regulatory environments. The future promises even greater integration of AI and ML technologies, alongside emerging tools and approaches that could redefine how financial institutions assess and manage credit risk.

Blockchain for Credit Risk Management

- *Smart Contracts:* Blockchain technology, through the use of smart contracts, offers the potential for automating parts of the credit risk assessment and loan origination process, reducing the potential for errors and biasness and enhancing transparency.
- *Decentralized Finance (DeFi):* The rise of DeFi platforms could transform traditional credit markets by leveraging blockchain to facilitate lending and borrowing directly between parties, with implications for credit risk assessment and management.

Regulatory Technology (RegTech)

- *Enhanced Compliance Tools:* RegTech solutions, leveraging AI and blockchain, promise to streamline compliance with evolving regulatory requirements, making it easier for financial institutions to adapt their credit risk management practices to legal standards efficiently.
- *Dynamic Regulatory Frameworks:* Future regulatory frameworks may incorporate AI to dynamically adapt rules based on changing market conditions and emerging risks, fostering a more responsive and effective regulatory environment.

Ethical AI and Responsible Lending

- *Standardization of Ethical AI Framework:* Expect to see a push towards international standards for ethical AI, including guidelines for fairness, transparency and accountability in AI-driven credit risk assessment.
- *Consumer Empowerment:* Innovations that enhance consumer understanding and control over their financial data, as well as how it is used in credit decisions, will become increasingly important.

The Role of Quantum Computing

- *Revolutionizing Data Analysis:* Quantum computing holds the promise of processing and analysing data at speed unachievable by traditional computers, potentially unlocking new frontiers in predictive accuracy for loan default risks.

The Road Ahead

The journey through the past, present and future of credit risk and loan default prediction underscores a field in constant evolution, driven by technological innovation, regulatory adaptation and ethical consideration. As we stand on the brink of a new era marked by AI, ML, blockchain and quantum computing, the potential to enhance financial stability and access to credit has never been greater. However, this potential comes with the responsibility to ensure these technologies are used ethically, transparently and inclusively.

Embracing the future of credit risk management requires a collaborative approach among financial institutions, technology providers, regulators and consumers. Together, these stakeholders can navigate the complexities of a digital financial world, ensuring that advancements in credit risk prediction serve the broader goals of financial health, economic stability and fair access to financial services.

As we continue to witness the unfolding of these innovations, the importance of staying informed and

adaptable cannot be overstressed. The future of credit risk management will undoubtedly be marked by the balance between leveraging cutting-edge technologies and adhering to the highest standards of ethical practice and regulatory compliance. In this dynamic environment, the only certainty is change and the readiness to embrace this change will define the success of financial institutions in the years to come.

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Summary of Advanced Management Programme (AMP) Project Report

"Cash Flow-Based Credit Underwriting Models for MSMEs: A Paradigm Shift in Credit Access and Financial Inclusion"

Year: 2023-24

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The financial environment for Micro, Small and Medium Enterprises (MSMEs) is undergoing rapid transformation. Traditionally, these businesses have faced difficulties in securing credit due to conventional lending practices, which often emphasize collateral and balance sheet reviews. This approach frequently overlooks smaller businesses that lack substantial assets or formal financial documentation. In response to this gap, Cash Flow-Based Lending (CFBL) has emerged as a revolutionary solution. CFBL shifts the focus to the cash flow performance of businesses, rather than relying solely on physical assets or past credit history, offering a more inclusive, adaptable and predictive method for evaluating creditworthiness.

The Need for Cash Flow-Based Lending in MSME Financing

Micro, Small and Medium Enterprises (MSMEs) play a crucial role in India's economy, contributing significantly to manufacturing, employment and exports. As of FY 2023-24, MSMEs made up 40.83% of India's total manufacturing Gross Value Added (GVA), showing a slight increase from 40.3% in FY 2021. Additionally, they contributed 45.56% of India's total exports during the first half of FY 2023-24. The sector's role in job creation is also substantial, with 15.5 crore jobs registered on the Udyam Registration Portal by December 2023.

Despite their importance, MSMEs face ongoing challenges in securing credit. The International Finance Corporation (IFC) estimates a credit shortfall of INR 280 billion in the Indian MSME sector, highlighting the pressing need for more accessible financing models. Traditional lending methods, such as Asset-Based Lending (ABL) and Balance Sheet Lending (BSL), typically require businesses to offer substantial collateral, provide extensive financial documentation and maintain strong credit histories. These requirements often exclude smaller enterprises, especially in retail, services and small-scale manufacturing, which may lack sufficient assets or formal financial records. As a result, many MSMEs are shut out from conventional credit channels, which hampers their ability to grow, innovate and scale their operations effectively.

To address this gap, there is a clear need for alternative lending models that can accommodate the unique financial profiles of MSMEs and provide them with the necessary financial support to thrive.

Cash Flow-Based Lending: A Tailored Solution

Cash Flow-Based Lending (CFBL) addresses the limitations of traditional lending models by shifting the focus from collateral and credit history to a borrower's cash flow. This approach evaluates both past and projected cash flows to assess a business's ability to meet its financial obligations, providing a clearer and more accurate view of the company's operational performance. Instead of relying on the

strength of a balance sheet, lenders can base their credit decisions on actual revenue generation, making CFBL more attuned to the real financial health of the business.

CFBL is particularly advantageous for MSMEs that are asset-light or operate in industries with irregular or seasonal revenue patterns. By customizing loan products to fit the unique cash flow cycles of these businesses, CFBL offers flexible loan terms and repayment schedules that align with the borrower's income streams. This flexibility reduces the risk of default, allowing for better loan management and repayment, particularly for businesses that experience fluctuating cash flows due to seasonal demands.

Moreover, CFBL enhances financial inclusion by enabling businesses without substantial collateral or formal financial records to access credit. This model empowers smaller enterprises to secure financing, which they can then use to invest in growth, innovation and productivity. In doing so, CFBL not only helps bridge the credit gap but also promotes job creation and economic expansion, supporting the long-term development of the MSME sector. As MSMEs continue to play a vital role in India's economy, CFBL emerges as a transformative solution for ensuring sustainable growth and financial accessibility across the sector.

Comparative Analysis: CFBL vs. Traditional Lending Models

Asset-Based Lending (ABL) relies heavily on the borrower's ability to provide physical assets such as property, machinery or inventory as collateral. While this model works well for large companies with significant assets, it often excludes MSMEs that may not have sufficient collateral to pledge. Additionally, ABL requires extensive documentation, appraisals and lengthy due diligence processes, making it less efficient and more cumbersome for MSMEs in need of quick capital to manage cash flow gaps.

Balance Sheet Lending (BSL), on the other hand, involves a comprehensive evaluation of a borrower's assets, liabilities and equity to determine creditworthiness. BSL is typically used for long-term, larger loans but is not always suitable for short-term financing needs. It focuses more on the overall financial position of the business rather than its immediate cash flow requirements, making it less adaptable to businesses that experience seasonal revenue fluctuations or unpredictable cash flows.

In contrast, Cash Flow-Based Lending (CFBL) offers several distinct advantages:

- ***No Collateral Requirement:*** CFBL does not rely on physical assets, making it accessible to a wider range of MSMEs, especially those that are asset-light or operate in service-oriented sectors.
- ***Faster Loan Processing:*** Without the need for extensive collateral appraisals, CFBL loans can be processed and disbursed more quickly, providing timely access to capital for businesses facing urgent cash flow needs.
- ***Flexibility in Loan Terms:*** CFBL can be tailored to align with the cash flow cycles of the borrower, allowing for more adaptable repayment schedules that reduce the risk of default during periods of low revenue.
- ***Higher Predictive Accuracy:*** By focusing on actual and projected cash flows, CFBL offers a more accurate assessment of a business's ability to meet its financial obligations, improving credit risk management.

Types of CFBL Lending Products

CFBL encompasses a wide array of financial products designed to cater to the diverse needs of MSMEs. These products range from short-term working capital loans to innovative solutions like Buy Now, Pay Later (BNPL) and Merchant Cash Advances (MCA).

- ***Working Capital Loans:*** These are short-term loans designed to help businesses manage their daily operational expenses, such as payroll, rent and inventory purchases. CFBL working capital loans are particularly effective for businesses with seasonal cash flow fluctuations, as the loan terms can be customized to align with the borrower's revenue patterns.

- ***Buy Now, Pay Later (BNPL):*** BNPL is an emerging CFBL product that allows businesses and consumers to make purchases and defer payments. For MSMEs, BNPL can facilitate cash flow management by allowing them to purchase necessary goods or services without immediate payment, enabling them to manage operational costs more effectively.

- ***Merchant Cash Advances (MCA):*** MCA is a popular CFBL product in which businesses receive an advance on future credit card sales. Repayments are made as a percentage of daily sales, making it an ideal solution for businesses with fluctuating revenues. MCA provides quick access to capital without the need for traditional collateral or extensive documentation.

- ***Turnover-Based Loans:*** These loans are based on the borrower's revenue, as evidenced by GST records, Point-of-Sale (POS) data and transaction histories. Lenders assess the borrower's financial health by analyzing turnover patterns, allowing them to offer tailored loan amounts and repayment terms.

- ***Trip Financing for Logistics Firms:*** This type of financing is particularly useful for logistics companies that need capital to cover operational expenses like fuel, maintenance, and tolls during long trips. Trip financing is based on projected cash flows from trips, offering a flexible and scalable credit solution for the logistics sector.

Empowering MSMEs Through Cash Flow-Based Lending

CFBL is particularly advantageous for micro-entrepreneurs and small businesses that often face barriers in accessing traditional credit. For businesses operating in sectors like retail, e-commerce or hospitality, where cash flow can be highly variable, CFBL provides a flexible financing option that can be customized to match revenue cycles. By focusing on cash flow, rather than collateral, CFBL enables micro-entrepreneurs to access the capital they need to grow their businesses and manage working capital more effectively.

In India, the potential impact of CFBL is immense, especially for asset-light businesses such as kirana stores and small retail shops, which may lack the collateral required for traditional loans. CFBL democratizes credit access, promoting financial inclusion by providing loans based on the business's cash flow rather than its assets. This inclusivity is crucial for rural and semi-urban businesses that often face higher barriers in accessing formal credit channels.

Role of Technology in Enhancing CFBL

The role of technology in enhancing Cash Flow-Based Lending (CFBL) has become increasingly significant with the rapid digitalization of financial services and the introduction of regulatory frameworks by the Reserve Bank of India (RBI). Two key advancements in this space are the Account Aggregator (AA) framework and the Public Credit Registry (PCR), both of which are revolutionizing credit underwriting for MSMEs by offering seamless access to real-time financial data.

Account Aggregator (AA) Framework

The Account Aggregator system, launched under RBI's supervision, enables individuals and businesses to securely share their financial data with lenders using a consent-based framework. With

financial information scattered across institutions, AAs consolidate data from sources like GST returns, income tax filings and bank statements, providing a unified and transparent view of a borrower's cash flow. By simplifying access to data, AAs reduce the need for cumbersome documentation, making the loan approval process faster and more efficient.

AAs operate as data fiduciaries, ensuring that financial data is shared only with the borrower's explicit consent. This aligns with the RBI's push for data security and user-centric models under India's Data Empowerment and Protection Architecture (DEPA), which aims to empower users to control how their data is used in financial services.

This framework is particularly transformative for MSMEs, which often struggle to maintain formal financial records. By allowing lenders to assess cash flows directly, AAs enable broader credit inclusion for MSMEs, reducing dependency on traditional metrics like collateral.

Public Credit Registry (PCR)

The Public Credit Registry (PCR), initiated by the RBI, further enhances CFBL by centralizing credit information into a single repository. The PCR collects data from banks, Non-Banking Financial Companies (NBFCs) and other lending institutions, consolidating it into a comprehensive record of borrowers' credit histories, repayment behaviours and financial activities.

The introduction of PCR is aimed at improving transparency in credit assessments and fostering fair lending practices. By integrating cash flow data with a borrower's overall credit profile, the PCR enables lenders to make more accurate and data-driven lending decisions, ensuring that businesses with strong cash flows but limited collateral can still access credit. The system also helps detect early signs of financial distress, allowing lenders to mitigate risks proactively.

Technological Impact on Fair Lending Practices

The integration of technology through the AA framework and PCR has also advanced fair lending practices. The use of objective financial data minimizes the potential for bias or discrimination in lending decisions, which has historically been a barrier for smaller enterprises and marginalized borrowers. By basing creditworthiness on real-time cash flow information and operational performance, lenders can offer transparent, equitable access to credit.

Additionally, these technologies help lenders comply with RBI's guidelines for Priority Sector Lending (PSL), which mandates a certain portion of loans be directed toward sectors like MSMEs. The AA and PCR systems enable more efficient tracking and verification of PSL compliance, ensuring that financial institutions can effectively channel funds to underserved sectors.

RBI's Regulatory Sandbox and Fintech Collaborations

RBI's Regulatory Sandbox initiative, which fosters innovation in financial technologies, has seen fintechs leveraging CFBL models to create more inclusive credit products. Recent cohorts under the sandbox, focusing on MSME lending, have developed tools that integrate AI-driven credit scoring with cash flow analysis to streamline lending further and reduce risk.

For example, entities participating in the sandbox, such as FinAGG Technologies and Moshpit Technologies, are using real-time data analysis to offer tailored credit products to MSMEs. These innovations, in line with RBI's efforts, are designed to address the credit gap in the MSME sector and make financing more accessible to businesses without traditional financial backgrounds.

Key Findings and Implications

The ongoing adoption of Cash Flow-Based Lending (CFBL), driven by advancements in technology and regulatory support, is creating profound implications for the financial sector, especially for MSMEs. Here are the latest insights based on recent developments:

- ***Enhanced Predictive Power***

With the integration of real-time financial data through Account Aggregators (AA) and the Public Credit Registry (PCR), CFBL models have significantly improved their predictive accuracy. By focusing on cash flows rather than collateral, lenders can assess the operational performance and true financial health of businesses more effectively. This approach allows for a deeper understanding of a borrower's ability to meet obligations, which reduces default risks and strengthens credit risk management. This enhanced predictive power is particularly beneficial for MSMEs with volatile or seasonal cash flows.

- ***Greater Financial Inclusion***

CFBL has become a game-changer for financial inclusion by enabling businesses without collateral or formal credit histories—such as micro-entrepreneurs, startups, and rural enterprises—to access credit. The focus on cash flow data, such as GST filings, bank statements, and income tax returns, opens the doors to financing for a broader range of borrowers who might have been excluded under traditional lending models. The RBI's regulatory initiatives, such as the AA framework and digital lending innovations, ensure that financial institutions can efficiently service these underserved markets, addressing the credit gap that has long plagued the MSME sector.

- ***Promotion of Fair Lending Practices***

The shift toward objective financial data in CFBL, particularly through the AA and PCR frameworks, promotes fair lending practices. Lenders now base their decisions on concrete cash flow insights rather than subjective factors like collateral availability or historical credit scores, minimizing potential bias. This data-driven approach ensures that credit access is equitable, allowing businesses to be evaluated purely on their financial merit. This aligns with RBI's broader goals of ensuring financial stability and consumer protection, as seen in their efforts to regulate the growing digital lending ecosystem.

- ***Operational Efficiency and Speed***

One of the most significant advantages of CFBL is the operational efficiency it brings to the lending process. Digital frameworks, like the AA and PCR, streamline the collection and sharing of financial data, reducing the paperwork burden and manual documentation that typically slow down loan approvals. The use of automation and data analytics also allows for faster credit decision-making. As a result, businesses—especially MSMEs—experience quicker access to capital, enabling them to seize opportunities and manage cash flow needs more effectively. The RBI's regulatory sandbox has further supported fintech innovation in this area, fostering tools that integrate AI and machine learning to optimize credit assessments.

Conclusion

The Cash Flow-Based Lending (CFBL) model marks a transformative leap in financing for MSMEs, offering a more inclusive, flexible and accurate approach compared to traditional asset-based lending. By prioritizing a business's cash flow over collateral or credit history, CFBL opens doors for MSMEs that have long been excluded from formal credit avenues. In a landscape like India's, where MSMEs are integral to economic growth but often struggle to access credit, CFBL provides a tailored solution to bridge the financing gap.

The integration of advanced technologies, such as the Account Aggregator framework and Public Credit Registry, has further enhanced the efficiency and reliability of CFBL. These innovations not only

streamline the loan approval process but also ensure fair and transparent lending practices. CFBL's predictive power, financial inclusivity, and operational efficiency make it a critical tool for fostering MSME growth and driving broader economic development.

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The themes for "Bank Quest" are identified as:

1. October – December, 2024: Emerging opportunities for savings and investments
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