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ABOUT THE COLLEGE

Hansraj College is one of the largest constituent colleges of the University of Delhi. The college was founded by the D.A.V. College Managing Committee on 26th July, 1948 in the sacred memories of Maharshi Dayanand Saraswati and Mahatma Hansraj who spent their magnificent lives emphasizing the importance of knowledge. It is one of the leading lights in the D.A.V. family of over 700 institutions.

Hansraj College is a premier institution dedicated to teaching and research. It has highly qualified academicians who impart education in Science, Commerce, and Arts at undergraduate and graduate levels to more than 5000 students. The college has consistently demonstrated outstanding performance in academics, sports, and extracurricular activities.

The college has completed 75 years in the realm of imparting higher education. It has made significant and unparalleled contributions in terms of producing scholars, bureaucrats, intellectuals, and sportsperson serving in different domains not only in our own country but even at international levels.

Hansraj College stands at the cusp between the past and the future today. While it retains inspiring facets of its proud history, with an equally sharp gaze it looks ahead, assimilating the exciting world of new knowledge as it unfolds in front of it, holding the promise of an experience seeped with exhilarating learning and holistic growth for all those who enter its portals.

About the Journal

The *HRC Journal of Economics and Finance* is a **double-blind peer-reviewed academic journal** for students, researchers, and faculty to showcase their research pertaining to the discipline of economics and business. It is an international journal. Our mission is to provide a platform through which scholars can publish their scholarly findings to showcase them with the research community at large. We invite research papers and articles on topics related to the field of economics, business and management for its quarterly journal publication.

Message from the Principal

The launch of the *HRC Journal of Economics and Finance* is a milestone that marks our dedication towards providing a platform to young researchers in the field of economics and finance. It is even more fortuitous that the launch has been manifested in the Platinum jubilee year of the college, the Centenary year of the University of Delhi and the 75th year of India's independence.

The New Education Policy, 2020 has launched a paradigm shift that encourages research both at the faculty and student level. Accordingly there is a growing need to provide credible platforms to present research outputs at all levels. This journal fills a significant gap and will contribute to fostering a research ecosystem thereby advancing the objectives of the NEP 2020. This journal will provide an opportunity to students, teachers and scholars, around the world to come together and showcase the links between classroom teaching and their practical training.

I congratulate the authors whose papers/articles have been published in the journal and encourage others to contribute to future issues. Appreciation is due to the Editor In-Chief of this journal, Dr. Apoorva Gupta who has worked tirelessly for the successful launch of this journal. My best wishes for the success of this venture.

Prof. (Dr.) Rama
Principal
Hansraj College

From the Editor's Desk

Dear Readers,

It is my great pleasure and privilege to present the fourth issue of the Journal of the Hansraj College, the *HRC Journal of Economics and Finance*. The journal provides a platform to young researchers in the field of economics, business, social sciences, finance and management to publish their scholarly articles. Our inclusive nature ensures that we cover the wide range of issues in the field. This issue features a diverse range of articles that provide insightful analyses and innovative perspectives on various contemporary economic topics.

We have received around thirty papers relevant to the field of development economics, political economy, macroeconomic policy, financial markets, international trade, and behavioral economics. All the papers went through three rounds of review process, first by the editors and then by the review board. All the papers have gone through double blind peer review process. The authors were communicated with the revisions. The papers were accepted only after the satisfactory revisions were being made. We strictly follow the research ethics and do not tolerate plagiarism. All the selected papers were tested for plagiarism before publication. We have worked tirelessly to bring out the fourth issue of the journal with high quality research work.

Writing quality research papers takes a lot of time and effort, and the authors must be congratulated for writing their research papers for the journal, which is launched in the Platinum Jubilee year of the college, the Centenary year of the University of Delhi and the 75th year of India's independence. We also take this opportunity to congratulate the review board of this issue for their constant academic support for the timely release of the journal. We also thank the support received from the Principal of the college, Prof. (Dr.) Rama, the Advisory Board and the Editorial Board.

We hope that readers find the articles interesting, informative and engaging, and enjoy reading it. We believe that this effort of ours will stimulate further research and discussion in the field of economics and finance, and encourage readers to write for further issues of the journal. We look forward to receiving your feedback and suggestions for future issues.

Disclaimer: The opinions expressed in this journal belong to the contributors and do not necessarily reflect the viewpoints of the college, the editors, the Advisory Board, the Editorial Board, and the Review Board of the *HRC Journal of Economics and Finance*.

Dr. Apoorva Gupta

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Stakeholder Capitalism for Indian Startups

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Abstract

One of the prominent priorities of India's G20 presidency is to build '*Cities ...as hubs for entrepreneurship, jobs, and skill development*'² along with a transition to clean energy, which aligns with SDGs in multiple ways. These priorities are enveloped by the objective of sustainable development³ laid out for the G20 group. India stands on fertile ground as it occupies the third spot in the number of start-ups in 2022, behind USA and China. Start-ups are known to be the drivers, even synonymous with innovation, job creation and sustainability. Larger businesses typically lag behind on these parameters, even though they deliver on shareholder value creation, and have led the world in terms of economic growth. This growth has come at a cost, which the present generation is paying due to the environmental and climatic damage, along with human right excesses. A spotlight on these effects by the WEF⁴ in 2019, took the form of the Round Table Conference. The deliberations here by top CEOs have accelerated the adoption of stakeholder capitalism as a viable and sustainable model that subsumes shareholder concerns of value creation. In the recent past, stakeholder concerns have led to mandatory/voluntary disclosures of the business impact on Environment (E), society (S) and governance (G) issues (ESG in common parlance). India has initiated a similar disclosure in the form of the Business Responsibility and Sustainability Report (BRSR), which is mandatory for the top 1000 listed businesses from 2022-23. This is a laudable mandate and this paper argues that a similar disclosure for

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²<https://www.adb.org/news/features/indias-g20-presidency-opportunity> (all the web links mentioned in the paper are accessed from January, 2023 to October, 2023)

³<https://www.g20.org/en/about-g20/>

⁴World Economic Forum (<https://www.weforum.org/events/world-economic-forum-annualmeeting-2023/>)

start-up businesses can have multiple benefits. This paper reviews stakeholder capitalism and compiles a list of disclosures by start-ups that could make them more sustainable over the long run, while assisting them in funding and policy support from government.

Keywords: *Sustainability, economic growth, stakeholders, capitalism, environment.*

JEL CODES: M14, O4, Q01

1. Introduction

The Indian PM declared January 16 as the national start-up day in 2022, while stating that ‘*Start-ups are reflecting the spirit of new India*’ in his *Mann ki Baat* address to the nation on 29 May 2022. Such attention by the PM signals the increasing attention that these businesses have gathered from the government. This attention is not without reason as India is the 3rd largest economy in terms of the number of start-ups in 2022.

A start-up defies any standard definition, in terms of operations, size of profits or any conventional financial parameter. It could operate out of a garage, with no dedicated office and its operations handled by a group of friends or even family, as it is often based on an idea- being innovative and the use of technology are the ‘qualifying’ hallmarks of a start-up. Many start-ups are purpose driven in terms of creating environmental friendly products, using sustainable practices⁵ that could save the planet from environmental degradation, which is a critical issue in the face of climate change. While every business-start-up or an established one, would not want its activities to be environmentally damaging, it is more difficult for older business to modify and change their established methods of production, waste management processes and supply chains to become more environment friendly. The relatively younger age of a start-up by definition may aid in the adoption of newer and more sustainable practices, rather than following older ways of doing business. Adding to the newness of a start-up, the inherent innovativeness of a start-up could make it more flexible in establishing production systems and practices, which are relatively kind towards the environment. The absence of a status quo in younger start-ups could provide a greater degree

⁵ <https://www.startupindia.gov.in/startup-india-showcase#/category/sustainability>

of flexibility in setting newer ways of doing business in an inclusive manner that takes all the stakeholders of the business into consideration, rather than satisfying shareholders alone. We argue that start-ups are ‘inherently’ more likely and open to assimilating the concerns of all stakeholders of the ecosystem they operate in, to the extent that the seed idea of the start-up lies within a stakeholder. This makes them ideal businesses to embrace the model of stakeholder capitalism, where all stakeholders are given due importance with private ownership of means of production.

This paper discusses the Indian start-ups scenario and the hurdles and challenges they face. We introduce the ideas of stakeholder capitalism that are particularly attuned to the founding ideas and core of most start-ups. We argue that this model of capitalism is more suited for start-ups and propose that a disclosure report along suggested lines would be helpful in surmounting some of the problems faced by start-ups. Additionally, the sustainable elements in the report can go a long way in boosting the overall sustainability of the businesses, as well as lay the foundation for a broader adoption of stakeholder capitalism by businesses.

2. Indian Start-Up Scenario

The Ministry of Commerce and Industry⁶ defines a start-up in terms of its period of registration, turnover, source of its birth and its creativity in innovating new goods and services, along with wealth and employment generated. This definition is under revision⁷ and discussions are on to find a consistent definition that can be used across G-20 nations to allow ease of funding and avoidance of high taxation on such firms. For policy purposes, a well-crafted definition is crucial to allow start-ups to avail of the benefits and concessions offered by the State to promote them. In many countries start-ups as we call them are known as ‘growth-stage’ companies, as it ‘*is a temporary organisation designed to search for a repeatable and scalable business model*’.⁸

⁶ https://dpiit.gov.in/sites/default/files/notification_Definition_StartupIndia_06July2021.pdf

⁷ <https://www.livemint.com/economy/g20-nations-to-establish-common-definition-for-startups-potentially-resolving-valuation-and-taxation-challenges-say-indian-officials-g20-startups-taxation-11681665707872.html>

⁸ <https://steveblank.com/2010/01/25/whats-a-startup-first-principles/>

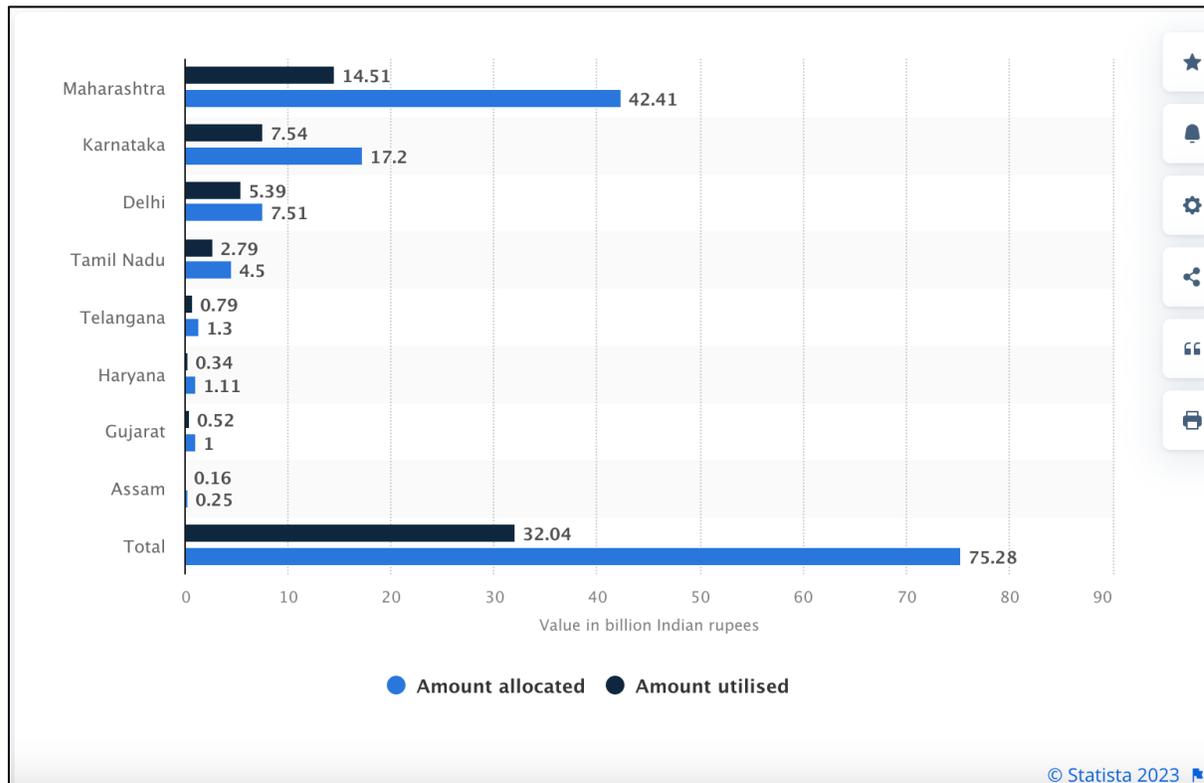
In academic parlance, Luger and Koo (2005) describe a start-up ‘as a business entity which did not exist before a given time period (new), which starts hiring at least one paid employee during the given time period (active), and which is neither a subsidiary nor a branch of an existing company(independent)’. Such an emphasis on a new(idea or product or service) business that undertakes a business activity (active) from the beginning (independent of existing firms) is more in line with a general perception of a start-up. Such a venture is generally considered as a form of entrepreneurship, (Westlund, 2011) that involves a high degree of innovation, based on new ideas that allow sit to offer new products with considerable risk taking (Runyan et al., 2008) inherent in the venture.

The Indian government launched its flagship program for start-ups in 2016 for ‘supporting entrepreneurs, building a robust start-up ecosystem and transforming India into a country of job creators instead of job seekers’.⁹ The Department of Industrial Policy and Promotion (DIPP) was entrusted to lead the program and monitor it as well. The program has seen a continuous rise in the number of registered start-ups from 426 in 2016 to 92683 as of Feb 2023.¹⁰ The support comes in the form of financial help for funding, providing platforms for market access, international support, mentorship and recognition. Despite such well-intentioned schemes and platforms, funds allocated remain unutilised. As of 30 Nov 2022, only 42 % of the allocated funds to SIDBI worth Rs 7527 crores were utilised under the Fund of Funds for Start-ups scheme. Even the allocated amount to SIDBI (as the disbursing authority) is less than the approved corpus of 10000 crores. In another scheme, the Start-up India Seed Fund Scheme, out of the corpus of Rs. 945 crore, Rs. 455.25 crore has been approved to 126 incubators of which only 40% has been disbursed, as per a press release of DIPP. The regional imbalance (Box 1) in the number of start-ups is clear as Uttar Pradesh, Delhi, Haryana, Gujarat, Karnataka, Tamil Nadu and Telangana account for the lion’s share of the number of registered start-ups.

⁹ <https://www.startupindia.gov.in/content/sih/en/about-startup-india-initiative.html>

¹⁰ <https://pib.gov.in/PressReleasePage.aspx?PRID=1913977>

Box 1: Geographical distribution of start-ups in India



Source: <https://www.statista.com/statistics/1381198/india-funds-utilized-allocated-under-ffs-by-state/>

While these numbers are only indicative of a lack of utilisation of State funds, the Economic Survey of 2022-23 states that problems in funding, revenue generation, infrastructural access, regulatory framework, tax environment and tax structures have held upstart-ups in unleashing their potential effects on the Indian economy. In a survey¹¹, it was found that 60% of founders were in favour of getting funds through a public listing of their business outside of India.

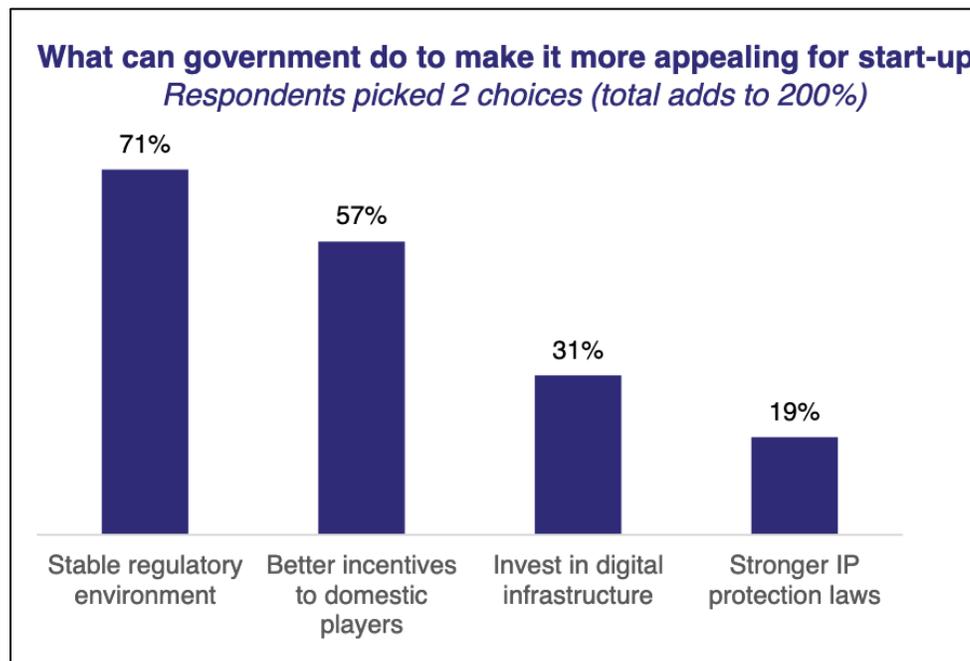
As per NASSCOM report for 2022¹² only 18% of the founders/cofounder in a start-up is a woman. To add to this dismal statistic, as per a survey among 2000 women, professionals, start-up founders and business leaders, ‘73% of women in non-metros [cities] feel that non-availability of adequate infrastructure deters their move in taking up entrepreneurship, while

¹¹ <https://inc42.com/buzz/60-indian-startup-founders-against-listing-india-inc42-survey/>

¹² <https://community.nasscom.in/communities/nasscom-insights/nasscom-tech-start-report-2022-rising-above-uncertainty-2022-saga>

22% of women in metros [cities] feel that physical infrastructure is a problem for them'.¹³ Further, '58% of respondents also highlighted the difficulty in raising funds and gaining access to capital in comparison to their male counterparts'.¹⁴ In another survey of 120 founders¹⁵, they cited unstable regulatory environment and low domestic incentives as the key areas that merit government attention (Box 2).

Box 2: Impediments to start-ups success



Source:

<https://www.innovencapital.com/public/uploads/files/20230208/89b061982924c7b6c33454d2473ba386.pdf>

Despite the problems (Korreck, 2019) highlighted above, India remains a fertile ground for start-ups to thrive. As per Global Start-up Ecosystem Index Report 2023¹⁶, India takes the first position in South Asia region, but stands at 21st position worldwide. In terms of the number of start-ups we stand at the 3rd position in 2022 as per the Economic Survey for the

¹³ <https://techarc.net/product/state-of-women-tech-entrepreneurship-in-india/>

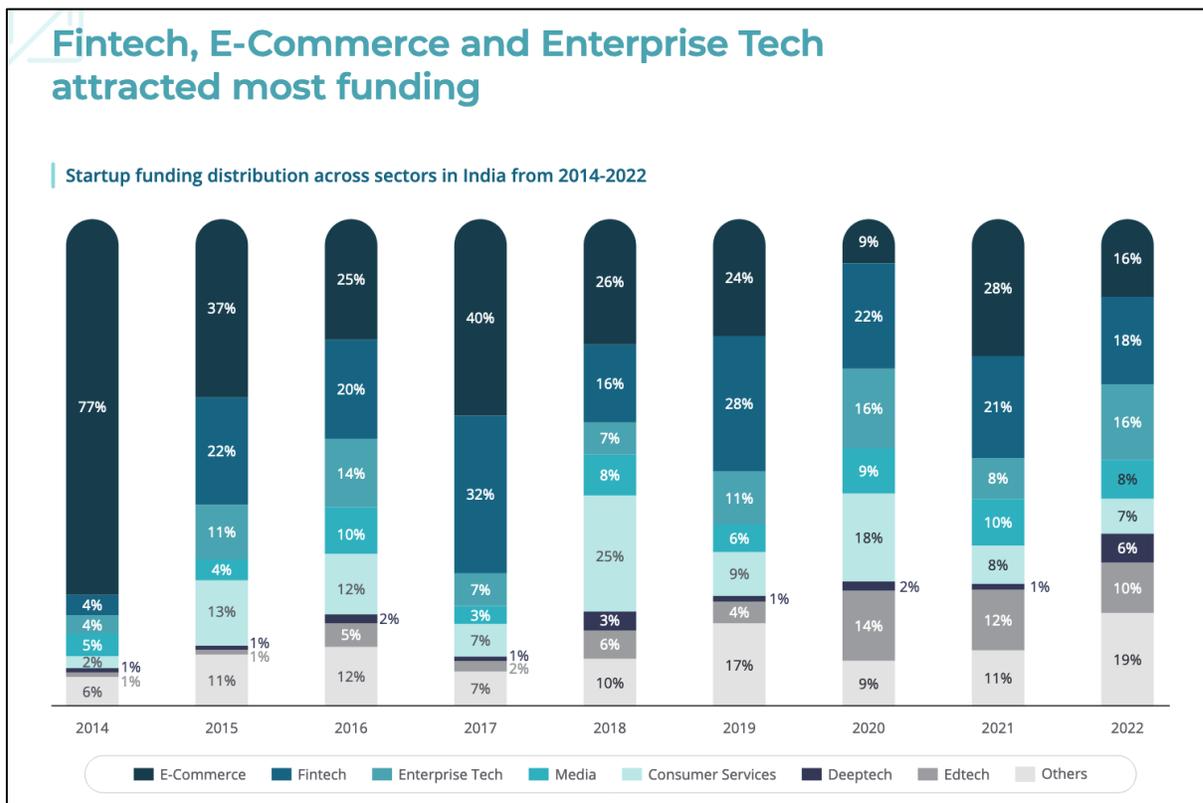
¹⁴ <https://www.livemint.com/news/india/why-the-indian-unicorn-growth-story-is-being-led-mostly-by-male-founders-11646651262817.html>

¹⁵ <https://www.innovencapital.com/public/uploads/files/20230208/89b061982924c7b6c33454d2473ba386.pdf>

¹⁶ <https://www.startupblink.com/startup-ecosystem/india>

same year. This has been possible due to massive funding by venture capitalist and private investors, amounting to more than \$130 billion over 2014-2022. As per a consultancy report by BCG¹⁷, even this amount pail in contrast with \$837 billion for China. While Indian start-ups have developed a healthy balance among different sectors over time (Box 3), the gender bias in founders remains a challenge.

Box 3: Sector-wise start-ups in India



Source: <https://www.bcg.com/publications/2023/road-to-hyperscaling-in-india>

3. Stakeholder Capitalism

The term stakeholder (Freeman, 2007) is not new in management literature, but it has increasingly taken a broader meaning across business, management, and economic literature. Its use in sustainability literature is more recent, as the model of stakeholder capitalism has seen a revival in the Round Table Conference in Davos (2019). It has played a sterling role in

¹⁷ <https://www.bcg.com/publications/2023/road-to-hyperscaling-in-india>

bringing sustainability of businesses to the fore, that have till now thrived on the back of a market based economy that has expanded on the waves of globalisation in the last century. As the world gains from an expansion in GDP, its future is threatened by the effects of such expansion on the environment (Schwab and Wanham, 2021).

The basic tenet of stakeholder capitalism is founded on the inclusion of more stakeholders in the capitalist model of doing business. Philips et. al. (2003) asserts, *'the term stakeholder is a powerful one due, to a significant degree, as the term means different things to different people'*. The term stakeholder is broad in perspective and refers to any group, person, or business that can claim a business's resources or is affected by it.

A general list of such stakeholders includes living beings- consumers, suppliers, vendors, communities that are dependent on the business in indirect ways, investors/shareholders of the firm and non-living entities-environment and government. While the traditional capitalist model gives primacy to shareholders' interests, the newer version-stakeholder capitalism attempts to give an adequate (if not equal) consideration to all stakeholders as a firm takes business decisions and evaluates its outcomes. These outcomes go beyond profitability and subsume a larger set of outcomes on society and environment. In such an ecosystem, the participation of all the stakeholders could make the business more sensitive and accountable to the latter which contributes to sustainability of the business itself over time. The inclusion of stakeholders lends a multidimensional aspect to the economic sustainability of any business in social and environmental ways (Doane and MacGillivray, 2001), such that this sustainability of the business gets embedded within the sustainability of the larger ecosystem, in a mutually reinforcing manner.

In August 2019, at the Business Roundtable (BRT, 2019), CEOs from leading corporations across the world pledged to revisit their corporate goals through the lens of sustainability, by expanding the list of stakeholders involved in their business decisions and evaluations. Under the aegis of World Economic Forum¹⁸, such a pledge was transformed into actionable items as it released the world's first standardised ESG (Environment, social, and governance) metrics. These metrics *'...reflect six-month consultation process with more than 200*

¹⁸ World Economic Forum (<https://www.weforum.org/events/world-economic-forum-annual-meeting-2023/>)

companies, investors and other interested parties” (WEF, 2020) and can be mapped onto the 17 Sustainable Development goals (SDGs) formulated by the UN.

These metrics align with the 4 pillars (4Ps) of the model of stakeholder capitalism, under which different stakeholders can be grouped - planet, people, prosperity and principles of governance.

Planet: The planet metrics, as the word suggests is concerned with the environment and natural resources of planet Earth, gifted to us by previous generations. This delegates the responsibility of leaving adequate reserves of resources for the future generations to the present generation. Seven major areas under this metric include - air and water pollution, loss of nature, climate change, availability of fresh water, resources and solid waste. These align with some of the SDGs and require disclosures in line with Paris Agreement and suggested by the Task Force on Climate-related Financial Disclosures (TCFD). These disclosures relate to the use of water, extent of its likely contamination, use of land, especially around areas of biodiversity and protected areas, among others.

People: The group of living beings that are most invested in the business is employees. This metric calls the attention of businesses to ensuring the dignity, wage equality, health, wellbeing, social diversity, and skills of this group. This would encompass all regulations relating to wage parity, employee benefits in cash and kind, service conditions, safe and healthy work environment and training the employees.

Prosperity: It is difficult to quantify prosperity in terms of well-being of society, as the notions of prosperity can be culture specific, and society itself may include all living forms (and not just humans). The WEF emphasises on the creation of better products through innovation, generation of employment and wealth, research and development along with community supporting practices like taxpaying and CSR activities.

Governance: As the gatekeeper of all economic activities, the government is an omnipresent stakeholder for all businesses, and is capacitated to monitor and drive the other metrics in intended directions. It is well placed as a regulator to minimise the friction in the ecosystem of stakeholders through rules and incentives based policies. A good governance structure is

capable of inducing ethical behaviour of businesses, alongside purposeful activities by businesses in a way that healthily balances risk and opportunities for them.

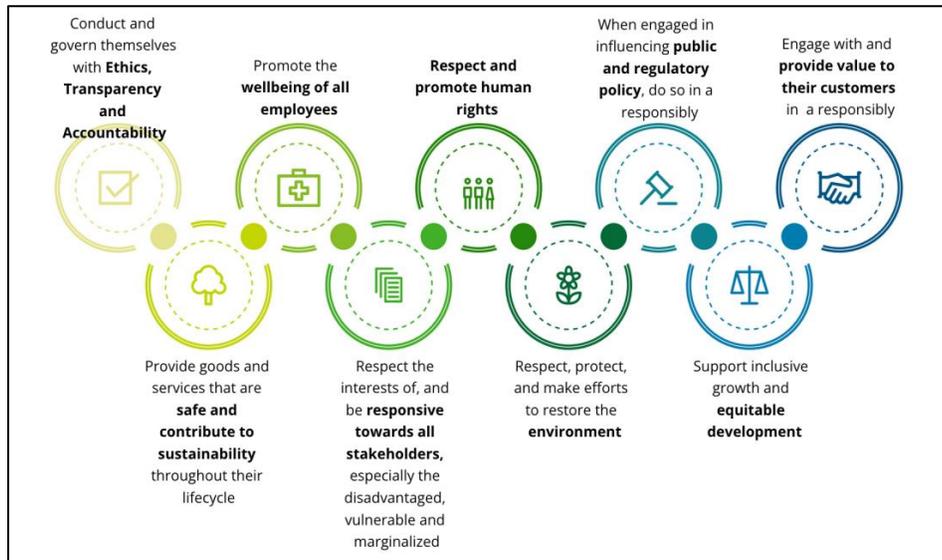
4. Suggested Framework

The progress of Indian businesses in imbibing the stakeholder capitalism paradigm in spirit and action is tardy. Only three major businesses have signed on the WEF led agreement to report on the suggested metrics. - Reliance Industries, Mahindra Group and Wipro. Despite the recognition that *'Purpose driven businesses are likely to be more resilient than those that do not embrace people and planet'* (Mahindra, 2021), the explicit cognisance of the stakeholders in a formal manner remains elusive. In a study on 128 US businesses, it has been shown that the *'BRT Statement was mostly for show and ... did not intend or expect it to bring about any material changes in how they treat stakeholders'* (Bebchuk and Tallarita, 2022). Such a poor show must be seen in the light of a lack of mandatory environment, society and governance (ESG) disclosures in the USA, with each state free to make them mandatory or businesses adhere to comply-or-explain. Europe is at the other end, where ESG disclosures are mostly mandatory, with France taking the lead as early as 2001 (Kruger et al, 2023). These ESG disclosures maybe treated as a precursor to the acknowledgement of stakeholders (like environment) beyond just shareholders, to make businesses acknowledge their impacts on the former, and do business responsibly.

In line with global move to make businesses responsible for the qualitative effects of and costs imposed by their activities on stakeholders that are not shareholders, India mandated reporting in the form of the Business Responsibility Report (BRR) in 2012 for the top 100 listed firms, based on national voluntary guidelines. The Indian government has taken a step forward and made it mandatory for businesses to file the Business Responsibility and Sustainability Report (BRSR) from 2023 onwards. The BRSR is based on nine principles (box 4) of responsible business (Ministry of Corporate Affairs, 2018) and is an improvement over the BRR; this only hints at the increasing awareness about a sense of 'sustainability' among businesses in an explicitly formal manner. However, even the BRR was mandatory

for only the top 100 listed companies in India by the end of 2019. This requirement is now wider, but not uniformly in force as only the top 1000 listed companies are legally bound to disclose the ESG footprint created by their activities.

Box 4: National Guidelines for Responsible Business Conduct 2018.



Source: <https://www2.deloitte.com/in/en/pages/finance/articles/business-responsibility-and-sustainability-report.html>

The SEBI documents do not provide any clue on why selected firms (top 1000 listed firms) are covered under BRSR. A possible reason could be the high cost of compliance in terms of certain quantitative parameters required in the report- leadership indicators could be one such example which is outlined in Principle 2 of BRSR framework.¹⁹ This disclosure asks for a qualitative ‘*overview of the entity’s material responsible business conduct issues*’, which translates into identification of material issues as risks or opportunities, and steps to mitigate them. These are linked to the technical requirements in Principle 6 (businesses should respect and make efforts to protect and restore the environment) which requires quantitative data on the exact usage and reuse of natural resources and measurements of environmental effects of

¹⁹ https://www.sebi.gov.in/sebi_data/commondocs/may-2021/Business%20responsibility%20and%20sustainability%20reporting%20by%20listed%20entitiesAnnexure%20p.PDF

the business activity. Another possible reason can be that many quantitative parameters in the BRSR do not apply to the smaller and newer firms whose employees may not fit into the legal definition of ‘employees’.

This paper argues that all firms, including start-ups, need to be responsible and grow in sustainable ways. The first step in owning responsibility involves sensitisation to the stakeholders of a business (and not just shareholders) who are impacted by the environmental and social imprints of the business activities. The model of stakeholder capitalism outlined by the World Economic forum in Davos in 2019, paves the way forward for business to strive for profits, in a sustainable way as stakeholders are also accounted for in business decisions. The model is an alliance of profits with sustainability, as each stakeholder receives attention in the matrix of costs and benefits of business decisions.

We propose that start-ups are more suited than established businesses to adopt the model of stakeholder capitalism as they are mostly young and nimble in their operations. They do not carry any prior baggage of established practices of doing business; their uniqueness stems from being innovative and open to the use of newer technology. As a first step towards adoption of this model, they can be asked to voluntarily disclose selected ESG aspects of their activities, which can be assimilated as an index value or a reporting document that can be used in multiple ways, including funding purposes. This will also initiate start-ups to give primacy to stakeholders as part of business activities and decisions. An annual reporting of their impact of stakeholders will add to the sustainability value of the business itself. As start-ups are relatively young in terms of the time from inception, and may have young founders, it is easier for them to change their processes to make them ESG compliant and environmental friendly. As per a report²⁰, the median age of a founder is just 27 years, and 80% of founders launch their start-ups before they reach 30 years of age.

We propose that five stakeholders are important for smaller, newer firms that may qualify as start-ups that need some hand holding to overcome the financial and infrastructural impediments. These include investors, planet, human resources, suppliers and communities.

²⁰ <https://www.startupgrind.com/blog/5-lessons-from-age-versus-startup-success-in-india-data-driven/>

Investors – Since many start-ups may still be privately held businesses, founders/friends/family investors are crucial stakeholders in their success. This is the group of stakeholders which is most invested in the growth of the business in terms of financial performance or even progress of the business from inception onwards. Typically, a start-up undergoes many stages before it begins to bring in revenues and then make profits. From the inception of an idea till profit making stage, a typical start-up needs to create the product /service, test it in among potential users for proof of concept, get funding, scale up the idea and finally take it to the market for selling and realising revenues. In this scheme, it is the investors- in term of finance, or qualitative support as first users of the product, beta users, and family – those who have a ‘skin’ in the idea behind the start-up. It is suggested that the following disclosures be introduced to highlight them.

Some of these include:

- **Source of funds:** There can be informal sponsors of an idea ranging from family and friends to local community sponsors and even self-savings of the entrepreneur (also referred to as bootstrapped start-up). It can also be funded through crowd funding or angel investors or venture capital firms or government support.
- **Purpose of the start-up:** This is very important as some start-ups are driven by environmental concerns and base their idea on eco-conservation or recycling and reuse of resources. Such ideas need greater support as their idea is imbued with environment as a stakeholder implicitly. A ‘statement of purpose’ or ‘seeds for the idea’ statement by the start-up can become a differentiator for those whose ideas are aligned with sustainability and environmental concerns.
- **Ownership pattern:** The number and gender of the founders is reflective of participative and collaborative ownership. Women founders need greater handholding considering the specific impediments they face in the workplace. In a survey, 43% of the women entrepreneurs surveyed said that they get little support from family and spouses, which reflects in India’s abysmal 57th rank out of 65 countries that form part

of the MasterCard Index of Women Entrepreneurs.²¹ The structure of ownership among founders (if they are more than one) shows the strength in the idea and the personal investment of time and effort made by them, and may indicate the probability of the start-up succeeding.²²

Planet: This stakeholder encompasses a wide range of resources that are directly or indirectly used and impacted by the business. These resources are often unaccounted for in business calculations in terms of the costs levied on environment by the business, or what economists call externalities. A suggestive list of the data elements that pertain to the physical environment, water and air, lie at the heart of sustainability of the business over time, in terms of the environmental impact of the business.

- **Usage of water resources:** A list of sources of water used over a period of time in the production process can be provided. This could be recycled, sourced from nearby water body, publicly provided water or own sources. This can be measured in per unit terms as well, depending on the stage in which the start-up is.
- **Use of recycled inputs:** A list of recycled inputs that are employed in production process can be disclosed. Further, the amount of waste that is recycled can also be a part of the disclosure.
- **Gas emissions:** The carbon imprint of the business includes the CO₂ emissions, and the extent of carbon neutrality the business has attained. The disclosures can also relate to other emissions (NO₂, SO_x, PM 2.5) that are a by-product of production.
- **Plastic imprint:** The type and amount of plastics used per unit of output, the amount recycled, as well the use of recycled plastics in business are relevant for sustainability.
- **Energy sources and usage:** The type of energy, or energy source and its usage on per unit/period basis.

²¹ <https://www.mastercard.com/news/latin-america/en/newsroom/press-releases/pr-en/2022/march/2022-mastercard-index-of-women-entrepreneurs/>

²² <https://www.livemint.com/companies/start-ups/women-entrepreneurship-in-india-how-women-led-startups-bridge-the-gender-funding-gap-11688612404028.html>

- **Waste management:** The amount and types of waste generated and waste management practices followed, or the recyclability of the waste generated can be disclosed.
- **Digital businesses:** Since many businesses operate in the digital medium they do not use land or water, or create waste and CO₂ gases. For them the planet would imply the environmental imprint of their physical office.

It may be noted that due to scalability issues or being in an early stage, a start-up may have limited production levels. In such cases per unit use of resources will provide a distorted picture. It may be useful to disclose total output in a time period like 6 months or a year, along with total usage of resources employed.

Human resources: This refers to the persons involved in the start-up, as formal employees and those who may not be formally recognised as employees, as they may not come under the ambit of a legal definition of an employee. A person who works part time (for a few hours only in a day), or works remotely or may be formally employed elsewhere but chooses to devote time to the start-up, is a stakeholder as she strives to contribute to the success of the venture. It may be noted that a ‘formal/legal’ status of employees may not be possible in the initial stages of a start-up, which may necessitate the use of an alternative ways to describe the human contributors to business (gig workers are one example), along with formal employees. Some of the suggested quantitative aspects of the involved human resources include:

- **Retention of human resources** (in terms of average tenure of an employee in the business): A business where employees do not stay for long, and there is higher turnover rate could be reflective of poor management styles by the founders.
- **Remuneration:** Salaries/bonuses/rewards/wages paid and their growth, along with other non-cash benefits. This can be captured in multiple ways- average salary per employee, median salary, gap between highest and lowest salary, training programs conducted/sponsored by the business for employees, safety of the work environment.

- **ESOPS:** Stock options are given to the employees which is an inclusive way that allows employees to take part in the growth and productivity of the business.
- **Stakeholder share in profits:** Profit sharing pattern (if it exists) reveals how each employee stakeholder is viewed and valued in the ecosystem.
- **Gender divide:** This can take many forms- imbalance in the gender ratio of employees, difference in the salary of men and women employees, nature of leave permitted, especially to women.
- **Skilling and training:** Training programs or opportunities offered to the employees are reflective of the investment in human resources, which can potentially reap benefits for the business itself, along with empowering the employees.
- **Work environment:** A safe working environment indicates that employees are well looked after so that they can contribute their best to the business without any emotional or physical hindrances.
- **Gig workers:** In a gig economy, a business may rely on many temporary/outsourced workers who are not ‘employees’ in a technical sense. The cases of delivery apps like Zepto and Swiggy are well known. The delivery staff may not be ‘employees’ but their contribution to the business is no less than of legal employees. The metrics for employees can be extended to such gig/contractual workers as well.

Suppliers: Given the variety in the nature of businesses that start-ups engage in, ranging from physical production of goods to online services which have lesser use of traditional/physical resources, the nature of suppliers is equally varied. A fintech business may not have to deal with suppliers, but use public digital goods like UPI. A start-up that is in the business of production of physical goods will rely less on digital infrastructure and will have physical vendors/suppliers. Both types are critical to business, and have a stake in the ecosystem.

Some of the aspects that can be included in disclosures are:

- **Tracking suppliers:** The practice of fair trade in business is in line with the involvement of stakeholders in the supply chain on a sustainable basis. Such a

practice can be presented as a voluntary disclosure. For example BanyanNation recycles plastic by sourcing ethically using an app that allows them to trace discarded plastic till it reached their manufacturing facility.²³

- **Suppliers' profile:** The nature of the suppliers in terms of formal or informal organisation or if they are a part of MSMEs universe can be disclosed as it adds to the value created among special groups of business and aids in their integration with newer businesses.
- **Suppliers' compliances:** Regulatory compliances of suppliers and vendors can be shared with the start-up, which can be reported so that it pushes vendors to be compliant in order to get business from the start-up.
- **Sourcing of inputs:** Distance of vendor location to production area of the start-up is the key in many start-ups that seek to solve environmental concerns around plastics and waste. It also adds to supplier resilience, in the face of global supply chain problems that erupted during Covid pandemic. Local sourcing, rather than global sourcing of inputs is a worthy idea in the circular economy paradigm.²⁴

Communities: Like any other business, a start-up affects and is impacted by the society around it. The inclusion of this stakeholder is aimed at ensuring that each business 'gives' back to society at large, akin to the idea of corporate social responsibility. While there are CSR rules for larger and registered businesses, smaller and newer firms are equally responsible and answerable on their contribution to society. Some forms of contributions can include:

- Number and nature of jobs created since inception/registration of the start-up, which marks a formal recognition to the idea.
- Philanthropic events/activities done by the employees and founders. An example could be a talk given by the founder at her alma mater or local organisation describing their own journey. The Government of India provides several ways for founders to play the role of mentors '*to lead the way for students of Atal Tinkering*

²³ <https://www.banyannation.com/>

²⁴ <https://yourstory.com/2022/04/meet-waste-management-startups-phoolco-zerund-zeroplast-labs-loopworm-muddleart>

Labs across India.... and help students practice future skills such as design thinking... experimenting, innovating, and bringing their knowledge to practice'.²⁵

- Contribution to State finances: The participation in tax system through taxes paid to the government and subsidies availed can provide a record of the State benefits availed by start-ups, to show their 'net' contribution to State finances.
- Governance practices: In the midst of governance failure at the top in prominent start-ups including Byjus²⁶ and PhonePe (Chu and Tahiliyani, 2021) even before they went public, it is critical to encourage good practices among newer businesses, especially when there is no legal mandate for them to declare any such issues. In the interest of transparency every start-up must reveal its funding sources and an account of its finances to begin with. A statement that reveals the decision making process in the start-up can also be volunteered.
- Code of conduct: Each business can abide by an ethical code of conduct for its founders and employees to sensitise all stakeholders to the values of ethical behaviour in their business dealings. This code can be shared as a disclosure.
- Voluntary compliances: Regulatory compliance by the business can be declared as part of its social responsibility.
- Digital businesses: For businesses that rely on IT as they strive to build online platforms to do business, a policy on data privacy of their customers is akin to good business practice. Since some of these businesses may not have a face to the business operations, the customer care policies are a part of converting customers into stakeholders and making a long lasting relationship with them that yields revenues in a sustainable way.

The above points are not uniformly applicable for all start-ups and small businesses, as they may be in different stages of development, and are only suggestive and exploratory in nature.

²⁵ <https://aim.gov.in/mentor-of-change.php>

²⁶ <https://www.newindianexpress.com/opinions/editorials/2023/jun/26/startups-must-iron-out-governance-issues-2588469.html>

5. Conclusion

There is no clear rule/mandate for start-ups on how to be accountable to all the stakeholders, which a more established business is mandated to do by Securities and Exchange Board of India (SEBI). Recent news of massive layoffs²⁷ in many well-funded start-ups and issues of financial impropriety by the founders makes it critical to create an engagement with their stakeholders for them. A voluntary reporting structure that incorporates the suggested quantitative and qualitative information can serve multiple purposes. One, it differentiates start-ups and smaller businesses from the established registered firms that come under the lens of Ministry of Corporate Affairs. Two, it connects businesses and sensitises them to the need to take all stakeholders into account early on in the growth of the business. It is hoped that such sensitivity becomes ‘natural’ for a start-up, as it builds on its business model, supply chains and vendors, and expands its employee count. The idea is to make stakeholders’ voices as important as shareholders say in the business, to ensure sustainability of the ecosystem in which the business operates. Since many start-ups are purpose based with environment at the centre of their products²⁸, it is easier for them to imbibe the spirit of stakeholder capitalism. Many business leaders have expressed how difficult it gets to change systems within the company to balance delivery of shareholder value with detrimental effects on some stakeholders (environment in most cases). Three, the compliance cost of such a report is expectedly much lower as compared to listed and bigger firms. The government can handhold start-ups to estimate their environmental imprints, as it is technical in nature. Four, an annual reporting by start-ups can serve as a valuable document for potential funders, who can not only evaluate the business, but also use it to decide which start-up to fund. In the current scenario, the ‘pitch’ made by founders to funding agencies and potential investors does not allow a standardised comparison across different founders. Given that most start-ups admit that funding their idea is the most pressing impediment, the suggested stakeholder based metrics can be a valuable tool for start-ups in the race to finance their ideas.

²⁷ <https://economictimes.indiatimes.com/jobs/hr-policies-trends/over-17000-indian-startup-employees-laid-off-in-the-first-half-of-2023-as-funding-winter-refuses-to-thaw/articleshow/102263696.cms?from=mdr>

²⁸ <https://www.startupindia.gov.in/startup-india-showcase#/category/sustainability>

To conclude, we propose that a reporting structure/format for start-ups can be useful not just for the business that is looking for funds, investors and infrastructural hand holding, but also for the ecosystem as it weaves stakeholder considerations in the business from its infancy. This could serve as a demonstration for newer businesses to adopt stakeholder capitalism as a model. This also opens the businesses to ESG financing in the future as the business creates a trail of its engagement with environment, society and government. As the size of a start-up grows with its success, it will signal the success of this model as well.

We acknowledge that the suggestions and proposals in this paper are exploratory in nature, and are amenable to changes and open to criticism. It may be argued that the suggested disclosures impose an added burden on start-ups, already reeling under infrastructural and financial impediments. We would like to contend that such disclosures must be seen using a stakeholder lens that is essential in the model of stakeholder capitalism, along with the possible benefits listed above.

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FinTech - Catalytic Transformer of the Finance Industry

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Abstract

From providing easier and faster processes to financial institutions to delivering convenient experiences to users, the Indian FinTech industry is anticipated to grow by 22% at an average annual growth rate for the next 5 years, till the year 2028 which makes it an essential sector to be studied. This research work aims at providing insights into the evolution made by the finance industry with the transformation of financial services from traditional banking to Non-Banking Financial Companies to FinTech. It further stresses the government initiatives taken up for boosting the digital sector. The qualitative research methodology was adopted by relying on a review of research papers, reports, and journal articles in this domain. Although, there are many research papers on FinTech globally, however, there is not much research work on the augmentation of FinTech in India as compared to foreign nations mainly the USA from where this term was coined, and what the future of this sector might look like globally.

Keywords: FinTech, NBFC, Digital Bank, Neo Banks, Paytm, Stripe, Valuation, Banking, Finance, Technology

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1. Introduction

The term 'FinTech' can be better understood by the word breakup where 'Fin' stands for Financial and 'Tech' stands for Technology, thus forming Financial Technology. At the most basic level, FinTech integrates advanced technology for facilitating businesses, business owners and customers with an improved application and delivery of financial services. Apart from the traditional banking system, FinTech operates in a different setting. FinTech uses cutting-edge technology and artificial intelligence, whereas banks have massive deposits and a strong regulatory framework. FinTech simplifies and accelerates financial institutions' operations and processes. At the same time, it provides consumers with a highly convenient experience which is becoming the need of the hour. As a result, implementing a FinTech solution for the financial institution will be a win-win situation that will propel it to new business heights. It propagates zero-barrier applications and faster approvals. Financial institutions improve process efficiency through automation and customized FinTech implementation based on demand and type of company operations as per the report of KPMG, 2019³ FinTech has become a one-stop destination for all financial services, it is not just about payment services rather the industry is becoming huge and has its distribution, which consists of personal finance, real estate, lending, crypto, and investment. However, the payment segment of the FinTech distribution holds the greatest share in this industry segmentation and thus contributes towards revenue generation.

The growth of FinTech is supported by the up gradation in the technology. Regular technological advancements like artificial intelligence (AI), Data Analytics, Big Data, and Robotic Process Automation make it much safer, faster, and more efficient. Digitization is taking place across the value chain. Consumer connections in the front office are shifting from face-to-face interactions to cell phones. European neo-banks such as Revolut, American Robo-advisers such as Betterment, and Asian InsurTech such as PingAn are few examples.

Section 2 reviews the recent literature on FinTech and its related topics. Section 3 mentions the methodology of this paper. Section 4 highlights the thematic view analysing the relation between technology and FinTech. Drawing from the emerging trend towards technology in

³ [Forging-with bleeds.pdf \(kpmg.com\)](#) (accessed in November 2022)

finance, this study explains the evolution of the Indian financial services sector with technological advancements. Following this, section 5 describes the initiatives taken by the government to give a boost the FinTech industry. Section 6 lists down the top five FinTech companies in India and abroad. As the Indian FinTech industry is in the developing stage, it is essential to know the further improvements required for competing with the foreign FinTech industries. Considering this, section 7 is a comparative analysis between the FinTech companies in India and abroad. Following this, section 8 focuses upon the future, and the extensions of the FinTech industry. Section 9 concludes the paper.

2. Literature Review

2.1. Evolution & Growth of FinTech

There is a digital revolution taking place in the financial sector that requires the revelation of the drivers of digitalization in the finance industry (Dapp, 2014). The use of technology would consequently enhance efficiency thus, further changing the face of interaction between the bank and its customers. The web-based technologies leading to efficient use of information and falling transaction costs pave the way for many new players to enter the market. The research introduces digital structural change which is a key feature for banking sector and the need for digital revolution. It also shows the building of an internet economy along with the structural changes and market consolidation. The interlinked relationship between financial services and technology is further explored by Arner, et al. (2015) to understand the status and possible future developments. It also emphasized the necessity of regulators in the industry in the form of “RegTech”. As per Goyal, et al. (2021) “India is strongly poised to realize a FinTech sector valuation of USD 150-160 billion by 2025, translating to an incremental value-creation potential of approximately USD 100 billion.”

FinTech is defined as leveraging technology to deliver banking and financial solutions to individual and enterprise customers in Pant (2020) with the focus on different phases of FinTech and its evolution. FinTech in India has also been elaborated upon along with risks in the upcoming years. Understanding the role of the NBFCs sector in the financial industry and

its future was highlighted by Sengupta, et al. (2021) along with a comparison with the commercial banks. Advancing the delivery of financial services to the poor, unbanked, and marginalized is required in the current times, and Lagna and Ravishankar (2021) have focussed on the same along with highlighting the opportunities for IS scholars to align their FinTech research with the pro-poor financial inclusion agenda. It also proposes further inclusions under five areas of research: business strategies, digital artifacts, business environment, micro-foundations, and developmental impacts.

2.2. Challenges & Issues of FinTech

Priya and Anusha (2019) says that FinTech is a game-changer and a disruptive technology that can shake up the traditional financial markets. Still, the new technologies will only be successful once the customers are satisfied with the privacy and security aspects, as Kandpal and Mehrotra (2019) aimed at the cyber security of the consumers of FinTech, and the support of the government is required for the same.

Suryono, et al. (2020) mentions the requirement of broad principles in which the rules must be adapted according to technological advancements, with this arises the need for a regulatory sandbox concept and monitoring of the platforms. “India is transitioning into a dynamic ecosystem offering FinTech start-ups a platform to grow into billion-dollar unicorns. From tapping new segments to exploring foreign markets, FinTech in India is pursuing multiple targets.” (Suryono, et al. (2020))

Baporikar (2021) examines the challenges that India will face alongside the development of the FinTech industry and explore the fact of how India as a cashless economy will cope with the emergence of FinTech across the globe.

2.3. Indian FinTech

As per FinTech in India (2017)⁴, the report by Deloitte, the FinTech Industry is both complementing and challenging the traditional banks and financial services institutions globally. The sector can be analyzed by breaking it into six sub-sectors- Credit, Payments, Investment Management, InsurTech, and BankTech. The segments can also witness their own breakout moments with the right value proposition and by gaining customers' confidence. Vijai (2019) highlights how the Indian economy has responded well to the FinTech opportunity and accesses the opportunities and challenges by expounding the evolution of this industry. According to Rajeswari and Vijai (2021), "FinTech is the latest buzzword in the area of finance sector; the latest evolution of FinTech, led by start-ups, poses challenges for regulators and market participants alike, notably in balancing the potential benefits of innovation with the possible risks of new approaches in the finance sector." Knowing the drivers of the FinTech sector is also important,

Mehta and Kumari (2021) focused on this by taking a quantitative approach to study customer awareness and inclination toward FinTech products. It also explores the difficulties that FinTech will face soon alongside its development. "The Indian financial ecosystem has strong growth potential." With this Abidi (2021) elaborates upon the foundation, growth, and development of FinTech in India. It also takes into consideration Covid impact on the industry.

2.4. Future & Extensions of FinTech

For guiding India toward a key FinTech hub to make it into a mature FinTech ecosystem by global standards it is required to assess the FinTech landscape in India along with the various stakeholders and identification of the key growth drivers, this is covered in (Fintech in India, 2016).The future of FinTech as per Mention (2019) seems to deliver double-edged consequences- catalysing consumer and market behaviour changes while disrupting the necessary employers, regulatory structures, and service models, and modernizing the financial architecture. Also, it mentions some hard realities that FinTech firms need to face

⁴ Source: [FinTech in India: Ready for breakout](#) (accessed in September 2022)

despite promising technology. There are certain research gaps that need to be filled before this area could become an established academic discipline. Following this Kavuri and Milne (2019) has defined seven key research gaps with questions with which a base for the academic study could be formed. The seven gaps are changing industrial structure and organisation of financial services; new forms of financial intermediation (alternative finance) such as loan-based and equity-based crowd funding; changing payments mechanisms including central bank digital currencies and the shift to a cashless society; reaching vulnerable and excluded customers in both developed and developing countries; computation, artificial intelligence and large-scale data processing in finance; the relationship between the new financial technologies and financial regulation; identity, security, data privacy and their regulation in financial services. Ranabhat, et al. (2022) shows by following the PRISMA⁵ framework that the adoption of digital financial inclusion in developing countries is getting essential and for the same identifying the research gaps for future research is needed.

This paper, by examining the existing literature on the FinTech industry explains the evolution of the Indian financial services sector with technological advancements. With the Indian FinTech industry in its developing stage, it is essential to figure out the scope of further improvements required for competing with the foreign FinTech industries. In contemplation of this, a less explored area of a comparative analysis between the FinTech companies in India and abroad is covered in our research work. The top five Indian FinTech companies (Paytm, Razorpay, BharatPe, Digit Insurance and PB Fintech) and foreign FinTech companies (Stripe, Ant Financial, Visa, Mastercard and PayPal), have been considered to study and analyse the status and pattern of these companies. Following this, the extensions of the FinTech industry have also been focused upon. Challenger banks and neo banks have been looked upon as extensions of the FinTech industry. The paper concludes with a glance at the future of the FinTech industry.

⁵ PRISMA stands for Preferred Reporting Items for Systematic Reviews and Meta-Analysis, which is a 27-item checklist used to improve transparency in systematic reviews.

3. Methodology

A comprehensive review of the literature on FinTech, its evolution, growth, and future aspect of the industry was conducted to specify the study's parameters with a qualitative approach. The study has been undertaken based on top-cited academic publications. Reports and articles of prestigious companies such as KPMG and BCG have been considered while preparation of the research paper. The key data and trends for the same were taken from websites such as Statista and other prominent companies that conduct market research. The primary criterion of the review research paper is to compare the FinTech sector in India and abroad by opting for a comparative analysis approach. For aiding the analysis, the top five Indian and foreign FinTech companies have been considered.

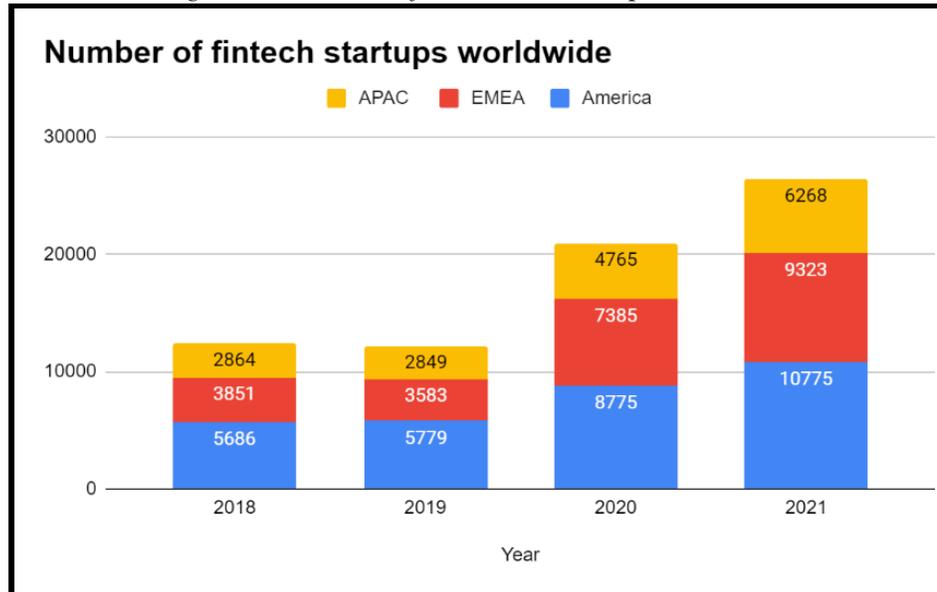
4. Thematic analysis of the FinTech Industry

Finance and technology are connected since the beginning of human society. Its origins can be traced back to the nineteenth century, once the technology began to form its imprint on history, inflicting the FinTech business to grow.

The number of FinTech start-ups has increased exponentially globally. Figure 1 represents the growth of the number of FinTech companies through the years 2018 to 2021. The data has been taken based on APAC, EMEA, and America.

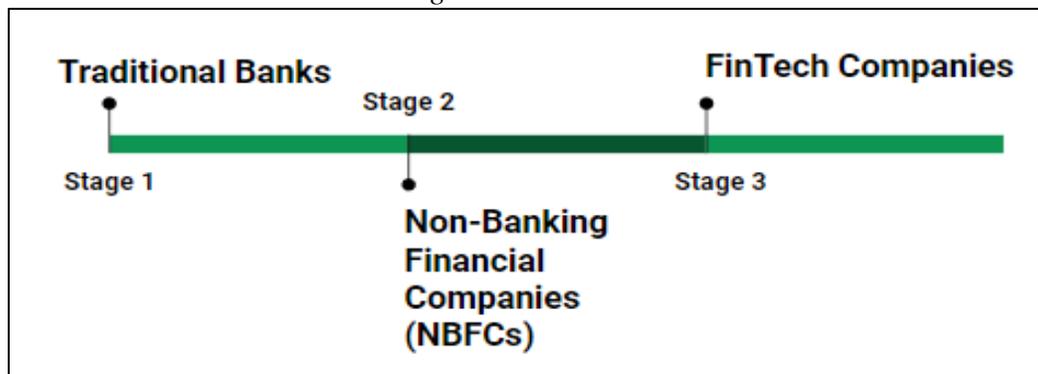
The start of the banking system was with traditional banks, which are still an essential part of the system. Then the non-banking financial companies (NBFCs) evolved to eliminate the gaps in the traditional system. Eventually, role of technology was brought into the banking sector which led to the introduction of FinTech companies. Figure 2 gives this description.

Figure 1: Number of FinTech start-ups worldwide



Source: [Statista](#) (accessed in November 2022)

Figure 2: Evolution



Source: Authors' creation based on the literature

4.1. Traditional Banks

They are financial entities that are permitted to accept deposits from individuals and companies and provide loans to them. Wealth management, safe deposit lockers, and currency exchange are among the other financial services provided by some banks.

Banks and FinTech are considered the biggest competitors. The only similarity between these two sectors is that both work to provide financial services to people. When it comes to innovation and advancement, traditional banks are falling behind, while FinTech is stepping up to the plate. FinTech may only make up a small part of the global financial system, but it is rapidly being used to replace banks.

Table 1: Comparison between Traditional Banks and FinTech companies

Basis	Traditional Banks	FinTech Companies
1. Structure & Working	These are restrictive due to formal procedures and methods.	The FinTech industry is a creative and customer-focused industry. It is developed in a way that is more accessible to people
2. Technology	It does not play the main role.	All the functions to provide financial services are run with the help of technology.
3. Customer Experience	Banks require the physical presence of the customer to avail of most of their services.	FinTech offers 24/7 access, remote account opening, and quick consultations which give consumers a better experience.
4. Risks Involved	Banks are strictly regulated and thus face much fewer risks when compared to FinTech. The services are exposed to less severe risks.	FinTech regulations are more lenient than traditional regulations, increasing the risk of doing business.
5. Regulations	National or central banks govern	The FinTech industry does not have

	banks in their own countries like RBI in India.	a single regulator. This is the main reason for their flexible working and easy adaptations.
6. Growth Potential	Traditional banks are still used by a large section for financial services. They still hold a decent market share and will continue to hold it, while sharing with FinTech.	The FinTech industry, which is driven by technology, has huge growth potential. FinTech is growing exponentially and has a large user base.

Source: Authors' compilation from the literature

4.2. Non-Banking Financial Companies (NBFCs)

It is usually being asked that when we have the banks to fulfil our day-to-day financial needs in terms of making deposits, savings, loans, and other activities, was there still a space for any other developments to be made. This is where Non-Banking Financial Institutions (NBFIs) or Non-Banking Financial Corporations (NBFCs) came into place. NBFIs are the financial institutions offering various banking facilities (they don't have a banking license) which are regulated by the RBI after obtaining NBFC registration.

They are considered better than the traditional banks for certain reasons. They follow a hassle-free loan process, flexible eligibility criteria for granting loans, prioritizing customers, complete online or digital process, as well as very competitive with the interest rates than traditional banks. Which one is better, NBFC or FinTech? To understand, which one is better, NBFC or FinTech, Table 2 below gives a comparative analysis of the two.

Table 2: Comparison between FinTech companies and NBFCs

Basis	FinTech Companies	NBFC
1. Acceptance of technology	They are a power-driven tech business.	They have a slow acceptance of technology and follow manual-processing steps.
2. Paperwork	Low	High
3. Convenience	It provides high convenience.	It has a moderate level of convenience.
4. Flexibility of rules	They are moderately flexible with the rules.	They are very less flexible with the rules.

Source: Authors' compilation from the literature

Each of them has its own benefits and drawbacks, though both deliver loans, they still have their respective different places in the financial environment. The FinTech industry emerged from the traditional banks, followed by the NBFCs.

With the approaching of the 21st century, India like many other active players emerged in this era with an abundance of smart advancements and entrants. The FinTech industry gained traction and became ubiquitous during the Global Financial Crisis of 2008. This was when people began shifting from the traditional banking system and developed their trust in these new entrants. India took its turn toward a cashless economy with the announcement of the 2016 demonetization and the Indian Government's move toward Digital India. All this lent nice support to the FinTech business.

As per Goyal, et al. (2021), the valuation of the Indian FinTech sector is predicted to be positioned at USD 150-160 billion by 2025 and for accomplishing this, a targeted investment

of USD 20-25 billion is required over subsequent few years. The report also mentioned India as the fastest-growing FinTech market in the world as 67% of the 2100+ FinTech companies existing in India have been set up in the past five years.

4.3. Factors behind the evolution of the FinTech Sector

Figure 3 depicts the average transaction value per user in three different segments: Digital Commerce⁶, Digital Remittances⁷, and Mobile POS Payments⁸. We can observe that the average transaction value is increasing every year. This reflects the expansion of the FinTech sector over the years.

4.3.1. Easy Payments & Convenient Personalization

In recent years, instalments have undergone a big transition, because of the internet business, mobile commerce, and online instalments. The FinTech sector has expedited easy payment options for consumers across the globe. Numerous digital payment apps such as Google Pay, Apple Pay, Amazon Pay, PhonePe, etc., proved to be a booster for 'Cashless India'. As shown in figure 4, there has been a significant increase in the both the volume and the value of digital transactions. The volume of digital transactions increased from Rs. 2071 crore to Rs. 13462 over the years 2017 to 2023 which shows the impact of Cashless India campaign on Indian population.

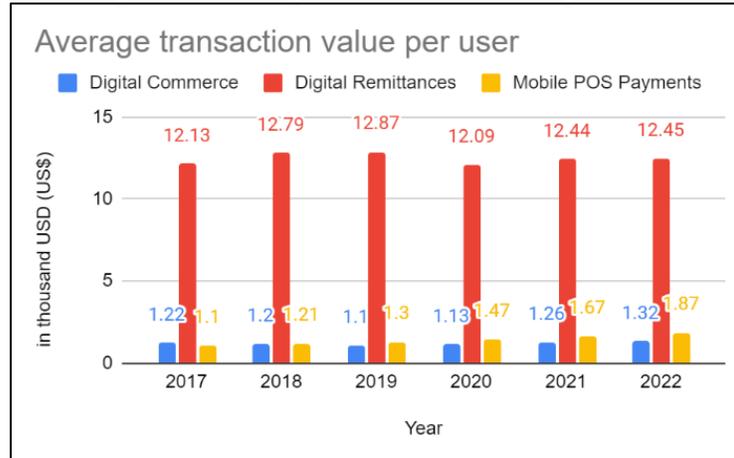
Moreover, FinTech is enhancing the client experience by providing customized plans that are tailored to the client's requirements. Implementing Artificial Intelligence (AI) and Big Data for personalization will increase availability and capability, with the findings being used to advance current administration methods.

⁶Source: <https://www.gartner.com/en/information-technology/glossary/digital-commerce> (accessed in January 2022)

⁷Source: <https://gocardless.com/en-au/guides/posts/what-is-digital-remittance/> (accessed in November 2022)

⁸Source: <https://www.techtarget.com/searchcio/definition/mPOS-mobile-point-of-sale> (accessed in November 2022)

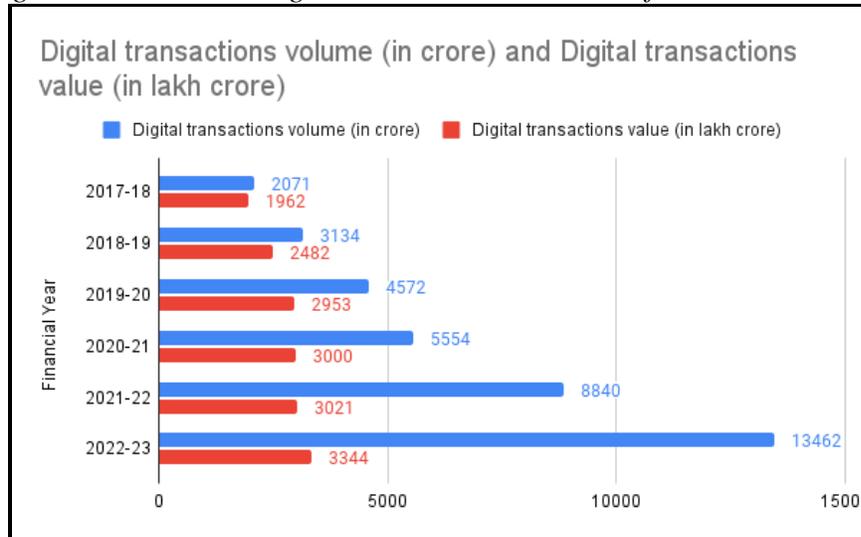
Figure 3: Average Transaction value per user



Source: [Statista](#) (accessed in November 2022)

Note: The data for the year 2022 is calculated till the month of March.

Figure 4: Increase in digital transactions in terms of volume and value.



Source: [Ministry of Electronics & Information Technology](#) (accessed in July 2023)

4.3.2. The partnership of FinTech with corporations and banks

Nicely coordinated efforts between FinTech trend-setters and Corporates, with Corporates preferring to take a position in FinTech over acquiring arrangements, may be witnessed. Also, banks collaborate with FinTech to resolve inconsistencies and supply advantages through administration, a seamless client experience, and advancement in cutting-edge

features to simplify chores. Examples of partnerships between FinTech and Banks as of 2023 are Tradeshift and HSBC, Stripe and Goldman Sachs, Deutsche Bank and Traxpay, and Citi and IntraFi.

4.3.3. Simple Management of Personal Wealth

Investment Advisory organizations have experienced a rising change with the improvement in the electronic riches counsel called Robo-guides. This assists the clients in making money-related decisions through calculations. Such inclusion of the technical features boosts the use of FinTech.

4.3.4. The facility of Cloud Banking & Secure Digital Payments

As no additional speculations are needed for asset and equipment management, the use of distributed computing will drastically save expenses. Cloud adapts to dynamic requests and provides flexibility to meet clients' shifting needs. Cloud assets may also scale up and down as needed, making it easier to integrate new technologies. Security is paramount in money-related transactions that have become handy due to the facility of cloud banking. According to an EY analysis⁹, block chain technology will be progressively popular with its benefits like transparency, changelessness, discernibility, and audibility. It will provide a level of security for the trade of currency and sensitive data, allowing clients to benefit from its simplicity and lower operational costs.

⁹ Source: https://www.ey.com/en_gl/digital/blockchain-why-finance-and-auditing-will-never-be-the-same (accessed in October 2022)

5. Government Initiatives toward FinTech Industry

As per Findex 2021¹⁰, 22% of Indians lack an account in any financial institution. Across banks, INR 267 billion (USD 336 billion) have been lying in around 90 million dormant accounts for more than 10 years, as of December 2020. Following this, the Government of India created a regulatory environment in the country that encouraged new enterprises to take the lead and gain recognition for themselves in the banking industry. In 2018, more than 125 FinTech start-ups were successfully launched, as per the Fintech Futures¹¹. This is seen as the increased investment and funding by both international and domestic banks, as well as the establishment of a foundation for India's FinTech start-ups to fund payment wallets, finance tools, and other financial services.

5.1. Digital India Programme

Digital India Programme¹² is a flagship program of the Indian Government with a vision to transform India into a knowledge economy and digitally empowered society. The vision of the Digital India Programme is digital infrastructure as a core utility to every citizen, governance & services on demand, and digital empowerment of citizens. High-speed internet, mobile phones, and bank account enable citizens to participate in the digital and financial space. Among these, the high-speed internet facility is a core utility for the delivery of such services. All this has improved the ease of doing business and led to collaborative digital platforms for participative governance.

5.2. Ombudsman Scheme

Ombudsman Scheme¹³ provides bank customers with a quick and affordable venue for the settlement of grievances regarding specific services provided by banks. System Participants

¹⁰ Source: <file:///C:/Users/LEN0VA/Downloads/9781464818974.pdf> (accessed in November 2022)

¹¹ Source: <https://www.fintechfutures.com/2019/01/initiatives-by-indias-government-to-boost-fintech/> (accessed in November 2022)

¹² Source: <https://csc.gov.in/digitalIndia> (accessed in October 2022)

¹³ Source:

disregard Reserve Bank guidance about Prepaid Payment Instruments, on payment transactions through Unified Payments Interface (UPI) / Bharat Bill Payment System (BBPS) / Bharat QR Code/ UPI QR Code.

5.3. Steering Committee

Steering Committee¹⁴ constituted by the Department of Economic Affairs in 2019, Ministry of Finance highlights the positive impact of FinTech on sectors like Agriculture and MSMEs and recommends a comprehensive legal framework for consumer protection considering the rise of FinTech and digital services.

5.4. International Financial Services Centre Authority

International Financial Services Centre Authority¹⁵ (IFSCA) is headquartered in GIFT City of Gujarat and was established on April 27, 2020, with the main objective to develop a strong global connection, focusing on the Indian Economy's needs, and serve as an International Financial platform. In the Union Budget of 2021-22, the government announced its support for a world-class FinTech hub development at the headquarters.

5.5. E-RUPI

E-RUPI¹⁶ is a digital solution launched by the Government of India to allow a cashless payment solution for COVID-19 vaccination. It can be shared with the beneficiaries for any specific purpose or activity by organizations via SMS or QR code. This seamless one-time payment mechanism is easy, safe, and secure for the beneficiaries because it keeps their

https://loksabhadocs.nic.in/Refinput/New_Reference_Notes/English/08122021_120807_102120474.pdf
(accessed in November 2022)

¹⁴Source:

<https://www.techtarget.com/searchcio/definition/steering-committee#:~:text=A%20steering%20committee%20is%20a,supports%20business%20goals%20and%20objectives>. (accessed in October 2022)

¹⁵Source: <https://www.ifsc.gov.in/> (accessed in October 2022)

¹⁶Source: <https://www.npci.org.in/what-we-do/e-rupi/product-overview> (accessed in October 2022)

details completely confidential. With this, the users can redeem the vouchers without a card, digital payments app, or any internet banking access. The entire transaction process via this voucher is comparatively faster and more reliable as the required amount is already stored in the voucher.

The creation and implementation of *authentication solutions* such as digital KYC, video-based customer identification, and digital signature on documents have provided various safeguards and a hassle-free system for FinTech start-ups and customers to take advantage of the sector's technology-enabled solutions.

6. Top 5 Indian and Foreign FinTech Companies

This section gives a brief summary of Indian and Foreign FinTech companies. Table 3 gives a comparison of top five Indian FinTech companies on various parameters, while Table 4 gives a comparison of top five foreign FinTech companies.

Table 3: Top 5 Indian FinTech companies

	Paytm	Razorpay	BharatPe	Digit Insurance	PB Fintech
About	Established in 2010 by Vijay Shekhar Sharma, Paytm began as a utility payment platform. It is owned by One97 Communications and licensed by RBI.	Razorpay was started by Harshil Mathur and Shashank Kumar in 2014.	Founded in 2018 by Ashneer Grover and Shashvat Nakrani serves small merchants and Kirana store owners with a collection of FinTech products.	Formed in 2016 by Kamesh Goyal with its digital-first strategy promising to make the insurance purchase and claim procedure easier and had been granted regulatory clearance by Insurance Regulatory and Development Authority (IRDA) in September 2017.	The parent company of PolicyBazaar and PaisaBazaar was founded by Yashish Dahiya, Alok Bansal, and Avaneesh Nirjar in June 2008. It originated as a price comparison website and a knowledge source for insurance and related programs which later grew up to become an insurance policies marketplace.
Valuation	\$6.48 billion	\$7.5 billion	\$3 billion	\$4 billion	\$3.6 billion
Status	Listed	Unlisted	Unlisted	Listed	Listed
Business Model	It generates revenue using the transaction fee from the merchants and convenience fee from the consumers	For small and medium companies, revenue is obtained through transaction charge of 2-3% and for large enterprises, customized plans do the needful.	Its revenue comes from its merchant and consumer-lending products.	Much of its revenue is generated from its products which include the insurance plans and their premiums	PolicyBazaar makes money via a commission model
IPO	Yes	No	No	No	Yes
Unicorn	Yes	Yes	Yes	Yes	Yes
Competitive Advantage	Paytm has just released the Paytm for Business app in 2018, which allows businesses to manage transactions and accept digital payments through QR codes.	Razorpay's encoded service allows businesses to receive payments from their consumers at the point of delivery using non-cash payment methods. To introduce the eCOD (eCash On Delivery) feature, Razorpay has already teamed with Shadowfax and several online merchants, including Licious and GoZefo.	It was the first one to create an interoperable QR code, ZERO MDR payment acceptance service, and UPI payment-backed merchant cash advance service.	It also plans to expand itself through physical presence and to support this, the company will follow a spoke-hub distribution paradigm. The company aims to cogenerate and design innovative products through neo-lending strategies.	Expecting PB FinTech to get benefit from its dominant position in the digital insurance and credit market, some analysts have given a 'Subscribe' rating for the long term to the IPO.
Growth Strategy	By identifying the unmet needs and meeting them prioritizing customer support and creating a good user experience, it has had a great growth path. The strategy for the same includes helping small businesses to go digital, providing diverse services, sponsoring events and offering discounts and cashback to attract customers.	Three new products: Magic Checkout, Tax Payment Suite, and Rize were launched by Razorpay as the next leg of growth. The payment methods included Net banking, BNPL, UPI, wallets, debit, and credit cards, also it was advantageous to businesses and merchants to handle their financial operations through a single dashboard.	With the goal to ameliorate the consumer experience on its POS devices, it will continue to expand via strategic alliances with financial institutions, banks, and brands. It is also planning to launch a Merchant Shareholding program. It has shopkeepers at the centre of its business strategy, which has paid rich dividends to the company.	It follows the 'simplicity' tool which according to it is the biggest differentiator in the current complex industry to achieve growth and customer satisfaction. They attract customers with innovative products such as mobile screen damage insurance.	Considering an efficient growth strategy is working on experiments and finding the opportunities in the SME and corporate business, although they prefer to avoid the experiments involving huge cash burn upfront. With a focus on customer convenience, they plan to set up physical offices in major cities in India.

Source: Authors' compilation from the literature

Table 4: Top 5 Foreign FinTech companies

	Stripe	Ant Financial	Visa	Mastercard	PayPal
About	Stripe is an Irish American company formed in 2009. It is headquartered in San Francisco, United States, and Dublin, Ireland which offers financial services.	Ant Group, formally known as Ant Financial and Alipay, founded on 16th October 2014, is a subsidiary of the Chinese Alibaba Group.	Visa Inc. is a global firm headquartered in California, USA. VISA was founded by Dee Ward Hock on September 18, 1958.	Mastercard Inc. is an American multinational corporation located in New York. It was founded on 3rd November 1966.	PayPal Holdings, Inc. is a worldwide financial technology corporation based in the United States that operates an online payment system in many nations.
Valuation	\$50 billion	\$64 billion	\$464.93	\$357.21 billion	\$74.42 billion
Status	Listed	Listed	Listed	Listed	Listed
Business Model	Stripe's revenue-earning comes from payment processing fees, atlas, radar, sigma, issuing, treasury, and premium support.	Offering services such as insurance, credit, loans, credit scoring, and wealth management contribute to the revenue of the company.	Visa operates on a transaction-centric business model, earning income from payments as well as transaction volume from its customized cards.	Mastercard earns money by collecting a charge based on the gross dollar amount of activity to financial institutions that issue Mastercard-branded payment instruments.	PayPal makes money through transaction fees, international payments, business accounts, withdrawal fees, interests, pay flow, and working capital.
IPO	Yes	No	Yes	Yes	Yes
Unicorn	Yes	Yes	Yes	Yes	Yes
Competitive Advantage	It has built a programmable infrastructure such as Global Payments and Treasury Networks (GPTN) for the global money movement.	The FinTech company uses the "BASIC" technology strategy to provide better future services and make the technology available to the public.	It attempts to capture the new sources of money movement, i.e., new flows like P2P, G2C (Government-to-consumer), B2b (Business-to-small business), etc. It also provides some Value-Added Services to diversify the revenue.	To supplement its efforts and eventually diversify its revenues, the company used acquisitions as a tool, its buyouts helped expand the concerned markets with new revenue streams and thus strengthen its core product solutions.	It had the first-mover advantage in online payments, and it is now getting closer to other financial services like crypto for expanding its financial services. Its varied offerings with greater flexibility and ease of use are what make it different from its competitors.
Growth Strategy	The company uses a Product development-based growth strategy - DHM which stands for Delight customers in, Hard-to-copy, Margin-enhancing ways. Market penetration, market development, product development and diversification are the four basic categories of growth strategies.	This company uses the "BASIC" technology strategy to provide better future services and make the technology available to the public. This strategy is a combination of five aspects: Blockchain, Artificial Intelligence, Security, IoT, and Cloud Computing.	The company's strategy is to fast-track the revenue growth in consumer payments with capabilities like cryptocurrencies, Tap to Pay, Tokenization, Click to Pay, etc.	The firm is concentrating on technology in the B2B sector. To complement its efforts and eventually diversify its income, the corporation employed acquisitions as a tactic.	PayPal has introduced a slew of new products aimed at broadening its ecosystem and increasing user interaction. This includes Venmo credit card, QR code payments, cryptocurrency trading, and "Buy Now, Pay Later" (BNPL).

Source: Authors' compilation from the literature

7. Comparison between Indian and Foreign FinTech

After having a look at the top companies in the FinTech sector, it is now a requisite to perform a comparative analysis between Indian and foreign FinTech. This section of the report performs the comparison based on certain factors to perceive the developmental status of India compared to developed nations in the FinTech industry. For the same, the US has been taken as the base nation.

Table 5: Comparison between Indian FinTech and Foreign FinTech

Basis	India	US
Valuation of companies (based on top 5 companies considered)	The valuation of top FinTech companies in India ranges from \$3 billion to \$15 billion.	The valuation of top FinTech companies in the US ranges from \$95 billion to \$425 billion.
Listed/Unlisted	Most of the companies in India are not listed and haven't launched their IPOs. Companies such as Paytm, BharatPe, and PB FinTech have or will be releasing their IPO.	Almost all foreign FinTech companies are listed. All the top FinTech companies in the US are listed and have released their IPOs.
Regulator's Approach	The Reserve Bank of India has decided to set up a separate FinTech department. It will also help in providing a framework for further research to pin down the challenges and opportunities associated with it. ¹⁷	The CFPB (Consumer Financial Protection Bureau) looks after the FinTech sector. It will govern the consumer's financial transaction data for the consumers to switch banks more easily or take benefit from the FinTech-enabled services ¹⁸ .

¹⁷ Source: [The Reserve Bank of India and the Regulation of Fintech](#) (accessed in November 2022)¹⁸ Source: [CFPB Invokes Dormant Authority to Examine Nonbank Companies Posing Risks to Consumers](#) (accessed in November 2022)

Regulatory Acts	Payment & Settlement Systems Act, Guidelines Regulating P2P Lending, NCPI Regulations regarding UPI payments, NBFC Regulations, and Regulations governing Payment Banks are some of the FinTech regulations imposed in India.	Gramm-Leach Bliley Act, Fair Credit Reporting Act, Fund Transfer Act, CFPB Regulation E, Securities Act, and Exchange Act, Securities Act and Exchange Act, are some of the acts passed to regulate FinTech activities in the US.
Government Initiatives	The Pradhan Mantri Jan Dhan Yojana (PMJDY), Ombudsman Scheme, National Payments Corporation of India (NPCI), Digital India Programme, E-RUPI, and the RBI's Centre for Financial Literacy program are some of the key measures introduced to enhance the working of the FinTech sector.	The US government introduced the CARES Act to reduce the impact of Covid 19 on small businesses and support them. The Fed has also introduced various facilities to provide FinTech with funding. These schemes include Primary Market Corporate Credit Facility, Term Asset-Backed Securities Loan Facility as well as Main Street Business Lending Program.

Source: Authors' compilation from the literature. *Note:* The base country for the report is the US as most of the top FinTech companies across the world are US-originated, thus considering the bigger picture Indian FinTech companies were compared to the US-based for international comparison.

From Table 5, while the US-based FinTech is more developed in terms of its valuation and being listed, Indian FinTech is exponentially growing to achieve that status. The minimum valuation of top FinTech companies in the US starts from \$95 billion, whereas for Indian companies, it is from \$3 billion which reflects the gap in the developmental status of both

nations (as per the top ten companies considered above). On one hand, all the top US-originated FinTech companies have released their IPOs, on the other hand in India; most of the top companies are in the process of launching their IPOs. However, the Indian FinTech sector has seen substantial developments in the previous five years, with growth continuing to accelerate. As per *The Winds of Change*-a report by E&Y¹⁹, considering the number of FinTech start-ups and publicly listed players, the US is the largest Fintech hub, but India is the fastest-growing marketplace for FinTech with the highest adoption rate of 87% against the global average of 64% as said by Shri Piyush Goyal, Honourable minister of Ministry and Commerce while addressing the 2nd Global Fintech Fest-2021²⁰. When compared with the US, it was noticed that both, the US government and the Indian government are working towards safeguarding the FinTech sector and making it a trustable industry for customers. Moreover, the central banks i.e., Federal Reserve and RBI are ensuring the smooth functioning of the industry.

8. Extensions and Future of the FinTech sector

8.1. Extensions

8.1.1. Challenger Banks

Challenger banks are tech-led neobank start-ups or non-financial services that are pivoting into financial services as well as digital-only offerings by incumbent banks. The emergence of Challenger Banks has changed the banking outlook significantly over the last decade. Metro Bank was one of the first challenger banks and had its banking licence approved in 2010. With more of their focus on digital technologies and enhanced customer experience, they look to disrupt the established banks. To differentiate themselves, they leveraged mobile-first technology by initiating innovative new products and offering superior customer services, along with this they follow a model with minimum operating costs which allows them to provide services to their customers at significantly lower prices when compared with the traditional banks. They opted to primarily target the customer segments which were

¹⁹ Source: [The Winds of Change](#) (accessed in November 2022)

²⁰ Source: [PIB Delhi](#) (accessed in September 2022)

previously ignored instead of focusing on the larger customer segments of the traditional banks.

With their growing popularity, these ‘new-age’ banks are expected to reach \$356 million by 2025 as per the report of SunTec.²¹ Unlike the UK, India does not grant virtual banking licenses to challenger banks. However, NITI Aayog (2022)²² shows that there is a possible action plan for proposals of licensing and regulatory frameworks for digital banks.

8.1.2. Neo Banks

Neo banks are modern financial institutions that only operate online. They offer digital, mobile-first financial solutions for loans, payments, and other activities. The idea of neo-banking as a concept first surfaced between 2013 and 2015. First-movers including Monzo, Revolut, N26, and Atom Bank had their origins in the UK and Germany. Back in 2016, Niyo Solutions was the first FinTech Company in India to explore neo-banking. They bridge the gap between traditional banking services and clients' changing expectations in the digital era. This was the major reason behind emergence of neo banks. They're changing the FinTech landscape and might eventually overtake traditional banks. Neo banks are an extension of the FinTech sector. RazorpayX, Jupiter, Niyo, Open, and EpiFi are some of India's top neo banks.

Neo banks have several benefits which include low costs due to few regulations and credit-based risks, convenience due to digitalization, and speed due to innovative technologies. There are some cons of neo-banks as well. Neo banks are not regulated by RBI and as a result, may face some hurdles. Neo banks do not have physical branches. These companies don't have their bank licenses in India; thus, they rely on bank partners to provide licensed services. RBI, the central bank of India does not permit 100% digital banking yet. The Reserve Bank of India (RBI) continues to place a high value on banks' physical presence.

²¹ Source: [Syncing Traditional Banks With Their ‘Challengers’](#) (accessed in October 2022)

²² Source: [Digital Banks: A proposal for licensing & regulatory regime for India](#) (accessed in November 2022)

However, the neo-bank market is expected to grow at a tremendous rate of 53.4 percent from 2022 to 2030, according to Statista.²³

8.2. Future of FinTech

People have moved towards FinTech, and this is the result of technology that has made financial payments much easier than before. The need for technology-backed banking has risen because of the digital transformation movement by FinTech and the emergence of digital payments, digital wallets, crypto currencies, and digital currencies like Bit coins, Lit coins, Name coins, NXT, and others.

To produce cutting-edge apps and solutions that would help them expand their market presence, retain current clients, and draw in new ones, many banks and financial institutions began seeking FinTech software development services. To draw in more customers and provide them access to top-notch digital banking services, it is efficient to design digital solutions with a customer-centric mindset that embraces the most recent FinTech developments. The advancement in the future of FinTech will take some more years.

As Figure 3 earlier depicted the average transaction value per user can be inferred that the transaction values are expected to increase every year in the future. It is evident that a positive future in the FinTech sector is expected across the three different segments

9. Conclusion

The connection between finance and technology can be spotted since the emergence of the telegraph and Morse code, which are now obsolete. The observation of online banking began in the 1980s, and with its gaining popularity, many active players emerged in India by the 21st century. Compared to foreign FinTech companies like that in the U.S.A., India still seems to be at a budding stage. But it can be easily observed that the Indian government

²³ Source: [Market size of neobanks from 2021 to 2023, with a forecast for 2030](#) (accessed in July 2023)

considering it an essential sector like every other economy is taking initiatives for building a digital economy.

Finance Minister Nirmala Sitharaman said in her Budget 2022 speech that boosting the digital economy and FinTech was a top priority for the government. The Indian government has launched several initiatives to boost FinTech and enhance inflows. The US government has also been playing a major role in the enhancement of the FinTech industry. Many governments and central banks are working towards achieving the goal of the digital economy. These initiatives have led to the transformation of the sector.

There is no doubt that the FinTech sector is indeed a key sector for an economy. However, the question on whether the FinTech sector can ever overpower traditional banking is yet to be answered, which at this stage, can only be speculated, and requires more research in the future course of time.

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Challenges Encountered by Family Businesses in the Era of Digitalisation and A.I. - A Perspective Article

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Abstract

Purpose- This is a perspective article which highlights the performance of family businesses across the world in the new era of digitalisation and artificial intelligence (A.I.). Comparisons between family businesses in India and other countries have revealed that India has a lot of capability and can easily create space for itself in this new era of digitalisation.

Design/Methodology/Approach- The authors conducted a systematic review of the existing literature to identify research gaps so that potential areas of future research can be found in the area of family businesses in India and across the world. This article also reflects upon the changing attitudes of families towards technology and acceptance of the same.

Findings: Though family businesses might be ahead in the adoption of Artificial Intelligence (A.I.) in countries like the U.S. and U.K., Indian families are also not far behind in adopting new technology.

Keywords: Family Relationships, Strategic Management, Artificial Intelligence

Paper Type: Perspective Article

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1. Introduction

From Ambani's Reliance (India) to Walton's Walmart (U.S.A.), family businesses are widely known across the world. Family businesses' contribution to the global economy is far more than non-family businesses (Collins and O'Regan, 2010). In India, family firms are the backbone of the economy, as they constitute around 85 percent of the total firms (Chahal and Sharma, 2020). They contribute two-thirds of the G.D.P. and 90percent of the gross industry output (Kota and Singh, 2016). As family businesses begin to expand in this new era of technology and digitalisation, artificial intelligence (A.I.) emerges as the key player. Hence, it's essential to study the existing literature, which is not only widespread but continues to evolve. This article aims to explore the current role of family businesses in India and globally in the era of digitalisation and A.I. by examining studies carried out over the past years, understanding the gaps in the literature and reflecting upon further scope of research.

2. Past Research

Family businesses are organisations that are controlled and managed by family members belonging to different generations (Chua *et.al.*, 1997). They are very different compared to non-family businesses in their attitude towards ownership, leadership and relationships (Miller and Le Bretton-Miller, 2005). Since they are owned and controlled intergenerationally, the process of decision-making becomes difficult and cumbersome. Maintaining a balance between familial ties and a profitable business can turn out to be very challenging. A major portion of the literature helps to analyse the complexity of family businesses and how family relationships can be improved rather than concentrating on strategic management and business issues (Sharma *et.al.*, 1997).

Given the complexity of the structure of family businesses, conflicts amongst the stakeholders of the business are very common. As per work-group conflict literature, conflicts can arise related to tasks and relationships. Individual workers of the organisation might believe that the firm's management takes care only of the family members and not the workers. Intergenerational disputes are also very common in family businesses due to

differences in attitudes (Jehn, 1995). Literature even suggests how such disputes can be resolved to improve the firm's strategic management. Five conflict management strategies that can be adopted by family firms are: competition, collaboration, compromise, accommodation, and avoidance. As observed, though collaboration strategies have been successful, avoidance and competition strategies have failed in both aspects, i.e., maintaining family ties and a profitable business. Compromise and accommodation are better for family-related outcomes but not for business-related ones (Sorenson 1999).

Past scholars have undertaken the analysis of family firms and their performance. However, most of these studies are limited to selective countries and selective years. It has been well recognized in these studies that family enterprises aim to accomplish both non-financial and financial objectives (Davis & Taguiri, 1989; Olson *et. al.*, 2003; Stafford *et. al.*, 1999). The methodology used in a study by Sharma (2004) is particularly appealing as it categorises family businesses on the basis of whether or not they are able to strike the correct balance between managing family relationships and the strategic growth of the business. The study uses the term 'Warm Hearts' to refer to businesses that are able to maintain healthy family relationships and 'Pained Hearts' to refer to businesses that experience conflicts within the family. On the other hand, the term 'Deep Pockets' has been used to refer to businesses that have been profitable and 'Empty Hearts' refers to businesses running into losses. Following this methodology, four categories of family businesses were made, first, 'Warm-hearts and Deep Pockets', second, 'Pained-Hearts and Deep Pockets', third, 'Pained-Hearts and Deep Pockets' and fourth, 'Pained-hearts and Empty Pockets'. Unfortunately, limited literature is available on empirical studies on relationships between Indian family businesses and their growth performance.

Family firms in India comprise not only the big business houses like Birla, Godrej and Reliance but also many small and medium enterprises. In fact, most small and medium enterprises in India are owned and managed by families. Studies have also revealed that organising small and medium enterprises as family businesses might entail higher profits than a non-family business (Jayaram *et al.*, 2014). This is because when an enterprise is

owned and run by the same individual, it's likely to succeed as the motives of the manager and the owner are aligned.

In an ever-evolving globalised and digitalised world, it's impossible to keep family businesses and technology apart. It has been observed that initially, family businesses are very sceptical of using technology, especially A.I. However, not utilising artificial intelligence can seriously hamper their performance, and they can lose the competition to non-family businesses (Garzella *et. al.*, 2021). Family firms, in which the major decision-making power lies with the senior members of the family, have experienced this. Many families do not see technology as a way of innovation, but simply as a symbol of corporate culture. They rely more on their tried and tested traditional methods. While some families do not even see technology as a driver of profit, some lack the guidance and skills to adopt it (Ratten and Tajeddini, 2017).

Studies have also shown that family businesses in countries like the U.K. are experiencing a much swifter move towards technology. Today, using Chat-bots in small family businesses has become very common. Algorithms, software, machine learning and deep learning are being heavily utilised to give a more personal touch to conversations with chat-bots. As digital platforms and e-commerce take over the world markets, connecting with customers through these chat-bots is gaining popularity (Rizomyliotis *et. al.*, 2022). Even Walmart in the U.S. makes use of A.I. in almost every activity, including inventory management, customer experience, demand estimation etc.

Though, it could be said that Indian family businesses have been slow in transitioning to technology, it is not wrong to say that India will not stay far behind its counterparts for long. India continues to be one of the major emerging economies in the world. With changing attitudes and the coming in of Generation Z (people born between 1997 and 2012), family businesses in India are also seeing a gradual shift (Upadhyay *et. al.*, 2023). Indian family firms aspire to remain competitive and make significant contributions to the economy. Now it is not just the large firms like Reliance and Godrej, but also family firms in the micro, small and medium enterprises sector that are readily accepting technology and A.I. (Upadhyay *et. al.*, 2023). Digital modes of making and accepting payments have become the

norm. Chat-bots have become essential to manage the needs of the huge and diverse customer base.

3. Future Research

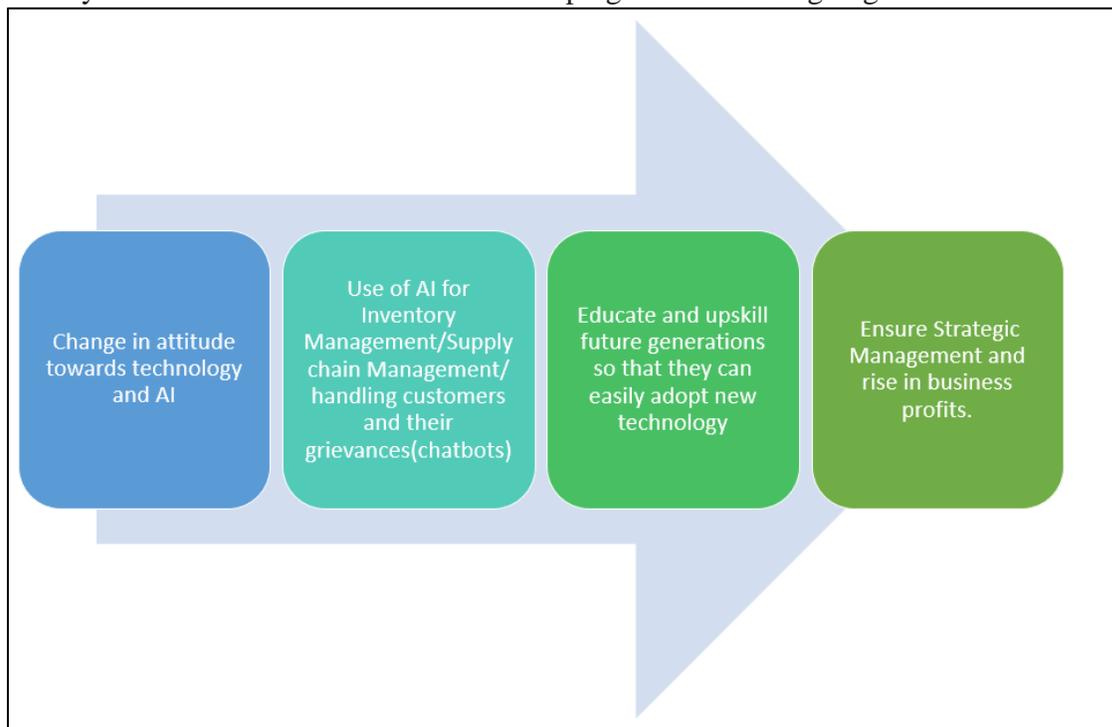
With the new generation of family businesses, i.e. the Gen Zs and the Gen Alpha coming in, the pace of adoption of A.I. into family businesses is expected to increase. The new generation, born and brought up in the era of digitalisation, can easily switch to new technology (Lannon *et. al.*, 2023). Integration of A.I. into family businesses is still a 'green field' for research. The central focus of new research in this field should be on how A.I. can be integrated into family businesses. The new generation could be given formal education to improve their technological skills, so that they are able to make technology, especially A.I., a part of daily business operations. Changes in attitudes and their willingness to adapt are essential. Better strategic management of firms will result in higher profits. Studies may focus on the costs and benefits associated with the same. Today most governments play an active role in the functioning of family businesses of a country (Chaudhari *et. al.*, 2023). Hence, given the contribution of these firms to the economy of developing countries like India, governments should frame their policies in a way that encourages family businesses to accept technology.

Literature speaks volumes about the stakeholders involved in a family business. Stakeholders include individuals, who are directly influenced by the firms' choices (Freeman, 1984); founders, who can significantly influence the culture, performance and values of their firms (Collins & Porras, 1994; Schein, 1983); women, who manage all the household chores (Fitzgerald & Muske, 2002); and the youth of next generation who will carry forward the businesses. However, research in the area of potential usage of A.I. and digital tools by all the stakeholders of a family business in India and other developing economies is limited. This is a research gap that can be used in future research.

Despite their high level of competence, family firms in India need to catch up to multinational enterprises in terms of scale, hiring more digitally skilled labour, market

capitalisation and profitability (Kota and Singh, 2016). There's a major opportunity to investigate the reasons for witnessing small-sized Indian Family businesses and develop strategies to increase the profitability and scale of these firms. Figure 1 below gives a framework on how digitalisation and A.I. can improve performance and productivity of family businesses in India and other developing countries.

Fig. 1: Flow chart (framework) on how to improve the performance and productivity of family businesses in India and other developing countries using Digitalisation and A.I.



Source: Created by the authors

4. Conclusion

Family businesses contribute significantly to an economy. This is especially true in the case of developing countries like India. However, these family businesses have further scope for improvement, especially in their performance and productivity. Adopting A.I. in these businesses will improve their performance by leaps and bounds. Further study in this direction is essential, especially for Indian small family businesses.

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Impact of Macroeconomic Variables on FDI: Regression Analysis and Forecasting using Time Series Data

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Abstract

Foreign Direct Investment (FDI) refers to investments made in a country by investors, companies, or governments of another country. It is of great importance to any economy for its growth. This paper studies the impact of inflation rate, GDP growth rate, trade openness, and real interest rate on FDI in India. Using data on the aforementioned variables collected for the years 1978-2021 from the open-source database of the World Bank, the paper focuses on finding a correlation between FDI and each macroeconomic variable considered in this paper. Further, this paper uses a multiple linear regression model and the data has been analysed based on that. The results of the study show a correlation between the FDI and the macroeconomic variables and the econometric rules out GDP growth rate from this model. Further, Dynamic Regression model has been used to predict the FDI (as a percentage of GDP) for the next 40 years.

Keywords: Foreign Direct Investment, Inflation Rate, Real GDP Growth Rate, Stability, Real Interest Rate, Trade

1. Introduction

Foreign Investment is of two broad types- Direct and Indirect. Direct investment gives a direct ownership to the investor. Foreign Direct Investment (FDI) is the main type of

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investment that falls into this category. When an investor spends to get direct ownership of assets in another country, the investment done is a Foreign Direct Investment (Osei et al. 2023) while Foreign Portfolio Investment (FPI), an indirect foreign investment, refers to equity investments, such as stocks and debt investments, such as bonds (Lipsey et al. 1999). A rapidly expanding economy with a stable political administration and other factors that lead to booming markets with high demand make a country attractive to foreign investors (Heise et al. 2015). The plethora of benefits that FDI brings with itself is what incentivizes a country to attract foreign investors. These benefits, accrued by both parties, include tax incentives, job creation, etc. The country where the investment is done, and the country of residence of investors, both the countries reap the benefits. So, the significance of FDI is acknowledged the world over (Kumari et al. 2023). FDI gives an impetus to economic cooperation and global integration as it sets the stage for long-lasting ties between various economies. International organisations like United Nations Conference on Trade and Development (UNCTAD) and World Trade Organisation (WTO) have prioritised FDI and have functioned towards helping developing countries attract foreign inflow (Scherer et al. 2000). The investor could be an individual, a firm, or a government. The investor, eyeing increases in profits, undertakes an expansion of operations to a new area. Another form of foreign investment is FPI (Sumathy, M. 2023). Unlike FDI, it is an indirect investment wherein the investor gets the ownership of securities issued by companies such as stock in foreign corporations and other similar financial assets (Lipsey et al. 1999)

It has been a common trend worldwide that countries with policies that facilitate foreign investment grow at faster rates (Luo et al. 2010). The People's Republic of China, for instance, was not in a good state in the early decades of its formation (Osei et al. 2020). Ineffective government policies, major famines, and natural disasters caused a deterioration of the economy. This changes the reforms of 1978 that liberalised the economy and allowed foreign investors to invest. The resulting rapid inflow of investments took the country to the path of prosperity from the ravages of poverty. From a comparatively minuscule amount of 80,000 current US\$ in 1979, the FDI inflow of China leaped to 333.98 billion in 2021 (Source: World Bank, 2021).

India has also reaped the benefits of rapid FDI inflow, especially after the economic restructuring in the 1990s. The country was facing a major Balance of Payments (BOP) crisis at that time (Kolte et al. 1991) due to the government's policy of license Raj and closed economy which made it nearly impossible for foreigners to invest. The liberalisation policies undertaken in 1991 led to a drastic shift in the economy from a protective system to an open economy. Investments started pouring in and the country's growth and development saw a major boost which allowed it to recover from the crisis (Dinh et al. 2019).

FDI is an economic factor that is dependent on various factors and it has a two-way relationship with some variables (Basu et al. 2003). This leads to the central question of this paper, i.e., what are the fundamental macroeconomic factors that are responsible for determining FDI levels in the Indian economy? After a thorough review of the literature, the authors of this paper have decided to analyse the impact of the following variables - rate of inflation, growth rate of real GDP, trade openness and real rate of interest (Hayat et al. 2019). Data for 44 years (1978-2021) of the Indian economy has been collected for each of these four variables along with FDI inflows from the open-source database of the World Bank. The next section gives the details of how these variables impact FDI flows. Section 3 is a review of the recent literature. Section 4 explains the research methodology used which includes a discussion of the data, econometric modelling, and forecasting. Section 5 depicts the results of the descriptive analysis and econometric analysis. Section 6 concludes the results of the paper and discusses the limitations; Section 7 contains the reference list while Section 8 is the appendix which has the data used as the reference for the study.

2. Impact of the variables on FDI

2.1. Rate of Inflation

Many studies have stated that inflation is a major irritant for economies worldwide (Ayyoub et al. 2011). Though its impact on Foreign Direct Investment has been debated, many economists and researchers propose that inflation and FDI are negatively related (Agudze et al. 2021). They have stated that a low or controlled inflation is a sign of internal economic stability in a country, thereby making it suitable for investment by foreigners (Badwan 2021).

The returns on investment are higher in such a country. Notwithstanding this, several researchers have questioned these claims. They state that there is no clear relationship between inflation and FDI. Others have propounded a possible positive impact of inflation on FDI.

2.2. Growth of Real GDP

The Gross Domestic Product (GDP) after the adjustment of prices is Real GDP. Countries with high real GDP growth generally see higher FDI inflows as compared to low-growing economies (Boateng et al. 2015). This has been attributed to the greater profitability of investment and larger market and demand in rapidly growing economies (Mughal et al. 2011). Countries like China have been cited as examples. However, another idea is that often countries with lower growth rates of Real GDP have unused resources like labour in large amounts which attracts foreign investors intending to tap the potential.

2.3. Trade Openness²

Taxes, import and export duties, customs duties, etc. come in the purview of openness of trade (Squalli et al. 2011). Heavily taxed products have a low demand in the country, making it unprofitable for investors to invest. For instance, the PLI scheme of the Indian Government put a 100 percent import duty on Tesla vehicles. This has been a leading cause, among others, of Tesla not investing in India. Special Economic Zones are now being provided to facilitate foreign investment in the country (Zeng 2015). Several studies have formed a general consensus on the openness of trade being crucial for FDI inflow. Many nations have taken measures to open up trade as a result.

²The proxy variable for trade openness used in the model is Imports as a percentage of GDP

2.4. Real Rate of Interest

Inflation adjusted interest rate is the real rate of interest. Any investor or firm is concerned about the real rate as it determines the returns they receive from the investment. Hence, not only fiscal policy but a sound monetary policy also plays an important role in garnering investment from other countries (Albulescu et al. 2018).

3. Literature Review

Various literatures have defined FDI as an ownership stake in a company or project abroad (Duce et al. 2003). Typically, the phrase refers to a corporate decision to buy a sizable portion of a foreign company or to buy it altogether in order to expand operations to a new area. The phrase is typically not used to refer to a stock purchase in a single overseas firm. FDI is a crucial component of global economic integration (Lane et al. 2018) since it forges strong, long-lasting ties between nations' economies. This accounts for major movements in global capital (Lipsey et al. 1999). FDI capital can account for a sizable portion of the GDP of smaller and emerging nations (Adeniyi et al. 2012). In contrast to direct capital investments, foreign portfolio investment (FPI) entails the ownership of securities issued by companies such as stock in foreign corporations (Sabir et al. 2019).

Mergers, acquisitions, or joint ventures in the retail, service, logistics, or manufacturing sectors may be part of foreign direct investments (McCaleb et al. 2017). They point to a global business expansion plan. Some literatures state that the One Belt One Road (OBOR) of China is a monumental initiative in FDI and a major example of it (Sarker et al. 2018). This initiative, also known as the Belt and Road Initiative, entails China's promise to significant FDI in a number of infrastructure projects throughout Africa, Asia, and even some regions of Europe. Typically, the program is supported by Chinese state-owned businesses and other entities with strong ties to the Chinese government (Sarker et al. 2018). Other countries and international organizations, such as the United States, the European Union, and Japan, run initiatives of a similar nature. They may also encounter regulatory issues. For instance, the U.S. business Nvidia announced in 2020 that it would buy the British chip

designer ARM. The U.K.'s competition authority stated in August 2021 that it would investigate whether the \$40 billion transaction would lessen competition in sectors that depend on semiconductor processors. The agreement was terminated in February 2022 (Elster et al. 2022).

An infusion of FDI aimed at China's high-tech industries and services has boosted the country's economy (Chen et al. 2011). The government no longer needs to approve 100 percent of foreign direct investment in single-brand retail in India due to more recently loosened FDI restrictions.

Horizontal, vertical, and conglomerate categories are frequently used to describe foreign direct investments. A company operates abroad by extending the business activities in a foreign nation that it does in its own country using a horizontal FDI. An example would be a U.S.-based cell phone company purchasing a Chinese chain of phone shops. A company purchases a complementary company in another nation through vertical FDI. For instance, a US business may buy stock in a foreign firm that provides it with the raw resources it requires. In a conglomerate FDI, a company makes an investment unrelated to its main line of operation. This frequently takes the form of a joint venture because the investing business may not have undertaken such activities with the level of expertise as of the foreign company (Moritz et al. 2019).

Based on a sample of 32 developing nations, a study was conducted by Khachoo et al (2012). In the analysis, FDI inflows are modelled as a function of the host countries' economic and socioeconomic factors. The panel data estimator reveals that the primary predictors of FDI inflows to developing nations are the size of the market, total reserves, infrastructure, and labour costs using data from 1982 to 2008 (Khachoo et al., 2012).

FDI has seen a major upsurge in recent decades across the world. The rise has been even greater than that of global trade (Lin et al. 2017). This has been an established trend with the rise of globalization. Blonigen (2005) has argued that firms can utilize their services to a larger extent and generate more wealth with less effort (Blonigen 2005). The UNCTAD in 1998 stated three types of factors influencing FDI inflow to a country: Economic factors,

Political Factors, and Business Facilitation. Among various factors, the economic cycle, political and economic stability, development of financial markets and institutions, law and order, trade openness, and restrictions on capital mobility determine FDI inflow (Boateng et al. 2015; Petri et al. 2012). Several authors such as Almsafir et al (2011) and Chhandran et al (2008) among many others have highlighted the contribution of the Exchange Rate, Inflation, Foreign Exchange Reserves, and manufacturing growth of a country to the growth of FDI in it. This has been observed in various economies (Almsafir et al. 2011; Chandran et al. 2007).

Large economies like India have immensely benefited from high amounts of FDI. They have seen unprecedented economic growth when policies favour FDI inflow (Kumar 2014). So, analysis of all the indicators affecting FDI is important for any country trying to attract Foreign Investors and increase investment.

3.1. Inflation Rate and FDI:

Sayek's dynamic modelling of a multinational company's investment choices has made it possible to examine how the multinational company responds to sudden changes in local and international inflation (Melitz 2003). The cost of investing during period t is reflected in the foregone consumption, while the benefit is shown in higher consumption in period $t + 1$ due to more capital that has not been depreciated and higher consumption in period $t + 2$ as a result of higher production in period $t + 1$.

A study has found that low inflation implies a lower cost of capital, enabling the investors to utilize its resources easily (Bodea et al. 2015). The net benefit of investing decreases as inflation increases because, during this time, the purchasing power of the profits becomes diminished before they are used for consumption. The model's key prediction, which is based on a consumer's lifetime utility and has empirical ramifications, is that the actual effects of nominal variables rely on the type of foreign investment (vertical or horizontal), the foreign investment's financing patterns, and the components of production's interchangeability (Devereux et al. 2001).

The findings have stated that FDI is useful for reducing the severity of inflation's negative real impacts. This conclusion adds to the body of research supporting the potential advantages of permitting more capital account liberalization and FDI flow freedom (Bacchetta et al. 2000).

3.2. Real GDP growth rate and FDI:

Much of the relevant literatures agree that FDI and Real GDP growth have an implication on each other (Kisswani et al. 2015). From the data of 31 developing nations spanning 31 years, Hansen et al. examined the Granger causal linkages between for FDI and GDP (Aizenman et al. 2004). They find bi-directional causality between the FDI-to-GDP ratio and GDP level using estimators for heterogeneous panel data. GDP does not cause the FDI-to-GDP ratio in the long run, whereas FDI-to-GDP causes GDP. That is how FDI causes growth. In a model for GDP and FDI, Gironi et al (2005) find the long-term impact of FDI on GDP taking the former as a proportion of gross capital formation (GCF) (Gironi et al. 2005).

This result may be seen as supporting the theory that FDI affects GDP through knowledge transfers and the adoption of newer and improved technology. Inferring that the predicted gain from FDI to the African region should, in theory, be comparable to how FDI has impacted the regions of Asia and Latin America, they found no major differences in the total impact across regions (Sayek et al. 2009). Furthermore, they conclude that the suggested thresholds are difficult to find when country-specific elements and GDP levels are taken into account in the model through more informal analyses of whether the influence varies with particular development indices. Overall, they show that regardless of the level of development, FDI generally has a large long-term influence on GDP (Mustafa 2019).

3.3. Openness of Trade and FDI:

In a study on India, Pakistan and Iran, it was observed that India and Pakistan have seen an increase in trade openness during the past five years (from 2008 to 2012), but FDI inflows have decreased over the same period for India, Iran, and Pakistan. All three nations have distinct borders, diverse governmental structures, and distinct monetary systems (Agudze et al. 2021).

The liberalization of policies in trade is significant since it affects the economic activity and output levels. It has been obvious that high duties dis-incentivize investors from investing in a country (Rolfe et al. 1993). International investors are always willing to put their money into countries with good infrastructure, markets, and policies. Thus, FDI inflows are solely induced by the environment of the host country (Hansen et al. 2006).

In order to confirm that the research study supports the idea that there is headroom for developing nations to correct and maintain the economic development indicators, so the FDI inflows would be sustainable, Donghui et al. (2018) examined data sets from three countries between 1982 and 2012 periods. They have concluded that openness of trade is important to inflow of FDI. Therefore, the conclusion shows that greater trade openness enhances the inflow of FDI both in the short- and long term. (Carkovic et al. 2005)

Similarly, a study by Liargovas et al. (2012) has focused on how impactful the trade openness for luring Foreign Direct Investment (FDI) inflows, using a sample of 36 developing economies for the years 1990-2008. It directly examines the question of the relationship between trade openness, FDI inflows, and other significant variables in Latin America, Asia, Africa, the Commonwealth of Independent States (CIS), and Eastern Europe. Eight distinct metrics are used to gauge trade openness. The panel regression analysis's key empirical findings show that, over time, openness of trade has a beneficial impact on the flow of FDI into emerging economies (Basu et al. 2003).

3.4. Real Rate of Interest and FDI:

Real interest rates have an impact on the direction of investments across the world. Foreign investors, looking for high returns, increase investment in response to high interest rates (Siddiqui, 2014). Interest is a cost of borrowing but a return on saving. Investors tend to resort to the borrowing sources charging low rates of interest and invest in an environment where the rates are high. Therefore, foreign capital moves from countries with low rates to those with a comparatively higher rate of real interest (Siddiqui, 2014). Chakrabarti (2001) found a positive relation between interest rate and FDI in India. But this was not the case for some other countries like Zimbabwe.

While there are differing results from various studies about the impact of these variables on FDI, this paper contributes to the body of literature by providing a detailed analysis of the behaviour of these macroeconomic variables in terms of their impact on FDI in India. It establishes the unidirectional impact of these variables on FDI using an econometric model. The model and analysis have been explained in the following section.

4. Research Methodology

The methodology of this paper is primarily based on a collection of data from the database of the World Bank. The data was collected on the inflation rate (GDP deflator), GDP growth rate, real interest rate, trade openness (using imports as a % of GDP), and FDI (as a % of GDP). It is to be noted that the variables are taken in percentage form.

The data collected is for 44 years, from 1978 to 2021.

Firstly, descriptive statistics have been used to check whether a correlation between FDI and each of the macroeconomic variables exists or not. The correlation has been measured using Karl Pearson's Correlation Coefficient.

Further an Econometric Model has been developed for the dependent variable (foreign direct investment) in terms of the independent variables. In this model, OLS regression is used as

all the variables have been taken in percentage form {Inflation rate, Trade Openness (Imports as a % of GDP), GDP growth rate (annual %), and real interest rate (%) }.

The econometric model is as follows:

$$y_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \dots + \beta_p x_{ip} + \epsilon \quad (1)$$

In the above model, the dependent variable has been chosen as \hat{Y} whereas x_{i1} , x_{i2} , x_{i3} and x_{i4} are the independent variables.

x_{i1} = Inflation Rate

x_{i2} = Real GDP Growth Rate

x_{i3} = Trade Openness

x_{i4} = Real Interest Rate

4.1. Hypotheses

There are four hypotheses that are tested in the paper:

- Null Hypothesis, H_0 : There is no impact of these variables on FDI ($\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$)
- Alternative Hypothesis, H_A : FDI is affected by at least one of other macroeconomic variables ($\beta_i \neq 0$, for $i = 1, 2, 3, 4$)

As a result, the following hypotheses are being tested:

- H_1 : The inflation Rate does not have any impact on FDI ($\beta_1 = 0$); H_{A1} : Inflation Rate has an impact on FDI ($\beta_1 \neq 0$)
- H_2 : Growth Rate of real GDP does not have any impact on FDI ($\beta_2 = 0$); H_{A2} : Growth Rate of real GDP has an impact on FDI ($\beta_2 \neq 0$)
- H_3 : Trade Openness does not have any impact on FDI ($\beta_3 = 0$); H_{A3} : Trade Openness has an impact on FDI ($\beta_3 \neq 0$)

- H₄: Real Interest Rate does not have any impact on FDI ($\beta_4 = 0$); H_{A4}: Real Interest Rate has an impact on FDI ($\beta_4 \neq 0$)

4.2. Data Analysis

Further, the data was organized in the form of a table in Microsoft Excel in order to analyze the mean values of each of the above-mentioned variables. The study revolves around the factors affecting Foreign Direct Investment. Thus, Karl Pearson's correlation coefficient has been calculated for FDI with each of the other macroeconomic variables used. After analyzing the degree of correlation between the FDI and other macroeconomic variables, an econometric model has been used keeping FDI as the dependent variable while keeping all other macroeconomic variables as explanatory variables. After categorizing the variables, multivariate regression was applied in order to find a linear relationship between the dependent and the explanatory variables.

4.3. Formula and calculation

Table 1 depicts the descriptive statistics of all variables studied in this paper. It is also to be noted that the correlation has been calculated between net inflows of FDI (as a percentage of GDP) and the other variables considered, as shown in Column 7. The other columns depict the mean, standard error, median, standard deviation, and sample variance of all the five variables.

Table 1: Descriptive Statistics

VARIABLE	Mean	Standard Error	Median	Standard Deviation	Sample Variance	Correlation
Foreign direct investment, net inflows (% of Gross Domestic Product)	0.926	0.136	0.695	0.906	0.821	-
Trade Openness (Imports as a % of Gross Domestic Product)	15.974	1.191	13.399	7.905	62.493	0.875
Real interest rate (%)	5.671	0.423	5.839	2.807	7.884	-0.364
Inflation, GDP deflator (annual %)	7.225	0.47	7.749	3.12	9.735	-0.331
GDP growth (annual %)	5.595	0.474	6.095	3.149	9.916	0.027

Source: Authors' calculations based on World Bank data

Table 2 gives the results of the regression. It shows the coefficient of each variable, also known as partial slope coefficients; and a standard error that is useful in determining the width of the confidence interval and also in detecting the presence of any violation of the assumptions of multiple linear regression models. Further, this table also gives the t-stat, essentially the critical t-value and the p-value for testing the significance of partial slopes of each variable in the study.

Table 2: Coefficients, t-stat, and p-value

Variables	Coefficients	Standard Error	t-stat	p-value
Intercept	-0.911	0.765	-1.189	0.241
Imports of goods and services (% of Gross Domestic Product)	0.116	0.015	7.346	7.21E-09
Real interest rate (%)	0.058	0.051	1.155	0.255
Inflation, GDP deflator (annual %)	-0.0008	0.04	-0.021	0.983
GDP growth (annual %)	-0.061	0.021	-2.826	0.007
R ²	0.8132			
Observations	44			

Source: Authors' calculations based on World Bank data

Here, the coefficient of each variable, β_i , explains the percent change in FDI due to a percent change in a particular independent variable, keeping other variables constant. The coefficient of the intercept term represents the expected value of FDI (%) when all independent variables are zero. The sign of the coefficients suggests that liberalizing trade and higher real interest rates have a positive impact on FDI, i.e., it increases in a more liberal economy or an economy with a high-interest rate. Furthermore, inflation rate and GDP growth rate of the Indian economy has a negative impact on FDI. However, the coefficient of GDP growth rate is not significant. It has been further explained in Section 5.

Table 3 depicts the results of regression analysis which have been later explained in the results. Multiple regression (OLS) has been used in the model from the data available for 44 years.

Table 3: Regression Statistics

<i>Regression Statistics</i>	<i>Values</i>
Multiple R	0.9018
R Squared	0.8132
Adjusted R Squared	0.7940
Standard Error	0.4115
Observations	44

Source: Authors' calculations based on World Bank data

4.4. Forecasting of FDI using Dynamic Regression Model

Further, this study uses the Dynamic Regression Model to forecast the amount of FDI using the estimated values of the independent variables for the years 2022-2061. The dynamic regression statistics are shown in Table 9 (Appendix). Firstly, a dynamic regression model is built keeping FDI as the dependent variable while keeping trade openness, inflation rate, GDP growth rate and real interest rate as the independent variables.

Further, the independent variables have been forecasted using Auto-Regressive Integrated Moving Average (ARIMA) and then these forecasted values have been used in the dynamic regression model created earlier to determine the dependent variable, i.e., FDI.

ARIMA has three components: Autoregression, that is the autocorrelation present in the model (AR); differencing (I), and moving average (MA). The notation of these components is in the form of (p, d, q), where p represents the nature of correlation, d represents the order of differencing used in making the data stationary, and q represents the order of moving average that is based on capturing the relationship between the observation and past forecast errors.

A dynamic regression model analyzes the relationship between the dependent and the independent variable and forecasting using this model captures the impact of the forecasted values of the independent variables on the values of the dependent variable (that are to be forecasted). This model also takes into account the dynamic nature of the relationships

between these variables, unlike the multiple regression models, which assumes the relationship to be stationary.

Different ARIMA models have been used for different independent variables:

Trade Openness – ARIMA (0,1,0)

Real Interest Rate – ARIMA (0,1,1)

Inflation Rate – ARIMA (1,1,0)

GDP Growth Rate – ARIMA (0,0,0) with non-zero mean

The forecasted values have been used in the dynamic regression model which is shown in Section 5.4.

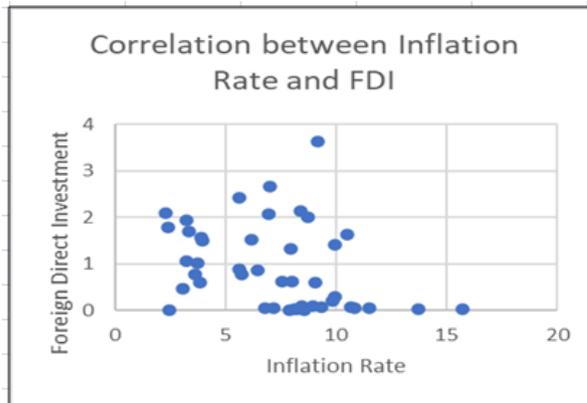
On forecasting the independent variables using ARMIA, the following values are obtained:

Table 4: Forecasted values of the Independent Variables

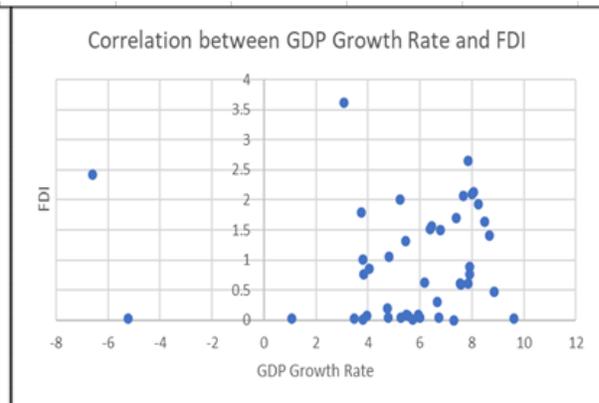
Imports	GDP Growth	Inflation	Real Interest Rate
23.892	5.595931818	7.934658489	2.798256573
23.892	5.595931818	8.879984568	2.798256573
23.892	5.595931818	8.440057854	2.798256573
23.892	5.595931818	8.644786696	2.798256573
23.892	5.595931818	8.549511967	2.798256573
23.892	5.595931818	8.593849999	2.798256573
23.892	5.595931818	8.573216394	2.798256573
23.892	5.595931818	8.582818662	2.798256573
23.892	5.595931818	8.578350051	2.798256573
23.892	5.595931818	8.58042961	2.798256573
23.892	5.595931818	8.579461845	2.798256573
23.892	5.595931818	8.579912214	2.798256573
23.892	5.595931818	8.579702626	2.798256573
23.892	5.595931818	8.579800162	2.798256573
23.892	5.595931818	8.579754772	2.798256573
23.892	5.595931818	8.579775895	2.798256573
23.892	5.595931818	8.579766065	2.798256573

relationship between FDI and the Inflation Rate is weak. Further, a negative value of the correlation coefficient also suggests that as the inflation rate increases in the economy, FDI falls.

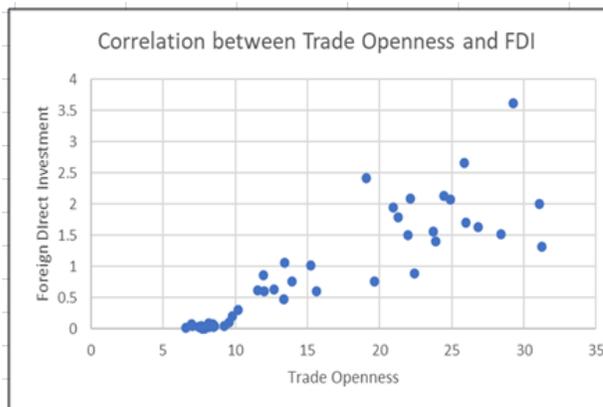
Graph 1



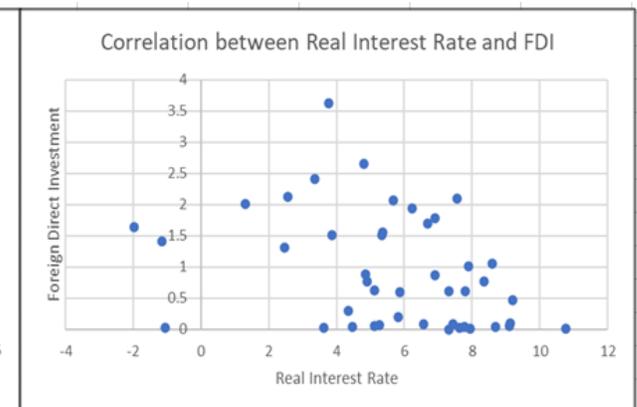
Graph 2



Graph 3



Graph 4



Source: Authors' calculations

Graph 2 depicts the scatter plot of FDI of India and the GDP Growth Rate of India for the years 1978-2021. The value of Karl Pearson's correlation coefficient, r , for these two variables was determined to be 0.027. This is a low value and shows that the relationship between FDI and the GDP growth rate is weak. Further, the positive value of the coefficient shows that the two variables move in the same direction.

Graph 3 depicts the scatter plot of FDI and the Trade Openness of India from 1978-2021. The value of Karl Pearson's correlation coefficient, r , for these two variables, was determined to be 0.875. This is a high value and confirms a strong relationship between FDI and Trade Openness.

Graph 4 depicts the scatter plot of FDI and the Real Interest Rate of India from 1978-2021. The value of Karl Pearson's correlation coefficient, r , for these two variables was determined to be -0.364. This is a moderately low value and suggests that the relationship between FDI in India and Trade Openness is moderately weak. The negative value also suggests that an increase in the real interest rate in the economy decreases the amount of FDI in India.

5.2. Results of Econometric Analysis

From Table 3, the R Squared obtained has the value of 0.813 which is considered to be high. This explains that roughly 81.3% of the variability in the Foreign Direct Investment of India can be explained by the independent variables for the given time period of 1978-2021. Thus, the macroeconomic variables - inflation rate, GDP growth rate, trade openness, and real interest rate together have a considerable impact on the variability of Foreign Direct Investment. In addition to this, the adjusted R squared (with adjustment of the degrees of freedom) is 0.794 or 79.4%. This further confirms the above conclusion.

Further, the level of significance for this study is taken as 1% or 0.01 and as per the table, F is 42.435 (refer to Table 2), which is significantly higher than the critical F value. Thus, the null hypothesis that these variables do not impact the FDI is rejected. Now, this suggests that FDI is dependent upon at least one of the independent variables. We further test the hypothesis of whether the partial slopes are significant or not.

Thus, the results of the P-value in Table 3.2 are considered. On basis of the results of table 3.2, the hypothesis that intercept term is zero in this study is rejected. Further, the null hypothesis that the inflation rate does not impact the FDI of India is rejected. Thus, the inflation rate has an impact on FDI for the years 1978-2021.

From the values in the same table, it can be concluded that Foreign Direct Investment is accepted as it is statistically significant. Thus, in this study the real GDP growth rate does not have an impact on the Foreign Direct Investment for the years 1978-2021.

For trade openness, the null hypothesis is rejected and thus trade openness impacts the Foreign Direct Investment of India for the years 1978-2021. For the real interest rate, the null hypothesis which states that real interest does not impact Foreign Direct Investment is rejected. Thus, the real interest rate has an impact on the Foreign Direct Investment of India for the years 1978-2021.

The results of this model show that in this study the GDP growth rate does not have a considerable impact on FDI. Thus, we drop this variable from the model and run the OLS regression again.

5.3. Regression analysis and hypothesis testing after dropping the insignificant variable

The regression results are depicted in Table 5:

Table 5: Results after removing the insignificant variables from the model

	Coefficients	Standard Error	t-Stat	p-value	Lower 95%	Upper 95%	Lower 99.0%	Upper 99.0%
Intercept	-0.76	0.828	-0.918	0.364	-2.433	0.913	-2.999	1.479
Imports of goods and services (% of GDP)	0.103	0.016	6.293	1.83E-07	0.069	0.136	0.058	0.147
Real interest rate (%)	0.022	0.053	0.412	0.682	-0.086	0.13	-0.122	0.166
Inflation, GDP deflator (annual %)	-0.011	0.043	-0.27	0.787	-0.099	0.075	-0.128	0.105

Source: Authors' calculations

According to the results (Table 8, Appendix), F is calculated and found to be 45.89, indicating that the null hypothesis that inflation rate, trade openness, and real interest rate do not have an impact on the FDI is rejected. Thus, these three variables still have a significant impact, even when the GDP growth rate has been dropped from the model.

Further, it can be seen that on testing the significance of partial slopes of these three variables at a level of significance of 1% in this study the p-values of the inflation rate, trade openness, and real interest rate are 0.78, 1.827E-07, and 0.68 respectively. Thus, the null hypothesis of this study that the partial slopes do not have impact FDI individually is rejected in the three cases. Thus, in this study, these variables have an impact on the FDI. Lastly, the p-value of the intercept term is 0.36, and thus, the null hypothesis is again rejected.

The coefficient of the partial slopes is as follows:

$$\beta = -0.760$$

$$\beta_1 = -0.012$$

$$\beta_2 = 0 \text{ (removed from the model)}$$

$$\beta_3 = 0.103$$

$$\beta_4 = 0.022$$

5.4. Results of forecasting of FDI using the Dynamic Regression Model

Table 6: Results of forecasting of FDI

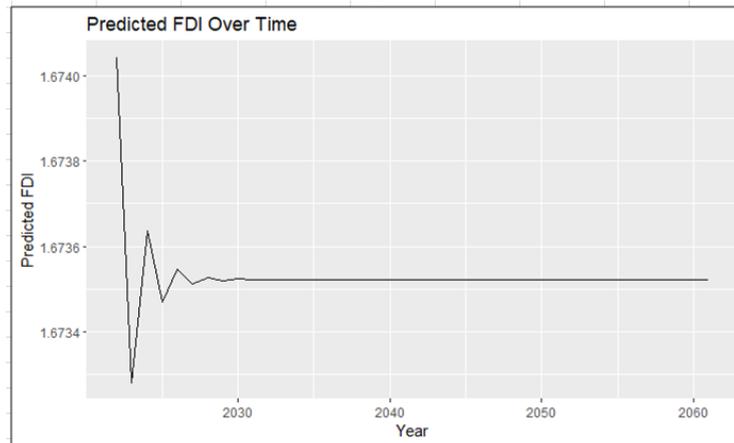
Year	Predicted FDI
2022	1.674043908
2023	1.673279513
2024	1.67363524
2025	1.673469695
2026	1.673546735
2027	1.673510883
2028	1.673527567
2029	1.673519803
2030	1.673523416
2031	1.673521734
2032	1.673522517
2033	1.673522153
2034	1.673522322
2035	1.673522243

2036	1.67352228
2037	1.673522263
2038	1.673522271
2039	1.673522267
2040	1.673522269
2041	1.673522268
2042	1.673522269
2043	1.673522268
2044	1.673522268
2045	1.673522268
2046	1.673522268
2047	1.673522268
2048	1.673522268
2049	1.673522268
2050	1.673522268
2051	1.673522268
2052	1.673522268
2053	1.673522268
2054	1.673522268
2055	1.673522268
2056	1.673522268
2057	1.673522268
2058	1.673522268
2059	1.673522268
2060	1.673522268
2061	1.673522268

Source: Authors' calculations based
on World Bank data

Table 6 shows the results of forecasting FDI (as a % of GDP) for the next 40 years (2022-2061) using dynamic regression analysis. Graph 5 depicts the forecasting of FDI (as a percentage of GDP) using a dynamic regression model. A very small change is observed in the forecasted values of the FDI and eventually becomes constant from 2043-2061.

Graph 5



Source: Author's calculations based on World Bank data

6. Conclusion

Using Karl Pearson's Correlation Coefficient, this study reveals some key findings regarding the correlation between various economic indicators and FDI in India using the annual data from 1978-2021. The analysis indicates a moderately low and negative correlation between the Inflation Rate and FDI. The correlation between GDP Growth Rate and FDI is observed to be low and positive. Moreover, FDI and Trade Openness display a significantly high positive correlation, while Real Interest Rate and FDI exhibit a moderately low negative correlation.

The econometric analysis further shed light on whether these variables have an effect on FDI in India. The null hypothesis, H_0 , is rejected, suggesting that at least one of the variables has an impact on FDI. H_1 is rejected, indicating that the inflation rate indeed influences FDI in India. On the other hand, H_2 is not rejected, implying, in this study GDP Growth Rate does not significantly impact FDI. However, H_3 is rejected, indicating that Trade Openness significantly impacts FDI. Additionally, H_4 is rejected, indicating that, for this study, the real interest rate affects FDI in India.

After removing the GDP Growth Rate variable from the model, the analysis demonstrates that all other variables remain significant and influential on FDI in India. Specifically, these

three variables (Inflation Rate, Trade Openness, and Real Interest Rate) account for approximately 88% of the variability in FDI.

Lastly, FDI has been forecasted using a dynamic regression model and the results show a very small change in the future values of the variable. It has been done by first forecasting the independent variables using the suitable ARIMA models determined from the time series data and then using these forecasted values in the dynamic regression model.

In conclusion, this research provides valuable insights into the relationship between economic indicators and FDI in India. The study highlights the significance of inflation rate, trade openness, and real interest rate as key determinants of FDI. However, it also underscores the need for more comprehensive modelling approaches to enhance the accuracy and robustness of FDI forecasts. The authors suggest further investigations to delve deeper into the complexities of FDI dynamics and encourage more detailed studies in this domain.

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Appendix

Table 7: Data on all the variables analyzed in this paper

Years	Foreign direct investment, net inflows	Imports of goods and services (% of GDP)	GDP growth (annual %)	Inflation, GDP deflator (annual %)	Real interest rate (%)
1978	0.013	6.588	5.713	2.46	10.775
1979	0.032	8.169	-5.238	15.728	-1.061
1980	0.042	9.245	6.736	11.508	4.477
1981	0.048	8.571	6.006	10.828	5.118
1982	0.036	8.143	3.476	8.096	7.775
1983	0.003	7.853	7.289	8.553	7.321
1984	0.009	7.726	3.821	7.923	7.947
1985	0.046	7.645	5.254	7.194	8.682
1986	0.047	7.023	4.777	6.789	9.093
1987	0.076	6.98	3.965	9.328	6.56
1988	0.031	7.455	9.628	8.233	7.639
1989	0.085	8.152	5.947	8.437	7.436
1990	0.074	8.453	5.533	10.668	5.27
1991	0.027	8.493	1.057	13.752	3.625
1992	0.096	9.59	5.482	8.965	9.133
1993	0.197	9.817	4.751	9.862	5.815
1994	0.297	10.19	6.659	9.98	4.337
1995	0.595	12.023	7.574	9.063	5.864
1996	0.617	11.544	7.55	7.575	7.793
1997	0.86	11.929	4.05	6.476	6.91
1998	0.625	12.681	6.184	8.01	5.121
1999	0.473	13.364	8.846	3.068	9.191
2000	0.765	13.904	3.841	3.645	8.343
2001	1.056	13.435	4.824	3.216	8.591
2002	1.012	15.244	3.804	3.716	7.907
2003	0.606	15.645	7.86	3.868	7.308
2004	0.766	19.645	7.923	5.725	4.91

2005	0.886	22.396	7.923	5.622	4.855
2006	2.13	24.457	8.061	8.401	2.571
2007	2.073	24.887	7.661	6.944	5.682
2008	3.621	29.271	3.087	9.194	3.772
2009	2.652	25.872	7.862	7.04	4.809
2010	1.635	26.854	8.498	10.526	-1.984
2011	2.002	31.083	5.241	8.734	1.318
2012	1.313	31.259	5.456	7.934	2.474
2013	1.516	28.413	6.386	6.187	3.866
2014	1.696	25.954	7.41	3.332	6.695
2015	2.092	22.11	7.996	2.28	7.556
2016	1.937	20.924	8.256	3.238	6.233
2017	1.507	21.951	6.795	3.969	5.328
2018	1.558	23.689	6.454	3.884	5.362
2019	1.787	21.272	3.738	2.391	6.91
2020	2.413	19.096	-6.596	5.601	3.361
2021	1.408	23.892	8.681	9.966	-1.153

Table 8: Regression statistics after removing the insignificant variables from the model

<i>Regression Statistics</i>	
Multiple R	0.88
R Squared	0.775
Adjusted R Squared	0.758
Standard Error	0.446
Observations	44

Source: Author's calculations based on World Bank data

Table 9: Dynamic Regression Model (Independent variables are shown)

Variables	Coefficients	R squared	Adjusted R squared	F statistic	p-value	AIC	BIC
Intercept	-0.9114	0.8132	0.7940	42.4346	4	53.4183	64.1235
Import	0.1159						
GDP Growth Rate	-0.0612						
Inflation Rate	-0.0008						
Real Interest Rate	0.0590						

Source: Author's calculations based on World Bank data

Book Review - Japanese Management, Indian Resistance: The Struggles of the Maruti Suzuki Workers

Authors: Anjali Deshpande and Nandita Haksar

Year of Publication: 2023

Publisher: Speaking Tiger Books

ISBN: 978-93-5447-444-6

Pages: 366; Price: INR 499

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This book can be taken as the finale-addition to a lot of writing that labour researchers in India and abroad have already done over the last decade on the capital-labour conflict in the Maruti-Suzuki and other auto-factories in Delhi NCR.

It is well-said that the automobile industry drives the Indian economy and the car made by Maruti-Suzuki is the much sought-after-spectacle of middle-class consumption in India. But, in this book, the reader is challenged to look at the “shiny Maruti car models and the technology which goes into their making” from the perspective of the workers who work in the Maruti-Suzuki factories, which challenges the perception of Maruti-Suzuki as a “runaway success story” in the timeline from June 1971 to 2022.

Deshpande, as an investigative journalist and a social activist, and Haksar as a human rights lawyer — the authors of the book — have drawn the reader’s attention to the emergence of the reality of “profits trumping workers’ rights” in new India — a reality that is not openly discussed in the managerial perspectives of industry and labour.

The disenfranchised factory voices that the authors had interacted with, vividly portray the unbelievable downside of Japanese or lean management in India in terms of employment precarity, overwork and deathly dangers, arbitrary dismissals, false framing of criminal cases

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and life imprisonment without a fair trial meted out to the workers and their leaders. The public at large does not know the struggles faced by the workers against this injustice and indignity, as these struggles have rarely been highlighted on public platforms or social media. Indian cinema has contributed in this regard, but it's not enough.

There are two points of departure from which I can distinctly appreciate the value of this book for economic and managerial education. First, students of economics are taught allocative efficiency as market efficiency with the implicit assumption that each firm is productively efficient. But how work organisation, labour staffing arrangements, skills and training, compensation, and labour-management relations are orchestrated inside the factories in converting inputs into optimal outputs is not revealed to them. Management students too are taught conflict-free Human Resource Management which only covers up the unending adversarial industrial relations with periods of deceptive lull before the inevitable storm observed more often than not in industrial landscapes. Students may not know or probably are not taught that sometimes, firms and management running those firms are super-Taylorist scientific management of deskilling labour, defeating unions, and intensifying work. They may not know what possible demeaning incentives can actually be given to the workers by employers in the global automobile industry as against what they are supposed to offer for obtaining commitment maximizing labour relations. They may not know that there is unresolvable incompatibility between employers and employees in terms of contradictory goals. The book, thus, throws light on the dark side of inside dynamics of the firms that Bose and Sinha (2012a and 2012b) and JCB and Pratap (2012) had, for example, already reviewed and documented well.

Second, the book reiterates the importance of labour rights as human rights and highlights how the management at the top is not serious about achieving the Sustainable Development Goal No. 8, which is about promoting economic growth with the 'decent work' in terms of the core labour standards of the International Labour Organisation.

To conclude, the book is a very good case study material to discuss the proposition that the capital-labour conflict can never be resolved within the framework of capitalist economic system dominated by the corporations, which is diametrically opposite to the managerial

theorisation that a “mutual gains system” in the workplace will help business attain a world-class, sustainable competitive advantage and, at the same time, secure more rewarding employment for workers (Kochan and Osterman, 1994). That the industrial world can be replete with mutual gains enterprises that are responsive to all their stakeholders with a flexible high performance work system coupled with job security, high wages, profit sharing and employee involvement, is indeed a myth. Thus, it becomes crucial for the management students to read this book for understanding the importance of inclusivity as one of the strategies for better management and better managerial skills at the grass root level for the growth of an organization. This book also gives a task to economic theorists to model in various complexities in the production relations that can be influenced by behavioural discourse of workers-management ties. This book motivates to unlearn old ways of managing workers in factories and opens up a plethora of new ideas and opportunities for young corporate leaders to explore, with an aim of maximizing profits, with inclusivity.

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