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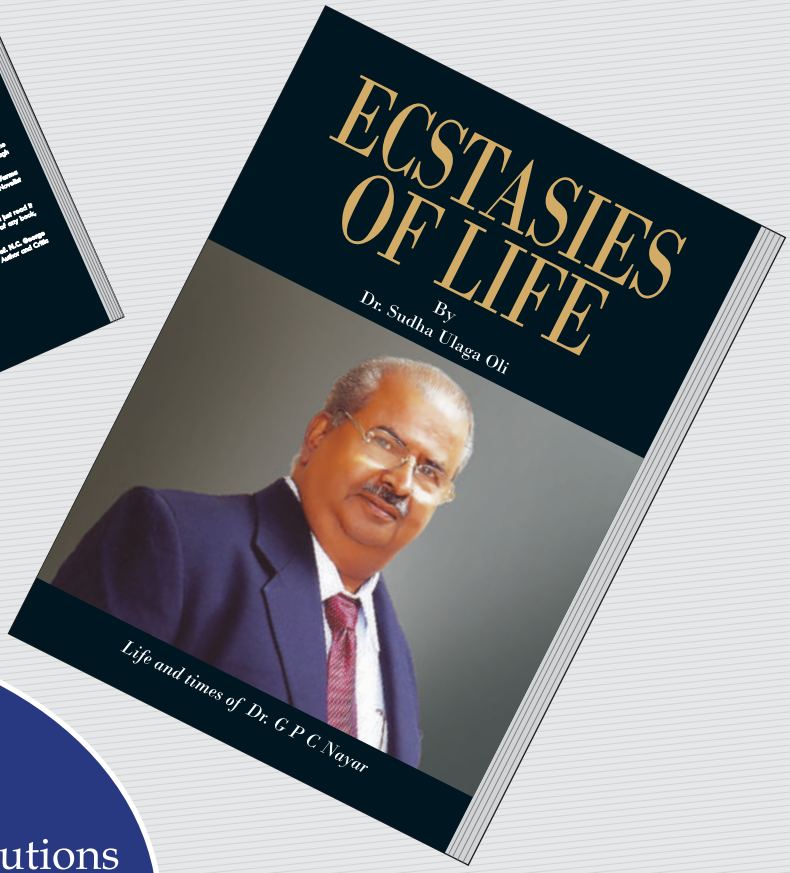


Here's an entrepreneur
who has created
some excellent academic institutions
in an unfriendly environment.
It is a saga of trials and tribulations
in an extremely readable manner
by a consummate
writer in English.

THUS SPAKE

Well written biography of a great achiever who swam against the current.

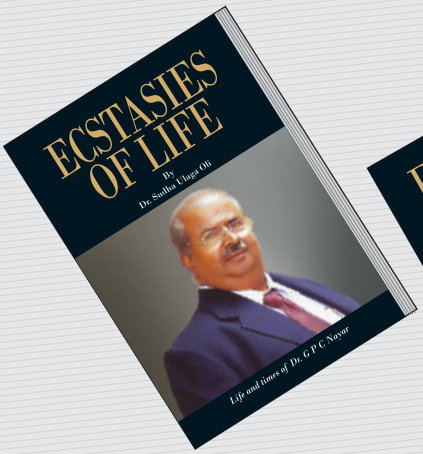
Dr. Subramanian Swamy
Professor - Harvard University

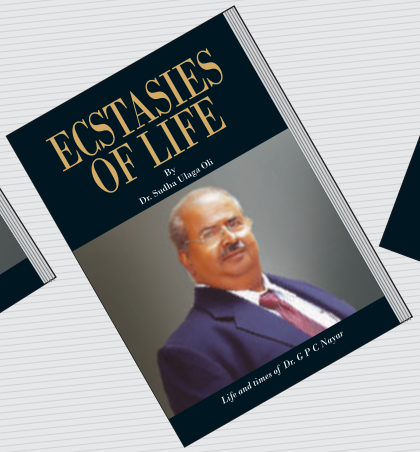
This is a biography which can be read with ease and pleasure. The narration is such that, that it helps us experience many situations as though they are ours. Readability is its forte.

K.L. Mohana Varma
Award winning Novelist

I am amazed at the way the author has treated the subject. I just read it through in one sitting, which I have rarely done in the case of any book, leave alone biography.

Prof. N.C. George
Author and Critic





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April - June 2023, Vol. XX, Issue No. 2

Articles

Chairman's Overview

Artificial Intelligence (AI) is revolutionizing higher education globally, and business schools are at the forefront of this transformative shift. AI-powered analytics tools make it possible to work with large datasets, providing valuable insights that aid decision- making related to admissions, student progression and curriculum design. Intelligent tutoring systems that are AI enabled can help personalize learning experiences as per student needs, offering customised interaction and feedback. Immersive learning environments and simulated real- world scenarios are made possible through AI powered virtual and augmented reality. In addition, AI enables automation of administrative tasks such as grading, workflow management and other operational aspects.

While AI applications have tremendous potential and present myriad opportunities, it also comes with various challenges that need to be addressed. Crucial factors that need to be considered are ethical issues, data privacy and ensuring readiness among all stakeholders involved. Data privacy and ethical use of AI technology must be prioritized. Faculty members need training and support to integrate AI into their teaching practices effectively. Students should be equipped with the necessary digital literacy skills to leverage AI tools and navigate the ethical implications associated with AI adoption.

Effective leverage of AI can help B-schools enhance learning outcomes, research capabilities, and administrative efficiency. AI integration in business education enables individualized learning, the development of real-world skills, and enhanced digital-age readiness for students. Additionally, AI makes it easier to incorporate cutting-edge technology like blockchain and data analytics into business school courses. Students get pertinent knowledge and abilities as a result, equipping them for the dynamic work market. Business schools can maintain their ability to give significant and current education in a world that is becoming more and more reliant on technology by successfully integrating AI into their educational methods.

Dr. G. P. C. NAYAR
Chairman, SCMS Group of Educational Institutions.

SCMS Journal of Indian Management

A Quarterly Publication of

SCMS-COCHIN

Editorial

The second issue of 2023 has a good mix of international collaborations presenting relevant research across management domains. The lead article focuses on the leadership styles that emerged within an Adult Education and Literacy workforce development organization in Texas during the early phases of the pandemic. The findings emphasize the role leaders play in fulfilling the needs of all stakeholders during a crisis. The following study explores the predictive factors for the recovery of Indonesian industrial estates in the new normal conditions after the pandemic. The study highlights the importance of collective innovation capability, protecting minority investors, and ease of doing business in driving the performance of industrial estates.

Next, a team of authors from Malaysia and India delves into the status of social entrepreneurship and the available support structures in the two developing economies. The study identifies key themes related to training, grants, accreditation, and relationships among social entrepreneurs. The fourth article investigates the relationship between dividend policies and the value of listed companies in Vietnam. The study confirms the positive relationship between the dividend payout ratio and company value, supporting the bird-in-hand theory. Additionally, the study finds that cash dividends positively affect company value, aligning with the signaling theory.

The issue also carries an article that uses the DMAI - ANN technique to propose a model that uses quantitative and qualitative criteria to evaluate and rate suppliers. The study provides practical insights for choosing the most excellent and efficient suppliers, aiding decision-making in the manufacturing industry. An article from the marketing domain examines the factors influencing online shopping intention during the pandemic. The study highlights the mediating role of shopping satisfaction and the moderating role of shopping values in the association between shopping attitude and intention.

In tune with the current context of emphasis on entrepreneurship skills in management education, we have a study that reveals that personal agency predicts students' academic performance, emphasizing the need to align course content with students' entrepreneurial aspirations. We also have an article that explores the impact of optimism on job satisfaction and the mediating role of job involvement in the banking sector. The findings provide valuable insights into managing employee well-being during times of crisis.

The ninth article examines the relationship between Google search intensity and cryptocurrency returns. The study finds that increased online searches for cryptocurrency information drive price increases, trading volume, and volatility of cryptocurrency returns. The issue comes to a close with an article that sheds light on the relationship between share buybacks and stock returns in the Indian market. The research suggests that the Indian market demonstrates semi-efficiency, with share prices already incorporating the information related to share buyback announcements.

Wishing all our readers an educational reading experience.

Dr. Radha Thevannoor

A Qualitative Case Study Analyzing Leadership Characteristics Emerged During COVID-19: Implications for Management and Governance

Suresh C. Joshi[1, 2, 3, 4]*, Chih-Wei Wang[2], Amanda Sainz[2, 3], and Mary V. Alfred[2]
[1]Department of Digital Learning, SGT University, Budhera, Gurugram-Badli Road, Gurugram 122505, Haryana, India.
[2]Texas Center for the Advancement of Literacy and Learning, Texas A&M University, USA
[3]Department of Educational Psychology, Texas A&M University, College Station, TX, USA
[4]Centre for Continuing Education, University of Petroleum and Energy Studies, Knowledge Acres, Kandoli, Dehradun, India 248007

**Corresponding author*
Email address: contactscjoshi@gmail.com

Abstract

This study aimed to analyze the leadership characteristics that emerged within an Adult Education and Literacy workforce development organization during the early phases of the COVID-19 pandemic. A qualitative case study was conducted using document analysis to understand the links between management and governance within the organization. The data were collected from virtual meetings held between March and May 2020. Six leadership styles emerged within the organization as they displayed specific characteristics from each leadership model while serving students, teachers, and staff amidst COVID-19. The leadership characteristics that emerged during this time reflect urban and rural communities. These characteristics were necessary for human resource functions to successfully transition from face-to-face to remote instruction and overcome pandemic-related challenges. The present study is of practical significance for Adult Education Literacy practitioners to prepare for future crises. The findings from this study reflect on the role leaders can play in fulfilling the needs of all stakeholders during a pandemic.

Keywords: *Adult education and literacy, Leadership characteristics, Qualitative case study, COVID-19 pandemic*

1. Introduction

Texas's Adult Education and Literacy (AEL) programs provide various services to help adults acquire basic literacy skills (Texas Workforce Commission, 2022). These services include English language, mathematics, reading, writing, workforce, and digital literacy courses. Texas AEL programs serve a diverse student population in rural and urban communities. The COVID-19 shutdown heavily impacted AEL services because they rely on community centers, public schools, and libraries to host their classes. This shutdown also forced AEL programs to transition from face-to-face courses to remote instruction (Housel, 2022; Boeren et al., 2020), requiring strong leadership to overcome these challenges. This transition revealed the need to investigate how AEL leadership facilitated the change to remote services. Thus, this study examined the leadership characteristics that emerged within AEL during the COVID-19 pandemic.

1.1 COVID-19 Prevalence and Impact

COVID-19 was first reported in December 2019 (Tan et al., 2020; Zhu et al., 2020), and it affected all segments of everyday life, including businesses, the economy, access to education, means of communication, social relationships, and overall psychological health and well-being (Centers for Disease Control and Prevention, 2022; Education Week, 2020; Williams & Kayaoglu, 2020). According to the Centers for Disease Control and Prevention, COVID-19 is transmitted through human-to-human interaction, and adults with pre-existing conditions are most vulnerable. The COVID-19 outbreak was declared a Global Pandemic on March 11, 2020, due to its rapid and widespread prevalence (Ghebreyesus, 2020). COVID-19 cases drastically increased and reached 440,000, with approximately 20,000 deaths worldwide by March 24, 2020 (Ainslie et al., 2020). COVID-19 quickly grew into a pandemic and forced humans to isolate themselves.

1.2 The Leadership During COVID-19

In the past, supervisory support, frequent communication, active listening, perspective-taking, and assuring the well-being of others were effective strategies for minimizing the impact of pandemics and business lockdowns (Alshurideh et al., 2022; Eisenberger et al., 2002; Wooten & James, 2008). The actions of national, statewide, and local leadership can permanently shift economic, social, and health foundations in and outside communities (Dirani et al., 2020). Due to limited federal oversight within the U.S. (Haffajee & Mello, 2020), state governments were “notably absent at all levels” in their response to COVID-19 (Kolker, 2020, p. 6). This lack of uniform response caused the U.S. to become the epicenter of COVID-19 (Haffajee & Mello, 2020). Harris (2020), from the University of Bath in England, recommended that distributed leadership strategies based on “capacity building rather than control” and “the mobilization of others to lead through collective engagement and action” could mitigate the impacts of COVID-19.

Leadership plays a crucial role in overcoming challenges during the pandemic (Pinisetti, 2023; Santoso et al., 2022; Oleksa-Marewska & Tokar, 2022; Dumulescu & Mutiu, 2021); however, adapting flexibility may help leaders at all levels. Throughout COVID-19, “a new leadership order [emerged] which has no leadership standards, no preparation or development programs, no inspection framework, no KPIs [Key Performance Indicators], [and] no benchmarks” (Harris & Jones, 2020, p. 246). Institutions and their leaders needed to respond swiftly and function differently during this pandemic. For example, as per Harris and Jones (2020), schools required more commitment than ever from leadership during COVID-19 to create new pathways through this disruption. School leaders had to navigate the individual and collective tensions, accountability and autonomy, well-being and workload, and equity and excellence of their faculty, staff, and students (Netolicky, 2020). Furthermore, a study that explored public leadership during COVID-19 found that moral obligation and public administration were positively correlated (Yang & Ren, 2020). These studies indicated a strong need for leaders to develop a plan of action "by building trust, managing fear, and encouraging a sense of duty and community orientation" (Diermeier, 2020, p. 1); only then will leadership be successful in navigating through a crisis. These studies also indicated a strong need to conduct an in-depth analysis of leadership characteristics, which might have played a key role in overcoming the challenges during COVID-19.

1.3 AEL Leadership Needs during COVID-19

The Texas Workforce Development agency is responsible for several divisions, including childcare, adult education, vocational rehabilitation, unemployment benefits, and tax programs (Texas Workforce Commission, 2021). The Division of Adult Education (DAE) receives federal funding from the U.S. Department of Education through the Office of Career, Technical, and Adult Education to support eligible programs. These funds are also allocated towards a statewide

professional development resource center to provide formal training to all qualified programs. The adult education division works alongside the professional development resource center (PDRC) to ensure that all programs receive the training necessary to support their students. Texas utilizes the Educating Adults Management System (TEAMS) to document and track pertinent information regarding AEL services. According to this database, the Texas DAE supported 35 programs and 65 service providers in 2019-2020. This database also revealed that Texas AEL programs serve approximately 90,000 adult students each year. To comply with COVID-19 social distancing mandates (Centers for Disease Control and Prevention, 2020) without forgoing services, AEL programs transitioned to remote instruction. The transition to remote instruction was made possible with guidance and fiscal support from AEL leadership (Texas Workforce Commission, 2022). It was necessary to understand the measures taken by the leadership during those times of crisis; therefore, further investigation was needed so that it could provide insights to current and future researchers.

It was clear from the literature that the COVID-19 pandemic was challenging for leadership at every level, especially for adult education and literacy program directors (AEL) (Ainslie et al., 2020). It was also clear that the DAE encouraged all programs in Texas to continue serving students amidst the pandemic. Thus, they joined forces with the PDRC to facilitate the statewide transition to remote services. Moreover, the DAE needed ongoing communication with all stakeholders to provide clear guidelines and gather feedback (Fernandez & Shaw, 2020). Therefore, there was a need to understand how AEL leadership facilitated this transition. We developed the following research questions to identify:

RQ1: What leadership characteristics emerged in adult education during the COVID-19 Pandemic?

RQ2: How did adult education leaders support their programs during the COVID-19 Pandemic?

2. Theoretical Framework

Leadership styles emerged from the chronological development of three leadership theories: Trait Theories, Behavioral (Style) Theories, and Situational (Contingency) Theories. According to Warrick (1981), trait theory was dismissed in the mid-1960s due to the lack of evidence. Behavioral Leadership Theories, also known as Leadership Styles Theories, were established through various studies, including Ohio State University's leadership research, Michigan State's leadership research, and Blake and Mouton's management style matrix (Harrison, 2017; Goffee & Jones, 2015; White & Prywes, 2007). These studies identified several leadership behaviors (styles). However, they focused on the following themes: consideration and initiating structure (Ohio State University leadership research) (Harrison, 2017), job-oriented and employee-oriented styles (Michigan State leadership research) (Goffee & Jones, 2015), consideration, and job orientation (Blake and Mouton's management style matrix) (White & Prywes, 2007).

Warrick's work (1981) described four basic leadership models based on human characteristics, implicit leadership philosophies, and management skills. These models were as follows: Human Relations Style, Democratic Style, Laissez-Faire Style, and Autocratic Style. The Human Relations Style placed a low emphasis on performance and a high focus on people, based on the assumption that "all people are honest, trustworthy, self-motivated and want to be involved" (p. 158). The Democratic Style placed high emphasis on performance and people based on the assumption that "most people are honest, trustworthy, and will work hard to accomplish meaningful goals and challenging work" (p. 158). The Laissez-Faire Style placed low emphasis on performance and people as it assumed that "people are unpredictable and uncontrollable and that a leader's job is to do enough to get by" (p. 158). The Autocratic Style emphasized performance and a low emphasis on people because it assumed that people were lazy, irresponsible, and untrustworthy. The autocratic style also states that planning, organizing, controlling, and decision-making should occur without employee involvement" (p. 158). These leadership styles were associated with typical human characteristics, further linked to implicit leadership philosophies (Warrick, 1981).

Based on the existing leadership models mentioned above, new leadership styles were developed to fulfill the ever-changing situational needs of organizations in the post-industrial world of management. These styles included Servant Leadership, Transactional Leadership, Transformational Leadership, Participative Leadership, Charismatic Leadership, Authentic Leadership, and Coaching Leadership. Servant leadership consists of behavioral and human characteristics and is based on the idea that a person can be both a servant and a leader (Greenleaf, 2002). Servant-type leaders help employees get the job done through collaboration and emphasize employee satisfaction.

According to Demirtas & Karaca (2020), leadership should be developed and criticized through behavior analysis. In this way, servant leaders are responsive and people-oriented.

McGregor Burns (1978) developed Transactional and Transformational Leadership styles as political theories. Transactional leadership was based on the phenomena of task-reward exchange in which those in charge "garner obedience and effectiveness by explaining task requirements and [rewarding employees], thereby establishing a transactional relationship with their followers" (p. 102). Transformational leadership is based on a reciprocal relationship between the leader and the followers. The "leader makes life meaningful for their employees by providing empathy and an atmosphere of loyalty which keeps the excitement and enthusiasm emotions alive" (p. 85). These leadership styles were based on opposite concepts. However, they complement each other with the notion that influential leaders use the transformational style extensively (Demirtas & Karaca, 2020).

Participative leadership, known as democratic leadership in previous studies (Warrick, 1981), was based on self-determinant theory and was considered a "highly advantageous approach in leadership practices" (Demirtas & Karaca, 2020, p. 127). In participative leadership, followers participate in the decision-making process, which helps them fulfill their psychological needs. Such fulfillment increases employee satisfaction, thereby improving the outcomes. Wright et al. (1994) described how participative leadership aligned with human resources management practices, focusing on the effective use of human capital. According to human capital theory, human resources (HR) plays "a significant role in a genotypical classification of organizations" (McKelvey, 1983, as cited in Demitras & Karaca, 2020, p. 127). Therefore, HR should maintain heterogeneity to stand out from others. Nevertheless, the leader acknowledges employees' contributions, making everyone feel engaged and motivated.

Charismatic leadership emerged in the nineteenth century and evolved into a social and political leadership style; it was examined within social and political activities until 1980. After 1980, charismatic leadership was studied using integrated approaches from sociology, history, political science, psychology, and management. Charismatic leaders set high goals and expect their followers to perform by convincing them that they can achieve them (Demirtas & Karaca, 2020, p. 168). With communication and persuasion as the key traits, charismatic leaders significantly impact their followers, creating a highly effective workplace, especially during crises and chaos.

Authentic Leadership emerged towards the end of the twentieth century and was based on ethics and honesty (Demirtas & Karaca, 2020). Bill George formally defined authentic leadership for the first time in 2003. He described that "authentic leaders exhibit a passion for their goals, implement their values consistently, and lead their followers with their brains as well as their hearts" (p. 202). Authentic Leadership has grown tremendously since its inception as it was regarded as a timely solution for the rapidly changing technology-driven world. There were four dimensions of authentic leadership, which were as follows: self-awareness, transparency in relationships, internalized moral understanding, and balanced evaluation of knowledge in the decision (Muhammet, 2019). According to Muhammet (2019), authentic leaders inculcate positivity in the workplace by administering positive psychological and ethical practices to create self-awareness and a transparent work environment. With these four dimensions, authentic leadership is considered one of the most prominent leadership styles for the 21st century (Demirtas & Karaca, 2020).

Coaching leadership is considered a new area of research; however, it was introduced in late 1960 by Paul Hersey and Kenneth Blanchard (1969). In the 1990s, businesses utilized coaching leadership to help managers develop leadership skills (Berman & Bradt, 2006). In the twenty-first century, coaching leadership challenged leaders to go beyond their comfort zones and become familiarized with the outcomes of this coaching process (Demirtas & Karaca, 2020). Such claims were made for two reasons; first, coaching leadership helps people identify and boost their strengths; second, coaching leadership allows people to develop their organizational skills using individual and team strengths (Demirtas & Karaca, 2020). Coaching leadership is considered one of the most advantageous leadership styles because leaders recognize their team members' strengths and motivate them to set more innovative goals.

The explanation of leadership theories was incomplete without including "the situation of the followers and the organization" (Demirtas & Karaca, 2020, p. 13), forming the basis for the Situational Leadership Theories. Numerous situational leadership models were developed; however, the noted ones were Fiedler's Contingency Theory of Leadership (Schermerhorn et al., 2007), House's Path-Goal Theory (Hirt, 2016), The Vroom and Jago Leadership Model (Vroom & Yetton, 1973), and Leader-Member Exchange

Theory (Dansereau et al., 1975). The Situational Leadership Theories combined leadership characteristics and styles with situational varieties. These theories have argued that leaders direct, coach, support, and delegate based on the environment and situation (Blanchard et al., 1985), thereby helping describe leader effectiveness based on typical problems and conditions (Demirtas & Karaca, 2020). Thus, the leadership theories discussed in this section guide the analysis for this study.

Previous literature indicated that the leadership models that best fit the organizational structure and needs of the Texas Division of Adult Education are Servant Leadership, Transactional Leadership, Transformational Leadership, Participative Leadership, Charismatic Leadership, Authentic Leadership, and Coaching Leadership because they represent leaders of bounded entities. Further, these styles best fit the organizational structure and needs of the Texas Division of Adult Education because they aim to fulfill the situational needs of the industrial world. However, according to Blanchard et al. (1985), these styles must be assessed situationally. Thus, these models will be utilized in the context of COVID-19 to identify how the DAE successfully led the statewide transition to remote services.

Previous studies indicated that qualitative research design was used for analyzing leadership characteristics (Demirtas & Karaca, 2020; Warrick, 1981). Thus, a case study design was deployed to examine changes over a period of time. Leadership characteristics were also analyzed to understand how these changes unfolded. In addition, thematic analysis was used to test the reliability and validity of the qualitative data in those studies. Combining everything together, this study utilized a qualitative case study design followed by a thematic analysis of the data that aligned with the theoretical framework of the study.

3. Methodology

A qualitative case study design was chosen for this study because this investigation evaluates the leadership characteristics displayed by the Texas Division of Adult Education (DAE). The DAE is a uniquely bounded system that coordinates grant-funded adult education and literacy programs. The COVID-19 pandemic directly affected AEL programs and their students, setting the context for this study. We aimed to assess the DAE's response to AEL service providers during this time of crisis. Thus, a case study was designed to explore how DAE leadership responded to their grant recipients from March to May 2020.

In response to statewide program closures, the DAE established a weekly meeting schedule with AEL program coordinators and service providers to answer questions and offer support. These meetings were hosted and recorded via Zoom or Teams from March 16-May 21, 2020, and published on the PDRC's website for reference. A total of 11 meetings were conducted, and they each lasted approximately 1-1.5 hours. We transcribed these meetings for further analysis because they contain direct and unscripted communication between DAE leadership and grant-funded providers. These transcripts serve as the premise for our study.

The weekly meeting transcripts were analyzed via thematic analysis (Bowen, 2009) using ATLAS.ti 8.0., a qualitative data analysis software. The researchers discussed and verified identified themes, and reliability and validity were ensured via member checking (Merriam, 2002). Researchers discussed coding disagreements until a mutual decision was made.

3.1 Data Source

The PDRC website was the primary data source for this study because the data was published on a COVID-19 landing page. The DAE published new AEL policies and guidance for grant recipients to follow while programs were closed. They also issued a health and safety memorandum to AEL grantees on March 16, 2020, containing COVID-19 health and safety acknowledgments and contact information for respective grant management teams. Lastly, the DAE published and regularly updated an FAQ document that included detailed explanations of frequently asked questions about AEL services during COVID-19. These documents were collected from the PDRC website for further analysis to identify the actions made by leadership.

4. Findings

This study yielded findings on the leadership characteristics displayed by the Texas Division of Adult Education (DAE) during the early stages of COVID-19 (March to May 2020). The DAE took immediate action by creating an online repository for their students and staff to access information about COVID-19 updates. The DAE also lifted grant restrictions to accommodate remote learning needs. There were several challenges that DAE leadership faced during this time, such as the inability to host in-person professional development sessions, enroll new students, and facilitate in-person classroom instruction. Although the researchers hoped to discover leadership characteristics displayed by

more than one entity within the DAE, the data only reflected actions taken by the state director.

Evidence from the data revealed that the most prevalent leadership characteristics (code counts 17 - 26) that emerged during the weekly meetings were servant, participative, coaching, and authentic, as defined by Warrick (1981). Transformational and autocratic leadership styles were also observed occasionally (code counts 7 - 8). Other leadership characteristics, such as coaching and transactional, were observed in the data. However, they will not be reported in this study because they were infrequently identified (code counts less than 5).

Alex (pseudonym), the DAE State Director, and the level 1 leader were the main speakers in the AEL weekly meetings during the COVID-19 pandemic. The leadership characteristics presented in this study revolve around Alex's responses to AEL needs. Pseudonyms were also given to other leaders that were mentioned during these meetings (Table 1). The leadership characteristics were drawn from the behaviors demonstrated by Alex, the state director, during this time of crisis. The forthcoming sections describe the following leadership styles that emerged during the weekly meetings: servant, democratic, situational, and appreciative. The time frame for weekly meetings is presented in [MMDD] format.

Table 1. Pseudonym List

Pseudonym	Position in the leadership of DAE and PDRC
Alex	Level 2
Linda	Level 3
Alice	Level 4
Maggie	Level 4
Bill	Level 5
Jane	Level 5
Sandra	Local AEL program

4.1 Servant Characteristics

While demonstrating the people-oriented and responsive characteristics of servant leadership (Demirtas & Karaca, 2020), Alex showed his support to the DAE team and AEL grantees at the first meeting by saying [0319], "I want to largely chalk that up to my team, the PDRC, and you guys out there for helping us so much with feedback. We want to be as responsive as possible to help you." In this statement, Alex gives credit to his staff, program coordinators, and directors for maintaining constant communication amidst a tumultuous time. Alex further expressed his concerns about program staff and students, so he assured them of his support by stating [0319], "I know you're dealing with lots of questions about part-time staff, your students, distance learning, remote learning, and we are doing our best to get information to you." Alex reiterated the multitude of ways to reach DAE in the next meeting by stating, [0323]: "Find a way to get the information over to me, through your program support specialist, any of the email addresses you've ever seen. And we will reach out and help you get up to speed to some extent." These remarks reminded AEL programs across the state that the DAE was available and ready to help them.

Program administrators also had concerns about remote testing, and to ease their anxiety, Alex immediately advised them [0319], "Don't get too obsessive worrying about post-testing and things like that." He intended to redirect program administrators' attention to issues that they could address, such as supporting students with the unemployment process and ensuring that their basic needs are met. Alex later addressed the importance of employee well-being amidst this intensive transition by stating that [0402] "we don't need anybody to burn out. We need to keep our mental health too." Alex's main priority was the health and well-being of program administrators, students, and staff. As the data shows, Alex supported AEL programs and the DAE team by being responsive and demonstrating people-oriented characteristics (Demirtas & Karaca, 2020).

4.2 Participative Characteristics

Alex displayed participative leadership characteristics (Warrick, 1981; Demirtas & Karaca, 2020) by considering the perspectives of his team members and AEL program staff when making statewide decisions. Alex motivated programs and recognized their persistence in the first meeting by stating [0319]: "We trust you, and we want you to keep these services going." Statements like "we trust you" empower program administrators to take initiative and manage their sites in the way they see fit. Alex guided AEL programs in developing remote processes the following week by saying [0323]:

It might be a good period right now to talk to your instructors and come up with a process that everybody feels comfortable with. And our group of experts here have offered their time for subject matter learning and subject matter expertise.

Although Alex identified a group of remote learning subject matter experts to help facilitate this transition, he still assured administrators that they are equipped to facilitate the

transition. With Alex's direction, the PDRC took the lead in creating a pandemic response website on March 12, 2020, and updated it regularly. Collaborative efforts between the DAE and the PDRC led to a multitude of web resources for all AEL stakeholders. These efforts were acknowledged at the first meeting in April when he said [0402], "The PDRC has done an amazing job. [Level 4 and 5 leaders], and others behind the scenes on the webpage, Jane, and Sandra on assessments. The web page is fabulous." Team efforts made by the DAE and PDRC were further acknowledged by Alex on several other occasions throughout that month, revealing his admiration for his team.

When it came time for the DAE to develop clear guidelines for facilitating remote programs, Alex sought feedback from AEL providers in early April when he said [0402]: "You guys are the ones that have to do this stuff [rules and guidelines] with students in your communities." The DAE also distributed a feedback survey to the field, and Alex praised programs for their participation by acknowledging their efforts a few weeks later [0423]: "The survey for COVID-19 got 100% responses in 72 hours, and I want to thank you for that." As reflected in the data, Alex demonstrated leadership by motivating his team, recognizing their persistence, and keeping AEL staff and students in mind when making decisions.

4.3 Coaching Characteristics

To serve adult learners in need during the COVID-19 pandemic, Alex implemented coaching leadership strategies (Demirtas & Karaca, 2020; Hersey & Blanchard, 1969) at various times by providing guidance, delegating powers, and extending overall support to programs. At the first meeting, Alex elucidated the importance of continuing to serve students and reminded programs to [0319]:

Keep the ball rolling because you want to try to keep as much normalcy as possible for students. They've got enough chaos going on in their lives with kids being home, getting laid off, trying to go to the grocery store to buy toilet paper, or whatever.

In this statement, Alex reiterated the stresses of the pandemic and that a sense of normalcy could help mitigate some of the effects. In early April, Alex noticed and acknowledged the various challenges faced by rural and urban communities. In response, he developed a peer network program and invited all staff members to share their best practices. Alex said [0409]:

I want to do a phone call on rural area access to allow each of you out there to peer network and share best practices. I'm going to put another call together for leads of our consortia because they're operating a system within a system.

Programs across the state were encouraged to network and discuss their experiences with connecting virtually in rural areas and leading large consortiums amidst school closures. Alex utilized the individual and collective strengths of his team to facilitate the transition to remote services. Alex addressed that consistency and communication are key when attempting to maintain a sense of normalcy.

Alex continued implementing coaching leadership strategies by tracking ongoing financial and economic shifts within the Texas workforce to provide guidance related to these changes. Alex also provided insights on how economic changes will impact students' needs and the labor market after the pandemic when stating that [0430]:

I'm part of a workgroup that's looking at what the new economy will look like in terms of the labor market. When you have 2 million people unemployed and filing claims, you've really changed your labor market dramatically. So, we're looking at where it's going by looking at job postings, and that will define new in-demand occupations.

This statement reminded programs that Alex is tracking pertinent changes related to the economy and the workforce so that he can lead programs in the right direction. In this section, the data reflects Alex's coaching leadership characteristics when supporting AEL programs in their transition to remote learning.

4.4 Authentic Characteristics

As an authentic leader (Demirtas & Karaca, 2020; Muhammet, 2019), Alex implemented transparent and positive practices to inspire his team during the early phases of COVID-19. To express his appreciation, Alex illuminated the strengths of the PDRC and DAE at every weekly meeting. At the first meeting in March, Alex says, [0319] "It's because you guys are so responsive and ask good questions. So, I'm really grateful, and it makes me proud to work with you guys". In this statement, Alex reminds his team that he is proud to work with them, emphasizing the need for collaboration. Alex acknowledged his team and their hard work again in the next meeting when he said: [0319] This website is awesome, and I want to thank Maggie [Level 4 leader] and the team [PDRC] there, Bill the webmaster, who was working over the weekend on some of this stuff. And it's really helpful for getting information out.

He further recognized the effort and promptness of PDRC staff in updating and distributing information via the website and the FAQ document:

[0416] Thanks to PDRC for the amazing support in keeping this FAQ updated for us, and Linda for all the work on my team to put it together in terms of content and many other folks really contributing.

[0423] Sandy [pseudonym for DAE program support specialist] on my team, thank you. Sandy confirmed that the loaning of laptops and equipment, and supplies is in the FAQ already.

[0430] Thank you so much, Alice [Level 4 DAE leader]. You guys are doing a great job over there keeping the trains running on the finances for us.

By consistently using phrases like "they deserve kudos" and "I appreciate the work of my staff" on several occasions, Alex displayed his awareness of his staff's effectiveness and his gratitude for their efforts. Alex acknowledged AEL teachers and staff again for Teacher Appreciation Week when he stated:

[0507] I want to give a big shout-out to our teachers. We've really had to devolve a lot of responsibility down to instructors because they're now the single point of contact for our students in many instances. So many thanks to all you folks.

As reflected above, Alex displayed authenticity, positivity, and transparency towards his team consistently over 11 weeks. He maintained a positive attitude and supported his team throughout a challenging time.

4.5 Transformational Leadership

To support local programs with goal setting and transforming their teaching environments, Alex provided clear instructions. He also formed a reciprocal relationship with the AEL staff by encouraging creativity and building confidence. While supporting AEL programs, Alex advised them on goal setting and serving students when he said [0319], "Think more about how you can put your energy towards reaching students, helping them with unemployment insurance information and helping them with distance education." He continued by acknowledging the reciprocal relationship between his staff by saying [0319]:

Y'all [You all] have been fantastic out there in terms of your responsiveness and what you've been sending in terms of feedback on your local status. I'm reporting all of those things up to our leadership, the commissioners, and our executive director, and we are looking like rock stars, thanks to you guys.

In addition, Alex empowered grant recipients by admiring their creativity and building their confidence when he mentioned:

[0323] You guys are just full of creativity. I love it!

Alex appreciated the role of AEL programs in the decision-making process again in April when he stated [0409], "We update our leadership almost daily, and your feedback on those surveys has been instrumental in helping us make some decisions." Alex later stated the DAE's goal for serving local programs [0409], "Our goal is to send the guidance out and then let you digest it with your teams." In alignment with organizational objectives, Alex directed grantees to promote their services in the following ways [0416]:

We need to prompt our students in our classes to remind their friends that they're open and that they could join the class. And if you're a director, make sure that your agency can do what it can to promote your program.

The quotations provided above display Alex's transformational leadership characteristics (Mañas-Rodríguez et al., 2020; Burns, 1978) as he established a clear line of communication and helped local programs with setting goals.

4.6 Autocratic Leadership

In some instances, Alex took rapid and decisive actions when leading AEL programs during the COVID-19 pandemic. Alex had to make assertive decisions without input from others, which led him to impose authoritative action. These decisions helped AEL programs overcome challenges in serving students. For example, on March 19, 2020, Alex asserted that "Distance Education and remote learning, those are going to be the main way that we are going to be able to stay connected with our students, and I don't think I have to tell you that." Furthermore, Alex instructed all programs to accept new students seeking services [0319]:

If you have new students coming in, bring them in, and we'll take care of the eligibility testing later. Anybody who wants to come in for a free education service, I think we can't say no to that… Like I said, I'll fight.

Linda [Level 3 leader] commented on Alex's decision about accepting new students [0319]:

If Alex wants to go this route, we'll have to put out some guidance on that because you'll basically not be able to enter any of these individuals into the system. So, we'll have to discuss that and then give you guys some guidance on what that's going to look like.

Although Alex decided to accept new students during the COVID-19 pandemic without discussing it with his team first, Linda and others with the DAE supported him.

Alex further outlined what the priorities should be for AEL programs as time went on. He stated [0415], "I want everybody to have your philosophy be, let's serve the students first and worry about performance later. I don't want people worried about compliance and performance at the expense of serving students." Alex reinforced this notion at the next meeting by saying [0423]:

We go on the record in an AEL letter to say the priority is on focusing on serving students and not performance accountability concerns at this time because we are transitioning into a new field of service delivery during a national and worldwide emergency… Focus on service delivery.

In the quotations referenced above, Alex consistently reiterated his position on serving students and emphasized to programs that students' needs take precedence when it comes to offering AEL services.

Before COVID-19, pre-testing services were required upon program entry. However, AEL testing services were drastically impacted by program closures, and online proctored assessments were not available. Alex's new proposal for accepting students regardless of the pre-test requirement dramatically changed the student enrollment process for all programs. Therefore, he reassured grant recipients that it would be challenging but worth doing when he said: [0423]: "We're not going to flip the switch and go into a remote testing world overnight. But we do say all grantees must develop remote testing options once they become available." As shown in the data, Alex displayed autocratic leadership characteristics (Demirtas & Karaca, 2020; Amanchukwu et al., 2015) while still providing guidance, reassurance, and support to all members of the AEL staff. Alex took rapid action when necessary to overcome the challenges of the COVID-19 pandemic.

5. Discussion and Conclusion

This study analyzed the leadership characteristics that emerged within DAE during the COVID-19 pandemic. The following leadership characteristics emerged: servant, participative, coaching, authentic, transformational, and autocratic. The data from this qualitative study revealed that leaders who utilize multiple leadership characteristics yield greater effectiveness from their employees, especially during times of crisis. The forthcoming sections will describe how these leadership styles helped establish more opportunities for AEL stakeholders.

Our findings outlined Alex's demonstration of servant leadership characteristics (Fernandez & Shaw, 2020; Demirtas & Karaca, 2020) in the early phases of the COVID-19 pandemic. Considering the changes that come with transitioning from face-to-face to remote services, Alex provided guidance and flexibility to help AEL programs complete their daily tasks and serve students. Responsiveness and people-oriented leadership characteristics (Engelbert & Wallgren, 2016; Groot, 2015) were observed in every meeting that Alex hosted with grantees. Alex emphasized AEL staff collaboration and satisfaction by addressing feedback collection, employee concerns, and providing information updates. These findings resonate with the outcomes from a study conducted by Fernandez and Shaw (2020), which discussed academic leadership in a time of crisis. The findings of our study indicated that servant leadership characteristics emerged within DAE during COVID-19, which was necessary for human resource functions within the organization to overcome pandemic-related challenges. Our study also supported the Servant Leadership Model proposed by Bragger et al. (2021), which warranted the need to investigate servant leadership characteristics within organizations during a time of crisis.

Participative leadership characteristics (Demirtas & Karaca, 2020) were reflected in Alex's statements as he promoted teamwork and acknowledged the contributions of others. Alex also shared success stories from local programs to motivate AEL staff during the weekly meetings. Involving all stakeholders in decision-making through dialogue is one of the three practice elements of participative leadership (Raelin, 2012). Alex engaged AEL staff by distributing surveys to gather feedback regarding program needs through deliberation. These efforts helped increase survey participation and streamline the transition to remote services in Texas. The findings from our study resonate with a previous study (Raelin, 2012) that investigated the principles

of participative leadership for organizational change. Raelin (2012) stated that "dialogue and deliberation represent the communication modes that are most representative of democratic leadership because they accepted critical reflection as the means to involve the responsible parties in decision making without privileging particular stakeholders because of their status or authority (p. 17)." Altogether, Alex involved all AEL stakeholders and provided clear guidelines amidst the COVID-19 pandemic with democratic leadership strategies.

Alex emulated coaching leadership characteristics (Demirtas & Karaca, 2020; Wright, 2017) by providing AEL staff with clear guidance and suggestions for the future. With Alex's direction, AEL programs independently developed their procedures for providing services during the COVID-19 pandemic. Alex also demonstrated coaching leadership characteristics when he delegated need-based tasks to grantees and supported them in providing remote services. These findings align with a study that investigated emerging situational leadership among school administrators during the COVID-19 pandemic (Francisco & Nuqui, 2020). By implementing situational leadership characteristics, which Francisco and Nuqui (2020) called New Normal leadership, Alex supported AEL programs through unpredictable circumstances.

As reflected in the data, Alex inspired AEL staff through his appreciation for their efforts and commitment to serving adult learners. Alex also implemented strategies for inclusion and positive inquiry to lead the transition to remote services. As a result, programs promptly updated their websites and finances during this transition. Implementation strategies for authentic leadership characteristics that emerged in this study were in alignment with similar strategies reported in previous studies conducted by Whitney et al. (2010) and Lewis (2006). Alex emulated personal authenticity and integrity when he highlighted the skills of AEL teachers and staff. These findings support how transparency can help overcome challenges during a time of crisis, especially "when we experience the combined power of every relevant resource, even the tiniest seed of hope, available to us across the entire strengths spectrum" (Cooperrider & Fry, 2020, p. 270). Alex created a positive and inclusive environment for all staff members by acknowledging positive changes in the workplace during COVID-19.

On various occasions, Alex displayed key elements of transformational leadership (Demirtas & Karaca, 2020; Mañas-Rodríguez et al., 2020) to guide AEL programs through the transition to remote learning. These leadership characteristics included developing a clear line of communication with AEL stakeholders and maintaining a reciprocal relationship with DAE. Our findings aligned with the outcomes of a previous study, stating that "transformational leaders articulate an ideological vision and lay emphasis on the meaning of tasks, but also grant followers responsibility and support" (Steinmann et al., 2018, p. 7). Maintaining a reciprocal relationship with employees through knowledge sharing supported the claim made by Liu and Li (2018), which stated that "transformational leadership facilitates knowledge sharing among employees by enhancing followers' perceived team goal commitment and perceived team identification" (p. 8). The transformational leadership characteristics that Alex exhibited empowered grant recipients during this challenging time. In addition, his guidance on goal setting helped AEL programs stay aligned with their organizational objectives. These findings resonate with the claim that by "enhancing the importance and attainability of the goals they [employee] disseminate, TLs [transformational leaders] are thus able to facilitate their followers' organizational goal striving" (Steinmann et al., 2018, p. 7).

As reflected in the data, Alex demonstrated autocratic leadership characteristics (Demirtas & Karaca, 2020; Amanchukwu et al., 2015) when he took rapid and decisive action by guiding AEL programs. Although remote testing was unavailable from March to May 2020, Alex insisted that AEL programs continue accepting new students. Alex's autocratic decision to continue accepting new students helped increase the enrolments, which county commissioners, DAE, and AEL programs thoroughly supported. Alex provided clear guidelines that defined roles for all AEL programs, and this helped AEL programs prioritize the needs of students and staff in this time of crisis. These findings supported the claim made in a previous study, which stated that the autocratic leadership style helps improve organizational performance (Wagbara & Ukaigwep, 2019).

DAE director demonstrated various leadership characteristics and multiple ways of leading AEL programs working through the transition during COVID-19. These findings are representative of both urban and rural communities, as Texas AEL programs serve a diverse student population of various ages, cultural backgrounds, and ethnicities. Human resource development practitioners should consider these findings when preparing future crisis management plans and protocols to instill organizational goal attainability and overall employee support measures.

5.1 Limitations

The first limitation of this study was related to the data. The data collected in this study was limited to the weekly meeting video transcripts. We did not conduct interviews with the DAE director, other members from the DAE, or other programs. Multiple data sources would provide greater insight into the leadership structure within Texas adult education and literacy programs. The second limitation is that the leadership characteristic analysis is based solely on the DAE director; other levels' of leaders were not included. It is recommended that future researchers use more objective measures to conduct extensive qualitative studies that shed light on the impacts of local program leadership structures.

5.2 Theoretical implications of the findings

This study provides several implications for theoretical researchers and practitioners. For example, the study outlined how a qualitative case study can assess leadership roles within a bounded system such as an organization. Further, findings revealed the strategies that the DAE director demonstrated as a leader throughout the transition during COVID-19. This study also provides strong evidence of a single case study that used thematic analysis. Moreover, this study provides a guiding document for future researchers investigating specific leadership styles such as servant, transactional, transformational, participative, charismatic, authentic, and coaching.

5.3 Practical implications of the findings

In addition to theoretical implications, this study provides several practical implications, which could be useful for researchers and practitioners in the area of management and governance. Findings could be generalized to various demographics because this case study represents urban and rural communities with a diverse student population of various ages, cultural backgrounds, and ethnicities. The findings can also be generalized to multiple contexts, especially when leadership should respond to systemic disruptions because the adult education programs involved in this study were hosted in public libraries and school systems, community colleges, the workplace, and various other community settings. Human resource development practitioners should consider these findings when preparing future crisis management plans and protocols to instill organizational goal attainability and overall employee support measures. The findings can be utilized by leaders during times of crisis, as this study provides useful insights about various leadership characteristics that emerged during the COVID-19 pandemic. In sum, leaders and practitioners of management and governance may consider the outcomes of this study when guiding entities through challenging local, global, and national events.

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Declaration of Conflicting Interests

The author(s) report no conflict of interest.

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The Role of Collectivism's Innovation Capacity as a Predictor of Recovery in Industrial Estate Performance

Bambang Dwi Suseno
Associate Professor
Corresponding Author
Management Department,
Faculty of Economics and Business
University of Bina Bangsa, Kota Serang,
Banten, Indonesia,
Email: proexchellence@gmail.com

Ahmad Mukhlis
Assistant Professor
Management Department,
Faculty of Economics and Business,
University of Bina Bangsa, Kota Serang,
Banten, Indonesia,
Email: ahmuk999@gmail.com

Abstract

This study aims to predict the recovery of the performance of industrial estates in the new normal conditions after the COVID-19 pandemic. The global manufacturing-industry supply chain network is predicted to experience a contraction of minus 2.43%, including in Indonesia, which also experienced a contraction of minus 3.24%, over the next three years. Population for this study- As many as 108 industrial estates exist in Indonesia as of December 2019. Of these, 35 industrial estates are located in the provinces of Jakarta, Banten, and West Java, or 32.4% of the population. The purposive sampling technique is used to identify a representative sample of the population. Data was collected from 250 company managers because of their important role in management and service to tenants. Questionnaires were distributed in the form of a Google Form from January to May 2021. The Collectivism Innovation Ability Test shows a positive and significant influence of exogenous variables on the performance of industrial estates, both simultaneously and independently. This implies that the industrial estate performance manager must consider actions based on values and norms, continue to learn, and create added value to achieve competitiveness through mutual agreements with companies. Through mutual stakeholder agreement, this study contributes to the collective development of a new model of innovation and knowledge management with a specific focus. According to the concept of collective innovation capability, exogenous variables (protecting minority investors, collective innovation capability, and ease of doing business) have a positive and significant effect on the performance of industrial estates, both simultaneously and independently.

Keywords: *collectivism, innovation, capability, predictor, protecting, minority, investor, industrial, estate, performance*

1. Introduction

World Economic Forum (WEF, 2019) released data on the manufacturing sector's 19.52% contribution towards the gross domestic product in Indonesia. This was still below China (28.8%), South Korea (27%), Japan (21%), and Germany (20.6%). The three main contributors to the manufacturing sector in Indonesia were textiles and clothing, with an annual growth of 20.71%; the paper and paper goods processing industry, with 12.49%; and the food and beverage processing industry, with 5.05% (Central Statistics Agency, 2021).

The growth of the manufacturing sector in Indonesia is increasingly losing competitiveness compared to other countries in the world, especially in the Southeast Asian region. Of the 141 countries surveyed by the WEF (2019), Indonesia's competitiveness index slipped to 50th from 45th in 2018, with a score of 64.6. In 2019, the Southeast Asian countries incited their competitiveness, including Singapore (1), Malaysia (27), and Thailand (40). In case Indonesia fails to improve its innovation and information technology infrastructure, it risks being overtaken by the Philippines (64) and Vietnam (67), which ranked lower in the previous year (77).

Due to the pandemic, the supply chain network of the global manufacturing industry is predicted to decline by 2.43%, including Indonesia, with a decrease of 3.24% (World Bank, 2020). The Organization of Economic Corporation and Development (OECD) projected two scenarios for Indonesia's economic growth in 2020, optimistic minus 2.8% and bad minus 3.9% (OECD, 2020). Therefore, this research explains the recovery of industrial estate performance during the new normal post-pandemic.

Several studies on the role of minority industrialists in industrial estates' performance have different opinions. Biesok and Wyrod-Wrobel (2011) and Zhu et al. (2019) stated that minority industrialists significantly affected the performance of industrial estates. They proved that the services provided by regional management to minority investors affected their loyalty as tenant customers, simultaneously affecting the performance of industrial estates. Furthermore, according to Bello et al. (2015), Zhiying et al. (2018), and Suseno et al. (2021), the role of minority investors influenced the performance of industrial estate management companies, including financially.

Several other studies had different arguments. For instance, Chen et al. (2016) and Nazarpour and Shirin (2017) proved that minority investors' contribution to the performance of industrial estate management companies was only 3.4%. Furthermore, Tsou et al. (2014), May and Shaoo (2016), and Muthuveloo et al. (2017) stated that investors' contribution to the performance of industrial estate management companies was influenced by capital, land area, and the number of workers.

This study, therefore, has 4 objectives according to the above description. First, it predicts the recovery of industrial estate performance under the post-pandemic new normal condition. Second, this study explains the declining competitiveness of industrial estates in Indonesia. Third, it develops and tests new concepts to answer the scientists' contradictions on factors affecting industrial estates' performance. Fourth, it contributes to the management fields of human resources, corporate governance, knowledge, and innovation.

2. Theoretical Framework

2.1 Collectivism Theory

Collectivism is reflected in investor relations as tenants with industrial estate management companies. It is an agreed-upon value oriented toward realizing common goals (Yang et al., 2012; Taras et al., 2014; Kececi, 2017). Furthermore, Markus and Kitayama (2010) relate collectivism to social life, where individual feelings and behaviour depend on other people's perceptions. Interpretation of this framework relates to the relationship between investor and industrial estates' management that provides a mutual assessment of the written agreement, such as the role of members in an organization (Braje, 2019; Suseno, 2019).

The research findings of Adam-Troian (2021) and Gong (2021) provide strong preliminary evidence that variations in collectivism role beliefs are related to individual role disparities in organizations. This can support the prediction of individual differences within the organization. While shifting the focus from the individual to a more collectivistic variable, it allows for an integrative and multi-level understanding of the processes that are the basis of individual and organizational beliefs (Ali, 2020; Rhee, 2020; Kim, 2022).

2.2 Innovation Theory

Studies on innovation's characteristics, its contribution to organizations' sustainable excellence, and its compatibility with the previous system align with Radford (2011) and Stone (2012), respectively. The learning complexity in

implementing innovation results is described by Peres (2010). According to Mc Cullen (2013), progressive testing and innovation capabilities require continuous learning. Innovation in an organization reduces the risk of implementation failure, with a low potential loss in integrating the old system and the results of changes (Choi, 2010; Suseno et al., 2022).

A job that is both temporary and long-term and has a time limit can lead to an increase in the mental work required and an evaluation of the resulting innovation (Lee, 2019; Dredge, 2021). According to findings from Musselman (2020), strong time restraint can overwhelm moral brain functions, which can increase decision pressure, making it difficult to innovate to improve business processes in companies.

2.3 Capability Theory

Functional capability seizes opportunities and substantive freedom to gain achievement, welfare, and quality (Nussbaum, 2010; Robeyn, 2016; Dorry et al., 2021). According to Loggely (2013), the capability is the role of humans to humanize themselves through value-based and norm-based actions based on rights and obligations. However, Anand (2009) defined capabilities in terms of individual responsibility and morality-based application.

Through studies with a "dynamic capability lens" perspective, the relationship between a company's innovative capacity and environmentally friendly innovation (Arranz, 2020; Nayal, 2022), by expanding the scope of studies conducted by the OECD, provides evidence that the conceptualization of eco-innovation is proven to be able to encourage the ability to redesign businesses, adapting and creating new goods, processes, procedures, and organizations to reduce their negative effect on the environment. Other research shows that eco-innovation has two quality innovative capabilities, namely the ability to survive from time to time and the ability to relate to environmentally friendly innovations (Buzzao, 2021; Magistretti, 2021). Other evidence, such as Gupta (2021), Song (2020), and Panday and Kaur (2022), shows that innovation skills are not only connected, but they also have characteristics that complement each other, which makes the creation of innovations for the future sustainability of the organization flexible.

Agbor et al. (2023) explained that the community could independently fight the pandemic with the assistance of the government and health workers so that the spreading of Covid-19 at the family level can be properly prevented. Likewise, Nnamani et al. (2022) clearly explained that community independence in fighting Covid-19 could be realized with the help of the government and health workers using modern health management.

Odusana (2022) clearly outlines strengthening health security in the fight against Covid-19 can be carried out by involving all parties directly related to public health by implementing strict health protocols. Oyoke and Nwatu (2022) found that the strength of health workers in seeing various strengths to fight Covid-19 has proven effective in increasing the independence and strength of the community to survive both from a health and economic perspective.

Based on the descriptions above, the results were synthesized and developed into Collectivism Innovation Capability. This novelty was proposed as values-based and norms-based actions to continue learning, create value-added, and achieve competitive advantage through mutual agreement. Collectivism Innovation Capability improves the performance of industrial estates.

3. Hypotheses Development and Empirical Model Construct

3.1 Correlation between Protecting Minority Investors and Collectivism Innovation Capability

Cakar and Arturk (2010) and later Svarc et al. (2019) proved that there were region-based differences in the effect of Hofstede's national culture in exploring innovation and entrepreneurial desire. Furthermore, the power distance variable negatively correlated with innovation capability. However, the collectivism variable significantly correlated with innovation capability but did not correlate with empowerment (Arturk, 2012; Fulvio & Natera, 2013)

3.2 Correlation between Protecting Minority Investors and Industrial Estate Performance

According to the United Nations Industrial Development Organization Policy (2019), investor relations with industrial estates' management increase aggregate and efficient industry competitiveness and access to new technology integrated with global value chains.

Legal regulations on investor protection insignificantly influenced the economic and financial performance of industrial estates (Oto-Peralias & Romeo-Avila, 2017; Mahpudin & Suseno, 2022). A case study was the Philippines' maintenance of investor confidence in the

industrial estate during 2017-2019, sustaining the performance growth of 7.6%, 7.9%, and 8.5% as the investors' contribution in electronics, food, and beverages, chemicals, and furniture, respectively (Oxford Business Group, 2019)

Akibsola et al. (2015) also revealed that investors contributed to the performance of the manufacturing industrial estate.

3.3 Correlation between Protecting Minority Investors and Easy Doing of Business

By identifying variables that influenced business success, Xueyi and Meyer (2011) stated that commodity price volatility and geopolitical tensions in several regions of the world slowed the execution of business start. The stagnant global economic growth, further contracted by the Covid-19 pandemic conditions, as well as trade wars between the United States of America and China, significantly influenced investment flows and business starting aggressiveness in the manufacturing sector (Amirtahmabesi et al., 2016; Cornock, 2020; Weiblen & Chesbrough, 2015; Putra & Suseno, 2022).

3.4 Correlation between Easy Doing of Business and Collectivism Innovation Capability

Jang et al. (2016) stated that business starting requires innovation support. Innovation develops where there is freedom of thought, diversity recognition, and sustainable creativity growth (Zeng, 2017; Roessler & Velamuri, 2015). Donkor (2018) reinforced that business starting aggressiveness was strongly influenced by innovation, which significantly determined the company's strategic performance.

3.5 Correlation between Easy Doing of Business and Industrial Estate Performance

Pulaj (2017) stated that competitiveness significantly influenced investors' interest in starting a business in industrial estates. The model proposed by Porter and Bamiatzi (2016) added a market fragmentation variable. Mule et al. (2015) and Fernadeza et al. (2019) showed that the ease of business starting simultaneously influenced the performance of industrial estates as well as the large and small-scale investors.

3.6 Correlation between Collectivism Innovation Capability and Industrial Estate Performance

Drastic changes to the business environment require continuous innovation (Assad et al., 2017; Suseno et al., 2022). Previously, Prajogo (2006) and Criscuolo et al. (2012) showed that large-scale relied on innovation to increase efficiency, mitigate risks, and adapt to changes in unknown areas.

An important variable is needed as an innovation precondition to strengthen long-term performance, realize the entrepreneurial potential, articulate investment, and codify knowledge and leadership that legitimizes the incubation of ideation in the company (Dobbs et al., 2016; Kohler, 2016).

Previous relevant studies were explored to support the development of hypotheses, as presented below:

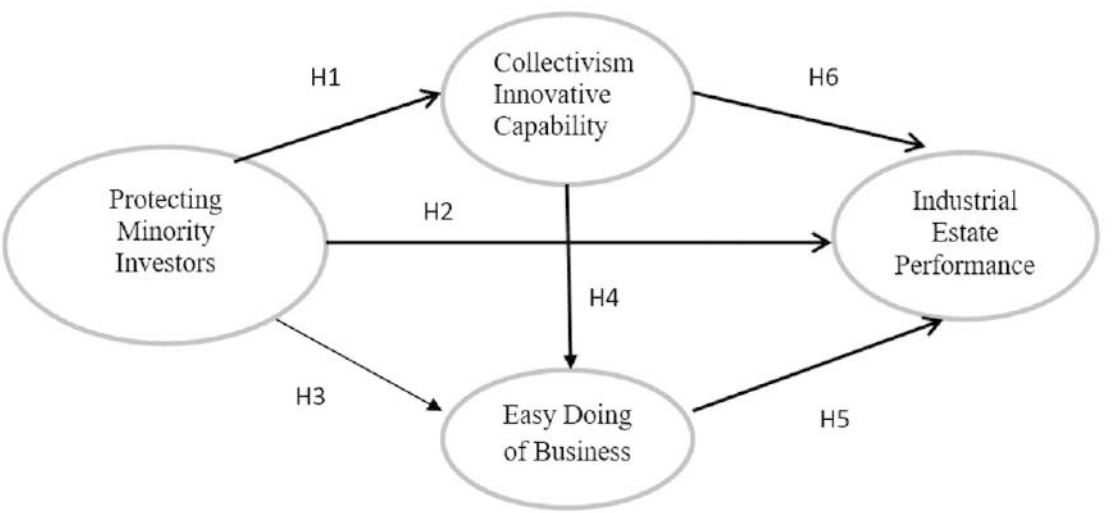

Figure 1. Empirical Model

4. Methods

A comparative causality approach was used in this study (Sekaran, 2003). A total of 108 industrial estates existed in Indonesia until December 2019. A purposive sampling technique was used to identify 35 industrial estates (32.4%) representing the population. From these samples, Banten Province had 13 industrial estates. DKI Jakarta Province had 2 industrial estates, as others were relocated outside the province. West Java Province had 20 industrial estates. Questionnaires were distributed to 250 company managers because of their important role in management and services to tenants. Questionnaires were distributed in the form of Google Form facilities from January to May 2021. 232 respondents had filled out the questionnaire, but only 219 respondents filled in completely; 13 did not, so they were excluded from the analysis process. Exogenous variables were Protecting Minority Investors, Collectivism Innovation Capability, and Easy Doing of Business, while the endogenous variable was Industrial Estate Performance. All the variables were assessed using the indicators provided to all respondents in the questionnaires (Likert scale of 1-10). A score closer to 1 indicated strongly disagree, while a score closer to 10 indicated strongly agree. Data processing and hypothesis test were conducted with the variance-based Structural Equation Model (SEM) using the Smart PLS 2.0 M3 application (Ringle et al., 2005).

5. Results

5.1. Partial Least Square Analysis

5.1.1 Outer Model Test

The outer model is a model that specifies the relationship between the latent / construct variables with their indicators, or it can be said that the outer model defines how each indicator relates to its latent / construct variables. The outer model is interpreted by looking at several things, including convergent validity, discriminant validity, composite reliability, Average Variance Extracted (AVE), and Cronbach's Alpha. The PLS Algorithm model is presented in Figure 2 below.

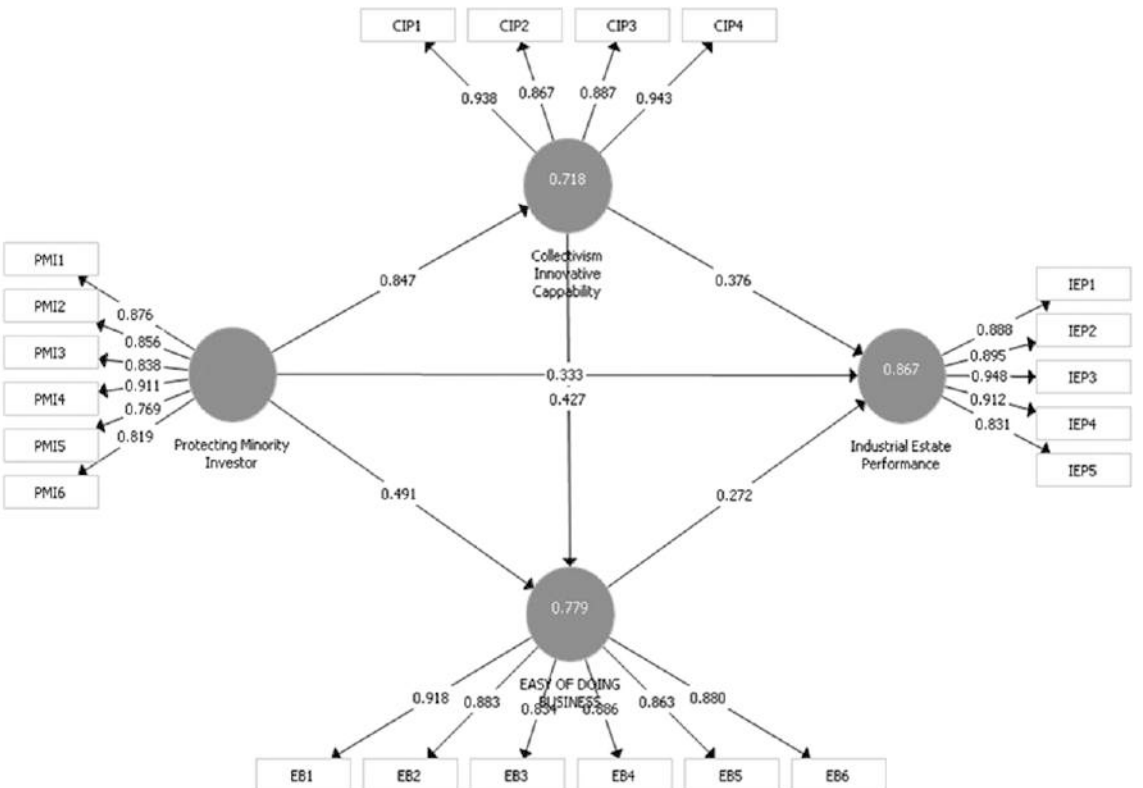

Figure 2. PLS Algorithm Model

5.1.2 Convergent Validity

The convergent value measures the amount of loading factor for each construct / latent variable. A loading factor above 0.70 is highly recommended; however, a loading factor above 0.60 can still be tolerated as long as the model is still in the development stage. The results of the full loading indicator value are presented in Table 1 below.

Table 1 above shows that the Collectivism Innovative Capability construct has a loading value on the CIP1 indicator of 0.938, CIP2 0.867, CIP3 0.887, and CIP1 0.943. Ease of Doing Business extract with six indicators, the loading value of the EB1 indicator is 0.918, EB2 is 0.883, EB3 is 0.834, EB4 is 0.886, EB5 is 0.863, and EB6 is 0.880. The Industrial Estate Performance construct has five indicators, the loading value of the IEP1 indicator is 0.882, IEP2 is 0.895, IEP3 is 0.948, IEP4 is 0.912, and IEP5 is 0.83. Meanwhile, the Protecting Minority Investor constructs with five measuring indicators, the PMI1 coding value is 0.876, PMI2 is 0.856, PMI3 is 0.838, PMI4 is 0.911, PMI5 is 0.769, and PMI6 is 0.819. Of all the indicators mentioned above, the loading value is > 0.7; this proves that all indicators are valid as a measure of the construct.

5.1.3 Discriminant Validity

Discriminant value is beneficial for assessing a variable's discriminant validity by comparing the correlation between the indicators and the construct, which should be higher than the correlation with other constructs. The variable has a high discriminant validity when the value of the correlation indicator is higher than the correlation indicator with other constructs. Such value is found in the cross-loading factor value. The full cross-loading value results are in Table 2 as follows:

Table 1. Loading Indicator Value

	Collectivism Innovative Capability	Easy of Doing Business	Industrial Estate Performance	Protecting Minority Investor
CIP1	0,938			
CIP2	0,867			
CIP3	0,887			
CIP4	0,943			
EB1		0,918		
EB2		0,883		
EB3		0,834		
EB4		0,886		
EB5		0,863		
EB6		0,880		
IEP1			0,888	
IEP2			0,895	
IEP3			0,948	
IEP4			0,912	
IEP5			0,831	
PMI1				0,876
PMI2				0,856
PMI3				0,838
PMI4				0,911
PMI5				0,769
PMI6				0,819

Table 2. Cross Loading Value

	Collectivism Innovative Capability	Easy Of Doing Business	Industrial Estate Performance	Protecting Minority Investor
CIP1	0,938	0,753	0,824	0,761
CIP2	0,867	0,681	0,823	0,717
CIP3	0,887	0,803	0,756	0,775
CIP4	0,943	0,824	0,829	0,825
EDB1	0,768	0,918	0,777	0,736
EDB2	0,768	0,883	0,836	0,817
EDB3	0,706	0,834	0,724	0,633
EDB4	0,777	0,886	0,806	0,809
EDB5	0,675	0,863	0,738	0,771
EDB6	0,743	0,880	0,709	0,711
IEP1	0,737	0,734	0,888	0,765
IEP2	0,823	0,725	0,895	0,734
IEP3	0,842	0,856	0,948	0,830
IEP4	0,840	0,858	0,912	0,806
IEP5	0,728	0,727	0,831	0,823
PMI1	0,719	0,724	0,807	0,876
PMI2	0,704	0,699	0,795	0,856
PMI3	0,728	0,715	0,727	0,838
PMI4	0,773	0,812	0,814	0,911
PMI5	0,654	0,609	0,621	0,769
PMI6	0,718	0,755	0,709	0,819

The Collectivism Innovation Capability was 0.938, higher than the Ease of Doing Business of 0.753, Industrial Estate Performance of 0.824, and Protecting Minority Investor of 0.761. The highest and lowest loading indicator values are seen in each construct correlation with the same procedure.

5.1.4 Composite Reliability

Each indicator in the latent variable is consistent in measuring the variable, evidenced by the high composite reliability value of >0.7. For Collectivism Innovation Capability, Ease of Doing Business, Industrial Estate Performance, and Protecting Minority Investors, the composite reliability values were 0.950, 0.953, 0.953, and 0.938, respectively. The four constructs of composite reliability values were > 0.70, indicating excellent internal consistency.

The full composite reliability value is presented in Table 3 below.

Table 3. Composite Reliability

	Composite Reliability
Collectivism Innovative Capability	0,950
Easy of Doing Business	0,953
Industrial Estate Performance	0,953
Protecting Minority Investor	0,938

5.1.5 Average Variance Extracted (AVE)

AVE values indicate the variance value that is better assessed by the variable than the variance due to the measurement error. AVE value is expected to be >0.5. The AVE values of Collectivism Innovation Capability, Ease of Doing Business, Industrial Estate Performance, and Protecting Minority Investors were 0.827, 0.771, 0.802, and 0.716, respectively.

5.1.6 Cronbach's Alpha

Cronbach's Alpha reliability test is expected to be > 0.7. The Cronbach's Alpha values for Collectivism Innovation Capability, Ease of Doing Business, Industrial Estate Performance, and Protecting Minority Investors were 0.930, 0.940, 0.938, and 0.920, respectively.

5.2 Structural Model Test (Inner Model)

The structural model test was performed by looking at the R^2 value, or the Goodness of Fit test. The construct of Protecting Minority Investor obtained an R^2 value of 0.743. This meant that the Protecting Minority Investor variable could explain 74.3% variance, while other variables outside the model explained 25.7%. The Collectivism Innovation Capability construct obtained an R^2 value of 0.712, meaning that the Protecting Minority Investor construct could explain 71.2% variance, while other variables outside the study explained 28.8%. The R^2 value of Ease of Doing Business was 0.769, indicating that 76.9% variance was explained by the Protecting Minority Investor and Collectivism Innovation Capability constructs. Industrial Estate Performance Construct obtained an R^2 value of 0.858, meaning that 85.8% could be explained by the Protecting Minority Investor, Collectivism Innovation Capability, and Ease of Doing Business constructs. The complete R^2 value results are presented in Table 4 below:

Table 4. R-Square Values

	R Square	Adjusted R Square
Collectivism Innovation Capability	0.718	0.712
Ease of Doing Business	0.779	0.769
Industrial Estate Performance	0.867	0.858
Protecting Minority Investor	0.751	0.743

Further tests were conducted to examine the significance of the effect of independent constructs on the dependent construct and compare it with the hypothesis. Tests were conducted with a significance level of 5%. A t-statistic value of > 1.96 indicated that the null hypothesis (H0) was rejected. The t-statistic value of the effect coefficient from the latent construct was obtained from PLS Bootstrapping. The results are presented in Figure 2 below.

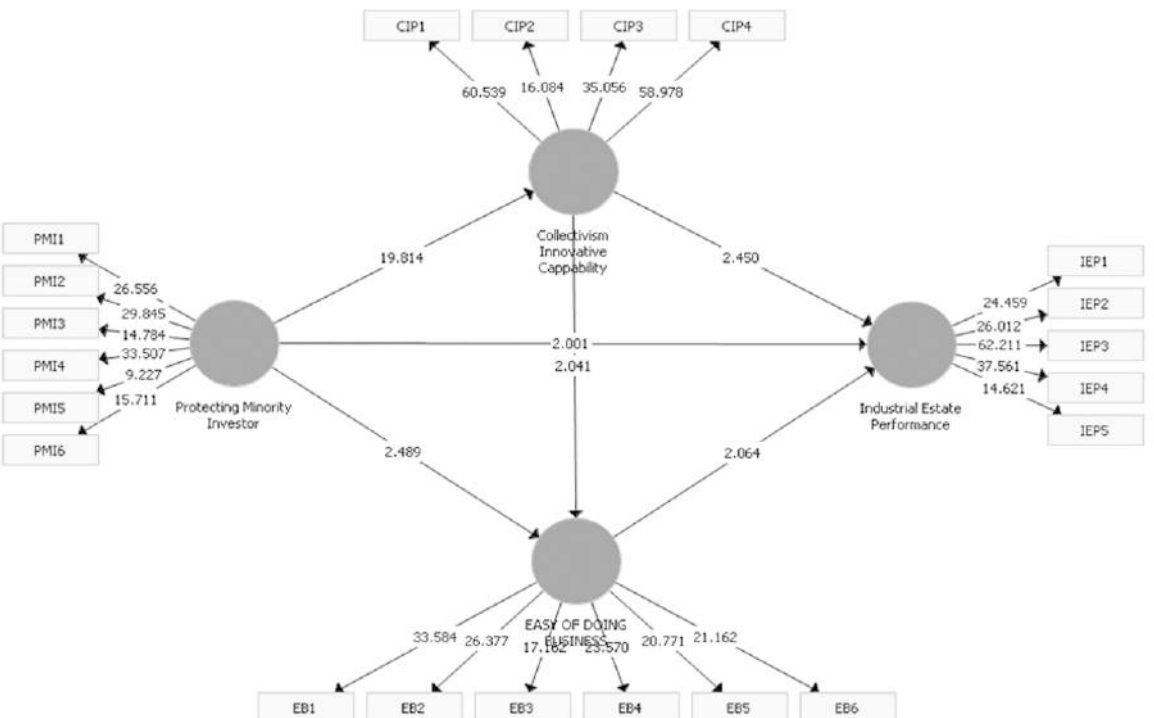

Figure 2. PLS Bootstrapping Model

The parameter coefficient values are in the (original sample), and the t-statistical significance values are presented in Table 5 below.

The discussion was based on the evidence from the first hypothesis test. The effect coefficient of protecting minority investors on collectivism innovation capability was 0. 847, the value of standard error was 0. 043, and the value of t-statistics was 19.814. H_0 was rejected since the t-statistics showed 19.814>1.96. This indicated a 5% significant positive effect of protecting minority investors on collectivism's innovation capability. Therefore, industrial estate managers had to consider the role and participation of minority investors to improve the capability of collective innovation continuously. This promotes sustainable business growth through synergic innovation with large investors and industrial estate managers (Paws & Arturk, 2010; Svarc et al., 2019).

Further discussion was based on the results of the second hypothesis test. The coefficient value on the effect of protecting minority investors on industrial estate performance was 0.333, the value of standard error was 0.167, and the value of t-statistics was 2.489. H_1 was therefore accepted since the t-statistics showed 2.489 >1.96. This evidenced a 5% significant positive effect of protecting minority investors on industrial estate performance. Therefore, minority investor is vital in sustaining industrial estate performance. These results align with Oto-Peralias and Romeo-Avila (2017) and the Oxford Business Group study (2019). However, the findings differ with Akibsola et al. (2015), which stated that the Minority Investor's role in supporting industrial estate performance was insignificant.

The results were further discussed based on the third hypothesis, on the effect of Protecting Minority Investor on Ease of Doing Business in an industrial estate. The test obtained an effective coefficient of 0.491, the value of standard error was 0.197, and the value of t-statistics was 2.489. H3 was therefore accepted since the t-statistics showed 2.489 >1.96. It evidenced a 5% significant positive effect of Protecting Minority Investor on Ease of Doing Business. As a result, Minority Investor is vital in providing a supporting atmosphere and facilities similar to investors with larger land areas or in an industrial estate. These results support Weiblen and Chesbrough (2015), which stated that Minority Investor and the Ease of Doing Business influenced global economic stability. This was confirmed by Amirtahmabesi et al. (2016), Yusuf and Suseno (2020), and Cornock (2020), which added attribution to business aggressiveness from minority investors in industrial estates.

Evidence of the test results regarding the fourth hypothesis showed that the effective coefficient of Collectivism

Table 5. Coefficient (Original Sample), Standard Error, and T-Statistics Values

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Collectivism Innovation Capability -> Ease of Doing Business	0.427	0.401	0.209	2.041	0.042
Collectivism Innovation Capability -> Industrial Estate Performance	0.376	0.347	0.154	2.450	0.015
Ease of Doing Business -> Industrial Estate Performance	0.272	0.280	0.132	2.064	0.040
Protecting Minority Investor -> Collectivism Innovation Capability	0.847	0.853	0.043	19.814	0.000
Protecting Minority Investor -> Ease of Doing Business	0.491	0.516	0.197	2.489	0.013
Protecting Minority Investor -> Industrial Estate Performance	0.333	0.353	0.167	2.001	0.046

Innovative Capability on Ease of Doing Business was 0.427, the value of standard error was 0.209, and the value of t-statistics was 2.041. H1 was therefore accepted since the t-statistics showed 2.041 >1.96. It evidenced 5% a significant positive effect of Collectivism Innovative Capability on Ease of Doing Business. Therefore, Collectivism Innovative Capability in an industrial estate strongly influenced the Ease of Doing Business. This means that the higher the Collectivism Innovation Capability, the better the Ease of Doing Business. The evidence support Zeng (2017), which postulated that innovation promotes ease of business development. Similarly, according to Roessler and Velamuri (2015), innovation made it easier to anticipate the needs of global commodities. Donkor (2018), on the other hand, emphasized the business atmosphere.

The effect coefficient of Ease of Doing Business on Industrial Estate Performance was 0.272, the value of standard error was 0.132, and the value of t-statistics was 2.064, based on the fifth hypothesis. H0 was rejected since the t-statistics showed 2.064 >1.96. This indicated a 5% significant positive effect of Ease of Doing Business on Industrial Estate Performance. Industrial estate managers must have the tools and radar that promote the Ease of Doing Business to realize stable and sustainable industrial performance. These results support Mule et al. (2015) and Fernadeza et al. (2019), which stated that Ease of Doing Business reduces market fragmentation.

Based on the results of the sixth hypothesis, the effect coefficient of Collectivism Innovative Capability on Industrial Estate Performance was 0.347, the value of standard error was 0.154, and the value of t-statistics was 2.450. H0 was rejected since the t-statistics showed 2.450 >1.96. This evidenced a 5% significant positive effect of Collectivism Innovative Capability on Industrial Estate Performance. This evidence supports Dobbs et al. (2016) and Kohler (2016), which stated that innovative capability to maintain consistent competitiveness strongly influenced industrial estate performance.

According to the findings of this research, the contribution of minority investors is still relatively insignificant to the overall profitability of industrial parks. The findings of this study need to be replicated in future studies, or the influence of minority investors needs to be considered by simultaneous testing with the ease of doing business variable.

This research was conducted since the beginning of the pandemic and until the pandemic-free period; the results of this research are still relevant because the Covid-19 Pandemic still causes various problems that have not been resolved. The sluggish MSME sector and various supermarkets have not yet returned to normal.

Several different businesses, including the occupation of industrial estates, have suffered losses due to delays in the production and transportation of commodities. These sectors range from those dealing with natural resources to those dealing with consumer goods. Because of these delays, prices have gone up, which is often passed on to the final consumer. This makes it harder for the market to compete effectively.

Similarly, projections made by the Organization for Economic Cooperation and Development (OECD, 2022) indicate that the anticipated expansion of the world economy in 2023 will be 2.2% and can no longer reach 2.8% as before Covid-19.

The more negative estimates connected to recent growth lead to a steep decline in the longer term, with global growth decreasing to 1.7 percent in 2023, almost half the rate expected just six months ago. The decline is widespread; practically everywhere in the world, including the Americas, Europe, and Oceania, per capita income growth will be slower in the decade following COVID-19 than in the preceding decade.

It is anticipated that the global economic downturn will continue. By the end of 2024, GDP in emerging markets and developing economies will be around 6% lower than planned due to the declaration of Covid-19 as an epidemic (World Bank, 2022). As a result, the findings and data obtained from our investigation are still pertinent, as demonstrated by the projections provided by reputable and world-class institutions.

The COVID-19 epidemic is still causing problems in almost every part of the world, including the manufacturing sector. This industry is significantly impacted by the supply networks connecting all countries that are a part of the global industrial ecosystem. According to a study by Hitachi (2023), the aftermath of the COVID-19 epidemic has reportedly shaken the supply systems in Southeast Asian countries.

4. Conclusions

Collectivism Innovation Capability tests indicated a positive and significant effect of exogenous variables on industrial estate performance, both simultaneously and independently. This implied that Industrial Estate performance managers should consider values and norms-based actions, continue

learning and create added value to achieve competitiveness through mutual agreement with companies. This results in stable and increased industrial estate performance. Furthermore, the study contributes to collectively constructing new models of innovation and knowledge management with a certain focus on mutual stakeholder agreement.

According to the findings of this research, the contribution of minority investors is still relatively insignificant to the overall profitability of industrial parks. The findings of this study need to be replicated in future studies, or the influence of minority investors needs to be considered by simultaneous testing with the ease of doing business variable.

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Cross-country Analysis of Social Entrepreneurship Ecosystem and Support System in India and Malaysia

Nurhanani Izzati
Faculty of Industrial Management,
Universiti Malaysia Pahang

Puteri Fadzline Muhamad Tamyez
Faculty of Industrial Management,
Universiti Malaysia Pahang

Senthil Kumar
Associate Professor & Programme Leader (PG),
School of Accounting and Finance,
Asia Pacific University of Technology & Innovation,
Kuala Lumpur, Malayisa

Sripirabaa B
GRG School of Management Studies,
India

Abstract

The social entrepreneurship ecosystem cannot thrive without strong support structures. This study examines the status of social entrepreneurship and the support available to social entrepreneurs in two developing economies, viz. Malaysia and India and suggests potential improvements. The interview technique was used to collect data from social entrepreneurs running leveraged non-profit enterprises, hybrid non-profit enterprises, and traditional NGOs. Interview data were analyzed through thematic analysis, and the following five overarching themes were identified in Malaysia: training, grants from companies, accreditation by SMSE, relationships among social entrepreneurs, and university students as potential social entrepreneurs. In India, the following six themes were identified: addressing social problems, building a community for support, training, funding and grants, incubation and acceleration, and education. In Malaysia, social entrepreneurs' role and innovation enhancement in this sector are the support structures with potential improvement possibilities. Whereas, in India, potential improvement is possible in incubation, acceleration and mentoring, access to funds, resources for enhancing entrepreneurial competence, human capital, and cultural challenges. Considering future opportunities, it is important to focus on potential improvements and channel the investment efforts toward real problems to achieve meaningful results. Once all the stakeholders understand the impact of such investments, the adoption will be much better. Hence, in the long run, it is imperative to define what constitutes a significant impact and develop systems to monitor and measure the progress.

Keywords: *Social Entrepreneurship, Social Entrepreneurship Ecosystem, Support Structure*

1. Introduction

Social entrepreneurship, which seeks to catalyze long-term social change by addressing basic human needs, could become a key driver of long-term development. When pushing for a sustainable development that respects human rights and cares for the fair use of resources, social entrepreneurship refers to handling complicated social and wicked problems through novel solutions (Edward, 2020). Social entrepreneurship's innovative nature necessitates enterprises practice transparency and accountability in their day-to-day operations. As a result, when they have a direct impact, it is their responsibility to demonstrate integrity from the start (MAGIC, 2016). Unemployment, crime, drug addiction, poverty, and social isolation are all issues that must be addressed.

While operating as authorized corporations, social companies have the same noble ideals as these organizations (Arshad, 2020). Aside from these social gains, social entrepreneurs contribute to the country's economy (Foster et al., 2013). Social entrepreneurship visionaries are growing fundamentally; people are, at this point, unaware of these endeavours. This could hamper entrepreneurs who intend to have a legitimate social impact. It furthermore reduces their chances of obtaining support from monetary benefactors to scale their organisations. Sound business models are needed to ensure the long-term viability of promising social enterprises, just as they are for other viable businesses. While profitability is one of the main elements, social enterprises are geared to the causes they support. When they make a profit, a significant portion of it will be reinvested as business capital. This is where social enterprises vary from the rest of the capitalist system's conventional businesses. Many corporate social responsibility (CSR) programs' expenses are deductible from corporate tax. CSR is also often used as a marketing tool to increase the visibility of a company's products or services (Arshad, 2020).

Social enterprises with sustainable business models embody novel solutions that address many negative externalities while producing progressive ones (Gandhi & Raina, 2018). They have thus secured a prominent space when it comes to discourses on civic commitment and volunteerism. The contribution of a social enterprise is mainly driven by its founding mission, in other words – the reason for its existence. These organisations cater to the pressing societal needs that existing businesses and institutions have failed to address. Any social enterprise requires its founder entrepreneur to be guided by a social cause and address distressing social issues through innovative business solutions. This, in fact, differentiates a social entrepreneur from the entrepreneurial community.

Social enterprises face some challenges in finding appropriate sourcing/ funds, recruiting and retaining skilled labour (due to lower pay scale and undefined job roles), and measuring the impact. In this scenario, it becomes necessary to understand the social enterprise ecosystem and the availability of support for these organizations. There is no viable bridge connecting small and large companies in a collapsing entrepreneurial ecosystem. Due to management control restrictions, small family companies are effectively prevented from developing into large corporations; large corporations seldom invest in or expand small businesses. In most sectors, even buyer-supplier relationships with subcontractors, which are crucial to the activity of large companies in advanced industrialized countries, are either underdeveloped or absent. Entrepreneurs consistently complain that traditional business-friendly policy mechanisms like tax subsidies, grants, and environmental legislation have no impact on their performance or the viability of local entrepreneurial ecosystems. Access to networks, quality of life, and other intangibles are more important to entrepreneurs (Kleiner & Krueger, 2013).

2. Literature Review

2.1 Entrepreneurship Ecosystem

Entrepreneurship ecosystem refers to the interconnected environment that facilitates new businesses' birth, growth, and success. Ecosystem refers to the environment where enterprises operate, grow, and establish relationships with all stakeholders. “The entrepreneurial ecosystem is a set of connected actors, organizations, institutions and entrepreneurial processes that formally and informally merge to connect, mediate and manage performance in the local entrepreneurial environment” (Mason & Brown, 2014, p. 5). In order to foster the growth and development of social enterprises, it is necessary to provide a supportive environment that encourages incubation, networking, and execution of activities. A strong entrepreneurship ecosystem is crucial for economic growth and job creation, particularly in developing countries where small and medium-sized enterprises (SMEs) form the backbone of the economy and help them achieve their performance goals (Sharfaei et al., 2022). This literature review will examine the latest studies on the entrepreneurship ecosystem and its components.

Extensive research has been carried out on the entrepreneurial ecosystem and its elements in different

geographic regions such as Scotland (Roy et al., 2015), Italy, Sweden, and Japan (Borzaga et al., 2016), Kansas City (Sarma & Sunny, 2017) and Belgium (Nyssens & Huybrechts, 2020). Researchers have also analyzed specific sectors such as impact investing (Roundy, 2020), community-based crafts (Pathak & Mukherjee, 2020), recycled bags (Pfeilstetter, 2020), and microfinance (Purkayastha et al., 2020). Literature reveals the following elements of the entrepreneurial ecosystem: human capital, particularly entrepreneurial education and training (Rosenbusch et al., 2021); access to financing (Adeyemo et al., 2021); access to technology, such as the Internet and mobile phones, physical infrastructure, such as affordable and flexible office space (Malebana et al., 2021) simple legal and regulatory frameworks (Mutlu et al., 2020), strong entrepreneurial culture characterized by risk-taking and innovation (Shu & Yuan, 2021), infrastructure, access to resources, knowledge and skill in Europe and mutual recognition and networking, education, expert advice, promotion, coalition, finance, education and skills in Serbia (Talic & Stefanovic, 2022), market linkages, innovation, institutional support, physical infrastructure, demand for the product (Pathak & Mukherjee, 2020).

The entrepreneurship ecosystem comprises several elements such as human capital, financial capital, physical infrastructure, legal and regulatory frameworks, mentors, customers, suppliers, support infrastructures, incubators, accelerators, governmental agencies, and culture. Overall, a strong entrepreneurship ecosystem is critical for economic growth and job creation. Therefore, policymakers should focus on creating an enabling environment that supports these elements and encourages entrepreneurship.

2.2 Entrepreneurship Ecosystem in India

A good part of the Indian population residing in rural areas faces hardships related to access to sanitation, health services, and other amenities. This presents an opportunity and the need for social organizations that can fulfill the basic requirements of the population and free them from poverty, unemployment, and malnutrition. Since the early 2000s, India has seen a rise in social enterprises that work towards raising the living standard of the underprivileged. According to Intellecap (2018), the investments indicate that India's social enterprises have attracted US$ 1.6 billion from 2004 to 2011. The Bertelsmann Stiftung study (2018) also states that the impact investment in India has grown from US$ 7.6 million to US$ 17.6 million between 2010 and 2016. The British Council study reports that the country is home to around 2 million social enterprises.

The social enterprises in India are distributed among the agriculture, energy, education, financial inclusion, sanitation, and water sectors. These non-profit and for-profit organisations strive to provide free or low-cost services to the poor and needy. These enterprises are mostly concentrated in the South and Western parts of the country and Delhi (Ganesh et al., 2018). The reason is the availability of good infrastructure, access to finance, and talented human capital. According to British Council (2016), most of these enterprises were registered between 2010- 2015 and are run by entrepreneurs aged 35-44. The nation's youth is mostly involved in the skill development and education sector. According to Haugh and Talwar (2016), some social enterprises in rural India run by rural women have led to a change in the attitude of men, and society has disrupted the power relationships in the Indian family system. Despite these, it is also important to note that these enterprises struggle in a resource-deficit environment. The high operating costs, lack of market acceptance/visibility, lack of skilled workforce, low profits, and scalability issues challenge their existence (Mukherji, 2014). Some social enterprises registered as NGOs, though able to raise funds, cannot attract young and skilled talent, which causes problems in efficiency and performance.

Like other emerging economies, India lacks a legal definition, framework, or anything close to a Social Enterprise Act (Sengupta et al., 2017). This also deprives them of a formal recognition status and tax benefits in the country. The lack of a proper definition of social enterprises has also resulted in them getting limited attention from the research community. Most of the information about these enterprises is not readily available, and very little is known about their management and processes. Presently the social enterprises in India are either non-profit or charitable organisations (registered under The Indian Trusts Act -1882 of Companies Act, 1956), for-profit organisations, or hybrid entities which incorporate features of the previous forms.

The cultural and demographic diversity of India also presents a challenge in understanding its social entrepreneurship ecosystem. The social entrepreneurship ecosystem, along with the social entrepreneurs, includes the Government, academic institutions that fund research and incubation services, large corporate organisations that engage social enterprises to meet their CSR goals, financial and non-financial support providers, and large affluent family foundations willing to give back to society. Technology and innovation are key enablers of these social enterprises.

Apart from regulating and monitoring the important impact sectors, the Government of India has also framed 39 key policies for social enterprise and entrepreneurship. The 'National Skill and Entrepreneurship Policy' (2015) has a section dedicated to social entrepreneurship that aims to promote these enterprises (British Council Report, 2016). This policy aims to promote grass root innovation, social entrepreneurship courses, patent filing, and funding of social enterprises. Other policies introduced by the Government include Pradhan Mantri Fasal Bima Yojana, Prime Minister Krishi Sinchayee Yojana, the National Energy Policy 2017, Solid Waste Management Rules (SWM) 2016, the New Education Policy, the New Health Policy, Digital India, Start-up India, and Stand-up India schemes facilitate social entrepreneurship in the Nation. The government has eased several regulatory processes for social enterprises. The reduction in several trademark filing forms and a 10% subsidy are aimed at promoting these enterprises. The Government also bears 50% of costs related to patents.

Corporate entities and academic institutions: The Ashoka Fellowship, started by Bill Drayton in 1980, offers stipends to social entrepreneurs who aim to make notable changes in society and has also inspired and helped social entrepreneurs in India. Currently, the country has over 400 Ashoka fellows working in various impact sectors. UnLtd India and Villgro are notable incubators providing financial and advisory services to social entrepreneurs. The Indian Institute of Management, Ahmedabad, and Dasra run accelerator programmes that help social enterprises access funding and mentoring services. Around 50 impact funds and investors operate in India. They provide seed, early-stage, and growth-stage funding to social enterprises. The UK Department for International Development (DFID) has collaborated with the Small Industries Development Bank of India (SIDBI) to support small, scalable businesses in eight low-income states across India.

The amendment of the Companies Act 2013, which made it mandatory for companies with a net worth of INR 500 crore to spend at least 2% of net profits (of 3 consecutive financial years) on CSR activities, has increased the funds available for the NGOs in India. Major associations under the Chamber of Commerce and Industry provide accreditation facilities, helping social enterprises attain corporate donations. Many media platforms and communities post social entrepreneurship stories that help them attain visibility. Various awards and events celebrate the spirit of social entrepreneurship. Notable among them are Schwab's Social Entrepreneur of the Year Award, the Manthan Award, and NASSCOM's 10,000 Start-Ups (British Council Report, 2016)

Though the support structure in the nation is quite good, the lack of awareness about social entrepreneurship prevents many small social enterprises from obtaining funds and grants. Bigger organizations, on the other hand, gain access to multiple rounds of funds.

2.3 Entrepreneurship Ecosystem in Malaysia

According to the British Council, more than 20,000 businesses in Malaysia depend on friendly trade. In Malaysia, social entrepreneurship strengthens minority networks, facilitates grant work, and aids in the achievement of United Nations-set goals. Interest in social enterprise and social entrepreneurship has increased exponentially among aspiring entrepreneurs, civil society organisations, policymakers, funders, and academics (British Council, 2018). It is found that the most notable wellspring of financing for social business in Malaysia is stable, followed by lesser resources from endowments and grants (Hubs, 2019).

The types of social entrepreneurship in Malaysia include leveraged non-profit enterprises, hybrid non-profit enterprises, and traditional NGOs. Leveraged non-profit enterprise is a venture capital strategy that is not-for-profit. Entrepreneurs work at all levels of society to achieve relevant perspectives on issues, including developed and emerging economies. External benefit funds can be used by leveraged non-profits, and while their partners have a vested interest in their long-term success, long-term sustainability is typically improved.

While a hybrid non-profit enterprise is also a non-profit organization, the model includes ways to recover costs by selling goods and services. Entrepreneurs must mobilize funding sources other than the public or charitable sector to maintain their activities. Grants or loans are a source of the problem of shortage of funds. However, these loans must be repaid at a specific time (MaGIC Social Entrepreneurship Unit, 2015). Social entrepreneurship is often correlated with government and non-governmental organizations or NGOs' efforts to improve the economic status of the poor. To help them get out of poverty, many disadvantaged people have turned to social entrepreneurship initiatives like technical skills training and microfinance schemes.

The government supports and promotes social enterprises, especially among youth, as well as volunteerism. The government has strengthened the program's social capital to

continue the Tenth Malaysia Plan (10MP). Government programs such as Majlis Amanah Rakyat (MARA), Small and Medium Industry Development Corporation (SMIDEC), Entrepreneurial Group Economic Fund (TEKUN), Small Medium Enterprise Development Bank (SME Bank), and the departments of every state and cooperation influenced entrepreneurial training and financial assistance (Raudah Adnan et al., 2018).

Support structures in Malaysia aid in easing the journey of social enterprises right from the beginning. Firstly, is by choosing the legal structure for their social business. They have the choice of setting up a Private Company Limited by shares (Sdn Bhd), Company Limited By Guarantee (Bhd), a society which is governed by the Societies Act 1966 (SA), a trust which is governed by Trustees (Incorporation) Act 1952, a partnership which is governed by Partnership Act 1961, Limited Liability Partnerships (LLP) which are governed by Limited Liability Partnership Act 2012 (LLPA), Co-operative Societies which are governed by Co-operative Societies Act 1993, and Sole Proprietorship (SP) which are governed by the Registration of Business Act 1956 (MAGIC, 2016).

Support structures are critical for social entrepreneurs to launch and develop their businesses. They not only provide logistical assistance such as financing, office space, advice, and experience in market analysis and business plan preparation, but they also, perhaps most importantly, provide emotional support. They also help inexperienced social entrepreneurs gain trust (Flaviano Zandonai, 2015). Support structures and policies available in Malaysia are depicted in Table I.

Table 1. Support Structure

Policies, Accreditations, Incubators, Accelerators, and Support Programmes	Details
The 12th Malaysia Plan	The 12th Malaysia Plan (12MP) is a development blueprint for the years 2021 to 2025 in Malaysia.
Impact Driven Enterprise Accreditation (IDEA)	Vali dates and legally recognizes the great work that impact driven businesses do all around Malaysia.
National Entrepreneurship Policy	A long-term strategy for Malaysia to become an outstanding entrepreneurial nation by 2030.
Sustainable and Responsible Investment (SRI) Fund Framework	SRI investors and issuers can benefit from the formation of an ecosystem that encourages sustainable and responsible investing.
AirAsia Foundation	The AirAsia Foundation, the airline's philanthropic arm, provides seed funding as well as mentorship to Southeast Asian social enterprises.
Amplify Accelerator by MaGIC	A six-week capacity-building programme designed to help 'impact driven enterprises' scale their growth and impact. The accelerator provides workshops on topics such as impact assessment, financial management, and business model optimization, as well as mentorship and networking opportunities.
The British Council's Global Social Enterprise Programme	An international initiative that promotes the growth of social enterprise and social investment in the United Kingdom and other countries by sharing best practises and facilitating opportunities between them.
Global Accelerator Programme by MaGIC	A regional programme aimed at fostering an ASEAN start-up community by assisting start-ups in becoming investment-ready in four months.

Policies, Accreditations, Incubators, Accelerators, and Support Programmes	Details
Impact Hub KL	A collaborative learning environment that is part of the global Impact Hub network. Impact Hub KL not only serves as a physical co -working space and social innovation lab, but it also offers workshops and training programmes for social enterprises.
MaGIC IDEA Accelerator	An early- stage social enterprise accelerator programme that guides start-ups from ideation to execution. Successful participants are also awarded IDE certification.
PurpoSE Malaysia	A private entity that provides advisory and consulting services to social enterprises as well as companies interested in investing in social enterprise.
Social Enterprise Academy	The academy provides learning and development for individuals and organisations facilitating social change, with a particular emphasis on leadership and impact assessment skills.
Social Impact Exchange	AIM-managed platform for social purpose organisations that seeks to connect social enterprises with potential funders.
Social Outcome Fund	A government initiative that funds social purpose organisations through the 'pay for success' model. If funded projects are shown to be effective and cost - effective, the government will reimburse the project's third-party funder.
Higher education institutions, research institutes and support organisations	**Details**
Enactus Malaysia	Enactus has a presence on many Malaysian university campuses, with the goal of developing the entrepreneurial skills of university students. To foster the entrepreneurial spirit, the organisation hosts workshops, networking events, and competitions.
iLabs at Sunway University	A non -profit innovation lab that taps into the parent company of the university, Sunway Group, including its venture capital arm. The lab's goal is to promote entrepreneurship and market-driven innovation.
Monash University Malaysia's Entrepreneurship and Innovation Hub	A space within the university for idea incubation; the hub also hosts workshops and talks by social entrepreneurs for its students on a regular basis.
Universiti Malaysia Kelantan's (UMK) Social Entrepreneurship Centre	UMK is Malaysia's only public university that focuses on entrepreneurship education. It intends to offer niche social entrepreneurship programmes, part-time skills training, and conduct more research on social enterprise in Malaysia through its Social Entrepreneurship Centre.
Universiti Teknologi Mara's Social Innovation Support Unit	The unit, which is funded by the Erasmus+ Southeast Asia Social Innovation Network, serves as a meeting and networking space for social innovators.

3. Methodology

For this study, a qualitative research design was used to achieve the objectives of the study, and the interview method was chosen to obtain all the important information related to this study. The sample frame of this study involved leveraged non-profit enterprises, hybrid non-profit enterprises, and traditional NGOs. Data was collated from six social entrepreneurs in Malaysia. Thematic analysis was used to analyze the interview data.

4. Empirical Findings from Interviews

The outcomes of the personal interviews with social entrepreneurs from the Indian and Malaysian groups are presented in this section. The results of each group's research are provided in two parts, which are (1) The current social entrepreneurship and support structure for the social entrepreneurship ecosystem, and (2) The improvements recommended for each group.

Results from the Malaysian Group: Status of Social Entrepreneurship

Before interviewing them about evaluating the assistance received, most social entrepreneurs mentioned that when they set up the company, they were initially surprised that their enterprises were considered social enterprises. Social Entrepreneur 3 said, *"I've always thought of my enterprise as merely a business reaching out to the visually impaired; this is the first time I've heard the term."*

Table 2. Status of Social Entrepreneurship

Main Theme	Sub Theme	Supporting Details
Perception of definition of social enterprise	Less awareness of the real definition of social enterprise	I've always thought of my enterprise as merely a business reaching out to the visually impaired; this is the first time I've heard the term.
Demographic profile of social enterprises	Location of operation	More are interested in setting up social businesses but most of them are situated in the Klang Valley. The ones in the Klang Valley are mostly operating on the national level, while the rest on their respective state of operations. Some are because of the availability of supportive ecosystem.
	Age of leadership	Most of us have relatively young enterprises.
	Impact focus	A similar emphasis on profit as well as their respective social or environmental mission. Main focus is on creating employment and support disabled communities. Most of us are orienting our profit to social and environmental purpose.
Plan of growth	Looking for new resources	Create and market new products and services.
	Analyzing root causes and committing to regular problem/solution evaluation and learning	Developing a network and partnerships
	Bring in new customers and clients.	Extend your geographic reach

Most of them have relatively young enterprises. The ones in the Klang Valley mostly operate on the national level, while the rest are in their respective state of operations. Some are because of the availability of a supportive ecosystem. Most of them also emphasise profit and their mission – for social and environmental well-being. Their focus is on creating employment and supporting disabled communities.

When asked about their general assessment of the support received inside the support system, four out of six social entrepreneurs reported overall satisfaction. For example, Social Entrepreneur 2 believes that the help he received from MaGIC was "*amazing*" and that he *"desperately misses it."*

Table 3. Support Structure Ecosystem in Malaysia

Theme	Sub-theme	Supporting Details
Good initiatives	Networking opportunities, business guidance, peer engagement mentorship, exposure and technical advice.	Social Entrepreneurship is not only provided type of grant but also gain knowledge of exposure. Since getting involved with Teman Malaysia that the social entrepreneur community is different from other business normal what I have noticed. We have Magic, MI DEC and others who help with special attention on Social Entrepreneurship because the Social Entrepreneurship business at the same time can benefit and help people. So, they are very supportive by providing many programs. For example, Social Enterprise Development provides training on how we want to measure the impact on social enterprises so that Social Entrepreneurs can predict Social Entrepreneurship. It is very important to get support from the right organization.
	Provide grants	Social enterprises focus on beneficiaries, target NGOs, grants for social enterprises from high-profit companies. For example, Teman Malaysia is also affiliated with PETRONAS companies where PETRONAS companies are available for grants to Teman Malaysia. With that grant we can use to benefit the community.
	Accreditations	As social entrepreneurs in Malaysia, we have different levels although we have registered at SMSE. The different are Social Entrepreneurship Basic and Social Entrepreneurship Accredited. For example, like Teman Malaysia, we only part of Soci al Entrepreneurship Basic, that we have a business structure like Social Enterprise. But if for Social Entrepreneurship Accredited means in terms of audit, the workforce follows the guidelines set.When Social Entrepreneurship successfully becomes Social Entrepreneurship Accredited, they will be able to exempt in some cases for example by showing evidence indirectly they will be able to tax reductions, assistance from the government and so on. There is indeed a lot of assistance that the government provides for Social Entrepreneurship.
Relationship among social entrepreneurs	Build good relationship	The relationship between Social Entrepreneurs are quite close. Social entrepreneurship is the work of social entrepreneurs who have innovative solutions to social problems faced by society. Social entrepreneurship has placed a social mission which is an explicit and centralized pillar as well as choosing a mission to create and maintain social values. Social entr epreneurs recognize social problems and apply entrepreneurial principles to manage, creating efforts to achieve social change (social efforts).
	Solve problems innovatively	

Theme	Sub-theme	Supporting Details
Challenges	Recruiting staffs and volunteers	Staff retention is a problem due to commitment and money – people were dissatisfied with how little they were paid.
	Social impact metrics	A lack of capability, as well as insufficient data.
	Scaling up and succession plan	Less awareness and skills to scale up their businesses and how to plan their succession

Several themes emerged repeatedly and were developed throughout the interviews, largely because of the interviewer's line of questioning; when it came to specific parts of the informants' support, themes that emerged were networking opportunities, business guidance, peer engagement mentorship, exposure, and technical advice.

All the interviews done as part of the Malaysian group found that social entrepreneurs are generally satisfied with the support they receive or have received in their support systems. For example, Social Entrepreneur 1 believes that the MaGIC provided her with "excellent information," while Social Entrepreneur 2 claims that their incubators provided her and her initiative with *"it is much more than we expected (...) It's big..." We truly feel like we're a part of something special."*

Theme 1: Good initiatives

The practice of social entrepreneurship has exploded worldwide, including in Malaysia, where it is still in its infancy. Despite this, little is known about the career transitions of young people who choose to be social entrepreneurs. It is very important to get the support of the right organization. One of the informants stated, "*Social Enterprise Development provides training on how we want to measure the impact on social enterprises so that Social Entrepreneurs can predict Social Entrepreneurship. It is very important to get support from the right organisation."*

The informants understand that accurate understanding is crucial to a field of learning and that it takes time for the true impact of entrepreneurial efforts to be clear. This global venture philanthropy firm provides early investment and rigorous support to early-stage, high-impact social companies. They seek out, invest, and support extraordinary leaders with ground-breaking, high-impact ideas with the potential to scale. Currently, they assist groups providing crucial access to healthcare, education, food security, social justice, water and sanitation, transparency and accountability, and shelter domestically and globally.

Respondents also state that the privilege of being a social entrepreneur is not just a grant. Informant 1 stated, *"Social Entrepreneurship does not only provide the type of grant but also gain knowledge of exposure*." Informants felt it was important to know the privileges offered in this field. They also state that, in this case, they can benefit the local community as well as the outdoors. Informant 3 stated, *"Social enterprises focus on beneficiaries, target NGOs, and grants for social enterprises from high-profit companies. For example, Teman Malaysia is also affiliated with PETRONAS companies, where PETRONAS companies are available for grants to Teman Malaysia. With that grant, we can use it to benefit the community".*

SMAS accreditation is a nationally recognized accreditation in professional health and safety standards that shows your company is completely accredited. According to the informants, there were differences in levels of social entrepreneurship, including basic social entrepreneurship and accreditation social entrepreneurship. The privileges obtained also vary by level. Informants understand that to achieve high levels and profits; they need to work more than they do at the usual level by showing evidence.

Theme 2: Relationship among social entrepreneurs

Wealth creation is not a goal for social entrepreneurs; it is a means or tool to achieve social missions. The organization differentiates social entrepreneurs from business entrepreneurs by focusing on the development of social value. Informants mentioned that many people think social entrepreneurs only focus on businesses for profit. However, what social entrepreneurship is doing is for the benefit and privilege of society.

Informants felt that the public should be given proper exposure to the field of social entrepreneurship. According to social entrepreneurs, they need to act appropriately in the event of any problems or manage things with innovative

circumstances. This is because it is important for them to solve a problem without a new problem. As we know it, social entrepreneurship is growing increasingly popular. They are concerned not only with making a profit but also with making a beneficial influence and a more equal society.

Informant 2 stated, *"Social entrepreneurship is the work of social entrepreneurs who have innovative solutions to social problems faced by society. Social entrepreneurship has placed a social mission which is an explicit and centralized pillar, as well as choosing a mission to create and maintain social values. Social entrepreneurs recognize social problems and apply entrepreneurial principles to manage, creating efforts to achieve social change (social efforts)".* Informants felt that all social entrepreneurs should be innovative to achieve a balance of goals.

Many colleges desire to foster social entrepreneurs as social entrepreneurship grows in popularity. Commercial businesses progressively focus on outside relations to direct their inside decision-making forms. One of the informants stated, "*In my opinion, there will be more social enterprise ecosystem in Malaysia. Indeed, even in the statistical data, there is a relatively high increase than before. I have been in this field since 2015. At the beginning of my involvement, what I can say is that not many entrepreneurs are involved in this field, but in 2021 where we can see more people involved in this social enterprise".*

According to the Ministry of Higher Education (MOHE), student interest can be nurtured through various efforts. They include instructional material, and teachers are empowered to advance an entrepreneurial learning method combining classroom lectures and off-classroom learning. Problem-based learning also seems to have a noteworthy effect on the students' entrepreneurial intentions. One of the informants stated, "*The Ministry of Higher Education (MOHE) began to see opportunities to encourage graduates to join SE with a fund of RM650,000 allocated to train 600 students at public universities, polytechnics, and community colleges in the field through the National Entrepreneurship Program 2020/2021 University to Community."*

Informants understand that the funds provided by the Ministry of Higher Education (MOHE) are a key step in fostering students' passion and interest in learning and training students to pursue social entrepreneurship.

Theme 3: Challenges

Despite the abundance of assistance from various agencies, there are several challenges faced by social entrepreneurs. The three subthemes consist of (1) recruiting staff and volunteers, (2) social impact metrics, and (3) scaling up and succession planning. They admit that staff retention is a problem due to commitment and money, and people were dissatisfied with how little they were paid. The social impact was also quite difficult to apply due to the lack of capability and insufficient data. More importantly, their lack of awareness and skills enables them to provide a succession plan and to scale up on a larger scale.

Results from the Indian Group

There are six main themes and ten sub-themes for research objective 1. Table IV depicts examples of quotes for each sub-themes and main theme. The aim of the study was to find support structures in social entrepreneurship by analyzing

Table 4. Status of Social Entrepreneurship and Support targeted to Social Entrepreneurs – Findings from the Indian Group

Main Theme	Sub Theme	Quotes
Addressing social problems	Providing sustainable and innovative solutions	• There are a plenty of problems in the Indian society that could be addressed; education to kids living in slum areas, education to girl children, health care and protection to street children, generating employment opportunities for jobless youths, providing food and clothes to the needy. Social entrepreneurs identify societal problems and provide simple innovative solutions to solve these problems applying the principles of entrepreneurship. Seven years back, we started with a volunteer and two shopping bags, using public transportation system to collect the surplus food and deliver to the homeless and needy, we have now expanded to 17 major cities, 557 volunteers, 10 vehicles to collect and deliver the food. The idea was just a spark over a discussion with my friend.

Main Theme	Sub Theme	Quotes
	Impact Measurement	• I think the most important dimension in Social Entrepreneurship is the metrics that we need to choose to measure the impact our enterprise has created in the society. We look at how many girl children we are able to identify year on year and provide education to them, thus transforming their lives. Social Entrepreneurs bring about social change, we are happy when people call and share information about girls who need our support. • Social Enterprises should focus on measuring the impact of their venture across the years, which a few of them fail to do like us and realize a couple of years later.
Building a community for support	Partnership	• We started in a small way with four people and now have grown as an enterprise with over 400 people. I think the most important thing is the ability of the Social Entrepreneur to talk out his heart, reach to people and expand his network. • Social Entrepreneurs should be the change makers in the society, we now have nine offices across India, since likeminded people joined hands with us and supported. • Apart from financial support, Social Entrepreneurs need support for managing their finances, filing income tax, knowledge on legal compliances, sourcing funds, accessing technical and financial support from the government, marketing their product/service, maintaining customer/supplier relationships, using technology for promoting and leveraging their business. Such small support would be of immense help to them.
	Knowledge support	• Most of the social entrepreneurs are not well/formally educated, but have a strong passion to address the identified social cause, they require support for managing their businesses effectively and efficiently. • Action for India provides support to social entrepreneurs in the form of access to technology, mentorship, investors, government agencies, local partners and business development.
	Volunteering	• In the initial stages of my social venture, friends and family members devoted their leisure time in promoting my business. It helped me save a lot of money. • We are expanding across the country which would have not been possible without the support of weekend volunteers, who help us in designing and planning the activities for the forthcoming weeks.
Training		• The Regional Fellows Program of Acumen Regional Fellows India, offers leadership development program for one year. It was quite useful, since we remained in our jobs and took part in seminars and received, training and the space to innovate new ideas and build a strong network across the country and world.
	Skill development programs	• Pipal Tree Ventures run vocational training schools in association with National Skill Development Council, The International Association of Plumbing and Mechanical Officials and Technical and Further Education in villages across India. We skill young graduates and provide high quality civil contractor services specially in the field of finishing domain. • The Government of India offers skill development programs through the Ministry of Skill Development and Entrepreneurship

Funding and Grants	Trusts and Foundation	• Villgro, Deshpande Foundation, and Upaya Social Ventures provide seed funding and have been supporting social entrepreneurs. • With no money in hand, the seed funding helped in kick starting my idea.
Incubation and acceleration	Institutions, Trusts, and Government	• People often think Social Entrepreneurs make huge profits, that is a misconception, we need to make profits to be self-sufficient, sustain and grow our dream, apart from the grants/funds they receive, since they cannot always seek/rely on external funding. Foundation for Innovation and Social Entrepreneurship, an initiative by TATA Trusts is a Technology Business Incubator that nurtures social sector startups. Similarly, the UnLtd India's Incubation Program serves as a canvas for early stage social entrepreneurs in India to nurture their ideas. These two are wonderful opportunities to kickstart their social innovations. • The Government of India is offering support for Social Startups, but many of the Social Entrepreneurs are not aware of it. RTBI, the Rural Technology and Business Incubator an initiative of Indian Institute of Technology Madras with support from the Department of Science and Technology, Government of India and World Bank's Infodev arm provides support for social enterprises that are working towards rural and social inclusion. • The Centre for Innovation, Incubation and Entrepreneurship of Indian Institute of Management Ahmedabad offers an excellent platform and has been helping transform wonderful ideas in to thriving enterprises since 2007.
Education	University programs	• Having recognized the future need, educational Institutions in India have started offering degree programs in Social Entrepreneurship; the MA degree by the Tata Institute of Social Sciences and the part-time MBA program by Narsee Monjee Institute of Management Studies, Mumbai. These programs help to learn designing, launching and scaling entrepreneurial ventures with social goals along with the required managerial skills. Such a formal education will promote social enterprises.
	Capacity building programs	• The School for Social Entrepreneurs India (SSE India) supports people who have an idea for a social enterprise or social impact project in India. The program duration is 27 days spread out over 9 months. There are no charges for this program. • Dasra Social Impact Accelerator Program (DSI AP) provides a platform for social enterprises to strengthen their knowledge, skills, ability to raise funds, and formulate growth plans. The program offers tools and frameworks for social entrepreneurs to refine their business plan, platform to exchange ideas, collaborate and create a network of thought partners.

The training aimed at developing entrepreneurial competence in potential individuals is called entrepreneurial training. Motivating potential entrepreneurs and helping them to take necessary steps such as endeavour advancement and preparation of necessary reports are the most crucial steps. The strategies the applicant uses to get the results are recorded with objective explanations. Whereas explanations tend to be wide and abstract, targets are concise and concrete. Compelling objective articulations must meet a few criteria. The qualities of effective objective statements can be reviewed with the acronym SMART, as they must be Specific, Measurable, Achievable, Relevant, and Time-limited.

With a mix of government intervention and pure entrepreneurship, social enterprises can solve problems too difficult to inspire enthusiasm for legislation or attract private capital. To be successful, these companies must meet social goals and strict financial restrictions at the same time. The aim is usually to benefit certain groups of people and change their lives permanently by changing the unfavorable general socio-economic balance for them.

The graduates are more enthused about the prospect of getting an unfaltering salary and being free. But, to meet the objectives of a developing economy, governments have realized business enterprises and SMEs are the keys. This incorporates the accentuation on the significance of social enterprise and its potential to not meet the financial objectives but, moreover, the social ones.

Findings from the Malaysian Group: To explore potential improvements that can be of support to social entrepreneurs

Table V depicts examples of quotes for four sub-themes and three main themes. The results reveal two overarching themes in support structures in social entrepreneurship in Malaysia: (1) Competence of social entrepreneurs in addressing challenges, (2) The role of social entrepreneurs, (3) Enhancing innovation in the social entrepreneurship sector, (4) University students as potential social entrepreneurs. This study also outlined several strategies for making positive changes in the field of social entrepreneurship in the future.

Table 5. Potential improvements that can be of support to social entrepreneurs - Findings from the Malaysian Group

Main Theme	Sub Theme	Quotes
Competence of social entrepreneurs in addressing challenges	Data-driven business analytics	Support structure can assist entrepreneurs leverage research and data-driven analysis to account for factors and variables that existing solutions may have overlooked. An individual's ability to question commonly held beliefs or principles can lead to a completely new way of thinking.
	Innovation	Business entrepreneurs related to the great social changes that improve our world may not have expected how much their innovation will achieve; many people have not lived to see it happen. The same may be true of social entrepreneurs today. But their hybrid approach is helping to create change in ways that are difficult for governments or companies to achieve.
	Cash flow management	Financial institutions to guide in educating more financial institutions about the benefits of investing in social -impact enterprises. To prevent being 'grantrepreneurs' who lack strong business models.
	Improving business models and ensuring long-term viability	
	Creating Impact Assessment Procedures	Funders working with social enterprises should collaborate to create common protocols and tools that can be used by all stakeholders.

University students as potential social entrepreneurs	Develop programmes that can serve as a focal point for long-term support initiatives, such as ongoing workshops and peer-to-peer learning sessions.	I have been in this field since 2015. At the beginning of my involvement, what I can say is that not many entrepreneurs are involved in this field, but in 2021 where we can see more people involved in this social enterprise. This social enterprise is very important in Malaysia because many other businesses do not think about the impact that can be shared to Malaysians. Like PETRONAS, which is a big company, but they also support Social Entrepreneurship in Malaysia. When big companies act like this it will get more attention from other big companies to do the same. With the possibility of the next 10 years an improvement on the social entrepreneurship ecosystem in Malaysia will certainly happen.
Develop scaling up and succession plan training	Succession planning tools	Services that provide succession planning tools and training, as well as aid with documenting systems and building operations, are available from both the public and private sectors.

Theme 1: The competence of social entrepreneurs in addressing challenges

Social enterprise has been seen in as many things as possible: an arrangement to advertise disappointment, a social focal point connected to routine ideas of business enterprise. Besides, the social business enterprise is still a concept with multiple translations. According to the informants, the individual level of investigation (the motivations and actions of social entrepreneurs), the organizational level of examination (the administration, scaling, and performance of the social endeavour), or the regulation level of examination (effect of Social Entrepreneurship activities on a regional/national level and the part of teaching in facilitating/hindering SE).

One of the informants stated, "*Entrepreneurs leverage research and data-driven analysis to account for factors and variables that existing solutions may have overlooked. An individual's ability to question commonly held beliefs or principles can lead to a completely new way of thinking".* Others stated that social entrepreneurship could be a social duty of commercial businesses which involved cross-sector partnerships.

It is also a way to reduce social issues and the method of social change. Social entrepreneurship envelops the activities and forms attempted to find, characterize, and exploit opportunities to extend social wealth by creating modern ventures. These models are planned in agreement with the social enterprises' monetary and social goals, mission, marketplace flow, client needs or capabilities, and legitimate environment. Most of the trade models are implanted inside the organization.

Another informant stated, *"The strategies we describe for success in social entrepreneurship are not mutually exclusive. Many KHAZANAH winners love TEMAN to achieve a new and sustainable balance for their target voters."* Informants understand that social entrepreneurship will grow and thrive with the best targets. Social entrepreneurs must provide innovative arrangements for unsolved social problems, recognize and exploit market opportunities, and generate operating surpluses in reasonable arrangements. To do this, they must create the aptitudes to effectively oversee the complexities of the "double bottom line." In this setting, it'll be especially vital to identify what skills social entrepreneurs require to be effective and what approaches can help produce them.

One of the informants stated, "*Business entrepreneurs related to the great social changes that improve our world may not have expected how much their innovation will achieve; many people have not lived to see it happen. The same may be true of social entrepreneurs today. But their hybrid approach is helping to create change in ways that are difficult for governments or companies to achieve."* Overall, the informants stated that three distinctive rationales sometimes compete among themselves, viz. (1) social well-being, (2) exchange, and (3) open sector.

Theme 2: University students as potential social entrepreneurs

There will be more social enterprise ecosystems in Malaysia. Indeed, even in the statistical data, there is a relatively high increase than before. The Ministry of Higher Education (MOHE) began to see opportunities to encourage graduates to join SE with a fund of RM650,000 allocated to train 600 students at public universities, polytechnics, and community colleges in the field through the National Entrepreneurship Program 2020/2021 University to Community. Because every state has at least one university, higher education institutions can play a role in providing space and facilitation for such programmes.

Theme 3: Maintaining Succession

Services that provide succession planning tools and training and aid with documenting systems and building operations are available from both the public and private sectors. Qualified human resource experts should provide consultancies to connect with underserved social entrepreneurs.

Findings from the Indian Group

Results reveal five overarching themes in improving support structures for social entrepreneurship in India: (1) Support for incubation and acceleration and mentoring, (2) Access to funds, (3) Resources for enhancing entrepreneurial competence, (4) Human Capital, (5) Cultural Challenges. Table VI depicts examples of quotes for each sub-themes and main theme. The aim of the study was to find support structures for social entrepreneurship by analyzing information from eight considered members for which accomplishing the social mission is basic to the organizational objective framework.

Table 6. Potential improvements that can be of support to social entrepreneurs - Findings from the Indian Group

Main Theme	Sub Theme	Quotes
Support for incubation and acceleration and mentoring	Awareness regarding trusts, foundations, and institutions that offer support for incubation and acceleration	● In India there are a number of foundations and institutions that provide platform for incubation, if I was aware of it and utilized, I would have not faced so many hardships to establish my enterprise.
	Mentoring support	● We were badly looking for mentoring support in the initial stages. Had to spend a lot of time sorting the issues and managing the challenges. If we had a mentor, like how we have now, things would have been much easier for us.
Access to funds	Awareness regarding the sources of funds for social enterprises and the application process	● Social entrepreneurs find it hard to sell their ideas, mobilize funds to kick start and establish their venture. I am aware that the Government funds social ventures, not aware of how to apply and get. Have good market, lack funds to expand. External funds are available but are costly. Given the prevailing uncertainty, not willing to borrow at high rates and take risk. ● By the time, I came to know of the funding support available, it was too late to apply. ● If you could provide information on funding sources, I would be thankful.
Resources for enhancing entrepreneurial competence	Capacity building programs that enhances the competencies of social entrepreneurs	● We do not have all the required skills to manage our enterprise. Constantly seek support from friends for digital marketing support, promoting business, regulatory compliances. ● It would be great help if educational institutions offer training programmes for us on marketing, preparing growth plans, and more important on pricing and cost management. ● Did not receive a formal education in management, learning from past mistakes, mistakes cost a lot at times. ● Social enterprises are different from normal enterprises. What are the skills required to manage a social enterprise successfully? How can I get myself skilled? ● If someone could teach me promoting my business digitally, can reach more people and serve them.

Main Theme	Sub Theme	Quotes
Human Capital	Attracting and retaining employees and volunteers	● We cannot pay like corporates, retaining employees is a very big challenge. ● People are not inclined to work for social enterprises. Finding it difficult to get people. ● We address social problems to make a difference in the society, if we had more volunteers, we would be able to reach a larger section of the society.
Cultural Challenges	Cultural taboos still remain and have not changed over the years	● We are in the 21st century, our society is not open minded, closed and still the same old. ● It is hurting when people fail to understand the objective of our enterprise, even when we explain, our family members too. ● Discrimination still prevails.

Theme 1: Support for Incubation, Acceleration and Mentoring

According to the informants, social structures need to take up more initiatives to increase awareness of the existence of incubators and accelerators. Informant 3 mentioned, *"In India, there are a number of foundations and institutions that provide a platform for incubation; if I was aware of it and utilized it, I would not have faced so many hardships to establish my enterprise."* This also includes support in terms of mentoring sessions. Another informant highlighted, *"We were badly looking for mentoring support in the initial stages. Had to spend a lot of time sorting the issues and managing the challenges. If we had a mentor, like we have now, things would have been much easier for us."*

Theme 2: Access to Funds

Concerning the lack of awareness among social entrepreneurs, this also includes access to funds. Awareness regarding the sources of funds for social enterprises and the application process. Informant 4 mentioned, *"Social entrepreneurs find it hard to sell their ideas, mobilize funds to kick start and establish their venture. I am aware that the Government funds social ventures, but I am not aware of how to apply and get. Have a good market but lack funds to expand. External funds are available but are costly. Given the prevailing uncertainty, not willing to borrow at high rates and take the risk."*

Theme 3: Resources for enhancing entrepreneurial competence

Capacity-building programs that enhance the competencies of social entrepreneurs are one of the many elements social enterprises often lack. There is a dire need for the support structures to assist in this context. Informant 8 stated, *"It would be a great help if educational institutions offer training programmes for us on marketing, preparing growth plans, and, more important on pricing and cost management."*

Theme 4: Human Capital

Most of the informants lamented the number of volunteers that is reducing daily. No matter how severe the social problem is, it would not be successful in making a difference in society without the help of their volunteers. Otherwise, they could reach a larger section of the society. Informant 6 mentioned, *"We cannot pay like corporates; retaining employees is a very big challenge."*

Theme 5: Cultural Challenges

Cultural taboos remain and have not changed over the years. Informant 7 emphasized, *"We are in the 21st century, our society is not open-minded, closed and still the same old".*

5. Discussion

5.1 Comparison of Current Status of Social Entrepreneurship and Support Structures Ecosystem in India and Malaysia

Based on Table I and II, similarities between India and Malaysia in the current social entrepreneurship ecosystem can be found. Firstly, it was found that social entrepreneurs have less awareness of the real definition of social enterprise. The concept of Social Entrepreneurship is vast and encompasses multiple dimensions. Plenty of issues in society are being addressed/could be addressed, ranging

from small to big, superficial to deep, across the nation, to specific in certain areas. The objective of social enterprises remains the same; the perspective varies across the nation since cultural differences and economic inequalities exist across the country. Social enterprises focus on addressing a social issue perceived by the founder in a specific region/segment.

In India, it appears that more organizations are supporting social entrepreneurs and receiving funding and support from public entities than in Malaysia. This is particularly among their higher educational institutions offering social entrepreneurship programs from ideation to commercialization through incubation and degree programs. However, similar assistance offers can be found in both India and Malaysia. Plenty of issues in society are being addressed/could be addressed, ranging from small to big, superficial to deep, across the nation, to specific in certain areas. The objective of the social enterprises remains the same. The perspective varies across the nation since cultural differences and economic inequalities exist across the country. Social enterprises focus on addressing a social issue perceived by the founder in a specific region/segment of society, which could be related to the SDG.

Secondly, it was found that most social enterprises are located in urban areas to ensure the availability of the required resources. Though they are headquartered in urban areas, they focus on addressing the issues in rural areas, while a couple focus on the issues in urban areas. The main resources that these social enterprises look upon are funds and human capital. The modern social advancement instrument and standards focus on the well-being of people, social orders, and domains regarding social incorporation, work creation, and quality of life (OECD, 2011). Other than that, analysts found social enterprise to be one of the most important techniques for progressing people's socio-economic well-being (Nasir & Subari, 2017).

However, an interesting point from the Malaysian group is that most of their social enterprises are relatively young (6 years and below). However, it is not entirely the case for the India group. One of the oldest social enterprises is Vivekananda Girijana Kalyana Kendra, founded in 1980 at 32 years old. There has been an increase in social enterprises during the last 15 years, with a mushrooming growth during the last six years. Social entrepreneurs from India were driven by the strong desire of an individual to bring about a needed change in society.

Nevertheless, both groups have a similar emphasis on profit as well as their respective social or environmental mission. Their focus is on creating employment and supporting disabled communities. Most of them are orienting our profit to social and environmental purposes. A slightly different context from the India group, where their social enterprises have been addressing a wider range of social issues, namely integrated development of the tribal population, providing education to children with a specific focus on girl children, skilling, generating employment, minimizing food waste, providing food to a needy, sustainable livelihood, empowerment of people with disabilities. They focus on making a profit for expanding and sustaining their business while their activities revolve around the mission.

Fifthly, both groups highlighted that they plan to create and market new products and services, develop a network and partnerships, and extend geographic reach. Support structures extend support through financial support, human capital support, knowledge support for marketing, technical advice, sourcing funds, and compliance. Mentoring support is sought mostly from family members and extended family members. Support structures have helped develop and to expand their network, which has created inter-linkages among the social enterprises, thus supporting each other. Social entrepreneurship covers the public, private, and voluntary sectors (Perrini & Vurro, 2006). Traditionally, these three sectors play different roles and approaches; the open sector gives public services and goods, whereas the private sector is centered on advertising to benefit and meet the needs of shareholders, and the non-profit sector involves citizens in meeting the needs of society.

Regarding the challenges social enterprises face, it could be reasonable to state that their challenges are quite similar between the two groups. Apart from facing barriers in recruiting staff and volunteers, lack of capability, and insufficient data on social impact metrics, issues in scaling up and succession plans also affect social enterprises. Other barriers include incubating their ideas, sourcing funds, marketing their products and services, and reaching the rural population. An interesting point seems to emerge from the India group, where the data on social enterprises is not easily available, thus hampering the opportunity to aid/support. They are not much popular in other geographic regions and within the region.

5.2 Comparison of Potential Improvements for Support Structures in India and Malaysia

After analyzing informants' answers from both groups, interesting points of comparison seem to emerge, as depicted in Table IV and V. Both groups have listed suggestions to improve the support structures of the social entrepreneurship

ecosystem. Generally, both groups conveyed similar suggestions with very slight differences.

First, it seems that the support provided needs to be carefully identified and relevant to the current technological changes. Concerning the India group, the competencies required by social entrepreneurs are to be identified since the profile of the social entrepreneurs ranges from holding a master's degree from India/abroad to having completed school education/collegiate education hailing from rural backgrounds, with a majority of them being less than 35 years of age. The focus for enhancing the competence of entrepreneurs above 35 years of age shall be on improving their business models, preparing strategic plans, scaling, and sustaining their business, reaching across geographic locations, impact assessment, marketing their products/services, sourcing funds, and managing their finances, managerial skills, and networking. This is similar to the Malaysia group, yet should be more focused on competencies like data-driven business analytics, cash flow management, improving business models, and owning their impact assessment procedures.

Second, it was interesting to note that both groups highlighted the role of higher educational institutions in improving the support structure of the social entrepreneurship ecosystem. India is more actively offering degree programs in social entrepreneurship than Malaysia, where the concept of Social Entrepreneurship is gaining significance in India; currently, five universities/ educational institutions are offering a formal MBA programme, while a couple of organisations are offering informal learning programmes. Promoting Universities to offer a formal programme/specialised course and encouraging students to incubate their ideas shall pave the way for more students venturing into Social Entrepreneurship. Exclusive programmes like the one offered by the School for Social Entrepreneurs India shall provide opportunities for social entrepreneurs to leverage their enterprises.

Third, both groups agree that social structure should be more focused on providing a succession plan and scaling plan for social enterprises. The success of the social enterprise lies in the impact it has created in the lives of people across geographic locations, both in urban and rural areas. Since cultural challenges exist across geographical locations, issues in scaling up exist in terms of expanding across regions and enhancing the range of products/services offered. Therefore, training programmes to appreciate cultural differences and reach out to people in their language are essential.

Most social enterprises address the social cause that has been of concern to them, their dream/passion for making a difference, and are individual/family-owned, which need not necessarily be the dream/passion of their successors. In such situations, it becomes essential to convert these individual/family-owned enterprises into professionally managed ones by identifying and training the employee(s) who have been associated with the enterprise for a long time and have their thoughts aligned with the promoter.

6. Conclusions and Implications

It was found that social entrepreneurship has emerged in the last few decades and has been recognised to bring about potentially transformational social changes with strong assistance from the support structures. Making a profit isn't the only objective of a business enterprise, and business visionaries can make a profit while making a difference in the community and by eradicating social issues at the same time.

Social business has been considered a conceivable arrangement to address destitution in developing nations. It can contribute incredibly to the financial improvement of the nations while tending to social issues simultaneously. Many developing nations encourage their citizens to start businesses and social enterprises. The challenge is that many graduates focus on finding employment and not being a business visionary. Social entrepreneurship progressively challenges the traditional thought of doing business for profit, and social undertakings create value worldwide. Social enterprises make a difference by engaging with people at risk of being ignored by society and bringing them into the mainstream. They also cater to the social needs of the masses, which are difficult to be reached by government organizations.

There will be many opportunities soon where all investments should be directed to creating impact and solving real problems. The awareness level would be increased and improved among all parts of the stakeholders; they would be in a better position to accept impact investing on a bigger and larger scale. Hence, it is important to define real impact to track and measure it, even though it takes a medium and long-term view.

This study was conducted with a small set of social entrepreneurs in Malaysia and India, so generalising the results would be challenging. Though all the attempts were made to enumerate the support systems, the list is not exhaustive. Despite these limitations and the limited scope of this study, it assumes importance because it addresses a real gap by adding information to the limited data on social enterprises.

6.1 Future Research

The study has revealed several areas that will benefit from further investigation. The literature review recognised a few areas with a dearth of information. While the study has addressed a few of these, others have not been addressed. There are a few additional areas for further research, such as strategies to develop the support structure in social entrepreneurship. There's much scope for more research because the social enterprise is still a generally modern scholarly topic (Noya & Clarence, 2013; Dacin et al., 2011; Gawell, 2013; Lumpkin et al., 2018; Pless, 2012; Bielefeld, 2009; Thompson et al., 2011; Austin et al., 2006). According to Hansson et al. (2014), measurable assessments of social entrepreneurship and social firms must be established so that social entrepreneurship activities may be way better mapped. Comparing levels of such activity at the regional, national, and global levels would be a crucial indicator.

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Effects of Dividend Policy on the Value of Listed Companies: Evidence from Vietnam

Loc Dong Truong (Corresponding author)
College of Economics,
Can Tho University, Vietnam
Email: tdloc@ctu.edu.vn

Tran My Ngo
College of Economics,
Can Tho University, Vietnam
Email: nmtran@ctu.edu.vn

Ngan Ngoc Huynh
Can Tho Technical Economic College
Email: hnngan@ctec.edu.vn

Abstract

The objective of this study is to enrich the literature by investigating the effects of dividend policies on the value of listed companies in Vietnam. Data used in this study consists of 262 listed companies in Ho Chi Minh Stock Exchange (HOSE) for the period from 2016 to 2018. Using the fixed effects model (FEM), the empirical findings confirm the dividend payout ratio has a positive relationship with the value of the listed companies. This finding supports the bird-in-hand theory that investors prefer to receive dividends in cash rather than capital gains in the future. In addition, this study finds that dividend payment methods significantly affect the value of listed companies. In fact, the cash dividend positively affects the value of the listed companies. This evidence is consistent with the signaling theory that payment for dividends in cash is a good signal from the companies.

Keywords: *Dividend policies, value of listed companies, bird-in-hand theory, transitional economies.*

1. Introduction

Dividend policy is the practice of making dividend payout decisions in terms of the size and pattern of cash distribution over time to shareholders by the management team (Al-Malkawi et al., 2010). The dividend policy is one of the most important financial policies of the company. Dividends are considered a reward for shareholders for their investments and the risk they incur when holding company stocks (Kim et al., 2021). Dividends are also considered a means of monitoring business performance because, through their ownership ratio, investors can request the company to implement different dividend policies, thereby changing the level of agency conflict (Farrukh et al., 2017).

The dividend policy applied in companies listed on stock exchanges is very diversified and flexible. The company could choose a reasonable dividend payment form depending on the period. Well-performing companies make more profits, shareholders benefit when they receive more dividends, and thus, it is easier for companies to raise capital. However, the dividend payment also reduces the company's retained earnings, making it difficult to expand investment in projects. Dividends could be paid in cash or in the form of stocks. Some other forms of dividends could include the company's products or securities of another company that the company owns. Since the release of the dividend irrelevance theory by Miller and Modigliani (1961), the emergence of extensive theories and empirical studies to find out the dividend policy have not reached a consensus (Benlemlih, 2019).

Miller and Modigliani (1961) have shown that dividend policy does not affect firm value under perfect capital market conditions. However, many researchers disagree that the dividend policy has certain effects on company value. Gordon (1963) theorized that investors prefer to be paid dividends in cash over expectations of future capital gains due to risk factors. The agency theory of Jansen and Meckling (1976) relies on conflicts of interest between managers and shareholders to conclude that the ownership ratio of those involved in management can affect dividend policy. Miller and Scholes (1978) also argued that the difference between the tax rates applied to dividend income and interest on capital gains could lead to a different decision in a firm's dividend policy to meet the requirements of shareholders. Dividend policy and other policies, such as investment and financing policies, are often overlapping and complicated. Therefore, studying the impact of dividend policy on enterprise value has still attracted the interest of research of many researchers as well as practitioners all over the world (Al-Malkawi et al., 2010; Giriati, 2016; Hauser & Thornton Jr, 2017; Kim et al., 2021).

The Ho Chi Minh Stock Exchange (HOSE) is the first stock exchange in Vietnam, established on July 28, 2000. By the end of 2018, 373 companies with a total market capitalization of VND 2,875,544 billion (about USD 125.62 billion) were listed on the Exchange. Although the effects of dividend policy on the value of listed companies have been extensively documented in the literature (Al-Yahyaee et al., 2011; Khan, 2012; Guizani & Abaoub, 2012; Majanga, 2015; Giriati, 2016; Imelda & Sheila, 2017; Budagaga, 2017; Farrukh et al., 2017; Sharma, 2018; Elim, 2019; and Ganguli et al., 2020), very little has been known about it in Vietnam. Specifically, it is observed that there have been only a few studies on the dividend policy of companies listed on the Vietnamese stock market (Hung et al., 2018; Nguyen et al., 2021.). However, these studies mainly focused on the determinants of dividend policy.

To fill this gap in the literature, this study is devoted to investigating the effects of dividend policy on the value of listed companies in Vietnam. The Vietnam stock market provides fertile ground for a unique examination of the effects of dividend policy on the value of listed companies due to the fact that the market has been characterized by small individual investors, the lack of fully developed financial and legal institutions as well as a low level of information transparency (Nguyen et al., 2022; Truong et al., 2022; Ando & Scheela, 2005). Besides, the Vietnamese stock market has also been characterized by the prevalence of firms with concentrated ownership structures and the lack of external corporate governance mechanisms, such as a market for corporate control along with weak legal investor protection (Nguyen et al., 2017). Thus, the study on how the dividend policy impacts the value of listed firms in the Vietnamese stock market raises concerns. The expected results of this study will not only enrich the empirical evidence in an emerging stock market like Vietnam but also provide scientific evidence for the companies listed on the Vietnamese stock market to make appropriate dividend policies. The rest of the paper is structured as follows. Section 2 reviews the empirical literature, while Section 3 summarizes the data employed in this study and the research methodology. Section 4 discusses the empirical findings. Finally, the conclusions of the study are presented in Section 5.

2. Literature review

2.1 Theoretical Background

Dividend policy has received the interest of many scholars, demonstrated through the evolution of theories in accordance with the development of the financial market. According to Al-Malkawi et al. (2010), three main

contradictory dividend theories exist. The first view supports the argument of an increase in firm value together with an increase in dividend payments. A typical theory representing this view is the so-called 'bird-in-hand' theory. Meanwhile, the second argues for an inverse relationship between the negative effect of high dividend payouts and firm value. The representative for the second view is the tax preference theory. On the other hand, the last view contends on the irrelevance between dividend decision and firm value on behalf of the dividend irrelevance hypothesis. In addition, the dividend puzzle has increased the complexity with the presence of other theories, such as signaling theory, clientele effect theory, or agency theory.

Dividend Irrelevance Theory

The dividend irrelevance theory, proposed by Miller and Modigliani (1961), suggests that in a perfect world with no taxes and financial distress costs, the dividend policy is irrelevant. Miller and Modigliani (1961) argue that with assumptions of no transaction costs when buying and selling shares and no differences between the tax rates for dividends and capital gains, dividends and capital gains can be substituted for each other. Therefore, dividends do not provide any added benefits to investors. In other words, the dividend policy does not affect the value of a company.

Bird-in-hand Theory

The bird-in-hand theory was first developed by Gordon (1963) and Lintner (1962) as a response to the dividend irrelevance theory. The theory asserts that investors prefer dividends from stock investing to potential capital gains because dividends are less risky than capital gains which are associated with inherent uncertainty. Therefore, investors require a higher return to compensate for risk when they invest in companies with low dividend payout. A higher return leads to a decrease in the market value of a company. In other words, dividend payouts have a positive relationship with the value of companies.

Tax Preference Theory

Contrary to the bird-in-hand theory, the tax preference theory states that shareholders prefer long-term capital gains to current dividend yield due to the difference in tax rates between dividends and capital gains and the time value of money. Especially in many countries, the income tax rate on dividends is higher than the capital gains tax rate. In addition, shareholders reap benefits from the delayed payment for capital gains taxation because of the time value of money. Consequently, the required rate of return for investors in high-payout stocks should be higher than low payout stocks in order to compensate for greater tax expense (Litzenberger & Ramaswamy, 1982; Miller & Scholes, 1982). Therefore, the tax preference theory claims that companies with a high dividend payout are associated with decreased value.

Signaling Theory

Spence (1973) initially developed the signaling theory based on the observed knowledge gaps between organizations and prospective employees. Then, it has been adapted to many other fields, such as business and financial markets. This theory helps people better communicate under conditions of asymmetric information. A signal could be an action or statement that discloses a range of information. Many scholars claim that dividend policies can be seen as signals from companies and impact their stock prices. Specifically, high dividend payments are considered a positive sign of corporate health and earnings growth to investors, leading to an increase in the stock price. Moreover, methods of dividend payment also signal to investors. Dividends paid out in cash instead of stocks are also interpreted as a positive sign of corporate cash flow. Therefore, dividends paid out in cash positively affect the stock price.

Clientele Effect Theory

Clientele effects refer to the case when a certain type of dividend-paying stock tends to attract some types of investors. Hence, listed firms could be incentivized to choose different dividend policies to attract different clientele. According to Allen et al. (2000) and Elim (2019), dividend-paying stocks tend to attract institutional investors who prefer this kind of stock due to their relative tax advantages over individual investors. The former investors are often faced with restrictions on institutional charters, which sometimes render them to invest in non-paying or low-dividend stocks. Besides, these investors are supposed to be better informed and have more incentives to inspect the firm quality than individual investors. As a result, well-performing firms could choose to pay a high dividend policy to attract institutional investors (Al-Malkawi et al., 2010; Elim, 2019; Ganguli et al., 2020).

Agency Theory

Under the view of agency lens, high dividend payment could be a means to reduce the availability of free cash flow in the hands of the manager. As a result, they could be prevented from investing in unprofitable projects to get empire-building or consuming costly perquisites (Ganguli et al., 2020). In addition, when facing the inadequacy of retained earnings due to high dividend payout, the managers could finance their investment with debt or equity, which leads to scrutiny of the lenders and capital market. Thus, paying

dividends could serve as a corporate governance mechanism to reduce agency costs between fund providers and managers. Hence, dividend payments could demonstrate the confidence of well-managing managers, which gave a positive signal for shareholders to reinvest within the company (Giriati, 2016). Hence, the agency cost implies that the shareholders prefer dividends over retained earnings, and the generous dividend payout firms could improve their value by decreasing the quantum of free cash flow to managers (Budagaga, 2017).

2.2 Empirical Studies

The effects of the dividend policy on firm value have been empirically examined by several researchers all over the world. However, the evidence found is still inconsistent. Most of the previous studies found a positive effect of dividend policy in terms of the method of payments or dividend payout ratio on the value of listed firms. In contrast, some researchers confirmed the opposite effect, and some authors provided evidence on the irrelevance of dividend policy and firm value. The following review of empirical findings mainly focuses on the contexts of developing countries.

As predicted by the bird-in-hand and signaling theories, some previous researchers found a positive effect of the dividend payout ratio on the firm value. Using data collected from 44 firms listed on the Istanbul stock exchange for the period 2007-2015, Budagaga (2017) documented a significant positive relationship between dividend payments calculated by cash dividend per share and the value of firms. This evidence supported the relevance hypothesis of dividend payment. This author argued for the possibility of a divergence in dividend policy characteristics between advanced and emerging markets. Budagaga (2017) proposed that the assumptions of rational investors and perfect certainty were unrealistic in the real business world due to the observed market imperfections such as tax, transaction cost, and information asymmetry between managers and shareholders. Before that, Al-Yahyaee et al. (2011) found evidence that in an emerging market like Oman, where there was the presence of highly concentrated shareholdings and limited disclosure information, the dividend increases convey positive information. In this market, the dividend is one source of information that facilitates the evaluation of investors on management's expectations and confidence in a firm's future performance.

Sharma (2018) investigated the effect of dividend policy on the value of banks in India. The banking sector has a special capital structure comprising equity shares and long-term debt. Long-term debt is relevant to the obligations of periodic payment of fixed charges in terms of interest and principal. At the same time, equity accounts for a not mandatory duty of dividend payments to shareholders. According to the author, the banks paying no dividends could face a decrease in their reputation, which will lead to a fall in their share prices and market capitalization. The statistical results from this study demonstrated that banks with higher dividend payouts were valued higher by investors than those paying fewer dividends.

In Pakistan, using a sample of 51 listed firms paying dividends, Farrukh et al. (2017) found that dividend policy proxied by dividend per share and dividend yield positively affected shareholders' wealth. This evidence verified the relevance of dividend policy in this market. Five years before, Khan (2012) also provided evidence of a significant positive association of cash dividends on stock prices of listed firms in the pharmaceutical and chemical sectors in this market.

In an Asian market, Singaporean companies have been characterized by a highly concentrated pattern of shareholdings which could result in the expropriation of minority shareholders by large concentrated ones. The latter could keep the corporate resources out of the hands of the former by means of pyramiding or tunneling. However, Singapore has a legal system that is supposed to give adequate protection to investors since Singapore belongs to the list of best destinations regarding property rights and investor protection. As a result, Ganguli et al. (2020) argued that the minority shareholders in the Singapore stock market are still optimized to fund the enterprises and prefer dividend payment over retention. Thus, high dividend-paying stocks are expected to have higher valuations. By using a sample of FTSE ST companies in Singapore from 2010 to 2013, Ganguli et al. (2020) provided evidence for a positive association between dividend payouts and firm value.

In another Asian market, Giriati (2016), based on a sample of 29 listed firms on the Indonesian stock exchange from 2009 to 2013, found evidence of a positive effect of the dividend payout ratio on the value of firms. This author supported the argument that dividend distribution could provide a positive signal for investors and imply a better company valuation. However, Imelda and Sheila (2017) found an insignificant effect of dividend policy on firm value using a sample of 32 manufacturing listed firms during 2012-2014 in this stock market. This author argued that a higher dividend payment would lead to smaller retained earnings, while companies in the sample were assumed to have no plan to invest in the future and thus could inhibit the company's growth. In addition, in the Indonesian stock market, Husna and Satria (2019) found no

effect of dividend policies on the value of manufacturing companies. They argued that the investors in this sector could merely pay attention to the return on investment. Hence, whether the profit is distributed in dividends or retained as retained earnings does not impact firm value. Besides, Elim (2019) conducted another study in the Indonesian stock market using panel data of 73 listed firms during 2010-2014 also showed a negative and insignificant influence of the dividend payout ratio on firm value.

While in the Malawi stock market, Majanga (2015) also documented a strongly positive relationship between dividends per share and the stock price of listed firms. This study implies that an increase in dividend payment over time increases shareholders' wealth, thus coaxing more shareholders to invest in firm stock. In another African country, Guizani and Abaoub (2012), using a sample of 275 firm-years listed on the Tunisia stock exchange over the period 1998-2007, also found statistical evidence of a positive contribution of dividend payout on the value creation for Tunisian firms. This contribution was supposed to originate from a low agency conflict. Tunisian firms were characterized by concentrated ownership and the control of these firms by controlling shareholders, financial institutions, and the state.

In short, most previous studies have examined the effects of dividend policy on firm value in emerging or advanced economies and reported the positive effects of dividend policy on firm value. The current literature has a specific gap regarding the effects of dividend policy on the value of listed companies for the transitional economy of Vietnam. Unlike other stock markets, most listed companies in the Vietnamese stock market were former state-owned enterprises that were restructured by equitization (Truong et al., 2006). Therefore, these companies have concentrated ownership and a lack of external corporate governance mechanisms, such as a market for corporate control along with weak legal protection of minor investors (Nguyen et al., 2017). In addition, the Vietnamese stock market has been characterized by undeveloped financial and legal institutions and a lack of transparency (Ando & Scheela, 2005). For these reasons, it is believed that investigating such an issue in the context of a transition economy would offer new insights into understanding how the dividend policy in a transition economy affects firm value.

Based on the theoretical framework and the empirical evidence reviewed, the following hypotheses are proposed:

H1: Dividend pay-out has a positive effect on the value of listed firms in Vietnam.

H2: Dividend payment in cash is positively associated with the value of listed firms.

3. Research Data and Methodology

3.1 Research data

This study employs a panel dataset that is hand-collected from 262 listed companies in HOSE for the period from 2016 to 2018. All listed companies in HOSE that fulfill the following criteria are selected in the sample: (i) Non-financial companies, (ii) Having full annual financial reports for the period from 2016 to 2018, (iii) The company's shares are still listed on the market as of the end of the fiscal year 2018 and (iv) The fiscal year is from January 1 to December 31. A total of 262 listed firms fulfilled these criteria. The total firm-year observations in the sample are 783.

Relevant data for the study are derived from audited annual financial reports and other related annual reports of the listed companies. All these reports are obtained from the website of HOSE (www.hsx.vn).

3.2 Research Methodology

In order to measure the effect of dividend policies on the value of listed companies in HOSE, firstly, both the fixed effects model (FEM) and random effects model (REM) are used in the study. A method chosen by many previous studies to analyze panel data is Pooled OLS, such as the study of Chen et al. (2017), Ahmed et al. (2019), and Tahir et al. (2020). However, this method ignores the time and space factors of panel data, which can result in the appearance of autocorrelation or make the model improper because the assumptions are too strict. On the other hand, this method does not consider factors that cannot be collected or influence individual companies, which is a frequent phenomenon in empirical research (Baltagi, 2008). To solve this problem, fixed effects model (FEM) and random effects model (REM) are performed. Then, based on the results of the Hausman test, the most appropriate model is selected for the study. The models and related tests were performed using the Eviews 9 software package.

Specifically, the regression models take the following form:

$$TQ_{i,t}=\alpha+B_1DPR_{i,t}+\beta_2CASH_{i,t}+\beta_3LEV_{i,t}+\beta_4CR_{i,t}+\beta_5SIZE_{i,t}+\varepsilon_{it} \quad (1)$$

where:

$TQ_{i,t}$ is Tobin's Q of company i at year t. This study uses Tobin's Q to measure the value of listed companies. Specifically, Tobin's Q for each company is calculated as follows:

$$\text{Tobin's Q} = \frac{\text{Equity market value}}{\text{Equity book value}}$$

The dividend policies are measured by two proxies: dividend payout ratio (dividend over the par value of share) and payment methods for dividends (cash or others). These variables and other control variables are defined and presented in Table 1.

In addition, other factors, such as financial leverage, firm size, and current ratio, have also been found to influence firm value in previous studies. Hence, these variables are included as control variables in this study. Financial leverage is proxied by the ratio of total liabilities over equity. Financial or leverage decisions are important for the manager as it affects the company's earnings, risk, and market value. Higher debt could require a higher fund to pay for the interest as well as the principal (Ganguli et al., 2020). The empirical evidence from Chu et al. (2015) showed that financial leverage has a negative impact on the financial performance of listed firms in the Vietnamese stock market. Firm size is measured by the natural logarithm of total assets (Sharma, 2018). According to Husna and Satria (2019), firms with larger assets could reach their majority stage and could be considered as having good prospects in a relatively stable period. Thus, these firms could generate more profits than those with smaller assets. As a result, higher profit firms could be more valued by investors. Sharma (2018) provided empirical evidence of a positive effect of firm size on firm value in the Indian stock market. This effect was also found by Husna and Satria (2019) in the Indonesian stock market.

The current ratio (CR) is defined as the ratio of total current assets over total current liabilities. This ratio indicates the ability of a company to meet its short-term obligations, which are due soon by the availability of total current assets (Husna & Satria, 2019). Almajali et al. (2012) found that the current ratio positively impacted financial performance. In addition, Husna and Satria (2019) also demonstrated that this variable also affected firm value.

4. Empirical results

4.1 Descriptive statistics of the sample

Based on the data of 262 listed companies from 2016 to 2018, the descriptive statistics of dependent and explanatory variables are computed and summarized in Table 2. It is shown that the mean of Tobin's Q of listed companies is only 0.6679. This result implies that the value of listed companies in HOSE is generally undervalued.

In addition, Table 2 reveals that the mean dividend pay-out ratio of the listed companies during the period from 2016 to 2018 is 0.1581 (15.81 percent). The dividend payout ratio among companies in the sample varies enormously. It ranges from zero to 6.60, with a standard deviation of 0.2862. Moreover, statistics presented in Table 2 indicate that the financial leverage of the listed companies, on average, is very high. The mean debt-on-equity ratio is 1.55. Regarding the liquidation of the companies, Table 2 shows that the mean of the current ratio is 2.3733. Finally, the size of listed companies, determined as the natural logarithm of total assets, has a mean of 12.2324 (VND 5.154.987 million).

Table 1. Definitions of explanatory variables used and expected sign in regression models

Variable	Abbreviation	Definition	Expected sign
Dividend pay-out	DPR	Dividend over par value of share	Positive
Methods of dividend payment	CASH	Dummy variable, equal to 1 if dividend is paid in cash, 0 otherwise	Positive
Financial leverage	LEV	Total liabilities on equity	Negative
Current ratio	CR	Total current assets on total current liabilities	Positive
Firm size	SIZE	Natural logarithm of total assets	Positive

Table 2. Descriptive statistics of sample characteristics

Variables	Observations	Minimum	Mean	Maximum	Standard Deviation
Tobin'Q	786	0.0337	0.6679	8.7324	0.7498
Dividend pay-out ratio	786	0.0000	0.1581	6.6000	0.2862
Financial leverage	786	0.0058	1.5508	29.2346	2.6168
Current ratio	786	0.2647	2.3733	26.0391	2.8846
Firm size	786	11.1099	12.2324	14.4594	0.5676

4.2. Regression results

First, it is necessary to check for the pairwise correlation between explaining variables to examine the possibility of multi-collinearity. Table 3 shows that the absolute values of the correlation coefficient among variables have the highest value of 0.24, which implies that the problem of multi-collinearity could not be present in the estimated model.

As presented in the previous section, this study first employs the fixed effects model (FEM) and the random effects model (REM). Then, the most appropriate model is chosen based on the Hausman test. The results of the Hausman test shown in Table 4 show that the FEM is more suitable to estimate than the REM. Therefore, the estimation results from the FEM are used to evaluate the effects of dividend policy on the value of companies listed on HOSE for the period 2016 - 2018.

The estimated results of FEM presented in Table 5 show that in the Vietnamese stock market, the dividend payout ratio (DPR) has a significantly positive impact on the value of listed firms measured by Tobin's Q. This evidence implies that when the company pays more dividends to shareholders, the value of the company is increased. This result is consistent with the results of some previous studies, such as Farrukz et al. (2017) or M'rabet and Boujjat (2016). This evidence supports the bird-in-hand theory, which means that Vietnamese investors prefer stocks paying higher dividends.

Besides, the evidence also indicates that dividend payout in terms of cash is positively associated with the value of firms. This finding implies that stock with cash payment is also more evaluated by the investors. These results are also associated with the signaling theory. In a market with a lack of transparency like Vietnam, paying dividends could provide a signal for investors on the confidence of the management in firm performance. In addition, dividend payments could serve as a means to reduce agency conflicts in this market where concentrated ownership is prevalent and the investor's legal protection is still weak. The statistical evidence found in this study reinforces the finding of previous studies in other stock markets, such as Ganguli et al. (2020) in Singapore, 'Giriati (2016) in Indonesia, and Sharma (2018) in India.

Moreover, the results derived from the FEM also show a significantly positive effect of the current ratio on firm value. This evidence is consistent with Almajali et al. (2012). However, no statistical evidence is found in this study on the effect of other control variables, such as firm size and financial leverage, on firm value. Although the study could have a limitation in the selected period, by employing reliable data and the appropriate method, we still think that our finding is robust enough to justify the positive effect of dividend policy on the value of listed companies in Vietnam. This evidence enriches the bird in hand theory and agency theory literature in the context of frontier stock markets.

Table 3. Matrix of correlation coefficients of the explanatory variables

Variable	DPR	CASH	LEV	CR	SIZE
DPR	1.0000				
CASH	0.2392	1.0000			
LEV	-0.0528	-0.0176	1.0000		
CR	0.0504	0.0213	-0.1668	1.0000	
SIZE	0.0243	-0.1232	0.0209	-0.1596	1.0000

Table 4. Results of Hausman test

Test summary	Chi-square statistic	Chi-square d.f.	Prob.
Cross-section random	50.8771	5	0.0000

Table 5. Estimated results of FEM

Variable	Coefficient	t-statistic
Constant	0.6822***	2.83
DPR	0.0012**	2.33
CASH	0.1681***	4.68
LEV	-0.0045	-0.90
CR	0.0255**	2.51
SIZE	-0.0151	-0.77
R^2	0.918	
F-statistic	21.81***	
Observations	786	

**** and ** indicate significance at 1% and 5% levels respectively.*

5. Conclusion

This study investigates the effects of dividend policy on firm value in Vietnam by using the data of 262 listed firms in HOSE from 2016-2018. A fixed effect model (FEM) is used as the main method of data analysis. This line of research has captured much interest from academics as well as practitioners. From the view of theories, there exist three points of view on the effect of dividend policy on firm value. The first view with the representatives of the bird in hand theory has argued for an increase of firm value with a higher dividend payment. On the contrary, the second one has supported the opposite effect of the dividend payout on firm value. The typical theory of this view is the tax preference theory. The last one has contended for the irrelevance of dividend policy and firm value with the dividend irrelevance theory. In addition, other theories, such as signaling theory, clientele effect theory, and agency theory, have been proposed. In addition, the empirical evidence from previous studies has shown the inconsistency. Thus, the presence of the contradicted theories and the mixed empirical results have resulted in the call for more studies in this field of research.

The Vietnamese stock market is an interesting case for investigating the effects of dividend policy on firm value. The Vietnamese stock market has been shown to have the presence of concentrated ownership, lack of transparency, lack of legal investor protection, and missing the external corporate governance mechanisms such as a market for corporate control. However, the market has received less attention in the empirical literature.

The estimated results by the FEM method in this study show that listed firms with high dividend payout have higher market valuations. Besides, the evidence shows that firms paying dividends by cash also have higher valuations by investors. Hence, it could be concluded that the evidence in this study supported the view of the positive effect of dividend policy on firm value, such as the bird-in-hand theory, signaling theory, or agency theory. As a result, it could be said that investors in the Vietnamese stock market prefer dividend payout instead of earnings retention. Due to some market imperfections, listed companies in Vietnam could consider an effective, stable, and target-oriented dividend policy as a signal for their firm performance and thus could bring some benefits to their shareholders. Based on the signal theory, dividend payment also shows signs of information about the company's performance to other investors. Paying dividends to the company's shareholders with a reasonably high dividend rate signals that the company is doing business effectively. In other words, the company is earning money and getting high profits. As a result, companies could determine a reasonable rate of dividend payment in accordance with the situation and development orientation of the company. The results from this study also signify the significance of dividend payout in a frontier market like Vietnam.

In addition, listed firms could consider cash payment since this method of payment is preferred by investors in this market. Based on the signal theory, a company paying a cash dividend will often make many investors favorable because they can see the real money of that company. This gives

shareholders a sense of certainty when looking for a return on their investment. For risk-averse investors, receiving cash from a company is far more secure than a company holding the cash and chasing uncertain opportunities. Therefore, it is recommended that companies could consider using cash dividend payments to pay dividends to shareholders.

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A DMAI-Based Approach for Supplier Selection for a Spare Part Manufacturing Unit

Amit Pratap Singh
PhD Research Scholar,
Department of Mechanical Engineering,
NIT Patna, India.
Email: amits.phd20.me@nitp.ac.in

Dr. Anupam Das
Assistant Professor,
Department of Mechanical Engineering,
NIT Patna, India.
Email: das.anupam13@gmail.com
*Corresponding author

Dr. Amar Nath Sinha
Professor,
Department of Mechanical Engineering,
NIT Patna, India.
Email: ansinha@nitp.ac.in

Abstract

The article focuses on the decision and rating of the vendors from an automobile manufacturing organization's point of view. This article presents a suppliers selection model based on one of the important data mining and artificial intelligence (DMAI) techniques, i.e., artificial neural network (ANN), by considering both quantitative and qualitative criteria. The DMAI-ANN technique deals with the data in three stages: input, hidden, and output. The most important part of data mining work is done in the hidden stage, which accepts the ingress from all the nerve cells of the ingress layer, mines the data with the help of applied weights, and transforms the egress value in the output stage. The five quantitative and five qualitative criteria-based data is used in the proposed model for data mining. The proposed work in this article on supplier's performance evaluation is checked and validated with real and practical conditions of an Indian sheet metal automobile manufacturing firm case study to choose the most excellent and most efficient supplier from the heap of their group and to help the executives of the concerned department to take a proper and effective decision on supplier selection and their rating.

Keywords: *Artificial Neural Network (ANN); Data Mining and Artificial Intelligence (DMAI); supplier selection, quantitative, qualitative, automobile manufacturing firm.*

1. Introduction

People use many products/goods daily, and an efficient and effective supply chain backs the management of these goods. Suppliers play an important role in a supply chain. Supplier selection is the process of choosing the appropriate suppliers who can make available to the buyer the right quality products and/or services at the right price, in the right quantities, and at the right time. The success of the business depends upon the best and most efficient selection of suppliers. Especially in countries like India, where many suppliers are available from the unorganized sector, selecting the right suppliers becomes very important for any company to do business effectively. Choosing vendors is a very critical process and becomes more complicated with considering different criteria in the selection process. Vendor selection is also a lengthy process in which a company chooses the vendor based on various factors using different supplier selection techniques.

Different supplier selection approaches/techniques have been used in the past for selecting the best suppliers; the frequencies of the different decision-making methods/techniques used in supplier selection are presented by reviewing the relevant articles published up to 2018 (Chai & Ngai, 2019). Some of the supplier selection techniques are Multi-Criteria Decision Making (MCDM) techniques like Analytic Hierarchy Process (AHP), Analytic Network Process (ANP), and Preference Ranking Org. Method for Enrichment Evaluation (Promethee). Data Mining and Artificial Intelligence (DMAI) techniques like Artificial Neural Networks (ANN), Bayesian Networks (BN), and Genetic Algorithm (GA). Mathematical Programming (M.P) techniques like Linear Programming (L.P), Non Linear Programming (NLP), Stochastic Programming (SP), Mixed Integer Linear Programming (MILP), Mixed Integer Non Linear Programming (MINLP) (Chai & Ngai, 2019). The selection of efficient vendors is gaining interest in academic and industrial fields (Kouvelis et al., 2004). The work of manufacturing firms in the previous years has increased from manufacturing to managing all the tasks related to the supplier and their supplies (Choy & Lee, 2003). This has increased the dependency of manufacturing firms on vendors, due to which these firms are compelled to choose and manage the most efficient vendor. The evaluation of vendor performance is very complex, and it involves the consideration of various parameters (Narasimhan et al., 2001). For meeting radical changes in the selection process, it is important to review the past research for changes in the last two decades, like quality guidelines, computer communication, technical capabilities, etc., relevant to the supplier selection decision (Weber et al., 1991). The management of vendors and their supplies is based on identification, strategic management, long term relationship, etc, which plays a key role in the victory of a supply chain (Talluri & Narasimhan, 2004). However, selecting an efficient vendor is always a tough assignment for the personnel of the concerned department (Liu & Hai, 2005). From a thorough investigation of various research papers, it has been revealed that different methods or ways are used to select the best suppliers, like an integrated multi-objective decision-making process used with volume discount by application of fuzzy-AHP process (Sarfaraz, 2011). A mathematical model for supplier selection is developed with a quantity discount environment by application of Data Envelopment Analysis (DEA) as a management tool (Majid & Farzipoor, 2010). Different multi-criteria decision-making approaches have been used for supplier evaluation and selection in the past two decades like AHP, ANP, Case-based Reasoning (CBR), DEA, Fuzzy set theory, G.A, M.P techniques, Simple Multi-Attribute Rating Technique (SMART), ANN (William et al., 2010). In supply chain management, the lengthy and fruitful relationship between the manufacturer and vendor should be at the level of trust and understanding to minimize the wastage of assets in the supply chain (Lasch & Janker, 2005). Supplier selection criteria are branched into quantitative and qualitative parameters. Dickson, in 1966, in his work recognized that the criteria like quality, timely delivery, cost, etc., are the most important parameters in selecting suppliers compared to other parameters like financial position, manufacturing facility, technical resources, reputation in the market, etc.

Lisboa et al. (1998) presented the outcomes of the study based on the survey of the applications of ANN in different businesses. Jinlong et al. (1997) used ANN individually and developed a supplier selection system. Lau et al. (2006) used an amalgamated path of ANN and GA to choose efficient suppliers. ANN was accountable for gauging the vendors who have probability in consideration with four main parameters, and GA was employed to determine the efficient amalgamation of vendors. Liao and Rittscher (2007) have proposed a programming model based on many goals for vendor selection under conditions of stochastic demand. Creese et al. (2009) also presented an amalgamation of ANN and GA in selecting the best suppliers. Asthana and Gupta

(2015) also presented an amalgamation of ANN and GA in vendor selection. Kuo et al. (2010) have done work on an amalgamation of ANN and Multi-Attribute Decision Making (MADA) techniques for selecting environment-friendly suppliers. Chai and Ngai (2019) have presented the frequency of the different verdict-making techniques used in vendor selection by reviewing the relevant articles published between 2010 and 2018. Sultan et al. (2021) have presented a study on collaboration competency as a driver for improving the performance of small and medium enterprises, especially in developing countries with resource-constraint economies.

This article incorporated the case study of a facility that is involved in the production of a two-wheeler sheet metal spare part manufacturing unit by considering five quantitative and five qualitative criteria and proposes a mathematical model based on DMAI-ANN to select or rank the suppliers based on their performance value and to choose the best supplier from the heap of suppliers. DMAI-ANN technique works based on accumulation and process of data like the way human brains do and process information. Neurons are a network of billions of cells that process information through electric signals and produce an output. An important advantage of using ANN is that it understands, prepares, processes, and evaluates the data. The most important benefit of using ANN is that it finds the information hidden in the data. This benefit is missing in other supplier selection techniques like AHP, ANP, GA, MP techniques, etc., and these are also the drawbacks of the other techniques. If data is unstructured, other techniques will not give good and accurate results, but DMAI-ANN will also help in mining unstructured data. These are some important advantages of using the DMAI-ANN technique over other supplier selection techniques, and the drawbacks or difficulties of other techniques are also removed by using the ANN technique. Therefore, DMAI- ANN technique is used in this article. The problem of supplier selection is not new in front of manufacturers. In this article, the issue of the selection of suppliers is addressed, especially in the field of automobile manufacturing. The supplier selection model is presented based on the case study of a two-wheeler sheet metal parts manufacturing firm, and supplier selection is proposed by considering five quantitative and five qualitative criteria using the DMAI-ANN technique.

This article is designed or organized in the following manner: DMAI-ANN based supplier selection methodology: an overview is presented in Section Two, a case study of a two-wheeler spare parts manufacturing unit is presented in Section Three, multi-objective supplier selection model based on ANN is presented in Section Four, conclusion and issues which can be included as potential investigation work for future scope are discussed in Section Five.

2. DMAI-ANN based Supplier Selection Methodology: An Overview

DMAI-ANN is a tool, method, or technique based on artificial intelligence (AI) used for decision-making and carrying foundations and functions of neural web networks. The basic foundation of the ANN depends upon current data; therefore, the input and output parameters are backed by the changes in the neural network. A man-made neural network is a portion of a computer system planned to imitate in the same manner as the individual intelligence thinks, evaluates, and explores the information. It works based on AI and gives solutions to questions that are impossible or difficult to solve by individuals or by following standard stats. The ability of autodidacts is present in ANN, which empowers them to supply superior outcomes as large information is offered to it. A man-made neural network is a module of AI intended to replicate the style of working of a person's mind. The unit structures of ANN successively contain ingress and egress value. The ANN imbibes the ingress from input to supply the specified egress value. Sensible implementations of ANNs are in various areas like the financial field, private connection services, industries, medical, teaching field, etc. ANN is made like a personal mind, with nerve fibers mixed or amalgamated to look like a spider web. The person or individual mind has many billions of cellule called nerve cells. Each nerve cell is formed from an egg or embryo of the body liable for dispensation in sequence by shipping information towards (ingress) and away (egress) from the mind.

ANN has recently gained popularity in the supplier selection process, and different research articles have incorporated ANN for selecting appropriate suppliers. Creese et al. (2009) used historical suppliers' performance data by including the managers' judgments about suppliers, and this was simulated by using a pair-wise comparisons matrix for output estimation in the neural network. Hiri et al. (2018) proposed a supplier selection model by implementing an appropriate risk management strategy based on an artificial neural network in Moroccan industries to bring good results to the supplier selection problem. The quantitative data was

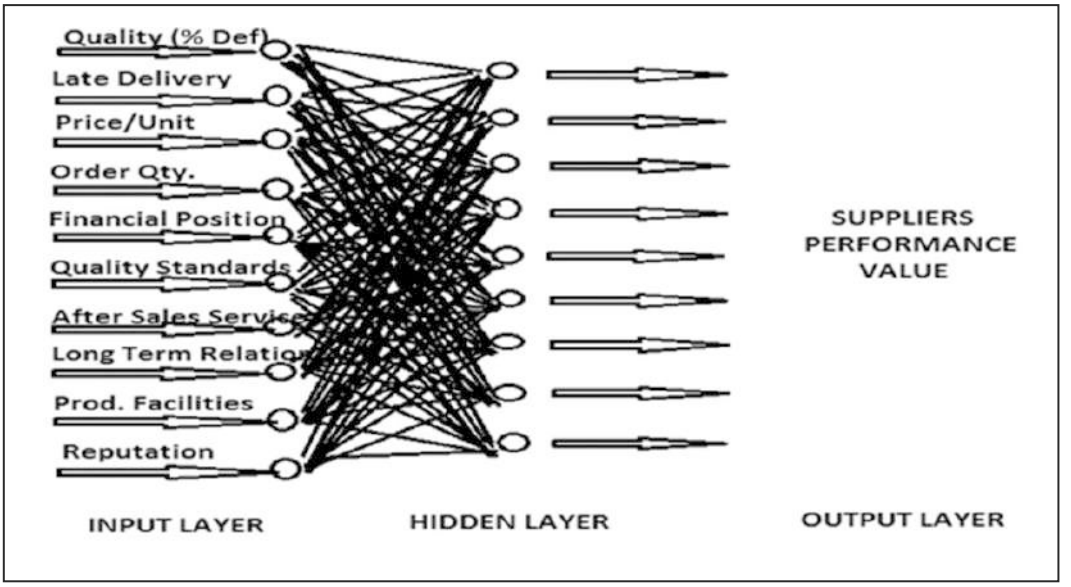

Figure 1. Neural Network Architecture

collected based on the survey of 29 Moroccan companies from different sectors. Ghorbani et al. (2012) used a neural network algorithm with Adaptive Resonance Theory (ART) to categorize distributors in the supply chain according to their similarity.

This article incorporated five quantitative and five qualitative criteria and proposes a mathematical model based on ANN to select or rank the suppliers based on their performance value and to choose the best supplier from the heap of suppliers. An ANN has many artificial nerve cells called dealing out units, amalgamated by nerve fibers. These dealing-out units are made from ingress and egress units. The ingress units collect a variety of forms and configurations of data supported by an indoor weighting system. Therefore, the neural network strives to discover the knowledge introduced to supply one egress performance report or value. Figure 1, given below, depicts the three phases of neural network architecture, which includes the input, hidden, and output layers. The first phase, the input layer of the neural network architecture, shows the different criteria as the ingress nerve cells; the ingress layer accepts features of ingress data and divides them into the next operational layer. The five quantitative criteria for supplier selection in this layer are quality (% defective), late delivery, price, order quantity, and financial position. The five qualitative criteria are quality standards, after-sales service, production facilities, long term relationships, and reputation

The second phase, the hidden layer of Figure 1, depicts the relations between the ingress and egress layers. Every neural in this layer accepts the ingress from all the nerve cells of the ingress layer, then values are through applied weights and transformed to an egress value by a creation function. The average weights of each quantitative and qualitative criterion are calculated by pair-wise comparative assessment and by making a relative matrix of suppliers for each quantitative and qualitative criterion. Then the result is passed to the third layer. In the third phase, the output and final layer of Figure 1, in which the converted values from the second layer, i.e., the egress value, is transferred to the final layer, which indicates the output nodes of variables and gives the supplier score or value. So in this layer, the final weight values obtained for each supplier from the influence matrix with respect to all quantitative and qualitative criteria are used in output layer calculation by using a forward feed neural network sigmoid function which ultimately gives the final score or value for each supplier. So suppliers' performance score or value is calculated in the following steps. In the input layer of the neural network architecture, the average weight of each criterion is calculated. The weights (W_i) are considered or formed by twosome evaluation of the criteria and proportionate evaluation of sellers corresponding to exact criteria. In the hidden layer calculation of neural network architecture, the functions are framed as per the goals like Maximize $\Sigma\ W_i X_i$ or Minimize $\Sigma W_i X_{i,}$ where W_i

are the weights of criteria, $0<W_i<1$, s.t: $W_1+W_2+\ldots\ldots+W_i=1$ and X_i are the different criteria, $L_L<X_i<U_L$, where L_L is the Lower Limit, and U_L is Upper Limit of particular criteria as per the standard organizational policy. In the third and final output layer calculation, by using the different weights of different criteria, calculations are performed by using a forward feed neural network with sigmoid function, $Y_o=[1/1+e^{-\alpha(\Sigma^{WiXi})}]$, where 'α' is the slope parameter and Y_o, is the obtained output layer supplier score or value for each supplier. This presented model is validated by applying it to the two-wheeler spare part manufacturing firm whose case study is used in this article by a discussion with the manufacturing firm managers and matching their ranking of suppliers with the output of this model.

3. Case Study: Two-wheeler Spare Parts Manufacturing Unit

This article has incorporated ten criteria for selecting suppliers by taking the case of a sheet metal two-wheeler spare parts industrialized firm of the Indian NCR region. This firm produces sheet metal two-wheeler parts, so it needs huge raw materials and sheet metal third-party suppliers and supplies them to reputed two-wheeler producers of bikes and scooters in India. This model is developed considering five quantitative and five qualitative criteria that this firm can utilize to select vendors. Every vendor has his/her own capability, i.e., order quantity, delivery, quality (% defective), price per unit, financial position, quality standards, after-sales service, long-term relationship, production facilities, and reputation in the market. The

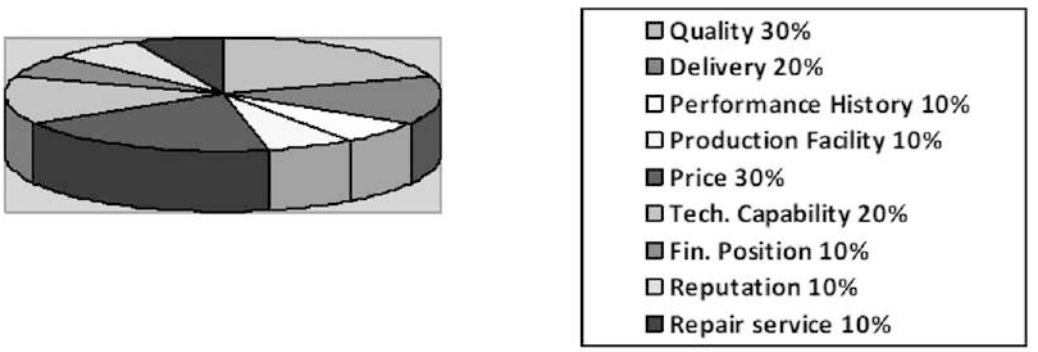

Figure 2. Criteria used for supplier selection before the year 2000 as per the literature survey

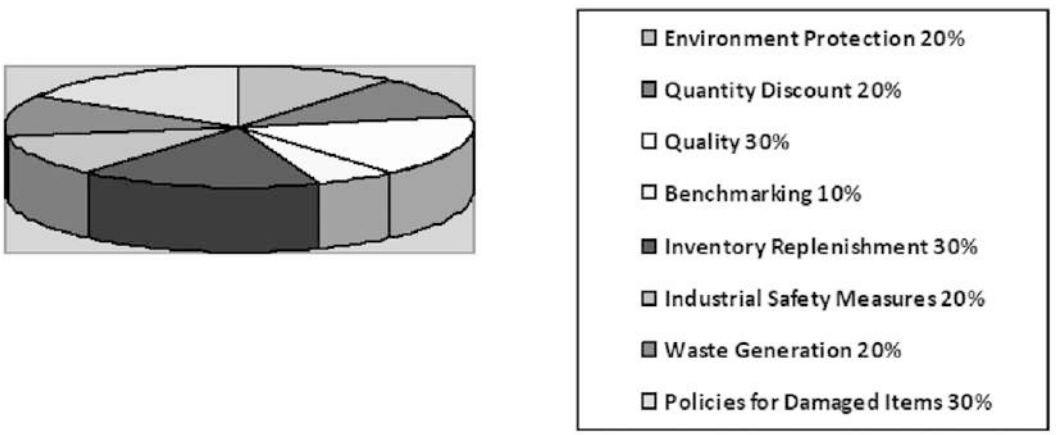

Figure 3. Criteria used for supplier selection between years 2000 to 2021 as per the literature survey

manufacturing firm must consider all the parameters and requirements for choosing the most efficient vendors.

For this study which includes ten criteria for selecting the most efficient vendors, the case study of a manufacturing firm is taken into consideration, which is engaged in producing sheet metal automobile parts, established in 1994 in the NCR region of India. The manufacturing firm has all the facilities for manufacturing two-wheeler spare parts of sheet metal at a very high level, and the criteria are finalized by a discussion with the executives of the concerned department, which deals with the vendors and their issues. Figure 2 below shows the percentage of criteria like quality, delivery, performance history, production facility, price, technical capability, reputation, repair service, and financial position used in selecting suppliers before 2000 as per the literature survey.

Figure 3 given below shows the percentage of different criteria like environment protection factor, quantity discounts, quality, bench-marking, inventory replenishment, industrial safety measures, waste generation, and policies for damaged items, used in the selection of suppliers between the years 2000 to 2021 as per the literature survey.

Based on the literature survey (Figures 2 and 3) and the experience of executives of the concerned department, the following five quantitative and five qualitative criteria are identified or selected for selecting suppliers. The criteria are as follows: quality, late delivery, price, order quantity, financial position, quality standards, after-sales service, long-term relationship, production facilities, and reputation. From the manufacturing firm, the data of five suppliers, as shown in Table 1, is collected from the respective department. All these third-party suppliers deal with the sheet metal parts of two-wheelers and are the major suppliers to this unit. All five suppliers are important suppliers of fuel tanks for two-wheeler. The data of five suppliers from this bike and scooter parts producing firm given in Table 1 is used in this article to develop a multi-objective supplier selection model using the DMAI-ANN technique.

Table 1. Suppliers Data

Criteria / Suppliers	Spr1	Spr2	Spr3	Spr4	Spr5
Quality (% Defective)	75	118	85	112	78
Late Delivery (Days)	4	3	4	1	2
Price/Unit	105	148	95	165	125
Order Quantity	9000	11500	7500	8500	11000
Financial Position (Crores)	94.5	145.8	256.5	189	316.8
Quality Standards	VG	AVG	G	AVG	VG
After Sales Service	G	G	VG	AVG	G
Long Term Relationship	VG	G	AVG	G	G
Production Facilities	VG	G	G	AVG	VG
Reputation	VG	AVG	G	G	G

***Abbreviation**: Spr- Supplier, VG- Very Good, G- Good, AVG- Average.*

4. Multi-Objective Supplier Selection Model Based on Case Study

The neural network architecture presented in Section Two is used to analyze and calculate the supplier's data shown in Table 1, collected from the two-wheeler manufacturing firm. The analysis and calculation presented in three different phases in Section Two are used in the following manner, in Phase 1, the pair-wise comparison of all five quantitative criteria and five qualitative criteria are presented, and after comparative assessment, the average weights of all five quantitative criteria are shown in Table 2 and Table 3 and average weights of all five qualitative criteria are shown in Table 4 and Table 5. In Phase 2, all five suppliers are evaluated one by one for each criterion by twosome compared evaluation. Comparison is made on the basis of the difference between the suppliers' value from suppliers' data presented in Table 1 and then awarding a scale value to it based on the scale presented for all quantitative criteria in Table 6 and the Likert scale value for all qualitative criteria presented in Table 7. A relative matrix of suppliers with a final average value of each supplier for the following criteria-quality (% defective), after-sales service, late delivery, quality standards, price, long-term relationship, order quantity, production facilities, financial position, reputation in the market are presented from Tables 8 to 17, respectively. In Phase 3, the analysis shows the final output calculation, which includes the average weights of five quantitative criteria and five qualitative criteria obtained in Table 3 and Table 5 in Phase 1, and the average input values of all quantitative and qualitative criteria obtained in Phase 2 from Tables 8 to 17. For the input of the sigmoid function, the average weight values of each supplier for all quantitative and qualitative criteria are presented in Table 18 and Table 19, respectively, and the final performance scores/values of each supplier obtained as output from the sigmoid function, $Y_o=[1/1+e^{-\alpha(\Sigma WiXi)}]$ are presented in Table 20, based on these final performance scores, ranking to suppliers or best suppliers for the manufacturing firm are selected.

In Phase 1 calculation, for pair-wise comparison (quantitative criteria), as per producing firms, quality is given liking over the other parameters; after that, the sequences have late delivery, price/unit, order quantity, and financial position. Table 2 shows the values of the comparative assessment of all five quantitative criteria, and Table 3 shows the weight of all five quantitative criteria obtained from Table 2.

Assumptions for pair-wise comparison:

Quality is liked over late delivery - 3,

Then, Quality is liked over price - 5,

Then, Quality is liked over quantity - 7,

Then, Quality is liked over financial position - 9

Similarly, the assessment for qualitative criteria is presented by pairwise comparison of all five qualitative criteria. Table 4 shows the values of the comparative assessment of all five qualitative criteria, and Table 5 shows the weight of all five qualitative criteria obtained from Table 4.

Table 2. Comparative assessment of quantitative criteria

	Quality (% Defective)	Late Delivery	Price	Order Qty	Fin. Position
Quality (% Defective)	1	3	5	7	9
Late Delivery	1/3	1	3	5	7
Price	1/5	1/3	1	3	5
Order Qty	1/7	1/5	1/3	1	3
Fin. Position	1/9	1/7	1/5	1/3	1
∑	1.787	4.676	9.533	16.333	25

Table 3. Weights of quantitative criteria

	Quality (% Defective)	Late Delivery	Price	Order Qty	Fin. Position	Avg.
Quality (%Defective)	0.5595	0.6415	0.5244	0.4285	0.3600	0.5028
Late Delivery	0.1865	0.2138	0.3146	0.3061	0.2800	0.2602
Price	0.1119	0.0712	0.1048	0.1836	0.2000	0.1343
Order Qty	0.0799	0.0427	0.0349	0.0612	0.1200	0.0677
Fin. Position	0.0621	0.0305	0.0209	0.0204	0.0400	0.0348

Table 4. Comparative assessment of qualitative criteria

	Quality Stds.	After Sales Service	Production Facilities	Long Term Relation	Reputation
Quality Stds.	1	2	4	6	8
After Sales Service	1/2	1	2	4	6
Prod. Facilities	1/4	1/2	1	2	4
Long Term Rln	1/6	1/4	1/2	1	2
Reputation	1/8	1/6	1/4	1/2	1
∑	2.042	3.917	7.75	13.5	21

Table 5. Weights of qualitative criteria

	Quality Stds.	After Sales Ser.	Prod. Facilities	Long Term Rln.	Reputation	Avg.
Quality Stds.	0.4897	0.5105	0.5161	0.4444	0.3809	0.4684
AfterS.Service	0.2448	0.2552	0.2580	0.2962	0.2857	0.2680
Prod. Facilities	0.1224	0.1276	0.1290	0.1481	0.1904	0.1435
Long Term Rln	0.0816	0.0638	0.0645	0.0740	0.0952	0.0759
Reputation	0.0612	0.0425	0.0322	0.0370	0.0476	0.0441

Table 6. Scales for quantitative criteria as per organization policy

Quality	Late Delivery	Price	Quantity	Fin. Position	Scale
0-5	0	0-10	0-500	0-25	1
6-10	1	11-20	501-1000	26-50	2
11-15	2	21-30	1001-1500	51-75	3
16-20	3	31-40	1501-2000	76-100	4
21-25	4	41-50	2001-2500	101-125	5
26-30	5	51-60	2501-3000	126-150	6
31-35	6	61-70	3001-3500	151-175	7
36-40	7	71-80	3501-4000	176-200	8
41-45	8	81-100	4001-4500	201-225	9

In **Phase 2** calculations, according to organizational policy to assess the supplier's performance, a scale from 1 to 9 was developed for all five quantitative criteria. Table 6 below shows the scale from 1 to 9 per organization policy for all five quantitative criteria: quality, late delivery, price, order quantity, and financial position.

Similarly, a Likert scale from 1 to 5 was developed and used to assess the suppliers' performance for all five qualitative criteria. It ranged from Very Poor - 1, Poor - 2, Average - 3, Good - 4, and Very Good - 5. Based upon the variation among the qualitative criteria of the supplier Likert scale value is awarded. Table 7, given below, shows the Likert scale for all five qualitative criteria from 1 to 5 as per the difference in supplier's value.

Table 7. Scale for qualitative criteria

Difference	Scale
0	1
1	2
2	3
3	4
4	5

The neural network architecture presents the relative comparison of each supplier for evaluating each quantitative criterion as per the scale developed in Table 6 and each qualitative criterion as per the scale developed in Table 7. Twosome compared evaluation of suppliers for each parameter; for evaluating the first criteria quality (% defective), on comparing (say) the difference between the quality (% defective) of Supplier 1 and Supplier 2 from Table 6, the scale denoted it as 9, in a similar way all others suppliers are evaluated. Table 8, given below, shows each supplier's average compared evaluation value for the first quantitative criteria quality (% defective). Table 9 shows each supplier's average compared evaluation value for the first qualitative criteria after-sales service.

Table 8. Relative matrix of suppliers for quantitative criteria i.e., w.r.t. Quality (% Def)

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
Spr 1	1	9	2	8	1
Spr 2	1/9	1	1/7	1/2	1/8
Spr 3	1/2	7	1	6	1/2
Spr 4	1/8	2	1/6	1	1/7
Spr 5	1	8	2	7	1
∑	2.74	27	5.31	22.5	2.77

	Spr1	Spr2	Spr3	Spr4	Spr5	Avg
Spr1	0.365	0.334	0.377	0.356	0.362	0.3588
Spr2	0.041	0.038	0.027	0.023	0.046	0.035
Spr3	0.183	0.260	0.189	0.267	0.181	0.216
Spr4	0.046	0.075	0.032	0.045	0.052	0.05
Spr5	0.365	0.297	0.377	0.312	0.362	0.3426

Table 9: Relative matrix of suppliers for qualitative criteria i.e. w.r.t. After Sales Service:

	Spr1	Spr2	Spr3	Spr4	Spr5
Spr1	1	1	2	1/2	1
Spr2	1	1	2	1/2	1
Spr3	1/2	1/2	1	1/3	1/2
Spr4	2	2	3	1	2
Spr5	1	1	2	1/2	1
∑	5.5	5.5	10	2.84	5.5

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5	Avg
Spr 1	0.182	0.182	0.2	0.177	0.182	0.1846
Spr 2	0.182	0.182	0.2	0.177	0.182	0.1846
Spr 3	0.091	0.091	0.1	0.118	0.091	0.0982
Spr 4	0.364	0.364	0.3	0.353	0.364	0.349
Spr 5	0.182	0.182	0.2	0.177	0.182	0.1846

Similarly, the twosome compared weights can be obtained for all the other criteria and shown in the tables from Table 10 to Table 17.

Table 10. Relative matrix of suppliers for quantitative criteria i.e., w.r.t. Late Delivery

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
Spr 1	1	1/2	1	1/4	1/3
Spr 2	2	1	2	1/3	1/2
Spr 3	1	1/2	1	1/4	1/3
Spr 4	4	3	4	1	2
Spr 5	3	2	3	1/2	1
∑	11	7	11	2.34	4.17

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5	Avg
Spr 1	0.091	0.072	0.091	0.107	0.080	0.0882
Spr 2	0.182	0.143	0.182	0.143	0.120	0.154
Spr 3	0.091	0.072	0.091	0.107	0.080	0.0882
Spr 4	0.364	0.429	0.364	0.428	0.480	0.413
Spr 5	0.273	0.286	0.273	0.214	0.240	0.2572

Table 11. Relative matrix of suppliers for qualitative criteria i.e. w.r.t. Quality Standards

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
Spr 1	1	1/3	1/2	1/3	1
Spr 2	3	1	2	1	3
Spr 3	2	1/2	1	1/2	2
Spr 4	3	1	2	1	3
Spr 5	1	1/3	1/2	1/3	1
∑	10	3.17	6	3.17	10

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5	Avg
Spr 1	0.1	0.106	0.084	0.106	0.1	0.0992
Spr 2	0.3	0.316	0.334	0.316	0.3	0.3132
Spr 3	0.2	0.158	0.167	0.158	0.2	0.1766
Spr 4	0.3	0.316	0.334	0.316	0.3	0.3132
Spr 5	0.1	0.106	0.084	0.106	0.1	0.0992

Table 12. Relative matrix of suppliers for quantitative criteria i.e., w.r.t. Price

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
Spr 1	1	5	1	6	2
Spr 2	1/5	1	1/6	2	1/3
Spr 3	1	6	1	7	3
Spr 4	1/6	1/2	1/7	1	1/4
Spr 5	1/2	3	1/3	4	1
∑	2.87	15.5	2.65	20	6.59

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5	Avg
Spr 1	0.349	0.323	0.378	0.3	0.304	0.3308
Spr 2	0.070	0.065	0.063	0.1	0.051	0.0698
Spr 3	0.349	0.388	0.378	0.35	0.456	0.3842
Spr 4	0.059	0.033	0.054	0.05	0.038	0.0468
Spr 5	0.175	0.194	0.126	0.2	0.152	0.1694

Table 13. Relative matrix of suppliers for qualitative criteria i.e. w.r.t. Long-term relationship

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
Spr 1	1	1/2	1/3	1/2	1/2
Spr 2	2	1	1/2	1	1
Spr 3	3	2	1	2	2
Spr 4	2	1	1/2	1	1
Spr 5	2	1	1/2	1	1
∑	10	5.5	2.84	5.5	5.5

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5	Avg
Spr 1	0.1	0.091	0.118	0.091	0.091	0.0982
Spr 2	0.2	0.182	0.177	0.182	0.182	0.1846
Spr 3	0.3	0.364	0.353	0.364	0.364	0.349
Spr 4	0.2	0.182	0.177	0.182	0.182	0.1846
Spr 5	0.2	0.182	0.177	0.182	0.182	0.1846

Table 14. Relative matrix of suppliers for quantitative criteria i.e. w.r.t. Order Quantity

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
Spr 1	1	5	1/3	1	4
Spr 2	1/5	1	1/8	1/6	1
Spr 3	3	8	1	2	7
Spr 4	1	6	1/2	1	5
Spr 5	1/4	1	1/7	1/5	1
∑	5.45	21	2.11	4.37	18

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5	Avg
Spr 1	0.184	0.239	0.158	0.229	0.223	0.2066
Spr 2	0.037	0.048	0.060	0.039	0.056	0.048
Spr 3	0.551	0.381	0.474	0.458	0.389	0.4506
Spr 4	0.184	0.286	0.237	0.229	0.278	0.2428
Spr 5	0.046	0.048	0.068	0.046	0.056	0.0528

Table 15. Relative matrix of suppliers for qualitative criteria i.e. w.r.t. Production facilities

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
Spr 1	1	1/2	1/2	1/3	1
Spr 2	2	1	1	1/2	2
Spr 3	2	1	1	1/2	2
Spr 4	3	2	2	1	3
Spr 5	1	1/2	1/2	1/3	1
∑	9	5	5	2.67	9

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5	Avg
Spr 1	0.112	0.1	0.1	0.125	0.112	0.1098
Spr 2	0.223	0.2	0.2	0.188	0.223	0.2068
Spr 3	0.223	0.2	0.2	0.188	0.223	0.2068
Spr 4	0.334	0.4	0.4	0.375	0.334	0.3686
Spr 5	0.112	0.1	0.1	0.125	0.112	0.1098

Table 16. Relative matrix of suppliers for quantitative criteria i.e. w.r.t. Financial Position

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
Spr 1	1	3	7	4	9
Spr 2	1/3	1	5	2	7
Spr 3	1/7	1/5	1	1/3	3
Spr 4	1/4	1/2	3	1	6
Spr 5	1/9	1/7	1/3	1/6	1
∑	1.84	4.85	16.34	7.5	26

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5	Avg
Spr 1	0.544	0.619	0.429	0.534	0.347	0.4946
Spr 2	0.182	0.207	0.306	0.267	0.270	0.2464
Spr 3	0.078	0.042	0.062	0.045	0.116	0.0686
Spr 4	0.136	0.104	0.184	0.134	0.231	0.1578
Spr 5	0.061	0.030	0.021	0.023	0.039	0.0348

Table 17. Relative matrix of suppliers for qualitative criteria i.e. w.r.t. Reputation

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
Spr 1	1	1/3	1/2	1/2	1/2
Spr 2	3	1	2	2	2
Spr 3	2	1/2	1	1	1
Spr 4	2	1/2	1	1	1
Spr 5	2	1/2	1	1	1
∑	10	2.84	5.5	5.5	5.5

	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5	Avg
Spr 1	0.1	0.118	0.091	0.091	0.091	0.0982
Spr 2	0.3	0.353	0.364	0.364	0.364	0.349
Spr 3	0.2	0.177	0.182	0.182	0.182	0.1846
Spr 4	0.2	0.177	0.182	0.182	0.182	0.1846
Spr 5	0.2	0.177	0.182	0.182	0.182	0.1846

Phase 3 calculations show the final output calculation by using the sigmoid function, $Y_o=[1/1+e^{-\alpha(\Sigma WiXi)}]$; the input values used in the sigmoid function are given in Table 18 and Table 19, which shows the final average value of each supplier for all quantitative and qualitative criteria respectively and the final output suppliers performance scores obtained from sigmoid function are shown in Table 20.

Table 18. Final (Weight) Influence matrix of supplier's w.r.t all quantitative criteria

	Quality (% Defective)	Late Delivery	Price	Order Qty	Fin. Position
Spr 1	0.3588	0.0882	0.3308	0.2066	0.4946
Spr 2	0.035	0.154	0.0698	0.048	0.2464
Spr 3	0.216	0.0882	0.3842	0.4506	0.0686
Spr 4	0.05	0.413	0.0468	0.2428	0.1578
Spr 5	0.3426	0.2572	0.1694	0.0528	0.0348

Table 19. Final (Weight) Influence matrix of supplier's w.r.t all qualitative criteria

	Quality Stds.	After Sales Service	Production Facilities	Long Term Relation	Reputation
Spr 1	0.0992	0.1846	0.1098	0.0982	0.0982
Spr 2	0.3132	0.1846	0.2068	0.1846	0.349
Spr 3	0.1766	0.0982	0.2068	0.349	0.1846
Spr 4	0.3132	0.349	0.3686	0.1846	0.1846
Spr 5	0.0992	0.1846	0.1098	0.1846	0.1846

Table 20. Output Layer Calculation for both quantitative and qualitative criteria

I to O	Spr 1	Spr 2	Spr 3	Spr 4	Spr 5
0.5028	0.3588	0.035	0.216	0.05	0.3426
0.2602	0.0882	0.154	0.0882	0.413	0.2572
0.1343	0.3308	0.0698	0.3842	0.0468	0.1694
0.0677	0.2066	0.048	0.4506	0.2428	0.0528
0.0348	0.4946	0.2464	0.0686	0.1578	0.0348
0.4684	0.0992	0.3132	0.1766	0.3132	0.0992
0.2680	0.1846	0.1846	0.0982	0.349	0.1846
0.1435	0.1098	0.2068	0.2068	0.3686	0.1098
0.0759	0.0982	0.1846	0.349	0.1846	0.1846
0.0441	0.0982	0.349	0.1846	0.1846	0.1846
Score/value	**0.5993**	**0.5828**	**0.5962**	**0.6169**	**0.5989**
Rank	**4TH**	**1ST**	**2ND**	**5TH**	**3RD**

Therefore, the analysis and calculations presented in this vendor selection model evaluate the suppliers based on criteria with the DMAI-ANN technique. The proposed model in this article is mainly suitable for the automobile spare parts manufacturing sector of the Indian NCR region. ANN is used to find the supplier score. The data used to evaluate suppliers is obtained from a two-wheeler automobile parts manufacturing firm. The suppliers' scores shown in Table 20 are obtained as output from this model; based on this score, the supplier having the minimum score is the best supplier in the group of suppliers available to the manufacturing firm. The suppliers are ranked according to their final performance score or value. The ranking of suppliers is as follows:

Spr2 is the best supplier, followed by Spr3, Spr5, Spr1, and Spr4.

Spr2> Spr3 > Spr5 > Spr1 > Spr4

5. Conclusion and Future Scope

The presented article utilizes the DMAI-ANN method in supplier selection by taking into account several criteria, i.e., order quantity, delivery, quality (% defective), price per unit, financial position, quality standards, after-sales service, long-term relationship, production facilities and reputation in the market. This work is mainly focused on selecting the most efficient supplier on which the manufacturing firm can depend, and it is very useful to the personnel of the concerned department for choosing suppliers. In this article, the supplier's performance is evaluated by analyzing the data with ANN, and it gives a ranking to the vendors who are most efficient and excellent in the heap of suppliers group. It is manifested from work and results that five suppliers which were taken into study have the following ranking Spr 2>Spr 3>Spr 5>Spr 1>Spr 4, and Spr 2 is the best supplier among these five suppliers. The result obtained in this study were discussed with the executives of the concerned department of the particular organization and matched with their ranking and choice for selecting the suppliers.

This article proposes using ANN in selecting suppliers by considering a multi-objective problem based on quantitative and qualitative criteria. One of the important aspects of the work is that it includes the five important qualitative parameters along with five quantitative parameters. The other benefit of the work is that when the executives of the concerned department are working hard to find the best solution, they are enlightened with the appreciation, consideration, and comparison of all important quantitative and qualitative criteria. This enables them to manage the goals to improve practical application.

The benefit of using ANN as a tool is its unique feature to search for ways to solve problems in the best possible way, completely free of presupposition. There are several possible expansions to this article, like applications in other sectors or fields, by discussing the important criteria of that particular sector with the respective managers or personnel. Another possible extension to this presented work is the implementation of ANN by integrating it with other DMAI techniques, which can give more optimized and precise results. Another possible extension to this study is the consideration of environmental protection factors like waste management, hazardous substance management (HSM), environment-friendly product design, etc., in selecting green suppliers. So these are some possible extensions of this work that can be considered or counted for the scope of future research work.

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The Influences of Online Shopping Value on Consumer Purchase Intention: An Insight During COVID-19 Pandemic Lockdown

R Goswami
G M University, Sambalpur, India
Email: goswamirupashree@gmail.com

R K Jena
Institute of Management Technology,
Nagpur, India
Email: rkjena@gmail.com

Abstract

With advances in internet technologies, a growing number of e-commerce sites are selling their products worldwide. E-commerce platforms are providing a compelling shopping experience for consumers. But the emergency made by the sudden appearance of the "COVID-19" pandemic has changed the world's e-commerce strategy landscape. As a result, investigating important antecedents of online shopping intention is critical during the pandemic. This study first examined the mediating role of shopping satisfaction in the association between shopping attitude and shopping intention. Second, it tests the moderating role of shopping values (hedonic and utilitarian) on the association between shopping attitude and shopping intention via shopping satisfaction. A total of '416' Indian online shoppers participated in the cross-sectional study. The results showed that shopping satisfaction partly mediates the association between shopping attitude and shopping intention. The result also revealed that shopping values moderate the mediating association between shopping attitude and shopping intention via shopping satisfaction. The result would help online vendors and sellers adopt the right strategies to bring in more online shoppers and make more money.

Keywords: *Shopping Attitude, Intention, Satisfaction, Hedonic value, Utilitarian value.*

1. Introduction

E-commerce has transformed the business model from "brick and mortar" to "brick and click." With the increase in internet penetration in India, e-commerce is becoming an important platform for buying and selling products. The e-commerce market in India is expected to reach 200 billion USD by 2026 (IBEF, 2020). E-commerce in India is growing at a 27% CAGR and is expected to reach US $99 billion by 2024 (IBEF, 2020). Further, the Indian government's demonetization policy has boosted India's e-commerce opportunities. Over the next few years, India's e-commerce industry will reach 0.35 billion consumers, and the "online Gross Merchandise Value" (GMV) will reach 120 billion USD by 2025 (IBEF, 2020). But, the sudden appearance of the coronavirus (COVID-19) has changed the e-commerce business landscape in India. The COVID-19 pandemic in India has affected economies more than previous pandemics like "The Spanish Flu," "Asian Flu," "Hong Kong Flu," and "SARS-CoV-1" due to the imposition of restrictions on financial activities and social life by the authorities. Because of COVID-19, 52% of shoppers are now avoiding brick-and-mortar stores in favor of online shopping (Akhtar et al., 2020). In other words, the COVID-19 pandemic has created opportunities for e-commerce businesses in India. So, it is important to study how consumers' shopping values affect their plans to shop online.

This study was conducted based on the following backgrounds: First, the situation related to COVID-19 will affect buyers' online shopping activities in the long term. Therefore, e-commerce stakeholders are required to systematically understand shoppers' shopping patterns to have a competitive advantage. Second, different COVID-19 lockdown measures, such as social distancing and quarantining, affect shoppers' online shopping satisfaction, attitude, values, and intention. Hence, the current study aims to:

- Study the association between shoppers' attitudes towards online shopping satisfaction and shopping intention.
- Study the mediating role of online shopping satisfaction in the relationship between online shopping attitude and shopping intention.
- Study the moderating effect of online shopping values in the association between online shopping attitude and shopping intention via shopping satisfaction.
- Study the effect of consumer's socio-demographic characteristics on online shopping values, shopping attitudes, and shopping satisfaction.

2. Model Development

Consumer behavior during COVID-19 has adversely impacted service-oriented industries, which mostly thrive on high face-to-face contact levels (Baker et al., 2020). E-commerce has been one of the leading platforms for service-oriented industries during the pandemic lockdown period (Pantano et al., 2020; Sheth, 2020). E-commerce stakeholders have put various novel ideas into building and maintaining their online businesses to attract consumers. Many retailers have announced discounts to increase their online sales to remain competitive. Some companies have also offered product pick-up or delivery services, abiding by the COVID-19 protocols. Many e-commerce companies in India (e.g., Amazon India, Flipkart, Big Basket Reliance, etc.) have acquired many local partners to expand their business. To safeguard these efforts to thrive, it is essential to examine shoppers' online shopping intentions and antecedents during the COVID-19 lockdown. Investigating consumer behavior during this pandemic will help e-commerce businesses adopt appropriate strategies to mitigate people's psychological and social stress due to the prolonged imposition of lockdown, particularly in India. Thus, this study attempted to analyze the important predictors of e-commerce consumer intention in India due to the economic and social shock created by the COVID-19 crisis. Further, this study also investigates the impact of socio-demographic characteristics (gender, income, and age) on shopping intentions during COVID-19. Most importantly, the participants are grouped into generations "Y" and "Z" based on age, as these shoppers signify the primary target segment of online shopping (Koch et al., 2020). Individuals born between 1977 and 1994 are thus members of Generation Y (GenY), while those born after 1994 are members of Generation Z (GenZ) (Wood, 2013).

2.1 Theoretical Background

The research on consumer behavior largely depends on positive or expressive "consumer choice theories" (Bettman et al., 1998; Echeverri & Salomonson, 2019; Hands, 2010; Shen et al., 2006). These theories suggest various psychological and motivational factors that impact customers' shopping decisions in a multifaceted atmosphere (Koksal, 2019; Pillai & Srivastava, 2015). Recent research

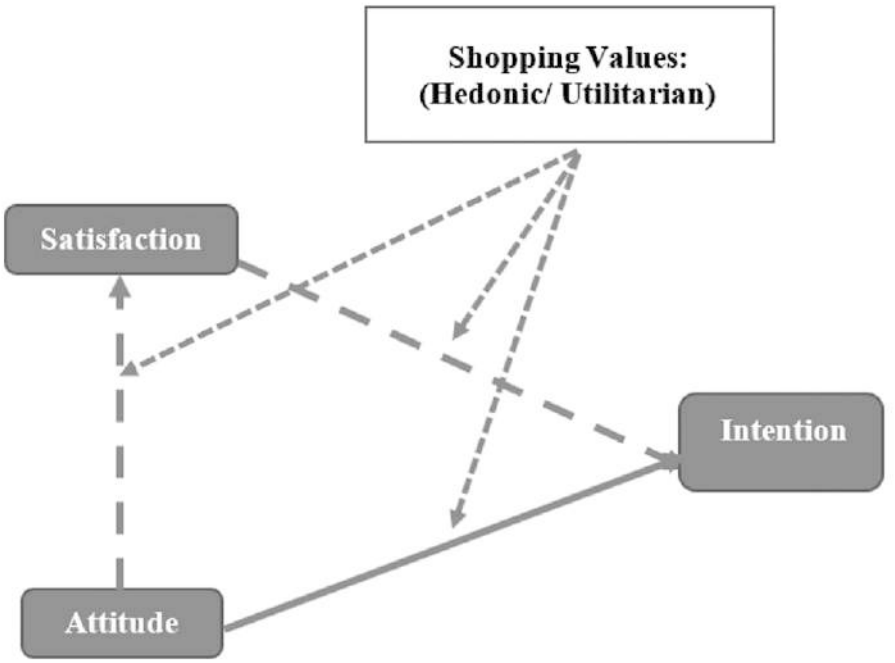

Figure 1. The proposed relationship among Study Constructs

during the "COVID-19" pandemic on shoppers' behavior validates consumer choice theories and reveals that the epidemic alters shoppers' decision-making ability (Kirk & Rifkin, 2020; Anderson et al., 2020; Islam et al., 2020; Kim et al., 2021; Tran, 2021). During the initial COVID-19 pandemic stages, the market observed panic buying (Loxton et al., 2020), and shoppers hesitated to shop at the physical stores due to lockdown restrictions and infection fears (Akhtar et al., 2020). Some studies have also found a link between online shopping and purchasing behavior during self-isolation (Laato et al., 2020). A study exploring consumer behavior pre and post-COVID-19 in the US showed that customers have considerably increased their online shopping behavior (Mason et al., 2020). Further, several studies have observed new patterns of purchase and consumption during the pandemic (Cohen, 2020; Laato et al., 2020). Other past studies have also found that pandemics profoundly affect shopper attitudes, satisfaction, and intention during online purchasing (Addo et al., 2020; Kaswengi & Diallo, 2015).

A detailed study investigating the influence of key determinants of online shopping intentions during COVID-19 was urgently required. Hence this study was conducted to investigate consumers' attitudes toward online shopping intention, the mediating effect of online shopping satisfaction, and the moderating role of online shopping values. Based on the study objectives and the past literature, the following framework is proposed (Figure-1).

2.2 Hypotheses Development

2.2.1 Intention to Shop

Consumers' shopping intentions refer to their willingness to go shopping in a store. Typically, the intention is measured by shoppers' inclination to buy and return for further shopping (Alnaseri et al., 2021). Aren et al. (2013) measured shoppers' intention to shop online and estimated their likelihood of returning to an online store. Ajzen (1991) found that intention is supposed to capture the motivating factors influencing behavior. The greater the intention to involve in a behavior, the more probable it is to be carried out (Ajzen, 1991). In other words, a shopper can be involved in a less intentional choice due to the existence of certain limitations (i.e., behavioral control factors) (Brewer & Sebby, 2021; Cao & Mokhtarian, 2005).

2.2.2 Shopping Satisfaction

Shopping satisfaction is defined as "the summary psychological state resulting when the emotion surrounding

unconfirmed expectations is coupled with the consumer's prior feelings about the consumer experience" (Oliver Richard, 1997). Shankar et al. (2002) defined satisfaction as "the perception of the pleasant performance of a service and loyalty as a deep commitment to the service provider." Kursan Milakovi (2021) suggested that customer shopping intention depends on the shopping experience's overall satisfaction level. Consumers' expectations and satisfaction with online shopping affect their buying intentions. The shopping behavior of consumers depends on their satisfaction with shopping. If expectations are not met, a low level of satisfaction negatively influences customers' shopping intentions (Jahng et al., 2001). A dissatisfied shopper is more likely to seek alternatives, revisit past relationships, etc. (Anderson & Srinivasan, 2003). Various studies have established the significant impact of shopping satisfaction on the intention to shop online (Devaraj et al., 2002; Kursan Milakovi, 2021). Past studies have projected that consumers will increase online purchase frequency during and after the post-COVID-19 pandemic (Duji, 2020). But hardly any studies have established the relationship between purchase satisfaction and the intention to buy during a pandemic. Hence, consumers who are satisfied with their purchases will show positive online purchase intentions in the future. Therefore, the following hypothesis is posited:

H1: *Consumer buying satisfaction significantly impacts consumers' online shopping intention during the COVID-19 pandemic.*

2.2.3 Attitude to Shopping

Fishbein and Ajzen (1997) argued that "attitude refers to the degree to which behavior is probed." Further, attitude is identified as one of the leading indicators contributing to intention prediction. Understanding the consumer attitude helps to predict the consumer's online shopping intention. Various studies have also found that attitude positively influences shoppers' intention to use the new technology platforms for shopping online (Davis, 1993; Wagner et al., 2020; Zhang & Kim, 2013). Studies related to consumer attitudes toward online shopping have received significant attention in the past (Bellman et al., 1999; Fishbein & Ajzen, 1977; Wagner et al., 2020; Zhang & Kim, 2013). For example, Bellman et al. (1999) examine the association between demographic features and online shopping attitudes. Several authors noted that consumers who use the online platform as a regular marketing tool prefer to shop online (Jahng et al., 2001; Zhang & Kim, 2013). Bhatnagar et al. (2000) explore how demographics and website quality influence consumers' online shopping attitudes. They also reported that the internet's affordability, convenience, and perceived risk are significantly linked to shoppers' attitudes and behavior. Further, past literature has established that consumers' shopping attitudes affect the intention to shop online (Bhatnagar et al., 2000; Fishbein & Ajzen, 1977; Zhang & Kim, 2013). Satisfaction with web features is an essential dimension of shoppers' attitudes toward online shopping (Das, 2014; Zhang & Kim, 2013). Jahng et al. (2001) proposed and validated a “technology-product-fit” model to predict the shopper's intentions from their shopping attitude. Suki and Ramayah (2010) found a significant relationship between shopping attitude and intention. Furthermore, shopping attitude has been recognized as a cause of shopping intention (Cao & Mokhtarian, 2005). Therefore, a positive intention to use the WWW to complete a transaction is determined by a positive attitude towards using the internet for shopping. Jahng et al. (2001) found that accepting the Internet as a buying outlet influences shopping intention. Davis (1989) asserts that attitude and perceived usefulness predict behavioral intentions. This is similar to findings by Kuo and Yen (2009) and Rezaei et al. (2016) that a person with a favourable attitude toward an action is more likely to engage in that behaviour. Tunsakul (2020) found that the attitude of young Thai consumers had a positive effect on their intention to shop online. Furthermore, various past studies have also asserted that shopping attitude has a positive impact on shopping intention (Ha, 2020; Ha et al., 2021; Vu et al., 2020).

Various findings also suggested that shoppers' attitude toward online shopping intentions is influenced by shopping satisfaction. Finally, the research findings concluded that shopping attitude is the most significant determinant of shopping intention (Al-Rafee & Cronan, 2006; Karahanna & Straub, 1999). Further, Karahanna and Straub (1999) argue that shopping attitudes dominate the intention to shop online.

The discussion above shows that the buyer's attitude plays a vital role in predicting online shopping intention in normal situations. However, it is unknown how buying attitudes on online shopping satisfaction and shopping intention would change in a pandemic situation. Therefore, the following hypothesis is formulated:

H2: *Consumers' attitude toward online shopping significantly affects consumers' intention to buy during COVID-19.*

H3: *Consumer attitudes during the COVID-19 pandemic have a significant impact on shoppers' satisfaction.*

2.2.4 Shopping Values

Shopping values are an essential factor that influences shopping intention. Hence, it is essential to understand online shopping value and its dimensions to explain the associations among online shopping attitude, shopping satisfaction, and shopping intention. In the concept of modern marketing, shoppers' intentions are articulated as a multidimensional and complex outcome of consumers' shopping values (Bridges & Florsheim, 2008; Yin & Qiu, 2021). Shopping values are classified as utilitarian and hedonistic shopping values (Babin et al., 1994). Utility shopping is a shopper behavior based on rational and efficient action to acquire optimal value from the purchase (Jones et al., 2006). The decision-making processes of utility shoppers go through a series of rational processes. This process is linked to utility benefits and the product/service (Babin et al., 1994; Jones et al., 2006).

On the other hand, hedonism is defined as a lifestyle of the utmost pleasure. Babin et al. (1994) well-defined hedonistic shopping value as "the value gained from the multisensory, fantasy, and affective aspects of the shopping experience ." The hedonic shopping value is not palpable; instead, it is experimental and emotional (Holbrook & Hirschman, 1982). Shoppers' intention to shop is influenced by both utility and hedonistic shopping values (Bridges & Florsheim, 2008; Yin & Qiu, 2021). A shopper's intention to shop prefers certain products to fulfill hedonistic desires and others to satisfy utilitarian prospects. These two shopping values are considered to be the opposite of each other. However, shoppers are prejudiced by both shopping values (Cao & Mokhtarian, 2005). The consumer's goal of satisfying hedonic desires and acquiring utilitarian expectations may coincide or occur at different times (Roy & Ng, 2012). For example, toothpaste offers utility value by preventing cavities and hedonistic value with its remarkable taste. This means that utilitarian and hedonistic motives are not necessarily mutually exclusive. Understanding how a shopper evaluates shopping intentions requires an understanding of utilitarian and hedonistic shopping values (Cavu olu et al., 2020; Roy & Ng, 2012; Ryu et al., 2010). Previous research has underlined the significance of shopping values on the antecedents of online shopping intention (Lee & Kim, 2018). The role of utilitarian and hedonistic shopping values during COVID-19 needs to be investigated. Therefore, this study investigates how hedonic and utilitarian values impact shoppers' online shopping intentions. Hence, the following hypothesis is proposed:

H4: *The shopping values moderate the mediating association between shopping attitude and shopping intention through satisfaction.*

3. Research Methodology

A research methodology is a systematic strategy to examine the research objectives and find solutions to research queries. Descriptive and deductive design is the most appropriate research methodology for social science studies (Zikmund et al., 2003). Using a quantitative deductive approach, this study measured and analyzed different antecedents of online shopping intention. A deductive approach was used to prove the research hypothesis and describe the influence of different crucial online shopping factors on shopping intention (Hair et al., 2010). This approach also makes it possible to generalize the research results (Hair et al., 2019).

3.1 Sample

Considering the constraints of time and cost due to COVID-19 and the unavailability of lists of online shoppers, the "convenience sampling" method was used to gather the data. This is one of the best ways to quickly and efficiently obtain the necessary information (Zikmund et al., 2003) during a COVID-19-like situation. The appropriate sample size is very crucial to generalizing the results with confidence. The minimum sample size requires factor analysis to be at least five times greater than the number of variables to be examined (Hair et al., 2010). Since there were 29 items in the study questionnaire, at least 145 usable responses were required. Further, Crouch and Housden (2012) suggest that "the minimum sample size for quantitative consumer surveys should be in the range of 300 to 500 respondents." To get reasonable data, eight hundred questionnaires were distributed among probable online shoppers in central India between March 2020 and May 2021 using various social media platforms. No incentives were given to any participant to fill out the questionnaire. Four hundred forty-five filled questionnaires were returned. Participants who used the internet to do shopping were considered for further analysis. Four hundred sixteen

Table 1. Sample description

Variables	Description	N	(%)
Gender	Male	220	52
	Female	196	48
Monthly Income	Less than 50,000INR	230	55
	More than 50,000INR	186	45
Age	Below 30	225	54
	Above 30	191	46

Source: Author

questionnaires were found valid after data preprocessing. Respondents' demographics revealed that 196 out of 416 were women, and 220 were men. Almost all of the participants' ages ranged from 21 to 26 years old. Further, 55% of participants had a monthly income of more than 50K.

3.2 Instrument

A self-administered instrument in English was used to collect data. The instrument was sensibly designed to meet the needs of the study. The study instrument was divided into two sections. The first part of the instrument covers demographic information (gender, age, and income). The second section contains twenty-nine questions covering all the constructs. The questions were taken from past studies, and some of the items were modified to cover various research hypotheses. The study instrument included scales for online shopping attitude, satisfaction, and shopping intention. Consumers' attitudes toward online shopping were measured using five items adapted from Fishbein and Ajzen (1977) and Amara and Duarte (2015). Online shopping intention was measured by four basic questions adapted from Chiu et al. (2014) and Pavlou (2002). The shopping satisfaction scale was adapted from Chang and Chen (2008), and utility and hedonic shopping value scales were taken from Babin et al. (1994) and O'Brien (2010). The online shopping satisfaction scale was four items, the utility scale was six items, and the hedonic scale was ten items. The five-point Likert scale was used, which ranged from (1) "Strongly disagree" to (5) "Strongly agree ." Items were modified to fit into the present study objectives. Furthermore, to ensure that the questionnaire was well understood, a pilot study was carried out to assess the possibility of misunderstanding and possible spelling or grammar errors (thirty-five respondents). The suggestions and observations were then included in the final questionnaire.

4. Results and Analysis

The R (lavaan) package was used to analyze data, test the hypothesis, and validate the proposed model.

4.1 Validity, Reliability, and Normality

First, a panel of experts confirmed the instrument's content and face validity (academicians and marketing strategists). Despite the psychometric characteristics of constructs reported from various countries, there is no reliability and validity score reported from India. Therefore, the psychometric characteristics of the instrument were assessed for this study. The Cronbach alpha and composite reliability indices were used to measure the instrument's reliability (Table -2). The reliability scores of all the study constructs are above 0.7. Thus, there is no issue regarding the reliability of the instrument used (Geldhof et al., 2014).

Table 2. Descriptive statistics

Construct	Number of Items	Mean	Standard Deviation	Cronbach's Alpha	Composite Reliability (CR.)
Shopping Attitude	5	4.08	0.98	0.78	0.77
Shopping Satisfaction	4	3.61	1.20	0.79	0.82
Shopping Intention	4	3.87	1.32	0.84	0.84
Utilitarian shopping value	6	3.21	1.52	0.77	0.79
Hedonic shopping value	10	3.13	1.12	0.76	0.73

Source: Author

Exploratory factor analysis was applied to verify construct validity using principal component analysis and the orthogonal varimax method. The factor results (Table 3) converged into five factors, and there is no cross-loading greater than 0.4.

Although exploratory factor analysis validates the constructs' discriminant and convergent validity, it does not test for item error correlations. Hence, confirmatory factor analyses (CFA) were performed to test the model's internal structure composed of five constructs. Table 4 lists the model fit indices.

Table 3. Exploratory Factor Analysis

Constructs	Items	AT	IUS	OSS	USV	HSV
Online Shopping Attitude (AT)	AT-1	0.74				
	AT-2	0.76				
	AT-3	0.79				
	AT-4	0.69				
	AT-5	0.66				
Intention to use online shopping (IUS)	IUS-1		0.75			
	IUS-2		0.75			
	IUS-3		0.79			
	IUS-4		0.73			
Online Shopping Satisfaction (OSS)	OSS-1			0.78		
	OSS-2			0.77		
	OSS-3			0.71		
	OSS-4			0.72		
Utilitarian Shopping Value (USV)	USV-1				0.69	
	USV-2				0.63	
	USV-3				0.66	
	USV-4				0.68	
	USV-5				0.65	
	USV-6				0.66	
Hedonic Shopping Value (HSV)	HSV-1					0.63
	HSV-2					0.71
	HSV-3					0.71
	HSV-4					0.72
	HSV-5					0.67
	HSV-6					0.69
	HSV-7					0.64
	HSV-8					0.64
	HSV-9					0.68
	HSV-10					0.62

Table 4. Goodness-of-fit

Model Indices	Values
Chi-square/degrees of freedom	1.8
GFI	0.94
AGFI	0.88
NFI	0.94
TLI	0.94
CFI	0.95
RMSEA	0.05

Source: Author

Table 5. Skewness Coefficients

Variables	Skewness
Shopping Attitude	-0.71
Shopping Intention	-0.49
Shopping Satisfaction	-0.65
Hedonic Shopping Value	-0.81
Utilitarian Shopping Value	-0.77

Table 6. Equality of means: demographic factors

Demographics	Constructs	t-statistics	p
Gender (Male vs Female)	Online Shopping Attitude	1.57	0.09
	Online Shopping Satisfaction	1.17	0.13
	Hedonic Shopping Value	-3.91	0.00*
	Utilitarian Shopping Value	4.01	0.01*
	Online Shopping Intention	1.76	0.12
Monthly Income (Below 50K vs Above 50k)	Online Shopping Attitude	-1.45	0.08
	Online Shopping Satisfaction	1.23	0.91
	Hedonic Shopping Value	-2.89	0.00*
	Utilitarian Shopping Value	3.11	0.00*
	Online Shopping Intention	-1.09	0.09
Age (Gen Y vs Gen Z)	Online Shopping Attitude	2.18	0.00*
	Online Shopping Satisfaction	1.18	0.74
	Hedonic Shopping Value	-3.39	0.01*
	Utilitarian Shopping Value	2.56	0.00*
	Online Shopping Intention	0.98	0.16

** p =0.05 (Source: Author)*

For a good fit, the ratio of chi-square and degrees-of-freedom should exceed "1" and < 5 (Salisbury et al., 2002). Hair et al. (2010) define an acceptable fit if GFI greater than "0.85" and AGFI greater than "0.8". The recommended NFI and TLI recommended values are > 0.90 for a good fit (Salisbury et al., 2002). Again, CFI > 0.90 and RMSEA < 0.1 indicate a good fit (Salisbury et al., 2002). All the major indices presented in Table 4 are found to be satisfactory. Hence, the convergent and discriminant validity between the factors was confirmed. Furthermore, the validity of second-order factors is confirmed by calculating the ratio of the first and second-order models' chi-square values (Marsh & Hocevar, 1985). The value of the coefficient (t = 2.921) was found satisfactory (Marsh & Hocevar, 1985; Kline, 2006). Thus, the second-order constructs were established (i.e., attitude, satisfaction, intention, utility, and hedonic shopping value).

Skewness's standard error ratio is used to test the normality (i.e., normality is not assured if the ratio is less than-2 or more than +2). Table 5 shows the skewness distribution for the normality test. All the variables are normally distributed.

4.2 Analysis of Demographic Factors

An independent sample t-test was applied to further investigate "how socio-demographic factors influence the determinants of consumers' purchase intentions during the COVID-19 pandemic." First, the difference in the determinants of shopping intentions concerning the gender of the respondent was investigated. Second, we examine how the monthly income of the online shopper impacts the determinant of online shopping intention. Finally, generations "Y" and "Z" were analyzed.

The t-test results indicated that there was a significant difference in hedonic shopping value concerning gender. Females show a higher level of hedonic shopping value than their male counterparts. Further, males showed a significantly higher utility shopping value than females. With regard to the income of the participant, there is a significant difference in shopping values. People with a higher monthly income have shown more hedonic motivation. In contrast, people with less monthly income tend toward utility motivation. Furthermore, individuals from Generation Z showed significantly greater hedonic value than those from Generation Y. But Generation Y has shown higher utility shopping value than Generation Z. In addition to the above finding, the mean comparisons for online shopping intentions concerning different demographic factors were also conducted. However, the t-tests did not produce any significant difference.

4.3 Inferential statistics

Table 7 shows the correlation between the model constructs, e.g., shopping attitude, satisfaction, and intention. The results showed that all the variables were strongly correlated with each other.

Table 7. Correlation

	Attitude	Satisfaction	Intention
Attitude	1		
Satisfaction	0.56*	1	
Intention	0.68*	0.51*	1

*(*p <0.05), Source: Author*

The hypotheses were tested by performing a regression to explain the relationship among them. Table 8 shows the regression coefficients (β), coefficients of determination (R^2), and F values. The higher the F value, the better the relationship. The first hypothesis (H2) concerns shopping attitude and shopping intention. The association between the two variables was significant (t (415) = 16.08, p = 0.000) (see Table 8 for more details). Pearson's correlation coefficient indicates a high level of relationship between two variables (r (415) = 0.68) (Table 7). In addition, the attitude was positively related to intention (B = 0.67, β= 0.68), supporting H2. The R^2 value of the equation was 0.64, which means that attitude explains 64% of the difference in intention.

The association between online buying attitude and shopping satisfaction is the focus of the third hypothesis (H3). The association between the two variables was significant, t (416) = 6.78, p = 0.000 (Table 9). Pearson's correlation coefficient indicates a high level of relationship between two variables; r (416) = 0.56 (Table 7). Moreover, attitude was positively related to satisfaction (B = 0.54, = 0.67), supporting H3. The R^2 value for this equation was 0.54; this means that attitude explains 54% of the difference in satisfaction.

Table 8. Regression analysis

Dependent variable:	Unstandardized coefficient		Standardized coefficient		
Intention					
Independent Variable	B	S.E.	β	t	Sig
Attitude	0.67	0.08	0.68	16.08	0.00
R^2=0.64, F* = 12.67 , * p =0.01					

**p <0.05, Source: Author*

Table 10 shows the relationship between online shopping satisfaction and online shopping intention was found to be significant (t (315) = 5.59, p = 0.000) (Table 10). Pearson's correlation coefficient indicates a high level of relationship between two variables; r (315) = 0.51) (Table 7). In addition, satisfaction was positively influenced by shopping intention (B = 0.54, β = 0.59), supporting H1. The equation's R^2 value was 0.53, indicating that satisfaction explains 53% of the variance in intention.

Mediating Analysis

Table 11 represents the result of a hierarchical regression composed of three models. Shopping intention was the dependent variable for these three models. The first model (model-1) showed that no control variable had a significant influence on shopping intention. In the second model (F = 6.89, p < 0.01), attitude is an independent variable.

Table 9. Regression analysis

Dependent variable:	Unstandardized coefficient		Standardized coefficient		
Satisfaction					
Independent Variable	B	S.E.	β	t	Sig
Attitude	0.54	0.071	0.67	6.78	0.00
R^2 =0.54, F* = 9.67 , * p =0.01					

Source: Author

Table 10. Regression analysis

Dependent variable:	Unstandardized coefficient		Standardized coefficient		
Intention					
Independent Variable	B	S.E.	β	t	Sig
Satisfaction	0.54	0.065	0.59	5.59	0.00
R^2 =0.53, F* = 8.67 , * p =0.00					

Source: Author

Table 11. Hierarchical Regression Analysis

	Dependent variable: Online Shopping intention		
	Model-1	Model-2	Model-3
	β	β	β
Control Variables			
Gender	0.13	0.19	0.16
Age	-0.21	-0.15	-0.19
Income	0.16	0.15	0.14
Independent variable			
Shopping Attitude		0.45*	0.31*
Mediating variable			
Shopping Satisfaction			0.76*
R^2	0.36	0.47	0.69
Adj R^2	0.35	0.36	0.54
ΔR^2	0.36	0.11	0.32
F	3.56	6.89*	16.45*

**p<0.01(2-tailed) Source: Author*

A hierarchical regression analysis was used to estimate the mediating effect of satisfaction on the association between shopping attitude and shopping intention, and the result is presented in Table 11. The following conditions must be met to establish the mediation (Baron & Kenny, 1986): Suppose the significant association between the predictor variables and the dependent variable is reduced to insignificant after the introduction of the mediator (satisfaction). In that case, it is considered a completed mediation. However, if the independent variable's effect size is reduced after the mediator's inclusion, it is considered a partial mediation. From Table 7 to Table 11, all the mentioned prerequisites for mediation have been met. It was found that the significant relationship derived for attitude (model 2) was not changed to non-significant. Still, the effect size is reduced from = 0.45 to = 0.31 after the inclusion of satisfaction as the mediator variable (model 3). Therefore, it showed a partial mediating effect. A further Sobel test (Sobel, 1982) was used to further validate the above-established mediation effect. The Sobel test was also used to show a significant indirect effect of consumers' attitudes on intention through shopping satisfaction as a mediator. The Sobels' test result confirmed the mediation (Sobels' test statistic = 5.09; SE = 0.38; p< 0.01). Therefore, it was concluded that online satisfaction partly mediates the association between attitude and intention. Further to strengthening the evidence for the mediating effect of satisfaction, the Aroian test (Aroian, 1947) was also performed, and the result also supported the mediation (Z = 9.52, p <0.01). So, all of the statistical tests showed that the association between shopping attitudes and shopping intentions was partly mediated by satisfaction with online shopping.

Moderated mediation analysis

The moderating role of hedonic and utilitarian values on the association between shopping attitude and shopping intention through the mediator (shopping satisfaction) was studied using Hayes' model 59 (Hayes & Scharkow, 2013). After analyzing the mediating effect of shopping satisfaction on the relationship between shopping attitude and shopping intention, the moderating effect of hedonic and utility shopping values on the established mediating relationship was tested. Table 12 shows the moderated mediation analysis results using satisfaction as a mediator and shopping values (hedonic/utilitarian) as a moderator in the association between attitude and intention.

Table 12. Moderated mediation analysis (Moderator: hedonic and utilitarian values

Moderator Model	Dependent Variable: Online Shopping Intention		
	B(S.E.)	t	p
Attitude	0.18(0.09)	6.95	0.02
Values (hedonic/ utilitarian)	0.13(0.08)	5.66	0.04
Interaction-1	0.15(0.04)	4.27	0.12
Dependent variable	Dependent: Online Shopping Intention		
	B(S.E.)	t	p
Satisfaction	0.31(0.02)	8.71	0.00
Attitude	0.45(0.08)	6.18	0.00
Interaction-2	0.19(0.04)	4.12	0.06
Values(hedonic and utilitarian)	0.14(0.09)	4.97	0.09
Interaction 3	0.2(0.09)	6.41	0.01
The indirect effect of the moderator (Conditional)			
Mediator	Values(hedonic and utilitarian)	LL95% CI	UL 95%CI
Satisfaction	Hedonic	0.112	0.145
	Utilitarian	0.167	0.213

Notes. *Interaction 1: Attitude × Values (hedonic/ utilitarian; Interaction 2: Satisfaction × Values (hedonic/ utilitarian); Interaction 3: Attitude ×Values (hedonic/ utilitarian). Source: Author*

From the result (Table 12), it was observed that the interactions between shopping values (hedonic/utility) and satisfaction (interaction 2) were insignificant ($B = 0.19$, $p > 0.05$). The direct effect of shopping attitude on shopping intention depends on shopping values ($p < 0.05$; interaction 3). The above results established a conditional effect (indirect) of shopping attitude on shopping intention via shopping satisfaction differed across the ranges of hedonic and utilitarian value labels. This indirect effect on hedonic and utilitarian was significant, as a 95% bootstrap confidence interval (CI) did not include "zero." The above results show that the higher the shopping attitude, the greater the shopping satisfaction during India's COVID-19 shutdown. Therefore, they have more opportunities to shop online during the COVID-19 pandemic. However, utilitarian values influence the association between online shopping attitude and intention more via shopping satisfaction than hedonics. Therefore, the hypothesis (H4) that shopping values moderated the association between online buying attitude and online buying intention was supported.

5. Discussion and Implications

E-commerce industries worldwide find the COVID-19 situation as an opportunity to oversee the existing brick-and-mortar model. Considering this unique situation in the background, this study was conducted to relate to a different aspect of shoppers' online shopping behavior during the outbreak of COVID-19 in India. The primary objectives were to (1) relate shopping attitude to shopping intention; (2) observe the mediating role of shopping satisfaction; and (3) the moderating role of online shopping values (hedonic/utility) in the proposed association (Figure 1). The first hypothesis, namely that the buying attitude positively influences shopping intention, was supported. This implies that online shoppers with a positive attitude toward online shopping during the COVID-19 pandemic will increase their shopping intention. The study findings concerning the significant relationship between attitude and shopping intentions are coherent with past studies' results (Ashraf et al., 2014; Chang et al., 2010; Koch et al., 2020; Manchiraju & Sadachar, 2014). Further, online shopping during COVID-19 decreases the risk of infection by minimizing direct contact with others. This finding also holds even in an ordinary situation and is consistent with the findings of Chang et al. (2010). This study also revealed an important mediating role of online shopping satisfaction in the association between shopping attitude and intention. Similar results have been reported by Alnaseri et al. (2021) and Mozafari and Amin Mozafari (2016). Alnaseri et al. (2002) found that satisfaction positively influences attitude and intention. Mozafari and Amin Mozafari (2016) reported the results along similar lines.

Finally, this paper examines the moderating role of shopping values (hedonic/utility) in the mediating association between shopping attitude and intention via shopping satisfaction. Utility shoppers have been found to moderate the mediating relationship compared to their hedonic counterparts. This finding could be due to the limited opportunities available during COVID-19 to engage in leisure activities. People seem to shop online for pleasure (Astawa & Sukawati, 2019). Again, people had few alternatives to enjoy their leisure time due to the closure of frivolous public facilities during the pandemic lockdown, which may enlighten the higher significance of hedonic shopping values. Various studies have also reported similar results during COVID-19 (Bhatti et al., 2020; Widagdo & Roz, 2021). The study results also indicated that utilitarian and hedonistic values are positively associated with customers' shopping intentions. A high-risk level during the pandemic decreases utilitarian value and increases hedonic value. Similar results were also obtained from past studies (Chaomin & Li, 2012). The total effect of utility shopping values on shopping intention is greater than that of hedonic values, indicating the significance of utility shopping values in enhancing shopping intention during the COVID-19 pandemic in India.

Managerial Implications

Based on the study's results, it is observed that shopping attitude and shopping satisfaction are significantly related to peoples' online shopping intentions during COVID-19. This finding will help e-commerce companies to know how consumers' purchase intentions change with time to ensure and maintain their popularity during and after the COVID-19 lockdown period. While previous studies have no decisive indication relating hedonic or utilitarian motivation with online purchase intentions during the pandemic situation in India, this study established that hedonic value has a more substantial influence on shopping intention. This finding underlines shoppers' increased demand for entertainment through online shopping during the pandemic. Hence, e-commerce stakeholders should improve their online stores to provide an entertaining shopping involvement based on the demands during COVID-19 and thereafter. Further, companies should use online platforms

to provide the required information to encourage their customers to purchase online.

6. Conclusion, Limitations and Future Scope

The aims of this study were fourfold: (1) to examine the associations between buying attitude and shopping intention; (2) to measure the role of shopping satisfaction as a mediator; (3) the moderating role of shopping values (hedonic/utility values) on the relationship between attitude and intention via satisfaction; and (4) the impact of demographic variables (gender, income, and age) on study constructs. The results confirmed the mediating influence of shopping satisfaction on the relationship between shopping attitude and shopping intention. Furthermore, the result also showed the positive moderating role of shopping values in the mediating relationship, including shopping attitude and shopping intention via shopping satisfaction. This study contributes to the literature regarding the moderating role of online hedonic and utilitarian values during the pandemic. The study findings extend a theoretical understanding of consumers' shopping intentions during the COVID-19 pandemic.

This study also has a few limitations that need to be addressed in future studies. These limitations do not undermine the significance of the study results. But, if addressed correctly, it can further improve the finding. First, the sample used in this study is from central India. Future research may look at more diverse geographies to generalize study findings; Second, the influence of demographics has not been explored in this study. So, the moderating effects of demographic variables can help us learn more about how attitude, consumer satisfaction, and shopping values play a role in online shopping. Third, this study also looks at how COVID-19 lockdown restrictions affect the intention to shop online. Future research should investigate how consumers' online shopping intentions change over time (a longitudinal study) after the COVID-19 lockdown to strengthen the theoretical understanding of consumer behavior further.

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Personal Agency: Determinant of Student's Academic Performance in Entrepreneurship Courses

Dr. Neha Parashar
Director and Associate Professor
Symbiosis School of Banking and Finance, Pune
Email Id: nehaparashar10@gmail.com

Dr. Anamika Sinha
Professor
Goa Institute of Management, Goa
Email id: 121withanamika@gmail.com

Abstract

Several universities, government institutes, private colleges, and training setups have emerged in India for the purpose of entrepreneurial education. Most exhibit a lack of clarity in content, pedagogy, design, and curriculum delivery relevant to entrepreneurship development and education. The most important antecedent of entrepreneurial conduct is intention, which is described as agency in the literature on entrepreneurship. The study uses a sample of students who are evaluating their entry into the workforce to examine the relationship between personal agency and entrepreneurial intention. The study makes use of a theory of agency that takes actors' temporal orientations into account. Since one's agentic perceptions may appear as one's intention, including the concept of time in the study of intention would add a new perspective on how entrepreneurial intention works. This study explores the trait approach for explaining differences in learning capabilities in mathematical and quantitative subjects, which were introduced in MBA programs to enable the students to prepare predictive techniques. It uses this understanding to argue a case for content to be included while learning as well as pedagogy design. It was found that personal agency predicts the academic performance of students. Students with high personal agency were low on academic performance in subjects included in the curriculum with the intent to predict the future and were quantitative in nature. The study suggests using psychometric profiling of students who use a personal agency for enterprise creation and aligning their course content accordingly.

Keywords: *Personal agency, entrepreneur development, education, self-efficacy, locus of control, academic performance*

1. Introduction

Entrepreneurship has developed as a phenomenon and currently creates millions of jobs worldwide (Kuratko, 2005; Katz, 2007). Entrepreneurial activity is considered the backbone of the socioeconomic structure, contributing significantly to the country's economic development, poverty eradication, and employment generation. India also has witnessed a gradual decrease in contribution to GDP from agriculture (51.1% in 1950-51 to 13.7% in 2012–13; Source: Press Trust of India) and an increased contribution from the service and manufacturing industry through new business ventures. This phenomenon has fostered a need for the study of entrepreneurship and the development of entrepreneurs.

A trifold argument establishes the rationale for entrepreneurial education. One line of argument is that entrepreneurship can be learned. Entrepreneurship empowers the individual, and therefore there is a need for an intervention to impart training on skills, attitude, and behavior. The Global Education Initiative of the World Economic Forum (2009), in addition to Kuratko (2003), has argued that entrepreneurship education has its own merit in building attitudes and skills, which is a learned behavior. A second rationale is that entrepreneurial education is found to be linked with several positive outcomes like new venture creation (Clark et al., 1984), high-tech new venture creation (Franke & Luthje, 2004), larger investments, and better decisions in start-up processes (Vesper & McMullan, 1997), additional job creation, and perceived performance of the firm (Elmuti et al., 2011). The third argument is that entrepreneurial education can reduce failures: 70-80% of new businesses fail to achieve their projected growth because of a lack of expertise and education. As many as 30-40% of businesses liquidate their assets (Ghosh, 2011). The education and development of entrepreneurs could thus safeguard such businesses.

Considering this situational relevance, there has been an upsurge of business schools and universities with programs focusing on teaching entrepreneurship the future businesspersons and managers. The government of India, too, is taking the initiative on entrepreneurial development by establishing Entrepreneurial Development Institutes (EDIs), the National Institute of Micro, Small and Medium Enterprise (NI-MSME), the Indian Institute of Entrepreneurship, and several state-level government-owned incubation centers (Khattar, 2009).

Moreover, several banks and financial institutions, NGOs, government-linked academic institutes, specialised IIM and IITs, universities, and colleges, both public and private, are actively engaging in training students and aspiring entrepreneurs. Despite the national and social demand for education initiatives in this field, there is a lack of clarity on what content and knowledge need to be transferred and how to transfer the same to aspiring entrepreneurs at a global level (Gibb, 2000). designing content needs cultural adjustments and adaptations (Dailmutt et al., 2003). This makes the pedagogy and designing content dynamic and open to interpretation. The debates have also revolved around what students seek (Harper, 2008) and a realistic or practical approach to entrepreneur education (Colette et al., 2013).

This lack of clarity is further magnified due to ambiguity regarding the definition of an entrepreneur itself (Matlay, 2005). This creates a void between education, enterprise creation, entrepreneurial activity, and entrepreneurial implementation. Grebel et al. (2003) argued that entrepreneurship is a controversial phenomenon in economics, yet most researchers concluded with expressions of appreciation for entrepreneurship. They also stated that because there was no single best definition or a single theoretical model for distinctly illustrating entrepreneurship, scholars could establish their definitions to legitimise their research. A consensus in definition may not be their priority.

Considering the above threads of argument in favour of entrepreneurial education and the ambiguity thereof, we delve into a trait approach to explain an observed behavior amongst a group of students. We suggest that since entrepreneurship is essential and entrepreneurial education is gaining momentum, understanding how traits impact entrepreneurship students would help us understand how to develop and structure the content for maximum learning and creation of entrepreneurs.

This paper is structured into six sections. The introductory section is followed by the literature review, which discusses entrepreneurship and entrepreneurship education. It also discusses personal agency and the link between psychographics and academic performance in entrepreneurial education. This is followed by the section on the conceptual framework for this study and the hypotheses developed. The methodology adopted is discussed, and the results are presented. These findings are followed by a discussion of the managerial implications of the study.

2. Literature Review

2.1 Entrepreneurship

The theories included in discussing entrepreneurship are the classical view, the neo-classical view, and the Austrian market process view. The Austrian market process theories, promoted by stalwarts Kirzner (1997) and Schumpeters (1934), highlight human action's role in the knowledge economy context. Entrepreneurship, in this case, is characterised by the arbitrage of market opportunity and alertness of individuals to profit making. Kirzner (1997) defined entrepreneurship as a market process that builds market equilibrium and an entrepreneur as a person with knowledge about opportunities that are not obvious to others in the market.

Several other viewpoints from the domains of psychology, sociology, anthropology, and management were also proposed either in support or as a criticism of the three theories mentioned above.

Coase (1937) mentioned entrepreneurial coordination as the key driving force for organisational decisions. Saraswathy (2008) suggested that the entrepreneur be deemed an effectual being who has clarity on who he is and is capable of leveraging the resources in terms of people and knowledge for business success. Busenitz and Barney (1997) state, "Entrepreneurs use biases and heuristics in decision-making and are capable of thinking in certain ways that tend to be attractive to others." Researcher Breda McCarthy (2003) believes that entrepreneurs can be broadly classified as "charismatic" and "pragmatic," with many considering the charismatic type as the popular view of the entrepreneur; this point of view has its origin in the charismatic model of leadership by Weber (1961).

Chen et al. (1998) defined an entrepreneur as an individual possessing very good self-efficacy. Self-efficacy or competence is measured by how well an individual can market the firm's product, manage the business, and innovate ideas. Further, Chen argued that entrepreneurs have a greater risk-taking ability and adequate acumen for financial analysis. Adankule and Henson (2007) have defined the concept of entrepreneurship as a construct of a personal agency's belief, which is determined by the individual's perception about their ability to take action, which leads to desired outcome and capability. Specific factors such as locus of control and entrepreneurial self-efficacy, as well as environmental features such as social networks and availability of capital, have noteworthy impacts on the entrepreneurial intents of students; however, the university environment does not have any substantial influence (Harun Sesen, 2013).

2.2 Personal Agency

Using Kirzner's framework, Harper (2003) framed the personal agency concept to define two antecedents for entrepreneurship, which were entrepreneurial personality and market situation. He further argued that entrepreneurial personality is a simple definition of the individual's personal agency, which describes the person as believing that events leading to the success of a business are contingent on his or her behavior and that he or she has a high perceived self-efficacy. This self-efficacy is derived from the knowledge and capabilities possessed by the person and are required for success. According to Harper (2003), personal agency is a multiplicative function of locus of control (contingency) and perceived self-efficacy (competence):

Personal Agency belief = f(LOC * SE)

Here, the locus of control in a person is the sum of the believed factors that control his/her success. Internally focused people believe that fate and fortune are within their personal control. In contrast, externally focused people believe that their lives are controlled by external forces, such as destiny, luck, or powerful others (Begley & Boyd, 1987).

Self-efficacy is the belief in one's capabilities to mobilise the motivation, intelligence, heuristics, cognitive resources, and courses of action needed to meet the given situational demands (Wood & Bandura, 1989). Self-efficacy can also be defined as the conviction that one's actions lead to the preferred outcome.

According to Bandura (1996), efficacy beliefs varied across domains of functioning rather than representing an undifferentiated disposition. This means that an individual may have a high self-efficacy with regard to one task and not another. He also pointed out that among the mechanisms of personal agency, people's belief in their capabilities to exercise control over their level of functioning and environmental demands is most central and pervasive.

Bandura (1996) conceptualised those psychological procedures, whatever their form, altered the level of strength of an individual's self-efficacy. It was hypothesised that the capability to cope in a particular situation is a determination of self-efficacy. He argued that the level of self-efficacy would determine the efforts expended as well as the length of time that the efforts would be sustained in the face of obstacles and aversive experiences. The perception of self-

efficacy improves by persistence in activities that are subjectively threatening but are, in fact, relatively safe procedures.

This paper explores the trait approach to entrepreneurship, which was measured in terms of the personal agency concept, and argues that students having a high entrepreneurial personality, defined through a personal agency, have a profound disregard for studying subjects that are aimed at predicting the future and are mathematical in nature. Evidence from other studies reported in the entrepreneurial development literature supports this idea. One influential study discusses the effectual model of an entrepreneur, in which the author has argued similarly by stating that an effectual entrepreneur believes that, to the extent that he/she can control the consequences of events, he/she need not predict the future (Saraswathy, 2008).

We further elaborate on this concept and propose that by combining Harper's framework of personal agency and Saraswathy's framework of two kinds of entrepreneurs, individuals' learning capabilities might also vary. This difference is widely reported in other streams of education.

2.3 Psychological Constitution and Entrepreneur Development

Gasse (1977) and Brockhaus (1982) have stated that entrepreneurial traits are static and fixed, and in the timeline of entrepreneurial transformation, it is seldom a topic of attention. There is an argument that trait theory is inadequate to explain a phenomenon like entrepreneurship. However, for this study, the researchers have used the proposition by Baron (2006), which states that while traits may not completely describe entrepreneurial success, they cannot be ignored, either. Cognitive factors, specific skills, and personality factors are suggested as the ingredients that result in successful ventures for entrepreneurs.

The relationship between psychological individualities and entrepreneurial intentions has been demonstrated in secondary students, reinforcing the trait approach effect on entrepreneurial intentions (do Paço et al., 2011).

A literature review revealed that the psychographics of an entrepreneur and their relation to entrepreneurial success had been studied. The factors studied were communication, leadership, decision-making, boldness, risk-taking, creativity, need for achievement, etc. (Carland & Carland, 1996; Littunen, 2000; Rauch & Frese, 2007). However, the researchers could not find any study on the relationship of personal agency with entrepreneurship.

The subcomponents of personal agency in terms of locus of control and self-efficacy were studied independently by some researchers. For example, a positive relationship was reported between entrepreneurship and locus of control (Kaufmann et al., 1995; Hanse Mark, 2003; Cromie, 2000; Ho & Koh, 1992; Koh, 1996).

2.4 Psychographics and Academic Performance

Entrepreneurship education facilitates the transfer of relevant knowledge and skills to potential entrepreneurs (Matlay, 2005). This transfer helps increase their self-efficacy to handle the challenges expected during their entrepreneurial career (Wilson et al., 2007). Such training is also expected to strengthen entrepreneurial intentions and behavior (Kolvereid, 1996; Krueger et al., 2000).

During an exploration of the linkage of personality with academic performance in undergraduate, graduate, and students of medicine and psychology, ambivalent views were reported. While many have argued that there is no significant relationship between personality and academic performance (Allik & Realo, 1997; Dollinger & Orf, 1991; Green et al., 1991; Rothstein et al., 1994), some have found an empirically significant relation (Conard, 2006; Furnham, 1991). Similarly, some researchers (Wolfe & Johnson, 1995; Busato et al., 2000) argued that there was a moderate percentage of variance in academic performance as a result of personality. None of these researchers, however, has explored personal agency as a construct of personality or has studied the linkage of personality to academic performance in entrepreneurship courses.

Locus of control (Adesoji & Adebola, 2007; Ojo, 2003) and self-efficacy (Malmivouri, 2008; Missildine, 2004; Yates, 2002; Byrnes, 2008; Hart et al., 1996) have been explored separately and were found to be correlated to academic performance, specifically in mathematical and logical ability. However, these studies have again focused on the graduate, undergraduate, and postgraduate student populations. None of these studies have focused on entrepreneurial programs.

Few studies have reported students' psychographics and their impact on entrepreneurial intention. Brown et al. (2011) studied that dispositional factors of self-efficacy, self-reliance, and risk propensity influence college students' entrepreneurial intentions and can help develop more competence, confidence, and success in their entrepreneurial pursuits.

In Hansemark's study in 1998, it was found that participating in an entrepreneurship program increases the *need for achievement* and internal *locus of control of reinforcement*.

Specifically, the relationship between locus of control and a potential entrepreneur's academic performance has not been studied.

3. Objective and Methodology

The genesis of a systemic inquiry into the effect of personal agency on academic performance was an outcome of a course on behavioral sciences that the researchers initiated during the first term of a Master's in Business Administration–Family Business and Entrepreneurship program. The course was a two-year program where students could choose electives on family business management or entrepreneurship in the second year. For one year, the college conducted the program in a very similar way that other MBA programs are designed. The study topics were Organisational Behavior, Human Resource Management for Family Businesses, Managerial Economics, Business Plan Development, Financial Accounting, and Costing. The Organizational Behavior course was spread over six months and used several psychometric tools. During this process, the researchers observed that students with high personal agency invariably performed poorly in subjects that (a) were mathematical and logical in nature, (b) were made compulsory for the students, and (c) required them to prepare a business plan at the end of the course.

The subjects thus identified were Financial Accounting, Managerial Economics, and Quantitative Methods. The researchers collected data from two subsequent batches over three years to further validate the accidental finding. This process ensured that the faculty teaching these three subjects changed every year, and all of them used ready-to-answer templates and quizzes for assessment purposes. This avoided faculty bias or personality mismatch-related issues. The psychometric tools were administered personally by the researchers and were collected back immediately, which resulted in a high response rate of almost 99%. Two separate instruments were administered, one on locus of control and one on self-efficacy. The multiplicative effect of the responses was calculated manually to arrive at a personal efficacy score. There were 4–5 students who were absent or did not appear in the final examination for personal reasons.

Further, a rigorous literature review was carried out. The research objectives were defined based on the observed outcome of student performance and literature review.

Thus, it was proposed that academic performance is a function of personal agency and that personal agency is a function of both self-efficacy and locus of control. In other words, a personal agency can be considered a product of self-efficacy and locus of control. What this implies is that academic performance that could be considered a function of both self-efficacy and locus of control, which is illustrated by the following equations:

$AP = f(PA)$

and $PA = g(SE, LOC)$;

$PA = SE * LOC$.

Thus,

$AP = f\{g(SE, LOC)\}$

Based on the above argument, the following hypotheses were arrived at:

H1*: *Personal agency is a good predictor of the academic performance of students in entrepreneurial education.

H2:* *The higher (lower) the personal agency, the lower (higher) will be the academic performance.

Further, to understand which of the two aspects of personal agency contribute to the differences in academic performance, two more hypotheses were arrived at.

H3:* *The higher (lower) the self-efficacy of the students, the lower (higher) would be their academic performance.

H4:* *The higher (lower) the individual locus of control, the lower (higher) would be the academic performance.

4. Measures

Because personal agency is measured through the locus of control and self-efficacy, the following tools were used.

For the locus of control, the LOCO Inventory (Pareekh, 1997) was used, which consisted of 30 items measured on a 5-point scale ranging from 5—if you strongly feel that way, 4—if you generally feel that way, 3—if you somewhat (or somewhat not) feel that way, 2—if you slightly feel that way to 1—if you hardly or never feel that way. This tool is more suitable in the Indian context and is known to be highly correlated with the Levenson and the Rotters Inventory, which are used internationally.

Self-efficacy was measured using Bandura's (1982) scale to obtain greater proximity to Harper's definition, which included the belief of an individual in attaining the desired outcome. This tool measures an individual's specific capability to perform a task, which is based on the judgment that can change with new information and involves a component of mobilisation, i.e., differential performance. This fitted better with the scope of personal agency as a construct. While there was no evidence in the literature regarding its correlation with entrepreneurial efficacy, the researchers nevertheless used it and tested it for reliability in the Indian context. A tool is a thirty-item tool on a five-point Likert scale.

An aggregate CGPA score of the three subjects was used for academic performance.

To test for the internal consistency of the tool, a reliability test was done, and a Cronbach alpha of 0.84 was achieved, suggesting that the two independent, standardised tools could be used for the sample studied.

Descriptive Statistics

A total valid sample of 152 individuals was obtained, of which 106 were male and 46 were female.

5. Results

Hypothesis 1: Personal agency is a strong predictor of academic performance.

AVGAP= α1 + β11 PA + e1

Statistically, the equation emerges as:

AVGAP= 2.847+ (-.0.174) PA+0.59

To test the above hypothesis, linear regression analysis was conducted, and the following results were obtained.

Table 1. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	F	P	B Const	B
1	.488 (a)	.238	.233	.59906	45.297	0.00 (a)	2.885	-0.174

a predictors: (constant), PA

Table 2. ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	16.256	1	16.256	45.297	0.000(a)
	Residual	52.037	145	.359		
	Total	68.293	146			

a predictors: (constant), PA2

b Dependent Variable, AVGAP

Table 3. Coefficients (a)

Model	Unstandardised Coefficients		Standardised Coefficients	t	Sig. Std. Error
	B	Std. Error	Beta	B	
1 (Constant)	2.885	.107		26.881	0.000
PA	-0.174	.026	-.488	-6.730	0.00

a Dependent Variable, AVGAP

From the aforementioned tables, it can be said that personal agency (PA) is a predictor of academic performance (AVGAP) (p=0.000< 0.05). However, the robustness of the model or the degree of prediction is limited, with only 23% of academic performance being explained by personal agency. The negative values of beta-coefficients and t values suggest that PA negatively influences AVGAP. This aspect is well discussed in the literature, wherein it has been argued that while traits may not explain the entire phenomenon, they do influence behavior. In learning and academic performance, it can be argued that motivation to learn, organisational enablers and disablers, and instructor capability (Colquitt et al., 2000; Lent et al., 2000; Mathieu et al., 1992), and goal alignment play a significant role in deciding the academic performance and learning.

Hypothesis 2: The higher (lower) the PA, the lower (higher) will be the AVGAP

Hypothesis 3: The higher (lower) the LOC, the higher (lower) will be the Avg. AP

Hypothesis 4: The higher (lower) the total SE, the higher (lower) will be the Avg. AP

Simple correlations were run to test hypotheses 2, 3, and 4, and the following table was prepared.

From the aforementioned table, we can see that Avg. AP is significantly negatively correlated with personal agency and total self-efficacy.

6. Discussion

At the onset of the program, conducting psychometric testing of personal agency was suggested when students were being inducted. Students high on PA should be mentored and monitored continuously on performance. Because motivation to learn is lacking in these students, the subject teachers should incorporate active coaching and build a learning contract so that the students can understand that while in the beginning, their own gut feelings and insights may help in building a business at a later stage, they will require some guided decisions where knowledge of these subjects will be helpful.

Besides, building a learning culture and supportive, collegial relations with students may also motivate the students to perform better in these subjects. There is a common challenge related to the implementation of entrepreneurial education. There are trade-offs between guidance and freedom, information and creativity, pressure to perform and a sense of accomplishment, the self and others, and choice and relevance; these trade-offs should be managed with a

Table 4. Correlation Matrix

		PA	LOCO TOT	TOT SE	AVGAP
PA	Pearson correlation	1	.562(**)	.916 (**)	-.451(**)
	Sig. (2-tailed)		.000	.000	.000
	N	161	161	161	160
LOCOTOT	Pearson correlation	.562 (**)	1	.253 (**)	-.270 (**)
	Sig. (2-tailed)	.000		.001	.001
	N	161	161	161	160
Tot SE	Pearson correlation	.916 (**)	.253 (**)	1	-.408 (**)
	Sig. (2-tailed)	.000	.001		.000
	N	161	161	161	160
AVGAP	Pearson correlation	-.451 (**)	-.270 (**)	-.408 (**)	1
	Sig. (2-tailed)	.000	.001	.000	
	N	160	160	160	160

*** Correlation significant at 0.01 level (2 –tailed)*

slight level of autonomy and supportive behavior by faculty toward students, which would inculcate discipline required to learn these subjects (Gelderen, 2010). It is also believed that autonomy, support, and encouragement enable students to achieve their goals. Entrepreneurship-specific educated students have been found to be capable of having a greater entrepreneurial mentality when they perceive fewer threats (Solesvik et al., 2013).

In addition, the other option is that these subjects can be made optional rather than compulsory (as was the case in this university) so that students inclined to study these subjects shall choose them. Then as per self-directed goal-setting theory, their motivation to learn will be higher. To defend this argument, we take support from the study of Saraswathy (2001), who brings out two conflicting viewpoints, namely the *causal approach* and *effectual approach*, in her research on entrepreneurial personality affecting organisational development and learning. Not every business has used predictive techniques, and there is an argument against entrepreneurial education getting too focused on developing business plans and managerial capabilities rather than entrepreneurship (Reynolds et al., 2004).

In terms of developing a learning environment, we suggest more practical exposure and dialogue with entrepreneurs. Active feedback mechanisms, continuous evaluation, and one-to-one mentoring by the faculty members on performance will build self-confidence and efficacy and allow the faculty to customise the content and pedagogy to suit the student requirements. An argument can thus be built for including syllabi focused on entrepreneurial behavior, self-efficacy and leadership development, creativity, and innovation, managing complexity and unpredictability, and financial and business skill development. The international dimensions and effects of personal growth, confidence, identity development, formation of new career intentions, and the application of the learning of enterprise and entrepreneurship education is established (Rae & Naomi Woodier-Harris, 2013).

If the subjects on analytical skills have to be included, it should be done at a later stage with the students' endorsement.

Saraswathy (2001) has indicated that in the causal approach, organisations establish a goal and then find ways and means to fulfill that goal. If an educator is looking at causality as a framework, then it will be important for him/her to prepare a business plan and analyse existing resources. Causal learning, therefore, may be bounded by rules, conventions, communication constraints, limited knowledge, some data sheets, or the information searched. In this approach, in an attempt to predict the future, one also tends to establish a process that may lead to satisfaction rather than maximisation. This approach would be prescribed for limiting risks. However, in reality, an entrepreneur may move to and fro on the continuum of extreme risk and extreme predictability.

Allowing students to make a choice on subjects they want to learn will give them space to choose a position on the continuum and decide their own future from that position.

Ineffectual learners, on the contrary, focus on entrepreneurial decision-making and consider the means available. An effectual entrepreneur tries to combine all the means available to come up with a coherent winning strategy. Means for an entrepreneur may include current knowledge, traits, abilities, and social resources. Learning here is conducted through experimentation, evaluation, and assessment.

Effectual entrepreneurs consider that the future is contingent on actions by willful agents. The entrepreneur makes decisions based on who he is, what he knows, and what he can do with the people he knows. An entrepreneur here looks at the influence he can create with the stakeholder's buy-in to create a successful venture. We propose that making business plans, scanning the macro-environment, budgeting, and financial planning may not excite these individuals. These individuals may begin with affordable losses rather than planning for finances. In line with the same, their profound disregard and distrust, consciously or unconsciously, toward attempts to predict the future may lead them to be easily demotivated by the subjects under study. Saraswathy's (2008, p. 29) definition—"To the extent that we can control the future by being imaginative, we don't need to predict it"—could become an attitude statement for classroom performance as well.

It is also suggested that the curriculum should include more experiential, hands-on methods, especially in teaching these subjects. This recommendation is based on the study by MacGrath and MacMillan (2000). They have suggested that entrepreneurial individuals have a mindset that enables and encourages them to find opportunities overlooked or ignored by others, which is developed through experience, observations on operating a small business and mentoring rather than classroom teaching. Business plans have been suggested in discussions of enterprise education as tasks to be avoided during entrepreneurial education because of the

fact that business planning does not form a part of the focal learning activity of the latter (Jones & Penaluna, 2013)

Gibb (2002) has argued that traditional business school models are inadequate for developing and teaching entrepreneurship and the pursuit of an enterprise culture and that there must be a fundamental shift in both the entrepreneurship paradigm's location and the institutional arrangements in which it is delivered. Kirby (2004) has argued that entrepreneurial education should be more education than entrepreneurship.

Gstraunthaler and Hendry (2011) have argued that accounting papers were included in business schools to create a professional identity. However, they formed the basic backbone for business plan analysis, risk analysis, and future projection. The authors further contest that to develop entrepreneurs; one must focus first and foremost on developing an entrepreneurial mindset, thinking and acting creatively, and taking risks. The technical aspects of entrepreneurship, for example, drawing up a business plan and cash flow, should be introduced. They further debate that entrepreneurial education should take a more social and political orientation to prepare students with the necessary understanding of social dynamics.

Integrating Kolb's model for learning and action orientation, Gibb (2002) has argued in favour of experiential learning. Besides experiential learning of entrepreneurship, there is an argument for the benefits of contextualised enterprise education, confirming that assessment techniques that engage in determining ideas are well embedded in an educational custom (Carey & Matlay, 2010). Thus, an integrated model of the learner, learning environment, facilitators' capability, content design, and pedagogy chosen could lead to learning relevance for entrepreneurs. In the present times, when India as a nation is trying to build a culture of entrepreneurship at a national level, an academician could use this work to get sensitised to differences in learners and use different methodologies to engage and facilitate learning in students.

8. Conclusion

It is evident that traits do have some impact on a student's academic performance. However, there are other contextual variables in terms of coaching and mentoring, experiential learning, and methodology integrated into the curriculum. It increases choice-making given to the student, that can enhance the learning experience of a student pursuing the entrepreneurship course. Every instructor must keep these personality determinants in consideration when preparing the course curriculum.

The primary goal of this study, which is to assess the factors that influence higher education students' interest in becoming entrepreneurs, arises from this framework. Various indicators were taken into account based on the development of a structural model, which was supported by the relevant literature and examined the direct and indirect relationships between the variables entrepreneurial attitude, entrepreneurial intention, being an entrepreneur, business strategy, business growth, business success, business skills, and perceived behaviour.

It was found that an entrepreneur's belief that he/she can produce the desired outcome or one's ability to look for an internal locus of control guides one's capability to perform in subjects that are included in the entrepreneurial course to predict the future and help in taking calculated risks. However, these individuals, high on self-belief, may not be motivated to learn these subjects and may go with the premise that their capabilities will help create a successful business venture. These students can be coached to appreciate the importance of prediction along with the strength within the self for accurate business decisions.

9. Limitations

Because the research did not begin with a predetermined design but rather emerged from an inquiry on how to develop the students, the conceptual framework tested was limited in scope. A more formal design, integrating concepts like motivation to learn and goal orientation, could have yielded a more robust model. Other demographic variables of interest, like socioeconomic strata and education levels, could be included.

Secondly, because the teacher collected the data while administering conceptual learning, the students may have over-reported the tool.

There could be issues with the input and output processes of the students because the data were collected from one institute alone. To improve the generalizability of the results, a study replication using a larger sample with more institutes offering entrepreneurial programs could be considered. This would remove the methodological limitations outlined above.

Declarations

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An Empirical Investigation of the Mediating Role of Job Involvement on Job Satisfaction and Employee Optimism Relationship

Dr. Yasmeen Shamsi Rizvi
Assistant Professor
Centre for Management Studies
Jamia Millia Islamia, New Delhi, India
Email: yrizvi@jmi.ac.in, yasmeenrizvi44@yahoo.com

Dr. Ratika Sikand
Assistant Professor
Maharaja Agrasen Institute of Technology
Rohini
Email: ratikacms@gmail.com

Abstract

During the COVID-19 pandemic, ensuring optimism, involvement, and satisfaction has been a big challenge for business leaders. Keeping this in view, the purpose was to study the impact of optimism on job satisfaction, and the mediating role of job involvement between the aforementioned variables in the crisis-ridden banking sector. A survey was conducted to study the relationship between the variables. Two hundred thirty-five bank employees in the Delhi NCR region (India) participated; data was analyzed on SMART PLS 3 and SPSS software. The instruments were validated through exploratory factor analysis and confirmatory factor analysis. The results of structural equation modeling reported that optimism positively impacted job satisfaction and job involvement and that job involvement had a partial mediating effect on the relationship between optimism and job satisfaction. This study provides new insights into the relevance of optimism and job-related attitudes in a crisis. This is a rare study focusing on three constructs: optimism, job satisfaction, and job involvement in the Indian banking sector, which is facing challenges that the COVID-19 pandemic has aggravated.

Keywords: *Job Satisfaction, Job Involvement, Optimism, Covid, Smart PLS.*

1. Introduction

There is a downward trend in employment in many sectors of the economy, and millions of people have lost their jobs (Nicola et al., 2020), and feeling of insecurity and helplessness is common in workforces worldwide. Rehman et al. (2020) measured levels of depression, stress, and anxiety at the onset of the COVID-19 outbreak and found significant psychological effects of the outbreak on the Indian sample. The banking sectors in India, Mexico, and South Africa have been severely impacted due to the COVID-19 pandemic-induced crisis. According to McKinsey's report (2019), the pandemic will be a problem for banks in the coming months and years. Amid a mutated global recovery, banks will face a big obstacle for continuing operations beyond 2024. The fourth industrial revolution (4IR) has put jobs in the banking and insurance sectors at high risk (PwC, 2020). Mergers and acquisitions in this sector have added to the insecurity employees face.

In such a circumstance, involvement and satisfaction of human resources towards their job act as the key driver of profitability and productivity. Thus, it becomes essential that employees of the organization must show a positive attitude toward their job. Optimism has been observed to impact a person's satisfaction (Rabinowitz, 2018). Studies support that optimism improves individual performance (Chhajer et al., 2018) and job satisfaction (Mishra et al., 2016). Furthermore, job satisfaction and involvement have been an area of interest for academicians and HR practitioners as it influences employee motivation and performance. A satisfied employee shows more organizational commitment and favorable organizational citizenship behavior (Organ & Ryan, 1995). Job involvement also has been positively associated with various organizational behaviors, such as job satisfaction (Brown, 1996; Pacheco & Webber, 2016), job performance (Kanungo, 1982), and work effort (Brown & Leigh, 1996). These constructs are important in producing the desired behavior from the employees.

It is thus important to study optimism, job satisfaction, and job involvement in the context of the banking sector, as banks are an important contributor to the Indian service sector (Kaura, 2013). The objectives of this research are to study the relationship between optimism and job satisfaction among bank employees and to analyze the mediating role of job involvement between optimism and job satisfaction. This research will encourage practitioners to develop suitable human resource management (HRM) practices as human resources are a critical resource for every organization, and adequate management of it can help an organization achieve its goals and objectives (Abdul-Halim et al., 2016).

2. Theoretical Foundation

In the literature, we will find many successful attitude-behavior theories that indicate that behavior regulates the attitude of the person. The most important of these theories is self-perception and behavioral self-regulation theory; therefore, they provide a conceptual foundation for this research.

In this research, the focus is made on optimism and its impact on job attitudes, such as job satisfaction and job involvement. Seligman (1998) explained the concept of optimism through an attribution theory in which the individual explains the positive and negative events that have occurred. The optimist has a tendency to explain negative events to an external, unstable, and specific cause and attribute positive events to internal, stable, and global causes (Fournier et al., 1999), whereas the pessimist does the opposite.

Optimism is the positive outcome expectations of the individual. Therefore, behavioral self-regulation theory provides the basis for optimism (Scheier & Carver, 1988). An employee who perceives favorable outcomes shows increased efforts, whereas perceiving unfavorable outcomes results in reduced initiatives and efforts. The expectation of unfavorable outcomes is likely to subsequently reduce employee involvement in their job and may also negatively influence employee job satisfaction.

Conversely, the self-perception theory (Bem, 1967) states that employee attitude is shaped by behavior. Calder and Staw (1975) have considered self-perception theory in their study of motivation. Optimism is a positive behavior, and its influence on job involvement and job satisfaction is not given much attention. Therefore, based on this theory, researchers have given attention to employee optimism and its related positive job-related outcomes.

3. Rationale of the Study and Research Gap

The global banking sector is under immense stress due to the crisis caused by the Coronavirus pandemic and the transformations brought about by the fourth industrial revolution. There were mega-mergers in Indian banks in 2020, with ten public-sector banks merged into four. Several

banks filed for insolvency and bankruptcy. The total non-performing assets for the Indian banking sector were 7.27 lakh crore in 2020 (Gill, 2020). Yes Bank, India's fourth-largest bank, was seized by the Reserve Bank of India in March 2020 (Choudhury & Pradhan, 2020). While most people stayed home to protect themselves from Coronavirus infection, banking professionals worked from offices to facilitate financial transactions, dealt with the general public, and came in direct contact with currency exchange, all of which increased the risk of infection. While coping with increased stress levels, bank employees have also had to adjust to new work patterns (Moorthi et al., 2020). Optimism, job satisfaction, and job involvement have a very important role to play during such challenging times, as these may act as regulating factors for stress (Hoboubi et al., 2017).

This research is important as it examines the association between optimism, employee satisfaction, and job involvement among Indian bank employees during the current crisis (Brooks et al., 2020), even more so as the well-being of employees has been impacted (Stephenson, 2020). As HRM interventions play an important role during change management (Shukla & Rizvi, 2009), there is a need for measures based on contemporary research such as this. Studies have evidenced that optimism and job satisfaction are important constructs that help employees remain on the job longer (Dhiman & Arora, 2018). Satisfied employees have a higher organizational commitment (Cherif, 2020), which leads to reduced employee turnover (Kurniawaty et al., 2019). Employees with higher job satisfaction have a positive attitude toward work that ultimately enhances bank performance (Gulati, 2015; Sufian et al., 2017). Encouraging employees and developing their positive attitudes is thus a critical responsibility of managers. Past studies have evidenced that optimistic employees are more productive (Chhajer et al., 2018), are more satisfied with their jobs (Bouzari et al., 2020), and have high organizational commitment (Bhowmik & Sahai, 2018). It is thus important to examine the impact of optimism on job attitudes, such as job satisfaction and employee job involvement during disruptions.

According to Garcia et al. (2019), though many studies have been done on job satisfaction, the impact of job involvement on job satisfaction is under-researched. Studies on the relationship between optimism and job involvement are rare, and no evidence has been found in the context of the present crisis. The mediating role of job involvement between optimism and job satisfaction has also not been studied earlier in the Indian banking sector. This study aims to make a significant contribution by adding new knowledge and filling the gap in the existing literature by examining the relationship between the three aforementioned constructs.

4. Review of Literature and Hypothesis Generation

This study examines the relationship between job involvement, optimism, and job satisfaction. Optimism is the positive outcome expectations of the individual about a situation (Scheier & Carver, 1988). Seligman (1998) explained the concept of optimism as an attribution process in which the individual explains the positive and negative events that have occurred. The optimist has a tendency to attribute negative events to external, unstable, and specific causes and positive events to internal, stable, and global causes (Fournier et al., 1999). Optimism creates a positive force in the organization as optimistic employees demonstrate high morale and motivation and strive to attain difficult job-related targets (Bhowmik & Sahai, 2018). According to Lodahl and Kejner (1965), job involvement is " the degree to which a person is psychologically identified with his/her work or the importance of work in his/her total self-image." Employees' attitude towards work and job has a considerable impact on the growth of the organizations. Job involvement explains how sincerely employees are absorbed in the culture of the organization (Joiner & Bakalis, 2006). Durkheim, an eminent sociologist, was the first to introduce the concept of job involvement in 1893. But the concept gained recognition from the study of Lodahl and Kejner (1965). Spector (1997) defined job satisfaction as employees' favorable perception about their jobs. It defines the degree to which employees like or dislike their job. It describes how much an employee is contented with his job. A favorable opinion of an employee toward a job represents job satisfaction, and an unfavorable opinion represents job dissatisfaction (Armstrong, 2006). Job satisfaction is an attitude that is linked with employee behavior in the organization (Davis et al., 1985). Job satisfaction is related to employee motivation (Ostroff, 1992), employee absenteeism (Hackett & Guion, 1985), and burnout (Penn et al., 1988). Organizations with satisfied employees are more effective and perform better (Robbins, 2003).

4.1 Optimism and Job Satisfaction

Many researchers have empirically studied the association between job satisfaction and employee optimism. Bouzari

and Karatepe (2020) investigated the mediating effect of optimism on the relationship between work-life balance, job satisfaction, and creative performance. Results showed that work-life balance was positively related to employee optimism, and optimism further increased employee satisfaction and creative performance. Zhang et al. (2020) studied the relationship between optimism, self-evaluation, positive coping strategies, and job satisfaction. The result showed that the impact of optimism on employee job satisfaction was mediated by self-evaluation and positive coping strategies. The study of Bibi and Karim (2017) found that optimism positively and significantly impacted job satisfaction. Mishra et al. (2016) studied the impact of optimism on job satisfaction and employee performance and found that optimism positively impacted job satisfaction and employee performance. Sarwar and Hasan (2015) analyzed the relationship between self-efficacy, optimism, and job satisfaction and found that optimism positively impacted job satisfaction. Further, organizational commitment mediated the relationship between optimism and job satisfaction. In their study on hotel employees, Jung and Yoon (2015) found that optimism and hope were positively related to job satisfaction. Based on the literature studied, the following hypothesis was developed:

Hypothesis 1 (H1): *Optimism is positively related to job satisfaction.*

4.2 Optimism and Work-related Outcome

Many researchers have attempted to investigate the impact of optimism as an independent and mediating variable, on many work-related attitudes and outcomes. In the study of Paolillo et al. (2015), optimism mediated the relationship between organizational justice and commitment to change. Stander et al. (2015) analyzed the mediating effect of optimism and trust on the relationship between authentic leadership and work engagement. They found that optimism acted as a mediator between authentic leadership and the work engagement relationship. Chhajer et al. (2018) found that optimism significantly impacted job engagement. Further, job engagement acted as a mediator between optimism and performance relationships. Optimism impacted employee engagement, another important job-related attitude. Ugwu and Igbende (2017) found that employees' organizational citizenship behavior improved as emotional intelligence, optimism, and work centrality increased. Naeem et al. (2014) also found a positive impact of optimism subcultures on organizational citizenship behavior. Akhtar et al. (2013) found that optimism did not impact organizational commitment, whereas self-efficacy impacted organizational commitment, while Bhowmik and Sahai (2018) reported a positive relationship between optimism and organizational commitment. Desrumaux et al. (2015) studied the impact of job demand, optimism, and job climate on distress and well-being; the mediating effect of autonomy, competence, and relatedness was also analyzed. Researchers found that optimism significantly impacted the distress and well-being of employees. Competence partially mediated the relationship between optimism, distress, and well-being. Though studies on the impact of optimism on job involvement are rare, based on literature on optimism and work-related outcomes, it was hypothesized that:

Hypothesis 2 (H2): *Optimism is positively associated with job involvement.*

4.3 Job Satisfaction and Job Involvement

Earlier research has evidenced the positive influence on job satisfaction by job involvement. In a study on millennial workers, Garcia et al. (2019) reported a positive association between job involvement and employee job satisfaction. Abdallah et al. (2017) found a positive correlation between job involvement and job satisfaction. Pacheco and Webber (2016) stated that involvement is an important factor that helped increase employee job satisfaction. According to them, employees displaying a high degree of job involvement are more satisfied with their jobs than employees with low job involvement. Nwibere (2014) concluded that highly involved employees were more satisfied with their jobs and showed high organizational commitment. In a study by Chi et al. (2018), job involvement was found to moderate the impact of organizational commitment on job satisfaction. In their study on correctional staff, Lambert et al. (2011) found that job involvement was positively correlated with organizational commitment and employee job satisfaction. Also, employees with more job involvement were found to be less absent and less likely to leave the organization. In their study on bank employees, Gilkar and Darzi (2012) found that highly involved employees showed increased job satisfaction and vice versa. It was hence hypothesized that:

Hypothesis 3 (H3): *Job involvement is positively associated with job satisfaction.*

4.4 Job Involvement as a mediator

Past researchers have examined the mediating effect of job involvement and found that it acted as an intervening

variable between the constructs of their studies. Culibrk et al. (2018) studied the impact of job satisfaction on organizational commitment and the mediating effect of job involvement. They found that job involvement mediated the impact of job satisfaction on organizational commitment. According to Jeong et al. (2019), job involvement acted as a partial mediator between grit and employee turnover relationship. Further, grit positively impacted job involvement and reduced turnover intention. Mikkelsen and Olsen (2018) found a significant mediating effect of job involvement and learning demand on the impact of change-oriented leadership on job performance and job satisfaction. Job involvement was significantly related to job performance and satisfaction. Hermawati and Mas (2017) found that job involvement fully mediated the relationship between transglobal leadership and employee performance. Lassk and Shepherd (2017) found a partial mediation effect of self-efficacy and job involvement on the association between emotional intelligence and the creativity of leaders. Ghassemi et al. (2015) found that job involvement played a mediating role between the good character of the manager and affective commitment. According to Kappagoda (2013), job involvement acted as a mediator between job performance and organizational commitment relationships. Chen and Chiu (2009) studied the mediating effect of employee job involvement on job characteristics and OCB relationship. They reported that out of the five job characteristics dimensions, only task identity, autonomy, and task significance positively impacted OCB through the job involvement mediation effect. It was thus hypothesized that:

Hypothesis 4 (H4): *Job involvement mediates the relationship between optimism and job satisfaction.*

4.5 Conceptual Model

The proposed research model with hypothesized linkages is presented in Figure 1. This research was aimed at i) studying the impact of employee optimism on job satisfaction and ii) examining the mediating role of job involvement.

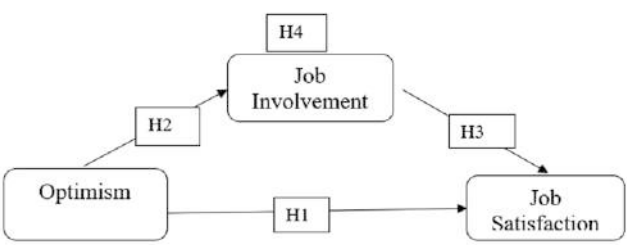

Figure 1. Conceptual Model

5. Method

5.1 Participants, Procedures and Measures

A survey was conducted among bank employees in Delhi National Capital Region. It was a cross-sectional study, and a convenient sampling method was adopted to collect data. The authors collected data online because the current pandemic mandates limited face-to-face interaction. Data was collected from middle and junior-level staff. The participants were informed that the study was in the context of the Coronavirus pandemic-induced crisis. The authors emailed a questionnaire to 300 bank employees and received 264 responses. Two hundred thirty-five of the filled forms were valid and considered for analysis, while 29 were rejected due to missing values. The sample size considered for the study was 235, which was above the threshold of 200 (Hair et al., 2013). Primary data was collected using a structured questionnaire comprising respondents' demographic profile and opinions about optimism, job satisfaction, and job involvement. A six-item life orientation test-revised was used to measure employees' opinion about optimism. It is a five-point scale developed by Scheier et al. (1994). '1' indicates 'strongly disagree' and '5' indicates 'strongly agree.' Items of the optimism scale include 'In uncertain times, I usually expect the best.' A job diagnostic survey developed by Hackman and Oldham (1975) was adapted to measure job satisfaction. Statements of job satisfaction scale include 'Generally speaking. I am very satisfied with this job.' A six-item short version scale developed by Lodahl and Kejner (1965) was used to measure job involvement. It is a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Statements on the job involvement scale include 'I am really a perfectionist about my job.'

The structural equation modeling (SEM) approach was used for analysis. SEM can be done using two widely adopted approaches, covariance-based SEM (CB- SEM) and partial least square SEM (PLS-SEM). According to Wong (2013), PLS-SEM is the most suitable approach when the sample size is not too large. The main advantage of using SMART PLS is that 100 responses are enough to perform the analysis and achieve the results (Hair et al., 2017). The sample size for this study was 235, which was neither too small nor too large; hence, SMART PLS software was used. SPSS version 24 was used for descriptive statistical analysis.

5.2 Data Analysis and Results

Preliminary analysis was done using exploratory factor analysis. The results of confirmatory factor analysis and path

analysis have been presented in this section. Respondents' participation was voluntary; they were assured that their responses would be kept confidential and only used for this study. Table 1 shows the demographic profile of the respondents. 40.9 percent of respondents were female, and 59.1 percent were male. The age of respondents was between 25 to 45 years. 44.6 percent of respondents were graduates, while 55.4 percent were postgraduates. 59.6 percent of respondents were married, and 40.4 were unmarried. 58.7 percent of the respondents were from the junior level and 41.3 from the middle level.

5.3 Normality and Common Method Bias (CMB)

The authors took several measures to address CMB. Filler items were introduced to reduce the respondent's perception of establishing a connection between the responses (Newman et al., 2016). In an attempt to reduce social desirability effects, the questionnaire stated that the information would be kept confidential and that the respondents should answer questions with utmost care and honesty. Harman's one-factor test- the most widely used method- was performed to confirm CMB. For this, all the items of all the constructs were taken together as a single factor (the extracted value should not be greater than or equal to 50%, Podsakoff et al., 2003). The EFA provided a value of 46.28% as the first extracted factor; hence, it was concluded that CMB was not a problem in this study. Skewness and kurtosis were assessed to check the normality of the data (Table 2). The values of skewness and kurtosis were above the threshold of ± 2 and ± 3, respectively (Bollen, 1989).

Table 1. Demographic Profile of Respondents

Demographic Factor	Group	Number	Percentage
Gender	Male	139	59.1
	Female	96	40.9
Age	Less than 35	140	59.5
	More than 35	95	40.4
Education	Graduate	105	44.6
	Post Graduation	130	55.4
Marital Status	Married	140	59.6
	Unmarried	95	40.4
Managerial Level	Middle Level	97	41.3
	Junior Level	138	58.7

Table 2. Skewness and Kurtosis for Normality Assumption

Construct	N	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
Optimism	235	-.388	.159	-1.054	.316
Job Satisfaction	235	-.147	.159	-.703	.316
Job Involvement	235	.221	.159	-1.091	.316

Table 3. Reliability Analysis and Exploratory Factor Analysis

Construct	Items	Source	Cronbach Alpha	Factor Loading
Optimism	OPT1: In uncertain times, I usually expect the best.	Scheier et al. (1994)	0.88	0.779
	OPT2: If something can go wrong for me, it will.			0.800
	OPT3: I'm always optimistic about my future.			0.732
	OPT4: I hardly ever expect things to go my way.			0.750
	OPT5: I rarely count on good things happening to me			0.762
	OPT6: Overall, I expect more good things to happen to me than bad.			0.760
Job Satisfaction	JS1: Generally speaking, I am very satisfied with this job.	Hackman and Oldham (1975)	0.83	0.838
	JS2: My opinion of myself goes up when I do this job well.			0.715
	JS3: The work I do on this job is very meaningful to me.			0.782
Job Involvement	JI1: The major satisfaction in my life comes from my job.	Lodahl and Kejner (1965)	0.93	0.813
	JI2: The most important things that happen to me involve my work.			0.824
	JI3: Most things in life are more important than work.			0.762
	JI4: I am really a perfectionist about my work.			0.838
	JI5: I am very much involved personally in my work.			0.811
	JI6: I live, eat and breathe my job.			0.835

As seen in Table 3, all survey instruments had Cronbach's alpha value of more than 0.7 (Nunnaly, 1978) indicating internal consistency. A preliminary analysis was also done through exploratory factor analysis (EFA). Three distinct factors are very well-identified through EFA, indicating that all the items loaded on their respective construct with a variance of 71.38. Kaiser-Meyer-Olkin's measure is used to check sampling adequacy. The value of KMO is 0.93, which is above the acceptable level (Tabachnick & Fidell, 2001). According to Hair et al. (2017), Bartlett's test was used to identify any redundancy between the variables. It was also significant (0.000 < 0.05, chi square= 2269.98 with a degree of freedom of 105).

The structural equation modeling (SEM) approach was adopted to analyze the data. SEM consists of the measurement model and the structural model. The first stage of analysis included a confirmatory factor analysis to check the validity and reliability of the instruments used. The second stage included a structural model consisting of path analysis.

PLS-SEM (Partial Least Square SEM) was used to validate the measurement model and for path modeling. The validity and reliability of the instruments used for the study were confirmed through confirmatory factor analysis (also called measurement model testing). Table 4 shows the results of reliability and convergent validity. According to Hair et al. (2017), the value of composite reliability should be more than 0.7 to establish internal consistency. The results show that the value for all three constructs was more than 0.7. Convergent validity represents intra-item correlation belonging to the same construct. According to Hair et al. (2017), indicator reliability, outer loadings, and AVE should be assessed to check convergent validity. Indicator reliability is the square of an indicator's outer loading, and its value should be more than 0.5 (Hair et al., 2017). Our results show that the internal reliability of indicators was more than 0.5, which was above the acceptable limit. To establish convergent validity, the AVE value should be more than 0.5 (Fornell & Larcker, 1981). Our results showed that AVE values for job involvement (0.68), job satisfaction (0.62), and optimism (0.60) were above the acceptable limit. As seen in Table 3, the indicators' outer loading exceeded the threshold limit of 0.7 (Hair et al., 2017).

Table 4. Results of Convergent Validity

Construct	Indicators	Outer Loading	Indicator Reliability	Composite Reliability	Average Variance Extracted (AVE)
Optimism	OPT1	0.84	0.70		
	OPT2	0.73	0.53		
	OPT3	0.77	0.59		
	OPT4	0.76	0.57		
	OPT5	0.75	0.56		
	OPT6	0.78	0.60	0.88	0.60
Job Satisfaction	JS1	0.71	0.50		
	JS2	0.85	0.72		
	JS3	0.78	0.60	0.83	0.62
Job Involvement	JI1	0.79	0.62		
	JI2	0.78	0.60		
	JI3	0.92	0.84		
	JI4	0.77	0.59		
	JI5	0.81	0.65		
	JI6	0.87	0.75	0.93	0.68

Table 5. Fornell and Larcker Criterion (Discriminant Validity)

Constructs	Job Involvement	Job Satisfaction	Optimism
Job Involvement	**0.825**		
Job Satisfaction	0.567	**0.785**	
Optimism	0.57	0.702	**0.775**

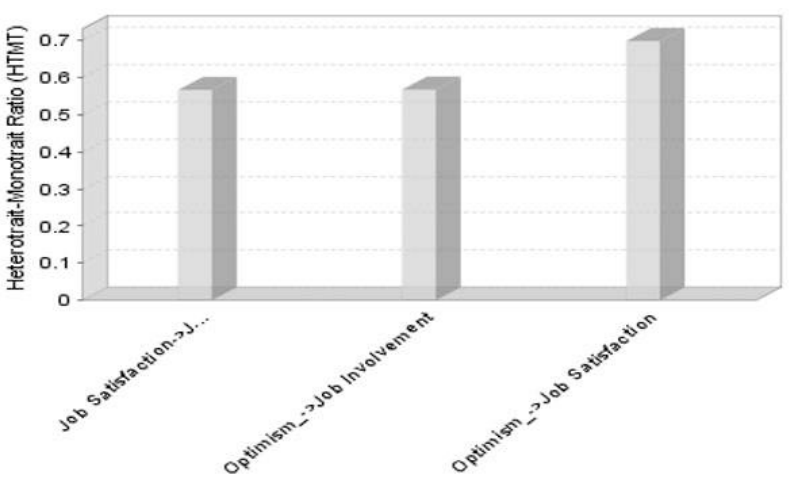

Figure 2. Heterotrait--Monotrait (HTMT) (Discriminant Validity)

Discriminant Validity represents the extent to which one construct varies from other constructs. To establish discriminant validity, the value of the square root of AVE must be more than the correlation between the constructs (Fornell & Larcker, 1981). As seen in Table 5, the square root of AVE, as represented by the diagonal value, was more than the correlation value between the constructs. Discriminant validity was also assessed using the heterotrait-monotrait ratio (HTMT). The value of HTMT should be less than 0.85 (Kline, 2011) for the establishment of discriminant validity. Figure 2 shows that for the constructs in this study, the value was less than 0.85.

5.4 Structural Modeling

Before doing path analysis, model fit was checked. The model was fit for our data set. SRMR (Standardized Root Mean Square Residual) value for our model was 0.04, which is below 0.08 (Hu & Bentler, 1999). The normed fit index (NFI) for our model was 0.91, which is above the threshold limit of 0.9, as specified by Hair et al. (2010). Through the structural model, researchers tested the study hypotheses and assessed the structural model by examining the path coefficient, t-value, and p-value.

Mediation analysis was performed to test hypothesis 4. Mediation helps identify the independent variable's indirect effect on the dependent variable (MacKinnon, 2008). This was done through a mediating variable, also called the intervening variable. In this study, the mediating variable was job involvement. To identify the indirect effect of job involvement and its significance, the authors performed bootstrapping using SMART PLS. Bootstrapping is considered a robust technique and is thus preferred for mediation analysis (William & Mackinnon, 2008). Bootstrapping was done with a 2000 run for 235 cases to obtain the path coefficient, t-value, and p-value.

Table 6. Result of Path Analysis

Hypothesis		Path Coefficient	T Statistics	P Values	Hypothesis Status
Direct Path					
HI	Optimism → Job Satisfaction	0.56	8.03	0.000 *	Supported
H2	Optimism → Job Involvement	0.57	9.47	0.000*	Supported
H3	Job Involvement → Job Satisfaction	0.25	3.47	0.001*	Supported
Indirect Path					
H4	Optimism → Job Involvement → Job Satisfaction	0.14	3.43	0.001*	Supported

*= *significant at a 1 percent significance level*

Note: T value more than 2.58 (significance level 1%).

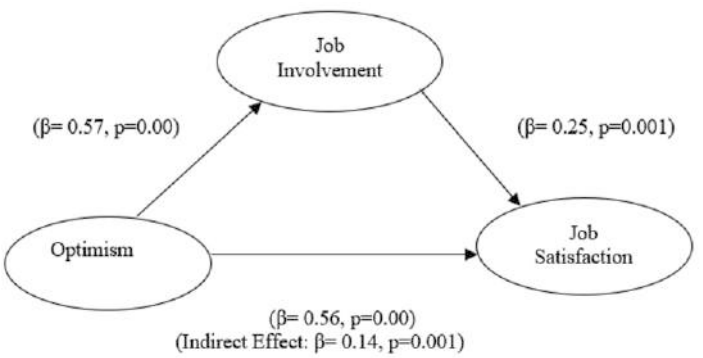

Figure 3. Path Analysis Results

The results of the analysis demonstrating the relationship between optimism and job satisfaction, optimism and job involvement; job involvement and job satisfaction; mediating effect of job involvement is presented below:

Hypothesis 1:
From Table 6 and Figure 3, we can interpret that optimism positively and significantly impacts employee job satisfaction (β= 0.56, t value= 8.03, p=0.00). So we support our hypothesis 1.

Hypothesis 2:
It is interpreted from the results presented in Table 6 and Figure 3 that optimism significantly impacts employee job involvement (β= 0.57, t value= 9.47, p=0.00). So we support our hypothesis 2.

Hypothesis 3:
Results, as presented in Table 6 and Figure 3, show that job involvement significantly and positively impacts employee job satisfaction (β= 0.25, t value=3.47, p=0.001). Our hypothesis 3 is supported.

Hypothesis 4:
From Table 6 and Figure 3, we can interpret that optimism indirectly impacts job satisfaction through our intervening variable (job involvement). Thus, our hypothesis 4 that job involvement mediates the impact of optimism on job satisfaction is supported (β= 0.14, t value=3.43, p=0.001).

6. Discussion

Banks have to deal with major changes in the external environment, and while employees adapt themselves to the changes, they also experience high stress. A positive attitude keeps them going and motivates them to complete tasks and meet desired organizational requirements. Optimism is critical for coping with any crisis; it is a positive construct that helps solve many organizational problems. When situations are not favorable, optimism makes employees persevere as they strive to overcome unfavorable situations (Gallagher et al., 2019). It is thus essential to analyze the impact of this powerful construct on job-related outcomes. The authors presented a conceptual model (Figure1) explaining the relationship between optimism, job satisfaction, and employee job involvement which was subsequently tested. Data were collected from employees of banks who differed based on age, gender, marital status, managerial level, and education. The validity and reliability of the instruments were assessed using EFA and CFA. All the indices used to measure validity and reliability, such as Cronbach's alpha, composite reliability, loadings, AVE, and HTMT, were within the acceptable range. The results of this study supported the first hypothesis that employees with an optimistic approach toward life are more satisfied with their jobs. A positive approach may lead to high morale, thus motivating them to give their best in order to attain job targets (Bhowmik & Sahai, 2018). Job satisfaction is a feeling experienced in terms of cherishing the job and having a positive job-related opinion (Locke, 1976). This finding highlights the role of optimism in enhancing employees' satisfaction with their job. Previous research has evidenced that optimism positively impacted employee job satisfaction (Zhang et al., 2020; Mishra et al., 2016; Sarwar & Hasan, 2015; Youssef & Luthans, 2007).

Job involvement is a psychological state displayed by employees who are contented with their job. Optimistic employees view their job positively, take the initiatives to meet job targets, and show more job engagement (Chhajer et al., 2018). Optimism thus helps to increase the involvement of the employees in their job, as evidenced in this study. The results of the study support the second hypothesis that optimism positively impacts job involvement. This finding made the authors conclude that happy and positive employees show more involvement in their job than pessimistic employees. According to Doobree (2009), employees with high job involvement are always preferred by managers as they are considered to be good team members. This is because highly job-involved employees show high satisfaction in their jobs (Driscoll & Randall, 1999). When looking at the impact of job involvement on employee job satisfaction, the results support that job involvement significantly and positively impacts employee job satisfaction. When employees are involved in their jobs, they consider their job as a vital aspect of their life which in turn gives them a sense of fulfillment; thus, they experience increased job satisfaction. Previous research by Garcia et al. (2019), Pacheco and Webber (2016), Lambert et al. (2011), and Brown and Leigh (1996) have also presented similar results.

The results of bootstrapping supported the fourth hypothesis. When job involvement was introduced as a mediating variable, the relationship between optimism and job satisfaction was found to be statistically significant (β= 0.14, t value=3.43, p=0.001). The findings indicated that optimism, directly as well indirectly, through job involvement, impacted job satisfaction significantly. Thus, there exists a partial mediation on the relationship between

optimism and employee job satisfaction through job involvement. Management should not only focus on enhancing optimism in employees but also design and implement interventions to increase employee job involvement. Employees who psychologically identify with their job perform better and are highly motivated.

6.1 Implications

This study is relevant to society, researchers, management practitioners, and individual employees. The well-being of people is part of the Sustainable Development Goals (SDG) agenda 2030 laid down by the United Nations (2015), specifically SDG 3. Human resource practices that support employee well-being by fostering positive attitudes such as optimism, job satisfaction, and job involvement will help in the achievement of a healthy society. Studies on the relationships examined in this study are rare, and these associations need to be examined further in future research. As this study was conducted in the Delhi National Capital Region (India) among bank employees, research may be carried out in different sectoral and cultural settings.

This study is useful for managers, HR professionals, and the banking sector as a whole. Our study provides empirical support that optimism increases job satisfaction and involvement. Therefore, taking the sufficient initiative to increase the optimism in employees so as to have a positive impact on job-related attitudes is an important task of a manager. According to Seligman (1998), optimism is a trait that can be learned. Optimism training can thus be provided to increase the motivation of employees, develop positive behavior, and make them feel happy with most aspects of their lives. An optimistic person can transmit positivity to a pessimist; such is the power of this attitude. Managers can identify optimistic employees in their organization and involve them in building positivity in less motivated employees. Efforts may be put into appreciating employees for their suggestions or achievements to reinforce positive behavior. Communication is even more critical in the pandemic situation as there is a feeling of social isolation. Open communication should be encouraged so that employees can share their apprehensions with their managers. Employees feel secure and positive in an environment where communication is encouraged. Team members should be encouraged to participate regularly in guided conversations among themselves. Managers may assign pairs for scheduled video chats where they may discuss positive experiences, challenges, how they coped, and what they learned during the crises. Employees must be reminded that things will improve and should be encouraged to envision coming out stronger from the present crisis.

This study has evidenced that job involvement positively impacts job satisfaction; thus, to foster job involvement, practitioners need to enhance employees' perception of psychological safety and meaningfulness, even more so during crises. To increase employee job involvement, managers should encourage participation from employees as it will create a feeling of belongingness (Maslow, 1943). Due to participative decision-making, organizations would benefit from the 'perceived motivational effects of increased employee involvement' (Latham et al., 1994). A supportive team-based management style should be followed, and rewards and recognition that are commensurate with employees' contribution should be given. Though physical gatherings have been discouraged during the present pandemic, however, suitable recreational activities that are in line with social distancing norms may be organized by organizations. Such activities not only increase cohesiveness but also increase employee affiliation with the organization. Online team-building forums should be introduced to compensate for the lack of real team-building events. Employees appreciate freedom and autonomy (Chen & Chiu, 2009), and lack of it leads to reduced motivation and involvement; work may thus be redesigned in order to provide autonomy to employees. Training should be ongoing and not limited to initial training or induction only.

Past research has evidenced that job satisfaction among employees in the banking sector enhanced their performance (Davis, 1992), increased organizational commitment (Cherif, 2020), and reduced employee turnover (Kurniawaty et al., 2019). Since employees are concerned about career growth and derive satisfaction from jobs that provide career progression, bank managers should provide opportunities for advancement and career counseling in order to increase job satisfaction. In any organization, support from immediate managers and co-workers plays an important role in creating a positive job attitude and leads to increased employee job satisfaction (Charoensukmongkol & Phungsoonthorn, 2016). Bank managers should work on developing their interpersonal relationships with the employees, even more so during crises. This study suggests that during times of disruptions, measures and interventions to build positive behavior in the employee should be initiated and reinforced by HR management. A conducive work environment where employees are encouraged results in

positive outcomes in the long run. Individual employees need to cultivate an optimistic attitude to be able to cope with environmental stressors. The findings of this study indicate the need for interventions that will help develop optimism and enhance job involvement and satisfaction that will ultimately create resilient organizations.

7. Conclusion

Optimism can be a catalyst in leading an individual to a desired outcome. Optimistic employees always look for solutions to difficult situations and generally feel happy about their lives. This study has evidenced that optimistic employees are more satisfied (β= 0.56) and involved in their job (β= 0.57). The involvement of the employees in their jobs reflects that employees are confident about their skills and take on new tasks with enthusiasm. Highly involved employees show increased morale and more commitment and do not intend to leave the organization. The results show that as the employee's job involvement increases, his job satisfaction also increases. Hence, increased job satisfaction and involvement are essential for better organizational performance (Abdallah et al., 2017; Srivastava, 2013; Fossey & Harvey, 2010). This study has evidenced the role of optimism in enhancing job satisfaction and job involvement during disruptions in the external environment. It has extended the literature on job satisfaction, optimism, and job involvement. As organizations continue to face radical changes in the external environment, practices based on contemporary research will help practitioners manage organizational change better.

7.1 Limitations of the Study

Although all the attempts were made to make the study empirically and theoretically sound. But still, researchers faced a few limitations. Considering the financial resource and time factor in mind, the study's sample size was not very large. India is a very vast country with a huge population. So, the authors were not able to cover all geographical areas.

7.2 Scope for Future Research

Future research can be extended related to optimism by taking other job-related attitudes such as organizational commitment and work engagement. There are many constructs that can be taken as mediators as well as moderators to study the relationship between the constructs taken in this research, such as motivation, work engagement, etc. Further, studies can be done in differing cultural or organizational settings.

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Does Google Trend Affect Cryptocurrency? An Application of Panel Data Approach

Dr. Ruchita Verma
Assistant Professor
Department of Financial Administration
Central University of Punjab, India
Email: ruchitaverma@cup.edu.in

Dr. Shiney Sam (Corresponding Author)
Assistant Professor
School of Business and Management
Christ (Deemed-to-be-University)
Bangalore, India
Email: sam.shiney13@gmail.com

Dr. Dhanraj Sharma
Assistant Professor
Department of Financial Administration
Central University of Punjab
Bhatinda, India – 151001
Email: dhanrajsharma@cup.edu.in

Abstract

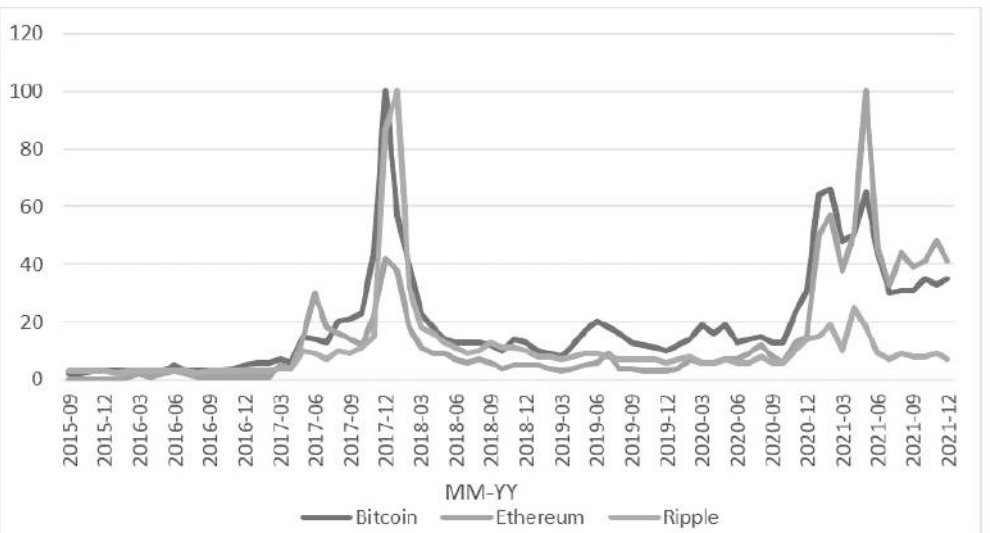
Cryptocurrency has emerged globally as the most profitable investment asset of the decade. The media exposure and reportage on cryptocurrency are frequent, and it seems that prices of cryptocurrencies could only rise higher. In today's digital world, any individual's first go-to information-seeking platform is the Google search engine. Thus, it is imperative to understand how Google's search trend affects an investable asset and its market as a whole. Researchers have explored varied sentiment measurement proxies such as news coverage, Facebook and Twitter posts, and, most importantly, Google searches. Numerous research studies show increasing interest in Google search volume and its predictive ability to understand investment returns and economic outcomes. In a behavioural finance context, the present research uses Pearson's correlation and panel regression to examine the association of cryptocurrency returns (Bitcoin, Ethereum, and Ripple) and their varied characteristics with the Google search intensity. The study's findings reveal that investors searching for information on Cryptocurrency online drive the price increase in cryptocurrency and push the trading volume up and increase the volatility of the cryptocurrency returns. Furthermore, investor sentiment has a statistically significant impact on cryptocurrencies' trading volume and weekly volatility in periods of high or greedy investor sentiment. The findings imply that the 'price pressure hypothesis' given by Barber and Odean (2008) as a stock market research finding is also present in the cryptocurrency market.

Keywords: *Google trends, Cryptocurrency, Investor attention, Volatility, Trading volume.*

1. Introduction

Since 2004, Google insights have provided access to the relative internet search traffic globally or in a specific country for each query word submitted to Google. We all know that an investor seeking information about something inputs related terms and keywords in Google or any search engine. And by far, Google Search is the most sought-after search engine on the web. In order to measure the volume of searches on specific terms on the Google search engine, Google has launched Google Trends. In recent years, Google Trends data has been widely used as a research tool in several studies as a proxy or measure for adoption rate, interest, or attention by investors/customers in the stock market or cryptocurrency market, including research on spreading epidemics and diseases.

In the recent past decade, cryptocurrency seems like a profitable investment asset. The media exposure and reportage were plenty, and it seemed that prices could only rise higher, as Bitcoin prices had already risen by almost 1700 percent from January to mid-December 2017 (Bleher & Dimplf, 2019). As per the Bloomberg Business report on January 2021, Bitcoin has emerged as the decade's best-performing asset, with more than 9,000,000% profits. The untapped growth in cryptocurrency attracts the attention of academicians, policymakers, government, and investors alike. Consequently, investment prediction of returns in cryptocurrency markets has been one of the most researched finance topics. Researchers have found many factors affecting the price movement and returns in cryptocurrency. The primary factor found is social media sentiments. Interestingly, Kristoufek (2013) evidenced the asymmetric effect of rising interest in the currency while it is above and below its trend value. Many researchers have explored varied sentiment measurement proxies such as news coverage, Facebook and Twitter posts, and, most importantly, Google search (Kristoufek, 2013; Yelowitz & Mathew, 2015; Kim et al., 2016; Lamon et al., 2017; Shen et al., 2018; Dastgir et al., 2019; Güler, 2021). Google Trends was shown to be linked with Bitcoin prices, indicating that search engines can impact portfolio diversification. Hence, Figure 1 below shows the trend of Google search volume for the terms "*Bitcoin*," "*Ethereum*," and "*Ripple*" worldwide.



Source: Authors' Calculation

Figure 1. Google Search Index of the Sample Cryptocurrencies

It can be observed in Graph 1 that the trend for all three search terms is similar, i.e., the search volume increases around December 2017, then steadily declines and continues in a stagnant trend for some time until later, increases in March 2021, and further slows down. The rise in search volume during December 2017 is attributed to the price bubble, which led to a significant crash in Bitcoin prices and other cryptocurrencies. And since December 2017, cryptocurrency search traffic on the Google search engine has steadily declined. Later, a steep rise in search traffic is observed because of growing cases of COVID-19 worldwide and its impact on the cryptocurrency market. On the happening of certain events, such as the cryptocurrency crash, the introduction of new altcoins in the cryptocurrency market, or the acceptance or banning of cryptocurrencies by varied economies around the world, creates a need for information by stakeholders. Retail investors seek online information through various search engines regarding such events. If these investors act on their discoveries, it's possible that a price movement may result.

In a behavioural finance context, the present research uses Pearson's correlation and panel regression to examine the association of cryptocurrency returns (Bitcoin, Ethereum, and Ripple) and their varied characteristics with the Google search intensity. The findings reveal that investors searching for information on Cryptocurrency online drive the price increase in cryptocurrency, pushing the trading volume up and increasing the volatility of the cryptocurrency returns. Furthermore, investor sentiment proxied using the Crypto fear and greed index is seen to have a statistically significant impact on cryptocurrencies' trading volume and volatility in periods of high or greedy investor sentiment. The findings imply the 'price pressure hypothesis' given by Barber and Odean (2008)

The paper is structured as follows: Section I briefly reviews relevant literature related to the study; Section II briefs about the data collected and methodology used; Section III discusses empirical results and their analysis and interpretation; Section IV offers the concluding remarks.

2.Previous Studies

Numerous research studies show increasing interest in Google search volume, assuming that it has the predictive ability to understand the impact of customer/investor interest and attention on various economic outcomes. In recent years, Google Trends data has been widely used as a research tool in several studies as a proxy or measure for adoption rate, interest, or attention by investors/customers in the stock market, including research on the spreading of epidemics and diseases (Pelat et al., 2009; Joseph et al., 2011; Bijl et al., 2016; Chen, 2017; Adachi et al., 2017; Kim et al., 2018). Presently, cryptocurrency is a new and emerging financial market worldwide. Though this investment asset is just a decade old, literature showcasing price movement, returns analysis, change in trade volumes, factors, and other properties of cryptocurrency, like its developed counterparts (stock and commodities), is now growing.

Among many factors affecting cryptocurrency price movement and returns, the primary one is social media sentiments. Many researchers have explored varied sentiment measurement proxies such as news coverage, Facebook and Twitter posts, and, most importantly, Google Search. Kristoufek (2013) is the first to research in such a direction with regard to cryptocurrency and found that search queries on Google and Wikipedia and the price of Bitcoin are connected asymmetrically. Yelowitz and Mathew (2015) looked into the characteristics of varied cryptocurrency clientele using Google search data. They narrowed down four types of users: computer programming enthusiasts, speculative investors, libertarians, and criminals. Matta et al. (2015) compared Google Trends data and the volume of Tweets that trends the price and found significant cross-correlation between Google Trends data and Bitcoin price. However, Kim et al. (2016) found that user replies to online opinions significantly impact cryptocurrency price fluctuations. It was noted that cryptocurrency's price is significantly associated with the users' replies than their posts. Lamon et al. (2017) analyzed the ability of news and social media to predict price fluctuation. They found that the increase and decrease in the price of the sample cryptocurrency are over 67 days. In 2018, Sovbetov found that users' attractiveness towards cryptocurrency affected the price of cryptocurrency and remarked that it is a slow factor affecting the market. Urquhart (2018) found that Bitcoins' realized volatility and volume significantly influence the Google search volume the next day and later; Shen et al. (2019) also found that the number of tweets is a significant driving force that affects the next day's trading volume and realized volatility.

Further, Smuts (2019) analyzed Google Trends and the Telegram messaging platform using a neural network to determine the cryptocurrency price behaviour and found that the Telegram group is a better indicator of Bitcoin price fluctuation than Google Trends. Using the dual-process diffusion model, Philippas et al. (2019) found that Google

and Twitter drive information and justify sentimental appetite. Dastgir et al. (2019) also found a bi-directional relationship between Google Trends and Bitcoin returns using the Copula-based Granger Causality test. Also, Aslandis et al. (2021) report significant two-tailed dependence between cryptocurrency returns and Google Trends. Finally, Güler (2021) investigates investor sentiment and Bitcoin returns using the VAR model and attributes the positive impact of investor sentiment to the FOMO behaviour of the investors.

Based on the literature surveyed above, it can be noted that Bitcoin and Google Trends are studied using varied methodologies such as VAR, GARCH, Granger Causality, Neural Networks, and many more. Also, one or two more cryptocurrencies are studied, which are not representative of the whole cryptocurrency market. This research gap paved the way for the present study. Thus, the paper aims to contribute to the existing literature by examining the association of investor attention proxied through Google Search Intensity (GSI) on the cryptocurrency market (Bitcoin, Ethereum, Ripple) and its characteristics, i.e., detrended trading volume (TV) and volatility (Vol) providing much more extensive evidence. Further, investor sentiment is also considered using the Crypto fear and greed index as Google Search Intensity (GSI) helps measure the investor interest or attention; on the other hand, it lacks to absorb the sentiment of the investor behind their Google search.

3. Research Framework

The present research study intends to examine the association between Google Search and cryptocurrency performance. Data of three cryptocurrencies with the highest market capitalization and most extended data availability, Bitcoin, Ethereum, and Ripple, is obtained from coinmarketcap.com from September 2015 to December 2021. Furthermore, the data for Google search is used and obtained from Google Trends from September 2015 to December 2021 in weekly form. The 204 weekly data collected is the final sample which is panel data for three cryptocurrencies.

3.1 Cryptocurrency Returns

For the study, weekly data is obtained for each sample cryptocurrency (Bitcoin, Ethereum, and Ripple). The excess returns for each cryptocurrency computation are expressed in Equation 1. It is calculated as follows:

$$R_{i,t} = ln(P)_t - ln(P)_{t-1} \quad (1)$$

Where P_t is the opening price of the cryptocurrency i at the time in week t.

As per Bijl et al. (2016), the opening price is used to compute the excess returns as the week's opening price will give the advantage of the first information of the week to act upon based on the data released by Google Trends every Sunday. This rationale is followed in the present study to calculate the weekly opening price's weekly returns instead of the closing price.

3.2 Proxy for Investor attention: Google Search Intensity

Since 2004, Google Insights have provided access to the relative internet search traffic globally or in a specific country for each query word submitted to Google. We all are well aware that an investor seeking information about something inputs related terms and keywords in Google or any search engine. And by far, Google Search is the most sought search engine on the web. In recent years, Google Trends data has been widely used as a research tool in several studies as a proxy or measure for adoption rate, interest, or attention by investors/customers in the stock market or cryptocurrency market, including research on the spreading of epidemics and diseases (Pelat et al., 2009; Joseph et al., 2011; Kristoufek, 2013; Bijl et al., 2016; Chen, 2017; Adachi et al., 2017; Kim et al., 2018; Nasir, 2019; Güler, 2021). Thus, for the present study to measure the impact of investor attention on the performance of Cryptocurrency, Google search volume is obtained for the search terms “Bitcoin," “Ethereum," and “Ripple” worldwide, and not to a specific region. The Google Search volume data is collected from September 2015 to December 2021 and is standardized to get Google Search Intensity. Google Search Intensity is calculated following Preis et al. (2013) as in Equation 2.

$$GSI_t = \frac{GSV_t - \frac{1}{n}\sum_{i=1}^{n} GSV_i}{\sigma_{GSV}} \quad (2)$$

The standard deviation of the sample GSV data is scaled after the mean of the sample GSV data is subtracted from each observation for each coin.

3.3 Volatility

The volatility of the sample cryptocurrency is included in the study to understand the performance of the cryptocurrency market. Volatility for the sample is calculated following Poon and Granger (2003) and other research studies (Bijl,

2016; Aziz & Ansari, 2021). The weekly volatility is computed from the daily returns as in Equation 3. Here, n corresponds to the number of trading days in the respective week, and r_d is the daily returns of the sample cryptocurrency.

$$\sigma_{w,t} = \sqrt{\sum_{t=1}^{n} r_d^2} \quad (3)$$

3.4 Trading Volume

To understand the effect of investor attention on cryptocurrency performance in our study, we use trading volume, denoted by TV_t. By removing the lagged 12-week rolling average of the log of the trading volume, trading volume is determined according to Campbell et al. (1993) in Equation 4. Previous studies have found a connection between trading volume and investor attention.

$$TV_t = log(Volume_t) - \frac{1}{12}\sum_{i=t-11}^{t} log(volume)_t \quad (4)$$

4. Results and Discussions

4.1 Relation between Cryptocurrency Returns and Investor Attention

The present study investigates the association between Google Search Intensity (proxy variable for investor attention), cryptocurrency excess returns, cryptocurrency trading volume, and cryptocurrency volatility. It is more likely that naïve investors, in order to search and get clear information about cryptocurrencies, will input terms into search engines on the web. Moreover, Google is more likely everyone's go-to search engine. Hence, Google search volume is used as the measure of investor attention. We employ Pearson's correlation coefficient to find if there is any relationship between the interacting variables.

Table 1 shows the correlation coefficients between the variables. The results reveal that Google Search Intensity is positively and significantly (at a one percent level) correlated to the excess cryptocurrency returns and the cryptocurrency trading volumes. However, GSI is significantly negatively correlated to the volatility in cryptocurrency. Furthermore, it is noted that excess returns are also positively related to trading volume and volatility. The findings indicate that Google Search is impacted by excess returns and trading volume of cryptocurrency and is inversely related to cryptocurrency volatility.

4.2 Effect of Investor Attention on Returns, Trading Volume and Volatility of Cryptocurrency.

To test the timing and sign of investor attention to cryptocurrency returns, its trading volume, and its weekly volatility, the panel regression is employed in the following form:

$$R_t = \beta + \left(\sum_{i=1}^{3} \theta_i L^i\right) R_t + \left(\sum_{i=1}^{3} \alpha_i L^i\right) GSI_t + \epsilon_t \quad (5)$$

$$TV_t = \beta + \left(\sum_{i=1}^{3} \theta_i L^i\right) TV_t + \left(\sum_{i=1}^{3} \alpha_i L^i\right) GSI_t + \epsilon_t \quad (6)$$

$$Vol_t = \beta + \left(\sum_{i=1}^{3} \theta_i L^i\right) Vol_t + \left(\sum_{i=1}^{3} \alpha_i L^i\right) GSI_t + \epsilon_t \quad (7)$$

Table 1. Correlation Matrix

	Returns	*GSI*	*TV*	*Volatility*
Returns	**1**			
GSI	0.122*	**1**		
TV	0.160*	0.191*	**1**	
Volatility	0.214*	-0.085*	0.125*	**1**

Source: Authors' Calculation
*Significance level: * - 1%, ** - 5%, *** - 10%*

The 1978 Hausman test gave a chi-square value of 6.78 with a p-value<0.05, rejecting the test's null hypothesis and suggesting a fixed-effect model as appropriate. Therefore, with a cross-section fixed effect, all regressions are calculated.

The dependent variable in Equations 5 to 7 is excess returns, trading volume, and weekly volatility, respectively. Each equation has GSI_t, lagged terms up to three lags of GSI, and three lags of the dependent variable as the explanatory variable. Through these equations, the impact of GSI on future cryptocurrency returns and other characteristics is probed into. The cryptocurrency characteristics are its trading volume (TV) and volatility in its returns (Vol). A significant coefficient of the GSI will imply that Google Search volume has a predictive ability for cryptocurrency returns and prices.

The findings of the primary panel regression used here investigate the relationship between Google Search Intensity with cryptocurrency excess returns and other factors presented in Table 2. The calculated coefficients are included in the table, along with the t-statistics in parentheses. The coefficients on the third lag of the return are significant at the 10% level for cryptocurrency excess returns. In comparison, the coefficients at time t are significant at the 1% level for GSI, with the other lags of GSI having no meaningful influence on the excess returns. These findings confirm that investors searching for information on cryptocurrency online drive the price increase in cryptocurrency in the concurrent week itself and does not affect it in the subsequent week.

Table 2. Attention Effects on Stock Performance

Returns		Trading Volume		Volatility	
Intercept	0.0017	*Intercept*	0.2813	*Intercept*	0.0494
	(1.05)		(10.79)*		(6.03)*
R_{t-1}	0.0051	TV_{t-1}	0.3039	Vol_{t-1}	0.4531
	(0.15)		(9.53)*		(14.10)*
R_{t-2}	0.0083	TV_{t-2}	0.1827	Vol_{t-2}	0.0664
	(0.26)		(5.60)*		(2.05)**
R_{t-3}	0.0541	TV_{t-3}	0.1250	Vol_{t-3}	0.0099
	(1.69)***		(4.03)*		(0.95)
GSI_t	0.0218	*GSI*	0.1923	*GSI*	-0.0081
	(3.87)*		(9.14)*		(1.02)
GSI_{t-1}	0.0007	GSI_{t-1}	0.1106	GSI_{t-1}	0.0779
	(0.13)		(5.05)*		(9.74)*
GSI_{t-2}	-0.0025	GSI_{t-2}	0.0042	GSI_{t-2}	-0.0004
	(0.45)		(0.19)		(0.05)
GSI_{t-3}	0.0011	GSI_{t-3}	-0.0227	GSI_{t-3}	0.0004
	(0.20)		(1.05)		(0.05)
R^2	1.90	R^2	40.45	R^2	32.86

Source: Authors' Calculation;
*Significance level: * - 1%, ** - 5%, *** - 10%*

The coefficients of the first lag have a positive and significant impact on the trading volume and volatility. These findings indicate that search intensity is directly related to the trading volume and volatility of the cryptocurrency. An increase in the search volume about cryptocurrency online will push the trading volume up and increase the volatility of the cryptocurrency returns in the subsequent week. This impact of search intensity on trading volume and volatility implies that Barber and Odean's 'price pressure hypothesis' (2008) stands to confirm the cryptocurrency market and not just the stock market. Thus, investor attention has an immediate and short-term positive impact on cryptocurrency returns, trading volume, and volatility.

4.3 Cryptocurrency Returns, Google Search Intensity and Investor Sentiment

On the one hand, where Google Search Intensity (GSI) helps measure investor interest or attention; on the other hand, it lacks to absorb the sentiment of the investor behind their Google Search. If investor sentiment is low, the investor has fear and low interest and tends to sell the cryptocurrency and buy in case of higher sentiment showing high interest and greed in the digital currency. As rightly noted by Kristoufek (2013), the search for information is tremendously different during a crisis and a trend, which a Google Trend or daily views on Wikipedia cannot measure. Thus, addressing this flaw and measuring the effect of sentiment different from Google Search, investor sentiment is proxied using Crypto Fear and Greed Index following Güler (2021). To test the postulate that the impact of Google Search is different from the periods of sentiments (high and low) on the cryptocurrency, the following regression model is estimated:

$$R_t = \beta + \left(\sum_{i=1}^{3} \theta_i L^i\right) R_t + \left(\sum_{i=1}^{3} \alpha_i L^i\right) GSI_t + \alpha_2 GSI_{t-1}\ x\ Sentiment_{t-1} + \epsilon_t \quad (8)$$

$$TV_t = \beta + \left(\sum_{i=1}^{3} \theta_i L^i\right) TV_t + \left(\sum_{i=1}^{3} \alpha_i L^i\right) GSI_t + \alpha_2 GSI_{t-1}\ x\ Sentiment_{t-1} + \epsilon_t \quad (9)$$

$$Vol_t = \beta + \left(\sum_{i=1}^{3} \theta_i L^i\right) Vol_t + \left(\sum_{i=1}^{3} \alpha_i L^i\right) GSI_t + \alpha_2 GSI_{t-1}\ x\ Sentiment_{t-1} + \epsilon_t \quad (10)$$

Where *sentiment* is a dummy variable equal to 0 for fear and extreme fear (low weekly crypto fear and greed index), denoting low sentiment, and 1 for greed and extreme greed (high weekly crypto fear and greed index), denoting high sentiment of the investors. The coefficient term α_2 is the adjustment to the slope term α_1.

Table 3. Attention Effects on Cryptocurrency: Role of Sentiment

Returns		Trading Volume		Volatility	
Intercept	0.0004	*Intercept*	0.4542	*Intercept*	0.0456
	(0.28)		(10.63)*		(7.78)*
R_{t-1}	-0.0293	TV_{t-1}	0.2201	Vol_{t-1}	0.3755
	(0.71)		(5.31)*		(9.23)*
R_{t-2}	-0.0029	TV_{t-2}	0.1381	Vol_{t-2}	0.0798
	(0.94)		(3.31)*		(1.84)***
R_{t-3}	0.0792	TV_{t-3}	0.0641	Vol_{t-3}	0.1196
	(2.00)**		(1.62)		(3.05)*
GSI_t	0.0055	GSI_t	0.1507	GSI_t	-0.0244
	(0.85)		(6.63)*		(2.33)*
GSI_{t-1}	-0.0131	GSI_{t-1}	0.0952	GSI_{t-1}	0.0830
	(1.49)		(3.11)*		(5.91)*
GSI_{t-2}	-0.0094	GSI_{t-2}	0.0162	GSI_{t-2}	-0.0051
	(1.46)		(0.67)		(0.65)
GSI_{t-3}	-0.0129	GSI_{t-3}	-0.0035	GSI_{t-3}	-0.0076
	(2.01)**		(0.15)		(0.49)
GSI_{t-1} *	-0.0035	GSI_{t-1} *	0.1549	GSI_{t-1} *	0.0664
Sentiment	(0.27)	*Sentiment*	(3.38)*	*Sentiment*	(3.21)*
R^2	2.61	R^2	24.22	R^2	35.06

Source: Authors' Calculation *Significance level: * - 1%, ** - 5%, *** - 10%*

Table 3 presents the results of the model. Since Crypto Fear and Greed Index is the proxy of investor sentiment, a decrease in the index (investor fear or low sentiment) is expected to shadow inverse returns. The coefficients of all the regressor terms are inconsequential in the return-dependent model, but in the other two models, the interaction variables are found to be statistically significant. Further, the GSI_{t-1}*Sentiment term coefficient is negative and inconsequential in the case of excess returns, showing that we cannot accept the hypothesis that Google Search has a negative association with excess returns during periods of dread sentiment. However, in the case of cryptocurrency trading volume and its weekly volatility, the GSIt-1* Emotion coefficients are positive and significant, demonstrating that Google Search has a positive link with cryptocurrency trading volume and volatility during periods of high or ravenous investor sentiment.

4.4 Research Implication

Social media is the main element influencing bitcoin price and return movement, among many others. Examining social media can shed information on how much investor knowledge or interest there is in cryptocurrencies. Numerous research supports the idea that Google Search traffic can forecast changes in asset prices. According to the results of this study, Google Search volume and frequency are directly correlated with cryptocurrency returns, trading volume, and weekly volatility. The price growth in cryptocurrencies and the increase in trading volume and volatility of cryptocurrency returns are all attributed to investors looking for information about them online, suggesting the existence of the "price pressure hypothesis" in the cryptocurrency market. These findings align with Kristoufek (2013), Sovbetov (2018), Nasir et al. (2019), Dastgir et al. (2019), and Aslandis et al. (2022). The study's conclusion is crucial for cryptocurrency traders and investors. The current research work will be useful for investors and policymakers in estimating an intricate framework for predicting cryptocurrency returns.

5. Conclusion

Among many factors affecting cryptocurrency price movement and returns, the primary one is social media. Studying social media throws light on the extent of investor awareness or investor attention about cryptocurrency. Numerous research studies show increasing interest in Google Search volume, assuming that it has the predictive ability to understand the impact of customer/investor interest and attention on various economic outcomes. In line with such studies, the present research investigates the association of cryptocurrency returns and their varied characteristics with the Google Search Intensity using Pearson's correlation and panel regression. For the same, weekly data was obtained for Google Search Volume and the sample cryptocurrencies. We computed data for volatility and the trading volume for the sample cryptocurrency from the daily returns. The results reflect that Google Search is directly related to cryptocurrency returns, trading volume, and weekly volatility. The findings reveal that investors searching for cryptocurrency information online drive the price increase in cryptocurrency and also push the trading volume up and increase the volatility of the cryptocurrency returns implying the 'price pressure hypothesis' in the cryptocurrency market is consistent with Kristoufek (2013), Sovbetov (2018), Nasir et al. (2019), Dastgir et al. (2019) and Aslandis et al. (2022).

Furthermore, investor sentiment is seen to have a statistically significant impact on the trading volume and volatility of cryptocurrencies in periods of high or greedy investor sentiment. The finding of the study is imperative for cryptocurrency investors and traders. Moreover, the present research study will be helpful for investors and policymakers to estimate a sophisticated cryptocurrency returns prediction model. The limitation of the present study is that it has incorporated only three cryptocurrencies (with the highest market capitalization), where innumerable cryptocurrencies are traded in the market daily. Also, this study has only considered Google Trends as a measure of social media platforms. Thus future studies may investigate the relationship between GSI and returns using a wide array of cryptocurrencies and include other social media platforms such as Facebook, Twitter, and Telegram for a comprehensive analysis.

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Stock Returns in the Context of Share Buybacks: A Case of the BSE 500 Index.

Dr. Jyoti Pandey
Assistant Professor
Faculty of Management, Kumaun University
Nainital, Uttarakhand 263139
+91-8954457634
Email: jyotipandeyin14@gmail.com

Prof. (Dr.) P.C. Kavidayal
Dean Faculty of Management
Kumaun University, Nainital,
Uttarkhand, 263139
Email: pkavidayal@gmail.com

Abstract

The current research investigates the performance of S&P BSE 500 Index companies' stock returns for share buyback announcements in India for 13 years, from 2008-09 to 2020-21. A total of 59 companies constitute a sample representing various sectors of the Indian economy. A market model of event-study methodology was used to compute the average abnormal returns (AAR) over a 31-day event window (-15, +15). The CMIE Prowess IQ database is used to retrieve the data. The research findings show that the stock returns are positive and significant for the sample companies on the announcement date. The results are statistically significant and negative during the event window for event days t-9, t+7, and t+10. The comparison between the pre-average abnormal returns (AAR) and post-average abnormal returns (AAR) reveals no significant difference. The Indian market also appears to be semi-efficient in terms of market efficiency as the share buyback announcement news is already reflected in the share prices.

Keywords: *Average abnormal returns, BSE 500, event study, market model, share buybacks, stock returns, market efficiency, share prices, Indian market.*

1. Introduction

When a company buys its stock from current shareholders at a higher price than the market price, this is known as a share buyback. The total number of shares outstanding for the company is reduced as a result of the buyback process. Around the world, share buybacks are becoming more popular as a means of capital restructuring. With 61 businesses repurchasing shares totaling $392.9 billion in fiscal 2020, buybacks in India hit a two-year high. In fiscal 2022, 62 buybacks totaling 38,735 crores were offered, as opposed to 40 offers totaling 14,341 crores in 2021 (Prime database). Share repurchases have the potential to be advantageous for both firms and shareholders in a number of ways. Buybacks of shares help organizations make wise financial decisions and give investors value. As share repurchase has grown in importance over time, a large body of literature has emerged covering a wide range of facets.

One of the most common reasons behind share buybacks for companies is that they have large amounts of cash on hand but less profitable investment options. Jensen's (1986) free cash flow hypothesis proposed that companies with excess cash and no profitable investment opportunities would repurchase shares to reduce shareholder-manager conflict. The market reaction to Indian companies' open market repurchases is better explained by the free cash flow hypothesis (Gupta, 2018). According to Busch and Obernberger (2016), share repurchases became the most common form of payout mechanism in the United States between 2004 and 2010, and they are used to buy back stock when companies have excess cash flows.

Another reason for companies to go for buyback is to boost stock valuations. The number of shares outstanding is reduced when a company buys back shares, which improves earnings per share (EPS) and return on equity. The most common response from CFOs, when asked why their companies repurchase stock, is "to improve EPS" (Badrinath et al., 2001). Cao et al. (2020) discovered a link between earnings management practices and the completion of stock repurchases in Vietnam. A few studies on the impact of buybacks on Indian companies have been conducted in India. Almost all of them discovered evidence that the majority of the companies' EPS had increased significantly post buybacks (Mishra, 2004; Gupta, 2006).

Another reason is that buybacks are more tax-effective for rewarding shareholders than dividends. During the past two decades, share repurchases have ended up being the favored forms of earning distribution, as reported by a few authors (Jagannathan et al., 2000; Brockman & Chung, 2001; Jagnnathan & Stephens, 2003). Several other studies report a decrease in a firm's propensity to pay cash dividends. Fama and French (2001) found a soak decline in the percentage of dividend-paying firms since 1978.

Companies can also use buybacks to send strong signals. According to the signaling premise, managers use repurchases to express dissatisfaction with current market valuations by declaring high-priced repurchases. From 2012 to 2018, Bhama (2021) used the Tobit model to examine the true intentions behind share repurchases, finding that low stock valuations or undervaluation are the most common reasons for share repurchases. Anwar et al. (2016) investigated the signaling effect of share repurchases in BSE 500 index companies and found solid proof of positive signaling for the repurchase announcements.

One of the most often mentioned justifications for share repurchases all across the world is dividend substitution. Compared to dividend payments, share repurchases give firms more flexibility. Using Linter's model for UK corporations, Xie (2016) was unable to identify any connection between dividend payments and share repurchase substitution. According to Michaely and Grullon (2002), dividends have steadily been replaced by repurchases at US companies. By aggregating the opinions of all financial analysts from 1998 to 2015, Dickson (2018) asserts that dividends and share repurchases are viewed as substitutes. After adjusting for selection bias and endogeneity for Canadian enterprises, Kooli et al.'s (2010) findings were in line with the dividend substitution theory.

Share buybacks should, in theory, improve stock price performance; however, this is not always the case. In the case of share buybacks, previous research has produced mixed results. Previous research in the Indian context Hyderabad, (2009); Kaur and Singh (2010); Chavali and Shemeem (2011); Varma and Munjal (2016); and Dayanandan et al. (2020) support the presence of positive abnormal returns around the time of the buyback announcement. Other studies, such as those conducted by Ishwar (2010), Chatterjee and Mukherjee (2015), and Dutta (2015), found negative and insignificant abnormal returns. In the case of the rest of the world, Manconi et al. (2018) found that buyback announcements made by non-American companies are followed by sizable positive short-term and long-term excess returns in a sample of 9,034 buyback announcements in 31 non-U.S. markets over the period of 1998–2010 on average. No evidence of long-term abnormal earnings for open market share repurchases using a calendar-time

portfolio method was discovered by Albaity and Said (2016) for Malaysian companies. According to Gan et al. (2017), repurchases by high-growth, undervalued companies are those that the market reacts to favourably in China.

Given the recent spate of stock buybacks, India's contradictory empirical findings should be investigated further. This study aimed to contribute to academia by evaluating the impact of share buyback announcements on stock prices, as previous research findings were conflicting and inconclusive. In India's existing research, the number of years studied for buyback and its impact on stock returns is small (Mishra, 2005; Rajlaxmi, 2013; Bhargava & Agrawal, 2015; Chatterjee & Mukherjee, 2015; Gupta, 2018). Our study examines the impact of share purchase announcements over 13 years, from April 1, 2008, to March 31, 2021. It enables a more in-depth examination of buybacks over a lengthy period, including the most recent period. Another finding is the creation of short event windows to conduct a thorough inspection lacking in previous Indian studies. The main goal of this study is to determine the likelihood of abnormal returns in the context of share buyback announcements for companies listed on the Bombay Stock Exchange (BSE) 500 Index.

The research article comprises four sections. A literature review follows the introduction in the first section. The second section contains the study's objectives, justification, and methodology. The conclusion, management implications, study limits, and future research scope are all included in the final section.

2. Literature Review

Many studies on the impact of share buyback announcements are being conducted all over the world. The following is a list of the investigations in chronological order.

2.1 Buybacks of shares in India

In India, several studies on share buybacks and their announcement effect have been conducted, including Pandey et al. (2020), who looked at buyback announcements for 136 Indian companies from 2012 to 2018 and discovered that the market absorbs repurchase information before the announcement leaving no opportunity for spectacular gains afterward. The higher pre-announcement gains could be due to insider trading, and Indian markets appear to be semi-efficient due to the lack of significant post-announcement returns. In a study of 239 buyback announcements from 1999 to 2018, Dayanandan et al. (2020) discovered that companies with larger promoter ownership shares have stronger market reactions, and repurchase announcements are well received. From 2001 to 2019, Sivashanmuagm and Sowmya (2019) studied the market reaction to buybacks for 182 Indian manufacturing companies. The open market offer received a positive response before and after the announcement, but the tender offer received more positive response before than after. Share repurchases positively affected the share prices of IT businesses listed on the NSE from 2016 to 2018, according to Attri and Rathore (2018), and when a repurchase is announced, the share prices rise. From 2006 to 2016, Bhullar and Gupta (2018) discovered a statistically significant difference in the value of a firm between pre-and-post buyback of shares on the BSE. Shaw and Rakshit (2017) conducted an in-depth and comprehensive analysis of financial restructuring through share buyback in India, finding no evidence to support the notion that a share buyback is a tool for increasing a company's value. There were also no positive effects of share buybacks on stock prices. From 2010 to 2014, Bhargava and Agarwal (2015) studied the announcement effect of 42 NSE open market share buyback announcements. They discovered a negligible AAR, indicating that the stock price has already reflected the announcement's information. From 2008 to 2012, Chatterjee and Mukherjee (2015) studied open market share repurchase announcements for Indian companies. Negative returns persist both before and after the announcement of the share repurchase. Cumulative abnormal returns show no increase in the company's share price in most cases, both before and after the repurchase announcement, and average abnormal returns are not statistically significant. Share repurchase, according to Sehrawat (2013), "does not create long-term value." According to Agarwalla et al. (2013), Indian corporations should make more frequent disclosures on repurchase actions. An initial overreaction to repurchases was found in India because there were no long-term benefits and evidence of deteriorating operating performance, especially with open market repurchases. From 2000 to 2010, Chavali and Shemeem (2011) looked into 75 buybacks announced by NSE-listed companies. The results show that the market reacts favorably on t0 and t+1 days, with significantly positive AAR. Hyderabad (2009) investigated 68 Indian buyback announcements and witnessed positive abnormal returns. The market reaction to share buybacks is stronger in India, where markets are considered more undervalued than in the United States and the United Kingdom.

2.2 Share buyback around the world

Share repurchases have become increasingly common around the world. Aris et al. (2021) investigated the impact of earnings on share repurchase for Malaysian stock exchange companies. The findings revealed a significant inverse relationship between dividend per share (DPS) and share repurchase, which is consistent with previous research. The study findings also show that EPS and operating income (OI) positively impact stock repurchases. In both the United States and Japan, Wang (2020) found that companies with more free cash flow and lower borrowing costs are more likely to repurchase stock, companies with higher financial leverage are less likely to repurchase stock, and companies coordinate dividends and stock repurchases to please shareholders.

Over the course of 12 years, Manconi et al. (2019) examined over 9,000 open market share repurchase announcements in 31 non-US countries. They report a significantly positive announcement return in 19 countries, including India. They come to the conclusion that stock repurchases outside of the US are associated with good short- and long-term returns. For Australia, Akyol and Foo (2013) found evidence that repurchase announcements made by corporations whose stated purpose for the buyback is the undervaluation of the company's stock price elicit a more favorable market reaction. In the European context, using a sample of 970 buyback announcements from the UK, France, and Germany, Andriosopoulos and Hoque (2013) discovered that large corporations are likelier to announce open market share repurchases in all three countries. Buybacks complement rather than replace dividends, and in France and Germany, a company's potential undervaluation significantly impacts the decision to launch a share repurchase programme. Crawford and Wang (2012) examined 468 repurchases in the United Kingdom between 1999 and 2004. They found that different announcement dates have no statistically significant impact on share repurchase performance in the UK and that the UK market underreacts to actual value business repurchases. Ikenberry et al. (2000) found that current market prices influence managers repurchase decisions for 1,060 Canadian repurchase announcements, supporting the undervaluation argument. Mishra et al. (2010) found that investors react more positively to "credible" firms' share repurchase announcements than to firms that lack credibility, based on 1,507 Canadian firms from 1994 to 2005.

3. Objectives and Hypotheses

Objectives:

1. To determine whether there are significant abnormal stock returns before and after the announcement of a share buyback.
2. To assess the Indian market's efficiency in the context of share buyback announcements.

Hypotheses:

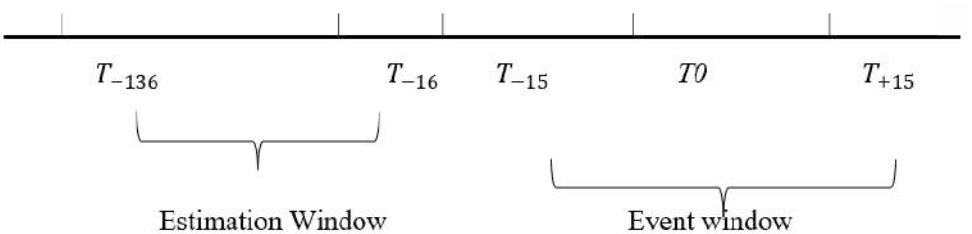
HO1: There are no significant average abnormal returns during the 31-day event window on the announcement of share buyback.

HO2: There are no significant differences in abnormal return before and after a share buyback announcement.

4. Methodology

4.1 Event-study Methodology

Standard event study methodologies (Brown & Warner, 1985; Fama, 1991) were used to look for any noticeable abnormal returns before and after the share buyback announcement. Event study methodology examines the effect of particular events, like corporate actions, on the share price. In this study, the market model was utilised to calculate the impact of share buybacks. This model was chosen because it is good at detecting abnormal returns, has a simple technique, and can be used in various scenarios.



Estimation period and event window: We utilise a 120-day estimation period to compute the normal returns for the sample companies in line with MacKinlay (1997). The abnormal price movements for the sample stock are estimated using an event window. The duration of our event window is 31 trading days (-15, +15); the event window is in line with the research of Anwar et al. (2016).

The Ordinary Least Square (OLS) regression model is being used to calculate the alpha (α) and beta (β) for the sample firms. The Average Abnormal Returns (AARs) are computed by averaging the abnormal returns of the sample companies for each day of the event period.

$$AAR_t = \sum_{i=1}^{N} AR_{i,t}$$

The Cumulative Average Abnormal Returns (CAARs) are the sum of daily Average Abnormal Returns (AARs) during the event window.

$$CAR_t = \sum_{i=t1}^{t2} AR_t$$

The average abnormal returns in all the trading days in the event window and cumulative average abnormal returns during the event window are analyzed using the t-test to identify whether they are significant.

The t-statistic for AAR is calculated as follows:

$$t = \frac{AARt}{Standard\ error}$$

Data sources: The key data is extracted from the CMIE Prowess IQ database, including the date of the announcement and the daily closing price of each stock. The BSE 500 daily return, which we use as a proxy for market return, is also available on the BSE website.

Sample size: This analysis used data from 126 Indian firms that announced a share buyback on the S&P BSE 500 Index between April 2008 and March 2021. A total of 67 companies were eliminated owing to the sample selection criteria, out of a total of 126. Finally, 59 companies were chosen for further investigation (Table 1). All financial data was obtained from the Prowess IQ database.

To ensure valid estimates for research, the sample companies are chosen based on the following criteria:

1. The sample company must be listed under the S&P BSE 500 Index.
2. The buybacks are for ordinary shares.
3. The share buyback firms must have daily stock prices available on the Prowess IQ database.
4. Buyback firms must have financial information available for a minimum of 15 trading days pre- and post-buyback.
5. The announcement date should be available for the sample companies.
6. Companies with a market capitalization of more than Rs 20,000 crore are included in the sample.

Hypothesis testing: To determine the statistical significance of abnormal returns associated with share buybacks, the traditional parametric test t-statistics are used. The crucial value technique is used to accept or reject the null hypothesis.

5. Data Analysis and Results

Table 1. Descriptive Analysis of Sample Buyback Companies using the Market Model of Event-Study Methodology

S/N	Announcement Date	Name of the company	Intercept (α)	Slope (β)	R	Standard error
1	19.12.2016	Aarti Industries Limited	0.0027	0.7711	0.1651	0.0152
2	16.03.2018	Aarti Industries Limited	0.0025	0.4343	0.0266	0.0180
3	09.07.2008	Abbott India Limited	0.0003	0.3450	0.2320	0.0152
4	30.09.2019	Adani Ports & SEZ Limited	0.0010	1.3314	0.0010	0.0142
5	10.02.2021	Atul Limited	0.0004	0.7870	0.1514	0.0178
6	03.12.2013	Bayer Cropscience Limited	0.0022	0.3901	0.0662	0.0182
7	29.10.2015	Bayer Cropscience Limited	-0.0006	0.3922	0.0737	0.0169
8	01.11.2016	Bharat Electronics Limited	-0.0006	0.9272	0.2525	0.0120
9	24.03.2018	Bharat Electronics Limited	-0.0025	1.3231	0.2268	0.0169
10	31.10.2016	Bosch Limited	-0.0001	1.0542	0.2819	0.0127
11	26.02.2019	Bosch Limited	0.0004	0.7237	0.1251	0.0179

12	29.10.2016	Coal India Limited	0.0007	0.2904	0.0308	0.0123
13	23.03.2019	Coal India Limited	-0.0019	0.3628	0.0531	0.0145
14	23.06.2020	Coforge Limited	0.0023	1.4367	0.4552	0.0400
15	15.12.2011	Crisil Limited	0.2802	-0.0167	0.0002	0.2104
16	23.06.2015	Crisil Limited	0.0007	0.6009	0.0870	0.0191
17	17.10.2008	DLF Limited	-0.0017	1.7044	0.7088	0.0221
18	03.04.2020	Dalmia Bharat Limited	-0.0019	0.7606	0.1835	0.0177
19	12.04.2016	Dr. Reddy's Laboratories Limited	-0.0021	-0.1292	0.0032	0.0249
20	27.03.2020	Emami Limited	-0.0014	0.7452	0.1256	0.0197
21	19.03.2021	GAIL (India) Limited	0.0008	1.1394	0.2646	0.0202
22	07.07.2017	HCL Technologies Limited	-0.0003	0.3431	0.0292	0.0121
23	16.10.2018	HCL Technologies Limited	0.0007	0.4093	0.0294	0.0159
24	17.11.2020	Hindustan Petroleum Corporation Limited	-0.0039	1.2954	0.3204	0.0206
25	12.08.2010	Hindustan Unilever Limited (HUL)	-0.0002	0.4017	0.0647	0.0151
26	14.02.2019	Indian Oil Corporation Limited	-0.0007	1.4309	0.2191	0.0251
27	03.08.2016	Indus Towers Limited	-0.0017	0.7246	0.1110	0.0210
28	15.03.2019	Infosys Limited	-0.0041	1.2817	0.0364	0.0621
29	09.10.2017	Infosys Limited	-0.0019	0.6992	0.0624	0.0159
30	24.11.2008	IPCA Laboratories Limited	-0.0028	0.2809	0.1042	0.0226
31	06.09.2013	Jindal Steel & Power Limited	-0.0032	1.6378	0.2632	0.0282
32	13.09.2017	Mindtree Limited	-0.0008	0.7801	0.0979	0.0139
33	05.06.2017	Mphasis Limited	0.0006	0.4511	0.0396	0.0149
34	31.12.2018	Mphasis Limited	-0.0008	0.3999	0.0238	0.0231
35	29.03.2017	NHPC Limited	0.0009	1.1614	0.2496	0.0180
36	10.10.2016	NMDC Limited	-0.0009	0.8777	0.1348	0.0166
37	08.03.2019	NMDC Limited	-0.0002	0.9522	0.2153	0.0171
38	09.01.2021	NMDC Limited	-0.0006	1.4572	0.2769	0.0213
39	31.12.2020	NTPC Limited	-0.0018	0.9597	0.1791	0.0192
40	08.03.2011	Navin Fluorine International Limited	-0.0003	0.7377	0.1044	0.0235
41	23.02.2019	Oil & Natural Gas Corp. of India Ltd.	-0.0008	1.0919	0.2147	0.0196
42	29.01.2019	Persistent Systems Limited	-0.0033	0.5308	0.0477	0.0233
43	23.03.2018	Pidilite Industreis Limited	0.0002	0.8146	0.1739	0.0123
44	31.03.2011	Piramal Enterprises Limited	-0.0005	0.4075	0.0935	0.0150
45	14.02.2017	Ramco Cements Limited	0.0012	1.5591	0.3779	0.0179
46	28.03.2011	Reliance Industries Limited	0.0006	0.9565	0.4930	0.0114
47	03.06.2008	SRF Limited	0.0007	1.3594	0.5037	0.0334
48	16.03.2011	SRF Limited	0.0018	1.8781	0.4234	0.0248
49	21.10.2016	Sun Pharmaceutical Industries Limited	-0.0013	0.6728	0.1387	0.0123
50	27.11.2008	Supreme Industries Limited	-0.0023	0.6478	0.2583	0.0315
51	07.06.2017	Tata Consultancy Services Limited	0.0002	0.4765	0.0476	0.0136
52	26.09.2018	Tata Consultancy Services Limited	-0.0025	-0.6788	0.0045	0.0659
53	05.01.2021	Tata Consultancy Services Limited	0.0013	0.6432	0.1195	0.0159
54	16.04.2019	Tech Mahindra Limited	0.0003	0.8106	0.1494	0.0175
55	01.01.2014	UPL Limited	0.0010	0.7847	0.1584	0.0266
56	08.07.2016	Wipro Limited	-0.0003	0.6224	0.2376	0.0116
57	20.12.2017	Wipro Limited	-0.0056	0.3073	0.0008	0.0660
58	11.09.2019	Wipro Limited	-0.0034	0.0667	0.0004	0.0287
59	16.01.2021	Wipro Limited	0.0032	0.6040	0.0643	0.0223

Source: Author's computation

Table 2. Average Abnormal Returns (AAR) statistics

Days	N	AAR (%)	t-statistics	CAAR (%)	Significance	Null hypothesis test
-15	59	0.2306%	0.1029	0.23%	Insignificant	Can't reject H0
-14	59	0.4916%	0.2194	0.72%	Insignificant	Can't reject H0
-13	59	0.0942%	0.0420	0.82%	Insignificant	Can't reject H0
-12	59	-0.6348%	-0.2833	0.18%	Insignificant	Can't reject H0
-11	59	-3.2291%	-1.4411	-3.05%	Insignificant	Can't reject H0
-10	59	-1.0442%	-0.4660	-4.09%	Insignificant	Can't reject H0
-9	59	-4.0901%	**-1.8254***	-8.18%	Significant	Reject H0
-8	59	1.3635%	0.6085	-6.82%	Insignificant	Can't reject H0
-7	59	1.1947%	0.5332	-5.62%	Insignificant	Can't reject H0
-6	59	0.6918%	0.3087	-4.93%	Insignificant	Can't reject H0
-5	59	-0.9671%	-0.4316	-5.90%	Insignificant	Can't reject H0
-4	59	0.6926%	0.3091	-5.21%	Insignificant	Can't reject H0
-3	59	-1.2939%	-0.5775	-6.50%	Insignificant	Reject H0
-2	59	-1.7883%	-0.7981	-8.29%	Insignificant	Reject H0
-1	59	-0.2596%	-0.1159	-8.55%	Insignificant	Can't reject H0
0	59	4.5208%	**2.0176****	-4.03%	Significant	Reject H0
1	59	-2.0457%	-0.9130	-6.07%	Insignificant	Can't reject H0
2	59	1.8097%	0.8077	-4.26%	Insignificant	Can't reject H0
3	59	-0.2388%	-0.1066	-4.50%	Insignificant	Can't reject H0
4	59	-1.8858%	-0.8416	-6.39%	Insignificant	Can't reject H0
5	59	0.1733%	0.0773	-6.21%	Insignificant	Can't reject H0
6	59	-1.2410%	-0.5539	-7.46%	Insignificant	Can't reject H0
7	59	-4.8151%	**-2.1490****	-12.27%	Significant	Reject H0
8	59	1.1699%	0.5221	-11.10%	Insignificant	Can't reject H0
9	59	-0.5304%	-0.2367	-11.63%	Insignificant	Can't reject H0
10	59	-4.6874%	**-2.0920****	-16.32%	Significant	Reject H0
11	59	-0.6295%	-0.2809	-16.95%	Insignificant	Can't reject H0
12	59	-0.2033%	-0.0907	-17.15%	Insignificant	Can't reject H0
13	59	-1.4519%	-0.6480	-18.60%	Insignificant	Can't reject H0
14	59	-1.8463%	-0.8240	-20.45%	Insignificant	Can't reject H0
15	59	0.6110%	0.2727	-19.84%	Insignificant	Can't reject H0

Source: Author's computation
*Notes: Table 2 indicates Average Abnormal Returns (AARs) and Cumulative Average Abnormal Returns (CAAR) values of buyback announcements for the period from –15 to +15. *and ** indicate significance levels at 5% and 2%, respectively.*

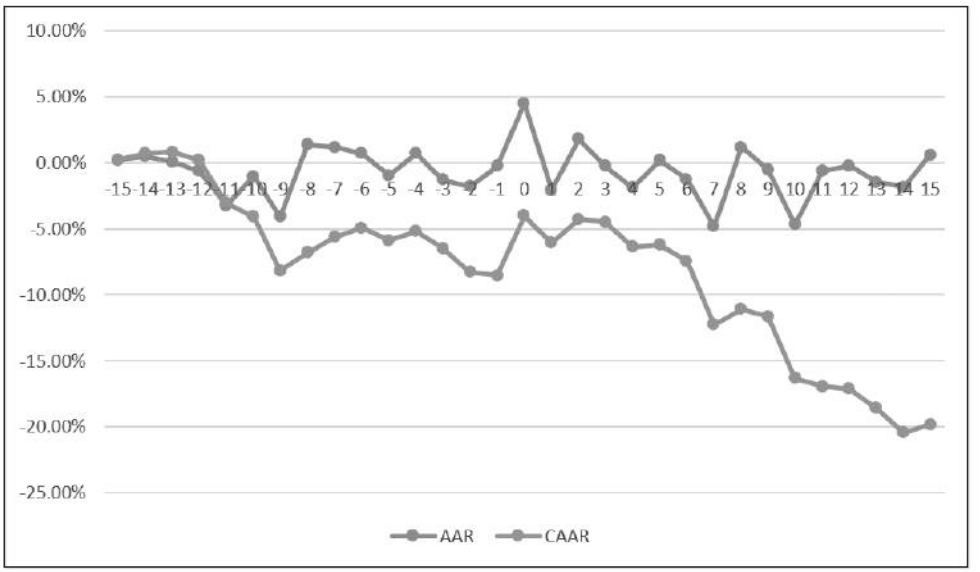


Figure 1. AARs and CAARs across the 31-day event window

Table 3. Paired sample statistics of AAR and CAAR pre- and post-buyback

Variable Name	Pre-buyback		Post-buyback		T value	P-value
	Mean	SD	Mean	SD		
Average Abnormal Return (AAR)	(0.0057)	0.0156	(0.0105)	0.0187	(0.9838)	0.3419
Cumulative Average Abnormal Return (CAAR)	(0.0435)	0.0337	(0.1195)	0.0558	(8.2552)	0.0000

Notes: Table 3 shows the average abnormal return (AAR) drops from (0.57) to (1.05) percent after the buyback. Although the difference in the mean is negative, it is not statistically significant. The CAAR declined considerably during the post-buyback period. The t-value for CAAR is statistically significant and negative.

Table 4. CAAR across Different Event Windows

Event window	CAAR	CAAR (%)	t-statistic
(-3,-1)	-0.0334	-3.342%	-0.8611
(+1,+3)	-0.0047	-0.475%	-0.1223
(-3,+3)	0.0070	0.704%	0.1188
(-5,+5)	-0.0362	-3.616%	-0.7218
(+1,+5)	-0.0219	-2.187%	-0.4366
(-5,+5)	-0.0128	-1.283%	-0.1726
(-7,-1)	-0.0173	-1.730%	-0.2918
(+1,+7)	-0.0824	-8.243%	-1.3906
(-7,+7)	-0.0545	-5.453%	-0.6283
(-10,-1)	-0.0550	-5.501%	-0.7763
(+1,+10)	-0.1229	-12.291%	-1.7347
(-10,+10)	-0.1327	-13.271%	-1.2925
(-15,-1)	-0.0855	-8.548%	-0.9850
(+1,+15)	-0.1581	-15.811%	-1.8220
(-15,+15)	-0.1984	-19.839%	-1.5902

Source: Author's computation

Notes: Table 4 shows the cumulative average abnormal returns over numerous small event periods. The CAARs are not significant in any of the event windows, meaning that investors have no opportunity to earn abnormal returns before or after the buyback announcement

Table 5. AAR before and after the stock split announcement

AAR before announcement	AAR after announcement	t-value	p-value
0.23%	-2.05%		
0.49%	1.81%		
0.09%	-0.24%		
-0.63%	-1.89%		
-3.23%	0.17%		
-1.04%	-1.24%		
-4.09%	-4.82%		
1.36%	1.17%	(0.9838)	0.3419
1.19%	-0.53%		
0.69%	-4.69%		
-0.97%	-0.63%		
0.69%	-0.20%		
-1.29%	-1.45%		
-1.79%	-1.85%		
-0.26%	0.61%		

Source: Author's computation

Notes: Table 5 shows a comparison between the AAR before the announcement and the AAR after the announcement of the share buyback. Since the value of p is 0.3415, the results are not significant at p

6. Findings and Conclusion

Repurchases of shares are not a recent development in the Indian market. It has grown significantly in popularity and trend throughout the years in India. Numerous investigations carried out in the Indian market produce contradictory findings about the returns connected to repurchase announcements. According to Kuntluru and Chacko (2019), short-term market returns outperform long-term market performance. It suggests that share repurchases affect short-term returns more favourably and significantly than long-term returns. According to Bhullar et al. (2018), share buybacks negatively impact the company's value. Only for the pre-repurchase period for Indian businesses, Shaw et al.'s (2019) research indicated a favorable impact of share repurchases on stock prices.

We examine the stock returns related to buyback announcements using 59 repurchase programs over a 13-year period. The findings demonstrate that the average abnormal earnings on announcement day are statistically significant and favorable. Poor stock returns, however, are seen in the post-repurchase period in tune with Reddy (2020), Sivashanmugam and Sowmya (2019), and Purohit (2012). Our findings show that the buyback announcement attracts the Indian market for only a short time.

The findings are valuable to investors since they will help them better understand how Indian stock markets respond to buyback announcements. The results show that post-announcement trading is not profitable for investors. Though our study primarily concentrates on large-cap organizations, the implications for future studies may also involve small-cap and mid-cap corporations.

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