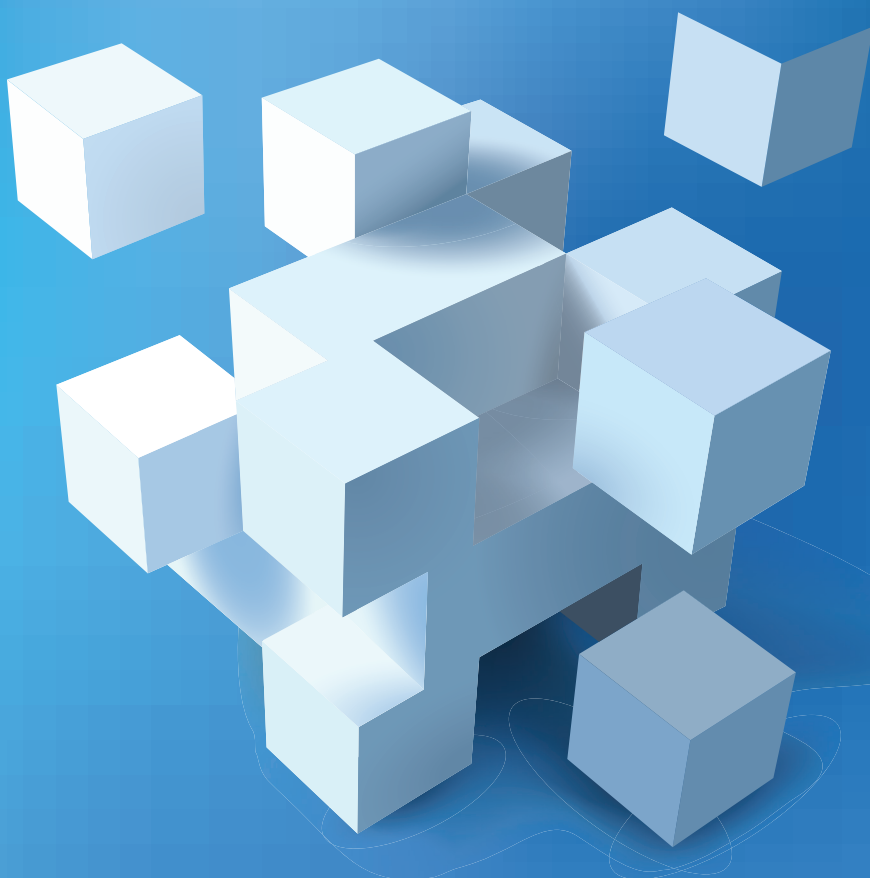


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Review of Professional Management: A Journal of Management, a bi-annual peer-reviewed journal of New Delhi Institute of Management, provides a platform to academics, researchers, practitioners, and professionals from public, private and government sectors to share their original research, innovative practices and articles with Indian and international perspective that shape policy or governance or functioning of an organisation. The journal publishes conceptual, analytical, empirical, and perspective articles that significantly contribute to theory, practice or policymaking in all the functional areas of management and allied subjects.

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The Future of Work, Workplace and Workforce

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The future of work is expected to bring waves of challenges and opportunities driven by technology, digitalisation, sustainability and strategic workforce. Trends, based on surveys, research studies and interactions of leaders with stakeholders, point significant directions and skill gaps which need to be addressed by employers, employees and academia.

COVID-19 pandemic necessitated working from home which reduced travel, care-giving and well-being cost but with organisations shifting to hybrid/ in-office mode at present, HR professionals need to attract talent and find compelling ways to engage and retain them. Mc Kinsey survey¹ (2021) revealed that 29 percent of employees were contemplating job change if their employer switched back to a full-time on-site model; this trend can be observed even now.

According to International Monetary Fund (IMF) 40 percent of jobs worldwide are exposed to AI which requires careful policy consideration (Georgieva,² 2024). Gen AI will affect those jobs most that are routine type, text-and-data heavy. This implies that organisations need to equip themselves with new technologies, Gen-AI based tools, Gen AI- enabled assistants or co-pilots; and skill, upskill or reskill their employees in using these effectively and with responsibility. AI has started impacting all HR functions and will play an important role across the employee life cycle.

World Economic Forum's Future Job Report,³ 2023 highlights the jobs and skills required during the next five years, based on socio-economic and technology trends, that will influence the workplace of the future. According to their worldwide survey 85 percent organisations posit that new and frontier technologies, and expansion of digitalisation will be the catalyst in their organisation transformation. Also, Environmental, Social and Governance (ESG) standards will affect organisations along with investment in green transition which will create more jobs in these fields. Climate change, environment management technologies, big data and cyber security will create job growth whereas AI, e-commerce, digital platforms and apps will create job disruption. Emerging trends indicate that AI will automate, augment or transform jobs. Due to rising cost and slower economic growth, depending on the geo-political situation of a country, permanent jobs are likely to be reduced or offset by partial jobs.

Competition, innovation, and disruption in industry will be on the rise to grow business and to have competitive edge. Hence, business schools, which provide human capital to industry, need to revamp their offerings, curricula and andragogy in partnership with industry, professional bodies, NGOs and organisations to develop skill-sets among students to be relevant to industry, future work and the workplace across geographies. Faculty development, enrichment, exposure and

incentives need to go hand in hand. Interdisciplinary and innovative approach, international immersion, student and faculty exchange, partnerships in teaching and research would play an important role where quality and accreditation would play a pivotal role.

AI preparedness is the key for the future of work, workplace and workforce.

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Radha R. Sharma 

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Future Agendas in Finance in a Post-pandemic World: A Brief Overview

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Divyani Datta¹

Abstract

The COVID-19 pandemic created an environment of unprecedented shock among global economies. Prolonged lockdown across countries, national economic downturns and unexpected disruptions of demand and supply cycles created a likeliness towards a phase of slowdown that could last for an uncertain period. The current study is an attempt to investigate the possible post-pandemic implications on selected financial dimensions of an economy. Secondary data have been relied on to highlight the social and economic impact of this pandemic by drawing insights from literature that have been able to foretell or assess the impacts of likely situations of crisis. Major findings of the study are indicative towards the need of fulfilling unmet investments in preparedness against pandemics, the obvious advantages of having pandemics like COVID-19 being covered by insurance, possible long-term shifts in global spending patterns and the importance of financial markets enduring through such uncertainty. Understanding the impacts of past events that might closely parallel the COVID-19 pandemic brings out avenues of future research in this direction and a possibility of supplementing the scant literature available in this area of study.

Keywords

Bank risk, catastrophe insurance, COVID-19, financial market risk, pandemics

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Introduction

Fortunately, we are all now aware of the continuous efforts being made to combat the COVID-19 pandemic and reduce its high death toll. We are also concerned about how the crisis will ultimately affect the economy and particularly how it will affect financial markets. As of the time of writing, the ill effects of the pandemic remain active and the full extent of the catastrophe is still unknown. However, it is realistic to anticipate that the topic of pandemics and finance will garner a significant deal of interest in the very near future. Since the outbreak, there has been tremendous scientific advancement in our understanding of COVID-19. Data gathered and analysed brought to light how the body of literature on this subject evolved through time (Rinaldi et al., 2020). The initial focus of COVID-19 research was on the disease's transmission, diagnosis and testing. As a result, there has been an increase in research on the wider effects of the COVID-19 pandemic, with an emphasis on studies of human cultures, sustainability and mental health. In addition to analysing the effects of previous pandemics and epidemics, recent academic studies also unsettlingly predict catastrophic occurrences like COVID-19 and its economic repercussions. Future research topics include examining the effects of earlier occurrences that, in some respects, closely mirror COVID-19, as well as how COVID-19 may differ from those earlier events. Understanding the potential ramifications of the COVID-19 pandemic on many financial dimensions is vital since the realm of finance continues to gain relevance in so many spheres of social life (Hopwood & Miller, 1994). While it's true that there is a scarcity of literature on how the pandemic may have influenced future agendas in finance, many eminent researchers across different domains of research interest (Brodeur et al., 2021; Cachón-Zagalaz et al., 2020; Harapan et al., 2020; Koutoupis et al., 2021; Piccarozzi et al., 2021; Pokhrel & Chhetri, 2021) have recognised this as an opportunity to explore new ideas and possibilities. Thus, the relevance and need of a research attempt in this direction becomes enhanced.

This brief conceptual article sketches the minimal study on pandemics and finance that has been done so far and suggests some partial connections with other, more thoroughly researched, fields of financial economics research. By consulting a variety of literary works, a brief analysis of potential COVID-19 effects on financial markets and institutions, either directly or indirectly, is presented. The 'Introduction' section of the study introduces the topic of the research to readers; the 'Literature Review' section presents a concise discussion on the limited literature available on this topic and the 'Research Methodology and Objective' section brings to light the major objective of the research endeavour along with the methodology adopted for its implementation. The observation and findings of the study are upheld in the 'Observations and Findings' section and divided into subheads of major financial dimensions for better comprehension. The conclusions of the study along with implications and scope of future research are summarised in the 'Conclusion' section.

Literature Review

Available literature on the COVID-19 pandemic and its impact on economies' public administration and financial markets are limited in quantity and scope. However, a lot of recent research attention is being put in this direction to address various aspects of the pandemic with a view emphasising that according to national circumstances, there is variety in the scope and format of each country's response. In such circumstances, a concise yet comprehensive review of literature has been conducted to better grasp the current topic under study.

The effects of COVID-19 on finance and potential future agendas have been the subject of numerous research. According to certain studies (Iqbal & Bilal, 2021; Castellano et al., 2020), financial institutions will need to become more flexible and responsive to quick changes in market conditions. This is because the pandemic has revealed the limitations of traditional financial systems and their inability to respond quickly to crises. Other studies have focused on the role of digital technology in shaping the future of finance. For example, Obeidat et al. (2020) argue that the pandemic has accelerated the trend towards digital transformation in the financial sector, and that new technologies such as blockchain and fintech will play an increasingly important role.

Numerous studies also show that in the post-pandemic world, sustainable finance will be a crucial goal (Carannante et al., 2021; Le et al., 2021). This is due to the pandemic's emphasis on social and environmental issues, and the fact that investors are increasingly looking for companies that prioritise sustainability. Furthermore, studies have been conducted to investigate the potential influence of the pandemic on financial regulation (Caserotti et al., 2021). According to this research, authorities will need to take a more proactive approach to risk management and financial stability in order to avoid future crises. Other scholars focus on the implications of the pandemic on banking practices and services (Tabari et al., 2020; Li et al., 2021). They argue that banks will need to become more customer-centric, by offering personalised and flexible services that meet the evolving needs of consumers in a post-pandemic world. Some studies have also emphasised the need of collaboration and cooperation among various financial stakeholders (Clemente-Suárez et al., 2020; Haldane, 2020). This is because this pandemic has highlighted the global financial system's interdependence and the significance of working together to confront common concerns.

Broader patterns in accountability were exposed by the response to the COVID-19 pandemic. Public authorities adopted different accountability practises, each of which was impacted by how they tried to defend their actions to the public (Andreaus et al., 2021). However, several research asserted that several policies come with unintended consequences that will have a detrimental influence on environmental concerns, poverty, inequality and, more broadly, the global sustainability agenda (Ahrens & Ferry, 2020; Argento et al., 2020; Elhashen et al., 2021; Heald & Hodges, 2020). In order to better comprehend the short-, medium- and long-term effects and implications of the dispersed budgetary reactions to the pandemic, as well as their connections and interdependencies, more research is required.

Most of the publications, which are primarily published in medical journals, deal with epidemiologic topics. A rising number of studies highlight key success elements and governance aspects of the pandemic (Amat et al., 2020; Liu & Saltman, 2020). The economic effects of the pandemic are being put under study by various researchers and academicians.

Little insights into financial risk and equity resilience may be gained from the scant literature addressing the pandemic's influence on the financial markets and how accounting is involved in analysing and calculating this impact. As an example, Yu et al. (2021) analyse the COVID-19's systemic risk spillover effect between countries. The results demonstrate that the nations with the most severely impacted economies served as the primary risk senders during the early phases of the pandemic. Yet, the study discovers that the impacts of risk spillover are extremely dynamic. De Vito and Gómez (2020) concentrated on the liquidity risk and provided crucial advice on how to reduce the possibility of a cash shortage. They also identified share price resiliency as a potential area for further study in this context. Bénassy-Quéré and Di Mauro (2020) provide a thorough collection of texts addressing issues such 'safeguarding businesses, employees, banks, national budgets, and sovereign debt'. Their work also further brings forward ideas for newer monetary and fiscal policy drives for addressing the impact of the current crisis on the economy, saying that for politicians to succeed, they must act quickly and break taboos. Amat et al. (2020), who have little doubt that the impending recession will have significant distributive effects, consider relief measures to lessen the economic effects of the lockdowns. According to Bozorgmehr et al. (2020), the convergence and interaction of the COVID-19 dilemma with three other global crises—the governance, economic and migratory crises—makes the situation significantly more extensive and complex. This is a challenge for both developed and developing countries. In other research, general equilibrium models are mostly used to analyse the effects of various scenarios on macroeconomic outcomes and financial markets (Mirica et al., 2020). Recent literary works point to practical measures for easing the fiscal strain on the public budget and promoting economic recovery.

Few research has considered subnational levels; most studies on the socioeconomic effects of the pandemic concentrate on the central government level. According to Spagnolo et al. (2020), this pandemic is unprecedented from the standpoint of local governmental institutions in charge of providing services. They provide a framework for negotiating COVID-19's financial implications and depend on recent polls to evaluate the reaction tactics used by local governments as they try to determine their financial standing going into the upcoming budget cycle. According to Dzigbede et al. (2020), during times of unprecedented crisis, local governments must work together for the good of the community and require financial support from the federal and state governments. They should also consider and address social and financial inequities, paying particular attention to small local governments with limited resources.

We can also draw from the results of the fiscal policies implemented following the 2008–2009 financial crisis while discussing the effects of the COVID-19 pandemic on financial markets and allied sectors (Kickert & Randma-Liiv, 2015). These, however, have once more centred primarily on the national level. Kickert and

Randma-Liiv (2015) investigated the topic of budget reduction during times of crises. Most authors think that strict regulations in some cases may be required; nonetheless, government initiatives that prioritise reassessing policy priorities and improving the effectiveness of public spending are preferable.

In conclusion, most of the available literature suggests that several agendas and trends, such as the need for agility and adaptability, digital transformation, sustainable finance, proactive regulation, customer-centric banking and stakeholder collaboration, will shape the future of finance in a post-pandemic world. As institutions seek to adapt to current challenges and construct a more robust financial system, these issues will almost certainly be essential for the future of finance.

Research Methodology and Objective

The methodology of research can be thought of as an analysis of the numerous processes a researcher takes to logically explore his research problem. It is in the form of a study blueprint that outlines the steps involved in gathering data, choosing a sample, using an instrument like a questionnaire, processing the data collected and eventually interpreting it. The current study is descriptive in nature. Thus, the methodology adopted and information collected is based on secondary data, that is, published data or data collected in past or through academic journals, relevant websites and pertinent paper presentations.

Every research study is set up to achieve specific goals. Like that, this study has been conducted to emphasise the social and economic effects of the COVID-19 pandemic by using knowledge from works of literature that have been able to predict or evaluate the effects of probable crisis circumstances. The study aims to shed light on the direct or indirect effects of the COVID-19 epidemic on financial institutions, markets and other related sectors in the field of finance.

Observations and Findings

COVID-19: Impact on the Economy

The tremendous economic costs associated with pandemics are an obvious way in which they might affect financial institutions. Many articles have been written about the costs of pandemics, including estimates for future pandemic costs as well as expenditures associated with prior pandemics like the HIV/AIDS crisis. Ex post costs of pandemics and epidemics are frequently discussed in articles on these expenses. For instance, Santaaulalia-Llopis (2008) focuses on the effect of the HIV/AIDS pandemic on development, whereas Haacker (2004) addresses the economic repercussions of the pandemic.

Many articles relevant to the COVID-19 pandemic and the crisis created out of the same have tried to estimate probable implications of ‘future pandemics and epidemics’ on the economy. Uprising costs of healthcare system, both at the public and private levels, has been a major issue of concern creating an unfavourable trickle-down effect resulting in ‘strain on health systems from not being able to concurrently

deal with more routine health issues during outbreaks; loss of employment productivity; social alienation disrupting economic activity; impact of tourism and parity; and impact on foreign direct investment' (Bloom et al., 2018).

Fan et al. (2018) have all shared their concerns in unison, indicating a consensus in their views. Recently, 'a higher investment in preparedness against severe diseases and pandemics' was noted as being unmet. According to their calculations, the 'estimated yearly losses from pandemic risk amount to roughly 500 billion US dollars, or 0.6% of global income'. The price of COVID-19 makes this so-called large amount significantly undervalued. Several other works, such as those by Yach et al. (2006), Madhav et al. (2017) and many others, also emphasise the importance of managing economic risk considering the likelihood of potential future pandemics.

Note has also been taken of papers that track the frequency of contagious disease outbreaks that have experienced 'near calls' and were successfully contained to a far lower level than they may have otherwise. Thomas et al. (2019) accounted of the recent 'deadly epidemic of the highly contagious respiratory disease Nipah in the Kerala region of India' in a subtle manner of intrigue. In this instance, public health professionals' remarkably quick response prevented a bigger global health problem. A report from the World Health Organization's Global Preparedness Monitoring Board further states that the organisation tracked 1,483 epidemic incidents in 172 countries between 2011 and 2018 which is particularly startling. The report also highlights the fact that little to no preparation is being made even though a pandemic is imminently posing a threat to the entire planet.

COVID-19: Impact on Banking and Insurance

Understandably, banks are at risk during economic downturns due to the likelihood of nonperforming loans and the potential for bank runs in the worst-case scenarios. As of now, certain studies have discovered a strong correlation between the development of HIV in underdeveloped nations and significant increases in deposit turnover. He explains this by saying that large-scale withdrawals of deposits were necessary to pay for individual treatments.

A theoretical model created by Lagoarde-Segot and Leoni (2013) demonstrates that the chance of the banking sector in a developing country collapsing rises as the combined prevalence of major pandemics rises. During epidemics, a large portion of bank and microfinance institution group lending to the poor will be subjected to pressure since the aggregate shock will exert pressure on all members of the group (Skoufias, 2003). Bank robberies may occur at rural financial institutions amid floods or crop failures (Binswanger & Rosenzweig, 1986). How COVID-19 will alter financial institution procedures is still up in the air. In general, how long will banks continue to follow a more cautious lending strategy after COVID-19? Has research been done on how banks respond to COVID-19-sized macroeconomic shocks (Bongini et al., 2019)? Literature has examined if 'black swans' have an impact on the world. COVID-19 has brought the entire world together in facing a

global challenge. As we navigate through this unprecedented time, we must consider how we can work together to address the impact of such widespread events on our communities. This includes exploring ways to ensure that we can manage the financial consequences of such catastrophes in the future. Another query is whether COVID-19 should be viewed as a 'black swan' or an unexpected occurrence with severe ramifications. 'No' appears to be the response.

It should not be viewed as completely unexpected when such a large number of academic studies, as described above, suggest that pandemics might occur and forewarn that huge economic losses might result out of the same. Further, one pandemic might lead to other epidemics that would not take much time in spreading globally.

It is obvious that pandemics like COVID-19 are preventable; hence, it is very advantageous that they are covered by insurance. The idea of such insurance is discussed by Tamura and Sawada (2009) in relation to avian flu outbreaks in Vietnam. Of course, such insurance is typically only offered to people who are financially secure, at least at the private level. Most likely, the base of the pyramid will be ignored. In the wake of major crises, Sawada and Shimizutani (2008) highlight that 'those with personal collateral quickly recover financially while those without such collateral do not'.

COVID-19: Impact on Financial Markets

Although there has not been much written about how epidemics, much alone pandemics, affect financial markets, there are some faulty analogies to be drawn from other kinds of natural calamities. Markets reacted to aviation disasters, terrorism and more recently, natural calamities like earthquakes and volcanic eruptions. While disasters involving air crashes, like as the COVID-19, have been catastrophic to the airline business globally, certain studies imply that some airlines may benefit from passengers switching carriers after air crashes. With COVID-19, which is reducing airline operations worldwide, this is unlikely to happen. COVID-19 will undoubtedly have a greater effect on some industries than others. However, COVID-19 will also have a significant impact on domestic demand in practically every nation.

Levels of spillover from other prior catastrophes have a significant impact on the degree to which past disasters' overlap sheds light on the probable impact of COVID-19 on the financial markets. Given that COVID-19 will have a global influence, it is helpful to contrast the current scenario with previous occurrences that, despite being more localised, resulted in spillovers that created more general impacts. Given that terrorist attacks are by their very nature intended to affect the public mood broadly, research on the effects of terrorist attacks on the financial markets may offer some kind of comparison.

In his article on the 'spillover effects' of terrorist strikes, Karolyi (2006) questions whether the evidence on the subject points to a widespread or 'systematic' contribution of prospective terrorism to total risk. He concludes that there is not much evidence, but there have not been many studies looking at beta or volatility

concerns in asset-pricing models. According to certain studies, market declines related to terrorist attacks are rather minor and only last for a very brief period (Brounen & Derwall, 2010). After September 11, Choudhry (2005) looked at a limited number of US companies in a range of different industries to see if this terrorist attack had an impact on a change in market betas. His conclusions were mixed. According to Hon et al. (2004), the September 11 terrorist attacks increased market correlations, with the degree of this effect differing by worldwide region. Several additional publications (Chesney et al., 2011; Choudhry, 2005; Corbet et al., 2018) give a conflicting picture of the extent to which terrorist attacks have affected changes in the nature of financial markets.

Since the 1918 influenza pandemic, COVID-19 may be a singular outcome in terms of its worldwide extent as a pandemic. However, as was already mentioned, a catastrophe of the magnitude of COVID-19 was not completely out of the question. It is fascinating to contrast the conclusion of COVID-19 with a hypothetical nuclear conflict. No one on Earth can survive a nuclear war, unless one dubiously accepts an extremely localised impact. As a result, most people believe that the prospect of nuclear war has little effect on market prices other from raising international tensions that have an economic impact. The cause does not appear to be its low probability, but rather the fact that alternative outcomes are unimportant in the case of a nonsurvivable occurrence.

According to Epstein (2019) (based on data from the US Social Security Administration), there is a 0.2% chance that a 35-year-old man in the United States will pass away in the upcoming year. Chances for a 35-year-old woman are around 0.1%. With age, these chances only very gradually rise. Even at age 50, a man only faces a 0.5% risk, and at age 50, a woman just 0.3%. What are the chances that there will be a nuclear war on a global scale in the upcoming year? We may not have enough information to make such an estimation, which is one plausible explanation. Most people believe that nuclear wars are instantly fatal because they are viewed as probability-tail events. On the other side, COVID-19 is wreaking unprecedented levels of economic havoc. However, COVID-19 is avoidable, unlike a global nuclear war and the importance of financial markets will endure. The likelihood is high that there will be a significant response on the global financial markets the next time a contagious respiratory illness suddenly appears. Surely, the pandemic scenario has set in motion future research in the domains of financial markets and tail risk.

COVID-19: Impact on Financing and Costs of Capital

Researchers will probably consider the probable long-term impact of COVID-19 on corporate funding. As was already said, COVID-19 draws attention to the potential—or even likelihood—of infectious illness outbreaks that will have a significant negative impact on domestic demand around the world. The financial markets' failure to account for the possibility of terrible tail-risk catastrophes that would be catastrophic in any case has fundamentally changed the game. The global economic harm caused by COVID-19 and similar outbreaks is

unprecedented. They can be survived, though. Now is the time to prepare for a long-term impact on capital expenses and company financing.

According to Elnahas et al. (2018), businesses in more disaster-prone regions adjust by becoming less leveraged. They explain this phenomenon through firms facing distress in disaster prone areas with respect to 'operating interruption, increased capital costs and tighter financial flexibility', which is consistent with a trade-off view of capital structure (Kraus & Litzenberger, 1973). Despite the perception that businesses have a permanent capital structure policy, they frequently react to macroeconomic shocks (Huang et al., 2018).

The COVID-19 strongly shows that equity risk was previously underpriced. Will this result in businesses using less leverage? Will equity costs fluctuate over an extremely long period of time? According to Lee and McKibbin (2004), SARS caused the national risk premium for China and Hong Kong to rise by 200 basis points. The effect of country-risk premiums on equity costs will differ depending on how exposed a firm is to different markets, but it is undeniable that an uplift of 'two percentage points in a country risk premium', which increased due to the occurrence of the COVID pandemic would translate into a higher cost of equity capital which would lead to lesser funding of pensions on a global scale. However, the findings of Lee and McKibbin (2004) about higher country risk for China and Hong Kong are predicated on the fact that these two locations were particularly at risk for SARS. However, in a true pandemic like COVID-19, the exposure is universal as opposed to localised.

COVID-19: Impact on Governments and Public

Will COVID-19 cause a long-term shift in global spending patterns? For instance, Haacker (2004) states that the HIV/AIDS crisis has permanently changed consumer behaviour. Undoubtedly, a global decline in consumer spending and domestic demand will be extremely difficult for the entire economy to handle. Do governments have a responsibility to protect citizens from the financial effects of pandemics? In situations where the private sector is unwilling to provide insurance, the public sector should play a significant role. Less concern may exist about the public sector displacing private insurance (Cummins et al., 2006). But is the issue too significant?

According to Arizala et al. (2013), only catastrophes that are exceedingly large have a negative impact on output over the long and short terms. They do point out that their findings are based on a small number of instances where violent political uprisings followed the catastrophes. How much of COVID-19's economic output's long-term impacts will be caused by a catalysing of changes in the political scenario? Is COVID-19 differing from previous natural disasters on sufficient grounds to be treated as an exception? Or should we anticipate, that economic activity will resume as it has in prior catastrophic situations?

The pandemic set into motion required changes in the healthcare and public support infrastructure. Ghesquiere and Mahul (2010), in their study, opined that managing the potentiality of natural disasters would become a tough task for

Table 1. Summary Findings and Observations.

Area of Study	Summary Observations
COVID-19: Impact on the economy	• Uprising costs of health care system, both at the public and private levels, has been a major issue of concern (Bloom et al., 2018) • A higher investment in preparedness against severe diseases and pandemics was noted as being unmet (Fan et al., 2018) • Rising importance of managing economic risk noted considering the likelihood of potential future pandemics (Madhav et al., 2017; Yach et al., 2006)
COVID-19: Impact on banking and insurance	• Bank robberies may occur at rural financial institutions amid floods or crop failures (Binswanger & Rosenzweig, 1986) • Those with personal collateral seen to quickly recover financially while those without such collateral do not (Sawada & Shimizutani, 2008) • A strong correlation between the development of HIV in underdeveloped nations and significant increases in deposit turnover • Further concern is whether catastrophes as unfortunate and widespread as COVID-19 are insurable
COVID-19: Impact on financial markets	• There have not been many studies looking at beta or volatility concerns in asset-pricing models impacted by periods of pandemic (Karolyi, 2006) • COVID-19 is avoidable, unlike a global nuclear war, and the importance of financial markets will endure (Epstein, 2019) • Pandemic scenario has set in motion future research in the domains of financial markets and tail risk
COVID-19: Impact on financing and costs of capital	• The COVID-19 strongly shows that equity risk was previously under-priced (Lee & McKibbin, 2004) • Businesses in more disaster-prone regions adjust by becoming less leveraged (Elnahas et al., 2018) • Despite the perception that businesses have a permanent capital structure policy, they frequently react to macroeconomic shocks (Huang et al., 2018)
COVID-19: Impact on governments and public	• COVID-19 may cause a long-term shift in global spending patterns (Cummins et al., 2006) • Necessary changes required in the healthcare and public support infrastructure (Arizala et al., 2013)

nations. They further put forward enhancing control and preparations for pandemics to result in greater good for public. How would COVID-19 affect societal trust is another query. There will be effects from the fact that pandemics like COVID-19 impact various age groups and economic strata in different ways. Noy (2009) notes that natural disasters have a greater impact on developing nations. Social fractionalisation, as stated by Bjørnskov (2008), erodes social trust. Reduced social trust increases transaction costs across the whole financial system

(Fukuyama, 1995). What effect this may have on the general public's acceptance of social and economic globalisation is a situation yet to be seen (Table 1).

Conclusion

The current study sought to offer an agenda for future research in finance in the post-pandemic world by delving into ideas accessible from scarce literature on analogous topics. The study further made connections and outlined impediments and opportunities for further research in this direction. As can be seen from the analysis in this article, investors, decision-makers and the general public are learning from the COVID-19 crisis that natural disasters can cause economic harm on a previously unheard-of scale. The COVID-19 pandemic is causing a direct adverse economic effect on every region across the globe. This contrasts with other events, such as a nuclear war which may take place at a global scale, which is unavoidable and hence of no meaningful consequence, or events, such as changes in the world climate, which move considerably more slowly. All sides now must accept the fact that such a phenomenon is imminently probable and likely, as has already been made clear to many. Its potential impact on issues such as capital costs, retirement planning, insurance, governments efforts in upholding financial systems, social trust and associated transaction costs, as well as political stability in countries, is yet not fully understood. Financial researchers will undoubtedly continue to debate these issues for many years to come.

Implication of the Study

The current study has significant implications for various stakeholders, including policymakers, financial institutions, investors and businesses. The study has identified impact of the pandemic on broad dimensions such as financial markets, banking and insurance, costs of capital and economy at large to name a few and the regulatory reforms within them that require immediate attention to adapt to the new normal. The study further highlights that the pandemic has accelerated the adoption of digital technologies, which have become critical for the delivery of financial services. Financial institutions and businesses need to invest in digital infrastructure and upskill their workforce to meet the changing demands of customers. The study also underscores the importance of effective risk management and regulatory frameworks to prevent the recurrence of financial crises. Policymakers must collaborate with financial institutions and other stakeholders to develop robust legal structures that promote financial stability and long-term growth. Finally, the research on future agendas in finance in a post-pandemic world offers useful insights into the problems and opportunities that lie ahead. The results of the study make a

case that stakeholders need to work together to develop innovative approaches to finance that prioritise sustainability and risk management in order to construct a more durable and equitable financial system.

Scope for Future Research

As the world begins to emerge from the pandemic, it is important to consider what the future of finance will look like in a post-pandemic world. The following are some potential areas of research that will enhance the scope of the current study in the future:

1. *Digital transformation*: The pandemic has expedited the development of digital financial technology such as internet banking, mobile payments and virtual currencies. The future of finance will almost certainly involve further digital transformation, with a greater emphasis on automation, artificial intelligence and blockchain technology.
2. *Risk management*: The pandemic has shown serious flaws in risk management strategies, notably in the area of supply chain risk. Future research could concentrate on creating more resilient risk management systems that can endure global shocks such as pandemics.
3. *Sustainability*: The pandemic has also emphasised the need for a more sustainable and socially responsible financial approach. Future study could investigate the role of finance in promoting sustainability, such as the creation of new financial products that incentivise sustainable behaviour.
4. *Financial inclusion*: The pandemic has contributed to already existing disparities, notably those connected to financial services access. Future studies could concentrate on boosting financial inclusion, particularly in emerging nations with restricted access to financial services.
5. *Regulation*: The pandemic has highlighted the significance of good regulation in ensuring the stability of the financial system. Future studies could investigate new regulatory frameworks to handle growing hazards in a fast-evolving financial world.

Overall, the future of finance in a post-pandemic world is likely to be characterised by continued digital transformation, greater emphasis on risk management, sustainability, financial inclusion and effective regulation. Further research in these areas will be essential in order to ensure a resilient and sustainable financial system that can withstand future global shocks.

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Factors Affecting Consumers Compliance Intention: Consumption Tax Evasion as an Ethical Dilemma

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Abstract

Consumption tax evasion (CTE) is an ethical dilemma that can enlarge the presence of the shadow economy. The empirical literature mainly focused on the ethical dimension of the business community, thus there is insufficient literature related to the ethical decision-making process on the consumer's side. So, the present study attempts to explore the ethical decision-making process of consumers regarding CTE. The study used three major components of Jones's Issue Contingent Model to study the consumer's ethical decision-making regarding CTE. The study proposes a conceptual model by linking idealism, relativism, religiosity and attitude with the three components of the issue contingent model. The result of the study was based on primary data collected from consumers in the Kerala State. The data obtained was examined using the PLS-SEM technique which confirms the influence of idealism, relativism and attitude on the moral recognition of consumers regarding CTE. The result also concludes that moral recognition leads to moral judgement, which in turn, plays a vital role in inculcating moral compliance intention in the minds of consumers.

Keywords

Consumption tax evasion, ethical decision-making, moral intention, moral recognition

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Introduction

Raising government revenue is an essential priority for sourcing public expenditure. However, the revenue base of the Indian economy has been weakened by the accelerated growth of the parallel economy (Sarkar, 2010). Tax evasion has become a major roadblock to the smooth functioning of the administrative system. Feige (1994) describes the shadow economy as the activities contributing to the GDP but not properly recorded. Consumption tax evasion (CTE) is an integral component of the parallel economy. The presence of tax evasion not only affects the government's revenue performance but also degrades the overall welfare of the economy. This challenging situation creates a need for intense effort on the part of the government to minimise the tax gap. But, the rigorous efforts of the administrative tiers are often outwitted by various forms of informal schemes adopted by businesses to reduce tax obligations (Saxunova & Szarkova, 2018).

Over the years, the size of the shadow economy has shown an upward trend (Schneider, 2003). The negative externalities resulting from the tax evading practices will hinder the progress of the economies (Menon, 2019). There are several studies which have thrown insights into the association between ethics and tax evasion (Culiberg & Bajde, 2014; Drogalas et al., 2018; McGee et al., 2008; Seralurin & Ermawati, 2019). But the empirical results focused on the side of taxpayers and not on the consumers' perspectives. So, the present study emphasises consumers' perspectives with respect to CTE. CTE is a global phenomenon that occurs when consumers use cash with the deliberate intention of reducing tax obligations (Culiberg & Bajde, 2014). Empirical findings indicate various forms of economic, moral, psychological and social consequences related to tax evasion. CTE practices grant the evaders an unfair advantage over the business which obediently comply with the legal requirement of the tax system. This unfair implication can be avoided when consumers perform their part of moral duties by asking for invoices, which in turn, will prevent the businesses from evading taxes.

The empirical results of studies corroborate the relevance of moral values in controlling non-compliance behaviour (Badaracco & Webb, 1995; De George, 1987; Jones, 1991; Stark, 1993). An individual's moral beliefs can govern the moral decision-making process, that is, to decide whether to take part in CTE or not. Empirical results show that various factors influence tax compliance, which includes consumer ethics (Fukukawa, 2002), tax morality (Maciejovsky et al., 2012), tax ethics (Kirchler et al., 2008), but, only limited attention has been given to the consumer decision-making perspective. So, to fill this literature gap the present study examines the ethical decision-making perspective of consumers regarding CTE.

Empirical studies identified a significant association between religiosity and tax compliance (Ababio & Manguve, 2021; Carsamer & Abbam, 2020; Srivastava et al., 2018). Religious considerations can subdue non-compliance behaviour (Torgler & Murphy, 2004). Furthermore, the influence of religiosity on compliance behaviour is highlighted in a study conducted by Abdullah and Sapiei (2018). Similarly, evidences show that attitude can mould an individual's compliance behaviour. Hofmann et al. (2008) discuss the role of attitude towards government in promoting voluntary tax compliance. An Individual's perception of government can enhance compliance (Wahl et al., 2010) since the ability of the government to

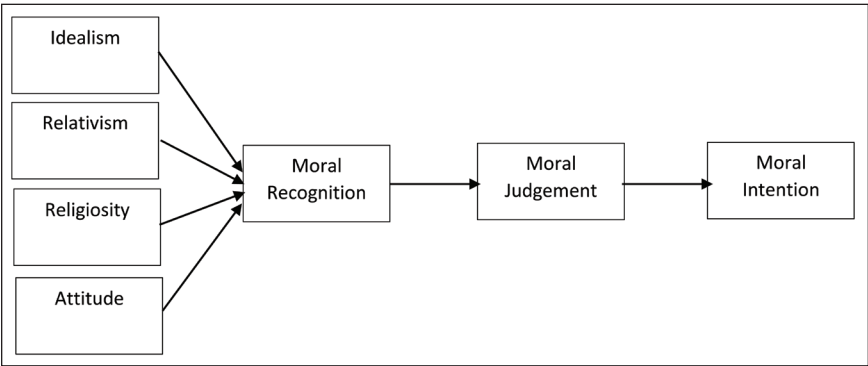


Figure 1. Conceptual Model.
Source: Jone’s Issue Contingent Model (1991).

meet the public requirements can enhance the compliance rate. Feld and Frey (2007) assert that tax compliance is moulded by creating a positive attitude towards the administrative system. Thus, the study further explored the role of religiosity and attitude towards government in affecting the ethical decision-making process regarding CTE (Figure 1).

Literature Review and Hypotheses Development

The concept of tax compliance has been explored by researchers from different dimensions. Some studies used the theory of planned behaviour (Bobek & Hatfield, 2003; Taing & Chang, 2021), while some other studies relied on the theory of reasoned action to investigate more about compliance behaviour (Bidin et al., 2014; Hessing et al., 1988). The study employs an extended Jones issue contingent model to gain insights into the ethical decision-making process. The ethical decision-making process begins with moral recognition, which is followed by moral judgement, moral intention and finally leading to moral compliance. Consumers’ ethical decision-making processes related to CTE have received little attention up to this point. The moral decision-making process constitutes a well-defined phase (Hunt & Vitell, 1986), where the factor of moral recognition precedes a person’s moral judgement (Jones, 1991). Moral recognition is the acknowledgement of the moral responsibilities towards common welfare (Hollingworth & Valentine, 2015). Rest (1986) identified the need for morally recognising an issue, followed by establishing a moral judgement, then by moral intention and for finally resulting in moral behaviour. Similarly, Jones (1991) highlights the need to recognise a moral issue for the development of a moral judgement towards a well-defined situation. The recognition of a moral concern can influence the moral behaviour by influencing an individual’s moral judgement, which in turn affects moral intention. O’Fallon and Butterfield (2012) identified various variables attributing to the ethical decision-making process. The study found that knowledge level, situational aspects and issues-based factors strongly influence ethical decision-making. While there also exist studies that

found a negative association between moral judgement and moral intentions (Pan & Sparks, 2012). Moral judgement is a major construct under the Jones-issue-contingent model. Various studies have found a significant association between moral judgement and moral intentions (Culiberg & Bajde, 2014; Culiberg & Mihelic, 2016; Ferrell et al., 1989; Hofmann et al., 2007; Yang & Wu, 2009). Valentine and Rittenburg (2004) extended an investigation to study international ethical compliance among business professionals and confirmed the existence of a positive association between tax judgement and tax compliance among taxpayers. With respect to the findings of the previous studies, the study proposes that:

H_1 : Moral recognition positively influences moral judgement regarding Consumption Tax Evasion

H_2 : Moral judgement positively influences moral intentions regarding Consumption Tax Evasion

Ethical Ideologies

The moral beliefs of an individual can influence the moral decision-making process. Numerous studies have found a strong association between ethical ideologies and ethical behaviour (Culiberg & Bajde, 2014; Forsyth, 1980; Henderson & Kaplan, 2005). The two major determinants of ethical ideology are idealism and relativism (Forsyth, 1980; Wiggins, 1990). Sidani et al. (2014) investigated and found the role of ethical ideologies, that is, idealism and relativism in bringing down tax evasions. According to Forsyth (1980), the concept of idealism gives emphasis to others' welfare dimension. The empirical study highlighted the relevance of idealism in fostering positive outcomes in the ethical decision-making process (Henle, 2005). The higher an individual's level of idealism greater will be the level of ethical recognition. Meanwhile, relativism refers to a situation where other people's perspectives are also considered along with the universally recognised principles. A relativist's perspective depends on the universal principles and the circumstances which a person is put into. Relativism deals with the situational ethics rather than relying solely on the absolute truth (Forsyth et al., 2008).

According to Hunt and Vitell (1986), the first phase in the ethical decision-making process is the development of ethical or moral recognition. Existing literature confirms that moral recognition can enhance the chance of resolving ethical or moral concerns (Hunt & Vitell, 1986). Moral recognition is influenced by various factors to varying degrees. These factors include relativism (Culiberg & Bajde, 2014; Harman, 1978) and idealism (Bateman et al., 2013; Culiberg & Bajde, 2014; Henle, 2005). Based on the results obtained by the above studies, the study proposes the following hypotheses:

H_3 : Idealism positively influences moral recognition of the consumers regarding Consumption Tax Evasion

H_4 : Relativism positively influences moral recognition of the consumers regarding Consumption Tax Evasion.

Religiosity

Religious perception shapes the general understanding of an individual towards what can be considered as moral or not (Weaver & Agle, 2002). Consumers can indirectly contribute to the economy by reducing the non-compliance of the business concerns and by preventing the business entity from becoming a part of CTE. Religion can shape consumer perception by encouraging an individual to abstain from tax-evading practices (Srivastava et al., 2018). However, there are also studies that found no significant difference in the ethical behaviour of religious or non-religious individuals (Spilka et al., 2003). Similarly, Agle and Buren (1999) identified a weak association between religious beliefs and tax compliance behaviour (Abdullah & Sapiei, 2018; Eiya et al., 2016; Mohdali & Pope, 2014). While Srivastava et al. (2018) confirmed the influence of religiosity on the moral recognition concerning CTE. Based on the findings of the previous studies, the study hypothesis:

H_5 : Religiosity positively influences moral recognition of the consumers regarding Consumption Tax Evasion

Attitude

Attitude plays a vital role in influencing the tax behaviour of consumers (Alabede et al., 2011; Guerra & Harrington, 2018; Night & Bananuka, 2019; Palil & Mustapha, 2011; Sadress et al., 2019; Webley et al., 2001). Skitka et al. (2015) state that peoples' attitude influences their moral convictions. Many empirical studies have found a strong association between perception towards government and taxpayers' compliance behaviour (Cummings et al., 2005; Feld & Frey, 2007; Modugu & Anyaduba, 2014; Torgler, 2007). Srivastava et al. (2018) ascertain the relevance of trust in the administrative system for influencing the moral recognition, by acting as a mediator for tax compliance. Therefore, the study proposes that:

H_6 : Attitude towards the government positively influences moral recognition of the consumers regarding Consumption Tax Evasion.

Research Methodology

Sample and Procedures

A quantitative analysis was performed based on primary data collected using a survey questionnaire. The study was conducted among consumers in the Kerala State. The data were collected from the respondents using an online survey. To avoid possible errors in the survey instrument, a pilot study was conducted among 30 respondents. The result of the preliminary study showed Cronbach's alpha for each item under the construct scale was greater than 0.7, indicating the construct reliability and making the instrument suitable for studying consumers' ethical decision-making process regarding CTE. The responses were gathered using Google Forms using convenience sampling. A total of 250 questionnaires were distributed, however, 202 fully completed

Table 1. Demographic Information.

Demographic Variables	Category	Frequency	Percentage
Gender	Male	102	50.5
	Female	100	49.5
Age	Below 25 years	87	43.1
	25–34 years	82	40.6
	35–44 years	20	9.9
	45–54 years	8	4
	55 years or older	8	2.5
Education	High school or below	6	3
	Graduate degree	91	45
	Post-graduate or above	105	52
Social Status	Single	128	63.4
	Married	74	36.6
Occupation	Student	101	50
	Employed	81	40.1
	Unemployed	18	8.9
	Pensioner	2	1
Monthly Family Income	Less than ₹20,000	104	51.5
	₹20,000–₹39,999	55	27.2
	₹40,000–₹59,999	24	11.9
	₹60,000 or more	19	9.4

questionnaires were obtained from the respondents. A qualifying question was used to identify the individuals who come within the context of the study. In line with the study objectives, an individual who makes payment without receiving receipts may intentionally or unintentionally become part of CTE and thus, becomes the target population of the study. The questionnaire was divided into two sections, the initial section comprised questions regarding the demographic characteristics of the respondents, followed by dimensions indicated in the proposed model. Table 1 presents the demographic characteristics of the respondents. Regarding the demographic information, the respondents were asked about their gender, age, education, social status, occupation and monthly income. In the present study, 50.5% of respondents were males and 49.5% were females. The majority of the respondents belonged to the age categories below 35 years old, that is, 43.1% under the group below 25 years and 40.6% under the group 25–34 years. The highest (52%) had the educational qualification of Post Graduate or above, followed by 45% with Graduate degree. Apart from these, most of the respondents were students and the majority had a monthly family income of less than ₹20,000 (51.5%).

Measures

The study used standardised scales to examine the ethical decision-making process regarding CTE. The term CTE here refers to the situation where the goods or services are acquired without receipts (i.e., paying without receipts). Structured questionnaires contained the items represented on a five-point Likert scale ranging from Strongly Disagree-1 to Strongly Agree-5. Moral recognition was measured using a

single statement indicating the ethical scenario, which was developed by Singhapakdi et al. (1996). Similar approaches, involving a single item to study the ethical decision-making process have been used in the previous studies (Culiberg & Bajde, 2014; Srivastava et al., 2018). To measure moral judgement, the study used a multi-dimensional scale involving three items (Robin et al., 1996). Moral Judgement was measured following the methodology outlined by Cherry and Fraedrich (2002), using a 3-item scale. The constructs idealism and relativism were measured using the scale developed by Forsyth (1980). The construct idealism was studied using 3-item scale and relativism by using 4-item scale, the same elements were used in a study conducted by Culiberg and Bajde (2014). Religiosity was measured using 3-item taken from a scale designed by Worthington et al. (2003). The construct attitude towards the government was measured using the 3-item scale (Frey & Weck-Hanneman, 1984). Several other studies have employed this attitude scale to measure tax compliance (Srivastava et al., 2018; Taing & Chang, 2021).

Data Analysis

The study employed partial least square structural equation modelling (PLS-SEM) to examine the conceptual model. PLS-SEM is a non-parametric that can accommodate data distributions lacking the characteristics of normality. Also, PLS-SEM only requires a lesser number of samples compared to the CB-SEM method (Hair et al., 2011). Smart PLS 3 software package was used to examine the relation stated in the conceptual model. Bootstrapping was performed using 5,000 samples (at 95% confidence interval) for corroborating the result obtained using the original sample in PLS-SEM.

The reliability of the constructs under the measurement model was determined using Cronbach's alpha and composite reliability. As shown in Table 2, the construct reliability is ensured when Cronbach's alpha is greater than 0.7 (Hair et al., 2019). Similarly composite reliability above 0.7 is considered to be good, indicating internal consistency of the data. The analysis provides strong confirmation of internal consistency for all the constructs specified.

In the measurement model, the convergent validity was analysed using average variance extracted (AVE). The values of AVE greater than 0.5 come under the acceptable limit for ensuring the validity of the constructs (Fornell & Larcker, 1981). The result confirms the acceptability limit since all the constructs had AVE greater than 0.5.

Fornell and Larcker (1981) guidelines were followed that were used to assess the discriminant validity. The square root of AVE was compared with the correlation between the constructs for computing discriminant validity. The results obtained for the constructs meet the acceptance criteria, thus indicating strong discriminant validity among the individual constructs (Table 3). The measurement model demonstrated good reliability and validity making, the model fit for further analysis.

Structural Model

The path loadings and significance level were used for making an assessment of the structural model. From Table 4, it is evident that there exists a strong relation

Table 2. Measurement Model.

Constructs	Items	Outer Loadings	Cronbach's Alpha	Composite Reliability	AVE
Idealism	I1	0.851	0.817	0.890	0.730
	I2	0.869			
	I3	0.843			
Relativism	R1	0.836	0.873	0.913	0.725
	R2	0.860			
	R3	0.857			
	R4	0.852			
Religiosity	RL1	0.924	0.863	0.917	0.786
	RL2	0.820			
	RL3	0.913			
Attitude	AT1	0.879	0.832	0.900	0.749
	AT2	0.895			
	AT3	0.821			
Moral recognition	MR1	1.000	1.000	1.000	1.000
Moral judgement	MJ1	0.725	0.726	0.845	0.646
	MJ2	0.858			
	MJ3	0.822			
Moral intention	MI1	0.915	0.821	0.918	0.848
	MI2	0.927			

Table 3. Discriminant Validity.

Fornell-Larcker Criterion	1	2	3	4	5	6	7
Idealism	0.854						
Relativism	0.774	0.851					
Religiosity	0.787	0.763	0.887				
Attitude	0.647	0.696	0.661	0.866			
Moral recognition	0.737	0.747	0.718	0.709	1.000		
Moral judgement	0.719	0.774	0.742	0.711	0.741	0.804	
Moral intention	0.724	0.684	0.690	0.672	0.648	0.772	

between ethical ideologies (i.e., idealism and relativism) and moral recognition. Idealism is found to be significant at $p < .05$ ($\beta = 0.248, t = 2.412$) and relativism is significant at $p < .05$ ($\beta = 0.249, t = 2.112$). Moreover, the relationship between attitude towards government and moral recognition is also significant at $p < .05$ ($\beta = 0.276, t = 1.974$). Thus, H_1, H_2, H_4 were accepted with the t -statistics greater than 1.96. However, religiosity did not significantly influence the moral recognition of the consumers towards CTE, thus H_3 was rejected ($\beta = 0.150, t = 1.546$) (Figure 2).

The PLS-SEM method lacks an established goodness-of-fit measure, and the indices for measuring model fitness under PLS-SEM approach are still evolving. In the present study, the model fitness was assessed using the standardised root mean square residual

Table 4. Path Coefficient.

Hypotheses		Beta	Standard Error	t-value	Result
H_1	Idealism → Moral Recognition	0.248	0.105	2.365	Supported
H_2	Relativism → Moral Recognition	0.249	0.118	2.105	Supported
H_3	Religiosity → Moral Recognition	0.150	0.097	1.546	Not supported
H_4	Attitude → Moral Recognition	0.276	0.140	1.973	Supported
H_5	Moral Recognition → Moral Judgement	0.741	0.059	12.628	Supported
H_6	Moral Judgement → Moral Intention	0.772	0.064	12.090	Supported
SRMR = 0.076					
NFI = 0.923					

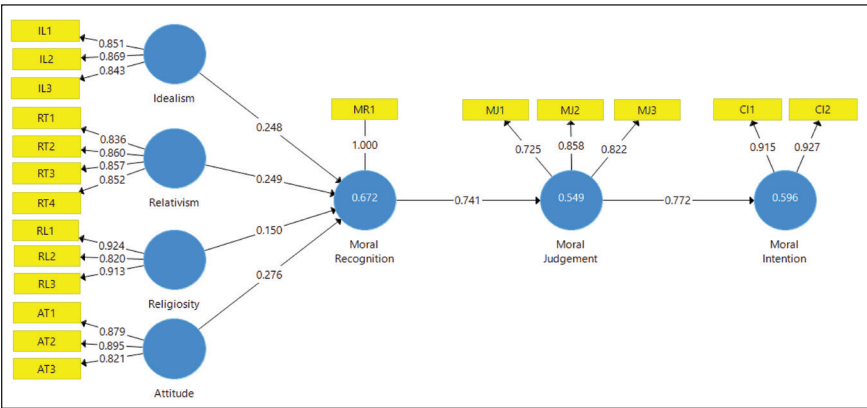


Figure 2. Path Coefficient.

(SRMR) and the normed fit index (NFI). A good model fit for SRMR is typically indicated by a value of 0.08 or less (Hu & Bentler, 1999). In this case, the SRMR value obtained, SRMR = 0.076, falls within the acceptable threshold. Similarly, an NFI value of 0.90 or above is considered indicative of good model fit (Bentler, 1990), and the obtained value of 0.923 confirms that the model fits well.

A strong relationship between moral recognition and moral judgement towards CTE is confirmed ($p < .001$, $\beta = 0.741$, $t = 12.610$), thereby indicating the acceptance of H_5 . Similarly, the value of the path coefficient confirms that moral judgement is positively associated with moral intention ($p < .001$, $\beta = 0.772$, $t = 12.105$), therefore H_6 is supported.

Discussion

CTE leaves less revenue available to the government for financing public expenditure. CTE is an economic downturn that causes significant detrimental effects on the economy. Tax authorities are continually framing and modifying existing regulations

to control tax evasion. While numerous studies have been conducted on CTE, the literature has primarily focused on the perspective of business owners. Till now, only limited attention has been given to the role of consumers towards CTE. The consumers who choose to make payments without receiving receipts create a scenario in which the sellers can easily evade taxes. Managing CTE by influencing consumer perception is the most cost-effective method to control evading practices in the economy. The moral perspective of consumers can play a decisive role in eradicating the unethical business practices. Thus, the present study uses Jones's Issue Contingent Model to investigate consumers' ethical decision-making process regarding CTE. Moreover, the Indian economy witnessed a significant change in the indirect tax system through the implementation of the goods and services tax. The new reform aims to improve the tax compliance level, but the Kerala economy witnessed an increase in the tax gap due to non-compliance after GST was introduced. Thus, studying CTE in the context of Kerala can provide new insights into the subject area.

The study demonstrates that a person's moral perspective can instil moral intention by recognising CTE as a moral issue. Recognition of a moral issue can shape the formation of moral judgement, which further can inculcate moral intention in the mind of individuals. The study found that idealism, relativism and attitude towards government had a significant impact on moral recognition. Consumers' ethical ideologies (i.e., idealism and relativism) play a significant role in influencing moral recognition regarding CTE. The results confirm that a higher level of ethical ideologies can improve the level of moral recognition. These findings are in line with the result of the study by Culiberg and Bajde (2014).

Existing literature has considered different psychographic factors for measuring tax compliance intention (Culiberg & Bajde, 2014; Srivastava et al., 2018; Trivedi et al., 2003), but only limited literature is available on the role of religiosity and attitude on compliance intention, especially in the context of the consumers. The religious perspective of the consumers can narrow down their intention to participate in CTE (Srivastava et al., 2018). But the present study found a contradictory result compared to the study conducted by Srivastava et al. (2018). The findings show no significant influence of religiosity on moral recognition regarding CTE. Meanwhile, an individual's attitude towards the government was found to have a significant influence on the ethical decision-making process of the consumers towards CTE. This result abides by the findings of the study by Culiberg (2018) and Srivastava et al. (2018).

The research found a strong linkage between moral recognition and the moral judgement of consumers, and moral judgement has an effect on consumers' intention to participate in CTE. Consumers' moral recognition of CTE as unethical organises their judgement and results in better compliance decisions. A consumer with positive ideologies and a favourable attitude towards the system will voluntarily comply with all the rules and regulations, even if they are not receiving any monetary benefits for complying with the laws.

Implications

The research study establishes a conceptual model indicating the ethical decision-making process of consumers regarding CTE using Jones's Issue Contingent

Model. The study found ethical ideologies and attitudes towards government authority play a crucial role in instilling moral recognition in the minds of the consumers. Furthermore, the study explored the influence of moral recognition on moral judgement and its influence on moral intention. The insight gained from the study about consumers' intentions can assist in measuring the consumers' compliance behaviour regarding CTE. Meanwhile, religiosity was found to have no significant influence on the consumers' moral recognition, while there also exist studies that found a positive association between religiosity and moral recognition. Thus, the findings of the study provide an opportunity for researchers to confirm the association between these factors.

The results of the study hold relevant implications for policymakers in addressing issues concerning tax performance. The evidence found suggests that consumers can indirectly influence the level of non-compliance among business dealers. So, understanding consumers' ethical decision-making process could serve as a significant trigger for discouraging questionable tax-evading behaviour. Through social marketing campaigns, policymakers could raise awareness among consumers about the adverse consequences of paying without receipts. This approach allows consumers to recognise CTE as a moral issue, preventing them from engaging in any form of shady transactions and thereby minimising the harm caused to the economy. Moreover, the study's results show that an attitude towards the government can encourage better decision-making. This provides an avenue for the government to foster a better relationship with its citizens by making them aware of the consequences of participating in CTE for the nation at large.

Limitations and Future Scope

The present study acknowledges certain drawbacks, as the responses were only collected from consumers and did not analyse the opinion of the other stakeholders. Therefore, the findings of the study reflect consumers' perceptions regarding CTE. Future studies could be conducted among different stakeholders to obtain a more comprehensive understanding of tax compliance. Furthermore, a larger sample size across different locations could yield more robust results.

The study uses Jones's Issue Contingent Model to investigate consumers' ethical decision-making process regarding CTE, but there are other dimensions and behavioural models that could potentially explain compliance behaviour more efficiently. Therefore, the future researcher could consider incorporating additional dimensions or factors and explore other economic or non-economic models to gain better insights into compliance intentions regarding consumption taxes. In addition, the research only focuses on the moral intention of the consumers but did not incorporate their actual compliance behaviour, future studies can expand the model by considering the actual compliance behaviour of the consumers regarding CTE.

Conclusion

The ethical compliance decision of consumers can impact the behaviour of businesses. A consumer's decision plays a determinantal role in controlling the

non-compliance practices existing in the economy. A consumer's moral recognition regarding CTE can positively influence their judgement and intention to comply. The consumers' decision to buy only after receiving proper tax invoices or receipts can reduce the scope of businesses to evade taxes, thus improving the revenue collection of the government. The consumers' decision can facilitate higher compliance levels among businesses, thereby reducing the need for administrative action to prevent tax evasion by the business community. The positive involvement of consumers can eradicate CTE and improve indirect revenue performance in a cost-effective manner.

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The COVID-19 Outbreak and Volatility Spillover Between Stock Exchange's Overall and Small- and Medium-enterprise Indices: Evidence from India

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Abstract

The research examines the dynamic correlation between the volatility of the Bombay Stock Exchange (BSE) and the Small- and Medium-enterprises (SMEs) Index of BSE in India. It focuses on analysing the volatility spillover between SME and BSE by utilising the generalised autoregressive conditional heteroskedasticity (GARCH) model. The study extends its scope by examining the impact of the current pandemic, COVID-19, on the volatility of both SME and BSE by utilising the exponential GARCH and threshold GARCH models. Findings suggest that there is volatility spillover between the two indices. The results also highlight that the pandemic significantly affected the volatility of both indices. The findings of the study provide important implications for policymakers, portfolio managers, and investors, particularly when the Indian government has been emphasising on the growth and continuous support of the small and medium enterprises and increasing foreign investments in India's SMEs in recent years.

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Keywords

BSE SME, SME, BSE, volatility spillover, S&P BSE Sensex, stock index, stock markets

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Introduction

Small- and medium-sized enterprises (SMEs) are viewed as the primary drivers of national and socio-economic development in many countries. SMEs provide more than 50% of employment and account for 90% of the businesses worldwide, making them preeminent contributors to job creation and global economic development. These numbers grow substantially when informal SMEs are taken into consideration as well. By 2030, it is estimated that in order to absorb the growing global workforce, 600 million jobs will be required to be created, thus developing and sustaining SMEs a high priority for many governments. In emerging market economies, most formal jobs are generated by SMEs, which create 7 out of 10 jobs.

The importance of SMEs has been acknowledged by economies worldwide, resulting in the establishment of SME exchanges in both developed and developing countries. In India, BSE was first to introduce its SME platform, 'BSE-SME', in March 2012, allowing small and medium-sized businesses and start-ups to list themselves directly on stock exchanges to raise funds. Later, NSE launched its SME platform, 'Emerge' in March 2012, which also connects growing businesses with a network of sophisticated investors, thus assisting start-ups and SMEs in acquiring equity capital. The SME exchange facilitates the listing and trading of specified securities for companies aiming to raise equity capital in India. These companies do not meet the requirements for a Main Board Listing on a recognised stock exchange. Compared to exchanges in India, global exchanges have further experimented with the SME platforms, such as the London Stock Exchange that have built a blockchain-based trading platform, 'Borsa Italiana', to digitally issue shares of small- and medium-sized enterprises (Lokeshwarri SK, 2021). Recently, China's government also took initiative to launch a stock exchange for SMEs to boost strategic emerging and high-tech industries while also providing much-needed funding to them (Huld, 2021).

The establishment of new exchanges specifically for SMEs arouses the curiosity if diversification benefits can be reaped by investing in companies listed on both mainboard stock exchanges and the new SME exchanges. Therefore, this article endeavours to evaluate the volatility transmission between the mainboard index of the Bombay Stock Exchange (S&P BSE Sensex) and the recently formed SMEs stock index (BSE SME) in India. Additionally, the study examines the influence of COVID-19 on the volatility transmission between these two exchanges. The analysis of volatility spillover aids us in understanding as to how information is transmitted and disseminated across the two exchanges. This will help investors craft their portfolios intelligently and guide policymakers in drafting laws and regulations to establish new exchanges, especially for SMEs.

Examining the volatility connections between markets and exchanges is crucial for making informed investment and risk management choices. Evaluating volatility spillover is important because a limited connection between the mainboard and SME exchange can present investors with opportunities for diversification across stock exchanges, potentially enhancing portfolio gains. In contrast, a strong market linkage in returns would eliminate the potential benefits of diversification. Therefore, through examining the interdependence of volatility between the recently established exchange and the mainboard exchange, this study aims to offer valuable insights into the transmission and dissemination of information across markets. Such insights can assist investors in shaping their portfolios and provide guidance for policymakers in formulating laws and regulations pertaining to SMEs.

Review of Literature

The study of volatility spillover has captivated the curiosity of researchers all over the world. For various investment and risk management decisions, understanding the nature of volatility connections between markets is crucial. When portfolio managers expect stock market volatility to rise, it helps them reduce risk by transferring their capital between markets. Volatility links are important when determining regulatory policies because they provide insight into the flow of information between markets.

The literature has interrogated not only the volatility within a market but also the volatility between the markets. Earlier studies predominantly examined the volatility spillover between the developed economies (Hamao et al., 1990, 1991; Koutmos & Booth, 1995; Nathani & Kushwah et al., 2022; Patel, 2017; Savva, 2008; Susmel & Engle, 1994); and Asian markets (Kumar & Khanna, 2018). With the world integrating, there has been growing literature on volatility spillover from advanced markets to emerging markets (e.g., Goetzmann et al., 2005; Lin & Wu, 2006; Ng, 2000; Savadatti, 2018; Wang et al., 2004, 2005; Worthington & Higgs, 2004). The results, however, have been inconclusive for different markets. Volatility spillovers from the US to the Indian and Sri Lankan markets and from the Japanese to the Pakistani market have been found by Wang et al. (2005). Volatility from the US. stock market to ASEAN markets has been reported by Vo and Tran (2020).

There appears to be a dearth of literature regarding volatility spillover between long-established mainboard stock exchanges and relatively nascent SME stock exchanges. It is reasonable to assume that the older mainboard stock exchanges could impact the volatility of the newer exchanges. The emergence of these new exchanges underscores the need to investigate volatility spillover between established mainboard stock exchanges and emerging SME stock exchanges. Al-Nassar and Makram (2022) investigated the volatility spillover between the main and SME stock markets in Saudi Arabia and Egypt, analysing both pre-COVID-19 and pandemic periods. The study reveals bidirectional return spillovers limited to Saudi Arabia, with distinct characteristics and dynamics in shock and

volatility spillovers across both main-SME market pairs. In the Indian context, Singh et al. (2021) examined the volatility spillover between SENSEX (BSE mainboard exchange) and the SME stock index BSE SME. Their study demonstrates statistically significant volatility and return spillover between the main market index, SENSEX, and the SME index, BSE SME. This study is the extension of the mentioned study, as the current study takes a step ahead and checks the volatility spillover effect during the specific event, COVID-19 on the stock exchanges by utilising the threshold generalised autoregressive conditional heteroskedasticity (TGARCH) model and the exponential GARCH (EGARCH) model. Further, the spillover can be amplified by an external event (e.g., crisis, bad news). Many studies have concluded that negative news, shocks, or errors create more variation or volatility than positive news, suggesting a negativity bias (Baek et al., 2020; Malik, 2011; Zhang et al., 2021). However, the market perception is not just attuned to negative signals when it comes to volatility spillovers. Baruník et al. (2016) concluded that although negative asymmetries in spillovers are often of substantial magnitude, they are not always dominant. Emenike and Enock (2020) suggested that good news impacts stock return volatility more than bad news of similar weight. Hence, the present article also attempts to investigate the impact of COVID-19 on volatility spillover among the two stock exchanges.

Data and Methodology

The current study analyses the relationship between the volatility of the Bombay stock exchange's index, S&P BSE SENSEX 30, and the BSE SME index. It attempts to check the volatility spillover between the two indices. The study also analyses the impact of the COVID-19 event on the volatility spillover between the S&P BSE Sensex and BSE SME (Kushwah & Negi, 2023). Literature supports the use of the GARCH (1, 1) model to estimate such relationships (Joshi, 2021; Kaur & Singh, 2019; Khanna & Kumar, 2020). Secondary data, in the form of daily indices' prices, is collected from a reliable website, www.bseindia.com, covering from 01 August 2014 to 31 March 2021. Daily log return is calculated to remove the problem of heteroscedasticity (Bhatia & Kushwah, 2023; Kushwah & Garg, 2020). Following Yu (2002) and Kushwah & Vigg (2023), return (r) is the natural log of the first difference of daily price:

$$X_t = \log(p/p_{t-1}),$$

where X_t is the return for time t , P_t is the price at time t , and P_{t-1} is the price at time $t - 1$. To study the volatility spillover using the GARCH (1, 1) model, it is essential to analyse the presence of autoregressive conditional heteroscedasticity (ARCH) effect in the time series. Therefore, the ARCH effect is investigated by employing the heteroscedasticity test, and the ARCH effect is apparent. Figure 1 depicts the methodology applied in the study.

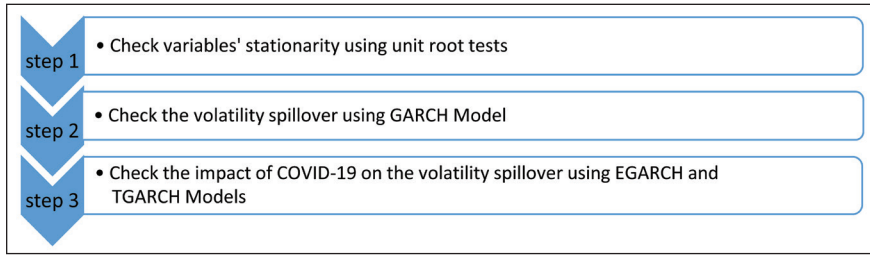


Figure 1. Methodology.

The stationarity of the data is also examined, as it is necessary for the time series to be stationary for applying the GARCH (1, 1) model (Kushwah & Siddiqui, 2023; Siddiqui & Kushwah, 2021, 2022). Nelson and Plosser (1982) suggest a method to detect stationarity and the stochastic trend using the unit root test (Dritsaki & Dritsaki-Bargiota, 2005; Elliot et al., 1996). So, for examining the stationarity, the ADF test is used (Dickey & Fuller, 1979), and it takes the form as follows:

$$\Delta Z_t = \alpha_1 + \alpha_2 t + \alpha_3 Z_{t-1} + \sum_{i=1}^p \beta_i \Delta Z_{t-i} + \varepsilon_t$$

The GARCH (1, 1) model best fits the current study as it examines the conditional volatility among the two stock indices with a heteroskedastic nature (Bollerslev, 1986; Taylor, 1987). Two equations, one for mean and the other for conditional variance, are formed.

Mean equation in GARCH (1,1) model is written as

$$X_Y = V_1 + V_2 * W + e,$$

where X_Y = return of the dependent variable, V_1 is a constant, W is the independent variable, and V_2 is the coefficient.

Variance equation in GARCH (1,1) model takes the form

$$Z_t = V3 + V4 * S_{t-1} + V5 * e2_{t-1},$$

where Z_t is the variance of the dependent variable's return.

The EGARCH model is an extension of the general GARCH model, employed to examine asymmetric volatility in data. The EGARCH variance equation, assuming a normal distribution, is provided below:

$$It - k + \frac{A}{G} \ln(\sigma t - 12) + \gamma ut - 1 \sqrt{\sigma t - 12} + \alpha [|ut - 1| \sqrt{\sigma t - 12} - \sqrt{2\pi}]$$

where A is the intercept, G is the coefficient for the logged GARCH term, ' $\sigma t - 12$ ' is the logged GARCH term, γ is the asymmetric volatility, ' $\gamma ut - 1 \sqrt{\sigma t - 12}$ ' is the shock of last period's, and ' $[|ut - 1| \sqrt{\sigma t - 12} - \sqrt{2\pi}]$ ' is the value of last time period's volatility shock. It is in place of the ARCH term.

The TGARCH model is an extended model of general GARCH used to check the leverage effect. It checks the asymmetric impact of bad or good news on a time series. It finds out whether the negative news or positive news has more impact on the volatility of the financial time series by studying the mean and conditional variance of the data by the following equation:

$$\sigma^2_t = \omega + \sum_{j=1}^p \beta_j \sigma^2_{t-j} + \sum_{i=1}^q \alpha_i u^2_{t-i} + \sum_{k=1}^K r_k = 1 \gamma_k u_{t-k} I_{t-k}$$

Results and Discussion

The basic properties like mean, standard deviation, etc. of all the time series are reflected in Figures 2 and 3. The tables highlight the descriptives of two series named S, which represents S&P BSE Sensex log returns, and series name SME that represents BSE SME log returns.

The above graph depicts the descriptives of S&P BSE Sensex 30 log returns (S). The graph highlights the mean value of S&P BSE Sensex, which is -0.000175. The values of skewness and kurtosis of S&P BSE Sensex 30 returns are 1.54 and 26.499, respectively. The results also witness that the S&P BSE Sensex index log-returns series is not normally distributed.

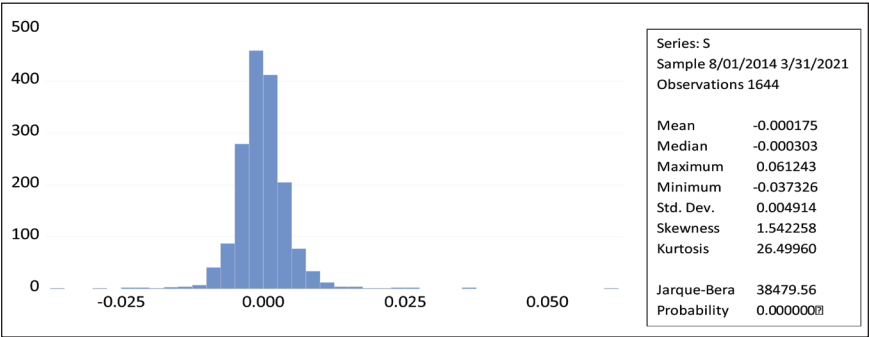


Figure 2. Descriptives of S&P BSE Sensex 30 Returns.

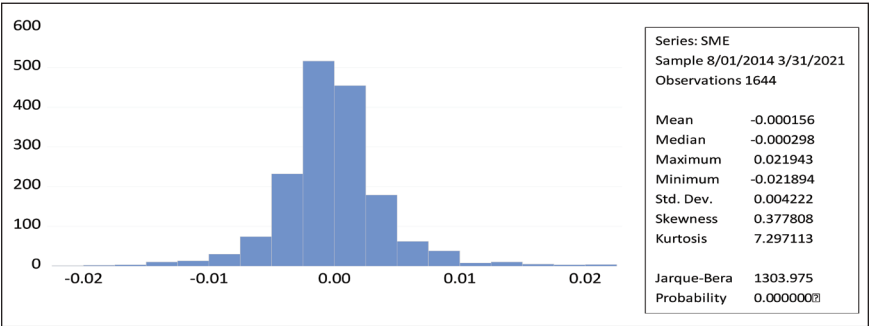


Figure 3. Descriptives of SME Index Returns.

The above graph depicts the descriptives of SME index log returns (SME). The graph highlights the mean value of S&P BSE Sensex, which is -0.000156 . The values of skewness and kurtosis of S&P BSE Sensex 30 returns are 0.37 and 7.29, respectively. The results also witness that the SME index log return series is not normally distributed.

The log-transformed data for the returns of S&P BSE SENSEX 30 and BSE SME are tested for stationarity (Table 1), and it indicates the absence of unit root in both the time series used in the study. The p values are less than .05, so the null hypotheses are rejected. Hence, the test results confirm that the series is stationary. Since series are stationary, the next step is to determine the best mean-fitting equation through the auto-regressive process. Consequently, the pre-mentioned analysis supports the application of the ARCH and GARCH models in the gathered data.

To examine the volatility spillover between S&P BSE SENSEX 30 and BSE SME, the GARCH (1, 1) model is applied. Two GARCH (1, 1) models are executed: model one investigates the volatility spillover from S&P BSE SENSEX 30 to BSE SME, while model 2 studies the impact of BSE SME on S&P BSE SENSEX 30. Three methods, namely Normal Gaussian Distribution, Student's distribution, and Generalised error distribution, are used in the GARCH (1, 1) model. Table 2 points out the volatility spillover from S&P BSE SENSEX 30 to BSE SME. The model using the normal distribution method shows that the ARCH and the GARCH terms are both significant. The p value of S&P BSE SENSEX 30 is significant, indicating that it affects BSE SME's returns. The results highlight that BSE SME's volatility is affected by internal

Table 1. Summary of Unit Root Test.

Variables	Level	ADF
S&P BSE SENSEX 30	Level	-14.503*** (0.0000)
BSE SME	Level	-15.217*** (0.0000)

Note: * Significant at 10%, **Significant at 5%, ***Significant at 1% level of significance.

Table 2. GARCH Model I.

Variable	Normal Distribution		Student's t Distribution		Generalised Error Distribution	
	z-Statistic	Probability	z-Statistic	Probability	z-Statistic	Probability
SENSEX	4.75	0.000***	5.91	0.000***	6.49	0.000***
RESID(-1)^2	11.43	0.000***	10.37	0.000***	12.98	0.000***
GARCH(-1)	34.86	0.000***	29.98	0.000***	41.70	0.000***

Notes: BSE SME is the dependent variable.

*Significant at 10%, **Significant at 5%, ***Significant at 1% level of significance.

Table 3. GARCH Model 2.

Variable	Normal Distribution		Student's t Distribution		Generalised Error Distribution	
	z-Statistic	Probability	z-Statistic	Probability	z-Statistic	Probability
BSE SME	4.49	0.000	5.23	0.000	5.25	0.000
RESID(−1)^2	9.93	0.000	10.75	0.000	12.71	0.000
GARCH(−1)	58.99	0.000	61.78	0.000	67.18	0.000

Notes: S&P BSE SENSEX 30 is the dependent variable.
*Significant at 10%, **Significant at 5%, ***Significant at 1% level of significance.

and external shocks, and there is a volatility spillover from S&P BSE SENSEX 30 to BSE SME. It is evident that the other two methods, namely Student’s distribution and Generalised error distribution, also highlight a similar result in that there is a volatility spillover from S&P BSE SENSEX 30 to BSE SME. Table 3 indicates Model 2, reflecting the volatility spillover from BSE SME to S&P BSE SENSEX 30. Model 2, using the normal distribution method, confirms that both the ARCH and GARCH terms are significant. The *p* value of BSE SME is significant, reflecting its impact on S&P BSE SENSEX 30’s return. The study concludes that both volatility spillover and cross-volatility spillover are witnessed in S&P BSE SENSEX 30. Similar results are obtained from the other two GARCH (1, 1) models, namely Student’s distribution and Generalised error distribution.

In the study, TGARCH and EGARCH are used to analyse the impact of COVID-19 on the volatility of both the indices, S&P BSE SENSEX and BSE SME. TGARCH enabled us to study the leverage effect on both the series, separately, by examining the negative news, in our case, COVID-19 news, to determine whether it has a significant impact on the study variables. The parameter estimation for the TGARCH (1, 1) model is presented in Tables 4 and 5.

Again, two TGARCH models have been applied running each time series, with S&P BSE SENSEX and BSE SME as dependent variables. The results reflect that the negative news of pandemic is significantly impacting the volatility of the BSE SME Index because the coefficient of $RESID(-1)^2$ ($RESID(-1) < 0$) is negative and its *p* value is $.0000 < .01$. Thus, it is witnessed under the TGARCH model that there is a significant impact of COVID-19 on the returns of both S&P BSE SENSEX and BSE SME. The EGARCH model is also used to investigate the volatility variation in the two important stock indices, S&P BSE SENSEX and BSE SME, and the effects of COVID-19 pandemic on them. Tables 6 and 7 represent the results of EGARCH on the data, and they reflect the leverage effect. It can be concluded that there exists ‘significant negative leverage effects’. Good news results in lower volatility as compared to the bad news for both the indices.

To understand how the model explains the tested relationship, the study utilises certain residual diagnostic tests: heteroscedasticity test, serial correlation, and normal distribution on the residuals. The results of serial correlation for all three methods of all the models highlight that all the probability values are more

Table 4. TGARCH Model.

Variable	Normal Distribution	
	z-Statistic	Probability
SENSEX	5.12	0.000***
RESID(-1)^2	8.75	0.000***
RESID(-1) ^2*(RESID(-1)<0)	2.95	0.0032***
GARCH(-1)	33.57	0.000***

Notes: BSE SME is the dependent variable.

*Significant at 10%, **Significant at 5%, ***Significant at 1% level of significance.

Table 5. TGARCH Model.

Variable	Normal Distribution	
	z-Statistic	Probability
SME	3.211	0.0013***
RESID(-1)^2	11.18	0.000***
RESID(-1)^2*(RESID(-1)<0)	-10.73	0.000***
GARCH(-1)	80.16	0.000***

Notes: SENSEX is the dependent variable.

*Significant at 10%, **Significant at 5%, ***Significant at 1% level of significance.

Table 6. EGARCH Model.

Variable	Normal Distribution	
	z-Statistic	Probability
ABS(RESID(-1)/@SQRT(GARCH(-1)))	15.92	0.000***
RESID(-1)/@SQRT(GARCH(-1))	-1.83	0.047***
LOG(GARCH(-1))	106.89	0.000***
SENSEX	5.27	0.000***

Notes: BSE SME is the dependent variable.

*Significant at 10%, **Significant at 5%, ***Significant at 1% level of significance.

Table 7. EGARCH Model.

Variable	Normal Distribution	
	z-Statistic	Probability
ABS(RESID(-1)/@SQRT(GARCH(-1)))	7.01	0.000***
RESID(-1)/@SQRT(GARCH(-1))	13.96	0.000***
LOG(GARCH(-1))	249.5	0.000***
SME	2.54	0.011***

Notes: SENSEX is the dependent variable.

*Significant at 10%, **Significant at 5%, ***Significant at 1% level of significance.

than .05, indicating the absence of serial correlation, which is desirable for a strong model. The Jarque–Bera test suggests that the residual data is not normally distributed, which is not desirable. Finally, the findings of the heteroscedasticity test for all the methods involved in the GARCH (1, 1) models report no heteroscedasticity effect. Therefore, the findings confirm that the models are strong enough to predict volatility spillover between the two time series, S&P BSE SENSEX 30 and BSE SME.

The study asserts that there is volatility spillover among the two indices, S&P BSE SENSEX 30 and BSE SME. Although, to the best of the authors' knowledge, no study has yet examined the volatility relationship between SMEs' market and the major stock market, the results are consistent with Hamao et al. (1990, 1991), Koutmos and Booth (1995), Susmel and Engle (1994), Kanas (2000), and Hamao et al. (1990, 1991). Specifically, they all found volatility spillovers between some stock markets. Koutmos and Booth (1995) witnessed that negative innovation in a given market increases volatility in the next market. Susmel and Engle (1994) also documented volatility spillovers between the New York and London equity markets. Volatility spillovers are witnessed among European stock markets by Kanas (2000). On the other hand, Wei et al. (1995) find no spillover effect between the markets.

Conclusion

The volatility spillover effect of financial markets has been an important area of study in the world of finance and economics. Since SMEs are considered the backbone of any resilient economy, it is important for academicians and researchers to pay greater attention to their performance and to comprehend the volatility linkages between their returns and the broader exchange returns. In this article, we have attempted to investigate the impact of COVID-19 on the volatility spillovers between the BSE SME index and S&P BSE Sensex index.

The present study shows the existence of a two-way volatility spillover between the two indices, implying that the two stock indices are integrated. In general, the results of significant bidirectional volatility spillover also suggest that there is an information flow (transmission) between the markets and that the markets are integrated (linked) with each other (Mishra et al., 2007). The empirical analysis also reveals that the spillover effect was further amplified during the COVID-19 pandemic period. The understanding of volatility is important because it is an important factor in portfolio management, risk management, and pricing of financial securities. This study has important implications for policymakers, investors, and portfolio managers. Formulation and implementation of strong relevant policy measures are required for the stabilisation of the financial system. Policymakers need to be mindful of the potential spillover effects from mainboard exchanges onto younger exchanges and should reform policies to mitigate any adverse impacts of investments in one exchange on another. Additionally, they should exercise caution regarding the heightened risk of contagion spreading to SMEs, particularly during financial crises. The insights from the study can aid policymakers in analysing the co-movements of correlated stock indices and in formulating appropriate policies to uphold financial stability. From the investors

and portfolio managers perspective, the two-way volatility spillover suggests a minimal potential for portfolio diversification, as it would not reap many benefits considering interdependence between the broader exchange (S&P BSE Sensex) and BSE SME Index. Thus, the investors and portfolio managers looking for potential investment opportunities should pay close attention to these interdependencies and adjust their asset allocation and investment strategies accordingly. Investors should structure their portfolios to emphasise non-integrated investment avenues with minimal spillover effects. To enhance investment efficiency, they can also identify cross-market volatility spillovers and pursue arbitrage opportunities. In conclusion, the findings of our study provide implications for portfolio diversification and risk management that could aid investors in their decision-making in Indian financial markets. Further, our study provides future research directions wherein researchers can undertake an in-depth exploration of the price risk caused by volatility spillovers in the stock markets. The researchers can also construct portfolios to see if they can reap the diversification benefits by investing in companies listed on the mainboard and new stock exchanges.

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Financial Performance of Indian Public Sector Banks Before and During COVID-19 Pandemic

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Abstract

The present study aims to examine the financial performance before and during the COVID-19 pandemic with respect to profitability ratios, liquidity ratios, solvency ratios and economic value added (EVA) of select Indian public sector banks listed in the Bombay Stock Exchange (BSE). In total, 12 public sector banks listed on the BSE were chosen for the analysis, which spans the years 2018–2019 to 2019–2020. Financial statements and monthly closing prices of public sector banks are the data that were gathered for this study. The tools used in this study are as follows: (1) EVA, (2) financial ratios, (3) descriptive statistics, (4) Shapiro–Wilk normality test and (5) paired samples *t*-test. Findings of the study are as follows: The empirical findings of the study revealed that the COVID-19 pandemic has a negative effect on earnings per share, net profit ratio, return on capital employed, return on asset and return on equity and a positive effect on current ratio, debt to equity ratio and EVA of select public sector banks. The findings of this study provide several avenues for more research. As one of the research ramifications, future researchers would need to explain discrepancies in the statistical findings of various academics in the finance field. As the expansion of the banking industry is correlated with India's economic growth, developing nations like India rely on the accuracy

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of the information. With the information provided, the COVID-19 pandemic has a negative effect on profitability variables and positive effect on liquidity, solvency and shareholder's wealth creation variables, so that it has no serious harmful consequences on the economy in respect to profitability position of select banks. The study is conducted on the financial performance before and during the COVID-19 pandemic with respect to profitability ratios, liquidity ratios, solvency ratios and EVA of select Indian public sector banks listed in BSE and also highlighted how banks adapted the pandemic situation, which is a new phenomenon.

Keywords

Economic value added, shareholders wealth, financial ratios, COVID-19 pandemic and paired samples t-test

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JEL Classification: C12, G17, G21

Introduction

Coronavirus first appeared in India in January 2020, infecting millions of people worldwide and resulting in thousands of deaths. In order to combat COVID-19, the Indian government imposed a nationwide lockdown on 24 March 2020, which was later extended till 3 May 2020. Many countries throughout the world have taken similar moves as India. However, the government of India's efforts to stop the spread of the COVID-19 epidemic had an adverse impact on the gross domestic product of the nation. 'One of the most significant segments of the Indian economy is the banking sector, which oversees all financial activities in the nation and acts as a support system for all businesses, including financing, credit, transactions, collection, and payment' (Weber & Darbellay, 2010). The performance of the Indian banking industry in terms of non-performing assets, profitability, advances, and other metrics has been significantly impacted by COVID-19. Indian banks encountered difficulties during the pandemic, which had a negative effect on their earnings. They have overcome various challenges, and the changes they have made have had an impact on their financial standing. Major reasons included an increase in non-performing assets, non-repayment of loans, profitability, and the creation of shareholder wealth. As a result, bank profitability is likely to fall beginning in 2019. The Reserve Bank of India and the Indian government analysed financial performance and the impact of COVID-19 on the banking sector through various policy actions at the national and state levels. Some economists anticipate that the financial sector would take a long time to recover from the effects of the COVID-19 outbreak, particularly in India.

The Indian government has implemented a number of steps to reduce the consequences of the coronavirus outbreak, including a statewide lockdown, a request for residents to remain indoors, the closing of public areas, transportation, social

distancing and working from home (Nicola, 2020). The resulting economic dispersion is substantial, with a temporary reduction in business activity (Perwej, 2020). Governments took mitigation measures to facilitate the development of the innovative COVID-19 (Demirgüç-Kunt et al., 2020). This type of issue has also impacted India's banking industry. Even the World Health Organization (WHO) has advised people to use contactless payment options instead of touching bank notes as much as possible. Banking notes have been used to spread the Coronavirus (Bobade & Alex, 2020).

The pandemic moved the Indian banking system from stable to negative, causing the majority of economic operations to be hampered (Bobade & Alex, 2020). Lockdowns and lowered output have already begun to have an impact on the corporate sector's finances due to corporations' inability to repay their loans. Many people lost their jobs as a result of the pandemic, and they skipped loan payments, which impacted bank efficiency and profitability and raised Non-Performing Assets. As a result, the moratorium, which was declared on 27 March 2020, is one of the RBI's initiatives. All lending institutions have been granted permission by the RBI to stop making instalment payments on all outstanding term loans as of 1 March 2020, for a three-month (later extended to six-month) period. This shows that COVID-19 has had a substantial impact on the banking industry's income statement and financial stability, which has changed a number of variables including profitability ratios, liquidity ratios, solvency and the accumulation of shareholder wealth. Therefore, it is essential to examine the financial performance before and during the COVID-19 period of 12 public sector banks listed in BSE in India.

Literature Review

Dynamically, we find that volatility connection increased during crises, peaking at the time of Covid-19. The study emphasises the importance of large banks in volatility transmission, emphasising the banking system's "too-big-to-fail" trait. Small-medium banks, on the other hand, are key contagion actors, reinforcing the theory that the Eurozone banking system is too interconnected to fail. Finally, we show how the COVID-19 epidemic has created heterogeneity among Eurozone banking institutions. This heterogeneity impact could be a future source of financial instability within the Eurozone. (Foglia et al., 2022)

'The banking system remains a critical component of economic stability, and research on the financial system's impact on the economy during extreme occurrences such as a pandemic is an unavoidable requirement of the moment' writes Trivedi (2021). Kumar and Kumar (2021) carried out,

a research study titled Impact of Covid-19 on Indian Economy with Special Reference to Banking Sector: An Indian Perspective, demonstrates overview of the impact of Covid-19 situation on Indian economy and its banking sector and also analyses the various policy measures taken by Reserve Bank of India and Indian Government at centre level and state level to improve the current economic situation of the country.

Singh and Bodla (2020) carried out,

a research study titled COVID-19 Pandemic and Lockdown Impact on India's Banking Sector: A Systemic Review of the Literature, illustrates the impact of the pandemic on banks and Non-Banking Financial Companies as an outcome of the lockdown, which has resulted in the closure of all commercial organisations, educational institutions, public and private offices, suspension of means of transportation, and so on, by taking into account the perspectives of economists, financial institutions such as the IMF and the World Bank, as well as consulting firms.

Fraser et al. (2016) offer,

four types of ratios used to assess a company's financial performance. They are the liquidity ratio, which describes the company's ability to meet short-term liabilities (debt), the solvency ratio (leverage), which measures the degree to which the company's assets are financed by debt, the activity ratio, which assesses the company's ability to generate income, and the profitability ratio, which assesses the company's ability to generate income.

'ROA analysis, which is commonly interpreted as economic profitability, measures the ability to make profits in the past' (Rhamadana & Triyonowati, 2016). 'The leverage ratio assesses a company's ability to repay all of its debts. The debt-to-equity ratio can be used to calculate this ratio (DER). This figure depicts the issuer's capital structure, which includes both debt and equity' writes Handayani and Zulyanti (2018).

'Earnings per share (EPS), return on equity (ROE), and return on investment (ROI) are all erroneous indicators of a company's profitability' writes Stewart (1991). Stern Stewart developed 'the notion of economic value added, and economic profit or economic value added is founded on the concept of residual income'. Stewart (1994) defined,

Economic Valued Added as the difference between NOPAT (Net Operating Profit After Tax) and Cost of Capital (Equity and Debt). If a company's cost of capital is less than its return or the firm's return surpasses its cost of capital, it is considered to be in a situation where it is creating value for its shareholders.

For years,

'EVA has been used to assess corporate growth, but scholars throughout the world disagree on whether it is the best financial success statistic for organisations and whether it has an impact on stock returns. The findings of this study revealed that in the fishing subsector, there is no significant association between financial ratio, EVA, and exchange rate and stock return' writes Daryanto and Sasongko (2019).

'Economic value added and financial performance, as measured by the current ratio, debt equity ratio, net profit margin, and earnings per share, have a negligible and tiny impact on stock returns' (Tikasari & Surjandari, 2020).

Research Gap

Various ratios and variables, such as ‘business per employee, net profit margin, profit per employee, return on equity, yield on advances, and yield on investments, are taken into account to do the financial performance analysis’. These variables were chosen by a number of researchers in the past, including (Al-Hroot, 2016; Atayah et al., 2022; Bobade & Alex, 2020; Daniya et al., 2016; Das, 2015; Gazi et al., 2022; Mishra & Mishra, 2023; Patel, 2015, 2018; Perwej, 2020; Rakshit & Basistha, 2020; Sahoo & Thakur, 2023; Vulcanovic, 2017). The available literature was insufficient to provide information on aspects of the banking industry’s expansion and shareholders’ wealth during the recent pandemic, such as profitability ratios, liquidity ratios, solvency ratios and economic value added (EVA). As a result, the present study takes into account these variables in order to evaluate the financial performance in relation to the creation of shareholder wealth. In this study, the variables that can lead to higher results are considered.

Here,

a *paired samples t-test* is used to check the before and during the Covid-19 comparative position of short-term profitability, liquidity, solvency and shareholders wealth. When researchers want to compare two variables for the same topic, they employ a paired *t-test*. The two variables are frequently separated by time. The paired *t-test* is regarded vital for determining comparative positive and has been employed by many studies in the past.

For example, Alarifi & Husain (2023), Alsamhi et al. (2022), Benaraba et al., (2022), Das (2015), Duggal (2015), Gurbaxani and Gupte (2021), Harrison et al. (1991), Hasan et al. (2023), Jayaraman et al. (2014), Khan et al. (2021), Normasyhuri et al. (2023), Patel (2015), Rakshit and Basistha (2020), and Vulcanovic (2017). The variables and statistical test are chosen for this study based on the literature review.

Objectives

- To evaluate the financial performance before and during the COVID-19 pandemic of Indian public sector banks using profitability ratio, liquidity ratio, solvency ratio and EVA.

Hypothesis Development

- H_{01} : The COVID-19 pandemic has an insignificant impact on profitability, measured using earnings per share (EPS), net profit ratio (NPR), return on capital employed (ROCE), return on asset (ROA) and return on equity (ROE).
- H_{02} : The COVID-19 pandemic has an insignificant impact on the liquidity, measured using the current ratio (CR).
- H_{03} : The COVID-19 pandemic has an insignificant impact on the solvency, measured using debt to equity ratio (DER).

H_{04} : The COVID-19 pandemic has an insignificant impact on the shareholder's wealth, measured using EVA.

Research Methodology

Purpose: This study is carried out with the objective to know the financial performance before and during the COVID-19 pandemic using profitability ratios, liquidity ratios, solvency ratios and EVA of public sector banks listed on the Bombay Stock Exchange (BSE).

Research Design: The current study is empirical in nature. According to the source, the data used in this study include secondary sources, such as financial statements and monthly closing prices, which are collected from the official website of select public sector banks and BSE covering the study period from 2018–2019 (before COVID-19) to 2019–2020 (during COVID-19).

Population and Sample: This study's population consists of BSE-listed banks. In total, 12 public sector banks listed in BSE are selected as a sample based on availability of data and covering the study period from 2018–2019 to 2019–2020.

Research Variables

- Var 1:* Profitability ratios especially EPS, NPR, ROCE, ROA and ROE. Profitability ratios show how well banks generate profit and value for their shareholders. Higher ratio outcomes are typically preferred.
- Var 2:* Liquidity ratios, in particular, the CR is a measure of a bank's short-term solvency status. A CR larger than one indicates that the company is in good financial condition and is less likely to face financial issues.
- Var 3:* Solvency ratios, particularly the DER, represent the proportion of the business owned by the owners. A high DER (one or higher) indicates that a bank is largely dependent on debt and may not have trouble paying its debts.
- Var 4:* EVA is used to calculate shareholder wealth. A bank is considered to be heavily dependent on debt if its DER is high (one or greater), meaning it may not have any trouble making debt payments.

Tools to be used for analysis: The following tools were utilised in this study: (1) EVA, (2) financial ratios, (3) descriptive statistics, (4) Shapiro–Wilk normality test and (5) paired samples *t*-test.

The Paired Samples *t*-Test Is Performed as Follows

An observation from one sample can be paired with an observation from the other sample in a paired samples *t*-test (just as before and after are paired observations). The two variables are frequently separated by time. In this study, this test can be

utilised to compare the financial performance of public sector banks before and after the impact of COVID-19. The values of a single pair of numbers that are subtracted from one another are used as the basis for the paired t -test, say X and Y with $x_i \in X, y_i \in Y$, where $i = 1, 2, \dots, n$. Let's assume we have two sets of data that are related to each other, X and Y , with $x_i \in X$ and $y_i \in Y$, respectively. To find the paired t -test, follow the instructions below.

- Assume that the null hypothesis's actual mean difference is zero.
- Calculate the difference between the observations $d_i = y_i - x_i$.
- Determine the average difference.
- Calculate the standard error of the mean difference, which is equal to $S_d / \sqrt{n}$, where n is the total number and S_d is the difference's standard deviation.
- Calculate the value of the t -statistic.
- Make a comparison to the t_{n-1} distribution. The p -value is displayed.
- This difference is denoted by the letter d in the paired t -test formula. The total of the differences of each pair divided by the square root of n times the sum of the differences squared minus the sum of the squared differences, overall $n-1$, is the formula for the paired t -test. The paired t -test formula is as follows:

$$t = \frac{\sum d}{\sqrt{\frac{n(\sum d^2) - (\sum d)^2}{n-1}}}$$

The sum of the differences is denoted by d .

- The information comes from people who have been measured twice.
- The difference between the two sets of connected observations yields a 95% confidence interval.
- The null hypothesis in a paired samples t -test is always:
 $H_0: \mu_1 = \mu_2$ (the two population means are equal)
- A two-tailed, left-tailed or right-tailed alternative hypothesis can be used:
(two-tailed): $H_1: \mu_1 \neq \mu_2$ (the two population means are not equal)
(left-tailed): $H_1: \mu_1 < \mu_2$ (population 1 mean is less than population 2 mean)
(right-tailed): $H_1: \mu_1 > \mu_2$ (population 1 mean is greater than population 2 mean)

Data Analysis and Interpretation

The present study has data analysis which includes descriptive statistics, financial ratios, normality tests and paired samples t -test to evaluate the performance of public sector banks in India before and during the COVID-19 pandemic. To choose which statistical tests will be employed for a study, a data normality test is first carried out. The Shapiro–Wilk normality test is used to find out whether the select variables normally distributed or not. Here, the select variables are normally distributed, hence parametric tests can be performed using paired samples t -test.

In the present study, EVA and financial ratios of the select public sector banks are assessed in order to determine the level of growth/decline before and during the COVID-19 pandemic. The findings are presented below:

Figure 1 depicts the performance of EPS, which explained that EPS of eight select banks have grown during the COVID-19 pandemic. EPS of four select banks has declined during the COVID-19 pandemic, which is related to the select bank’s conservative/modern method of dealing with business. However, the above positive result indicates that most of the public sector banks were able to quickly adapt the COVID-19 pandemic situation and manage in utilising their available sources in order to increase the value of shares of the respective banks.

Figure 2 depicts the performance of NPR, which explained NPR of eight select public banks has grown during the COVID-19 pandemic. NPR of four banks have declined during the COVID-19 pandemic, which indicates that the select banks

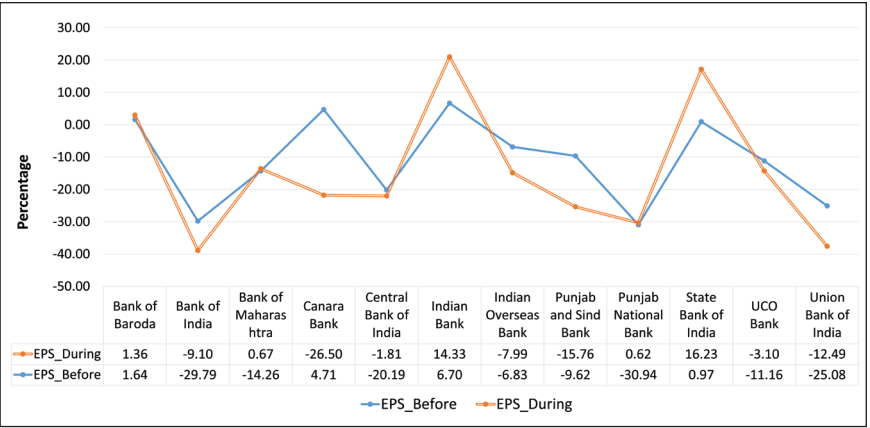


Figure 1. Earning Per Share.

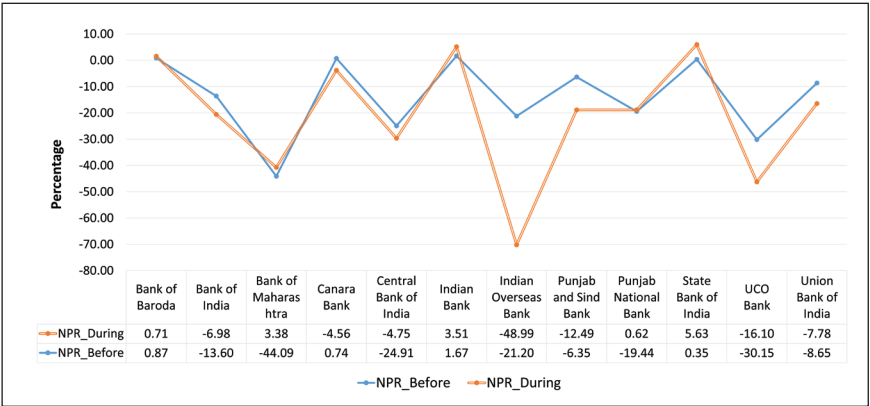


Figure 2. Net Profit Ratio.

were exercising good cost control. However, the above result showed that most of the select public sector banks were able to quickly adapt the COVID-19 pandemic situation and efficiently convert the invested money into net income.

Figure 3 depicts the performance of ROCE, which explained ROCE of seven select banks has grown during the COVID-19 pandemic. ROCE of five banks has declined during the COVID-19 pandemic, which indicates that the select banks were efficient in their operations. However, the above result showed that most of the public sector banks were able to quickly adapt the COVID-19 pandemic situation and good at turning sales into profits.

Figure 4 depicts the performance of ROA, which explained ROA of eight select banks have grown during the COVID-19 pandemic. ROA of four select banks have declined during the COVID-19 pandemic. However, the above result showed

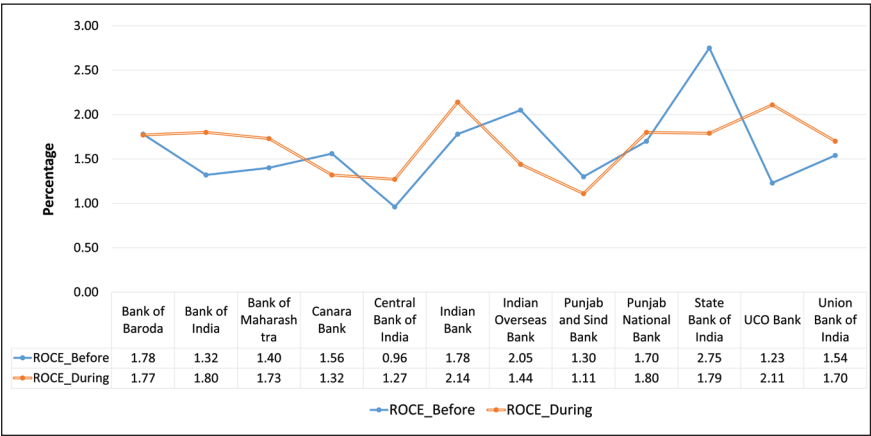


Figure 3. Return on Capital Employed.

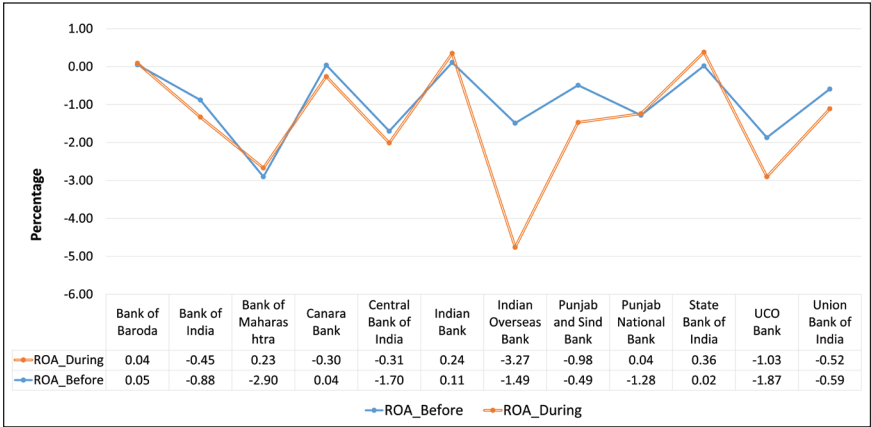


Figure 4. Return on Assets.

that most of the select public sector banks were able to quickly adapt the COVID-19 pandemic situation and effectively use the assets in generating income of the respective banks.

Figure 5 depicts the performance of ROE, which explained ROE of eight select banks has grown during the COVID-19 pandemic. ROE of four banks has declined during the COVID-19 pandemic, which indicates that the select banks were effectively use its equity. However, the above result showed that most of the select public sector banks were able to quickly adapt the COVID-19 pandemic situation and efficiently use their equity capital in generating revenue for the select banks.

Figure 6 depicts the performance of CR, which explained CR of ten select banks has grown during the COVID-19 pandemic. CR of two select banks has declined during the COVID-19 pandemic, which indicates that the select banks

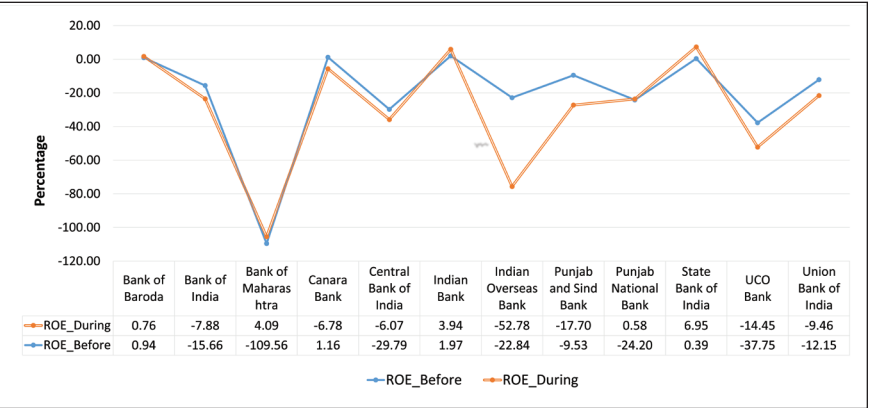


Figure 5. Return on Equity.

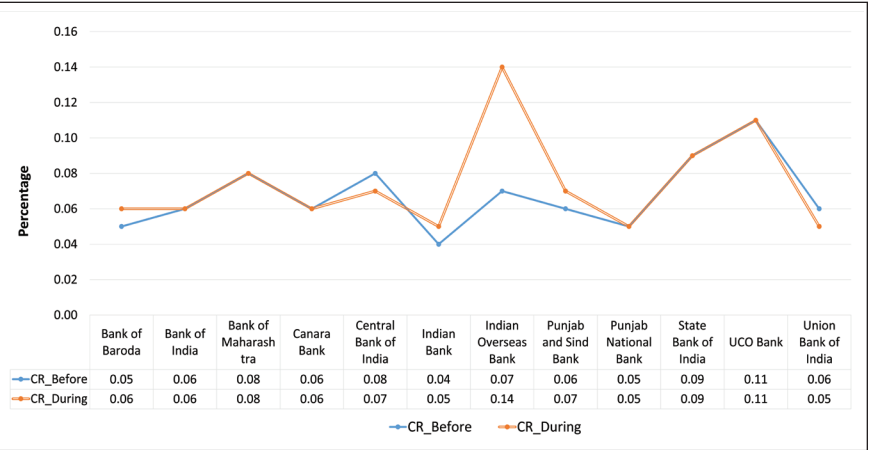


Figure 6. Current Ratio.

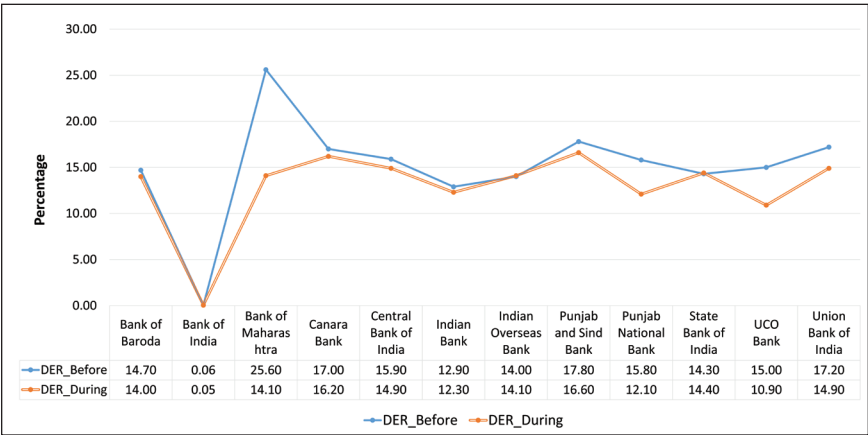


Figure 7. Debt to Equity Ratio.

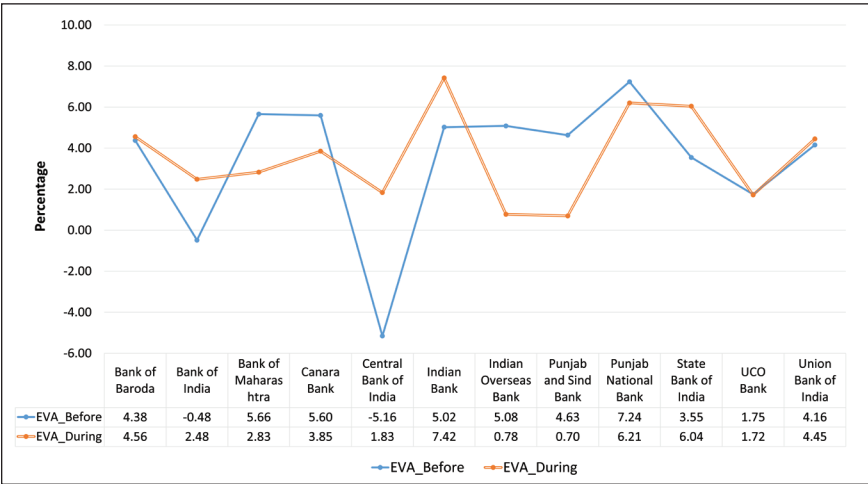


Figure 8. Economic Value Added.

have good financial health. However, the above result showed that most of the select public sector banks quickly adapted the COVID-19 pandemic situation and efficiently managed their short-term solvency position.

Figure 7 depicts the performance of DER, which explained DER of two select banks have grown during the COVID-19 pandemic. DER of ten select banks have declined during the COVID-19 pandemic, which indicates that the select banks were not significantly funded by debt. However, the above result showed that most of the select public sector banks were not enough funded by debt and not able to quickly adapt the COVID-19 pandemic situation in relation to financial leverage.

Table 1. Result of Descriptive Statistics of the Select Variables.

Variables	Minimum	Maximum	Mean	Std. Deviation
EPS_Before	-30.94	6.70	-11.15	13.23
EPS_During	-26.50	16.23	-3.63	11.98
NPR_Before	-44.09	1.67	-13.73	14.59
NPR_During	-48.99	5.63	-7.32	14.71
ROCE_Before	0.96	2.75	1.61	0.46
ROCE_During	1.11	2.14	1.67	0.32
ROA_Before	-2.90	0.11	-0.92	0.95
ROA_During	-3.27	0.36	-0.50	0.98
ROE_Before	-109.56	1.97	-21.42	30.76
ROE_During	-52.78	6.95	-8.23	15.98
CR_Before	0.04	0.11	0.07	0.02
CR_During	0.05	0.14	0.07	0.03
DER_Before	0.06	25.60	15.02	5.72
DER_During	0.05	16.60	12.88	4.36
EVA_Before	-5.16	7.24	3.45	3.36
EVA_During	0.70	7.42	3.57	2.21
Valid N (listwise): 12				

Source: Secondary data.

Note: Earnings per share (EPS), net profit ratio (NPR), return on capital employed (ROCE), return on asset (ROA), return on equity (ROE), current ratio (CR), debt to equity ratio (DER), economic value added (EVA).

Figure 8 depicts the performance of EVA, which explained EVA of six select banks have improved during the COVID-19 pandemic. EVA of six select banks have declined during the COVID-19 pandemic, which indicates that the chosen banks have created more value for their shareholders than they have destroyed. However, the foregoing result demonstrated that the majority of the chosen public sector banks were able to generate returns sufficient to cover their cost of capital and have been able to increase value for their shareholders throughout the COVID-19 pandemic crisis.

Table 1 shows the findings of the descriptive analysis. From the aspect of profitability ratio, the average value of the EPS before the COVID-19 pandemic and during the COVID-19 pandemic were -11.15 and -3.63, respectively. The increase in average EPS indicated that the COVID-19 pandemic has not harmed the shareholder’s income and public sector banks were utilising their available sources to increase the value of their shares. The average value of the NPR before the COVID-19 pandemic and during the COVID-19 pandemic were -13.73 and -7.32, respectively. The positive growth of the average NPR indicated that the public sector banks generated enough profit during the COVID-19 pandemic. The average value of the ROCE before the COVID-19 pandemic and during the COVID-19 pandemic were 1.61 and 1.67, respectively. The positive value of average ROCE indicated that the public sector banks had enough capacity to generate revenue, which is earned from the operations during the COVID-19 pandemic. The average value of ROA of public sector banks before the COVID-19 pandemic and during the COVID-19 pandemic were -0.92 and -0.5,

Table 2. Result of Shapiro–Wilk Normality Test of the Select Variables.

Variables	Statistic	df	Sig.
EPS_Before	0.836	12	0.205
EPS_During	0.844	12	0.225
NPR_Before	0.985	12	0.767
NPR_During	0.910	12	0.419
ROCE_Before	0.750	12	0.060
ROCE_During	0.790	12	0.092
ROA_Before	0.964	12	0.637
ROA_During	0.883	12	0.333
ROE_Before	0.998	12	0.905
ROE_During	0.927	12	0.476
CR_Before	0.893	12	0.363
CR_During	0.954	12	0.588
DER_Before	0.937	12	0.515
DER_During	0.879	12	0.322
EVA_Before	0.985	12	0.768
EVA_During	1.000	12	0.960

Source: Secondary data.

Note: Earnings per share (EPS), net profit ratio (NPR), return on capital employed (ROCE), return on asset (ROA), return on equity (ROE), current ratio (CR), debt to equity ratio (DER), economic value added (EVA).

respectively, which indicated that the COVID-19 pandemic situation has not harmed the public sector bank's assets in the way of generating income. The average value of ROE of public sector banks were -21.42 and -8.23 , respectively, which indicated that public sector banks were using their equity capital effectively during the COVID-19 pandemic.

Regarding liquidity ratios, the average CR values before and during the COVID-19 epidemic were 0.07 and 0.07 , respectively. This showed that public sector banks are in the same position with regard to their ability to employ resources to satisfy their short-term obligations.

In terms of solvency ratio, the average value of the DER before and during the COVID-19 epidemic was 15.02 and 12.88 , respectively, which indicated that the public sector banks were not significantly funded by debt during the COVID-19 pandemic.

From the aspect of shareholder's value creation, the average value of the EVA before the COVID-19 pandemic and during the COVID-19 pandemic were 3.45 and 3.57 , respectively, which indicated that public sector banks has created the value for their shareholders during the COVID-19 pandemic.

Table 2 shows the Shapiro–Wilk normality test findings, and they show that the selected variables were normally distributed with the required statistical criteria at the 5% level of significance (that is, the corresponding significant value of each variable was greater than 0.05). The aforementioned results show that the selected study variables were normally distributed; hence, the parametric statistical test was performed using the paired samples *t*-test.

Pair 1: From Table 3, it can be observed that EPS is statistically insignificant at a 5% level of significance (Sig. > 0.05). Therefore, the null hypothesis H_{01} is accepted. A high significance value of more than 0.05 indicates that there is no significant difference between EPS before and during the COVID-19 pandemic. Based on the result of profitability position, it can be concluded that the COVID-19 pandemic has had a weak impact on EPS.

Pair 2: From Table 3, it can be observed that NPR is statistically insignificant at a 5% level of significance (Sig. > 0.05). Therefore, the null hypothesis H_{01} is accepted. A high significance value of more than 0.05 indicates that there is no significant difference between NPR before and during the COVID-19 pandemic. Based on the result of profitability position, it can be concluded that the COVID-19 pandemic has had a weak impact on NPR.

Pair 3: From Table 3, it can be observed that ROCE is statistically insignificant at a 5% level of significance (Sig. > 0.05). Therefore, the null hypothesis H_{01} is accepted. A high significance value of more than 0.05 indicates that there is no significant difference between ROCE before and during the COVID-19 pandemic. Based on the result of profitability position, it can be concluded that the COVID-19 pandemic has had a weak impact on ROCE.

Pair 4: From Table 3, it can be observed that ROAs are statistically insignificant at a 5% level of significance (Sig. > 0.05). Therefore, the null hypothesis H_{01} is accepted. A high significance value of more than 0.05 indicates that there is no significant difference between ROAs before and during the COVID-19 pandemic. Based on the result of profitability position, it can be concluded that the COVID-19 pandemic has had a weak impact on ROAs.

Pair 5: From Table 3, it can be observed that ROE is statistically insignificant at a 5% level of significance (Sig. > 0.05). Therefore, the null hypothesis H_{01} is accepted. A high significance value of more than 0.05 indicates that there is no significant difference between ROE before and during the COVID-19 pandemic. Based on the result of profitability position, it can be concluded that the COVID-19 pandemic has had a weak impact on ROE.

Pair 6: From Table 3, it can be observed that CR is statistically significant at a 5% level of significance (Sig. < 0.05). Therefore, the null hypothesis H_{02} is rejected. A low significance value of less than 0.05 indicates that there is a significant difference between CR before and during the COVID-19 pandemic. Based on the result of liquidity position, it can be concluded that the COVID-19 pandemic has had a strong impact on CR.

Pair 7: From Table 3, it can be observed that DER is statistically significant at a 5% level of significance (Sig. < 0.05). Therefore, the null hypothesis H_{03} is

Table 3. Result of Paired Samples t-Test of Select Variables.

Paired Differences		95% Confidence Interval of the Difference						Sig. (2-Tailed)
Pair Nos	Variables	Mean	Std. Deviation	Std. Error	Lower	Upper	t-Statistic	
Pair 1	EPS_Before - EPS_During	-7.526	16.048	4.633	-17.722	2.671	-1.625	0.133
Pair 2	NPR_Before - NPR_During	-13.422	19.948	8.921	-38.191	11.347	-1.504	0.207
Pair 3	ROCEBefore - ROCE_During	-0.051	0.498	0.144	-0.367	0.266	-0.353	0.730
Pair 4	ROA_Before - ROA_During	-0.900	1.407	0.629	-2.648	0.847	-1.431	0.226
Pair 5	ROE_Before - ROE_During	-0.487	0.691	0.399	-2.202	1.229	-1.220	0.347
Pair 6	CR_Before - CR_During	0.220	0.129	0.037	0.139	0.302	5.935	0.000
Pair 7	DER_Before - DER_During	-2.127	0.708	0.204	-2.577	-1.677	-10.404	0.000
Pair 8	EVA_Before - EVA_During	-2.207	2.291	0.725	-3.846	-0.568	-3.046	0.014

Source: Secondary data.

Note: Earnings per share (EPS), net profit ratio (NPR), return on capital employed (ROCE), return on asset (ROA), return on equity (ROE), current ratio (CR), debt to equity ratio (DER), economic value added (EVA).

rejected. A low significance value of less than 0.05 indicates that there is a significant difference between DER before and during the COVID-19 pandemic. Based on the result of solvency position, it can be concluded that the COVID-19 pandemic has had a strong impact on DER.

Pair 8: From Table 3, it can be observed that EVA is statistically significant at a 5% level of significance (Sig. < 0.05). Therefore, the null hypothesis H_{04} is rejected. A low significance value of less than 0.05 indicates that there is a significant difference between EVA before and during the COVID-19 pandemic. Based on the result of shareholders' value creation, it can be concluded that the COVID-19 pandemic has had a strong impact on EVA.

Conclusion, Suggestion and Limitations

This research leads to the following conclusions: (a) Profitability ratios showed positive improvement during the COVID-19 pandemic situation, this might have indicated that the public sector banks can generate enough income to cover the bank's expenses and also indirectly increase the shareholder's wealth; (b) liquidity ratio of public sector banks are showed positive improvement during the COVID-19 pandemic situation, which indicated that banks seem to be reduced to giving their loan out in order to maintain more liquid cash and assets to prevent unpredictable situation occurred during COVID-19 pandemic; (c) according to the financial leverage of public sector banks, the decline in financial leverage is due to a decrease in debt capacity. Although there are some evidence that some banks' increased financial leverage is due to previously unutilised loan capacity; (d) from the wealth creation point of view, some of the public sector banks have experienced that decline in EVA and some of them have experienced that increment in EVA. So, the reason might cause by the conflict of interest between the shareholders and some bank's management level especially during the COVID-19 pandemic situation. In most cases banks would prefer capital funds from investors and be able to create wealth for their shareholders; (e) there are no significant differences in the profitability ratio of public sector banks between before and during the COVID-19 pandemic; (f) there are significant differences in the liquidity ratio, solvency ratio and EVA of public sector banks between before and during the COVID-19 pandemic; (g) all of these findings are consistent with paired sample *t*-test, which demonstrated that most of the select banks had no positive influence on profitability during the COVID-19 epidemic, while others few has had changed; and (h) the public sector banks have experienced the growth in EPS, NPR, ROCE, ROAs, ROE, CR and EVA during the COVID-19 pandemic, while the public sector banks have experienced a decline in DER during the COVID-19 pandemic.

The results of this study can be used as a source of useful information for investors, and prospective investors can use the data to make financial decisions in the event of a COVID-19 pandemic breakout. The government can utilise the study's findings to decide how important it is to provide the impacted public sector banks with the proper tax incentives. In order to lessen the negative impact on the

financial performance of the banking sectors during pandemic conditions and clear the way for a long-term recovery, policymakers must be prepared to scale up their response as circumstances change. To prevent long-term economic harm to the banking industry and other financial institutions, they must simultaneously make sure that decisions are founded on legislation and that discretion is restrained.

This study's limitations are as follows: Only hypotheses can be proven by researchers 02, 03 and 04, where these hypotheses proved that CR, DER and EVA have a significant difference between before and during the COVID-19 pandemic. Meanwhile, EPS, NPR, ROCE, ROA and ROE have not changed significantly between before and throughout the COVID-19 pandemic. Hypothesis 01 is not proven, so it is important to re-examine variables with variations of another indicator to measure bank's profitability. The study did not look at changes in the financial performance of other key financial sectors, therefore the findings are still limited to public sector banks. It is anticipated that more research will be done on the private sector banks, small finance banks, non-banking financial companies, and other related financial sectors with the highest potential for improved financial performance with respect to EVA and financial ratios in order to concentrate investor attention more precisely.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

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Financial Year and Calendar Year Effects Across Indian Sectors: A Revisit from Investors Perspective

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Abstract

Anomalies in stock markets have been studied with varied approaches worldwide, and mixed outcomes exist. The present study has investigated the financial year and calendar year effect for indices from Indian markets. Sectoral indices from Indian markets have been incorporated in this study on the basis of their weightage in the stock market. Data from 2011 to 2023 have been engaged with historical prices of these indices taken from the stock exchange websites. The analysis has been carried out using the ordinary least squares regression method and the independent sample t-test. Weak anomalies have been documented in the case of the financial services sector. Therefore, the findings indicate rare possibilities for investors to gauge abnormal returns with strategies related to anomalies. With increasing transparency in the online trading mechanism, such possibilities cease to exist for investors. Moreover, market dynamics have transformed on account of several shocks such as COVID-19, Omicron, Russia–Ukraine, Visa-related international issues in the world over economies and financial markets. Investors and markets have become more cautious and look out for a precautionary approach while dealing in stock market trading.

Keywords

Financial year, calendar year, OLS, stock returns, investor, anomalies

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Introduction

Anomalies prevail at varied intervals of time and may be of different kinds in the stock markets (El et al., 2021) like day, week or month. Stock returns may be high or low due to such anomalies offering opportunities at various stages to investors. The efficient market hypothesis EMH— also known as efficient market theory— provides theoretical variant in the pricing of stocks, which explains the concept of market efficiency (Neeraja & Srikanth, 2014). Adaptive market hypothesis (AMH) is a more refined variant that indicates the fluctuation in the market and possible factors (Ito & Sugiyama, 2009; Kim et al., 2011). Several studies in the field of anomalies have provided mixed outcomes in Indian and international stock markets (Hiremath & Kumari, 2014; Lim et al., 2008; Noda, 2012; Rosini & Shenai, 2020; Urquhart & Hudson, 2013).

The results from Indian stock markets have reflected different anomalies in diverse periods in line with EMH theory. It has been shown that anomalies and their effect vary over market conditions as well as investor expectations (Hiremath & Kumari, 2014; Shahid & Sattar, 2017). Efficient stock markets narrate that all information stands available affecting the prices meaning that investors would have no chance to earn abnormal profits (Al-Rjoub & Alwaked, 2010). This phenomenon has been further studied with new available information in the market which may be more appropriate in return prediction in comparison to past prices of the stock (Chaker & Sabah, 2018). Further, Urquhart and McGroarty (2014) mentioned that there may be no such condition of efficient market rather continuous variation in market due to the seasonal anomalies. The identification of anomalies sparks investigations into the information efficiency of stock markets, providing a platform for market participants to craft successful trading strategies and potentially secure returns surpassing the typical benchmarks. Over the past four decades, changes in calendar effects have been a focal point of research in African stock markets, commodity markets to name a few (Andrew & Seth, 2023; Chhabra & Gupta, 2022; El et al., 2021; Li et al., 2023). Anomaly may be an important element to be analysed for the estimation of stock returns (Guo et al., 2020). It depends upon the risk perception of the investors and uncertainty in the markets (Chaudhary et al., 2020; Engelberg et al., 2020).

Indian stock market has experienced more volatility during the COVID-19 period. However, market efficiency theory mentioned that if markets are rational, then prices reflect all available information (Dash & Mahakud, 2015). The calendar year effect vanished over the time (Sawitri & Astuty, 2018), and calendar anomalies diminished post the global financial crisis period in various sectoral indices in the Bursa Malaysia stock exchange (Kaur et al., 2019). Further events such as holidays, climate changes and policy regime alterations may affect the returns of various stocks. Anomalies pertain globally, but the January effect has been one of the most important anomalies. In addition, the calendar effect has been an important anomaly affecting the returns of stocks (Floros & Salvador, 2014). These effects have been explored by the agents and potential investors

in financial markets for obtaining abnormal returns (Chaudhary et al., 2020). Indian markets have been more volatile than the global markets. Liquidity, transparency and investment culture have been the major contributors to such variations (Izzeddien, 2021). December and March have also been studied for the Karachi Stock Exchange and the Pakistan Stock Exchange showing inefficiencies (Anjum, 2020; Elangovan, 2022). Also, seasonality deviations have been prevalent in longer periods for such anomalies (Kaushik & Nagarkar, 2023).

Table 1. Calendar Year and Financial Year Effect Studies in Indian Markets.

Authors (Year)	Sample	Result
Verma & Kumar (2012)	(Bombay Stock Exchange) BSE- Sensex (Jan 1991–Dec 2020)	The Bombay Stock Exchange does not exhibit any month-of-the-year effect.
Debasish (2012)	Specific sectors of Indian market (gas, oil and refineries) (Jan 2006–Dec 2010)	A month-of-the-year effect has been observed, primarily occurring in September, August or February.
Deepak & Viswanath (2012)	(National Stock Exchange) NSE NIFTY (monthly data) (Jan 1990–Dec 2011)	Effects of March, May and October months found in this study.
Pathak (2013)	S&P CNX NIFTY (NSE) (Apr 2007–Mar 2012)	The absence of the month-of-year effect indicates the lack of seasonality in the Indian stock market.
Sriram & Devi (2013)	BSE Sensex (Apr 2004–Mar 2012)	The findings do not validate the presence of seasonality in stock returns, including the January effect.
Yadav (2013)	NSE (Jan 1996–Dec 2013)	There is a discernible month-of-the-year effect observed in both market volatility and market returns.
Nageswari et al. (2013)	S&P CNX NIFTY (NSE) and S&P CNX 500 (Apr 2002–Mar 2011)	The data did not reveal a January anomaly during the study period.
Neeraja & Srikanth (2014)	BSE (IT) and BSE (Sensex) Jan 1999–Dec 2013	The data suggest a seasonal pattern in the Indian IT sector.
Patel (2014)	NSE-CNX 500 Index (June 1999–June 2012)	There is no single month that consistently predicts the performance of the Indian stock market.
Lodha & Soral (2015)	BSE (major indices)	The months of September and December saw significant returns.

(Table 1 continued)

(Table 1 continued)

Authors (Year)	Sample	Result
Sudarvel & Velmurugan (2015)	BSE (bank index) (Jan 2002–June 2015)	January effect was present during the study period.
Choithala & Ajmal (2016)	BSE-Sensex (June 1999–June 2012)	Indian stock returns exhibit a significant December effect in volatility.
Kumar & Dawar (2017)	BSE (major indices) (Jan 1999–Dec 2015)	Calendar effect was absent in this index during this period.
Kumari & Uthra (2018)	BSE (healthcare index) (Apr 2012–Mar 2016)	While the turn-of-the-month effect remains, its occurrence has exhibited a recent shift towards earlier dates.
Jain (2019)	Gold and crude oil market in India	April effect was found in this study, instead of January effect.
Singh & Das (2020)	BSE (Bank & IT indices) (2010–2019)	January effect is present in these indices.
Bhatia (2021)	BSE Index (1991–2019)	No anomalies found in the Indian stock market.
Bankoti (2021)	BSE and NSE (Apr 2010–Mar 2019)	Calendar anomalies were present for these specific period.
Elangovan et al., 2022	NIFTY (500) and S&P BSE 500	March was effective in the month-of-the-year effect among other months.

Contribution of the Study

This study has examined sectoral indices within the Indian stock market laying emphasis on identified anomalies. The time period selected for the study and its impact on anomalies have not been explored before for investors' understanding. Thus, the present work shall be a guide for investors to make informed decisions and understand the complexity and behaviour of markets during possible shocks. Calendar and financial year effects, which have been earlier recognised in the studies, have not been present significantly in the results. Thus, a newer direction and strategy in improved mechanisms of stock market trading may be formulated with the help of results of the study. Additionally, by examining anomalies over an extended timeframe, the study identifies more robust and persistent trends, offering greater confidence to investors when making investment decisions. The result of the present study will also add to the existing literature and will prove helpful for the investors to take correction actions while investing in the Indian stocks. The twin effect of the financial year and calendar year assists the academicians and potential investors to find out the better return for the stocks in various sectors.

The manuscript has been divided into six sections. The first section explains the introduction. The second section narrates the previous studies existing in the literature. The research methodology has been explained in the third section. The fourth section presents the analysis and findings. The fifth section concludes

the study, and the sixth section reflects upon the further scope in the direction of anomaly studies.

Literature Review

Calendar Year Effects

Stock market seasonality is known as calendar anomalies (Alvarado & Demmler, 2019). The January month is also having the tax hypothesis effect. The January effect is one of the most popular effects of calendar anomalies in which investors expect a higher return than other months. Andrew and Seth (2023) studied the calendar anomalies in petroleum and petroleum products and found variation in the return across the energy commodities. Few authors found the January effect in their study (Gouider et al., 2015; Selvakumar, 2011; Singh & Das, 2020) and specified the reason that investors buy at the starting of the year with higher return expectations. Rosini and Shenai (2020) mentioned the time-variant behaviour of calendar anomalies in the US stock market (Faisal & Majid; 2016). For example, in December, investors sell their shares for tax loss, leading to a decline in the prices of shares, whereas by the end of December, they purchase shares that increases the prices of shares and has a positive impact on the return of stocks in January. For different stock markets, different results were found by many researchers. Researchers such as Floros (2008) (Athens), Ariss et al. (2011) (Gulf Cooperation Council indices), Iqbal et al. (2013) (Pakistan) and Al-Saad & Moosa (2005) (Kuwait), Kaur et al. (2019) (Malaysia) found no January effect on return of stocks, whereas Wong et al. (2006) found positive and significant return for the Singapore stock market. There was no January effect in BSE and NIFTY returns (Kaur, 2004), although the February and April effects were observed in NIFTY instead of the January effect (Jain, 2019; Saxena et al., 2021). No calendar anomalies in France, Germany, Italy and Spain stock exchange indices were found (Rossi & Gunardi, 2018). The August and November effects in Bursa Malaysia stock exchange were observed (Kaur et al., 2019). Acharya et al. (2022) mentioned about the September effect in the Indian stock market, because in India, the festive season starts from September.

Different month effects are found in different countries, such as the December effect is found in India by Parikh (2009), while the May effect is found by Purohit and Tyagi (2015) and the positive November effects are found by Chakrabarti and Sen (2008) for the firms listed in the Shanghai Stock Exchange. In the Karachi Stock Exchange, high return is observed in December, while in the Pakistan Stock Exchange, high return is noted in March (Anjum, 2020). The year-end effect or income tax savings or festive season may be the reason for such results (Faisal & Majid, 2016; Purohit & Tyagi, 2015; Sarbapriya, 2012). While the September month had a positive effect on the Iranian capital market because of Eid (Ansari & Jafari, 2020). The September effect was found in the Indonesian Stock Exchange, the May effect was found in Spain's IBEX35, and the February effect was found in England's FTSE100 (Sawitri & Astuty, 2018).

Financial Year Effects

Negative return in the month of March was found by Sarbapriya (2012). Some researchers stated the absence of turn-of-the-month effect in the return of stocks in the Indian stock market (Kushwah & Munshi, 2018; Nageswari et al., 2011) and in the Mexican stock market (Alvarado & Demmler, 2019; Ansari, 2020). No anomalies in the Indian stock market, especially in March and April months, were observed for stocks (Bhatia, 2021), while Elangovan (2022) observed a month-of-the-year effect present in March in Indian stock exchange.

Qadan et al. (2021) studied the seasonal and calendar anomalies in cryptocurrencies for measuring the pricing efficiency. Rare opportunities are there in Indian stock market for higher return for investors (Bhatia, 2021). Li et al. (2024) and Kaushik and Nagarkar (2023) also stated the presence of seasonal variations in long tenure data.

Sectoral Effects

Chaudhary et al. (2020) revealed that during the Covid period, the banking sector, the realty sector and capital goods had the poorest return, while the healthcare sector and the IT sector showed a positive return. Inefficient information is the main source of anomalies in different sectors of the Indonesian stock market (Said et al., 2018). Covid had a less negative impact on anomalies in the Indian stock market than its peers (Sudha et al., 2020). Although the effect of seasonal anomalies disappeared in the post-crisis period (Adam et al., 2016), the calendar effect was found in different sectors of the Mexican stock market, such as the health care sector, financial sector, consumer sector and telecommunication sector (Alvarado & Demmler, 2019). Cristi et al. (2020) suggested to invest in the low volatility stocks of pharmaceutical, fast moving consumer goods (FMCG) and IT sector in the Indian stock market when preparing their investment strategy for high return. While the IT sector of the Indian stock market was found to be a weak form of efficiency, the January and turn-of-month effects on return and further volatility were mentioned in the IT and banking sectors of India (Singh & Das, 2020). Multi-commodity exchange was studied by Chabra and Gupta (2022), and they found the presence of the anomalies effect in the Indian stock exchange. Li et al. (2022) studied the crude oil market and reported the same. While the absence of anomalies was reported by Bankoti (2021), Li et al. (2023) and Li et al. (2022) mentioned that the effect of anomalies declined with high volatility in the US stock market.

Research Gap

The existing literature on anomalies in the Indian stock markets has shown the presence of the mixed form of anomalies. These inefficiencies persist in the form of day/week/month arrangements where studies indicate the presence/absence of anomalies in various industries and stocks (Engle et al., 1990; Tadepalli & Jain, 2018). Calendar year and financial year anomalies have also been tested earlier with varied research methods for stock market indices and individual stocks

(Ansari, 2020; Bhatia, 2021; Jain, 2019; Kushwah & Munshi, 2018; Singh & Das, 2020). However, there remains a strong gap in analysing the sectoral indices for the time period considered in the present study. Therefore, with this strong notion based on the current literature, the present work will contribute to the understanding of the investors. Attention may be paid to the existing regime of stock market anomalies before plugging the funds into the market.

Hypotheses

- H_1 : There exists a calendar year effect for sectoral indices in Indian markets.
- H_2 : There exists a financial year effect for sectoral indices in Indian markets.
- H_3 : There is a spillover from March returns to April returns for Indian sectoral indices.
- H_4 : There is a spillover from December returns to January returns for Indian sectoral indices.

Research Methodology

Data

The historical indices for automobiles (Auto), financial services (FS), media, FMCG, pharmaceuticals (Pharma), metal, realty, information technology (IT), energy and banking (Bank) have been incorporated. These historical values of 2011–2019 have been downloaded from the website of the National Stock Exchange. Due to Covid impact, data after December 2019 have been avoided as the results may not be reliable during this period. The historical returns have been computed with the help of the following formula:

$$Rit = P_t - (P_{t-1}) / (P_{t-1}) * 100. \quad (1)$$

Variables

The objectives of the study required monthly data of four months, in particular for Indian sectoral indices. The investigation of the financial year effect called for March and April returns, while the calendar year effect desired December and January returns. Companies may make major announcements during these months due to the closing of the books of accounts. Therefore, these four months have been identified and incorporated in the study to explore anomalies across different sectors in the Indian economy.

Sample Selection

Indian markets may be split into a variety of sectors such as banking, IT, automobiles and pharmaceuticals. The sector-wise contribution to stock markets as well as Indian economy however remains prevalent by a few sectors. The study

Table 2. Indices in the Study.

Variable	Source	Justification
Auto	NSE website	Benchmark index for the automobile sector consisting of 15 stocks. The companies included range over cars, motorcycles, auto ancillaries, tyres and heavy vehicles.
Bank	NSE website	Resembles 12 Indian banking stocks based on their liquidity and market capitalisation.
Energy	NSE website	One of the most significant drivers for growth of Indian economy. Considered as a crucial input for sustainable development. Index represents the performance of such companies.
FMCG	NSE website	Consisting of 15 stocks of FMCG companies. Such companies are involved with the production of non-durable goods the can be used for mass consumption.
Financial services	NSE website	Demonstrates the capital market performance of 15 financial service stocks. These include insurance companies, housing banks, banks, financial institutions in the list.
IT	NSE website	Base index for the performance of companies which are involved with IT and IT-enabled services. The IT segment of the Indian market is well resembled with this index.
Media	NSE website	This index includes companies' stocks that are involved in media, entertainment, printing and publishing. Captures the behaviour and performance of such companies.
Pharma	NSE website	This index captures the performance of pharmaceutical companies from Indian markets. This sector has been one of the key drivers towards growth of the Indian economy after software companies.
Realty	NSE website	Public funds and private equity both have witnessed a tremendous growth after real estate companies entering the stock markets. This index has been incorporated with a viewpoint that it carries immense potential for growth of investors.
Metal	NSE website	Reflects the performance of 15 stocks listed on NSE. The free float market capitalisation remains the base for its index values.

has tried to incorporate such sectors for investigating the presence of anomalies across Indian markets. A brief justification for sample selection has been provided in Table 2.

Test for Stationary Series

Time series analysis and modelling require the data to be stationary at the outset. The preliminary assumption of stationary series has been tested with the augmented Dickey–Fuller statistic. The index returns have been found stationary at level and thus integrated at $I(0)$.

Independent Sample t-Test

Initially, the significant difference between two groups of returns, namely March–April and December–January, have been tested. This investigation has been carried out with the independent sample *t*-test to test difference between March–April and December–January returns.

Model Specification

Ordinary Least Squares

The cause-and-effect relationship for March–April and December–January has been investigated using the following equation:

$$C_t + x10t + et. \quad (2)$$

In the first set-up, causation from March to April has been investigated, and in the second one, December to January has been examined. The linear relation between independent and dependent variables has been established with the ordinary least squares (OLS) model.

Analysis and Findings

Descriptive Statistics

The investigation of hypotheses, descriptive statistics and other preliminary assumptions for fitting the models have been detailed in this section. Table 3 shows the descriptive statistics for all 10 sectors' indices incorporated in the study.

The mean values, standard deviation, and maximum and minimum values during the four months (March, April, December and January) have been presented. The mean average returns and standard deviations have been closely monitored anticipating results from companies in these sectors in the months of March and December. Thereby, the impact of such information from management of companies may be seen in the months of April and January respectively. It has been observed that in the majority of comparisons between March and April returns, negative returns have been presented in April. The exceptions however have been media, metal, pharmaceuticals and IT. The examination further with OLS has been done to explore these observations. Also, standard deviation in few cases, such as auto, financial services, FMCG, media, realty, energy and ban, has been higher in December than in January. This does not correlate with the higher returns observed in December than in January. Ruling out the possibility of chance factor, further these variables have been investigated with OLS.

ADF Results

The preliminary assumption for time series modelling remains the check for the unit root, which has been shown in Table 4.

Table 3. Descriptive Statistics.

Sector	Month	Minimum	Maximum	Mean	Std. Deviation
Auto	March	−0.261	0.396	0.098	0.228
	April	−0.331	0.333	0.090	0.217
	December	−0.263	0.449	0.143	0.240
	January	−0.346	0.578	0.109	0.298
FS	March	−0.297	0.523	0.148	0.247
	April	−0.172	0.387	0.147	0.191
	December	−0.076	0.453	0.168	0.201
	January	−0.205	0.600	0.142	0.252
Media	March	−0.876	0.396	0.025	0.391
	April	−0.731	0.361	0.028	0.353
	December	−0.353	0.462	0.044	0.272
	January	−0.473	0.397	0.033	0.272
FMCG	March	−0.104	0.293	0.124	0.122
	April	−0.057	0.326	0.113	0.115
	December	−0.013	0.396	0.134	0.130
	January	−0.101	0.391	0.129	0.138
Pharma	March	−0.264	0.537	0.099	0.300
	April	−0.111	0.398	0.107	0.201
	December	−0.153	0.474	0.115	0.229
	January	−0.138	0.418	0.101	0.220
Metal	March	−0.652	0.919	0.029	0.459
	April	−0.507	0.958	0.054	0.436
	December	−0.376	0.396	0.031	0.267
	January	−0.416	0.616	0.000	0.326
Realty	March	−0.428	0.644	0.037	0.344
	April	−0.321	0.503	0.035	0.301
	December	−0.421	0.741	0.059	0.377
	January	−0.646	0.652	0.031	0.447
IT	March	−0.202	0.706	0.153	0.263
	April	−0.169	0.598	0.160	0.257
	December	−0.075	0.457	0.153	0.190
	January	−0.132	0.423	0.153	0.188
Energy	March	−0.393	0.491	0.098	0.248
	April	−0.227	0.378	0.097	0.180
	December	−0.007	0.327	0.099	0.106
	January	−0.121	0.303	0.080	0.135
Bank	March	−0.463	0.554	0.131	0.291
	April	−0.324	0.420	0.129	0.232
	December	−0.102	0.498	0.152	0.227
	January	−0.246	0.662	0.125	0.285

The results have been analysed with intercept, without the presence of any trend for all variables across the 10 sectors. The outcomes in Table 4 reflect that the data have been stationary as the minimum P value is $<.05$. (Rejection of H_0 : *The series has a unit root.*). Thus, the OLS model for testing the financial year and calendar year effects has been successfully carried out.

Table 4. Unit Root Results.

Augmented Dickey–Fuller Statistics											
H_0 : The series has a unit root.											
Sector	March			April			December			January	
	Intercept	Trend	Without Trend	Intercept	Trend	Without Trend	Intercept	Trend	Without Trend	Intercept	Without Trend
Auto	-2.510 (0.1469)	-3.279 (0.157)	-2.564** (0.018)	-2.776 (0.109)	-3.227 (0.165)	-2.030** (0.047)	-2.871* (0.091)	-7.831*** (0.004)	-2.758** (0.013)	-3.302* (0.051)	-5.813** (0.015)
FS	-5.689*** (0.0029)	-5.430*** (0.015)	-1.080 (0.227)	-5.956*** (0.002)	-5.531*** (0.014)	-0.850 (0.313)	-6.866*** (0.001)	-6.240*** (0.007)	-0.788 (0.339)	-5.671*** (0.004)	-5.013** (0.031)
Media	-2.430 (0.1628)	-2.783 (0.246)	-2.625** (0.016)	-2.225 (0.212)	-2.478 (0.330)	-2.400** (0.024)	-2.519 (0.145)	-3.147 (0.177)	-2.828** (0.011)	-2.815* (0.098)	-2.750 (0.261)
FMCG	-3.825** (0.0259)	-3.380 (0.128)	-1.909* (0.059)	-4.065** (0.019)	-3.291 (0.141)	-2.655** (0.015)	-3.952** (0.022)	-3.260 (0.146)	-2.776** (0.012)	-4.147** (0.017)	-3.817* (0.079)
Pharma	-2.591 (0.1324)	-2.404 (0.354)	-2.541** (0.019)	-1.653** (0.041)	-1.012*** (0.008)	-1.475** (0.012)	-1.426** (0.006)	-0.313*** (0.009)	-1.268** (0.017)	-1.419* (0.051)	-0.768*** (0.009)
Metal	-3.372** (0.0467)	-2.416 (0.348)	-3.788*** (0.002)	-3.459** (0.047)	-3.348 (0.146)	-3.739*** (0.003)	-2.694 (0.121)	-2.358 (0.367)	-3.391*** (0.004)	-3.078* (0.069)	-2.852 (0.230)
Realty	-3.009* (0.0811)	-2.910 (0.229)	-3.267*** (0.006)	-2.711 (0.118)	-2.366 (0.365)	-3.177*** (0.006)	-5.230*** (0.005)	-5.450** (0.015)	-5.567*** (0.000)	-5.448*** (0.004)	-6.084*** (0.008)
IT	-3.491** (0.040)	-2.931 (0.214)	-2.100** (0.041)	-3.233* (0.062)	-2.527 (0.318)	-2.112** (0.041)	-2.477** (0.015)	-2.235** (0.041)	-1.242** (0.018)	-2.285** (0.019)	-2.013* (0.051)
Energy	-4.621*** (0.0096)	-4.130* (0.057)	-3.692*** (0.003)	-3.597** (0.035)	-3.263 (0.145)	-2.650** (0.015)	-2.778 (0.103)	-2.639 (0.283)	-1.844* (0.065)	-2.874* (0.091)	-2.731 (0.258)
Bank	-5.432*** (0.0038)	-5.682** (0.012)	-3.912*** (0.002)	-5.337*** (0.004)	-5.512** (0.014)	-1.098 (0.221)	-6.620*** (0.001)	-6.352*** (0.007)	-1.030 (0.244)	-4.213** (0.019)	-4.784** (0.037)

Notes: *Shows significant results at the 10% level of significance, ** shows significant results at the 5% level of significance and *** shows significant results at the 1% level of significance.

Correlation Results

Table 5 shows the correlation matrix amongst four variables (two groups) taken for investigating the financial year and calendar year effects respectively. It may be observed that the correlation between March–April and December–January has been strong. The P values indicate that these relationships have been significant at the 1% level of significance (H_{0a} : *There is no correlation between March and April returns*; H_{0b} : *there is no correlation between December and January returns*). Thus, their connection may be further explored with t -test and other models.

t -Test Results

The independent sample t -test results have been depicted in Table 6.

The significant difference between two groups of variables, namely March–April and December–January, has been explored with this test. The results depict that null hypotheses (H_{0a} : *there is no significant difference between March and April returns*; H_{0b} : *there is no significant difference between December and January returns*) may not be rejected, with the corresponding P values being $>.05$ in the case of all sectoral indices. However, as the independent t -test remains a test of a very small order, the relationship between variables has been further tested with the OLS model.

Table 5. Correlation Matrix.

Sector	March–April	December–January
Auto	0.969*** (0.000)	0.879*** (0.002)
FS	0.967*** (0.000)	0.890*** (0.001)
Media	0.977*** (0.000)	0.918*** (0.000)
FMCG	0.813*** (0.008)	0.887*** (0.001)
Pharma	0.931*** (0.000)	0.973*** (0.000)
Metal	0.987*** (0.000)	0.911*** (0.001)
Realty	0.940*** (0.000)	0.889*** (0.001)
IT	0.901*** (0.001)	0.909*** (0.001)
Energy	0.954*** (0.000)	0.858*** (0.003)
Bank	0.970*** (0.000)	0.901*** (0.001)

Notes: *** Shows significant results at the 1% level of significance.

Table 6. Independent Sample t-Test.

Sector	March–April	December–January
Auto	–0.016 (0.988)	0.310 (0.759)
FS	–0.061 (0.952)	0.224 (0.825)
Media	–0.012 (0.991)	0.220 (0.828)
FMCG	0.492 (0.628)	0.208 (0.838)
Pharma	–0.124 (0.903)	0.278 (0.784)
Metal	0.018 (0.986)	0.237 (0.815)
Realty	–0.209 (0.837)	0.409 (0.687)
IT	0.196 (0.846)	0.041 (0.969)
Energy	0.181 (0.858)	0.517 (0.611)
Bank	–0.051 (0.961)	0.232 (0.819)

Notes: March–April shows *t*-statistic and corresponding *P* values between March and April returns. Similarly, December–January shows *t*-statistic and corresponding *P* values between December and January returns.

Ordinary Least Squares (Financial Year Cycle)

The regression analysis for the financial year effect (March–April) has been presented in Table 7.

The *P* values for respective coefficients from sectoral indices have been >.05 in all cases except financial services (H_0 : *There is no significant impact of March returns on April returns*). Thereby, results indicate that March returns have impacted April returns significantly in the case of financial service index returns only. All other sectoral indices have experienced similar outcomes meaning that announcements made in March in annual reports have not shown any significant influence on the next month’s returns. The *F*-statistic values have also been significant at the 5% level of significance, indicating that the model is fitted well. In the Jarque–Bera residual diagnostics, most of the probability values have been >.05 (H_0 : *Residuals are normally distributed*) meaning that residuals are normally distributed. Breusch–Godfrey statistics suggests that the *P* values have been >.05 except in few cases (H_0 : *There is no autocorrelation between residuals of the model*). Therefore, the residuals do not have autocorrelation issues. Further, Breusch–Pagan statistics indicates that the *P* values have been >.05 except in a rare case (H_0 : *There is no heteroskedasticity in residuals of the model*). The results indicate that from 2011 to 2023, the financial year effect persisted only for the financial services

Table 7. OLS Results (Financial Year Effect).

Sector	Coefficient	Adjusted R-Squared	F-Stat	Normality	Autocorrelation	Heteroskedasticity
Auto	0.029 (0.217)	0.923	120.525*** (0.000)	7.890** (0.019)	1.154 (0.282)	0.878 (0.348)
FS	0.040* (0.059)	0.908	100.222*** (0.000)	0.497 (0.779)	3.201* (0.073)	0.037 (0.846)
Media	0.008 (0.746)	0.951	193.861*** (0.000)	0.492 (0.781)	0.314 (0.575)	0.073 (0.787)
FMCG	0.031 (0.340)	0.602	16.097*** (0.003)	0.555 (0.757)	2.102 (0.147)	0.967 (0.325)
Pharma	0.032 (0.228)	0.832	50.567*** (0.000)	0.311 (0.855)	0.053 (0.818)	1.106 (0.292)
Metal	0.014 (0.644)	0.946	174.940*** (0.000)	0.287 (0.866)	4.409** (0.035)	4.271** (0.038)
Realty	0.026 (0.463)	0.854	59.282*** (0.000)	1.193 (0.550)	0.007 (0.935)	1.253 (0.262)
IT	0.027 (0.498)	0.795	39.752*** (0.000)	1.331 (0.513)	4.211** (0.040)	0.147 (0.701)
Energy	0.022 (0.447)	0.845	55.387*** (0.000)	0.465 (0.792)	6.890*** (0.008)	1.676 (0.195)
Bank	0.034 (0.113)	0.924	122.719*** (0.000)	0.292 (0.863)	3.490* (0.061)	0.212 (0.645)

Notes: *Shows significant results at the 10% level of significance, ** shows significant results at the 5% level of significance and *** shows significant results at the 1% level of significance.

sector. It may be because this sector connects the entire economy, and reaction in this sector takes time to fade away from the following month's returns.

Ordinary Least Squares (Calendar Year Cycle)

The calendar year effect (December–January) has been examined with the OLS model and presented in Table 8.

The sector-wise analysis reflected that December returns do not have a significant impact on January returns. Thus, the null hypothesis has been failed to be rejected, with P values $>.05$ in all the sectors. (H_0 : *There is no significant impact of December returns on January returns.*) It may be stated that follow-up reactions in January have not persisted during the period 2011–2023, indicating that national and international shocks have changed the market dynamics. Anomalies may cease to exist due to transparent systems in markets as well as a cautious approach of investors due to the volatile environment in markets and the recent and ongoing events. F -statistic from the model has shown all P values $<.05$. Hence, the model has been fitted well. The residual diagnostics of the model have shown that residuals have been normally distributed (Jarque–Bera P values $>.05$; H_0 : *residuals are normally distributed*). The autocorrelation P values are also $>.05$. (H_0 : *There is no autocorrelation among the residuals.*) However, heteroskedasticity P values have been $>.05$. (H_0 : *There is no heteroskedasticity in residuals.*) Few cases of residual issues have been there, but in most of the cases, such issues were not present.

Discussion of Results

In the present study, a strong association between March–April and December–January effects has been observed. This result is in line with the study conducted by Singh and Das (2020), Selvakumar (2011) and Gouider et al. (2015). Further, Ferrouhi et al. (2021) found the January and December effects in Botswana in African stock markets. High returns were observed in December and March in the Karachi Stock Exchange and in the Pakistan Stock Exchange respectively (Anjum, 2020). As explained by Shen et al. (2020), the causes behind the January effect were the minimum capital gain and restricted supply of stock, and the desire of investors to sell at premium led to minimise the pressure to sell in January.

In addition, returns of the April month have been affected by March returns. Many researchers found different month's effect on the Indian stock market, for example, Sen (2014) and Yadav and Singh (2018) found positive return in the months of September and November. In India, the announcement of the interim Union budget is mostly made during February–April, and the closing of the financial year also affects the March–April months. So, the presence of the financial year effect has been significant in the Indian stock market (Saxena et al., 2021; Singh & Das, 2020) as reported in the present study. In contrast, no month anomalies were there in the Indian stock exchange (Ansari, 2020; Bhatia, 2021;

Table 8. Ordinary Least-Squares Results (Calendar Year Effect).

Sector	Coefficient	Adjusted R-Squared	F-Stat	Normality	Autocorrelation	Heteroskedasticity
Auto	-0.010 (0.815)	0.750	30.960*** (0.000)	0.771 (0.680)	1.826 (0.176)	0.779 (0.377)
FS	-0.040 (0.411)	0.754	31.614*** (0.000)	0.073 (0.964)	0.984 (0.321)	1.391 (0.238)
Media	-0.010 (0.760)	0.847	56.259*** (0.000)	0.091 (0.955)	2.541 (0.110)	6.070** (0.013)
FMCG	0.006 (0.842)	0.760	32.725*** (0.000)	0.103 (0.949)	6.627** (0.010)	3.049* (0.080)
Pharma	0.001 (0.973)	0.937	150.146*** (0.000)	0.239 (0.887)	0.879 (0.348)	2.614 (0.105)
Metal	-0.035 (0.413)	0.860	62.580*** (0.000)	0.408 (0.815)	0.144 (0.704)	1.391 (0.238)
Realty	-0.030 (0.628)	0.794	39.490*** (0.000)	0.846 (0.654)	4.479** (0.034)	0.073 (0.787)
IT	0.034 (0.258)	0.845	55.544*** (0.000)	0.485 (0.784)	1.370 (0.241)	0.683 (0.408)
Energy	-0.052 (0.270)	0.670	21.282** (0.001)	0.545 (0.761)	3.111* (0.077)	0.385 (0.535)
Bank	-0.042 (0.415)	0.753	31.559*** (0.000)	0.354 (0.837)	0.576 (0.447)	2.155 (0.142)

Notes: *Shows significant results at the 10% level of significance, ** shows significant results at the 5% level of significance and *** shows significant results at the 1% level of significance.

Kaur et al., 2019; Kushwah & Munshi, 2018; Nageswari et al., 2011) nor were there Christmas and new year effects (Jain, 2019). In addition, no calendar and financial year effect was noted on the Baltic stock market (Aleksnevičienė et al., 2021) and on stock exchange indexes in France, Germany, Italy and Spain (Rossi & Gunardi, 2018).

In this study, the December year effect has been prevalent in various sectors, especially in the banking sector. Further, Singh and Das (2020) also mentioned anomalies in the IT and banking sectors of India. Different sectors show different month effects, such as February and August in the NIFTY Bank index; April in the NIFTY Auto index and March in Nifty Financial Services (Saxena et al., 2021). So, the investors can forecast the trend of prices and earn return in different indices of Indian stock markets.

Conclusion and Stakeholders' Implications

The present study has emphasised on the analysis of two types of prevalent anomalies for the sectoral indices in Indian markets. The results from the independent sample *t*-test and OLS model have indicated the absence of anomalies during 2011–2023 owing to the absorption of all information in the market prices. It may be concluded from these results that the opportunities from such anomalies have been absent for all indices meaning that information from March and December months may not result in follow-up behaviour in next months. Financial services index has shown rare possibility to explore abnormal returns due to the presence of anomalies in this sector. It may also be added that owing to increasing efficiency of Indian markets in terms of information may be reflected in stock prices leaving lesser scope for traders to utilise volatile stocks.

While planning the proportions in portfolio, investors may pay attention to these sectors and plan, buy and sell strategies. The regulators may keep a watch on corporate disclosures during the months of March and December for avoidance of concentration on any particular sector in markets. Policymakers and managers may lay special emphasis on the shareholders' wealth during these periods owing to expectations of shareholders from announcements. The absence of anomalies across Indian sectoral indices provides least opportunities for investors and traders to obtain any abnormal returns. Their approach however may be watchful while selecting stocks from these sectors, and events of paramount importance may be studied before investing. A comparative analysis of these particular events may be fruitful in planning investments in a better way.

Scope for Further Study

The study has investigated the financial year and calendar year effects for Indian sectoral indices during 2011–2023. The investigation for anomalies before and after this crisis can be carried out in further studies. The structural breaks may be checked if any analysis for normal and abnormal period may be compared. The examination of other thematic indices from Indian markets and global emerging

sectoral indices across the globe can also be explored with the results of the present study.

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Digital Circular Economy and the Global Ecotourism Sector: A Critical Perspective

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Abstract

This perspective article seeks to build meaningful linkages between the digital circular economy and the global ecotourism sector. The ‘new normal’ in a post-pandemic world calls for innovative solutions to the challenge of low revenue growth in the traditional tourism sector. Ecotourism or sustainable tourism can be the way forward, provided it is coupled with emergent digital technologies of the likes of artificial intelligence, big data and the internet of things, among many others. This article relies on an existing review of literature from all over the world on the theme in order to arrive at meaningful inter-relationships between the digital circular economy and the global ecotourism sector. For ensuring a prosperous global ecotourism sector (or sustainable tourism), moving towards a digital circular economic framework ensures not just a reduction in the depletion of finite natural resources but also an enhancement in biodiversity and a significant reduction in business costs. Thus, ecotourism and digital circular economy aim at creating sustainable value both for businesses and the environment in more ways than one. Additionally, some of the major policy and managerial implications of this study pertain to the need for, first, greater local community involvement in the ecotourism sector; second, constant upskilling of the workforce in the sector with regard to latest digital technologies for their long-term benefit; and last, building a robust digital framework and ensuring last mile connectivity for all ecotourist destinations.

Keywords

Artificial intelligence, digital circular economy, ecotourism, local community, sustainable

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Introduction

That global tourism by extension, ecotourism industry is facing an unprecedented crisis. Apart from being focused on the reopening of domestic and international borders to tourists, the industry is yet to recover fully from the pandemic shock. The covid pandemic sought to upend the gains in the tourism sector attained until 2019. The sudden onset of the pandemic caught the world off-guard. The unexpected spike in the spread of the virus led to several containment measures being imposed globally, most notably in the form of strict lockdowns and travel restrictions. The impact of the pandemic was felt across the global and national economies and continues to do so, with tour and travel businesses being severely affected. The tourism sector accounted for a tenth of the global gross domestic product (GDP) and jobs in 2019–2020. The covid pandemic decimated the \$10 trillion industry, reducing its output and leaving millions jobless in the process (Morales, 2022). It was only in 2023 that the global tourism sector saw an almost 14% growth in its market size over the previous year and was able to regain some of its lost sheen in a post-COVID world (Statista, 2024).

In the backdrop of COVID-19-induced disruptions, a need has arisen for developing environmentally innovative and sustainable tourism/ecotourism models. Ecotourism, as defined by The International Ecotourism Society, is ‘responsible travel to natural areas that conserves the environment, sustains the well-being of the local people and involves interpretation and education’ and may be the way forward in the post-pandemic era. Involving the host communities and creating opportunities for additional livelihoods while preserving nature and local cultures could create a niche for low-impact high-value tourism, especially in ecologically fragile areas (Morales, 2022). Not only does ecotourism help in the recreation of the human body and mind, but it also aids in enabling greater cultural, environmental and social integration among disparate regions. In other words, ecotourism amalgamates the body, mind and spirit. Sustainable tourism is built on the principles of local procurement while assimilating regional cultures and bringing livelihood opportunities to local communities without causing harm to the natural environment. The said thinking is finding ground in the global tourism sector. Acknowledgement of the negative impact of traditional mass tourism by policymakers, host communities and some traveller groups has led to the formulation of policies on ecotourism as well as initiatives promoting conservation principles among tourists (Morales, 2022).

When the covid crisis hit the world, it dealt a lethal blow to the global status quo. There arose a mix of megatrends such as digitalisation, over-tourism, greenhouse gas emissions, socio-economic impact and customer and regulatory accountability demands. Certainly, there were serious concerns about the linear growth-based model(s) adopted by the tourism/ecotourism industry. While the covid pandemic is challenging the long-established economic ‘hardware’, it also presents a rare opportunity to change the economic ‘software’. Among these major updates is the need for an upgradation to a ‘digital circular economy’. Given the preponderance of consumption and production-intensive industries for discourse pertaining to the global circular economy, intangible service-intensive industries such as travel and tourism should assume far greater prominence, given the post-pandemic realities confronting humanity today (Alcayaga et al., 2019; Bressanelli et al., 2022).

The tourism/ecotourism industry is deeply interlinked with multiple key resources, assets and commodity value chains in the societal set-up ranging from agriculture to the transport industries and built environment. The travel and tourism industry can act as a powerful enabler of circularity. In other words, the tourism sector in general and the ecotourism industry in particular shall be prime examples of a 'circular economy' in a post-pandemic world. The pandemic taught humanity the limitations of traditional growth approaches and models in the event of any natural or manmade disaster. It is the digital circular economic models that could upend the traditional ways of approaching the tourism/ecotourism sector, and by implication the contours of the global economy, in a significantly positive manner (Bressanelli et al., 2022).

The primary objective of this perspective is to critically assess the relationship between the digital circular economy and the global ecotourism sector. For this purpose, this article relies on existing literature on the theme. The same aids in an unbiased assessment of the relationship between the digital circular economy and the global ecotourism sector.

This article is divided into the following sections. The first section introduces the theme of this article. The second section describes the meaning, significance and implications of the digital circular economy. The third section explains the connotations and significance of the modern global ecotourism sector for any economy. The fourth section discusses the key linkages between the digital circular economy and the modern global ecotourism sector. The fifth section concludes the study. The final section elicits the future policy implications of this work.

Digital Circular Economy: Meaning, Significance and Implications

The expression 'digital circular economy' evokes unclear imageries in the minds of readers. Therefore, at the very outset, the meaning and significance of the same shall be explained. Digital circular systems are conceptualised as those industrial systems enabled by digital technologies that are regenerative by their intent and design, where smart use and reuse, maintenance, remanufacturing and recycling are included in the business models' product-service systems (Alcayaga et al., 2019). Another conceptualisation puts the digital circular economy framework within the contours of data transformation, resource optimisation capabilities and data flow processes as the main enablers (Kristoffersen et al., 2020). Yet another work by the same authors defines digital/smart circular economies as those where organisations leverage digital business practices for value creation to create a more efficient and effective economy (Kristoffersen et al., 2021). Another study defines the digital circular economy as an industrial system using digital technologies to implement circular strategies such as reduce, reuse, remanufacture and recycle (Lobo et al., 2022).

Based on the above-mentioned conceptualisation, we attempt a novel way of defining the digital circular economy and explain both the meaning and significance of this term. Digital circular economies can be defined as those that rely on digital systems/technologies of the likes of the internet of things, artificial intelligence (AI), 3-D, robotics and virtual reality to carry out their tasks of 4-R (reduce,

reuse, remanufacture and recycle). Thus, a digital circular economy entails a reduction in the requirement of raw materials used for manufacturing/producing a good, reusing the already consumed/used materials, recreating with the aid of reduced and reused material, thereby contributing to the recycling process across the production chain (Bressanelli et al., 2022; Kanupriya, 2021, 2022; Talwar et al., 2022).

Transforming any traditional economy to a circular economy requires enhanced coordination of information and material flows. The information data along with waste materials in the product life cycle can become a processable resource. The only challenge to ensure the same is how to generate, collect, process and make viable the volume of information about the material composition of each individual product, its patterns of usage and its location within the waste system. All of this is essential in establishing well-functioning markets and product cycles for future stages. Digital technologies help in overcoming the information deficit. Digitalisation is the missing link in the implementation strategies of a circular economy (Kanupriya, 2021; Wilts & Berg, 2017).

Meaning and significance aside, the implications of a digital circular economy too need an explanation.

The implications of the digital circular economy are spread across different realms. First, cyber systems enable the carrying of vital information across the entire production process. For a digitally enabled circular economy, this information must be extended across the life cycle of a product and include environmentally friendly information on the material composition and carbon footprint. This helps reduce information asymmetry as well (Kanupriya, 2021, 2022; Wilts & Berg, 2017). Second, the precise location of waste production could be recorded with the aid of sensing technologies. These help with real-time collection and generation of data in Industry 4.0. Updated detailed information about the waste sites and material composition of waste at these sites can be recorded and passed on to other companies that could use it to further plan their production processes. Big data (data analytics) could then deliver and project information about subsequent use and practical logistical solutions to the challenge of human-generated waste (Kanupriya, 2021, 2022; Wilts & Berg, 2017). Third, the demand and supply of waste and secondary raw materials could be matched with the help of internet-based solutions, as done for the distribution of goods and services through apps such as Amazon and Uber. A futuristic automated logistics platform and market has the potential to reduce transaction costs. It could also facilitate economies of scale as there is greater clarity about material quantities in the waste (Kanupriya, 2021, 2022; Wilts & Berg, 2017). Fourth, in a smart circular economic system, recyclable products could automatically create their own markets, thanks to the internet of things by marketing themselves on digital platforms on the basis of information about composition and possible uses of recyclable waste materials (Kanupriya, 2021, 2022; Wilts & Berg, 2017). Many recyclables are far less expensive than primary raw materials. The idea of self-marketing could increase this trend. Recyclability could, therefore, also become a source of competitive advantage for the waste-to-finished product categories. Fifth, blockchain could be used to share information in an anonymous and encrypted manner, without

competitors being able to trace the data back to its owner-proprietors. This technology also helps prevent the reckless felling of trees as well as waste paper generation (Kanupriya, 2021, 2022; Wilts & Berg, 2017). Last, in the ecotourism sector, virtual reality-supported technologies involve real-time simulation of any tourist spot via visualisation, interactivity and immersion (Talwar et al., 2022), thereby minimising human interface with natural environs to make tourism a more environmentally friendly, yet sensorially equally appealing an activity.

Modern Global Ecotourism Sector: Meaning and Significance

Ecotourism is an important sector of the global economy. It is an alternative form of tourism that embraces tourism in the biophysical environment in natural settings. It incorporates ecologically sustainable activities, conservation measures and the involvement of local communities. Like any other traditional tourism activity, it focuses on the overall development of local communities, poverty alleviation, wildlife conservation and environmental protection (Dowling, 2000; Duffy, 2008).

Ecotourism accounts for 5%–7% of the global GDP. The worldwide ecotourism market size is expected to grow from \$219.53 billion in 2023 to \$249.16 billion in 2024 at a compound annual growth rate of 13.5%. In addition, it is also anticipated that this sector will make bigger strides at a compound annual growth rate of 15.2% from 2022 to 2030 (Ecotourism Global Market Report, 2024). This boom would be aided in particular by the growing reputation of immersive travel, outdoor recreational sports and solo journeying, coupled with speedy urbanisation and the easy availability of cheap flights. Growing awareness about the adverse impact of traditional tourist activities on the environment such as water pollution, soil erosion and habitat loss has prompted sustainable tourists and government authorities to promote ecotourism and contribute to the growth of the industry (Grand View Research, 2023; Morales, 2022).

There are many forms of ecotourism. Some important ones are briefly discussed here. First, community-based ecotourism means an area which is owned, conserved and managed by a specific community to gain income through tourist activities. It is aimed at low-budget tourists (Das & Syiemlieh, 2009). Second, ecosystem tourism is a supply-led tourism strategy. It enables sustainable development within the confines of the preservation of the ecosystem integrity. The entire ecosystems or the specific biological diversity are managed in relation to the tourism experience and as such it does not exclude commercial exploitation of the ecotourist site. The existing ecosystem is able to absorb and adapt to the pressure of incoming tourists until it develops a more urbanised character (Tyler & Dangerfield, 1999). Third, rural tourism is another important form of ecotourism that originated in Europe. It takes place in a typical rural environment, based on rural resources reflecting the rural way of life, traditional folk customs and agrarian goods and services. It enhances profits from agriculture and allied activities and provides the peasantry with greater profits, in addition to gainful employment

opportunities and better living standards. It is, thus, a mutually beneficial combination of agriculture and tourism (Degang & Xiaoting, 2006). Fourth, another form of ecotourism is cultural ecotourism. It seeks to preserve local cultural traditions and customs. Tourist activities under this form are aimed at educating tourists about local/minority cultures and traditions. Research should be conducted to evolve a better understanding of various cultural mores through these tourist activities (Genzong et al., 2007). Fifth, nature ecotourism is a large growing global industry, dependent upon natural environs found in national parks and other such protected areas. It is based on adequate levels of ecological quality and consumer service. It is quickly becoming a major source of government revenue in many parts of the world, including in Africa and Asia (Eagles, 2002).

Ecotourism provides employment to local residents and a vibrant market for locally produced goods and services. It inculcates a spirit of tolerance for different cultures and faiths, owing to close guest–host interactions in multicultural settings. Additionally, ecotourism also gives an impetus to ecologically sustainable development. It fosters a spirit of inclusivity and equity as it enhances wildlife conservation through equitable sharing of benefits among different stakeholders. Through conservation of natural and built environs of the ecotourist sites, it helps maintain quality of life in the locality, thereby balancing the seemingly conflicting goals of economic development and biodiversity conservation. Ecotourism, thus, helps in biodiversity conservation, poverty reduction and business viability through its sustainable tourism principles and practices. Most importantly, it ensures active local community participation in realising the objectives of environmental protection and conservation. All in all, ecotourism aids in maintaining nationally acceptable standards of atmospheric, sound, drinking water, sewage and lampblack quality (Cao et al., 2014; Degang & Xiaoting, 2006; Hawkins, 2004; Nepal, 1997; Sindiga, 1999). Positive influences of ecotourism aside, there are some negative effects too. Ecotourism, like any tourism activity, consumes scarce natural resources, produces waste, requires the ecologically insensitive building of human structures and infrastructure, causes problems of litter, air, water and noise pollution, increased clearing of land, drop in forest cover, destruction of fish, extensive vegetative damage, desertification, soil erosion and habitat destruction of forest species (Cao et al., 2014; Degang & Xiaoting, 2006; Hawkins, 2004; Nepal, 1997; Sindiga, 1999).

The global travel and tourism industry is projected to return to pre-covid levels in 2024 by growing 2% more than its growth before the pandemic, as per the United Nations World Tourism Organization (UNWTO) estimates. The industry is expected to post an average annual growth rate of 5.8% from 2022 to 2032 versus the 2.7% increase in global GDP and create 126 million additional jobs. The sector managed to crawl back to pre-pandemic levels in 2023, when the revenues generated in the same reached USD 1.6 trillion, quite close to the USD 1.7 trillion seen in 2019, the UNWTO said. The travel and tourism industry's GDP reached USD 3.3 trillion, or 3% of global GDP in 2023, a return to the pre-pandemic trajectory (UNWTO, 2024). In this quest, the role of 'digital circular economy' assumes far greater preeminence. Not only would it help the industry return to the pre-pandemic *boom* phase, but it would also enable its gradual transformation into a sustainable growth-intensive services sector, with an equal emphasis on revenues and

profits as well as ecological conservation and preservation of the tourist sites (Grand View Research, 2023; Morales, 2022).

In line with this argument, the next section elicits the crucial linkages between the modern global ecotourism sector and the digital circular economy.

Linkages Between Ecotourism and the Digital Circular Economy

Of late, the digital circular economy is closely intertwined with global ecotourism. It is no hidden fact that the traditional tourism sector has adversely impacted natural ecosystems by contributing to biodiversity loss, climate change and pollution. The same has led to overshooting of several planetary boundaries with its emphasis on the linear model. The issue of sustainability assumes centre stage in this case.

Alterations in the technological landscape have been essential for tourism. The sheer volume of data and high dependence on information and communication technologies have brought changes to the traditional ecotourist landscape in the context of the digital circular economy. The digital circular economy has changed the way people interact with each other as well as the way consumer demand is presented within an ecotourist landscape (Gretzel et al., 2015). Sustainable tourism or ecotourism entails being 'smart'. Smart tourism requires a novel way of thinking and experiencing tourism and new technologies must be able to support the framework of sustainability in the ecotourism sector. For example, reducing wasteful water consumption, using energy-efficient electronic devices, curtailing tourist overload and excessive consumption of resources (Pan et al., 2018; Park & Jang, 2013).

Given the unique characteristics of each territorial unit regarding the economy, climate, society, politics and infrastructure, to satisfy tourists' needs and improve the overall quality of life of the citizens, good governance is one of the essentials. In addition, a tourist destination could lose its attractiveness and by implication its competitiveness if it cannot develop sustainably. This underlines the significance of sustainable/ecotourism in the travel and tourism sector (World Tourism Organization, 2019).

In this context, the value of smart digital ecotourism assumes importance. By being environmentally friendly, a smart ecotourist destination can leverage data and digital technologies. This could help with enhancing the competitiveness of tourism companies and destinations as well as in the preservation of territorial balance. So, each time a tourist landscape is altered due to anthropogenic interference, the same can be restored to its original form with the aid of digital or smart technologies. This is the very essence of the modern-day digital circular tourism economy. All in all, for the sake of competitiveness, sustainable tourist destinations/ecotourist destinations must adopt innovative strategies in order to exploit upcoming opportunities (Gretzel et al., 2015).

Some good examples of the linkages between ecotourism and the digital circular economy could be aggregator sites pertaining to the accommodation of the likes of Airbnb and Ecobnb. The same are online communities of sustainable

tourism. As per the website of Ecobnb, ‘one can find eco-friendly tourist accommodations, destinations and bio hotels such as tree houses, organic farmhouses, mediaeval castles, beach and mountain retreats’(Ecobnb, 2023). The same also aids in promoting eco-friendly tourism with a low carbon footprint, thanks to its online presence and structure. Stays in sustainable accommodations, organic food, green travelling, rediscovery of nearby and authentic places and environmentally friendly routes all contribute towards the maintenance of the crucial link between ecotourism and the digital circular economy. Ecobnb flaunts its credentials as a company with 100% clean energy and 0% carbon dioxide emissions. True to its character and promise, even the servers of Ecobnb are fully powered by renewable energy which is produced onsite (Hetzner Online) (Ecobnb, 2023).

Another famous example is of Airbnb. Somewhat similar business practices are being adopted by Airbnb at several destinations. The company has pledged to reduce its carbon footprint and become a net zero organisation by 2030, which includes educating and encouraging hosts to adopt sustainable practices, such as switching to renewable sources of energy in the form of solar power and using recycled materials during the stay of tourists (Garrod et al., 2023). These objectives are in sync with global tourist perceptions. For example, 81% of global tourists intended to choose an eco-friendly accommodation in 2022–2023 (Garrod et al., 2023). Also, a vast majority of globe trotters prefer green stays over power and energy-guzzling hotels (Garrod et al., 2023). Sharing economies such as the accommodation offered on Airbnb contribute substantially towards the circular economy by using otherwise idle assets, thus generating fewer waste and carbon emissions as also less resource and energy consumption (Curtis & Mont, 2020; Gössling & Hall, 2019; Hamari et al., 2016; Mi & Coffman, 2019).

Therefore, as the two examples from the tourism industry show, ecotourism and the digital circular economy are closely intertwined with each other. In other words, digitisation of ecotourism processes shall help in offering personalised services to customers and in improving the quality and operational efficiency of existing customer services (Curtis & Mont, 2020; Gössling & Hall, 2019; Hamari et al., 2016; Mi & Coffman, 2019).

In addition, digital tools and practices can also help with various other ecotourism initiatives. Be it energy-saving devices (such as smart sensors—enabling adjustments to room temperatures and lighting as per their occupancy and energy efficient heating and cooling systems), waste management and reduction strategies (smart recycling alternatives and evolving AI-powered food demand and supply models to meet accurate customer demand, without any food wastage), sustainable sourcing and procurement (based on online databases of hotels and restaurants in the locality that are deemed to be committed to the goal of environmental conservation, reducing packaging waste based on community wide e-database of the total waste generated and streamlining services delivery with the help of online technologies) and eco-friendly amenities of the likes of electric vehicles (again, the same employ extensive use of online technologies in their very structure)—‘green hospitality’ or hotels and restaurants propagating eco-friendly practices and customs could make vast use of digital tools and techniques and help further the cause of ecotourism (Ecobnb, 2023).

Conclusion

This article makes an attempt to understand the linkages between the global ecotourism sector and the digital circular economy. The article discussed the potential role of digital technologies in enhancing outcomes for the ecotourism sector. Be it Airbnb, Ecobnb or green hospitality in general—smart ecotourism (a euphemism for digital circular economy-centric ecotourism) rules the roost. Not only does it improve an organisation's competitiveness, the same also creates sustainable value for the ecotourists.

To conclude, for a thriving global ecotourism sector (or sustainable tourism), moving towards a digital circular economic framework ensures not just a reduction in the depletion of finite natural resources but also an enhancement in biodiversity and a significant reduction in business costs. Thus, ecotourism as well as the digital circular economy aim at creating sustainable value both for businesses and the environment.

The pandemic taught humanity the limitations of traditional growth approaches and models in the event of any natural or manmade disaster. It is the digital circular economic model that could upend the traditional ways of approaching the tourism/ecotourism sector, and by implication, the contours of the global economy, albeit in a significantly positive manner.

Future Policy Implications

The foregoing perspective will be useful for future researchers and policymakers in the domain of ecotourism and the digital circular economy. It is the importance of data-driven business models for the ecotourism sector that combine the seemingly disparate concepts of digital technological development and sustainability. The plurality of stakeholders in the global ecotourism industry renders a community-based perspective of somewhat greater relevance. A digital circular economy-centric ecotourism sector promises that very community participation, be it in terms of businesses and their competitiveness or the ecotourists searching for personalised alternatives.

In addition, there is an urgent need for concerted upskilling of existing stakeholders in the ecotourism supply chain. The same is imperative for the sector as far as protection of livelihood from the onslaught of AI-enabled technologies is concerned. Rather than deeming AI and other such advanced technological innovations as a threat to the people engaged in the sector, the interventions must be seen in a positive light. For that, it becomes vital for the ecotourism industry managers and leaders to instil confidence in the existing and upcoming workforce that technology is not a substitute but rather a complement to their efforts. Hence, there should not be any worry pertaining to job security due to the introduction of AI on a greater scale in the sector, if the workforce is duly prepared for the same beforehand. On the contrary, sound knowledge of AI and other latest technological tools and methodologies leads to improved productivity and greater profits for any organisation, including ecotourism (owing in large part to faster business decisions, insightful analysis to customise the services offered as per customer

tastes and preferences, identifying and maximising sales opportunities and mining of vast quantum of data that ultimately expands the customer base). AI-powered cleaning technologies and smart electric grids are cases in point. In other words, the performance of organisations and individuals engaged in the ecotourism industry would improve upon the introduction and adoption of AI-powered digital technologies, dispelling popular myths professing the opposite (NI Business Info, 2023).

Also, for a success-driven policy framework, it is all too imperative on the part of policymakers in the domain to build resilient digital infrastructure and ensure last-mile connectivity for all ecotourist destinations. Also, larger involvement of local communities as hosts shall aid in the conservation and preservation of existing environs—for they are directly affected by its deterioration due to traditional tourist activities and, thus, have a greater stake in its preservation, given their direct contact with the same on a regular basis.

All in all, this article helps explain the interlaced nature of the concepts of sustainability, tourism and the digital economy. The same is the need of the hour in the modern era, with its overemphasis on economic growth, often at the cost of the environment—an issue that could negatively impact the future quality of life of human beings.

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Sustaining Family Business: Unveiling the Resilience of Majuli Potters in Assam, India

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Abstract

The Kumars of Salmora village in the south-eastern part of Majuli, Assam, India, are an example of a family managed business of handcrafting river clay pots. Salmora became the Kumhar village as a result of clay, which became the primary reason for the settlement of potters in the area. The hand-beaten pottery is a cottage industry of Majuli and has been passed down through generations. Currently, the policy restrictions and the dying art form have made people think about how to sustain the handicraft, their livelihoods woven around this art form, and continue their passion/skill in the given challenging situation. This makes it interesting to adopt the case research method to examine the struggle of small businesses to sustain their livelihoods, on the one hand, and the limited alternative sources of livelihood, on the other hand, thus making the survival and sustenance of the family business a challenge, where pottery was their family business for generations. The case discussion revolves around the problems, concerns and causes for the deterioration of the art forms and highlights the issues and challenges. It contributes to the resources in the emerging family business management literature and also the family businesses to strategise in similar contexts.

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Keywords

Family business, pottery, Northeast India, sustainable, livelihoods, traditional art forms

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Introduction

‘Pottery was one of the oldest human inventions that had been around since before the Neolithic period with objects dating as far back as 29,000 BC’ (Duary, 2008). The origin of pottery in India could be traced back to the much earlier Mesolithic age. Pottery, like any other archaeological discovery, was a tangible artefact that shed light on past culture/civilisation’s socio-cultural, religious and economic aspects. It was a crucial source for reconstructing prehistory when written records were unavailable and even during historical times, the importance did not diminish.

This successful art style improved with technology throughout the Indus Valley Civilisation. The pottery industry in India was promoted as a major cottage industry as well as on modern lines in both small and large pottery businesses in recent years. The pottery business in India employs a large number of people from rural and urban areas and improves their standard of living. Furthermore, this business contributed significantly to India’s total gross domestic product as well as foreign revenue. The Indian pottery industry bravely crossed several obstacles and emerged as a proud winner. Over the years, no state-of-the-art technical support has been applied to this lucrative industry in India. Moreover, this industry has not made progress in meeting the demands of the current market. Also, the products made from village pottery were sold only to a limited part of society which called for a reassessment of India’s red clay pottery industry.

India was known for its rich culture, which includes many art forms like other handicrafts, crafts and the art of shaping and baking clay articles such as pottery. Unlike other precious materials, pottery was produced and used by common people. It provided an understanding of the way of life and was in demand for storage and other purposes. Ancient pottery aroused the curiosity of scholars and was therefore, considered one of the most important materials used by archaeologists as an indicator to measure the passage of time, determine cultural similarities or evaluate the scope and sociopolitical context of craft production. According to archaeologists, ‘Majuli’s pottery industry was a “missing link” between the Mohenjodaro and Harappan civilizations when the pottery industry flourished’ (Rahman, 2015).

In the far Northeastern region of India, surrounded by the Brahmaputra River nestled in the beautiful island of Majuli, lived a community of potters. Since the sixteenth century, these potters had been the protagonists of Assam’s cultural legacy and heritage. This famed tourist destination in Assam was an oasis of tranquillity, separated from the clamour of the contemporary world. Covered in lush greenery, this slice of paradise thrived on agriculture, pottery and making boats. Pottery was

not only a means of earning their livelihoods but also a vital element of their identity that was deeply rooted in their ancestor's rich cultural tradition. The advancement of modern technology and the changing customer preference had resulted in a decrease in demand for traditional handicrafts making them struggle for their livelihood. The potters of Majuli were struggling to earn their livelihood through pottery. The potters faced a conundrum in balancing their age-old traditions with the need to adapt to changing market dynamics. They were rapidly becoming irrelevant in the contemporary market system, and their struggle to maintain their tradition while remaining relevant was an ongoing challenge. A large area of the land was washed away due to environmental changes; the amount of damage and land loss caused by the land's erratic nature via flash floods and soil erosion was putting a strain on the population's ability to adapt and provide for themselves in those trying times. The potters of Majuli were facing an irregular supply of raw materials, a lack of working capital, the use of outdated tools, lack of technology, quality improvement, a lack of a good marketing base, along with management problems. Natural disasters wreaked havoc on those who lived closest to the Brahmaputra's banks, and the damage was not limited to farmers but also to the potters who relied on the clay as the raw material was found on the banks of the river. This called for a classic case for unveiling the resilience of the Majuli potters in sustaining their family business.

The potters' community spread over Assam's districts of Kamrup, Goalpara, Nalbari and Tinsukia as well as a few other districts of Assam. Despite the lack of historical evidence, many historians agreed that the craft was introduced during the reign of the Ahom kings. Majuli island was well known for its unique mud soil, which had the appearance of a mineral resource. This soil was known as 'Kumar Mati' in the local dialect. The name was derived from the fact that a specific community's people gave the name Kumar and were closely associated with the soil, so clay was known as 'Kumar Mati'. Salmora became the 'Kumhar village' as a result of the clay, which became the primary reason for the settlement of potters in this area. Typically, pottery manufacturing sites had a gender-based labour division system that was flexible in the community where both genders could work together at certain stages of production. The process of collecting the clay was done by a group of men from the locality when they set the pre- and post-production stages. The collected clay was then distributed among the household, and from here the process was taken over by the women.

Women of the Salmora region of Majuli practised the traditional form of pottery using gooeey clay, sculpting clay by hand without using the wheel. Once the pots were made, they were sundried. The final process of making pots was baking the pots, which was mostly done by men in a mud structure furnace and it was shared among the household. This ancient form of hand-beaten pottery was a notable cottage industry of Majuli and had been passed down through generations (Dewani, 2016). It was entirely based on handcrafted traditional products. It was only preserved in three villages of Majuli: Barboka, Kamjan Elengi and Besamora of Salmora.

The Family Enterprise

Family enterprises were a major form of business organisation, accounting for an estimated 60%–98% of all businesses in different regions of the world. Most small businesses were family owned and played a crucial role in the socio-economic structure of societies and countries all over the world. The efficient operation and succession of a family-owned enterprise were vital to the health of the national economy.

India's pottery industry was categorised as a small-scale industry. The potters of Salmora village made a living majorly from three seasonal occupations—pottery, agriculture and boat making. The majority of families depended on pottery for their living. Each family operated and managed the craft in their own free time. It was an art form in which every member of the family participated as a labourer, designer and organiser. Since agriculture and boatmaking were seasonal in nature and were dependent on the vagaries of nature, pottery had been the only preoccupation and vocation for the livelihood of the families in the village. However, restrictions had been put on the extraction of clay in the name of soil erosion, which made the potters of Salmora think about their livelihood and future, in the context of the government policy on one side and the dying art, on the other side. This made it interesting to adopt the case research method to examine the fears associated with the potter's community and their livelihood, where pottery was their family business for generations.

It was a traditional form of family-based cottage industry and was practised by successive generations of community members. The art of pottery-making the Kumar way was a family endeavour. The entire family was involved, with men and women of all ages and genders playing their parts to perfection. To give their pottery a genuine, earthy feel, the family proposes using the old-fashioned techniques of firing it in an open pit. It was based on the traditional handmade product in which the potter's wheel was not used. Clay was beaten by hand to give the form of utensils. There were 26 varieties of pottery items manufactured such as Mola, Nadia, Choru, Pati Kalah, Becha lkalah, Chaki and so on (Table 1).

The Demographics

Case research was followed to collect data from a sample of 50 families dependent on pottery-making as their preoccupation and livelihood. Data related to their demographics like age, sex, family income and educational level along with their enterprise data relating to the age of the enterprise and the number of employees. The demographic data revealed that the family business is predominantly female-led, with 35% females and 15% males in the family running the business. Two or more families also came together to run the business, which shows the collaborative and community approach to business (Figure 1).

In terms of age, the majority of them were 26 years of age and above, indicating the aversion of youth towards the family business and lack of succession planning (Figure 2).

Table 1. The Varieties of Pottery Items.

S No	Local Name	English Name	Utility
1	Kalah	Pitcher	Utilitarian
2	Gagori	Pitcher	Utilitarian
3	Ghot	Small goblet	Utilitarian-cum-ritualistic
4	Mola	Rimless bowl	Utilitarian-cum-ritualistic
5	Nadia	Frying pan	Utilitarian
6	Charu	Big bowl	Utilitarian-cum-ritualistic
7	Bhaluki	Big pitcher with lid	Utilitarian
8	Bhog charu	Large deep bowl	Ritualistic
9	Shahastrabati	Multi-lipped shallow disc	Ritualistic
10	Shastradhara	Perforated pitcher and perforated deep bowl	Ritualistic
11	Shahstra- mala	Perforated disc used as garland at the marriage gate	Ritualistic
12	Chaki	Earthen lamp	Ritualistic
13	Dhopdani	Incense stand	Ritualistic
14	Gacha	Lamp stand	Ritualistic
15	Chat/ Dhakani	Lid with knob	Ritualistic
16	Akashbanti	Lamp stand (hanger)	Ritualistic
17	Dunori	Decorated pot (marriage related)	Ritualistic
18	Gilas	Goblet/glass	Utilitarian
19	Tekeli	Small pitcher	Ritualistic
20	Sarai cum bota	Disc-on-stand with a conical dome (lower part is used as bot to offer betelnut)	Ritualistic
21	Dhunadani without	Stemmed-pot (bowl on disc handle-based stand)	Ritualistic
22	Dhunadani with handle	Pot for burning dhuna (scented latex)	Ritualistic

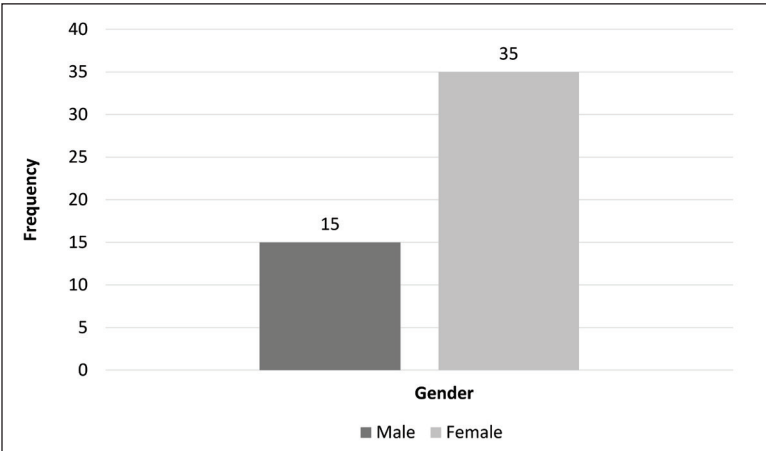


Figure 1. Gender.

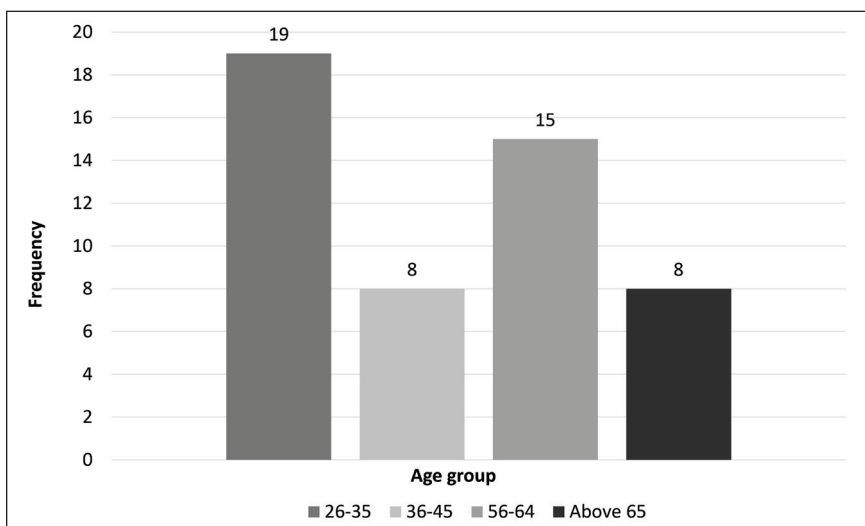


Figure 2. Age Group.

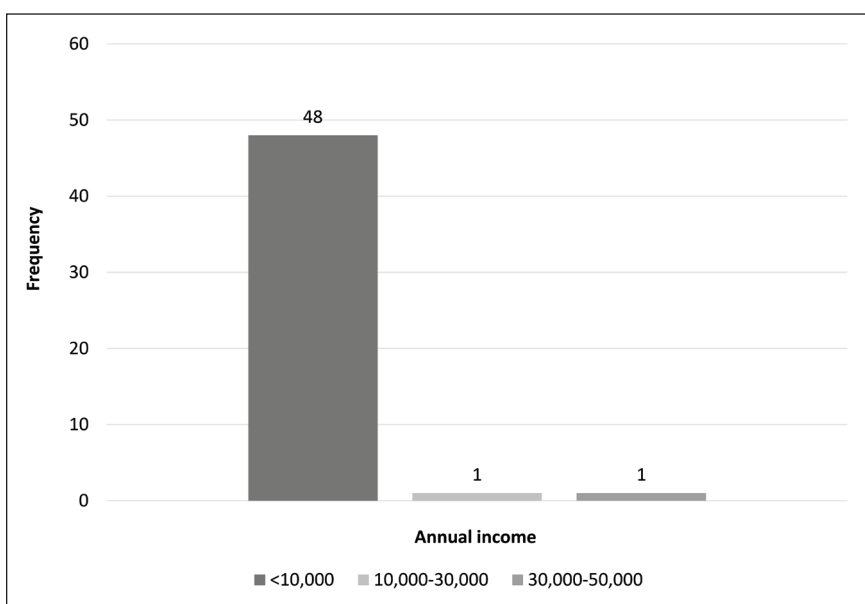


Figure 3. Annual Income.

The annual income of the family was below ₹10,000 (133.19 USD), which according to them was much below the cost of living required to take care of the basic needs of the family (Figure 3). This highlights the financial challenges faced by the enterprise.

The majority (48%) of the family firms had been operating for more than 25 years. It showed that pottery-making had been their source of income for

generations, and it was heartening to note that the art which survived over the years was on the verge of collapse, thus disturbing the family business (Figure 4). This demonstrates the resilience and longevity of this traditional business.

Potters, on the whole, were uneducated, where 14% of them were illiterate and 30% finished primary school and 56% finished secondary school. Educated people were hesitant to work in the pottery industry because of the opportunities that were available in the outside world (Figure 5).

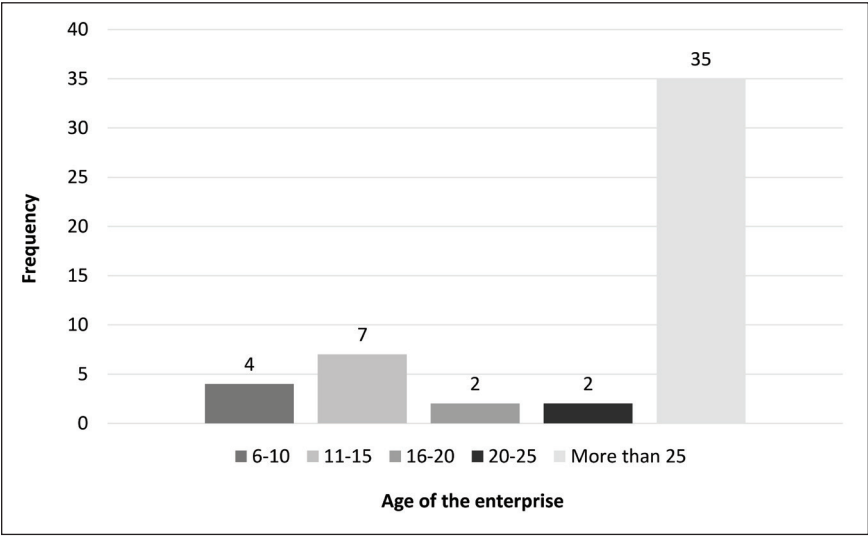


Figure 4. Age of the Enterprise.

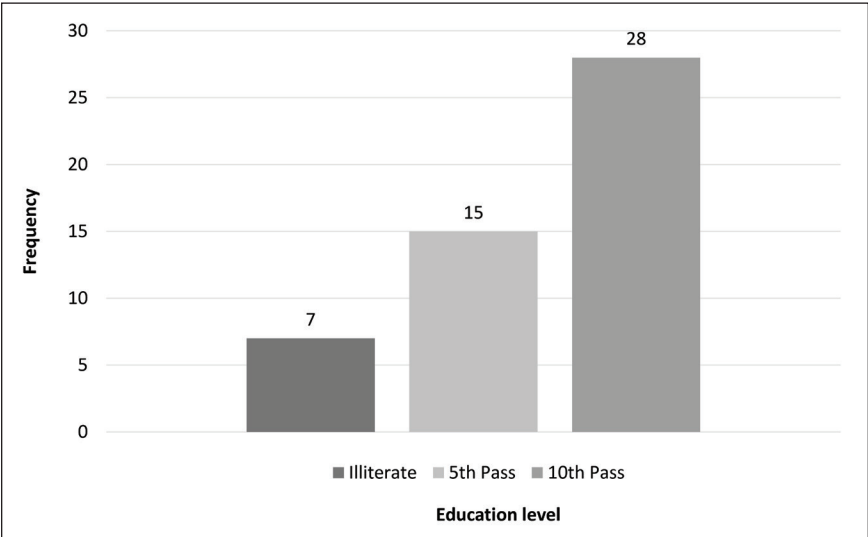


Figure 5. Educational Level.

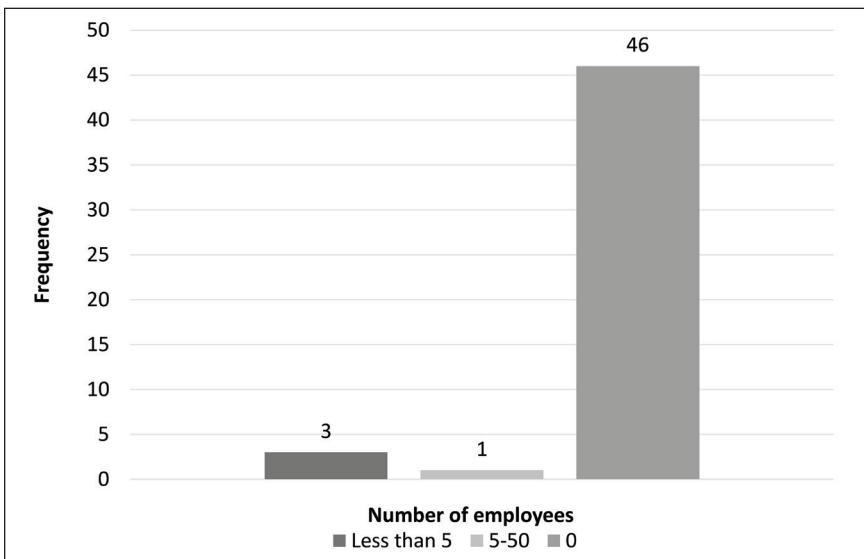


Figure 6. Number of Employees.

Figure 6 showed that 92% of the business was operated by the family on their own with no employees. Six per cent had less than 5 employees and 2% had 5–50 employees (Figure 6).

Potters Who Exemplify the Business Art

Since pottery was one of the oldest crafts, many had come and gone over the years, and only a handful remain; hence, it was necessary to recognise the pottery producer who had set themselves apart from the rest. For example, the Prairie fire pottery run by the potter Tama Smith and her husband Jerry made and sold pottery with beautiful, abstract glazed influenced by the landscape of North Dakota. Every summer, millions of travellers passed by on their way to and from the rocky mountains, seeing their pottery billboards and stopping by to buy pots. Collectors and pottery enthusiasts prize Tama's work for its vibrant and complex colour. These glazed colours were created from scratch using the original recipe. Tama employed a number of manufacturing methods, which included wheel throwing, hand building, extruding and pressing. Various ladles and small squirt bottles were used to apply the glaze. She primarily worked with stoneware clay.

Mr Shiho spent his entire life in the tiny town of Shigaraki, Japan. His early career was marked by years of struggle from being a lawyer to a salesman to being a master in pottery, his life was interesting. Due to his devotion to natural materials (digging clay from his backyard, utilising the traditional Korean kick wheel and burning with just wood for 10 days straight), he was forced to face years of conflict. Shiho San got lucky when he sold tea bowls from the trunk of his automobile to a generous and powerful Buddhist monk. Within a few years, Tokyo

skyscraper galleries were vying for his work. Over the years, his work has graced the most prestigious galleries in Tokyo.

Another success story was the Hamada pottery. Tomoo Hamada was the third-generation potter in Mashiko, Japan, and the grandson of a renowned potter Shijo Hamada, a Japanese national living treasure. Hamada pottery helped to establish Mashiko pottery, and now 350-plus pottery studios attracted visitors to spring and fall pottery festivals. Each festival attracted about 500k people to Mashiko to buy pottery. They stand out for their rustic looks, adopting the Japanese aesthetic of simplicity. Its popularity began in the nineteenth century because it was both attractive and practical. At that time, pottery was used mainly as kitchen utensils. The Hamada pottery was set up as a museum, with a peaceful, self-guided tour of the beautiful ground. Hamada pottery also connects with people through technological means.

Ayumi Horie pottery based in Portland was a visionary potter on the internet. She believed that the best handmade pottery fostered connections between people and improved daily lives. She launched an online store about ten years ago that had consistently and successfully sold high-end coffee mugs to customers all over the world, almost instantly after posting her new pots. She founded 'Pots in Action' in 2005 to help potters and ceramic artists connect with and educate the public about rich ceramic traditions through crowdsourcing. Her efforts to organise online pottery communities gave people more reason to support her work. These were the success stories of potters in the United States and Japan. They had made a living from pottery, which entailed allowing people to eat and drink from their beautiful creations while they received money in exchange.

Shanthi, a 52-year-old potter from the small village of Kooniyoor in Tirunelveli district in Tamil Nadu, simply wanted to keep this tradition of pottery alive, for her pottery was her family business and she wanted to expand her business by building on the foundation laid by her forefathers. However, with the passage of time and problems such as natural disasters and clay shortages, earning a living through pottery became increasingly difficult. She and her husband, who was a potter, used to make ₹50,000 per annum, which was insufficient to support her family. Shanthi was forced to look for new ways to expand the business due to low demand, which was bankrupting the family. She realised she needed to go beyond their tradition in order to appeal to the new market with innovative patterns while still preserving the original artisan form. They formed the Narmada village self-help group to teach local women about pottery and also educated them on government support programmes that aided cottage business growth. In a span of two years, Shanthi's business began to grow; she was able to export her handcrafted pots to the United States through her nephew. She had successfully employed over 20 women in the village while earning ₹250,000 per year as a result of her effort to keep this traditional craft alive. The goal of the Narmada self-help group was to empower women in their respective areas. The business ensured that its products were environmentally friendly while maintaining its tradition by using natural raw materials and natural dyes. They kept things basic by focusing on simple design and natural materials and made products that were utilitarian and did not place a high value on aesthetics. Shanthi's nephew who worked in a hotel in the United

States would frequently visit the village over vacation. He began capturing the pottery manufacturing process through social media, sharing photographs and video clips with friends and family. His American colleagues were enthralled by the art form and fascinated by the way women used the wheel, wooden modelling tools, fettling knives and towels to create these pots. Her desire to preserve her family's business and revive the traditional craft of pottery production brought the women closer together while also empowering and elevating their social position.

Challenges

While others had faced financial difficulties, some family members had left the family business to pursue other activities. They faced many challenges such as the restrictions on the natural raw material clay, which was a hindrance to Majuli's growth and development (Neog, 2016). The raw material was usually collected during the winter when the Brahmaputra's water level was low. Because of unabated erosion, the island's habitable land had shrunk from 1,226 square km to 576 square km, and this form of soil was categorically prohibited from being collected.

The pottery industry heavily relied on traditional knowledge and experience which the Kumar's possessed, along with a few standard instruments that they employed. Among the instruments used were the wood pot, Aaphari, Choconi, Cloth, Boliya, Athali, Pitan, Majanee and firewood. Locally obtained wood and bamboo were used in the pot-making process. The potters handcrafted these by hand (Table 2).

Pottery artisans were struggling to sell their wares in the market because they were using direct marketing. The barter system was followed for part of the sales and the rest by direct sales. The product market was largely local and extended to urban regions. In addition, middlemen played an important role in the marketing

Table 2. The Tools Used for Pottery-making.

S No	Local Term	Functions
1	Pat	It was a piece of a wooden sheet utilised for mixing the mud.
2	Aphori	A level board was utilised to shape the mud with the hand.
3	Gorha Kapor	A piece of material which was the cloth utilised to give shape to the pot.
4	Bolia	A stone device of around 6–12 inches long was utilised to beat the internal surface of the pot to give it its expected shape.
5	Pitun	A wooden bamboo beaten of around 10 inches × 4 inches was utilised for beating and moulding the external surface of the pot.
6	Suchoni	Suchoni was a small string of bamboo cuts utilised for confining the completed pots from the hard form.

Note: Adapted from Neog (2016). Copyright 2016 by Nezine.com.

of these local products. They usually placed orders with the artisans and collected them for a lower cost than the market. One of the reasons for the product's failure was to generate a desire for the product among customers directly. The production techniques were mediocre, and the products lacked standardisation.

Transportation and communication facilities were also the limiting factors on the river island of Majuli, and as a result, the rural artisans faced several challenges when attempting to sell their products in the outside market. Majuli's pottery had suffered greatly due to the lack of better transportation and communication facilities. Bicycles, thela (hand cart) and boats were the modes of transportation and communication for these items in Majuli. These modes of transportation appeared inadequate for the smooth operation of their enterprise. The development of family-managed enterprises relied heavily on a healthy economy and the interest of the family (Kamdars & Bhuta, 2023). When it comes to pottery, the state's dearth of basic business networks was a roadblock in the expansion and development.

Even though earthenware had domestic and foreign markets, widespread use of paper, plastic, aluminium and steel products generally posed a severe threat to pottery as a whole, and it had endured a major setback due to their resilience. The high illiteracy rate among a majority of Majuli's potters was another challenge, which resulted in the lack of many aspects of the industry.

The pottery industry was ignored for a long time. The Indian government has launched several strategies to promote conventional small businesses, but handicrafts have stagnated due to the lack of encouragement, implementation and preparation. As a result, these manufacturing units were plagued by illness and the artisans were trapped in a vicious cycle of poverty. Recent initiatives of the government relating to the toy-making industry were an example of reviving the old forms of small family businesses, which had good market potential. The budget allocation of 15 billion USD (US dollars) in the budget of 2022 for the North-east to revive the traditional forms of living was but a welcome initiative from the government.

The family businesses, which were once thriving, are now struggling to keep up with the times. The pottery industry presents opportunities, but it also faces challenges such as lack of raw materials, labour and space for drying, firing and storing finished products. Product sales are increasing in both the national and international markets. This sector is being impacted by lifestyle changes and substitutes goods available in the market. Intermediaries earn high profits, but face challenges such as product damage, fluctuating demand and transportation issues (Shrestha, 2018). The case of the potter's community demonstrated the struggle of small businesses owned by families to sustain their livelihoods, on the one hand, and the limited alternative sources of livelihood, on the other hand, thus, making the survival and sustenance of the family business an issue with limited solutions.

Moving Forward

Craft industries could create jobs and alleviate poverty while also fostering cultural variety and inclusivity. The sustainable livelihoods framework (Figure 7)

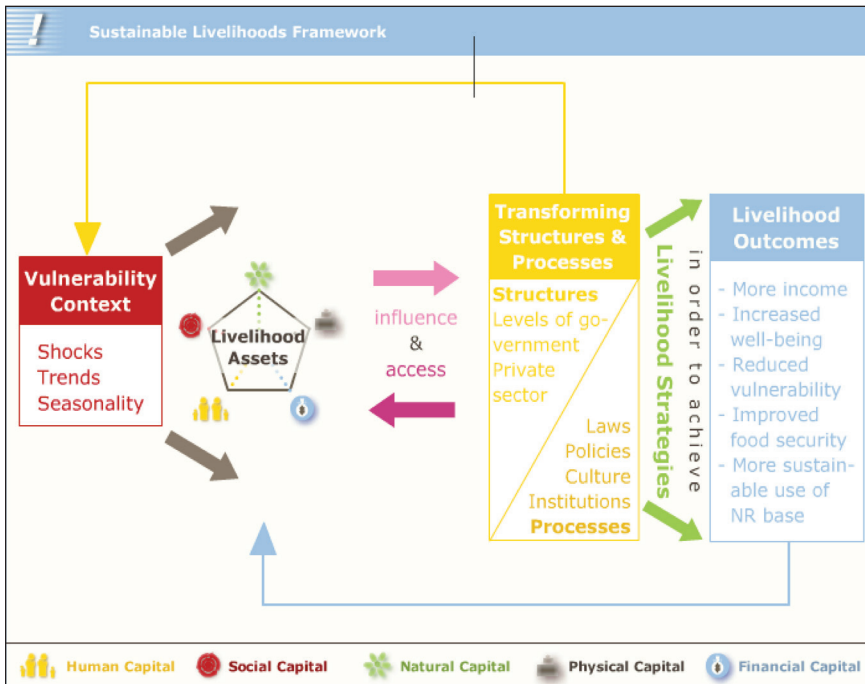


Figure 7. Sustainable Livelihoods Framework.

Source: DFID (2000).

aims to provide a comprehensive understanding of livelihoods, taking into account all of their many nuances, constraints and opportunities. These constraints or opportunities are influenced by a multitude of factors, including local norms and institution, global or national structures and trends over which people have little control or may not even be aware, and the resources that people or their households have direct access to.

The framework depicts stakeholders as operating in a context of vulnerability, within which they have access to certain assets. Assets gain weight and value through the prevailing social, institutional and organizational environment (policies, institutions and processes). This context decisively shapes the livelihood strategies that are open to people in pursuit of their self-defined beneficial livelihood outcomes. (Kollmair & Gamper, 2002)

Their vulnerability can be seen in terms of the shocks they experience because of the changing trends and alternatives available for pottery at the global and national level along with the stagnancy that they had reached in terms of their personality. This restricted their access to the structure and processes towards their transformation and alternative strategies for their livelihood, thus affecting the outcomes.

In this context, the case was built around the conflict where families underwent an environment that offered opportunities, unrelated to the skills and passion of

the family businesses, on the one hand, and the experience of the families helplessly observing the dying form of the art/passion/skills, on the other hand. In summary, the conflict revolved around the question of continuing the struggle for enlivening their passion/art or giving up the art/family culture to take up a transformative route to earn a livelihood for their family.

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Book Review

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Richard Frederick Heller, *Distributed University for Sustainable Higher Education*. Springer Briefs in Education. Springer Verlag, Singapore, 2022, 80 pp., ₹2,596.00.

Reviewed by: Elizabeth Jacob, Department of Marketing, New Delhi Institute of Management, New Delhi, India

Richard Frederick Heller, a medical doctor and professor, joined the academia in 1969. Having a span of over 50 years in leadership capacities of medical schools in the developing world, the author brings to us his understandings on the dominance of competitive and managerial business models in university over education. Through the book, the author suggests some solutions that could improve the future health of the universities.

R. F. Heller begins with a contextual briefing about the First- to Fourth-generation Universities in the first chapter. University begins where school education ends, giving opportunities to move up the academic ladder and perform research. The First-generation Universities like Nalanda in India focused on education along with enlightenment. The Second-generation Universities added research to it yet kept the model simple. Third-generation Universities evolved to play role in building national capacities and began partnering with actors outside the university sector. The expansion of university education along with commercialisation of education and research demanded managerialism, bringing along the problems we experience these days.

Some of the problems of university education purported by the author and the solutions suggested are:

1. Universities are becoming consumer-oriented leading to their departure from their prime purpose—serve the public. The author contends that there needs to be a balance between consumer and community in driving university priorities.
2. Managerialism, which was intended to improve the performance of the public sector, has been introduced into academia uncritically. Academics are controlled by managers who have no expertise in education or research.



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We need to develop trust in academic staff to replace managerialism, as trust leads to many voluntary behaviours, lowering the costs of control. Less interference of managerialism can lead to better collaboration among faculty colleagues. Author contends that academia must be espoused of collegiality and civility grounded in the sacred values of academic freedom and autonomy.

3. The need for funds to financially sustain the university has led to an over-emphasis on research with no conclusive evidence that better research leads to better education quality. Also, there has been a focus towards bringing more overseas enrolment, but not with the intention of bridging educational inequality but only for the funds it brings. But the students are also not provided enough academic quality for the money they pay; instead, faculty are more focused on research, leaving the role of teaching to teaching assistants. While universities need to survive financially, it becomes a problem when money-making becomes the prime motive deviant from public responsibility and wider social purpose for which universities need to exist for. University system itself rewards a non-core business (research) more than its core business (education). Global University rankings are based on the research undertaken by faculty; funds are granted based on research; and in order to attract overseas students, universities need to have good global rankings.
4. The need for funds has led to unhealthy competition between universities, leading to duplication of courses rather than collaborative efforts building on the strengths and resources of each other. The author proposes a 'New Bloom' taxonomy where collaborate has been added in between Analyse and Apply thus making it an educational outcome. He says that collaboration must become a key skill imparted to students because workplace demands teamwork. Research also requires collaboration, as multiple skills are required to tackle most of the problems.
5. Technological integration has been limited to provide the 'sage in the stage' approach of passive learning in education. Use of Open Educational Resources (OERs) and Open Educational Practices (OEPs) can help bring quality educational content to the access of students.
6. Environmental sustainability is ignored. While many conferences are organised around the theme of sustainability, which leads to more carbon footprint, the practical actions taken by universities towards environmental sustainability need to be evaluated. Trees are cut down to build new blocks, and faculty and students travelling daily to a physical environment all are detrimental to environment sustainability. Hence, the author propounds that there is a need to rethink education.

The book provides critical insights on the way universities and higher educational institutions function, focusing on the market, but does not provide a concrete operational model for financial sustainability, a need for any institution. Cost may

be reduced by including use of OERs and OEPs, technology-integrated learning process that can help scale up education with no need for additional physical infrastructure. The book expounds a ‘Distributed University’ model for financial sustainability without compromising on its prime purpose of existence—social purpose. While implementing all the suggestions put forth by the author might be difficult, yet the book helps to recheck on whether we are being too market-oriented at the cost of education and ways by which we can cut cost and make use of the untapped opportunities available.

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