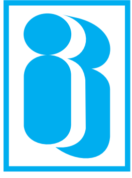

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LEVERAGING TECHNOLOGY FOR EFFECTIVE CREDIT APPRAISAL

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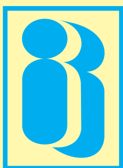

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ध्येय

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 ।

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

The Indian Institute of Banking & Finance (IIBF) had organised 13th R. K. Talwar Memorial Lecture in association with the State Bank of India on 16th February 2024. The lecture on the topic ''The Role of Regulation in Economic Development'' was delivered by Dr. V. Anantha Nageswaran, Chief Economic Adviser, Government of India. The lecture was greatly acknowledged for its content and delivery and we are publishing it as a part of January – March, 2024 issue of Bank Quest.

Sound Credit appraisal is key to maintain standard assets in the books of banks. The use of technology in credit appraisal has redefined the process of managing assets of banks. There has been remarkable improvement in the quality of assets maintained by banks as gross and net non-performing assets ratios declined to 3.9 per cent and 1 per cent, respectively, by March 2023. Considering that technology has strong potential for improving the credit appraisal process, we are bringing out January – March, 2024 issue of Bank Quest on the theme ''Leveraging technology for effective credit appraisal''.

The first article on the theme of Bank Quest is jointly written by Dr. Sachin Sharma, Manager (Systems), State Bank of India & Mr. Mukesh Ahuja, Assistant General Manager (Systems), State Bank of India on ''Algorithmic Brilliance: Unveiling the Power of AI in Credit Evaluation''. This article delves into the realm of algorithmic brilliance, exploring the transformative role of AI in reshaping credit evaluation.

The next article on the theme of this issue is jointly authored by Dr. Kalpana Kataria, Associate Professor, Bharati College, University of Delhi and Dr. Abhishek Kumar Singh, Assistant Professor, Faculty of Commerce, University of Delhi on ''Effective use of Emerging technologies for Leveraging credit appraisal in Indian Banking System''. The authors have concluded that embracing innovative solutions in credit appraisal is imperative for financial institutions seeking efficiency, accuracy and competitiveness.

Letters of Credit are one of the important modes of trade payments that assures the seller of ''timely defined payment'' and the buyer of ''defined quality and quantity'' of goods. The next article is written by Mr. Paritkumar M Badodaria, Assistant General Manager, ICICI Bank Limited and Dr. Bhavin U. Pandya, Dean, Faculty of Management and CEO, S V Innovation Foundation, Kadi Sarva Vishwavidyalaya on ''Transferable Letters of Credit as catalysts for Working Capital Optimisation, Cost Efficiency and Enhanced Competitiveness for SME Businesses''. This article explores the features of transferable letters of credit and concludes that transferable letters of credit

serve as catalysts, not only optimizing working capital and ensuring cost efficiency but also fostering enhanced competitiveness for SME businesses in today's dynamic business landscape.

We are also publishing an article written in Hindi by Mr. Vijay Prakash Srivastava, Former Chief Manager, Bank of India on ''पर्यावरण को बचा कर रखने में बैंकिंग क्षेत्र की भूमिका''. The article discusses role of banks towards safeguarding environment.

This issue also features ''Legal Decisions Affecting Bankers'' by Mr. Prakhar Galaw, Legal Executive, IFFCO Tokio General Insurance Company Limited.

In this issue, we are also carrying a summary of the Macro Research Report (2021-22) on ''Linkages between competitive structure and financial stability: An empirical analysis of Indian Banks'' by Dr. Ajaya Kumar Panda, Associate Professor, Indian Institute of Management Mumbai.

In addition to above, we are also publishing Book Review of the Book, ''Banker by Chance, Leader by Choice'' written by and reviewed by Mr. Sugata K. Datta, Former Chief General Manager, Bank of India.

I hope this issue will be appreciated by its readers for its contents and coverage.

Suggestions for further improving the contents are welcome.

Biswa Ketan Das

The Role of Regulation in Economic Development

Dr. V. Anantha Nageswaran*

Mr. Dinesh Kumar Khara, Chairman, State Bank of India, Mr. Biswa Ketan Das, CEO, Indian Institute of Banking and Finance (IIBF), senior officials from Reserve Bank of India, from the State Bank of India and the banking fraternity, ladies and gentlemen, it is doubly humbling for me to be chosen to deliver the 13th Shri. R. K. Talwar Memorial lecture.

First, it is an honour and an exercise in humility to be able to speak about a distinguished son of India at a lecture instituted in his honour. I have first heard about him from Mr. Vaghul when I was briefly associated with Krea University. He has spoken a lot about Mr. Talwar and how he learned a lot from him during his earlier years in banking. It is often said that in the long run, institutions shape individuals. But people like him were the exception to that rule. Individuals like him shape the institutions, not only of the institution that they headed, but they also inspire other institutions in the process of their functioning. It is not that they go out of the way to do this. It is the intrinsic nature of their personality that brings about this transformative change. I know that, in fact, more than me, almost all of you present here would know the signal contributions he made to the field of banking in India with respect to the analysis of corporate sector when it comes to banking decisions. The initiatives he took to encourage SME financing in the country and launched several new schemes to support small entrepreneurs, businessmen and farmers etc. The list is endless. So, in that sense, it is a very important privilege and I am deeply grateful to IIBF and State Bank of India for having chosen me to deliver this lecture. The second reason to be humble about is that I am following the footsteps of very distinguished speakers, starting from Dr. Shri Rangarajan in 2007. Therefore, I fully understand the responsibility that rests on my shoulders as I begin to speak on the topic that I have chosen today.

It is normally understood that regulation is a response to market failure. I personally believe that is an incomplete statement, even though it is not wrong. Sometimes the very nature of markets requires the inevitable presence of regulators and regulation. So, regulation is not a response only to market failure. Sometimes regulation is indeed a response or a complement to markets themselves. It is a response also to growth and scale.

I heard from a philosopher that progress for humans is their innate ability to complicate simplicity. Therefore, the very development of scale and complexity requires regulation because as things become complex, the inherent limitations of humans come to the fore and it requires some amount of supervision and policing to happen. So regulation is not just a response to markets themselves, market failures, but also to growth, growth in scale and complexity, because as activities explode and become interconnected, we need order to make it flow smoothly and take place

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*Chief Economic Adviser, Government of India.

13th Shri. R.K. Talwar Memorial Lecture was delivered by Dr. V. Anantha Nageswaran, Chief Economic Adviser, Government of India on February 16th, 2024 in Mumbai.

without too much friction. The need for regulation, therefore, arises as the economy grows in size and with the rate of growth and with the rate of complexity.

As Mr. Khara pointed out, today we are on the cusp of becoming the top three largest economies in the world. Moreover, the scale of financing that we would require to make this growth translate into a difference in the lives of ordinary people means that regulators have to ensure that the growth of the industry, for that matter, any industry, serves the ultimate purpose of making a difference to the lives of the ordinary Indians. Apart from these, regulation is also response to human nature. Are we good at self-policing? We do need the MC (Master of Ceremonies) of every event to tell us to put our phones on silent mode. At the same time, no MC can tell us not to keep looking at our screen every 32 seconds. It has become a part and parcel of our daily existence and behaviour. And humans in general are not very good at self-policing.

We need external incentives, inducements and even disciplining devices to keep us on track with respect to our own chosen behaviour. Therefore, we have to usually find ways to let others hold us to our resolutions. Whether it is on simple matters like weight loss, smoking, alcohol consumption or something as complex as financial sector regulation, we do need an external agency to enforce certain things that are desirable in our own interest.

There is a third dimension to regulation. In general, in the marketplace and that too, in a large country like ours, literacy levels are still in catch-up mode. The relative power of the sellers and producers versus the consumers is often tilted in favour of the former i.e. the sellers and producers. This imbalance is rectified by having the state or the regulator take the side of the consumer, protecting their interests and rights. Therefore, regulation has this important consideration in its favour. Of course, in reality, there is the political economy as well, which doesn't necessarily keep the balance between sellers and producers on one side and the public and the regulator on the other side. The scales are not often evenly balanced and political economy usually tilts it in one direction or the other.

So, I believe I have spent the last few minutes successfully in establishing the principle that regulation is necessary and not a necessary evil. But then it becomes a matter of detail with respect to execution, as always, the devil or the angel is in the details of implementation.

If regulation is indeed inevitable, how do we get it right? And how do we do it right? Let me break it down into two parts- regulation in the financial sector and regulation in the non-financial sector. In the financial sector in particular, given the audience that I am facing, the importance of regulation doesn't even have to be established. It is a given, because at times of failure, like, for example, what happened with the Silicon Valley bank last year and for that matter, in previous episodes of crisis, when the industry goes through periods of stress and failures, public or lawmakers usually turn to regulators and ask the question, "What were you doing?" In fact, it is somewhat amusing and instructive to know that the public and their elected representatives hold the regulators sometimes more responsible than the managements themselves for such institutional failures. So that establishes the necessity of regulation.

Second reason, when financial institutions fail and I am not speaking in particular about India, but more in the global context, they do run to the public sector to help bail them out. And we know that, in the global context, if not necessarily in the Indian context, rewards to risk taking accrue to the private employees and executives of financial institutions

and the adverse consequences of failures usually end up on the tax payer. So, it is often said that while the rewards are privatised, the costs are socialised. And given that, therefore, the moment public money gets involved in bailing out or rescuing institutions, it goes without saying that a Government, that is the last resort when institutions fail, also naturally acquires the right to regulate the industry's conduct, so that, such bailout situations become at least infrequent if not absolutely unnecessary or impossible. And that is the reason why in the financial sector we don't talk about need for regulation at all because the principle or premise is established beyond doubt.

The question, therefore, that arises once we accept this basic premise "Should regulations be principles-based or prescriptive in nature?" It is easy given the way the question is posed; it is easy to plum for the former, that is, regulations should be principles-based. But there are some dangers, especially in finance often and I, myself have spent nearly a couple of decades in the financial services industry and I know that the industry can and does run rings around principles-based regulation. It is subject to interpretation, when regulation is largely principles-based. Whether a principle is violated or not is equivalent to the idea of beauty being in the eye of the beholder. In other words, when regulation is structured on the premise of the largely being principles-based, it gives a lot of freedom to the regulated entities to behave responsibly. In that sense, freedom goes with the responsibility because principles-based regulation gives more rights and freedom to the regulated.

In general, in households, children get more freedom if they can demonstrate, at the minimum, no self-harm, isn't it? Therefore, in the case of finance as well, the industry can and should get more freedom if it demonstrates not only no self-harm but also no social harm. But, what about the regulators? What is it that we need to enjoin upon them? Just as humans in general are incapable of self-policing, there is a tendency also on the part of regulators to engage in excess policing. Both tendencies exist. I am sure many of you have heard of the Stanford experiment. A bunch of people on the street was picked up for an experiment. They didn't know each other. Some of them were given the roles of policemen, some of them were given the role of defendants or accused. They were ordinary people. There was no crime that they committed. They were participating in an experiment. But the very idea that someone was given the label of a policeman and someone was given the label of a prisoner, automatically conferred on the people who were labelled the policeman a certain right not only to question, but also to intimidate and even go to the extent of torturing some of the other participants in the experiment so much that the experiment had to be called off for physically endangering the lives of the some participants in the experiment.

So, humans are susceptible to letting labels define their behaviour rather than letting labels only describe their behaviour. Because we allow labels to define who we are, there is also a natural tendency on the part of the regulators from time to time to engage in excess policing. And, it is a rule of human behaviour across centuries over time and across geographies that where there is concentration of power, those enjoying it usually succumb to the temptation of exercising it too much and too often as well. But, in our country there are very good counter examples where regulators have taken a pre-emptive and proactive role rather than abusing the powers vested in them. Let us take the very recent example of the higher risk weights that were enjoined upon the bank for the unsecured personal loans. It is a case of

avoiding excess regulation by taking a pre-emptive action so that the need for regulation is actually minimised. And, many of you, I am sure are aware of the stellar role that the Reserve Bank of India played before the 2007-08 financial year crisis. Very well captured in a speech that Dr. Y V Reddy delivered in Manchester, if I am not mistaken, in June 2008, where many pre-emptive actions were taken, which actually prevented regulatory failures. So, in our country we do have good examples of where power vested in the regulator has not often lapsed into excessive policing. In general, principle based regulation is something in the case of this risk weights or personal loans, if you try to apply this example, it would have simply been that excessive growth in unsecured personal loans be avoided. That would have been an ideal example of principles-based regulations. But, then who gets to define what is excessive growth? In other words, it is unavoidable that one has to get down to the details, so one cannot stop at the level of principles. Therefore, the Reserve Bank of India did the right thing; it did not try to define what normal growth is or what excessive growth in unsecured personal loans is. It simply took note of human behaviour and its response to incentives and put up guardrails in the process. Just increase the risk weights, which is exactly what Dr. Reddy did back then for several unsecured loans and also with respect to the incentives for securitisation. He made sure that the incentives for securitisation were paid only after the securitised structures were wound up, not when they were started. That very simple, but important tweak, ensured that the kind of securitised mortgages that failed in the western world did not afflict India.

In other words, if you are taking chances, take precautions. Unsecured personal lending is obviously a risky enterprise, which is what banks are meant to do. But, what the RBI did with respect to raising the risk weights is that if you are taking chances, as you must, take precautions in such a way that losses do not hurt you, nor the society. This is an example of the right proportion of the principles and prescriptive regulations. Can this balance be struck in all aspects of financial regulation? Of course, there is a feeling that it remains a work-in-progress at best and at worst; there is a tendency to micromanage. That is the public perception. Can the temptation to be prescriptive be resisted in areas where the risk of self-harm and social harm is trivial? Regulators must ponder about that question. Can we, therefore, choose between these two modes of regulation depending on the assessment of where the social harm is? That would be a guiding principle from a regulatory standpoint as well.

This is where I believe the honourable Finance Minister's announcement in the budget for FY24, presented last year about a zero-based review of regulations, becomes relevant. The kind of regulatory spring-cleaning is also necessary. It is important to clear the regulatory deadwood, both in terms of rules and practices, just as we do in our homes. Once in a while, you need to take a look at the inventory that you might have accumulated in terms of various circulars, notes, etc. and make sure that they remain relevant or redundant to the times that keep moving on.

But, having said that, let us spare a thought for the regulators. They start with a handicap, in the battle for hearts and minds. It is easy to cast them as bullies by default, since they have authority and wield power. And there are certain things that they cannot speak up in public. Because, if they speak up it would tantamount to shouting, "fire" in a crowded theatre. So, therefore, regulators start with a handicap in the battle for the hearts and minds of the public. And, also for the public servants as well.

It is easy for those who are pulled up by regulators or penalised or punished by them to cast themselves as underdogs. And, it is important that when we analyse and evaluate the actions of the regulators, we must keep this imbalance of public perception and power between the regulator and regulated in mind; when we easily cast doubts on the necessity of some of the actions that regulators take.

Let me now turn to the non-financial sector, where the scale in fact, should be more tilted towards the side of the principles-based rather than prescriptive regulation.

Just to reiterate, in the case of financial sector, I am not in favour of the belief that one should always be focussed on principles-based regulation. It is a judicious mix of the two that is required. But, when it comes to non-financial sector, it is more likely that we should err on the side of the principles-based regulation rather than prescriptive regulations, since systemic harms from the practices of regulated entities are relatively less likely than in the case of the financial system. Actions taken in the financial system by the market participants have the risk of infecting the entire economy. In fact, it is the big difference between the financial sector and the non-financial sector. In the financial sector, if one institution fails, the entire system becomes fragile. In the non-financial sector, if one institution goes down, it actually strengthens the rest of the institutions that are still alive. The contagion effect is usually missing, so it is a welcome thing for the remaining market participants; whereas, in the financial sector, as one institution fails, the public starts questioning on the health and the practices of the other financial institutions. That is what makes the case for regulations in financial sectors to be different from the regulations for the non-financial sector.

But, unfortunately in our country, right now, as we speak, regulations even in the non-financial sector, seem to be erring more on the side of being prescriptive rather than principles-based. And, therefore, that makes compliance costs very high for businesses, especially Micro, Small and Medium enterprises. Much has been done in the last decade to improve the situation by the focus given to the ease of doing business, decriminalisation of laws, rules and regulations, self-certifications, etc. but much remains to be done. The burden of compliance falls disproportionately on those who are least equipped to comply with them – low-income individuals, sole-proprietors, micro and small businesses.

I have personally done a case study, five years ago, on a women's collective based in Thiruvannamalai, down south in Tamil Nadu. That particular women's enterprise having a turnover of about two crores, not more than that, comes under Drugs and Cosmetics rules, Drugs and Cosmetics Act rather and I had an opportunity to go through it in detail. The Drugs and Cosmetics Act prescribes the square feet, the space that the businesses need to dedicate for receiving inventory, the raw material inventory, the space that needs to be allotted for finished goods inventory etc. Now, that is a decision that the entrepreneur has to make, the amount of space they allocate for raw material storage, for finished goods storage, depending on rental cost, depending on their sales volumes etc. and production capacity. The legislation need not have to get into such details, prescribing floor space for businesses. Therefore, in a micro and small enterprise where the management bandwidth is usually very small, it is disproportionately allocated or dedicated towards compliance rather than business development or human resource management, etc. So in that sense, there is a lot of work that remains to be done in the country, both at the national level and

at the subnational level, for regulations to become more principles-based rather than prescriptive, especially when it comes to the non-financial sector.

Also, I would love to leave one more question for the regulatory framework. When it comes to the non-financial sector, it ought to be a function of the objectives and the national economic goals that we wish to pursue. The question in front of regulators is this - Is the goal, given the state of development of the country, given the state of per capita income of around $2,500 as we aspire to go towards middle income status, where it is somewhere between $5000 to $11,000, therefore, given this, should the objective function of regulators be- one of the following two - Should it be maximizing economic activity subject to zero non-compliance or minimizing the non-compliance with rules and regulations subject to maximum facilitation of economic activity? These are two different objective functions. One cannot at the same time optimize both, just as you cannot minimize both type one and type two errors. And you have to choose. In quality control, you know what to choose. If you are a very consumer-oriented company, you will obviously err on the side of ensuring that you would not mind one good quality product unit being set aside, but you would not want even a single defective product to reach the consumer. It is like in jurisprudence saying that we may let some guilty people escape the rule of law, but we will never convict an innocent person. So, there is a choice that is being made there.

Similarly, when it comes to regulation and compliance, we have to make a choice. Do we want to ensure that not a single person escapes the rule of law? But in the process, we will not mind putting to harm and inconvenience other innocent businesses and people? Or do we choose the alternative, which is, that I will ensure that 90% of the population, which is largely compliant and law abiding, to be able to pursue their economic activity unhindered and I will not mind letting five or ten escape the rule of law because I am more focused on ensuring that economic activity proceeds unhindered. What is the trade-off? I think that trade-off, that question, has not been fully grappled with or addressed in the context of the regulatory framework that this country needs to have, because both cannot be done at the same time. Governments across the country, not at the national level, but also at the subnational level, must make this choice.

Until now, in the first 75 years of independence or more, we have tilted towards the first objective function, which is we maximize economic activity, but only subject to zero non-compliance, which also gives rise to lot of other adverse consequences such as rent-seeking, etc. But given the country's growth and development aspirations, there is a case to be made for the second objective function to be chosen, which is that we minimize non-compliance, but subject to maximum facilitation of economic activity.

Once this objective function is set and articulated, then it has to be reflected in the governance of regulatory institutions. That means it has to be reflected in the policies made, decisions taken and implemented as well. It means there has to be accountability for governance and that boils down to how public servants are evaluated and appraised for their own compliance with this objective function.

In other words, the regulation of state administration and governance becomes an important task in itself. If this framework is not in place and not followed, then the state will be failing to regulate itself and naturally, it will not be able to regulate non-state actors effectively, as a consequence.

In the final analysis, if the state and its organs can-not regulate themselves, then they can-not regulate the economy efficiently and effectively. Last, but not the least, related to state capacity for regulation, is the question of state capability. How well trained and capable are our regulators with respect to microeconomics - the theory of firm, price-setting behaviour, theory of competition, etc. What are the microeconomic foundations in our undergraduate courses and in the various foundation courses in Lal Bahadur Shastri National Academy of Administration? Of course, this opens up another strand of discussion with respect to regulatory environment in the country - on the need for specialists versus generalists and the length of tenure that civil servants need to have to acquire specialization skills, not just be generalists. Because the economy, as it grows in complexity, we need to ask ourselves fundamental questions as to whether the current structure has served us reasonably well. After all, we were an economy of $300 billion in 1993 and today we are a $3.4 trillion economy, poised to become $3.7 trillion by the end of March 2024. So we have grown more than twelve times in dollar terms, despite rupee depreciating almost 3% every year on average. So we have done very well.

And in fact, many of you will say, or may be thinking as I speak, we might have become a $3 trillion economy, but China that started out at the same time has become an $18 trillion economy. I would simply like you to go back to your computers back home in the evening and divide the nominal GDP by the amount of debt that both the economies carry and figure out what is the per unit of GDP for one unit of debt that India has, compared to China, for example. And, by that metric we have done quite well. So the point is, the structure that we have today has served us quite well, by and large.

But it is always necessary, essential and desirable to ask the question, whether this structure should be evaluated, examined and reviewed for its suitability for the kind of economy that we will likely have going forward with the invasion of artificial intelligence, other forms of technology and climate considerations coming in the way of our economic development and growth aspirations? What is the right mix of generalists and specialists, both in the administrative functions and in the regulatory functions? I know that this is a different topic for a different occasion, but the concept of the role of regulators in economic development is that, while, as I laid out at the very beginning, regulation is necessary and desirable, ultimately the regulatory structure, its functioning, performance and effectiveness also have to be periodically reviewed for it to remain contemporary, purposeful, if it were to not lose sight of the ultimate goal for a developing country. And that is that the living standards and aspirations must continuously make progress and that future generations should feel that not only do they have a life, which is better than their preceding generations, but also their own future generations will have a life better than what they have.

I hope I have left some thoughts with you to ponder about and once again, I thank IIBF and State Bank of India for giving me this opportunity to join a galaxy of very extraordinary personalities who have delivered this lecture and for me to be able to share my thoughts with all of you. Thank you very much.

Algorithmic Brilliance: Unveiling the Power of AI in Credit Evaluation

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Introduction

In the intricate web of financial transactions that define our modern economy, credit evaluation stands as a cornerstone, shaping the flow of capital and determining the viability of countless ventures. The significance of credit assessment in the financial sector cannot be overstated; it serves as the bedrock upon which lending decisions are made, influencing the allocation of resources, the growth of businesses and the stability of financial institutions.

Traditionally, credit evaluation has relied heavily on manual processes, where financial experts meticulously scrutinize an applicant's financial history, collateral and other pertinent factors to gauge their creditworthiness. While this approach has served its purpose over the years, it is not without its limitations. Manual credit appraisal is inherently time-consuming, prone to human error and often constrained by the limited scope of available data.

Moreover, the challenges faced in manual credit assessment are exacerbated by the ever-evolving nature of the financial landscape. As financial products become more diverse and transactions more complex, the traditional methods of credit evaluation struggle to keep pace, leading to inefficiencies, inaccuracies and missed opportunities.

However, amidst these challenges, a beacon of promise emerges in the form of Artificial Intelligence (AI). With its unparalleled capacity for data processing, pattern recognition and predictive analytics, AI holds the potential to revolutionize credit assessment as we know it. By harnessing the power of machine learning algorithms, AI promises to streamline the credit evaluation process, enhance decision-making accuracy and unlock new dimensions of insight into borrowers' creditworthiness.

In this paper, we delve into the realm of algorithmic brilliance, exploring the transformative role of AI in reshaping credit evaluation. We examine the principles underlying AI-driven credit assessment, highlight its advantages over traditional methods and discuss the implications of its widespread adoption in the financial sector. Through a comprehensive analysis of case studies, research findings and industry trends, we seek to unravel the potential of AI in unlocking new frontiers of efficiency, reliability and fairness in credit appraisal.

The Evolution of Credit Appraisal

Historical Context

The practice of credit appraisal has deep historical roots in India, dating back to ancient times when merchants and traders engaged in complex financial transactions across the Indian subcontinent. In the early Vedic period, lending was governed by principles outlined in the Dharmashastra texts, which emphasized ethical conduct and fairness in financial dealings.

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As India's economy evolved, so too did its methods of credit appraisal. During the Mughal era, the hundi system emerged as a popular form of informal credit, allowing merchants to conduct long-distance trade without the need for physical currency. The hundi system relied on a network of trusted agents who facilitated transactions based on mutual trust and reputation.

In colonial India, the British East India Company introduced modern banking practices, laying the groundwork for the formal banking sector that would emerge in the 19th and 20th centuries. With the establishment of Reserve Bank of India (RBI) in 1935, India began to develop a more robust framework for financial regulation and supervision.

Limitations of Traditional Methods

Despite its historical significance, traditional methods of credit appraisal in India are not immune to limitations. One of the primary challenges faced by lenders is the vast diversity of the Indian population, with its myriad languages, cultures and socio-economic backgrounds. This diversity can make it difficult to standardize credit appraisal processes and assess the creditworthiness of borrowers accurately.

Moreover, traditional credit appraisal methods in India often rely heavily on collateral, such as property or gold, as a means of mitigating risk. While collateral-based lending has its advantages, it can also exclude large segments of the population who may lack access to valuable assets. This exclusionary approach can perpetuate inequality and limit economic opportunities for marginalized communities.

Furthermore, traditional credit appraisal methods may struggle to adapt to the unique challenges posed by India's informal economy, where a significant portion of economic activity occurs outside the formal banking sector. In rural areas, for example, farmers and small businesses may rely on informal lending networks known as chit funds or self-help groups for access to credit. These informal arrangements often operate outside the purview of traditional credit appraisal methods, making it difficult for formal lenders to assess the creditworthiness of borrowers accurately.

Understanding AI in Credit Evaluation

Definition and Explanation of Artificial Intelligence (AI)

Artificial Intelligence (AI) refers to the simulation of human intelligence processes by computer systems. In the context of credit evaluation, AI algorithms are designed to analyze large volumes of data, identify patterns and make predictions about borrowers' creditworthiness. These algorithms can perform tasks such as risk assessment, fraud detection, and credit scoring with a level of accuracy and efficiency that surpasses traditional methods.

AI in credit evaluation encompasses a range of technologies and techniques, including machine learning, deep learning, natural language processing and predictive analytics. These technologies enable lenders to leverage vast amounts of data to make more informed lending decisions, streamline the credit evaluation process and reduce the risk of default.

Types of AI Technologies

Machine Learning: Machine learning is a subset of AI that focuses on developing algorithms capable of learning from data and making predictions or decisions based on that data. In credit evaluation, machine learning algorithms analyze historical borrower's data to identify patterns and trends

associated with creditworthiness. These algorithms can be trained on vast datasets containing information such as credit history, income, employment status and demographic factors to predict the likelihood of loan repayment and assess the risk of default.

Deep Learning: Deep learning is a subset of machine learning that uses artificial neural networks to model complex patterns and relationships in data. Deep learning algorithms are particularly well-suited for tasks such as image recognition, speech recognition and natural language processing. In the context of credit evaluation, deep learning algorithms can analyze unstructured data sources such as social media profiles, online transactions and text documents to extract meaningful insights about borrowers' creditworthiness.

Natural Language Processing (NLP): Natural Language Processing is a branch of AI that focuses on enabling computers to understand, interpret and generate human language. In credit evaluation, NLP algorithms can analyze textual data from sources such as loan applications, financial statements and customer's reviews to extract relevant information and assess borrowers' credit risk. NLP techniques can also be used to automate the processing of loan documents, streamline the underwriting process and improve the accuracy of credit decisions.

Related Literature

Brown and Garcia (2023) proposed a novel approach for credit risk assessment utilizing ensemble learning techniques. The study by Brown and Garcia (2023) demonstrates the effectiveness of ensemble learning in improving predictive accuracy for credit risk assessment.

According to Brown and Garcia (2023), ensemble learning methods offer a promising framework for enhancing credit scoring systems' robustness and reliability. In their research, Brown and Garcia (2023) provide valuable insights into the application of ensemble learning techniques in credit risk management.

Johnson and Lee (2021) explored the application of reinforcement learning in credit scoring, offering new perspectives on credit risk assessment. According to Johnson and Lee (2021), reinforcement learning techniques show promise in optimizing credit scoring models and improving decision-making processes. The study by Johnson and Lee (2021) highlights the potential of reinforcement learning to adapt credit scoring systems to evolving financial landscapes. Johnson and Lee (2021) provide insights into the challenges and opportunities of integrating reinforcement learning into credit evaluation processes.

Patel and Brown (2021) examined the challenges and opportunities of applying artificial intelligence in credit evaluation, shedding light on its implications for financial institutions. According to Patel and Brown (2021), the integration of AI in credit evaluation presents both opportunities for efficiency gains and challenges related to data privacy and model interpretability. The study by Patel and Brown (2021) underscores the importance of addressing ethical and regulatory considerations in the adoption of AI technologies for credit evaluation.

Patel and Brown (2021) provided recommendations for mitigating risks and maximizing the benefits of AI adoption in credit evaluation processes.

Smith and Johnson (2020) conducted a comprehensive review of artificial intelligence techniques for credit risk assessment, synthesizing existing literature and identifying emerging trends. According to Smith and Johnson (2020), artificial intelligence offers innovative

solutions for improving the accuracy and efficiency of credit risk assessment models. The study by Smith and Johnson (2020) highlights the potential of AI techniques, such as machine learning and deep learning to enhance credit scoring systems' performance. Smith and Johnson (2020) provide insights into the practical implications and future directions of employing AI in credit risk assessment.

Garcia and Lee (2019) conducted a comparative study of machine learning models for credit scoring, evaluated their performance and applicability in real-world scenarios. According to Garcia and Lee (2019), machine learning models demonstrate superior predictive accuracy compared to traditional credit scoring methods, offering potential benefits for financial institutions. The study by Garcia and Lee (2019) provides insights into the strengths and weaknesses of different machine learning techniques in credit scoring applications. Garcia and Lee (2019) offer recommendations for optimizing machine learning models for credit scoring and mitigating potential risks associated with their implementation.

Wong and Smith (2019) presented a comparative analysis of machine learning techniques for credit risk assessment, evaluating their performance and scalability in large-scale datasets. According to Wong and Smith (2019), machine learning techniques, such as decision trees and support vector machines, show promising results in predicting credit risk and improving decision-making processes. The study by Wong and Smith (2019) highlights the importance of feature engineering and model selection in optimizing machine learning models for credit risk assessment. Wong and Smith (2019) provide insights into the practical considerations and challenges of implementing machine learning techniques in credit risk management systems.

Li and Zeng (2019) provided an overview of deep learning techniques for credit scoring, discussing their potential applications and future directions in the field. According to Li and Zeng (2019), deep learning models, such as neural networks and recurrent neural networks, offer advantages in capturing complex patterns and improving predictive accuracy for credit risk assessment. The study by Li and Zeng (2019) explores the challenges and opportunities of implementing deep learning techniques in credit scoring systems, including data pre-processing and model interpretability. Li and Zeng (2019) proposed research directions for advancing deep learning applications in credit scoring, such as model explainability and regulatory compliance.

Khan and Chen (2018) conducted a survey on deep learning approaches for credit risk assessment, reviewing existing literature and summarizing key findings in the field. According to Khan and Chen (2018), deep learning techniques, such as convolutional neural networks and recurrent neural networks, offer promising results in modeling complex relationships and improving predictive accuracy for credit risk assessment. The study by Khan and Chen (2018) provides insights into the strengths and limitations of deep learning approaches in credit risk assessment, including data availability and computational complexity. Khan and Chen (2018) propose recommendations for future research directions and practical considerations for implementing deep learning models in credit scoring systems.

Wei and Ming (2018) presented an enhanced credit scoring model using deep learning techniques, demonstrating improvements in predictive accuracy and robustness compared to traditional methods. According to Wei and Ming (2018), deep learning models, such as deep belief networks and auto

encoders, offer advantages in capturing non-linear relationships and detecting hidden patterns in credit data. The study by Wei and Ming (2018) evaluates the performance of deep learning models in credit scoring applications and provides insights into feature selection and model optimization strategies. Wei and Ming (2018) discussed the potential applications of deep learning techniques in credit risk management and propose future research directions for advancing the field.

Ali and Khan (2018) conducted a survey on the application of artificial intelligence techniques in credit scoring, synthesizing existing literature and identifying trends and challenges in the field. According to Ali and Khan (2018), artificial intelligence techniques, such as machine learning and expert systems, offer advantages in improving predictive accuracy and automating decision-making processes for credit evaluation. The study by Ali and Khan (2018) provides insights into the practical considerations and ethical implications of employing AI techniques in credit scoring systems. Ali and Khan (2018) proposed recommendations for addressing challenges and maximizing the benefits of AI adoption in credit evaluation processes.

Wang and Kim (2017) conducted a comparative study of machine learning algorithms for predicting credit default, evaluating their performance and applicability in credit risk assessment. According to Wang and Kim (2017), machine learning algorithms, such as logistic regression and random forest, demonstrate varying degrees of effectiveness in predicting credit default events and identifying high-risk borrowers. The study by Wang and Kim (2017) highlights the importance of model interpretability and data quality in credit risk assessment and provides insights into feature selection and model validation techniques. Wang and Kim (2017) discuss the implications of their findings for financial institutions and propose recommendations for improving credit risk assessment models.

Rodriguez and Lopez (2016) presented a credit scoring model using genetic algorithms and neural networks, demonstrating improvements in predictive accuracy and robustness compared to traditional methods. According to Rodriguez and Lopez (2016), genetic algorithms offer advantages in feature selection and model optimization, while neural networks excel in capturing complex patterns and non-linear relationships in credit data. The study by Rodriguez and Lopez (2016) evaluates the performance of the proposed credit scoring model and provides insights into the practical considerations and challenges of implementing genetic algorithms and neural networks in credit risk assessment. Rodriguez and Lopez (2016) discuss the potential applications of their approach in credit risk management and propose future research directions for enhancing credit scoring models.

The Algorithmic Brilliance Unveiled

Specific AI Algorithms Employed in Credit Evaluation

In the realm of credit evaluation, a myriad of AI algorithms are deployed to assess the creditworthiness of borrowers and mitigate lending risks. These algorithms leverage advanced computational techniques to analyze vast datasets, identify intricate patterns and make predictions with a level of precision and efficiency that surpasses traditional methods. Some of the key AI algorithms employed in credit evaluation include:

Decision Trees: Decision trees are a popular machine learning technique used in credit evaluation to model the decision-making process. These algorithms partition the dataset into smaller subsets based

on the values of input features, creating a tree-like structure of decision nodes. By recursively splitting the data based on the most informative features, decision trees can effectively classify borrowers into different risk categories and inform lending decisions.

Neural Networks: Neural networks are a class of deep learning algorithms inspired by the structure and function of the human brain. These algorithms consist of interconnected nodes (neurons) organized into layers, each layer processing and transforming the input data to produce output predictions. In credit evaluation, neural networks can analyze complex patterns and relationships in borrower data, such as credit history, income and employment status, to predict the likelihood of loan repayment and assess the risk of default.

Support Vector Machines (SVM): Support Vector Machines are a powerful machine learning technique used in credit evaluation to classify borrowers into different risk categories. SVM algorithms work by finding the optimal hyperplane that separates the data into distinct classes, maximizing the margin between the classes. By identifying the most relevant features and optimizing the decision boundary, SVMs can effectively distinguish between low-risk and high-risk borrowers and facilitate more accurate lending decisions.

Efficient Analysis of Vast Datasets

One of the primary advantages of AI algorithms in credit evaluation is their ability to analyze vast datasets and extract meaningful insights more efficiently than traditional methods. These algorithms can process large volumes of data from diverse sources, including credit reports, financial statements and transaction histories, in a fraction of the time, which would take time for human evaluators to review the same information manually.

Moreover, AI algorithms excel at identifying complex patterns and relationships in data that may not be apparent to human analysts. By leveraging advanced statistical techniques and computational power, these algorithms can uncover subtle correlations and trends that are indicative of borrowers' creditworthiness. This enables lenders to make more informed lending decisions, reduce the risk of default and optimize their loan portfolios for maximum profitability.

In essence, the algorithmic brilliance of AI in credit evaluation lies in its ability to leverage advanced computational techniques to analyze vast datasets, identify intricate patterns and make predictions with a level of accuracy and efficiency that surpasses traditional methods.

Components Backed by AI for Credit Evaluation

Machine Learning Models: Machine learning algorithms are employed to analyze historical credit data and learn patterns that indicate creditworthiness or risk. These models can include supervised learning techniques like logistic regression, decision trees, random forests and neural networks.

Predictive Analytics: AI-driven predictive analytics can forecast the likelihood of default or delinquency based on various factors such as credit history, income, employment status and demographic information. Predictive models can help lenders assess risk and make informed decisions.

Natural Language Processing (NLP): NLP techniques enable the analysis of unstructured data, such as text from loan applications, customer reviews, and social media, to extract valuable insights. NLP can help automate document processing, sentiment analysis and fraud detection.

Alternative Data Sources: AI algorithms can

leverage alternative data sources beyond traditional credit bureau data, such as social media activity, utility payments and smartphone usage patterns. Incorporating alternative data can provide a more comprehensive view of an individual's creditworthiness, especially for individuals with limited credit history.

Fraud Detection: AI-powered fraud detection systems use advanced anomaly detection algorithms to identify suspicious activities and potential fraudulent transactions in real-time. These systems analyze large volumes of transaction data to detect patterns indicative of fraudulent behavior and minimize financial losses for lenders.

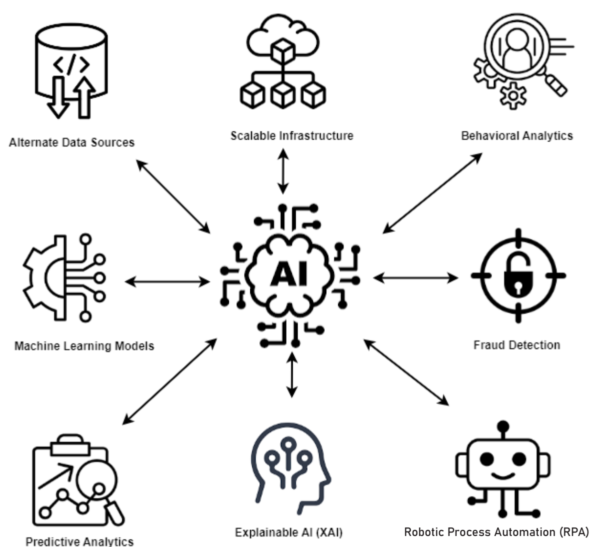
Explainable AI (XAI): XAI techniques aim to enhance transparency and interpretability of AI models by providing explanations for the decisions made by the algorithms. In credit evaluation, XAI can help lenders understand the factors influencing credit decisions and comply with regulatory requirements.

Robotic Process Automation (RPA): RPA automates repetitive and rule-based tasks in credit evaluation processes, such as data entry, document verification and compliance checks. By reducing manual effort and errors, RPA improves operational efficiency and accelerates decision-making.

Scalable Infrastructure: AI-powered credit evaluation systems require robust and scalable infrastructure to handle large volumes of data, complex algorithms and real-time processing. Cloud computing platforms and distributed computing frameworks facilitate the deployment and management of AI applications at scale.

Behavioural Analytics: Behavioural analytics involves analysing customer behaviour and transaction patterns to assess credit risk and identify potential opportunities. AI algorithms can analyse vast amounts of transactional data to detect patterns indicative of creditworthiness, such as responsible spending habits, timely bill payments and stable financial behaviour. Behavioural analytics can also help to identify early warning signs of financial distress or default, allowing lenders to proactively manage risk and tailor personalized credit offerings to individual customers. By leveraging behavioural analytics, lenders can gain deeper insights into customer preferences and behaviours, leading to more accurate credit assessments and improved decision-making processes. Figure 1 is about components backed by AI for credit evaluation.

Figure 1: Components Backed by AI for Credit Evaluation



Advantages of AI in Credit Appraisal

Benefits of Using AI in Credit Evaluation

Artificial Intelligence (AI) has ushered a new era of credit evaluation, offering a myriad of advantages over traditional methods. These benefits encompass speed, accuracy, adaptability, and enhanced risk

management, revolutionizing the way financial institutions assess creditworthiness and make lending decisions.

Speed and Efficiency: One of the most significant advantages of AI in credit appraisal is its unparalleled speed and efficiency. AI algorithms can analyze vast amounts of borrower data in real-time, processing information from multiple sources simultaneously. This rapid analysis accelerates the credit evaluation process, allowing lenders to make faster lending decisions and respond to borrower's inquiries promptly. Additionally, AI-powered automation streamlines administrative tasks such as document processing and verification, further reducing the time and resources required for loan processing.

Accuracy and Predictive Power: AI algorithms excel at identifying patterns and relationships in data, enabling them to make more accurate predictions about borrowers' creditworthiness. By analyzing historical borrower's data and identifying key risk factors, AI algorithms can generate credit scores and risk assessments with a level of precision that surpasses traditional methods. This enhanced predictive power enables lenders to assess credit risk more accurately, identify potential defaults and tailor loan terms to individual borrowers' risk profiles.

Adaptability and Flexibility: AI algorithms are inherently adaptable, capable of learning and evolving over time to accommodate changing market conditions and emerging trends. Unlike static rule-based systems, AI models can adapt to new information and adjust their predictions accordingly, ensuring that lending decisions remain relevant and up-to-date. This adaptability is particularly valuable in dynamic economic environments, where traditional credit appraisal methods may struggle to keep pace with evolving borrower's behaviour and market dynamics.

Enhanced Risk Management and Decision-Making Processes: AI-powered credit appraisal enables financial institutions to enhance their risk management strategies and optimize their lending portfolios. By leveraging advanced analytics and predictive modeling techniques, AI algorithms can identify potential risks and opportunities, enabling lenders to mitigate risks, identify profitable lending opportunities and optimize their loan portfolios for maximum profitability. Additionally, AI-powered decision support systems provide lenders with actionable insights and recommendations, empowering them to make informed lending decisions based on data-driven analysis and risk assessment.

In essence, the advantages of AI in credit appraisal are manifold, offering financial institutions a powerful toolset for accelerating loan processing, improving decision-making accuracy and enhancing risk management strategies.

Real-world Applications and Case Studies

Examples of Successful AI Implementations in Credit Appraisal

AI-driven credit appraisal has gained widespread adoption in the banking and financial industry, revolutionizing the way lenders assess creditworthiness of borrowers and make lending decisions. Several prominent examples illustrate the real-world applications of AI in credit evaluation:

ZestFinance: ZestFinance is a fintech company that specializes in using machine learning algorithms to assess credit risk. By analyzing thousands of data points, including unconventional data sources such as social media activity and online shopping behavior, ZestFinance generates more accurate credit scores for borrowers that may be overlooked by traditional credit scoring models. This approach has enabled

lenders to expand access to credit for underserved populations and reduce the risk of default.

LendingClub: LendingClub is a peer-to-peer lending platform that leverages AI algorithms to match borrowers with investors based on their credit risk profiles. Using machine learning techniques, LendingClub analyzes borrower's data to assess creditworthiness and assign interest rates, enabling investors to make informed decisions about which loans to fund. This AI-driven approach has helped LendingClub streamline the lending process, reduce the cost of borrowing, and improve investor's returns.

Case Studies Highlighting Improved Outcomes

JP Morgan Chase: JP Morgan Chase, one of the largest banks in the United States, implemented AI algorithms to improve credit risk assessment and loan underwriting processes. By leveraging machine learning techniques, JP Morgan Chase was able to analyze borrower's data more efficiently, identify high-risk loans and make more informed lending decisions. As a result, the bank reported a significant reduction in loan defaults and improved overall credit quality.

Capital One: Capital One, a leading financial services company, implemented AI-powered chatbots to streamline the loan application process and improve customer's experience. By using Natural Language Processing (NLP) algorithms, Capital One's chatbots can interact with customers in real-time, answer questions about loan products and provide personalized recommendations based on individual financial needs. This AI-driven approach has helped Capital One increase customer satisfaction, reduce loan processing times and enhance overall efficiency.

Addressing Concerns and Challenges

Potential Concerns Related to AI in Credit Appraisal

While AI offers numerous advantages in credit appraisal, its adoption also raises legitimate concerns regarding fairness, bias and interpretability. Some of the key concerns include:

Bias: AI algorithms may inadvertently perpetuate biases present in historical data, leading to discriminatory outcomes for certain demographic groups. For example, if historical lending decisions were biased against minority borrowers, AI algorithms trained on this data may perpetuate those biases, leading to unequal treatment in credit evaluation.

Interpretability: Many AI algorithms, particularly those based on complex deep learning techniques, are often viewed as "black boxes" that provide little insight into how decisions are made. This lack of interpretability can undermine trust and accountability, making it difficult for stakeholders to understand and challenge the outcomes of AI-driven credit appraisal.

Strategies and Best Practices to Address Challenges

Addressing these concerns requires a concerted effort to ensure responsible AI use and mitigate potential risks. Some strategies and best practices include:

Data Governance and Transparency: Establishing robust data governance frameworks ensures the quality, fairness and transparency of data used to train AI algorithms. This includes identifying and mitigating biases in training data, documenting data sources and preprocessing steps, and providing transparency into the decision-making process.

Fairness and Bias Mitigation: Incorporating fairness-aware algorithms and bias mitigation techniques into AI models may reduce the risk of discriminatory outcomes. This may involve implementing fairness constraints, such as demographic parity or equalized odds, during the model training process and regularly monitoring model performance for bias and fairness violations.

Interpretability and Explainability: Developing AI models that prioritize interpretability and explainability, allows stakeholders to understand and validate the reasons behind credit decisions. Techniques such as model-agnostic explanations, feature importance analysis, and surrogate models can help shed light on the factors influencing credit evaluation outcomes and enhance trust in AI-driven decision-making.

Human Oversight and Accountability: Maintaining human oversight and accountability throughout the credit appraisal process ensures that AI-driven decisions align with ethical and regulatory standards. This may involve establishing clear lines of responsibility, implementing robust audit trails, and providing mechanisms for recourse and redress in cases of algorithmic error or bias.

By proactively addressing concerns related to bias, interpretability and accountability, stakeholders can harness the transformative potential of AI in credit appraisal while ensuring that its benefits are realized in a fair, transparent and responsible manner.

The Future Landscape

Emerging Trends and Technologies

The future of AI in credit evaluation is poised for continued innovation and evolution, driven by emerging trends and technologies that promise to reshape the landscape of financial services. Some of the key trends and technologies that could shape the future of AI in credit appraisal include:

Explainable AI: As concerns around interpretability and transparency continue to grow, there is increasing emphasis on developing AI models that are more explainable and interpretable. Explainable AI techniques aim to shed light on the decision-making process of AI algorithms, providing stakeholders with insights into how credit decisions are made and enabling them to identify and address potential biases or errors.

Ethical AI: With growing awareness of the ethical implications of AI-driven decision-making, there is a growing emphasis on developing AI models that prioritize fairness, accountability, and transparency. Ethical AI frameworks aim to ensure that AI algorithms are deployed in a manner that aligns with ethical and regulatory standards, safeguarding against discriminatory outcomes and promoting responsible AI use in credit appraisal.

Federated Learning: Federated learning is a decentralized machine learning approach that enables training AI models across multiple devices or data sources without exchanging raw data. In the context of credit appraisal, federated learning could enable financial institutions to collaboratively train AI models using decentralized data sources while preserving data privacy and security.

Advancements, Regulatory Considerations and Industry Collaborations

The future of AI in credit evaluation will be shaped not only by technological advancements but also by regulatory considerations and industry collaborations. Some key factors to consider include:

Regulatory Frameworks: As AI adoption in credit appraisal grows, regulatory authorities will play a crucial role in establishing guidelines and standards to

ensure the responsible and ethical use of AI in financial services. Regulatory frameworks may encompass requirements related to data privacy, transparency, fairness, and accountability, providing a regulatory roadmap for financial institutions to navigate the evolving landscape of AI in credit evaluation.

Industry Collaborations: Collaboration and knowledge-sharing among industry stakeholders, including financial institutions, fintech companies, regulatory authorities and academic institutions will be essential for driving innovation and addressing common challenges in AI-driven credit appraisal. Industry collaborations can foster the development of best practices, standards and frameworks for responsible AI use, promoting transparency, fairness, and accountability in credit evaluation.

Research and Development: Continued investment in research and development will be critical for advancing the capabilities of AI in credit appraisal and unlocking new opportunities for innovation. Research efforts may focus on developing novel AI algorithms, improving data quality and accessibility and addressing key challenges related to bias, fairness and interpretability in credit evaluation.

As the financial services industry continues to embrace AI technologies to enhance credit appraisal processes, the future landscape holds immense promise for innovation, collaboration, and responsible AI use.

Conclusion

In this article, we have explored the transformative potential of Artificial Intelligence (AI) in reshaping the landscape of credit evaluation in the banking and financial industry. By leveraging advanced algorithms and data analytics techniques, AI has emerged as a powerful tool for streamlining credit appraisal processes, enhancing decision-making accuracy and mitigating lending risks.

Throughout our discussion, we have highlighted several key points:

Evolution of Credit Appraisal: We discussed the historical context of credit appraisal and its evolution over time, from manual processes to AI-driven algorithms capable of analyzing vast datasets and making predictions with unparalleled accuracy.

Advantages of AI: We explored the numerous advantages of AI in credit appraisal, including speed, accuracy, adaptability, and enhanced risk management. AI algorithms enable financial institutions to process loan applications more efficiently, identify creditworthy borrowers and optimize lending portfolios for maximum profitability.

Real-world Applications and Case Studies: We provided examples of successful AI implementations in credit appraisal, showcasing how leading financial institutions have leveraged AI algorithms to improve outcomes and efficiencies. Case studies highlighted the tangible benefits of AI-driven credit evaluation, including reduced defaults, improved customer satisfaction, and enhanced decision-making processes.

Addressing Concerns and Challenges: We acknowledged potential concerns related to AI in credit appraisal, such as bias and interpretability and discussed strategies and best practices to address these challenges. By promoting fairness, transparency and accountability, stakeholders can ensure responsible AI use and mitigate potential risks.

Looking ahead, the future of AI in credit evaluation holds immense promise for innovation, collaboration, and responsible AI use. Emerging trends and technologies, such as explainable AI, ethical AI, and federated learning, offer new opportunities to enhance the fairness, transparency and effectiveness of credit appraisal processes.

As financial institutions continue to embrace AI technologies to enhance credit evaluation processes, it is essential to prioritize ethical considerations, regulatory compliance and industry collaboration. By working together to develop best practices, standards and frameworks for responsible AI use, stakeholders can harness the full potential of AI to drive positive outcomes and shape the future of banking and finance.

In conclusion, AI has emerged as a transformative force in reshaping the credit evaluation landscape, offering unparalleled opportunities for innovation, efficiency and risk management. With a forward-looking perspective and a commitment to responsible AI use, the future of banking and finance holds immense promise for continued growth, prosperity and advancement.

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Effective use of Emerging technologies for Leveraging credit appraisal in Indian Banking System

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Dr. Abhishek Kumar Singh**

Abstract

Lending is no longer limited to investigation of the assets side of the balance sheet. Credit Appraisal, risk analysis and lending decisions should be considered while keeping in mind the broad framework of corporate banking strategy. The objectives of the study are to explore the concept of credit appraisal and to explain the ways to use the technology for effective credit appraisal and also to study the challenges and limitations of use of technology in credit appraisal. To embrace the technological advancements effectively in credit appraisal, a strategic and holistic approach is required. Financial institutions that invest in data quality, advanced analytics, cybersecurity, financial inclusion, regulatory compliance and human-machine collaboration position themselves to thrive in a rapidly evolving financial landscape. With the application of these strategies, institutions can harness the full potential of technology to enhance credit appraisal processes and stay competitive in the dynamic financial industry.

Introduction

In our fast-paced digital age, every bank and financial institution is looking for growth in market. For this purpose, they are to adopt a healthy portfolio consisting a balanced approach towards investment and lending. The lending to various customers attracts risk. To estimate and minimise the risk and defaulting customers, banks and financial institutions used to analyse the salary records in case of individual customers, whereas, in case of companies, Profit and Loss Statement and Balance sheet, especially, assets of the companies are considered before sanctioning the loan. The credit in itself is exposed to risk and it might happen that disbursed loan amount is not be returned by the borrower. To combat this, banks and financial institutions have to adopt credit appraisal system in an effective manner.

Credit Appraisal

Credit appraisal is the process of evaluating the creditworthiness of a borrower or a potential borrower. It involves assessment of various factors, such as financial statements, payment history, purchasing power and other factors. To determine the risk associated with lending funds to an individual or a company (FasterCapital, 2023). The goal of credit appraisal is to determine whether to accept or reject a loan proposal and to set appropriate loan limits, terms and conditions. Different methods and tools are used in credit appraisal, including traditional credit-risk analysis data, profiling customer behaviour and utilizing blockchain technology.

The use of credit assessment methods and systems that incorporate personalised credit control information and social circle information can improve the accuracy and reliability of credit evaluation results (Varathan, Kalyanasundaram, & Tamilenthi, 2012).

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The goal of credit analysis is to assign a risk rating to both the borrower and the proposed lending facility (Sharma & Kalra, 2015). The risk rating is calculated by estimating the borrower's probability of default at a given confidence level over the life of the facility, as well as the amount of loss suffered by the lender in the event of default. As previously stated, credit appraisal is concerned with three major issues: the problem of adverse selection, the measurement of exposure to risk and the assessment of default risk. The traditional approach to credit analysis entails examining the five C's i.e. Character, Capacity, Capital, Collateral and Conditions and calculating a credit score based on a predefined weighted matrix, i.e. Credit risk is measured using three key components: probability of default, exposure at default and loss given default (Srivastava, 2019). Credit appraisal, an important risk management tool for banks and financial institutions, allowing them to accurately estimate defaults in loan applicants and make informed decisions in the lending process (Abdoli, Akbari, & Shahrabi, 2023). Traditional approaches to credit appraisal primarily use financial statement analysis techniques to assess the creditworthiness of potential borrowers. However, such analysis falls short of providing a 360-degree view of the potential borrower, necessitating the implementation of more accurate, incisive and comprehensive methods (Srivastava, 2019). This leads to realise the importance of innovative ways to use technology in effective and efficient credit appraisal.

The Role of Technology in Credit Appraisals

Effective credit appraisal can be achieved through the use of technology. Technology in credit rating systems, such as the proposed cross matrix system, provide valuable information for managing technology credit funds (Lee & Kim, A Study on the Effective Combining Technology and Credit Appraisal Information in the Innovation Financing Market, 2017). Additionally, the application of intelligent technologies, such as big data and artificial intelligence algorithms, can improve risk control and enhance credit risk management in commercial banks (Moon, Kim, & Sohn, 2011). Machine and deep learning models can also be utilized to predict loan default probability and improve decision making in lending institutions (Wang, Jin, & Li, 2023, March). These models can help identify important features for loan default prediction and assess the stability of binary classifiers (Addo, Guegan, & Hassani, 2018). The use of technology in credit appraisal can be categorised into four categories: Automated Data Collection, Machine Learning and Artificial Intelligence, Streamlining Processes with Digital Documentation and Enhancing Accuracy.

Automated Data Collection for Credit Assessment

Automated data collection for credit assessment is also a crucial area of research. Several studies have proposed various methods to automatically search and construct credit scoring models based on credit data (Yang et al., 2021). These methods aim to improve the performance of computerized credit assessments, which are currently not perfect (Hayashi, 2016). Artificial intelligence (AI) techniques have shown promising results in predicting credit ratings, but there is still room for improvement (Wang & Ku, 2021). Automated classification methods, trained on datasets representing companies with known credibility, have been used to perform credit rating assessments (Hajek & Michalak, 2013). Additionally, the use of automated tools, such as the R package autoRasch, can optimize the analysis of credit data and perform Rasch analysis in a semi-automated way

(Wijayanto et al., 2023). These approaches contribute to the automation and accuracy of credit assessment processes (Figure 1), enhancing the reliability of credit assessments in various industries.

Figure 1: Automated Data Collection for Credit Assessment

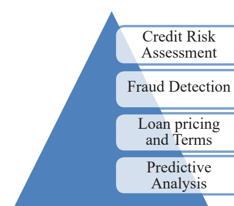
Source: Authors' study

Machine Learning and Artificial Intelligence in Credit Appraisals

Machine learning and Artificial Intelligence (AI) have a strong influence on credit risk assessments (Mehndiratta et al., 2023) by using various data sources and allowing lenders to analyse credit risk and assess the behaviour of customers (Mhlanga, 2021) as shown in Figure 2. Machine learning models, such as collaborative classifiers and neural networks, outperform traditional models in credit scoring (Tyagi, 2022). In Machine learning, the most popular term is "feature selection techniques". These technologies offer more precise predictions and help financial institutions in evaluating the credit risk (Medina, 2023). By using different feature selection techniques and machine learning classifiers, accuracy and performance of credit scoring prediction models can be improved (Trivedi, 2020). Machine learning algorithms are used to estimate the type of credit risk associated with a credit applicant and compare different scenarios using balancing methods, feature selection technique and predictive algorithms (Faletti, 2023; Tripathi et al., 2021).

The positive impact of AI-based credit analysis on macroeconomic growth emphasized along with discussion on role of artificial intelligence in credit analysis improvement and financial inclusion and credit access for traditionally underserved borrowers on a micro scale through identification of potential biases as well as ethical, legal and regulatory issues with AI-based credit analysis processes. (Sadok, Sakka, & El Maknouzi, 2022). Additionally, explainability techniques like LIME and SHAP are used to measure and explain the decisions made by machine learning-based credit scoring models. The transformative potential of Artificial Intelligence (AI) within the banking sector has ushered in an era of unprecedented efficiency, innovation and customer-centric services. Yet, this remarkable progress has not been without its ethical challenges and potential biases (Valavan, 2023).

Figure 2: Machine Learning and Artificial Intelligence in Credit Appraisal



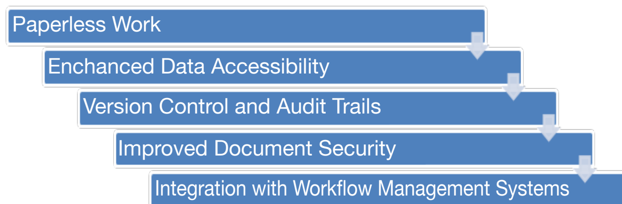
Source: Authors' study

Streamlining Credit Appraisal Processes with Digital Documentation

Digital document analysis is a system used for evaluating an appraisal theme in credit appraisal and it is considered as more competent and safer for environment (Figure 3). It involves revising documents to extract appropriate data and features and it involves no physical use of paper which also leads to no loss or misplace of the information. The accuracy of the analysis is crucial, as an inappropriate selection can lead to failure of the entire process (Cook, 2006). This will also help the credit appraiser to track the changes & upgradation and there would be more transparency

and accountability on both the sides. In this way, digital documentation tool helps in protecting the sensitive information through encryption, limited access and authentication of user. With the use of digital tools, credit appraisal process can be efficiently improved with less chances of manual errors. As a result of which, there would be faster turnaround times, better customer experiences and a more environmentally sustainable credit appraisal process for financial institutions (FasterCapital, 2023).

Figure 3: Streamlining Credit Appraisal processes with Digital Documentation



Source: Authors' study

Enhancing Accuracy with Technology

Enhancing credit appraisal data accuracy with technology can be achieved through various methods. One approach is to utilize technology to collect and analyse information of applicants to create an effective credit appraisal system (Lee & Kim, 2017). By using blockchain technology, the transactions can be made more secure and transparent by reducing the risk of fraud and enhancing the integrity of financial data. Additionally, data mining techniques (Liu & Zhang, 2021, April), specifically, data transformation techniques, can play a crucial role in increasing the accuracy of credit card screening predictive models (Suebsing & Vajiramedhin, 2013). Furthermore, accessing other databases and incorporating alternative data, such as email usage and psychometric variables, can improve the predictive accuracy of credit risk models for individuals with insufficient credit history (Patent, 2014). By combining these approaches, financial institutions can enhance the accuracy of credit appraisal system and make better lending decisions (Figure 4).

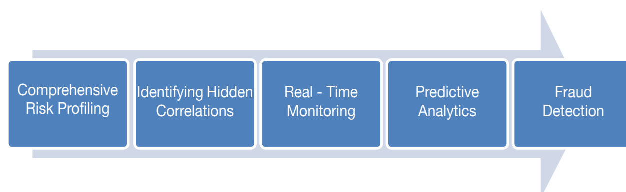
Figure 4: Enhancing Accuracy with Technology

Source: Authors' study

Using Big Data Analytics for Risk Assessment in Credit Appraisals

Big data analytics has transformed credit evaluations by providing financial institutions with a powerful tool for more accurate risk assessment and informed lending decisions (Halkarnikar et al., 2023). The Big data information source could be borrower's purchase history, social media history even browsing history can help the financial institutions to recommend the personalised product. The same information can be provided by E-commerce companies. Big data analytics enables a holistic evaluation of credit risk by uncovering nuanced patterns and improved decision-making through comprehensive risk profiling, identification of hidden correlations, real-time monitoring, predictive analytics and fraud detection (Figure 5). The ability to analyse large datasets from multiple sources ensures more accurate credit risk assessment, refining risk models and facilitating precise credit decisions. Real-time monitoring and predictive analytics enable financial institutions to address potential risks more proactively, minimizing losses and mitigating the impact of credit defaults. While leveraging the power of big data analytics provides significant benefits, institutions must prioritise high-quality data.

Figure: 5 Using Big Data Analytics for Risk Assessment



Source: Authors' study

Ensuring Data Security and Privacy in Technology-driven Credit Appraisals

In this digital intelligence era, it is very crucial to ensure data security and privacy in technology-driven credit appraisals. Several studies have proposed novel credit evaluation systems based on blockchain technology to address these concerns. These systems incorporate modules (Figure 6) such as data encryption, access control, secure computation and model storage to protect data privacy and ensure authenticity (Qiao et al., 2022). With the use of certain mathematical and encryption techniques, at the time of sharing data will remain safe and will help in protection of privacy and preventing any potential data leaks (Qiao et al., 2022, December). Additionally, the proposed systems allow for secure data sharing and privacy protection in multiparty computing, ensuring that final statistical results can be obtained without exposing raw data (Yang et al., 2022). The integration of distributed ledgers, access control, security aggregation and model storage modules in Hyperledger Fabric Blockchain Technology based systems further enhances data privacy and collaborative computation (Yang et al., 2022). These approaches optimise data privacy by sharing data models instead of revealing actual data, ensuring secure storage and sharing of credit information (Yang et al., 2022).

Figure 6: Ensuring Data Security and Privacy in Technology-Driven Credit Appraisal

Source: Authors' study

Challenges and Limitations of Technology in Credit Appraisal

Though technology offers several benefits, its application in credit appraisal comes with its some set of challenges and limitations as shown in Figure 7.

Figure 7: Challenges and Limitations of Technology in Credit Appraisal

Source: Authors' study

The effectiveness of Credit appraisal using emerging technologies is dependent on data accuracy, emphasizing that automated tools and machine learning models are as reliable as the data on which they are trained. Over-reliance on automation may result in the omission of contextual factors considered by human analysts while using traditional methods. The lack of explanation and transparency in advanced machine learning models may create difficulties for stakeholders and may raise concerns about fairness and bias. The widespread use of technology in financial institutions creates vulnerabilities to frauds and cybersecurity threats, necessitating stringent safeguards to protect sensitive data and maintain customers' trust. While developed economies embrace advanced technologies quickly, emerging markets face challenges in infrastructure, connectivity and

digital literacy, potentially excluding some segments of the population from formal credit systems.

The changing regulatory environment necessitates adaptability in technology-driven credit appraisal systems. Changes in regulations, creates uncertainty and necessitate frequent updates. In decision-making, automated systems may lack the human-touch and empathy, raising ethical concerns about potentially impersonal or biased outcomes. Striking a balance between technological innovation and human-touch is critical for developing a robust, accurate, transparent and ethical credit appraisal system. To shape the future of credit assessments, financial institutions must navigate these challenges responsibly.

Strategies to Embrace Technological Advancements

Strategies to embrace technological advancements in credit appraisal include leveraging Big Data Analysis (BDA) and Artificial Intelligence (AI) (Berrada, Barramou, & Alami, 2022, February; Sadok, Sakka, & El Maknouzi, 2022). These technologies offer various applications for the banking industry, such as supports in segmentation, customised service, customer relationship management, fraud detection and credit risk assessment (Bazarbash, 2019). Machine Learning (ML) methods, including supervised and unsupervised learning, as well as deep learning with artificial neural networks, have shown promising results in credit risk assessment (Reis & Quintino, 2023). FinTech lending, which utilises ML-based credit assessment, has the potential to enhance financial inclusion and outperform traditional credit scoring by leveraging non-traditional data sources and forecasting income prospects (Berrada, Barramou, & Alami, 2022, February).

It is critical to prioritise data accuracy and timely updates, with robust integration systems facilitating seamless data flow across internal and external sources. Using advanced analytics and Machine Learning, especially, predictive modelling, improves credit risk assessment precision, allowing for faster decision-making and identifying subtle risk factors. Transparency in algorithmic models is critical for fostering stakeholders' trust and addressing fairness concerns. Cybersecurity and fraud detection algorithms protect sensitive financial data, instilling customers' trust. Financial inclusion via mobile banking and digital platforms with user-friendly interfaces expands market reach and improves customers' experience. Regular regulatory compliance monitoring reduces legal risks, protects institutional reputation and ensures the long-term viability of technology-driven credit processes. Human-machine collaboration results in holistic credit assessments that are adaptable to changing regulatory requirements by combining automated efficiency with human judgement. A harmonious combination of technology and human-touch contributes towards implementing informed lending decisions that take both quantitative and qualitative factors into account.

Conclusion

As technological advancements continue to reshape the financial landscape, embracing innovative solutions in credit appraisal is imperative for financial institutions seeking efficiency, accuracy and competitiveness. Effectively embracing technological advancements in credit appraisal requires a strategic and holistic approach. Financial institutions that invest in data quality, advanced analytics, transparency, cybersecurity, financial inclusion, regulatory compliance and human-machine collaboration position themselves to thrive in a rapidly

evolving financial landscape. By implementing these strategies, institutions can harness the full potential of technology to enhance robustness of credit appraisal processes and stay competitive in the dynamic ever-changing financial industry.

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Transferable Letters of Credit as catalysts for Working Capital Optimisation, Cost Efficiency and Enhanced Competitiveness for SME Businesses

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Abstract

In commercial transaction (International and domestic), letters of credit are widely accepted as instruments of payment. A key reason for its wide acceptance is that it assures the seller of "timely defined payment" and the buyer of "defined quality and quantity" of goods if discrepant free presentation is made at counters of issuing bank. This attribute makes Letters of Credit a widely accepted payment instrument in international trade as it meets the needs of both buyer and seller. Under letters of credit, however, the payment is due to the seller once the presentation made by seller is accepted by issuing bank. This implies that the seller receives funds post-presentation and must utilize these funds or working capital finance to meet obligations under the letter of credit. Hence, seller will require funds for procurement, production and dispatching. This necessitates the use of own fund by seller to fulfil his obligation under letter of credit. The requirement of such funds is often termed as working capital finance. The working capital finance is often fulfilled by various facilities like Supplier Financing, Suppliers Credit, Inventory Financing, Invoice Financing (Factoring and Discounting) or Working capital loans through overdraft or cash credits from bank and NBFCs. However, these working capital facilities often demands for Securities or Collateral from seller which assures lender that, in the event of default, they can recover their funds by liquidating these assets. Such Securities or Collateral often includes tangible assets such as residential, commercial or industrial real estate, inventory, or equipment of the borrower. The need for collateral and securities often constrains the accessibility of working capital, limiting their financial flexibility and potentially hindering their growth opportunities. Fortunately, this stated challenge of liquidity deployment through working capital by seller can be addressed through the use of "Transferable letters of credit". Under Transferable letters of credit, the first beneficiary(seller) transfers part or full amount of credit to subsequent beneficiaries (Seller's supplier). This transferability feature ensures that portion of obligation that is transferred does not require the utilization of the seller's liquidity or funds. Consequently, this process leads to the elimination or reduction of the seller's working capital requirements. As a result, sellers can minimize or entirely eradicate the use of their own funds or working capital finance to fulfil their obligations by leveraging the use of Transferable Letters of Credit. This utilization helps sellers in reducing interest costs and mitigating administrative and legal charges associated with collateral mortgages. This characteristic of transferable letter of credit to reduce or eliminate the use of working finance provides cost efficiency and enhance competitiveness to small, medium and

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large enterprises. This often positions it as a widely accepted method of payment in both domestic and international market.

Introduction

A Transferable Letter of Credit functions as a financial tool employed in international trade transactions, facilitating the transfer of its terms from the initial beneficiary (the first seller) to one or more secondary beneficiaries (subsequent sellers). Within this arrangement, the initial beneficiary, who might not be the ultimate supplier of the goods, possesses the ability to transfer the credit, either in whole or part, to others within the supply chain. Subsequently, secondary beneficiaries can present relevant documents and access funds based on the value of the goods or services they contribute. The transferability's terms and conditions are explicitly delineated in the original Letter of Credit, requiring approval from the issuing bank for any transfer. This instrument offers flexibility in complex trade scenarios, enabling various entities within the supply chain to participate in a regulated manner. In simple terms, it clarifies that a transferable letter of credit is a type of letter of credit in which the issuing bank authorises the beneficiary bank to transfer all or a portion of the letter of credit's value to a second beneficiary at the first beneficiary's request. However, it can only be transferable only if it is stated to be 'Transferable' in the original letter of credit. It should be noted that all Letters of Credit are not transferable. The letters of credit in which issuing bank has specified that this Letter of credit is transferable can only be transferred.

The use of Transferable Letters of Credit adheres to international guidelines such as the Uniform Customs and Practice for Documentary Credits (UCP600) set forth by the International Chamber of Commerce (ICC). This regulatory framework not only aids in risk mitigation but also facilitates smoother transactions across global markets. Article 38 of UCP 600 outlines the rules and procedures for the operation of transferable letters of credit, providing comprehensive details for each step in the process.

It is important to highlight that when transferring Letters of Credit, the transferring bank must follow specific guidelines governing this financial transaction. Adhering to these guidelines is crucial for a smooth and compliant transfer process. The key guidelines include:

1) **Limit on Aggregate Value:** The transferring bank is bound by the condition that the total value of all transferred letters of credit must not surpass the value specified in the parent Letter of Credit. This constraint ensures that the financial commitments do not exceed the originally established parameters, maintaining financial integrity.

2) **Partial Shipments and Multiple Beneficiaries:** Transfer to more than one beneficiaries is permissible only if the original Letter of Credit explicitly allows partial shipments. This condition offers flexibility in cases where multiple entities contribute to the fulfilment of a single letter of credit, aligning with the diverse nature of international trade scenarios.

3) **Single Transfer Allowance:** A critical limitation is imposed on the transferring bank, allowing the Letter of Credit to be transferred only once. Hence, in Transferable letters of Credit, second beneficiary has no right to transfer to the third beneficiary. This restriction ensures that the

transferability feature is employed judiciously and mitigates the potential complexities that could arise from multiple transfers.

However, in the process of transfer of credit, there will be some logical accepted changes in the terms and conditions of the original letter of credit which are permitted by transferring banks. These exceptional conditions in which change can be made are listed below where any one or all of which may be reduced or curtailed.

1) The amount of the credit.
2) Any unit price stated therein.
3) The expiry date.
4) The latest shipment date or given period for shipment.
5) The period for the presentation of documents.

In summary, a Transferable Letter of Credit plays a dynamic role in commercial trade by enabling the smooth transfer of credit terms from the original beneficiary to secondary beneficiaries. This setup fosters flexible involvement in the supply chain, allowing various entities to participate in a regulated manner. Following guidelines during the credit transfer, which include limits on total value, allowances for partial shipments and a single transfer restriction, highlights the importance of maintaining financial integrity and responsible use of the transferability feature. While allowing for reasonable changes, these outlined conditions create a balanced framework, ensuring a seamless and compliant transfer process in the complex landscape of commercial trade, benefiting both buyers and sellers.

Working Capital Optimisation through Transferable Letter of Credit

The utilization of transferable letters of credit act as a catalyst for businesses. It catalyses working capital through a binary mechanism. Under this, binary mechanism acts as a catalyst for working capital through two ways. Firstly, it serves as the financial guarantee to suppliers, ensuring a stable and reliable partnership. Secondly, they contribute additional working capital, bolstering the business's financial capacity beyond its regular working capital limits. In essence, the binary roles facilitated by transferable letters of credit are integral for enhanced financial stability and operational flexibility in commercial transactions. The binary roles facilitated by transferable letters of credit can be summarized as follows.

1) **Providing supplementary working capital:** The transferable Letter of Credit acts as a financial instrument that not only assures payment but also unlocks financing options based on the creditworthiness of the original buyer. Essentially, it acts as a valuable form of collateral, extending beyond its primary purpose of ensuring payment. This financial instrument gains significance in accessing additional funding opportunities. The issuing bank evaluates the creditworthiness of the original buyer, paving the way for the transferable Letter of Credit to serve as security. This enables the seller to access extra credit beyond their existing working capital limit. Financial institutions recognize the credibility of the transferable Letter of Credit and treat it as collateral, similar to traditional forms of collateral. Consequently,

businesses can access supplementary funding linked to the transferable Letter of Credit, often termed as transactional limits, which function as supplementary facilities beyond conventional working capital, which is in addition to the standard working capital facilities. These credit facilities are different from traditional setups so they eliminate the need for adhering to drawing power calculations. In short, this approach not only reduces dependence on internal working capital but also strategically provides supplementary funding to optimizes financial resources.

2) **Serving financial security to seller's supplier to avoid advances:** The transferable Letter of Credit assumes a crucial role as a security measure for the seller's supplier, offering a means to circumvent the necessity for the seller to provide advances directly from their working capital. This is especially significant in cross-border transactions, where significant financial resources are frequently needed for the procurement or production of goods before the actual payment is received from the buyer. By utilizing the transferable Letter of Credit as security, the seller can forge a financial arrangement with their supplier that mitigates the need for upfront payments or advances. The Transferable Letter of Credit, assurance of payment upon compliance with the specified terms, provides the supplier with confidence and financial security. In turn, this empowers the seller to establish more favourable terms with their suppliers, fostering smoother and more efficient trade relationships. As a result, the transferable Letter of Credit acts as a valuable financial tool, promoting liquidity and financial efficiency.

In summary, the use of transferable letters of credit provides supplementary funding to optimize the financial resources and financial security for sellers and their suppliers. Such streamlined approach not only enhances efficiency in trade but also strengthens financial resilience in the dynamic landscape of commerce.

Cost Efficiency in Working Capital through Transferable Letter of credit

The use of transferable letters of credit brings about cost-effectiveness in working capital management through several crucial avenues. Let us delve into each of these four factors in detail to better understand how they collectively contribute to the effectiveness of working capital management.

1) **Enhancing working capital:** Transferable letters of credit play a pivotal role in enhancing cash flow management for businesses. In the standard calculation of working capital facilities, the lender determines the borrower's drawing power based on periodic assessments using provided stock statements. Borrowers, however, are typically restricted from utilizing funds beyond this calculated drawing power. Unlike traditional methods, getting funds through negotiated bills using

a transferable letter of credit does not involve the usual drawing power calculations. These funds go beyond the borrower's existing working capital, providing more flexibility in financial operations. It is important to note that drawing power calculations don't apply because the funds from negotiated bills under transferable letters of credit are considered separately as transaction limits. This independence from existing limits adds flexibility for businesses, helping them manage cash flow better and seize opportunities without conventional restrictions.

2) **Lower Interest cost for working capital:** Transferable Letter of credit or letter of credit have unique combination of traits, whereby, it serves as an unsecured method of funding at the borrower's end and a secured method of funding at the lender's end, making it a more cost-effective option compared to unsecured funding methods like overdrafts. It serves as an unsecured method of funding at the borrower's end because much like unsecured overdrafts they are not obligated to provide any collateral through mortgage or pledges to the lender. It serves as secured method of funding at the lender's end because Transferable letter of credit have inherent characteristics of definite undertaking from the issuing bank which offers full security to sender. Such unique combination of traits positions transferable letters of credit as both an unsecured method of funding at the borrower's end and a secured method of funding at the lender's end, which results into lower Interest cost option compared to traditional unsecured funding methods like overdrafts. Additionally, funding raised through negotiation of accepted bills under transferable letters of credit involves dealing with foreign currency. The prevailing interest rates for such foreign currency funding are consistently lower compared to domestic rates. This translates to a significant reduction in borrowing costs for the borrower. Hence, leverage on these characteristics provides lower interest rates for working capital and allows businesses to access the necessary funds more cost-effectively at lower interest cost.

3) **Lower expenses for working capital:** Raising funds under transferable letters of credit offers distinct advantages by eliminating the need for any mortgage or pledge, thus, eradicating associated costs linked to security creation. Moreover, the funds acquired through transferable letters of credit are transactional in nature, sparing borrowers from additional expenses such as processing fees or renewal charges. Moreover, these funds are raised in foreign currency through bill negotiation hence, can be used for import payments without need for currency conversion. This approach eliminates the requirement for currency conversion at the borrower's level, resulting in substantial savings, as expenses associated with currency conversion are often significant in absolute terms. Hence, leverage on these

characteristics reduces expenses and save costs to provide efficiencies in lowering the expenses associated with working capital.

4) **Enhancing Cash Flow Management:** The use of transferable letters of credit presents a valuable solution for businesses by eliminating the need to provide advances to suppliers, thereby, significantly improving cash flow management. This feature allows businesses to optimize their financial resources more effectively and ensures a smoother flow of funds within their operations. Additionally, the negotiation of bills under transferable letters of credit goes beyond the confines of existing working capital facilities. This means that businesses can access additional funding beyond their established limits, offering greater flexibility in addressing financial needs and capitalizing on strategic opportunities. In essence, the adoption of transferable letters of credit not only enhances cash flow by removing the requirement for supplier advances but also provides an avenue for supplement funding, reinforcing financial resilience for businesses.

In summary, transferable letters of credit save the cost by providing extra working capital, lowering interest costs, cutting overall working capital expenses and improving the flow of funds in business operations. Hence, they provide complete and cost-effective financial solution with benefits of managing working capital.

Enhanced Competitiveness through Transferable Letter of credit

Business can enhance their competitiveness through the strategic utilization of transferable letters of credit. In employing this financial instrument, sellers are alleviated from the need to provide advances for supplies, thereby, strengthening their ability to manage cash flows effectively. This advantage not only enhances financial stability but also positions the firm competitively against counterparts not leveraging similar financial tools. Moreover, the use of transferable Letter of Credit results in a significant reduction in the cost of working capital. This reduction, in turn, bestows financial competitiveness, giving the business a distinctive edge over competitors. Concurrently, the utilization of Transferable Letter of Credit enables businesses to curtail expenses associated with drawing working capital, amplifying their competitive advantage. The flexibility of this financial mechanism further supplements working capital, empowering Small and Medium Enterprises (SMEs) to meet operational demands seamlessly. In essence, the adoption of Transferable Letter of Credit becomes a pivotal strategy for SMEs, enhancing their financial robustness and competitive positioning in the market.

Conclusion

In conclusion, the exploration of “Transferable Letters of Credit as Catalysts for Working Capital Optimization, Cost Efficiency and Enhanced Competitiveness for SME Businesses” has shed light on the multifaceted benefits of leveraging this financial instrument. The introduction provided a comprehensive understanding of transferable letters of credit and their operational mechanisms. The subsequent sections delved

into the pivotal roles they play in working capital optimization, offering supplementary funds and streamlining financial resources. The examination of cost efficiency underscored how transferable letters of credit not only reduce interest costs but also eliminate expenses associated with traditional security creation, presenting a more economical option for SMEs. Moreover, the enhanced competitiveness stemming from these financial tools positions SMEs favourably in the market, enabling them to navigate challenges with agility.

In essence, this article affirms that transferable letters of credit serve as catalysts, not only optimizing working capital and ensuring cost efficiency but also fostering enhanced competitiveness for SME businesses in today's dynamic business landscape.

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पर्यावरण को बचा कर रखने में बैंकिंग क्षेत्र की भूमिका

विजय प्रकाश श्रीवास्तव*

पर्यावरण को लेकर दुनिया आज जितनी गंभीर है उतनी पहले कभी नहीं थी। सच कहा जाए तो यह गंभीरता वर्षों पहले से दिखाई जानी चाहिए थी। प्राकृतिक संसाधनों के अंधाधुंध एवं अविवेकपूर्ण उपयोग एवं दोहन के दुष्परिणाम हम अपनी आँखों के सामने देख रहे हैं। एक तरफ धरती का तापमान बढ़ता जा रहा है तो दूसरी तरफ अनेक रूपों में प्रदूषण विभिन्न प्रकार की समस्याएँ खड़ी कर रहा है। हमसे पहले की पीढ़ियों ने पर्यावरण को संभाल कर रखा तभी हम आज इसमें सांस ले पा रहे हैं। हमारा भी नैतिक दायित्व है कि आने वाली पीढ़ियों को स्वस्थ पर्यावरण सौंपें। लेकिन इस रास्ते में बहुत सी मुश्किलें हैं।

नवंबर 2023 के शुरू में संयुक्त राष्ट्र पर्यावरण कार्यक्रम द्वारा जारी इमिशन गैप रिपोर्ट में कहा गया है कि 2023 का वर्ष अब तक का सब से गरम वर्ष है। रिपोर्ट में इस डर को सही बताया गया है कि हाल में देखी गई कई प्राकृतिक आपदाएं तेजी से हो रहे जलवायु परिवर्तन का ही दुष्परिणाम हैं। ग्रीनहाउस गैस उत्सर्जन 2022 में रिकॉर्ड स्तर पर पहुँच गया। सितंबर 2023 में वैश्विक औसत तापमान औद्योगिकीकरण पूर्व के युग की तुलना में 1.8 डिग्री सेल्शियस ऊपर दर्ज किया गया है। ये सब अच्छे संकेत नहीं हैं। पर्यावरण का हरा-भरा और स्वस्थ स्वरूप बनाए रखने के प्रति यदि दुनिया बेपरवाह बनी रहती है तो इसके निवासियों को ही इसका परिणाम भुगतना होगा एवं आने वाले समय में दुष्परिणाम और अधिक घातक होंगे।

पर्यावरण अपने स्वाभाविक रूप में बना रहे, प्रदूषण कम से कम फैले, इसे सुनिश्चित करने हेतु व्यैक्तिक एवं सांगठनिक दोनों स्तरों पर प्रयासों की आवश्यकता होगी। पर्यावरण संरक्षण के प्रति नागरिकों के क्या कर्तव्य हैं, इसके प्रति उन्हें बार-बार आगाह किया जाता रहा है। हम यहाँ अपनी चर्चा पर्यावरण को बचा कर रखने में संगठनों, विशेषकर बैंकों द्वारा किए जा सकने वाले योगदान तक सीमित रखेंगे।

हमारे देश में संगठित तथा असंगठित दोनों क्षेत्रों का आकार बढ़ता जा रहा है। यह वृद्धि विकास से भी जुड़ी हुई है। कॉर्पोरेट जगत में लघु, मध्यम तथा विशाल सभी आकारों के निकाय होते हैं। इन निकायों का प्रदर्शन बहुत से कारकों पर निर्भर करता है। सफलता का पायदान चढ़ते हुए कई लघु निकाय, मध्यम आकार के निकाय की अत्यन्त विशाल निकायों का रूप लेते देखे गए हैं। इसका सीधा परिणाम यह होता है कि अपने परिचालनों के लिए इन निकायों को ज्यादा जगह तथा अधिक संख्या में लोगों की आवश्यकता होती है। पर्यावरण इस परिणाम से प्रभावित हुए बिना नहीं रह सकता क्योंकि विशाल निकायें, अधिक पर्यावरण प्रदूषण का कारण बनती है।

बैंकिंग और वित्तीय क्षेत्र का उदाहरण लें, राष्ट्रीयकरण से पूर्व बैंकों की गिनी-चुनी शाखाएँ हुआ करती थीं। आज बैंकों तथा गैर–बैंकिंग वित्तीय कंपनियों की मौजूदगी शहरों, कस्बों, गांवों हर जगह पर है। बैंकों में सार्वजनिक, निजी, सहकारी क्षेत्र के बैंकों के साथ क्षेत्रीय ग्रामीण बैंक आदि भी शामिल हैं। यदि इनमें से प्रत्येक के द्वारा ऊर्जा की बचत, अपशिष्ट पदार्थों के समुचित निस्तारण तथा प्रदूषण नियंत्रण पर समुचित ध्यान दिया जाए तो इसके अनुकूल संचयी

*सेवानिवृत्त मुख्य प्रबन्धक एवं संकाय सदस्य, बैंक ऑफ इंडिया।

प्रभाव का अनुमान लगाया जा सकता है। शाखाओं तथा कार्यालयों में कई बार जगह पर किसी के मौजूद न होने पर भी बिजली जलती रहती है, एयर कंडीशनर चलता रहता है। यदि ऊर्जा का अनावश्यक व्यय रोका जाए तो व्यय में कमी आएगी तथा पर्यावरण को भी लाभ होगा। बैंक दूसरे प्रकार से भी योगदान कर सकते हैं जिसका दायरा अत्यधिक व्यापक है जैसे कि अपने कार्यालयों तथा शाखाओं में सौर ऊर्जा का उपयोग, ऊर्जा दक्ष भवनों का उपयोग, कागज का न्यूनतम इस्तेमाल, पत्राचार एवं संप्रेषण हेतु डिजिटल माध्यमों का उपयोग, स्थानीय तथा रिसाइकल्ड उत्पादों का क्रय, इलेक्ट्रॉनिक वेस्ट का समुचित निस्तारण आदि।

पर्यावरण को लेकर चिंताएँ और बैंक

आज बैंक विविध प्रकार के कार्यकलापों में संलग्न हैं, परंतु उनका मुख्य कार्य एकत्र की गई जमाराशियों का एक बड़ा हिस्सा ऋण के रूप में प्रदान करना है। बैंकों की आय का एक बड़ा हिस्सा इन ऋणों पर अर्जित ब्याज से ही आता है। ऋण वितरण के मामले में अब बैंकों को काफी स्वतन्त्रता है फिर भी उन्हें इस संबंध में वित्त मंत्रालय तथा केंद्रीय बैंक के दिशानिर्देशों का पालन करना होता है। बैंकों की ऋण नीति बहुत सारी बातों को ध्यान में रख कर बनाई जाती है जिनमें जोखिम प्रबंधन मुख्य रूप से शामिल है। बैंकों द्वारा सभी ऋणों के संबंध में आसन्न जोखिम का आकलन किया जाता है, पर उन्हें इन ऋणों से बाहरी जगत पर पड़ने वाले जोखिमपूर्ण प्रभावों पर भी विचार करना होता है। बाहरी होते हुए भी ये जोखिम बैंकों के ऋण पोर्टफोलिओ को प्रतिकूल रूप से प्रभावित कर सकते हैं।

पर्यावरण जोखिम पहले भी थे तथापि बैंकों ने इनका संज्ञान लेना विगत कुछ वर्षों से शुरू किया है। इसके पीछे अन्य बातों के साथ-साथ वैश्विक स्तर पर पर्यावरण को लेकर व्यक्त की जा रही चिंताएँ हैं। पेरिस क्लाइमेट संधि 2015 में अंगीकार की गई थी और इस पर 195 देशों ने हस्ताक्षर किए हैं। संयुक्त राष्ट्र संघ प्रति वर्ष जलवायु परिवर्तन पर सम्मेलन आयोजित करता है। 2023 में दुबई में आयोजित इस सम्मेलन में भारत का मजबूत प्रतिनिधित्व रहा तथा इसने पर्यावरण संरक्षण के लिए अपनी प्रतिबद्धताओं को दुहराया। थोड़े समय पहले आयोजित जी20 शिखर सम्मेलन में भी जलवायु परिवर्तन तथा इससे उत्पन्न चुनौतियों पर विशद चर्चा की गई तथा सदस्य देशों द्वारा उनके दायित्वों को पूरा करने पर बल दिया गया। पर्यावरण को सुरक्षित बनाये रखने हेतु सामाजिक चेतना तो जरूरी है ही, संस्थागत वित्त में भी इसका ध्यान रखना जरूरी है। बैंकों की भूमिका को इसी परिप्रेक्ष्य में देखा जाना चाहिए।

पर्यावरण अनुकूल वित्तपोषण

केंद्रीय बैंकों का मुख्य सरोकार मौद्रिक नीति, आर्थिक विकास, वित्तीय स्थिरता तथा वित्तीय प्रणाली के विनियमन एवं पर्यवेक्षण से हुआ करता है। विभिन्न देशों जिनमें भारत भी शामिल है, में इन बैंकों को अधिदेश होता है कि उनके उक्त मूलभूत ध्येय को प्रभावित करने वाले जोखिमों का सामना करने हेतु वे समुचित रणनीति तैयार करें। केंद्रीय बैंक पर्यावरण जोखिम को अब एक ऐसे ही जोखिम के रूप में स्वीकार करने लगे हैं। बैंकिंग क्षेत्र का प्रदर्शन आम जन-जीवन से जुड़ा हुआ है। यदि जलवायु परिवर्तन का असर जन-जीवन पर पड़ता है, तो बैंक भी इससे अछूते नहीं रह सकते। जलवायु परिवर्तन के कारण दावानल, चक्रवात और बाढ़ जैसी प्राकृतिक दुर्घटनाएँ बैंकों के संचालन में बाधाएँ खड़ी कर सकती हैं। यदि इन घटनाओं के चलते उत्पादन रुक जाता है, आपूर्ति श्रृंखला बाधित होती है और उपभोग्य वस्तुओं की कमी होती है, तो भी बैंक प्रभावित होते हैं। महंगाई बढ़े या मुद्रास्फीति, केंद्रीय बैंक की नज़र इन सब पर होती है। वैश्वीकरण के इस दौर में, प्राकृतिक आपदाओं का असर भले ही क्षेत्र विशेष में हो, इनकी आहट दूर तक महसूस की जा सकती है। मसलन, यदि एक बैंक ने किसी देश में निर्यात हेतु स्थानीय निर्यातक को ऋण दिया हो और उस देश में कोई बड़ी प्राकृतिक विपदा आ जाए, तो इससे ऋण की वसूली में मुश्किलें आ सकती है। इस प्रकार जलवायु परिवर्तन किसी देश या क्षेत्र विशेष की समस्या नहीं है। अत: जलवायु परिवर्तन जनित समस्याओं

से निपटने हेतु अंतर्राष्ट्रीय सहयोग को अनिवार्य माना जा रहा है। विभिन्न देशों के केंद्रीय बैंकों के बीच भी इस संबंध में तालमेल देखने को मिल रहा है।

मोटे तौर पर पर्यावरण अनुकूल वित्तपोषण (Climate-friendly financing) जलवायु परिवर्तन जनित समस्याओं का सामना करने अथवा जलवायु परिवर्तन के प्रतिकूल असर को दूर या न्यून करने हेतु किया गया वित्तपोषण है। इसमें वे वित्तपोषण भी शामिल हैं, जो पर्यावरणीय स्थिरता अर्थात् सस्टेनेबिलिटी को समर्पित हों।

औद्योगिकीकरण एक सतत् प्रक्रिया है तथा बढ़ते औद्योगिकीकरण को विकास का परिचायक माना जाता है। बैंकों द्वारा दिए जाने वाले ऋणों का एक बड़ा हिस्सा उद्योगों के लिए होता है। उद्योग, खास तौर से बड़े उद्योग, अनेक नियमों एवं क़ानूनों के दायरे में आते हैं जिनमें से कुछ का संबंध पर्यावरण से भी होता है। बैंकों को यह सुनिश्चित करना चाहिए कि जिस औद्योगिक परियोजना के लिए वे ऋण दे रहे हों, वह पर्यावरणीय मानकों का उल्लंघन न करती हो तथा इस परियोजना के सफल कार्यान्वयन से पर्यावरण पर प्रतिकूल प्रभाव न पड़े। बैंकों की वरीयता ऐसे उद्योगों को ऋण देने की होनी चाहिए जिनमें शून्य या न्यून कार्बन उत्सर्जन होता हो, जो प्रदूषण न फैलाते हों तथा जिनमें अपशिष्ट पदार्थों के निस्तारण की समुचित व्यवस्था की गई हो।

विश्व में ऊर्जा की खपत में निरंतर इजाफा हो रहा है, इसलिए ऊर्जा का उत्पादन बढ़ाना भी जरूरी है। आज ज़ोर ऊर्जा के परंपरागत स्रोतों की बजाय इसके वैकल्पिक स्रोतों के उपयोग पर है जो किफ़ायती तथा नवीकरणीय हों तथा जिनके उपयोग से प्रदूषण बिल्कुल नहीं या न के बराबर हो। सौर ऊर्जा, पवन ऊर्जा, ग्रीन हाइड्रोजन, बायो फ्यूल इसी तरह के स्रोत हैं। हमारी सरकार वैकल्पिक ऊर्जा उत्पादन में निवेश को बढ़ावा दे रही है तथा इस हेतु विभिन्न प्रकार के प्रोत्साहन तथा रियायतें उपलब्ध हैं। विगत वर्षों में हमारे रिज़र्व बैंक ने पर्यावरण अनुकूल वित्त को समर्थन तथा प्रोत्साहन देने हेतु नीतिगत उपाय किए हैं। भारतीय रिज़र्व बैंक के निर्देशों के अनुसार, नवीकरणीय ऊर्जा की परियोजनाओं को बैंकों द्वारा किया गया वित्तपोषण उनके प्राथमिकता प्राप्त क्षेत्र को ऋण में गिना जाता है। इस श्रेणी में बैंक उत्तम एवं वित्तीय रूप से व्यवहार्य परियोजनाओं को वित्तपोषित कर अपने लिए लाभ की स्थिति उत्पन्न कर सकते हैं।

एक श्रेणी ऐसे उद्योगों की है जो प्रदूषण नियंत्रण, अपशिष्ट निस्तारण आदि के समाधान प्रस्तुत करते हैं। ये समाधान यांत्रिक तथा अन्य रूपों में हो सकते हैं। शहरीकरण तथा औद्योगीकरण का विस्तार होने के साथ इन समाधानों की मांग बढ़ेगी। बैंक इस श्रेणी के उद्योगों को वित्तपोषित कर पर्यावरण संरक्षण में योगदान कर सकते हैं।

बैंकों द्वारा तैयारी

पर्यावरण अनुकूल वित्तपोषण के मामले में बैंक एक प्रकार से अभी शुरुआती दौर में हैं तथा आगे उन्हें लंबा रास्ता तय करना है। प्राकृतिक आपदाओं तथा उनकी भयावहता का पूर्वानुमान लगाना कई बार मुश्किल होता है और यह बैंकों का कार्यक्षेत्र भी नहीं है। फिर भी पर्यावरण के प्रति अपने कार्मिकों को संवेदनशील बनाने के लिए बैंकों द्वारा कदम उठाए जाने की जरूरत है। इसके साथ बैंकों के पास ऐसे विशेषज्ञ भी होने चाहिए जिन्हें जलवायु परिवर्तन से जुड़े मसलों की समझ हो और इससे जुड़ी प्रवृत्तियों पर जिनके द्वारा नज़र रखी जाती हो। उनका कार्य अन्य संबन्धित जानकारी एकत्र करना भी होना चाहिए जो बैंक में विभिन्न स्तरों पर तथा इसके शीर्ष प्रबंधन हेतु उपयोगी हो। ये विशेषज्ञ, किसी नये ऋण प्रस्ताव की स्वीकृति से पहले उस परियोजना प्रस्ताव मे निहित पर्यावरण प्रतिकूल आशंकाओ एवं दुष्परिणामों पर अपना विशिष्ट मत दे सके।

यदि पर्यावरण अनुकूल परियोजनाओं की संख्या में वृद्धि हो रही है तथा ऐसी परियोजनाओं में निवेश बढ़ रहा है, तो स्वाभाविक है कि ऐसी परियोजनाओं के वित्तपोषण हेतु बैंकों से ऋणों की मांग के प्रस्ताव अधिक संख्या में आएंगे। ऐसे प्रस्तावों के आकलन/मूल्यांकन हेतु अपनी जनशक्ति में विशेषज्ञता निर्मित करना भी आवश्यक है जिसमें प्रशिक्षण

अत्यधिक उपयोगी साबित हो सकता है। पर्यावरण अनुकूल निवेश के प्रबंधन में भी बैंकों के लिए अच्छे अवसर हैं।

फाइनेंशियल स्टेबिलिटी बोर्ड द्वारा प्रकाशित ''जलवायु परिवर्तन जनित जोखिमों के समाधान हेतु उपाय (रोडमैप फॉर एड्रेसिंग फाइनेंशियल रिस्क्स फ्राम क्लाइमेट चेंज)'' के लिए जी20 ने अपना समर्थन दिया है। दुनिया भर के बैंक इन उपायों को अपना रहे हैं।

दुनिया के कई बड़े बैंकों ने अब पर्यावरण को नुकसान पहुंचाने वाली अथवा कार्बन की अधिक मात्रा उत्सर्जित करने वाली परियोजनाओं में अपना एक्सपोजर कम करना या पूर्णत: हटाने की नीति पर कार्य करना शुरू कर दिया है। इससे अन्य बैंकों द्वारा भी इसका अनुसरण किए जाने का मार्ग प्रशस्त हो चुका है।

वित्त वर्ष 2023-24 हेतु हमारे देश के बजट में पर्यावरण के प्रति संवेदनशील विकास पर ज़ोर दिया गया है। पर्यावरण अनुकूल वित्तपोषण अब निश्चित रूप से भारत के बैंकों की प्राथमिकताओं में शामिल है। एक तरफ बैंक उपलब्ध जानकारी के आधार पर इस हेतु मॉडल तैयार कर रहे हैं तो दूसरी तरफ वित्तीय उद्योग हेतु जलवायु जोखिम के समाधान हेतु अन्य पक्षों द्वारा भी समाधान प्रस्तुत किए जा रहे हैं। इन समाधानों की उपयोगिता का आकलन बैंकों द्वारा ही किया जाना होगा।

ईएसजी (ESG) और बैंक

कॉर्पोरेट जगत में ईएसजी आज एक चर्चित पद है जिसका अर्थ है - एनवायरोन्मेंट (पर्यावरण), सस्टेनेबिलिटी (संधारणीयता) तथा गवर्नेंस (अभिशासन)। ईएसजी का सर्वप्रथम ज़िक्र संयुक्त राष्ट्र संघ की 2006 में प्रकाशित 'प्रिंसिपल्स फॉर रिस्पोंसिबल इनवेस्टमेंट' पर रिपोर्ट में आया था। इस रिपोर्ट में सिफ़ारिश की गई थी कि कंपनियों के वित्तीय मूल्यांकन में ईएसजी मानकों को भी शामिल किया जाना चाहिए। ईएसजी मानकों को अंतर्राष्ट्रीय स्तर पर अब व्यापक स्वीकार्यता मिल चुकी है। वर्ल्ड इकोनोमिक फोरम तथा इन्टरनेशनल बिजनेस काउंसिल ने विश्व की चार प्रमुख लेखांकन परामर्शदात्री कंपनियों के साथ मिल कर 22 खास मेट्रिक्स का एक ढांचा तैयार किया था जो कंपनियों द्वारा अपने प्रदर्शन की रिपोर्टिंग के लिए था। अपने परिवर्धित रूप में यह ढांचा अब 34 मेट्रिक्स का है जो संधारणीय विकास हेतु संयुक्त राष्ट्र संघ की 2030 की कार्यसूची के अनुरूप हैं। मेट्रिक्स अभिशासन के सिद्धांतों, पृथ्वी की रक्षा, लोगों के हित तथा समृद्धि पर केंद्रित हैं। कंपनियाँ अपनी व्यवसाय प्रथाओं में पर्यावरणीय मुद्दों के प्रति उनके उत्तरदायित्वपूर्ण व्यवहार को रिपोर्ट करें, इस उद्देश्य से स्थापित ग्लोबल रिपोर्टिंग इनिशिएटिव ने वर्ष 2009 से ईएसजी रिपोर्टिंग का कार्यान्वयन शुरू किया जो अब ज़ोर पकड़ चुका है।

पर्यावरण संरक्षण हेतु पहल में विभिन्न मोर्चों पर भारत आज अग्रणी भूमिका निभा रहा है। देश का कॉर्पोरेट जगत जिसमें बैंकिंग उद्योग भी शामिल है, ईएसजी को अपनाने के प्रति तत्पर है। ईएसजी के तहत बैंकों के दायित्वों को मोटे तौर पर निम्न चार श्रेणियों में रखा जा सकता है:

- उत्सर्जन घटाने, प्रदूषण कम करने, नवीकरणीय ऊर्जा उत्पादित करने, स्वच्छ व पर्याप्त जलापूर्ति सुनिश्चित करने, आदि की परियोजनाओं को वित्तपोषित करने हेतु लक्ष्य निर्धारण तथा अवसरों की तलाश।
- कार्यस्थल पर पर्यावरण अनुकुल एवं स्वस्थ वातावरण हेतु नीतियाँ बनाना जिनमें आचरण संहिता के पालन, मानवाधिकारों की रक्षा, पणधारकों को जोड़ने तथा कॉर्पोरेट अभिशासन की रणनीतियों आदि को शामिल किया गया हो।
- बैंक के परिचालनों तथा पोर्टफोलियो के पर्यावरणीय प्रभावों तथा इससे संबन्धित जोखिमों का आकलन कर इनके न्यूनीकरण हेतु उपाय करना।
- विनियमों के तहत ईएसजी प्रकटन तथा रिपोर्टिंग की सुदृढ़ प्रणाली स्थापित करना।

बाज़ार विनियामक भारतीय प्रतिभूति एवं विनिमय बोर्ड (सेबी) ने ईएसजी प्रकटन को लेकर विस्तृत दिशानिर्देश जारी किए हैं। बैंकों में ऋण रेटिंग हेतु विविध प्रावधान

लागू किए गए हैं। इस रेटिंग में यथा लागू ईएसजी रेटिंग को भी शामिल किया जाना है। सेबी के मास्टर परिपत्र में ईएसजी रेटिंग के सेवा प्रदाताओं के लिए मार्गदर्शी सिद्धान्त दिए गए हैं।

बैंकों को चाहिए कि वे ईएसजी मानदंडों को केवल अनुपालन की औपचारिकता के दृष्टिकोण से न देखें, बल्कि इसे अपनी नीतियों के मूल तत्वों में शामिल करें। बैंकों के निदेशक मण्डल को इसमें सक्रिय योगदान करना होगा।

बैंकों की बढ़ती ज़िम्मेदारी

पर्यावरण पर वित्त के प्रभावों को नकारा नहीं जा सकता। वित्त का विनियोजन करने में अनेक सावधानियाँ बरतनी होती हैं। इन सावधानियों में अब यह भी शामिल है कि इस विनियोजन से पर्यावरण को कोई परोक्ष या प्रत्यक्ष क्षति न हो। चूंकि वित्तीय लेन देन मुख्यत: बैंकों के माध्यम से होते हैं तथा वित्तपोषण का मुख्य स्रोत बैंक ही हैं, पर्यावरण को बचाने में बैंकों की भूमिका के महत्त्व को आसानी से समझा जा सकता है। विश्व बैंक की एक घोषणा में कहा गया है कि इसका लक्ष्य वर्ष 2025 तक अपने कुल वित्तपोषण का 45 प्रतिशत पर्यावरण संबंधित परियोजनाओं को देना है। वित्तीय बाज़ार में ग्रीन बांडों, संधारणीयता संबद्ध ऋणों आदि का चलन बढ़ रहा है। कुल मिला कर कहा जाए तो अब वित्तीय तंत्र का काफी ध्यान पर्यावरणीय परिवर्तनों तथा इसकी आवश्यकताओं पर है। आज भारत विश्व की सबसे तेजी से बढ़ रही अर्थव्यवस्थाओं में से एक है। यह बढ़त बहुत सारे अवसरों के साथ है, पर इसमें पर्यावरण के लिए खतरे भी मौजूद हैं। अर्थव्यवस्था को पटरी पर रखने तथा आगे बढ़ाने में बैंकों की भूमिका अत्यधिक महत्वपूर्ण होती है। हमारी अर्थव्यवस्था का विकास समावेशी हो, इसमें प्राकृतिक संसाधनों का विवेकपूर्ण उपयोग हो एवं दुरुपयोग न हो तथा यह पर्यावरणीय हितों की उपेक्षा न करे; इसका ध्यान बैंकों को भी रखना होगा एवं इस दिशा में सभी बैंकों को सतत् प्रयास करते रहना होगा ताकि इसके द्वारा सभी निष्पादित ऋण प्रस्ताव पर्यावरण अनुकूल हों एवं प्रदूषण को निम्नतर करने में सहायक हों।

Bank Quest Articles - Honorarium for the Contributors

Contribution	Amount
Article / Research Paper	₹ 7,500/-
Book Review	₹ 3,000/-
Legal Decisions affecting Bankers	₹ 3,000/-

Legal Decisions Affecting Bankers

Prakhar Galaw*

Appellant(s) : M Suresh Kumar Reddy

Vs.

Respondent(s) : Canara Bank and others

Court : Supreme Court

Bench Strength : 2

Bench : Abhay S Oka and Rajesh S Bindal, JJ

Citation : 2023 (8) SCC 387

Relevant Provision of Law

Insolvency and Bankruptcy Code, 2016

a. S. 3(11) – Debt

b. S. 3 (8) – Corporate Debtor

c. S. 3 (12) - Default

d. S. 3 (7) - Financial Creditor

e. S. 7 – Initiation of Corporate Insolvency Resolution Process by Financial Creditor

Brief Facts of the Case

1. The appellant, who is the suspended Director of corporate debtor M/s. Kranthi Edifice Pvt. which availed credit facilities from respondent bank erstwhile Syndicate Bank amounting to Rs. 74,52,87,564 in secured draft facility and bank guarantee amounting to Rs. 19,16,20,100.
2. The appellant, defaulted in the payment of the debt due to the bank. Following which a demand notice under section 13 (2) of the SARFAESI Act, 2002 was issued by the bank which was duly acknowledged by the appellant to the extent of Rs. 63,36,61,897.
3. The appellant after receipt of the demand notice made numerous efforts towards one-time settlement with the respondent but the same was not considered by the bank.
4. The respondent proceeded towards invocation of bank guarantee and directed the appellant to handover demand drafts issued in favor of appellant corporate debtor by the State Government of Telangana for a tender awarded by the Government.
5. The respondent bank, also filed an application under section 7 of the Insolvency and Bankruptcy Code (IBC), 2016 which was admitted by the National Company Law Tribunal (NCLT), Hyderabad and declared moratorium against the respondent.
6. The appellant against the said admission and action of respondent bank moved to the High Court (HC) of Telangana which only provided interim protection against coercive steps taken by the respondent bank and made observations "that NCLT ought not have admitted application under IBC".
7. The appellant against the admission of petition under section 7 of the IBC, moved to the National Company Law Appellate Tribunal (NCLAT). The

*Legal Executive, IFFCO Tokio General Insurance Company Limited.

said appeal was dismissed by the NCLAT.

8. The appellant against the said order of the NCLAT had preferred an appeal in the Supreme Court.

Contention of the Appellant and Respondent

a. The counsel appearing on behalf of the appellant contended that numerous efforts were made by the corporate debtor for settlement of debt but the same was never seriously considered by the bank.

b. It was further contended by the counsel that the NCLT ought not have admitted the petition of respondent under section 7 of the IBC in the light of judgement of the Supreme Court in ***Axis bank vs Vidarbha Industries Power Ltd***[1]. In which it was held that obligation of the NCLT under section 7 of the IBC when debt and default has been established is discretionary in nature and not mandatory.

c. It was also contended that the respondent bank did not extended bank guarantee in favor of the appellant even after the directions of the State Government which forced the appellant to cause the default. Also, the respondent had violated interim protection granted by the HC of Telangana in terms of no coercive actions against the corporate debtor.

d. The counsel appearing on behalf of the respondent bank contended that facts and circumstances in Axis bank vs Vidarbha Industries Power Ltd. was different and the same cannot be treated as binding precedent as has been emphasized in the review of the said judgement. And the law as laid down in ***E. S. Krishnamurthy vs Bharath Hi-Tech Builders Pvt. Ltd.***[2] with regards to section 7 of the IBC still holds good.

Findings and Observations of Supreme Court

The Supreme Court in the instant case analysed section 7 of the IBC, 2016 in the light of three important judgements ith regards to initiation of Corporate Insolvency Resolution Process by financial debtor. Firstly, it analysed the scope of section 7 of the IBC, 2016 in the light of its judgement in ***Innoventive Industries Ltd. vs ICICI Bank,***[3] in which it was held that under section 7 when the debt has become due to the financial creditor, the financial creditor can file an application under section 7 of the IBC. After which, the NCLT is bound to decide about the default within 14 days. After the default has been established the corporate debtor under section 7(5) can dispute the default or dispute the debt itself. Once the default is established as per section 7(5), the NCLT is bound to admit application and communicate the order as per section 7(7) to the corporate debtor and financial creditor. The ruling of Innoventive industries case has been discussed and upheld in E. S. Krishnamurthy case.

In the case of Vidarbha Industries vs Axis bank, it was held that obligation of NCLT with regards to admission or rejection of application under section 7 is discretionary in nature. Aggrieved by the said judgement, Axis bank had filed a review petition on the ground that the Court had overlooked the precedent set in Innoventive and E. S. Krishnamurthy case and the same was disposed by the Court. And the court emphasized its dictum in para 90 wherein it was observed that “judgements and observations in a judgement are not to be read as provisions of statute. Judicial utterances and/or pronouncements are in setting of the facts of a particular case”.

The court after careful perusal of facts at hand and law laid down in previous cases came to finding that the tribunal had acted outside the scope of section 7(5) of the IBC. As, it afforded the appellant and respondent numerous opportunities of settlement even when the default was established. As per the Code and previous precedents, there could only be two courses after establishment of default that is either admission or rejection of application on technical grounds. It cannot compel the parties to settle the dispute. The

[1] 2023 (7) SCC 321
[2] 2022 (3) SCC 161
[3] 2018 (1) SCC 407

court also clarified the dictum of Vidarbha Industries regarding the obligation of NCLT under section 7(5). It held that obligation to admit or dismiss the application under section 7 should be discharged in judicious manner and the discretion cannot be exercised arbitrarily or capriciously. It was also observed that in each case facts and circumstances might differ, but generally the court should not travel beyond the four corners of the Code and apply the Code in letter and spirit.

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.

IIBF entered into MoU with FPSB for Certified Financial Planner certification program

FPSB India, the Indian subsidiary of Financial Planning Standards Board Ltd., the global standards-setting body for the financial planning profession and owner of the international "Certified Financial Planner" (CFP) certification program, has entered into a strategic Memorandum of Understanding (MoU) with IIBF. Under this significant partnership, candidates who have successfully attained the CAIIB qualification from IIBF will be exempted from passing the first three modules of CFP Certification and become eligible to enrol in FPSB India's Integrated Financial Planning module through the Fast Track Pathway. To qualify for this pathway, candidates must also have a valid three-year experience in banking and financial services.

In addition to the above exemption provision, FPSB India will extend special discount on the total course fees, examination fees, and other applicable fees to eligible CAIIB candidates who apply for the Certified Financial Planner (CFP) certification under the Fast Track pathway.

Summary of Macro-Research Report, (2021-2022)

Linkages between competitive structure and financial stability: An empirical analysis of Indian Banks

By:

Dr. Ajaya Kumar Panda, Associate Professor, Indian Institute of Management Mumbai.

- The scope of the study has two main dimensions (1) structure and (2) strength. In the first objective, the study aims to analyse in current era, in what type of environment Indian banking sector is operating. Are they operating in a competitive environment ensuring a fair price and optimum productivity or the sector is monopoly under the shed of regulation and Government? Secondly, within the market structure what is their financial stability, what are the determinants of their financial stability, what extent the determinants of market structure are responsible to maintain financial stability are some of the questions that needs to be answered.
- Although, earlier studies try to answer whether deregulation induced competition should lead to efficiency and better performance in banking industry. But there is no indemnity that efficiency and comitative structure can assure financial stability. The potential of asset liquidity is the root cause of the financial turmoil and failure of banking structure across the globe (DeYoung and Jang, 2016). Although, we have encountered some international experience integrating liquidity risk and credit risk with financial stress of the banks but integrating the structure of banking sector with respect to consolidation of market power with financial stability through liquidity risk and credit risk management has hardly been addressed. Hence, in the second objective, the study aims to analyse how financial stability of banks is explained by liquidity risk, credit risk and key factors that determines consolidation of market power of Indian banking sector.
- The present study is expected to contribute the existing literature in several ways. Firstly, it tries to empirically investigate the structure of Indian banking sector and the factors that helps in achieving consolidation of market power in Indian banking sector. Secondly, the attempt to integrate the degree of banking structure consolidation with financial stability is a huge research gap that the study has attempted to answer. Thirdly, the use of advanced econometrics models on latest data adds to the credibility of the study and robustness to its estimates.
- The study uses annual data of Indian commercial banks over from 2009 to 2022 and the data is collected from subscribed sources of Centre for Monitoring Indian Economy (CMIE), the handbook of statistics on Indian economy.
- The data is divided into 4 samples. Sample 1 contains 12 Public Sector Banks, Sample 2 contains 21 Private Sector Banks, Sample 3 contains 33 both Public Sector and Private Sector banks and finally, Sample 4 contains 115 banks including Public Sector, Private Sector and some other banks whose data are available in CMIE database.
- Since the data of Indian banks are highly heterogeneous, the study has used Generalised

Least Square (GLS) estimates to fit the model. Since the implications of the study are model based, we have taken enough precaution for selection of appropriate econometric model and required amount of pre-estimation and post estimation test has been undertaken. To ensure robust estimates, the GLS estimates are compared with estimates of Panel Correlated Standard Error (PCSE) model.

- The study conclude that price of capital measured as ratio of bank's capital asset over total fixed asset is negatively impacting revenue of public sector banks, private sector banks as well as combining both public and private sector banks. On the contrary, it is positively impacting revenue at sector level. By decoding this variable, it is understood that increase in bank's net worth over total asset may decrease bank revenue.
- Employee cost is positively impacting revenue of banks at all levels. We may imply that Indian banking sector can absorb an increased employee expense without impacting revenue. Hence, banks may look of more investment to increase employee productivity through training and capacity development.
- Price of fund is negatively impacting revenue of public sector banks, but it is weakly significant. However, in case of private sector banks as well as for both public sector and private sector banks, it has positive impact on revenue. Hence, an increase in interest expense over total loanable fund can boost revenue of Indian public sector and private sector banks. But as a sector (by considering all banks), increase in interest expense has adverse effect on revenue. Here, policy makers and bankers may note that public sector and private sector banks may afford an increase in interest expense.
- Among the bank specific variables, risk asset is positively impacting bank revenue for private sector banks and combination of public and private sector banks. Provision has a positive impact on generating revenue. Interestingly, it is negatively impacting revenue of public sector banks. Since provisions are scaled with total asset base, policy makers may note that differential asset base may dilute the impact of provisions over revenue.
- Branch concentration is considered to be another parameter where bank's decision to increase number of branches. The study observed that except public sector banks, branch concentration is positively impacting revenue of private sector banks, combining private and public sector banks as well as for the sector itself.
- Credit risk is impacting the revenue positively across all the category of banks. Hence, increasing interest income is all time positive indicator for banking sector. All the banks must focus on maximising interest income to boost their revenue.
- The impact of liquidity risk is negative on revenue of public sector and in most of the cases it is observed as insignificant as well as with very minimal impact. Hence, the public sector banks should focus more on total loan component as compared to other banks.
- With respect to market structure, the public sector banks represent characteristics of monopolistic competition, the private sector banks exclusively as an entity operates in monopolistic competition. Since it is closer to unit, we may say it as closer to perfect competition and finally, the market structure of all banks including public, private and all the other banks is closer to monopoly.
- Further, the study finds that the market structure of both private and public sector banks closer to monopolistic competition. Since it is closer to unit, we may say it as closer to perfect competition also.

- After clustering public and private sector banks from lower quantile to higher quantiles of distribution of revenue, the H statistics is ascending from lower quantile to higher quantiles. High revenue of public and private sector banks i.e. banks with 90% and above quantile of revenue are operated in competitive market with H coefficient 0.995 (closer to one), followed by banks with 75% quantile of revenue.
- Public and private sector banks with revenue from median to bottom 10% quantile are having H coefficient around 0.6, hence, considered to be operating in monopolistic competitive environment.
- The study also cluster banks from lower quantile to higher quantiles of distribution of revenue, the H statistics is descending from lower quantile to higher quantiles. The top 10% banks i.e. banks with 90% quantile of revenue are having the H coefficient of 0.265, followed H coefficients of 0.269, 0.363, 0.450 and 0.527 by banks with 75%, 50%, 25% and 10% quantile of revenue.
- Among the banking parameters, price of capital and employee cost (i.e. price of labour) is positively and significantly impacting revenue of banks from all the quantiles of profitability. Price of fund, branch concentration and liquidity risk is having insignificant and quite minimal impact on bank revenue. Risky asset is also appearing insignificant in the findings of quantile regression.
- Secondly, the present study attempted to explore how financial stability of banks is being explained by liquidity risk, credit risk and by key factors that determines consolidation of market power. The study observed that except public sector banks, increasing price of capital is positively impacting banks financial stability. That means, public sector banks should not focus more on accumulating capital assets further. Increasing employee cost is also hampering financial stability of both public sector and private sector banks. However, it does not have any implication at sector level.
- Price of capital is negatively impacting both revenue and financial stability of public sector banks. Hence, policy makers should notice that further increase of capital asset is not going to boost either revenue or stability of public sector banks. However, price of capital is negatively impacting revenue of private sector banks and combining all private and public sector banks but impacting negatively to financial stability. Hence, bankers from private sector banks can take a note that although capital asset contributes to enhance revenue but hampers financial stability. However, at sector level, it carries a positive impact.
- Similarly, the study finds a mixed response of Price of labour i.e. employee cost on revenue and financial stability of banks. The study finds positive impact of increase in employee cost on revenue, whereas, negative impact on financial stability. Although at sector level, it has a positive impact, but public and private sector banker should notice that although increase in employee cost increases revenue but carries an inverse impact on financial stability.
- Price of fund, it is negatively impacting both revenue and stability of public sector banks, but for private sector banks, like employee cost, it is impacting revenue positively, but financial stability negatively. Among firm specific variables, risk asset is negatively impacting both revenue and stability of public sector banks, whereas, private sector banks are boosting their revenue and stability. Policy makers and bankers should notice that increasing provision over total asset is creating value for private sector banks by boosting revenue and stability.
- Interestingly, except public sector banks, branch

concentration is increasing value by increasing revenue and stability. Bankers should note that private sector banks should focus more on increased number of branches for more value creation.

- The study concluded that credit risk has a significant positive impact on both revenue and financial stability of banks of all categories. Bankers should note that increase in interest income is all time good indicator to increase banks revenue and stability for both public and private sector banks. On the contrary, banks experience mixed response for the impact of liquidity risk. Liquidity risk impacts public sector banks revenue negatively, whereas, financial stability positively. However, for private sector banks, although liquidity risk impacts revenue positively, but it impacts their stability adversely. Hence, the bankers of private sector banks should monitor it accordingly.

BANK QUEST THEMES

The themes for "Bank Quest" are identified as:

1. April – June, 2024: Risk Management in Banks – Beyond Regulations
2. July – September, 2024: Emerging trends in International Trade and Banking
3. October – December, 2024: Emerging opportunities for savings and investments
4. January – March, 2025: Cyber Risk Management

BOOK REVIEW

Name of the Book: Banker by Chance, Leader by Choice

Author: Mr. Shiv B. Singh, Executive Director, Indian Bank.

Publisher: Rupa Publications

Pages: 182

Price: Rs. 595/-

Reviewed by: Mr. Sugata K. Datta, Former Chief General Manager, Bank of India.

Regional Rural Banks (RRBs) were set up in 1975, as a fallout of the process of Nationalisation of Banks that first took place in 1969. Fourteen of the largest banks in the country were nationalised because it was felt by the Government that resources mobilized by banks were not being channeled into sectors that required institutional finance, like the rural population, agriculture, the poor and the small enterprises. RRBs were visualized as the abridged versions of nationalised banks, i.e. giving thrust to the unserved sectors, penetrating deep into the Indian countryside, with a complement of human assets whose pay was more or less on par with that prevalent in the Government sector. Although this was the vision at the beginning and many RRBs started functioning and growing, they soon started to chalk up significant losses. In order to rediscover themselves, their functions and employee benefits evolved into aping those of the nationalised banks that sponsored them and they started to lose their initial focus on the rural/weak/down trodden sectors that were intended to be their area of operations.

What followed was a series of restructuring and amalgamation of the RRBs, over a period of 15 years and their number was reduced from a high of 196 to just 43, as of March 2022. The story of RRBs can, therefore, form an excellent subject of a Case Study, on how niche sector small banks, with focus on rural areas, can get affected in a country which is making large strides in economic development and what solutions are available to them for making mid-course corrections.

The subject of the book under review, "Banker by Chance, Leader by Choice" written by Mr. Shiv B. Singh, is precisely this. Added to this, is the fact that following nationalisation of banks in 1969 and 1980, nationalised banks expanded explosively, both in business as well in branches. Resultantly, the requirement for staff of all cadres shot up and this drew many bright youngsters who were well educated and who suddenly found an attractive employment avenue in nationalised banks. Employment that promised good remunerations, good social status and good opportunities for them to develop and rise in the bank and in future, even lead the banks. Hence, many such youth became "Bankers by Chance".

Mr. Shiv Singh's story, that unravels in the book follows the above pattern, with one difference. With RRBs in the fray, an Officer did not have to wait till he or she climbed the entire corporate ladder to lead a bank. Nationalised banks deputed Officers, in their Senior Management Grades, to RRBs as the CEO (Chairman) of the RRB. While one may argue that, after all, an RRB is a small

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entity and becoming Chairman of an RRB is no big deal, being a Chairman (CEO) is being a CEO. Even if the organisation is small, responsibilities and duties of the Chairman closely resonate with those of a large bank. The Chairman of an RRB has to lead its Board of Directors, strategise the Bank's growth and development and resolve all problems that come up to his or her level. Over and above that, the Chairman has to interact with the Government, Regulators, Law Enforcing Agencies, etc.

Hence, Mr. Singh's experience as Chairman of an RRB was one of the opportunities to learn and flourish. His ability to capture in great detail, the various steps, strategies and avenues he chose to lead the Bank, will be of interest to young Officers (especially in nationalised banks), who look to develop their own careers. The book spells out how, a young lad from humble rural background and sound academic base could enter one of the leading banks of the country, rise in its echelons, be rewarded for his performance by posting in the Bank's office in USA and then move on to lead one of the largest RRBs in the country - in difficult times and turn it around.

The first two chapters of the book traces the early upbringing and education of Mr. Singh and his experiences in his parent bank (which was the sponsor of the RRB where he was deputed later) as he rose from a Junior Management Officer in Scale I to a Deputy General Manager in Scale VI.

Among the various learning lessons that he describes, probably one which would be of critical use for aspiring leaders is, "Never to play with the system" as sometimes a person fiddling with banking systems cannot predict the total adverse impact it can have in the long run. The third chapter deals with Mr. Singh's deputation as Chairman of the RRB, one of the largest in the country and basic details of the roles and administrative structure of an RRB.

Chapter 4 "Restructuring for Success" describes the organizational responses that had to be developed prior to and immediately after the amalgamation of two RRBs that led to formation of the RRB under discussion, on 1st April 2019. These included steps like identity and visibility of the newly formed bank, integration of various policies, integration of human resources and integration of the IT platforms.

The next Chapter "Building Blocks of Business" deals at length with the Human Resources aspect of the RRBs and what steps were taken to improve this aspect and thereby, raise the level of motivation and dedication of the staff of the Bank. After all, a Bank is in the services industry where the only real assets are human beings. As has been appropriately brought out *"human resources are the active factors of production, whereas, all others are passive factors of production, requiring energizing and activation from human resources."* The chapter covers areas of recruitment, promotions, transfers, training, incentives and finally, pensions.

Chapter 6, "Value of Change" dwells on aspects of Trade Unionism in the bank. It enumerates the reasons why the effectiveness of Trade Unions is on the decline in Banks, but recognizes the importance of Trade Unions as *"they can play a very constructive role in individual, organizational*

and institutional development if they follow healthy traditions of trade unionism and maintain an arm's length from the management…..". The flash point of trade union activity is often related to transfers and placements and in this chapter, Mr. Singh elaborates how he was able to overcome the hurdles, especially after the amalgamation in April 2019. Earlier, in 2018, the RRB set up a platform for participative management, "Manthan" and joint brainstorming with Trade Union leaders led to improvement in business parameters which have been tabulated in this section.

Chapter 7, "Laws of Sustained Growth" describes measures taken to improve the performance of the Bank. Growth, to be meaningful, needs to sustainable, which means that growth should continue over a period of time, without depending overly on external factors. Example are available, where in the banking sector, periods of rapid growth have been succeeded by periods of high NPAs and serious profitability issues. The tenure of Mr. Singh, at the RRB, commenced with the aftermath of the demonetization of 2016 and his tenure was accompanied by the rampage of COVID-19 from 2020 to early 2022. The Bank was categorised as "RRB in Focus" in March 2017, but it was able to come out of the category during the coming year. The RRB launched its proprietary strategy called "Aryavart Star Mission" with the noble objective of doubling the income of 1,25,000 rural families by 2020.

However, the mega-amalgamation that took place on 1st April 2019, again pushed the Bank into Prompt Corrective Action (PCA) and "RRB in Focus" category in 2019-2020. Challenges to growth were, therefore, in plentiful.

One of the steps taken, which was quite an example of lateral thinking, was the setting up of a Treasury Department in the RRB in 2019. Post amalgamation, the RRB had a balance sheet size of about Rs. 50,000 crore, and the opportunity was seen (and seized) to efficiently manage the funds of the bank. Setting up of a Treasury vertical necessitated establishing a Risk Management vertical, as well, and on both counts the Bank was a first mover in the RRB sector. Mr. Singh's first-hand experience and expertise in Treasury of the sponsor bank both in India and overseas was, thus, adequately leveraged for the benefit of the RRB.

Chapter 8 "In Pursuit of a Fantastic Future" goes to the steps needed for going beyond developing growth. They are strategies to be adopted to counter forces that drag a bank back Non-Performing Assets (NPAs) and also strategies to rationalize various products, policies and procedures that had arisen as a result of the Bank emerging from multiple amalgamations in the past.

NPA management, recovery and reduction is described in the Chapter and various strategies that were adopted are enumerated. They can form a checklist for any bank plagued by high NPAs.

The other aspect dealt with in the chapter is about streamlining the policies and procedures of the Bank. The lineage of this RRB consisted of 13 individual RRBs that were merged and amalgamated between 2006 and 2019. Accordingly, practically all aspects of the RRB were complexly hybrid – including the products, policies and procedures. It was, therefore, necessary to bring all things

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to common platforms by rationalizing the divergent products, policies and procedures. This mammoth task was undertaken by formation of various coordination forums, across the entities concerned, in order to complete the exercise by April 2019, when the newly amalgamated bank started its operations.

The next Chapter, "Branding it Right" focusses on measures that were taken to improve the visibility of the Bank and how to dispel any wrong impression that the customers and other stakeholders of RRBs may have about such Banks. The general impression of RRBs being meant *"only financing agriculture and related activities in rural areas"* had to be removed and it was necessary to build an image that these were empowered financial institutions which were instrumental in inclusive growth in the country.

Measures taken by Mr. Singh are detailed in this Chapter include interactions with media, inviting dignitaries to bank functions, interactions with society and participation in inter-industry and academic fora.

In the final Chapter "Reflections on an Eventful Journey", Mr. Singh sums up the qualities he has been able to develop by leading the Bank and the learnings he has taken away from his multifaceted experience. The qualities, as enumerated in this section, required for becoming "A Leader by Choice" to readers who are "Bankers by Chance", can serve as a handy guide.

In conclusion, the Book is one which any progressive-minded Officer in a Bank, especially Officers in the Junior and Middle Management Grade in nationalised banks, should seek out. The book contains details of the host of challenges and opportunities that CEOs of such Banks can face and the strategies that have been spelt will be useful to the readers for taking up leadership roles.

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