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Message from the Chief Editor

The year 2022 saw India bringing about major reforms in education, industry and allied sectors. Reforms in higher education is fast catching up in terms of policy formulation and implementation. India is manifesting Economic resilience, being on the path of consistent industrial development, this has made the nation an emerging economy of the future.

Digital technology and innovation are widely in use as developmental models that will serve our growth aspirations. The unprecedented impact of technology, on not just industry, but all walks of human life is indeed phenomenal. Transforming challenges into opportunities and working under the emerging New Normal is what we need to learn and adopt.

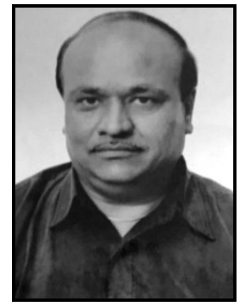
Higher education in India is undergoing a shift in terms of reforms and Adoption of the National Curriculum frame- work. NEP 2020 seeks to make education holistic, trans- disciplinary and flexible. A host of innovative academic programmes and courses are being planned in terms of skill- embedded learning and tech-driven learning methodologies. A very pertinent question that emerges is how to stay relevant in terms of Academics and Research. A deeper and insightful understanding of the demanding environment and up-skilling and upgrading to meet the emerging needs is crucial.

Research in finance and Accounting is turning to be all the more relevant in terms of making it inferential and analytical such that it addresses disruptiveness in terms of the emerging technology. Professionals and researchers need to ponder over this issue With the intention encourage good research in the domains of Accounting, Finance and Financial services, as well as trans-disciplinary research, Indian Journal of Accounting is bringing out the next issue of IJA .

I take this opportunity to thank all the contributors of research papers to this issue and sincerely request all my friends to come up with more research work and research publications, which we would gladly welcome. I also thank all our subscribers and the editorial team. I acknowledge with sincere gratitude the timely intellectual support from our reviewers. I request all our readers and well-wishers to kindly give us suggestions and valuable inputs on improving the journal.

Gabriel Simon Thattil

Professor & Head
Department of Commerce
Dean , Faculty of Commerce
University of Kerala
Chief Editor – Indian Journal of Accounting



Message from the President

Dear Friends,

It is a matter of pride to pen down my message as President of Indian Accounting Association (IAA) for the bi- Annual Research Journal -The IndianJournal of Accounting. My heart fills with immense pleasure as I perceive the progress being made by IAA. I wish to tell that I am eternally grateful for getting the privilege to serve you. The IAA, in its illustrious journey, was founded by academicians and professionals in accounting on March 15, 1969, and was inaugurated on February 14, 1970 by the Accountant General of Uttar Pradesh at Banaras Hindu University, Varanasi.

It is a member organisation of International Association of Accounting Education and Research (IAAER). It is also held in high esteem by American Accounting Association (AAA). This year I am going to attend AAA conference in USA representing all IAA fraternity. At present, IAA has a network of 59 branches in India with more than 7700 life members, and a Research Foundation as an affiliate at Kolkata. It also brings out a biannual research journal 'Indian Journal of Accounting' in the months of June & December to give wider publicity to research findings. The Association also gives IAA Young Research Award and IAA fellowship.

IAA Annual conference is a flagship program to disseminate knowledge and create a platform for discussion on Accounting education and research in allied areas. Past conference have attracted a large number of delegates from across the country and abroad. This year IAA is going to organise its 45th annual conference at Thiruvananthapuram, Kerala on 9-10th December 2023 I invite each one of you to participate in this mega academic event.

I am sure we all meet in this conference in big number, I appreciate the efforts made by Prof. Gabriel Simon Thattil, Head,& Dean,Faculty of Commerce, University of Kerala for putting all possible efforts to make this conference a grand success and memorable one and bringing the issue of this journal in time. As I drive off and set my GPS for Vision 2025 of IAA becoming the world's leading accounting body, All the best to everyone! Best wishes,

Prof. Jas raj Bohra

President, Indian Accounting Association (IAA)

Former Dean & Head, Faculty of Commerce & Management

Studies, Jai Narain Vyas University, Jodhpur

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PREDICTING CORPORATE FINANCIAL DISTRESS USING ALTMAN'S Z-SCORE MODEL – A STUDYOF SELECTED PUBLICLY TRADED TEXTILE COMPANIES OF BANGLADESH

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Mrs. Khadiza Akter**

ABSTRACT

The aim of this study is to predict the financial distress of the listed textile companies ofBangladesh using Altman's Z-score model. The data for 5 recent years from 2016-17 to 2020-21,covering the COVID-19 aggression period 2019-20 to 2020-21, have been collected from 5samples which were chosen purposively from the textile companies listed in both Dhaka Stock Exchange and Chittagong Stock Exchange Ltd. The study reveals that although most of the samples had a turned around tendency in their financial performance measured by Z-score during the COVID-19 aggression period, some poor financial ratios caused two-fifth of the samples to fall in distress zone and the remaining samples in gray zone during the study period. In this context, the study assumes that in addition to covering various key issues in a strategic plan, the samples should consider other issues like cost-cutting, optimizing operational efficiency and the like that can help manage cash flows and keep the business a-going and avoid the risk of financial distress. Eventually, both the current and potential investors are assumed to have some insights from this study as to the financial health of relatively older listed textile companies of Bangladesh and also to easily adopt the technique used in this study to predict thefinancial health of the companies under the textile industry of Bangladesh. The study also assumes that it might create scope to further research for exploring the cause(s) behind its results.

Keywords: Financial distress prediction, publicly traded textile companies, Bangladesh, Altman Z-score

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Introduction

The ultimate aim of all firms is to maximize the wealth of shareholders and the management of the companies strives in all aspects to maximize shareholders' wealth. But sometimes the firms fail to achieve this objective due to poor financial health. Poor financial health causes financial distress and thereafter threatens the survival of the firm; these eventually lead to corporate failure.

Financial distress or bankruptcy is a phenomenon where the business is not able to generate adequate revenue to meet its financial obligations (Korath and Nayak, 2022). From a balance sheet analysis, if total assets of a firm are found to fall short of total liabilities, particularly due to shortage of cash or excess debt, financial distress occurs. Financial distress can also be expressed in terms of a negative cash flow from operations (CFO) and a greater decline in return on assets (ROA) in the year prior to default (Rahman et al., 2021). Neither the Bankruptcy Act 1997 nor the Companies Act 1994 defined corporate bankruptcy in Bangladesh, but Alam and Azim (n.d.) referred corporate bankruptcy as the financial crisis of corporate entities, rather than individual businessmen.

The failure of internal support system, such as effective utilization of funds, labor, material, land, equipment, etc. and external support system, such as economic, political, and socio cultural conditions results in bankruptcy of a firm (Joshi, 2019). Lapse in management control under these conditions finally causes the collapse of firms. Giant companies like Tyco, Global Crossing, WorldCom, Enron, etc. (Anthony and Govindarajan, 2007) are the examples of global bankrupt companies in such cases, onthe other hand, Bangladesh Industrial Finance Company (Alo, 2017) is the local bankrupt company and Beximco Group, MR Group, SA Group, Ratanpur Group, and Keya Group are the top five businesses which are adjudged defaulters despite repeated loan restructure in Bangladesh (Sakib, 2017). The recent economic turmoil due to COVID-19 also caused many firms for filing bankruptcy. For example, Silicon Valley Bank and Avaya Inc. in the USA, Altera Infrastructure and Cineworld Group in the UK, Modern Land Ltd. in China, Americanas S.A. in Brazil, Endo International in Ireland, and Garuda Indonesia

(Ventura, 2023) are worth-mentioning. Bangladesh seems to have navigated the Covid- 19 pandemic better than many of its peers, but its luck won't last unless it brings in some big, meaningful reforms (Pesek, 2022) in both service and manufacturing sectors.

In Bangladesh's manufacturing sectors, among others, textile industry starting its journey in 1972 (Momen, 2007), immediately after the independence of the country on December 16, 1971, and producing woven and non-woven materials, such as cotton, jute, silk, synthetics, wool, etc. for clothing, industrial, and household applications proved as an important segment that plays a vital role in its rapidly growing economy generating more than 13% of GDP (MI (Mordor Intelligence), 2023), where, total industry contribution was 33.32% in 2021 (Business Inspection BD, 2022) and contributing over 84% of the export earnings by producing textiles and textile -related products (MI, 2023). But it faced and is still facing the negative impact of COVID -19 crisis due to shortage of labor supply and other supportive ambiences, viz. working condition, safety standards, environment pollution, etc. and closing of many local and foreign buyers. So in order to keep the growth potential, protect investors' and creditors' interest, and avoid bankruptcy, it is necessary to predict financial distress and adopt strategic plans thereof for textile companies of Bangladesh, world's second largest textile producers and exporters.

According to Muller et al., early prediction of financial distress is necessary for investors and other lending institutions (Muller et al., 2009). Ascertaining the probable insolvency in the earlier stage may help avoid the worse cases in the near future and protect the firm from going bankruptcy (Sajjan, 2016). Altman's multivariate discriminate analysis (MDA) model, commonly known as Altman's Z-score model, has been popularly using worldwide for the prediction of corporate financial distress of publicly traded companies with high level of accuracy since 1968, when Professor E. Altman introduced this model first in his article, Financial Ratios, Discriminant Analysis, and the Prediction of Corporate Bankruptcy, published in the journal named Journal of Finance 22, September 1968, pp. 589-609. Later on in 1983, he incorporated a new model in his book, Corporate Financial Distress (New York: John Wiley, 1983), pp. 120 -124, revising the earlier one with no measurable effect on prediction performance applicable for both publicly traded and non-publicly traded companies (Wild et al., 2007). As a matter of fact, this study attempts to predict the financial distress of selected listed textile companies of Bangladesh using Altman's earlier Z-score model.

Under the above circumstances, the study aims to examine whether the publicly traded textile companies of Bangladesh have a healthy financial position or not during the study period covering the period of COVID-19 aggression. To this, the study also calculates and analyzes relevant financial ratios used to determine Altman's Z -score. Finally, the study tries to highlight its implications based on findings.

In fact, there are some generalized limitations of Altman Z-score, such as dependency only on database, not working well for new or emerging companies, failing to incorporate the benefits of good cash flow management, working on garbage in garbage out (GIGO) method, etc. This study also is not free from some limitations as to sample selection, sample database, and data analysis techniques. The study also could have considered using other financial distress prediction models, viz. Grover model, Taffler model, Zmijewski model, etc. with high level of accuracy (Indriyanti, 2019). Moreover, a number of studies, viz. Korath and Nayak (2022), Pranav et al. (2020), Adriatico (2019), Joshi (2019), Panigrahi (2019), Wesa and Otinga (2018), Akhtar et al. (2017), Mohammed (2016), Sajjan (2016), and Oyedokun et al. (2015), Muller et al. (2009), etc. have already been conducted so far focusing on financial distress prediction of different manufacturing industries in several countries outside Bangladesh using Altman's earlier Z-score model. However, this study claims to be different from them in several reasons, for example, the study has been conducted in Bangladesh context, exclusively on t extile industry of Bangladesh, there has been no such study conducted so far in Bangladesh specially in the textile industry, the textile companies used as samples in the study are 100% export oriented, data used in the study were taken from very recent ye ars including the years of severe COVID-19 attack, the samples are enlisted in both Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE), and the samples have been selected purposively from those whose establishments and enlistments were taken

place at least twelve and five years respectively before the beginning of the study period. The study also assumes that further research can be taken place to explore the cause(s) behind its results.

The organization of this paper is structured by placing introduction in the first, followed by its scope, literature review, methods, data analysis and findings, and conclusion in the end.

Scope of the Study

The study takes textile industry of Bangladesh as its area of research. Total 5 textile companies listed in DSE and CSE have been selected as sample to conduct this study. This selection processwas purposive and it has been made after considering the span of time the companies have passed since their establishment as well as enlistments till the beginning of the study period. The study period consists of 5 consecutive years from 2016-17 to 2020-21, covering the period of frightening effect of COVID-19 aggression, 2019-20 to 2020-21. A short profile of the sampleshas been presented in Table 1.

Table No 1: Profile of the samples

Samples	Establishing Year	Listing Year*	Product	Location	Financial Performance**
Envoy Textiles Ltd.	1995	2012	100% export oriented denim fabrics	Mymen-shingh	EPS = 2.05, 2.01, 3.31, 1.63, 0.56 P/E = 19.26, 17.29, --, 12.97, 52.04 D/Y (%) = 1.77, 2.88, 4.27, 2.36, 1.70
Malek Spinning Mills Ltd.	1991	2010	Yarns for local and international markets	Gazipur, Dhaka	EPS = --, 1.17, 0.76, - 1.68, 3.36 P/E = --, 14.64, 21.73, --, 9.28 D/Y (%) = --, 5.85, 6.02, --, 3.21
Argon Denims Ltd.	2006	2013	100% export oriented denim fabrics	Gazipur, Dhaka	EPS = --, 3.18, 3.06, 1.53, 0.71 P/E = --, 8.21, 8.25, 12.57, 38.15 D/Y (%) = --, 5.75, 3.97, 2.60, 3.69
Prime Textile Spinning Mills Ltd.	1989	1995	100% export oriented cotton yarn	Narayan-Ganj	EPS = --, 1.05, 0.54, - 2.67, 0.62 P/E = --, --, 63.42, --, 36.40 D/Y (%) = --, 2.84, 1.45, 0.63, 0.89
Square Textile Ltd.	1997	2002	Cotton yarns for local and international markets	Gazipur, Dhaka	EPS = --, 2.43, 2.18, 0.27, 3.41 P/E = --, 20.84, 20.95, 107.26, 13.95 D/Y (%) = --, 3.94, 4.38, 3.45, 4.21

Source. Samples' websites and DSE website.

** Since the CSE has started its functioning in 1995, much later than the functioning of the DSE in 1964, the listing year means here the year of enlistment of the samples in DSE.*
*** Financial performances have been reported showing earning per share (EPS), price-earning (P/E) ratio, and dividend yield (D/Y) on the basis of data available for the study period of 2016-17, 2017-18, 2018-19, 2019-20, and 2020-21.*
'--' indicates empty due to unavailability of data.

Literature Review

Financial distress analysis of different types of companies using Altman's Z-score model is a well-studied topic in different countries in the world. But research in Bangladesh on the same issue has not been found so far coming out any significant way either in the same pace with theresearch abroad or at a lower rate. However, a review of some of those researches is made herein on the basis of their availability.

Korath and Nayak (2022) studied on financial distress prediction using Altman's Z-score in the case of Indian listed manufacturing companies. Using a sample of 5 unhealthy companies and 5 healthy companies which were admitted for bankruptcy under the Insolvency and Bankruptcy Board of India (IBBI) covering a period of 5 years from 2017 to 2021 for data, the study revealedthat all the 5 unhealthy companies showed a low Z-score which proved that they were distressed and 4 out of 5 healthy companies showed a high Z-score which was an indication of their financial soundness.

Rahman et al. (2021) studied on predicting financial distress of American listed firms using F- score model and its components instead of Altman's Z-score model. Extracting 81 financially distressed firms from the Florida UCLA-LoPucki Bankruptcy Research Database during 2009– 2017, the study found that firms which were at risk of distress tended to record a negative cash flow from operations (CFO) and showed a greater decline in return on assets (ROA) in the year prior to default.

Adriatico (2019)'s study sought to predict companies that were listed on the Philippine Stock Exchange and potential to corporate financial distress using the Altman's Z-score model and current ratio. The study revealed that 35 randomly selected companies out of 45 companies had been chosen potential for becoming financially distressed based on Altman's Z-score modelanalysis, and 12 companies were also found experiencing financial difficulties based on current ratio analysis.

As to the prediction power of models, Indriyanti (2019)'s study showed that among 7 financial distress prediction models, namely Altman, Grover, Taffler, Zmijewski, Springate, Ohlson, and Fulmer, Grover (96%) and Altman (86.6%) models were two top graded models of accuracy in predicting financial distress of global 25 biggest Tech Companies in 2015–2016 Forbes's version.

As to the prediction power of Altman's Z-score model, **Joshi (2019)** made a case study of a communication company in India, which has filed for bankruptcy in the month of February 2019. By analyzing the financial statement and the market data of the sample, the study found that the model was successful in predicting the upcoming financial distress of the sample, and concluded that the sample was making losses since long and was under the gray area (i.e. distress zone) 3 years before they filed for bankruptcy.

Panigrahi (2019) in his study took selected 4 pharmaceutical companies in India to test their financial distress using Altman's Z-score Model covering a period of 5 years from 2012-2013 to 2016-2017, and after analyzing the secondary data, he commented based on his findings that the industry had a healthy financial position because of a strong Z-score of 5.9 on an average which was much above the cut-off score of 1.8 (as per the standard of measurement used by the author).

Mohammed (2016) also made a case study about the prediction of bankruptcy using the same model, i.e. Altman's Z-score model, of an Omani cement company and its subsidiaries. Using annual report's data for the period from 2007 to 2014, the study revealed that the samples were financially sound as measured by a Z-score higher than the benchmark of 2.99 during almost the entire period of the study.

Sajjan (2016)'s study covered 3 listed manufacturing and 3 listed service companies in India to predict the likelihood of bankruptcy of those firms for a period of 5 years from 2011 to 2015. The study revealed that most of the firms were in distress zone with a Z-score below 1.81 for manufacturing firms and below 1.1 for service firms (as per the standard of measurement used by the author).

Mahmud (1987) in an article titled 'Ratios as indicators of financial health' asserted that Altman's Z-score and related ratios are powerful tools to predict financial health of a firm.

Under the above background, it is seen that most of the studies conducted outside Bangladesh have used Altman's Z-score to predict financial distress of different manufacturing and service sector enterprises, of which some were listed and some were unlisted firms, taking several study periods. In Bangladesh, except for a very few, no such remarkable studies have been found so far that have been conducted using Altman's MDA model either in manufacturing or service sector enterprises. This almost unaddressed task in Bangladesh thus seen to be aresearch gap which has led the authors to conduct this study of predicting financial distress of Bangladesh's listed textile companies. The period covering COVID-19 attack was also seemed tobe an important point of study.

Methods of the Study

This is a predictive research study based on entirely secondary data collected from the annual reports of the sample. The sample consists of 5 listed textile companies (100% export oriented) selected from a total of 58 companies of said categories (as of 30 June 2021) in Bangladesh. Before this selection, an eliminating process is applied on total number on the basis of the date of establishment and enlistment of the samples. Further, it takes samples having comparatively older age of operations assuming that the Altman's model will not work properly on newly established and enlisted companies. As such, the companies which have been established at least 12 years (i.e. an era) before and at the same time enlisted at least 5 years before the year of the beginning of the study period (i.e. 2016-17) are chosen purposively as samples (see Table1). The study takes into account a period of 5 consecutive years from 2016-17 to 2020-21 (5- year period in many prior studies found to consider as reasonable period for study) specially covering the period of frightening effect of COVID-19 aggression, 2019-20 to 2020-21.

The main focus of the study is to predict the financial distress of the selected samples during the study period. There are various models in practice to predict firms' financial distress. However, many studies proved that Altman's Z-score is a powerful model of prediction of financial distress. In fact, for the purpose of financial distress prediction irrespective of publicly traded and nonpublicly traded manufacturing and non-manufacturing firms, this model is seen to have a first level of accuracy rate (over 80%) over the world. Against such backdrop, this study also chooses Altman's Z-score model to predict corporate financial distress of the sample firms.

Altman's Z-score model, developed by Professor E. Altman, has two dimensions using the same (5 in numbers) financial ratios, viz. 1) liquidity, 2) age of firm and cumulative profitability, 3) profitability, 4) financial structure, and 5) capital turnover rate (Wild et al., 2007). First, in 1968, the model has been suggested to use for the prediction of corporate financial distress of publicly traded companies only. Next, in 1983, modifying the coefficient values only and having no measurable effect on prediction performance, the model has been suggested to use to generalized way for all sorts of firms, both publicly traded and non-publicly traded companies. Since the samples are manufacturing publicly traded companies, this study uses first model (Wild et al., 2007) to serve its purpose. The model is as follows.

$Z = 1.2\ X1 + 1.4\ X2 + 3.3X3 + 0.6X4 + 1.0\ X5$

Five financial ratios included in the above Z-score model are shown in Table 2.

Table No : Description of the financial ratios used in Altman's Z-score model

Symbols used for the ratios	Name of the ratios	Formula of the ratios
X1	Liquidity	Working capital ÷ Total assets
Age of firm and cumulative	profitability	Retained earnings ÷ Total assets

Profitability	Earnings before interest and taxes (EBIT) ÷Total assets
Financial structure	Market value of preferred and common equity ÷ Total liabilities

In Table 2, the liquidity ratio comparing working capital to total assets used in the model will measure the samples' ability to meet short-term obligations; the age of firm and cumulative profitability ratio comparing retained earnings to total assets will measure the long-term profitability of the samples and also will give the samples an idea of how much they rely on debt for the funding of their total assets; the profitability ratio comparing EBIT to total assets will the long-term profitability of the samples; the financial structure ratio comparing the market value of preferred and common equity to total liabilities will measure long-term solvency of the samples; and the capital turnover rate comparing sales to total assets will measure the capacity of the samples' assets to generate sales and the capacity of their managements' to deal with competitive conditions as well.

Based on the above discussion and taking the model into consideration, the collected data wereused to calculate the said financial ratios included in the Z-score model and combine the values in a specific way of the model to produce a single number (i.e. an overall index), and then predict and analyze the financial health of the sample companies as per the guidelines provided by Professor Altman. The guidelines are shown in Table 3. Moreover, Microsoft Excel Spreadsheet Software (MESS) was used to do all sorts of relevant calculations in this respect.

Table No 3: Altman's guidelines to classify firms as either financially sound or bankrupt

Situations	**Zone of Discriminations**	**Results**
Z < 1.20	Distress or bankruptcy zone	High probability of bankruptcy or failure
1.20 < Z < 2.90	Gray or ambiguous zone	May or may not fail
Z > 2.90	Safe or healthy zone	Low probability of bankruptcy or failure

Source. Wild et al. (2007), Joshi (2019), and Panigrahi (2019)

Table 3 indicates Altman's guidelines to measure the corporate firms as to their financial health based on an overall index of Z-score. A Z-score of less than 1.20 suggests that the samples will fall in a distress zone and will have a high probability of bankruptcy, while Z-scores above 2.90 imply that the samples will be in a safe or healthy zone and will have a low probability of bankruptcy. Scores between 1.20 and 2.90 will be the indication of the samples staying in the gray or ambiguous zone and they may or may not fail.

Further, in analyzing the data (i.e. Z values) over the study period, some descriptive statistics tools, viz. mean, standard deviation, and coefficient of variation along with a graphical presentation are used.

Data Analysis and Findings

At the very outset of this section, data relating to Altman's Z-score of the sample listed textile companies for the study period are analyzed using average, standard deviation, and coefficient of variation. Table 4 contains these positions.

Table No 4: Analysis of Z-score data by sample during the period from 2016-17 to 2020-21

Name of the Companies	2020-21	2019-20	2018-19	2017-18	2016-17	Mean	Standard Deviation	Coefficient of Variation
Envoy Textiles Ltd.	0.95	0.89	1.13	0.89	0.53	0.88	0.22	0.25
Malek Spinning Mills Ltd.	2.18	1.32	1.92	2.49	3.19	2.22	0.70	0.31
Argon Denims Ltd.	1.98	2.05	2.42	2.61	2.85	2.38	0.37	0.16
Prime Textiles Ltd.	0.79	0.44	0.95	0.93	0.91	0.80	0.21	0.26
Square Textile Ltd.	2.37	1.66	2.39	2.80	5.28	2.90	1.39	0.48

Source. Appendices 6-10. Calculations have been done by the authors.

Table 4 shows the year-wise as well as average position of Z-score of the samples during the study period 2016-17 to 2020-21. After putting the respective values of suggested financial ratios (see Appendices 1-5) in the equation of the Z-score model (see the Section 4: Methods of this study), the values of Z-score have been estimated. The average values of Z-score of the samples were 0.88 (Envoy Textiles Ltd.), 2.22 (Malek Spinning Mills Ltd.), 2.38 (Argon Denims Ltd.), 0.80 (Prime Textiles Ltd.), and 2.90 (Square Textile Ltd.) and the coefficient of variations oftheir Z-score were 25%, 31%, 16%, 26% (the lowest), and 48% (the highest) respectively [here the low Z-score of Envoy and Prime were likely to be the results of poor working capital, earnings before interest and taxes (EBIT), and debt management (see Appendices 1, 3, and 4)]. As per Altman's guidelines to classify firms as either financially sound or bankrupt (see Table 3), the average values of Z-score of the samples indicate that the financial health of Malek, Argon, and Square remained in gray/ambiguous zone, on the other hand, the financial health of Envoy and Prime remained in distress/bankruptcy zone. However, using the calculated values ofAltman's Z-score associated with the sample textile firms during study periods, a classificationof the firms has been made in Table 5 showing their financial soundness according to the zone of discriminations suggested by Altan (See Table 3).

Table No 5: Firms' classification based on Altman's Z-score

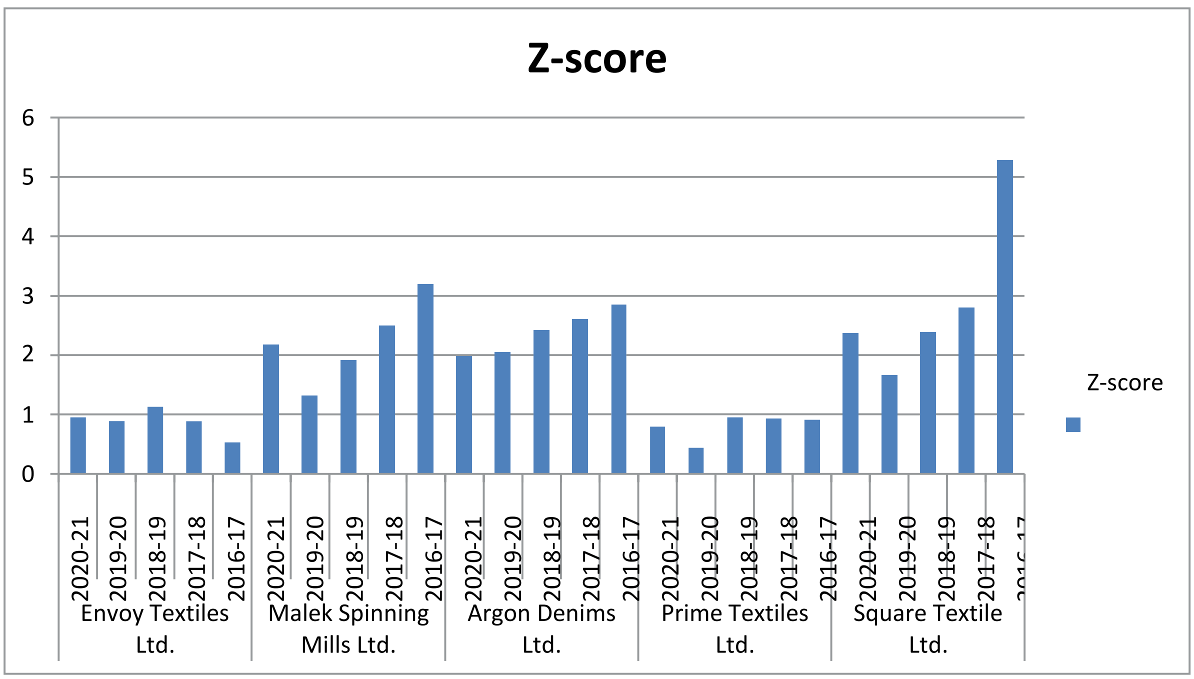
Name of the Company	Period	Z-score	Zone of Discrimination
Envoy Textiles Ltd.	2020-21	0.95	Distress zone
	2019-20	0.89	Distress zone
	2018-19	1.13	Distress zone
	2017-18	0.89	Distress zone
	2016-17	0.53	Distress zone
Malek Spinning Mills Ltd.	2020-21	2.18	Gray zone
	2019-20	1.32	Gray zone
	2018-19	1.92	Gray zone
	2017-18	2.49	Gray zone
	2016-17	3.19	Safe zone
Argon Denims Ltd.	2020-21	1.98	Gray zone
	2019-20	2.05	Gray zone
	2018-19	2.42	Gray zone
	2017-18	2.61	Gray zone
	2016-17	2.85	Gray zone
Prime Textiles Ltd.	2020-21	0.79	Distress zone
	2019-20	0.44	Distress zone
	2018-19	0.95	Distress zone
	2017-18	0.93	Distress zone
	2016-17	0.91	Distress zone
Square Textile Ltd.	2020-21	2.37	Gray zone
	2019-20	1.66	Gray zone
	2018-19	2.39	Gray zone
	2017-18	2.80	Gray zone
	2016-17	5.28	Safe zone

Source. Appendices 6-10 and Table 3.

Table 5 reveals the status of the sample companies with regard to their financial health during the study period including the period of pandemic caused by COVID-19. Both Envoy Textiles Ltd. and Prime Textiles Ltd. fell in financial distress zone over the entire study period from 2016-17 to

2020-21 indicating a high probability of bankruptcy or failure of these two firms. On the contrary, Argon Denims Ltd. for entire study period and Malek Spinning Mills Ltd. and Square Textile Ltd. for the last four years from 2017-18 to 2020-21 stayed in gray zone indicating their moderate position in terms of financial soundness that brings a meaning that they may or may not fail financially. Among them only Malek Spinning Mills Ltd. and Square Textile Ltd. showed their financial soundness staying in safe zone which indicates a low probability of bankruptcy or failure at the very outset of the study period, i.e. in 2016-17. Although after 2016-17, none of the sample companies were able to change their position from the prevailing zone of discriminations, it is observed that most of them were able to improve their financial performance measured by Z-score during the period of COVID-19, i.e. from 2019-20 to 2020-21.Figure 1 shows the trend of Z-score of the sample companies during study period including the COVID-19 aggression period.

Figure No 1: Distribution of Z-score of the sample companies by years



Source. Appendices 6-10.

Figure 1 provides a clear picture of Z-score calculated for the sample companies for the period from 2016-17 to 2020-21. Revealing the significant variations, as calculated in Table 4, in year- wise Z-score of the samples, Figure 1 exhibits that Z-score of Malek Spinning Mills Ltd., Argon Denims Ltd., and Square Textile Ltd. exceeded 2-point line, but that of Envoy Textiles Ltd. and Prime Textiles Ltd. did not exceed 1-point line, except for Envoy's Z-score in 2018-19. This is also an explicit revelation of Professor Altman's guidelines about the firm's classification as to either it is financially sound or bankrupt. Under the circumstances, it is also seen that except forArgon denims, the Z-score of all other samples uplifted during the COVID-19 aggression period, i.e. from 2019-20 to 2020-21. Under the above backdrop, the findings of this study can be summarized as per below.

- In terms of average Z-score during the study period, the majority samples, viz. Malek Spinning Mills Ltd. (2.22), Argon Denims Ltd. (2.38), and Square Textile Ltd. (2.90), were found to be performed above the distress zone and the other samples, viz. Envoy Textiles Ltd. (0.88) and Prime Textiles Ltd. (0.80), within the distress zone.
- Although Envoy Textiles Ltd. and Prime Textiles Ltd. were in high risk of being bankrupt, their Z-score tended to have an increasing tendency at the end of the study period, particularly in The period of COVID-19 aggression (i.e. 2019-20 to 2020-21). Among other samples, Malek SpinningMills Ltd. and Square Textile Ltd. also had their Z-score increased during the same period.
- Having comparatively a high rate of coefficient of variation in Z-score and staying at safe zone in 2016-17 and then at gray zone from 2017-18 to 2020-21, Malek Spinning Mills Ltd. and Square Textile Ltd. began to descend from 2017-18 to 2019-20 and thereafter started moving up from 2019-20 to 2020-21, the period of COVID-19 aggression.
- Despite staying at gray zone, the Z-score of Argon Denims Ltd. showed a tendency to decrease consistently over the study period along with the lowest rate of coefficient of variation.

Implications and Concluding Remarks

Any business firm usually has an inherent tendency to grow. But different key success factors, both financial and nonfinancial or controllable and uncontrollable, influence its smooth growing. Although many past researches used Altman's Z-score model as a better means of predicting financial distress, Wild et al. (2007) suggest that it should not be blindly applied without informed and critical analysis of a company's fundamentals. However, in the context of Altman's Z-score model, this study finds that the sample textile companies were not satisfactorily performing over the study period. Some of the samples (viz. Malek Spinning Mills Ltd. and Square Textile Ltd.) with high degree of coefficient of variation in their financialperformance, measured by selected ratios in Altman's Z-score, were found to be gone down from safe zone to gray/ambiguous zone; some others (viz. Envoy Textiles Ltd. and Prime Textiles Ltd.), on the other hand, with comparatively less variations in their Z-score were found to be improved slowly, though staying in distress zone. Moreover, almost all of the samples, except only for Argon Denims Ltd., showed a turned around in Z-score, irrespective of their zone of discriminations, in the second year of COVID-19 aggression (i.e. 2020-21).

Eventually, it can be noted that although the Altman's Z-score is not only the measure of predicting financial distress, the results obtained by using this model cannot be totally ignored. That is the model can be used as an early warning to determine the financial status of a textile company. Therefore, despite a glim of improving financial performance of the majority sample listed textile companies is revealed by their increased Z-score amidst the COVID-19 aggression period, they must have a strategic plan covering various key issues like bank loan, trade credit, invoice financing, long-term borrowings, etc. that can help manage cash flows and keep the business afloat and avoid the risk of financial distress. In fact, along with strategic planning, some other measures, such as cost-cutting, optimizing operational efficiency, exploring new revenue streams, etc. are worth consideration to strengthen the financial position of the textile companies in Bangladesh. Taking all these facts into consideration, it is assumed that this study might carry some insights to the users as to the financial health of relatively older listed textile companies of Bangladesh during a critical period, when the corona pandemic has destroyed theglobal economy drastically. Moreover, both current investors in particular and potential investors in general associated with the textile industry in Bangladesh also may be able to choose and decide their investment options after reviewing the financial performance of the concern as applied in this study.

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Samples' Annual Reports:

Argon Denim Textile Ltd., 2016-17 to 2020-21

Envoy Textile Ltd., 2016-17 to 2020-21

Malek Spinning Mill Ltd., 2016-17 to 2020-21

Prime Spinning Mill Ltd., 2016-17 to 2020-21

Square Textile Ltd., 2016-17 to 2020-21

Websites:

Argon Denim Ltd.,
http://www.argondenims.com/ Envoy Textile
Ltd., https://envoytextiles.com/
Malek Spinning Mill Ltd., https://www.newasiabd.com/malekspinni
ng.php Prime Spinning Mill Ltd,
http://primegroup.com.bd/index.php?menu_id=57•Square Textile Ltd.,
https://textile.squaregroup.com/

Appendices

Appendix 1. X_1 = Working capital ÷ Total assets

Name of the Company	2020-21	2019-20	2018-19	2017-18	2016-17
Envoy Textiles Ltd.	0.043342321	0.038214967	0.026511314	-0.025652132	-0.058351616
Malek Spinning Mills Ltd.	0.206246275	0.207418595	0.23266575	0.263102471	0.259096296
Argon Denims Ltd.	0.322119728	0.333577881	0.310269096	0.35205955	0.335685861
Prime Textiles Ltd.	0.100156539	0.064156617	0.022019065	0.004541985	-0.005333188
Square Textile Ltd.	0.215072244	0.01259757	0.069659844	0.055161726	0.222273168

Source. Calculations have been done by the authors using data from the annual reports of the samplefirms.

Appendix 2. X_2 = Retained earnings ÷ Total assets

Name of the Company	2020-21	2019-20	2018-19	2017-18	2016-17
Envoy Textiles Ltd.	0.099677626	0.10860007	0.108669763	0.082778136	0.08049107
Malek Spinning Mills Ltd.	0.064695237	0.031040405	0.052926163	0.06984283	0.075222093
Argon Denims Ltd.	0.192803796	0.2188758	0.2217734	0.199809366	0.1764472
Prime Textiles Ltd.	0.020873041	0.008898676	0.032691743	0.025459747	0.014287193
Square Textile Ltd.	0.345883468	0.345930001	0.405409901	0.372123547	0.487771808

Source. Calculations have been done by the authors using data from the annual reports of the samplefirms.

Appendix 3. X_3 = Earnings before interest and taxes (EBIT) ÷ Total assets

Name of the Company	2020-21	2019-20	2018-19	2017-18	2016-17
Envoy Textiles Ltd.	0.015548245	0.015937366	0.036690372	0.020461654	0.021864803
Malek Spinning Mills Ltd.	0.037641698	-0.008606411	0.010862352	0.021840949	0.021637349
Argon Denims Ltd.	0.016133451	0.041852713	0.081612853	0.086088619	0.087552004
Prime Textiles Ltd.	0.006682857	-0.019515857	0.007897721	0.012570297	0.013739704
Square Textile Ltd.	0.047545421	0.006352342	0.033649234	0.036925971	0.039619108

Source. Calculations have been done by the authors using data from the annual reports of the samplefirms.

Appendix 4. X_4 = Market value of preferred and common equity ÷ Total liabilities

Name of the Company	2020-21	2019-20	2018-19	2017-18	2016-17
Envoy Textiles Ltd.	0.399203299	0.307479457	0.51833983	0.508860071	0.060898604
Malek Spinning Mills Ltd.	2.235222851	1.139346947	1.862926878	2.571193488	3.848988381
Argon Denims Ltd.	1.293886848	1.056415248	1.375945365	1.573262024	2.156394485
Prime Textiles Ltd.	0.354521613	0.255534601	0.668766503	0.663342436	0.620293409
Square Textile Ltd.	1.154837601	0.782664852	1.573161986	2.3578608	5.88445362

Source. Calculations have been done by the authors using data from the annual reports of the samplefirms.

Appendix 5. X5 = Sales ÷ Total assets

Name of the Company	2020-21	2019-20	2018-19	2017-18	2016-17
Envoy Textiles Ltd.	0.464637478	0.45400553	0.512517547	0.432784955	0.378493769
Malek Spinning Mills Ltd.	0.380712185	0.367052171	0.410748931	0.464473513	0.396729638
Argon Denims Ltd.	0.497289256	0.566013988	0.645224027	0.678805263	0.616623672
Prime Textiles Ltd.	0.408750403	0.26395248	0.447360199	0.445277624	0.47993514
Square Textile Ltd.	0.773382443	0.66985912	0.686727479	0.675522626	0.668380745

Source. Calculations have been done by the authors using data from the annual reports of the samplefirms.

Appendix 6. Calculation of Z-score: Envoy Textiles Ltd.

	2020-21	2019-20	2018-19	2017-18	2016-17
X1*1.2	0.052010786	0.045857961	0.031813577	-0.030782558	-0.070021939
X2*1.4	0.139548676	0.152040097	0.152137668	0.115889391	0.112687498
X3*3.3	0.051309209	0.052593307	0.121078228	0.067523458	0.072153851
X4*0.6	0.239521979	0.184487674	0.311003898	0.305316043	0.036539162
X5*1	0.464637478	0.45400553	0.512517547	0.432784955	0.378493769
Z-score	0.947028128	0.88898457	1.128550918	0.890731288	0.529852342
Z-score (0.00 places)	0.95	0.89	1.13	0.89	0.53

Source. Appendices 1-5. Calculations have been done by the authors.

Appendix 7. Calculation of Z-score: Malek Spinning Mills Ltd.

	2020-21	2019-20	2018-19	2017-18	2016-17
X1*1.2	0.24749553	0.248902314	0.2791989	0.315722965	0.310915555
X2*1.4	0.090573332	0.043456567	0.074096629	0.097779962	0.105310931
X3*3.3	0.124217604	-0.028401155	0.035845761	0.072075131	0.071403252
X4*0.6	1.341133711	0.683608168	1.117756127	1.542716093	2.309393029
X5*1	0.380712185	0.367052171	0.410748931	0.464473513	0.396729638
Z-score	2.184132363	1.314618065	1.917646348	2.492767664	3.193752404
Z-score (0.00 places)	2.18	1.32	1.92	2.49	3.19

Source. Appendices 1-5. Calculations have been done by the authors.

Appendix 8. Calculation of Z-score: Argon Denims Ltd.

	2020-21	2019-20	2018-19	2017-18	2016-17
X1*1.2	0.386543674	0.400293457	0.372322915	0.42247146	0.402823034
X2*1.4	0.269925314	0.306426119	0.31048276	0.279733112	0.24702608
X3*3.3	0.053240388	0.138113954	0.269322416	0.284092443	0.288921613
X4*0.6	0.776332109	0.633849149	0.825567219	0.943957215	1.293836691
X5*1	0.497289256	0.566013988	0.645224027	0.678805263	0.616623672
Z-score	1.983330741	2.044696667	2.422919338	2.609059493	2.849231089
Z-score (0.00 places)	1.98	2.05	2.42	2.61	2.85

Source. Appendices 1-5. Calculations have been done by the authors.

Appendix 9. Calculation of Z-score: Prime Textiles Ltd.

	2020-21	2019-20	2018-19	2017-18	2016-17
X1*1.2	0.120187847	0.07698794	0.026422878	0.005450382	-0.006399825
X2*1.4	0.029222257	0.012458146	0.04576844	0.035643646	0.02000207
X3*3.3	0.022053428	-0.064402328	0.026062479	0.041481982	0.045341024
X4*0.6	0.212712968	0.153320761	0.401259902	0.398005462	0.372176045
X5*1	0.408750403	0.26395248	0.447360199	0.445277624	0.47993514
Z-score	0.792926904	0.442316999	0.946873899	0.925859095	0.911054454
Z-score (0.00 places)	0.79	0.44	0.95	0.93	0.91

Source. Appendices 1-5. Calculations have been done by the authors.

Appendix 10. Calculation of Z-score: Square Textile Ltd.

	2020-21	2019-20	2018-19	2017-18	2016-17
X1*1.2	0.258086693	0.015117084	0.083591813	0.066194072	0.266727801
X2*1.4	0.484236855	0.484302002	0.567573862	0.520972966	0.682880531
X3*3.3	0.15689989	0.020962727	0.111042471	0.121855704	0.130743058
X4*0.6	0.692902561	0.469598911	0.943897192	1.41471648	3.530672172
X5*1	0.773382443	0.66985912	0.686727479	0.675522626	0.668380745
Z-score	2.365508442	1.659839845	2.392832817	2.799261847	5.279404307
Z-score (0.00 places)	2.37	1.66	2.39	2.80	5.28

Source. Appendices 1-5. Calculations have been done by the authors.

AN OVERVIEW OF SECURITY ISSUES AND CHALLENGES RELATING TO BLOCKCHAINTECHNOLOGY

Himalaya Singh*

Dr. Shilpa Vardia **

ABSTRACT

Blockchain technology (BT) is one of the most popular problems in the recent years, it has already changed people's lifestyle in some specific area due to its hugeeffect on many organizations or institute, and What itcan do will still continue to cause impact in many places. Although the characterization of (BT) blockchain technologies can bring us more reliable andsuitable services, the security issues and challenges behind this modern technology are also an importanttopic that we need to worry about.

Keywords: Blockchain, Technology, Security issue, risks, Cryptocurrency, Ethereum, Smart contract.

Introduction

Bitcoin, Cryptocurrency, Ethereum, Smart contract is the initial application of blockchain, it's a types of digital currency based on (BT) blockchain technology, using for trade things on the internet like money as we do in the real world. Because the success of Bitcoin, Cryptocurrency, Ethereum, Smart contract citizens now can use blockchain technology in a lot of area and service, such as financial market,IT, supply chain, voting, medical treatment andstorage.

But as we use these tools or services in our dailylives, cyber criminals also have the opportunity to engage in cyber-crime. For example, 70-75% ofattacks are a classic security issue in Bitcoin, Cryptocurrency, Ethereum, Smart contract that hackers try to control the system's mechanisms using the same technology base.

In this paper, we will have a pilot study about 1, what is blockchain technology in Section 2, then we'lldiscuss different application in blockchain 3, and what service do they offer in Section 4, at the end, we shall talk about the security issues and those challenges we need to overcome in Section 5, The paper is concluded in Section.

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Concept of Blockchain

It is not presently only single individual technique, but contains Cryptography, mathematics, Algorithm and economic financial model, combine (P2P) peer- to-peer networks and using distributed consensus algorithm to solve traditional distributed database coordinate problem, it's an integrated multifield infrastructure construction.

The blockchain technology expressed of six key fundamentals.

Decentralized

The essential attribute of blockchain, means that blockchain doesn't have to rely on centralized node anymore, the data can be collection, classification, record, store.

Transparent

The data's record by blockchain system is transparent to each node, it also transparent on update the data, that is why blockchain can be trusted.

Open Source

Most blockchain system is open to every- one, record can be check publicly and people can also use blockchain technologies to create any application they want.

Autonomy

Because of the base of consensus, every node onthe blockchain system can transfer or update data safely, the idea is to trust form single person tothe whole system, and no one can intervene it.

Immutable

Any records will be reserved forever, and can'tbe changed unless someone can take control morethan 70% node in the same time.

Anonymity

Blockchain technologies solved the trust problem between node to node, so data transfer or even transaction can be anonymous, only need to knowthe person's blockchain address.

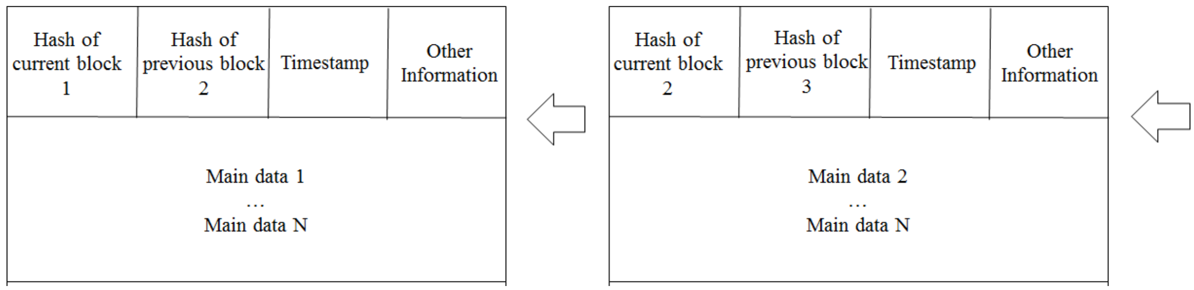

Figure No 1: The structure of block chain

How Blockchain Works?

The main working processes of blockchain are asfollows:

1 The sending node records new data and broadcasting on the network.

2 The receiving node checked the message from thedata it received, if the message was correct it would be stored in a block.

3 Execute the Proof of Work (PoW) or Proof of Share (PoS) algorithm for all received nodeblocks in the network.

4 After executing the consensus algorithm theblock will be stored in the series, each node in thenetwork accepts this block and will continuously expand the chain base on this block.

The Structure of Blockchain

Normally in the block, it contains main data, hash ofprevious block, hash of current block, timestamp and other information. Figure 1 shows the structure of block.

Main data. Depending on what service is this blockchain applicate, for example: transactionrecords, bank clearing records, contract records or IT data record.

Hash.

When a transaction was executed, it was hashed in a code and then transmitted to each node. Because it can contain thousands of transaction records in each node's block, the blockchain used the Merkle Tree function to generate the final hash value, which is also the Merkal Tree Root. This final hash value will be recorded in the block header (the hash of the current block), using the Merkle tree function, data transmission and computing resources canbe significantly reduced.

Time stamp. Time of generated block.

Other Information. The block defines signatures, Nonce values, or other data like that the user.

How to Get Consensus?

The consensus function is a mechanism that consentsall blockchain nodes in a single message, can ensure that the latest block is added correctly to the chain, guarantee that the message stored by the node was thesame and will not be a 'fork attack', even protecting against malicious attacks.

Proof of Work (PoW)

Proof of work is a piece of data that is difficult (expensive or time-consuming) to produce but easy to verify for others and that meets certain requirements. Preparing a proof of work can be a random process with little probability so that on average a lot of trialand error is required before valid proof of work can begenerated. Bitcoin uses hashcash proof of the work system.

When calculating a POW, it is called 'mining'. Eachblock has a random value called 'nones' in the blockheader, by changing this nons value, the POW mustgenerate a value that makes this block header hash value less than the 'difficulty target' that has alreadybeen set. The difficulty means how long it will take when the node calculates the hash value less than thetarget value. In order for network participants to accept a block, miners must complete a proof of work that covers all the data in the block. The difficulty ofthis work is adjusted so as to limit the rate at which anew block can be generated every 5 minutes by the network. Due to the very low probability of successfulgeneration, it makes it unpredictable which worker computer in the network will be able to generate thenext block.

Proof of Stake (PoS)

Because the proof method of work will waste a lot ofelectrical power and computing power, the proof of the stakes does not require expensive computing power. With proof of stake, the resource that is compared is the amount of bitcoin that a miner owns, someone holding 2% of bitcoin can mine 2% of the'proof of stake block'. Proof of the stake method canprovide increased protection from malicious attacks on the network. Additional security comes from two sources:

1. Carrying out an attack would be much moreexpensive.
2. Less incentive for attack. The attacker must ownalmost the majority of all bitcoins. Therefore, theattacker suffers severely from his own attack.

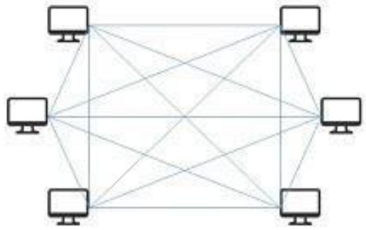

Figure No 2: Public blockchain

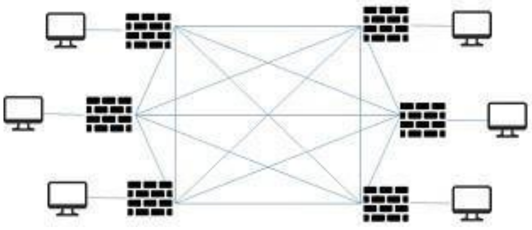

Figure No 4: Private blockchain

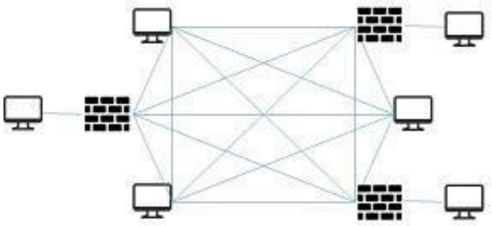

Figure No 3: Consortium blockchain

Type of Blockchain

Blockchain technologies can be roughly divided intothree types.

1 **Public blockchain**:Everyone can check and verify transactions, as well as participate in the process of achieving consensus. Eg: Both Bitcoinand Ethereum are public blockchains. Figure 2 shows a public blockchain

2 **Consortium blockchains:** This means that thenodes that have authority can be chosen in advance, usually there is a business-to-business- like partnership, data in the blockchain can be open or private, it can be seen as partially decentralized Is. Like Hyperledger and R3CEV are both consortium blockchains. Figure 3 shows the consortium blockchain.

3 **Private blockchain:** Node will be restricted, not every node can participate in this blockchain, there is strict authorization management on data access. Figure 4 shows a private blockchain.

Application of Blockchain Technology

Blockchain technologies can be used in many areas, not only in financial applications, but also in other industries.

Digital Currency: Bitcoin

Bitcoin's data structure and transaction system were created by blockchain technology, making bitcoin a digital currency and online payment system. By using encrypted technology, money transfers can be achieved and there is no need to depend on a central bank.

Bitcoin used public key addresses to send and receive bitcoins, record transactions, and personal IDs were anonymous. The process of verifying a transaction requires the computing power of other users to achieve consensus, and then record the transaction in the network.

Smart Contract: Ethereum

Smart contract is a digital contract that controls the digital assets of the user, formulates the rights and obligations of the participant, will be automatically executed by the computer system. It is not just a computer process, it can be seen as one of the contractparticipants, it will respond to receive messages and store data, and it can also send messages or valuesout.The smart contract is like a person that can be trusted, temporarily hold the asset and will follow the orderthat has already been programmed. Ethereum is an open source blockchain platform that combines smart contracts, offering a decentralized virtual machine to handle contracts, using its own digital currency called ETH, people can run many different services, applications or contracts on this platform.

Hyperledger

Hyperledger is an open source blockchain platform, focused on ledgers designed to support global business transactions, including major technology, financial and supply chain companies, with the goalof improving multiple aspects of performance and reliability. The project aims to bring together several independent efforts to develop open protocols and standards by providing a modular framework that supports different components for different uses. It will consist of different types of blockchains with their own consensus and storage models, and services for identity, access control, and contracts.

Other Applications

There are still many use cases for blockchain technologies, such as protection of intellectualproperty, traceability in supply chains, identity authentication, insurance, international payments, IOT, medical treatment or patient privacy in prediction markets.

Security Issues and Challenges

So far, blockchain has been paid a lot of attention in various fields, however, it also exists some problemsand challenges need to be addressed.

The Majority Attack (51% Attacks)

With Proof of Work, the probability of mining a blockdepends on what the miner does (e.g. CPU/GPU cycles spent checking hashes). If it holds 51% of thecomputing power, it will be able to take control of this blockchain. Obviously, this causes security issues. If someone has more than 51% computing power, he can find the nonce value faster than others, which means he has the right to decide which block isacceptable. What can it do?

- In the case of modified transaction data, adouble spending attack may occur.
- The block verifying transaction should bestopped.
- The goal is to stop the miner from mining anyavailable block.

A majority attack was more feasible in the past whenmost transactions were significantly higher than the block reward and when the network hash rate was verylow and prone to reorganization with the advent of new mining techniques.

Fork Problems

Another problem is the fork problem. The fork issue is related to the decentralized node version, compromisedwhen software is upgraded. This is a very important issue as it covers a wide range of blockchains.

Types of Forks

When a new version of the blockchain software is published, the new agreement on the consensus rules is also changed in the nodes.

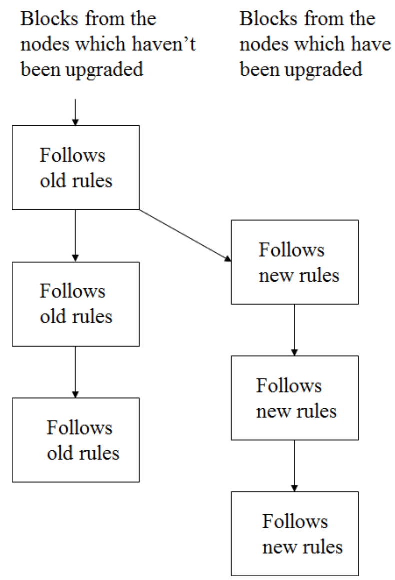

Figure No 5: Hard Fork

Therefore, nodes in the blockchain network can be divided into two types, new nodes and old nodes. so here comes the four situations.

3 New nodes agree to the transaction of theblock that is being sent by the old nodes.

4 New nodes do not agree to the transaction ofthe block that is sent by the old nodes.

5 Old nodes agree to the transaction of theblock that is sent by the new nodes.

6 The old nodes do not agree with the transaction of the block that is being sent bythe new nodes.

Due to these four different cases in achieving consensus, fork problems occur, and according tothese four cases, fork problems can be divided into two types, hard fork and soft fork. In addition to separating new nodes and old nodes,we have to compare the computing power of new nodes with old nodes, and assume that the computing power of new nodes is greater than 50

- **Hard Fork**

Hard fork means that when the system comes to anew version or new agreement, and it was not compatible with the previous version, the old nodes could not agree to the mining of the newnodes, so a series became two series. Althoughthe new nodes computing power was stronger than the old nodes, the old nodes would still continue to maintain the chain which though it was correct. Figure 5 shows the hard fork problem.

When there is a hard fork, we have to request allnodes in the network to upgrade the, agreement, nodes that have not been upgraded will not continue to work normally. If the moreold nodes were not upgraded, they would continue to work on other completely different series, meaning that the ordinary

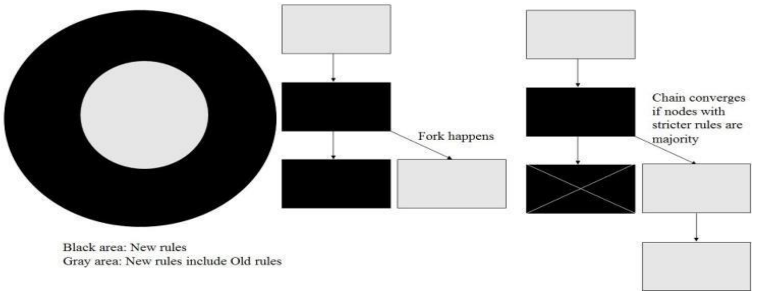

Figure No 6: Hard Fork happens because the old node verification requirement is much stricter than the new node

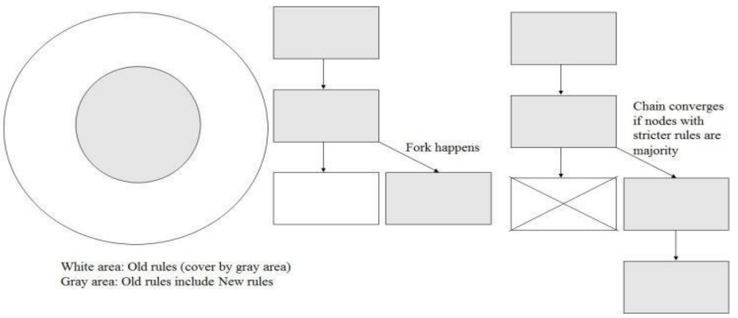

Figure No 8: Soft Fork happens because the new node verification requirement ismuch stricter than the old node

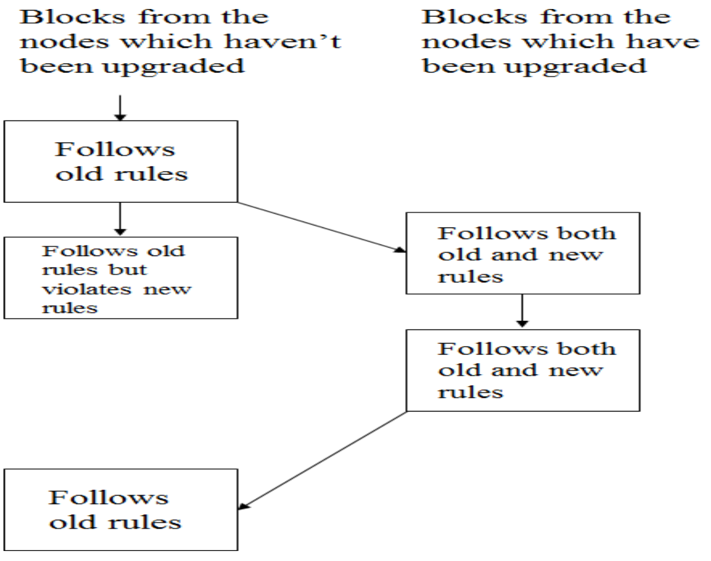

Figure No 7: Compatible hard fork

series would split into two series. Figure 6 shows the reason why there would be a hard fork.

Soft Fork

Soft fork means that when the system comes to a new version or new agreement, and it was not compatible with the previous version, the new nodes could not agree to the mining of the old nodes. Because the computing power of new nodes is stronger than that of old nodes, blocksmined by old nodes will never be approved by new nodes, but new nodes and older nodes willstill continue to operate on the same chain. Figure 7 shows the soft fork problem. When there is a soft fork, the nodes in the networkdo not need to upgrade to the new agreement at thesame time, it allows to upgrade gradually. Not likehard fork, soft fork will only have one chain, it willnot affect the stability and effectiveness of the system when nodes are upgraded. However, soft fork makes the old node unaware that the consensus rule has changed, contrary to the theory that everynode can verify somewhat correctly. Figure 8 showsthe reason why there would be a soft fork.

Scale of Blockchain

As the blockchain grows, the data becomes biggerand bigger, the loading of stores and computing will also become harder and harder, it takes a lot of time to synchronize the data, at the same time, the datastill grows, bringing a big problem to the customerwhen running the system

Simplified Payment Verification (SPV)

This is a payment verification technique, without maintaining complete blockchain information, onlythe block header message has to be used. This technology can greatly reduce user storage in blockchain payment verification, reducing user pressure if there is a huge increase in transactions inthe future.

Time Confirmation of Blockchain Data

Compared to traditional online credit cardtransactions, usually take 2 or 3 days to confirm thetransaction, only 1 hour has to be used to verify bitcoin transactions, it is much better than usual, but itis still not enough what we want. Lightning network is a solution to solve this problem. Lightning Network is a proposed implementation of hashed timelock contracts (HTLC) with bidirectional payment channels that allow payments to be safely routed across multiple peer-to-peer (P2P). payment channels. This allows the formation of a network where any coworker on the network can pay anothercoworker, even if they do not have a channel directlybetween each other.

Current Regulations Problems

For example, use the characteristics of a decentralizedsystem, will weaken the central bank's ability to control economic policy and the amount of money,which alerts the government to blockchain technologies, the authorities will have to research this new issue, accelerate the formulation of new policy,otherwise it will put the market at risk.

Integrated Cost Problem

Of course it will cost a lot, including time and money,to replace the existing system, especially when it is an infrastructure. We have to ensure that this innovative technology not only produces economic benefits, meets the requirements of supervision, but also bridges with the traditional organization, and it always faces difficulties from the internal organization that now exists.

Conclusions

There is no doubt that blockchain is a hot issue in recent years, although it has some topics that we need to pay attention to, with the development of new technology on the application side as well as some problems already improved, which is becoming more and more mature and stable.

The The government must make relevant laws for thistechnology, and the enterprise must be prepared to embrace blockchain technologies, preventing that it has too much impact on the current system.

While we enjoy the benefits of blockchain technologies, at the same time, we still have to be cautious on its impact and security issues that it mayhave.

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A STUDY ON IMPACT OF ARTIFICIAL INTELLIGENCE IN ACCOUNTANCY: A CASESTUDY OF SMALL SCALE INDUSTRIES OF ODISHA

Dr. Samira Patra*

ABSTRACT

Introduction: Paperless accounting presenting the aspects of accounting with artificial intelligence or technology. The accounting industry is one of the industries that has been seen to have a growth in digitalization and is expected to grow even more. The technology brought up changes in recent times through traditional book-keeping method was once characterized manually sitting over hour-long to up gradation without any visual presentation. All most all typesof business organisation now find easy and hassle-free uses of digital accounting for recording and interpretation of results of business transactions.

Research Gap: A good no. of researches have been conducted in the area of digital accounting and accounting industry in India as well as the whole world, but no remarkable study has been made as regards to impact of artificial intelligence on accountancy and accountant for small scale industries of Odisha.

Objectives: This paper attempts to understand the impact of digitalization or Artificial Intelligence of accounting profession on Small Scale Industries of Odisha. This paper also study the relationship between the status quo (present state of affairs) and developmental trends of digitalisation or Artificial Intelligence in accounting.

Research Methodology:

a. **Nature and Sources of Data:** The study is based on primary and Secondary Data. The primary data have been collected through well design questionnaire and indirect interviews. The secondary data have been collected from various secondary sources like journals, magazines, and from various reputed websites. The collected data have been classified and tabulated according to the requirements of the study.

b. **Tools of Analysis:** There are various tools like percentage calculations; chi-square test, t-Test have been used for analysis and interpretation of results.

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provide outputs that can be extremely accurate, replacing and, in some cases, far superseding human efforts. However, they do not replicate human intelligence. We need to recognise the strengths and limits of this different form of intelligence, and build understanding of the best ways for humans and computers to work together.

Keywords: Artificial intelligence, Digitalisation of Accounting, Technology, traditional book-keeping, accountancy and accountant.

JEL Classification: M40, M41, M42, O33

INTRODUCTION

Artificial intelligence (AI) is one of the most important technologies for the future; alongside with Internet of Things, cloud computing, block-chain. It is considered the ability of a machine to imitate human actions like communication, decision taken. Some benefits of implanting Artificial Intelligence solutions, such as the possibility of obtaining more accurate results and time saving while processing a large amount of data are already known in different fields of activity. Artificial Intelligence solutions does not represent a new subject for researchers or a common practice for advanced companies in technology but is an interesting topic for study cases, mainly their impact on the accounting filed.

Accountants are already using the technology in their daily activities to improve the results and reduce the time spend. In this case AI systems implementation will not be an unknown step in their career. But this comes with considerable benefits as achieving objectives using data-driven decision making, can find insights on the results of the business using data analytics and can save significant amount of time, that would normally be spend on repetitive activities.

It is also the first step in developing a guide for accounting professionals of the best common practices needed to survive on the new work environment. The recent academic interest on the impact of AI in accounting profession is represented by a limited number of studies. On the last years researchers observed the increasingly trend of integrating new AI solutions in the business but in the accounting profession there is still a need for more in depth researchers in this area. The target audience of this research is represented by the companies willing to implement AI in their accounting activities and by the accounting specialists which will be forced to adapt to the new working conditions.

In order to offer help in this scope the objective of this research is to conduct an in-depth analysis of the existing papers about AI in the accounting profession This paper is organized on the following way: it begins with an overview of the current literature on the impact of AI solutions in the accounting professions. Next section is presenting the implications of AI solutions on accounting profession and the necessary steps to be followed by companies and employees in order to get the best results. In the final part this paper we are disclosing conclusions, study limitations and some directions for a future investigation on the topic.

REVIEW OF LITERATURE

The extensive literature review provides the platform for the fundamentals and the researches have been undertaken by the various researchers in the particular and related area.

Toshniwal, R. (2016), in the paper "E- Accounting: The Necessity of Modern Business" studied E-accounting practices adopted by the modern businesses and concluded that E- accounting is new development in the field of accounting. In this system, every document and records exist in digital form instead of on paper. All major institutions and organizations at national and international level are in the favour of e-accounting.

Mancini and et. el. (2017) in the paper "Trends of Digital Innovation Applied to Accounting Information and Management Control Systems" studied about the trends of digital innovation applied to accounting information and management control system and concluded that the digitalisation of data, information and flows requires an additional effort of research, especially in the field of accounting information and management control systems.

Gulin and et. el. (2019), in the paper "Digitalization and the Challenges for the Accounting Profession", analysed and systematized the key challenges that digitalization brings for the accounting profession and concluded that Digitalization and the development of information technologies represent a great opportunity for companies.

Begum, D. (2019), in the paper **"**Digital Transformation of Accounting in India" studied how digital accounting businesses could set up a general business model, in order to be a successfully digitalized business and concluded that the development of technology is required for the development of digital accounting and finance across the country and helped to transform the country into knowledge of digitalization heaven.

Khanom, T. (2020), in the paper "The Accountancy Profession in the age of Digital Transformation: Challenges and Opportunities" studied the theoretical basis for them who are somehow connected or will be attached to the world of accounting in future and concluded that Accounting professionals who are knowledgeable in international standards, regulations, and processes will thri

Kruskopf, S. and et. el. (2020), in the paper "Digital accounting and the human factor: Theory and Practice" studied the technological disruptions shaping these fields and also look at how they might influence future jobs and required skills and concluded that a promising and innovative future, where human-machine cooperation will be key and the individuals with the right skillsets will be set to prosper in this future.

Bhlmanl, A. (2020), in the paper "Digital Data and Management Accounting: Why We Need to Rethink Research methods" explored the continued applicability of conventional methodological thinking when carrying out investigations within digital data environments to inform management accounting studies and by highlighting the necessity, where digitalisation exists, to question modes of posing questions and to reconsider the applicability of methodological precepts deployed by management accounting researchers to date.

Syrtseva, S. and et. el. (2021) in the paper "Digital Technologies in The Organization of Accounting and Control of Calculations for Tax Liabilities of Budgetary Institutions", examined the main tools of digital technologies in the organization of accounting and control, which can be effectively applied at all stages of tax administration and optimize activities all participants in tax relation and concluded that the digitalization in the organization of accounting and control of settlements for tax liabilities and the process of servicing taxpayers will increase the level of tax culture.

Trisnadewi and et. el. (2021), in the paper "Determinants of the use of Digital-Based Accounting Information Systems Micro, Small and Medium Enterprises in Denpasar City", studied about the Digital-Based Accounting Information Systems Micro, Small and Medium Enterprises in Denpasar City and concluded that that computer anxiety can be overcome by developing self-control from within the individual, in this case the student MSME managers must feel confident in their personal abilities that the use of information systems can be achieved if MSME managers are increasingly developing internal locus of control.

Isbil, N. and et. el. (2021), in the "Digital Reporting in Accounting: XBRL and Integration to Accounting Department Curriculum", analysed the necessity of integrating XBRL into the accounting curriculum in Turkey and makes some practicable suggestions on how XBRL can be integrated into accounting curriculum and concluded that the courses in the curriculum do not incorporate information about XBRL. Thus, the study suggests how XBRL can be integrated into theexisting curriculum at the compulsory courses.

Hasam, A. R. (2022), in the paper entitled "Artificial Intelligence (AI) in Accounting & Auditing: A Literature Review", reviewed the application of Artificial Intelligence (AI) in Accounting and Auditing and concluded that AI development and implementation in the accounting and auditing profession can be viewed as a double-edged sword

RESEARCH GAP

The above review of literature shows that a good no. of researches have been conducted in the area of artificial intelligence and accounting, but no remarkable study has been made as regards to the opportunities and challenges brought by AI solutions to the accounting profession for the Small Scale Industries in Odisha.

OBJECTIVES

The objectives of the study are as follow:

- To understand the impact of digitalization or Artificial Intelligence of accounting profession on Small Scale Industries of Odisha.
- To Study the relationship between the status quo (present state of affairs) and developmental trends ofdigitalisation or Artificial Intelligence in accounting.

RESEARCH METHODOLOGY

i) **Nature and Sources of Data:** The study is based on primary data and Secondary Data.

ii) **Sources of Data:** The primary data have been collected through well design questionnaire and indirect interviews. The secondary data have been collected from various secondary sources like journals, magazines, and from various reputed websites. The collected data have been classified and tabulated according to the requirements of the study.

iii) **Sample Size:** The sample data consists of 200 respondents comprises Businessman, accounting professional, accounting educator, accounting students and Chartered Accountant.

iv) **Time of Study:** Data have been collected during July-December, 2022.

v) **Tools of Analysis:** There are various tools like percentage calculations; chi-square test, t-Test have been used for analysis and interpretation of results.

RESEARCH HYPOTHESIS

- There is a significant relationship between accounting industry and impact of digital accounting on the small scale business of Odisha.
- There is no significant relationship between the status quo (present state of affairs) and developmental trends of digitalisation in accounting.

DATA ANALYSIS AND INTERPRETATION

The sample data consists of 200 respondents comprises Businessman, accounting professional, accounting educator, accounting students and Chartered Accountant of Odisha.

The table no. 1 shows that out of 200 respondents 35% are from rural/semi-rural area and 65% belongs to city/town area. The test statistics χ^2 show that null hypothesis there is no difference between rural/semi-rural and town/city respondents has rejected as calculated value is greater than the table value /P value. So, there is a significant difference between rural/semi-rural and town/city respondents. Out of 200 respondents 58% are male and 42% female. Out of 200 respondents 25% are below 25 age groups, 35 % are 26-40 age groups and 40% belongs to above 40 age groups. Out of 200 respondents 09% have educational qualification up Graduation, 06 % have UG-PG qualification and 85% have above Post-Graduation. 55 % respondents have capital contribution up to ₹ 5 lacs contribution and 45% respondents have above ₹ 5 lacs capital contribution.

Table No 1: Profile of Sample

Profile	No. of Respondents	% to Total	Test Statistics	Profile	No. of Respondents	% to Total	Test Statistics
Location			χ^2=18	**Gender**			χ^2=5.12
Rural/Semi-Rural	70	35	P= 3.814	Male	116	58	P= 3.814
Town/city	130	65	df=1	Female	84	42	df=1
Age				**Education**			
Up to 25	50	25	χ^2= 7	Up to Graduation	18	9	χ^2=240.52
26-40	70	35	P= 5.991	UG- PG	12	6	P= 5.991
Above 40	80	40	df=2	Above PG	170	85	df=2
Amount of Capital Invested				**No. of Years' Experience**			
Up to ₹ 2 Lac	22	11	χ^2=44.92	Up to 20 Years	66	33	χ^2=13.24
₹ 2 Lac- ₹ 5 Lac	88	44	P= 5.991	20-30 years	88	44	P= 5.991
₹ 5 Lac above	90	45	df=2	Above 30	46	23	df=2
Sample Size	**200**	**100**		**Sample Size**	**200**	**100**	

(Source: Collected and compiled from Field Study)

Results and discussions

Due to the implementation of Artificial Intelligence solutions is a myth, the business of losing the human control, for the accounting profession. AI represents a complement to human intelligence, and this will bring benefits to the accounting profession, enabling the accounting domain to interact better and support more the management functions of the business.

In order to be prepared to integrate the solutions provided by artificial intelligence into the regular activity's accountants need to focus on developing new skills and abilities. The first set of skills to be impacted professional skills, every accountant needs to constantly improve his/her professional capabilities throughout their career. Secondly the focus should be on enhancing the management skills. Even if an accountant will not become manager, if these skills, are available, it will increase the chances to reach a management position when available and wanted.

Decision making skills will help an accountant to correctly evaluate a project's quality and the necessary resources. The finance team should be able to understand the impact of a project for the company, the way competitors are performing similar activities and to be able to support with evidence the decisions making process on a long run or short run.

Nowadays companies started to hire accountants which know how to work with information technology, on the top of a good professional education. Being able to use and implement AI in one's work/activity is a competitive advantage that matters.

Accountants and accounting companies need to focus on developing and strengthening their knowledge on AI and be able to integrate the positive impact of these technologies, into their activities and strategies. AI will improve accountants' activities if they will be able to work closely with researchers and developers of AI solutions, to design the best product and processes. While implementing AI solutions companies needs to focus on strengthening cyber-defence systems to be able to protect the systems

TESTING OF HYPOTHESIS

Hypothesis 1:

H_0: There is a significant relationship between accounting industry and impact of digital accounting on the small scale business of Odisha.

H_1: There is no significant relationship between accounting industry and impact of digital accounting on the small scale business of Odisha.

Table No 2: Data for Hypothesis 1

Situations	Small Scale Industry	Medium Scale Industry	Total
Traditional Accounting	37	12	**49**
Artificial Accounting	63	88	**151**
Total	**100**	**100**	**200**

(Source: Collected and compiled from field study)

The table no. 3 shows the t-Test: Paired Two Sample for Means.

Table No 3: t-Test: Paired Two Sample for Means

	Traditional Accounting	Digital Accounting
Mean	24.5	75.5
Variance	312.5	312.5
Observations	2	2
Pearson Correlation	-1	
Hypothesized Mean Difference	0	
df	1	

t Stat	**-2.04**
P(T<=t) one-tail	0.1450773
t Critical one-tail	6.3137515
P(T<=t) two-tail	0.2901546
t Critical two-tail	12.706205

(Source: Author's Calculation on the basis of field study)

The above table no 3 shows that the calculated value of t test. = - 2.04 and the degree of freedom is 1. With reference to the 1 degree of freedom at 5% level of significance, the critical value of the t test is obtained as P(T<=t) one-tail is 0.145 less than the t Critical one-tail 6.313752 and P(T<=t) two-tail is 0.290 less than the t Critical two-tail is 12.70.

Decision: Hence decision is that **Accept H_0** i.e. There is a significant relationship between accounting industry and impact of digital accounting on the small scale business of Odisha and **Reject H_1** i.e. There is no significant relationship between accounting industry and impact of digital accounting on the small scale business of Odisha.

Hypothesis 2:

H0: There is a significant relationship between the status quo (present state of affairs) and developmental trends of digitalisation in accounting.

H1: There is no significant relationship between the status quo (present state of affairs) and developmental trends of digitalisation in accounting.

Table No 4: Data for Hypothesis 2

Sl. No.	Statement		Present Status			Future Aspiration		
			Low	Medium	High	Low	Medium	High
1	Paperless Accounting	No.	30	170	--	--	---	200
		%	**15%**	**85%**	**---**	--	**---**	**100%**
2	Uniformity of Systems and creation of Transparency	No.	30	140	30	---	---	200
		%	**15%**	**70%**	**15%**	----	**---**	**100%**
3	Process Automation	No.	---	100	100	----	10	190
		%	**---**	**50%**	**50%**	----	**5%**	**95%**
4	Integrated Consolidation System	No.	70	30	100	----	10	190
		%	**35%**	**15%**	**50%**	----	**5%**	**95%**
5	Big data Analysis	No.	30	170	---	----	---	200
		%	**15%**	**85%**	**---**	----	---	**100%**
6	Real-time Reporting	No.	---	170	30	---	10	190
		%	**---**	**85%**	**15%**	---	**5%**	**95%**
7	Tools For Visualization	No.	70	130	---	---	---	200
		%	**35%**	**65%**	**---**	**---**	**---**	**100%**
8	Cloud Accounting	No.	200	----	---	---	10	190

		%	**100%**	**----**	**----**	**---**	**5%**	**95%**
9	Block Chain	No.	170	30		----	30	130
		%	**85%**	**15%**	---	----	**35%**	**65%**
10	Artificial Intelligence	**No.**	**190**	**10**	**---**	**----**	**10**	**190**
		%	**95%**	**5%**	**---**	**---**	**5%**	**95%**
11	Fibre Connectivity	No.	100	100	---	---	---	200
		%	**50%**	**50%**	**----**	---	**----**	**100%**
12	Making Tax Digital	No.	---	190	10	---	----	200
		%	**---**	**95%**	**5%**	---	**---**	**100%**

(Source: Author's Calculation on the basis of field study)

Decision: The decision is that **Accept H_0** i.e**.** there is a significant relationship between the status quo (present state of affairs) and developmental trends of digitalisation in accounting and **Reject H_1** i.e. there is no significant relationship between the status quo (present state of affairs) and developmental trends of digitalisation in accounting

The second hypothesis concluded that the business house should be very careful regarding more dependent on artificial intelligence, but one day will come where the value of human accountant will be required by discarding all the uses of artificial intelligence in business. So, one should understand the benefits of artificial intelligence as well as the value of human talent and goodwill.

KEY FINDINGS:

- Due to the impact of Artificial Intelligence on the accounting profession it started to appear a real need for a dedicated education in this field.
- There is need of change on the curricula in order to assure that the graduates will be better prepared for their future jobs.
- AI will not replace the jobs of accountants, but it will improve their work, by reducing the time spend on repetitive tasks.
- There is a significant relationship between accounting industry and impact of digital accounting on the small scale business of Odisha.
- There is a significant relationship between the status quo (present state of affairs) and developmental trends of digitalisation in accounting.

CONCLUSIONS:

Computer skills are becoming more and more important in the era of Big Data. An accountant should be able to work not only with regular software, but he/she needs to be highly software literate, in order to easily adapt to the on-going changing business environment. An accountant which can understand the logic behind the IT system provides value-added for the IT team working on the development of these solutions. Analytical skills are important, due to the need to analyse financial information and to correctly evaluate the risks of some actions and decisions, based upon available information.

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THE IMPACT OF ETHICAL ACCOUNTING PRACTICES (EMPOWERMENT-E'S) ANDCULTURAL ASPECTS ON ORGANIZATIONAL PERFORMANCE

Dr. Asha Sharma*

ABSTRACT

Accounting ethics has become a big issue in the recent era of Industry 4.0. Now, it is far easy to manipulate data and create scams. The relevancy of accounting ethics and organizational culture are important factors to give the right path to management for achieving the motto of shareholders' wealth. Any organization's success is based on the level of commitment, values, ethics, and culture inside it. To further understand the impact of culture and empowerment E's on organizational performance, data was gathered through a structured questionnaire. Respondents' responses to standardized questionnaires were used to gather primary data. However, only 252 out of the 300 were complete and have been used for further research. A five-point Likert scale was used to analyze the findings. To assess how organizational culture affects performance, this study focuses on ethical accounting practices (six key Empowerment- E's). The hypotheses have been put to the test using the Kruskal-Wallis test. It can be concluded that there is a significant impact of empowerment aspects and cultural aspects on financial performance as well as market performance.

Keywords: Organizational performance, Ethical accounting practices, Empowerment, Cultural aspects

Introduction

The quality of a company's vision and organizational culture is the only factor that determines whether or not it will be successful. It is emphasized that factors such as values, culture, efforts, effectiveness, and ethical behaviour contribute to an organization's good performance and success (Sharma 2012).

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Globally, ethical problems have emerged. The ultimate objective of regulatory bodies like The PIOB is to guarantee pertinent audit, assurance, and ethical standards that are responsive to the Public Interest to increase confidence in the capital markets. Strengthening the International Audit and Ethics Standard-Setting System was advised by the International Foundation for Ethics and Audit's board of trustees.

Satyam case, the Goutam Adani case, recently collapsing of two sizable banks, Silicon Valley Bank and Signature Bank in the USA are examples of not following ethical practices. Ethical accounting practices always lead to good corporate performance.

The most crucial factors in every corporate enterprise are not properly adopting ethics, aesthetics, and spiritual practices causes to damage brand value. Businesses now aim to target overseas markets to expand their client base as the trend of internationalization has improved across industries. The majority of businesses worldwide are becoming global organizations for this reason. The most important prerequisite for any firm in the world to become an international organization is workplace diversity.

Application of Empowerment-E's and Cultural Aspects

The success of an organization is largely dependent on its organizational culture. It is the most important component because, depending on how an organization's management handles it, it can have a favourable or bad impact on the performance of the organization.

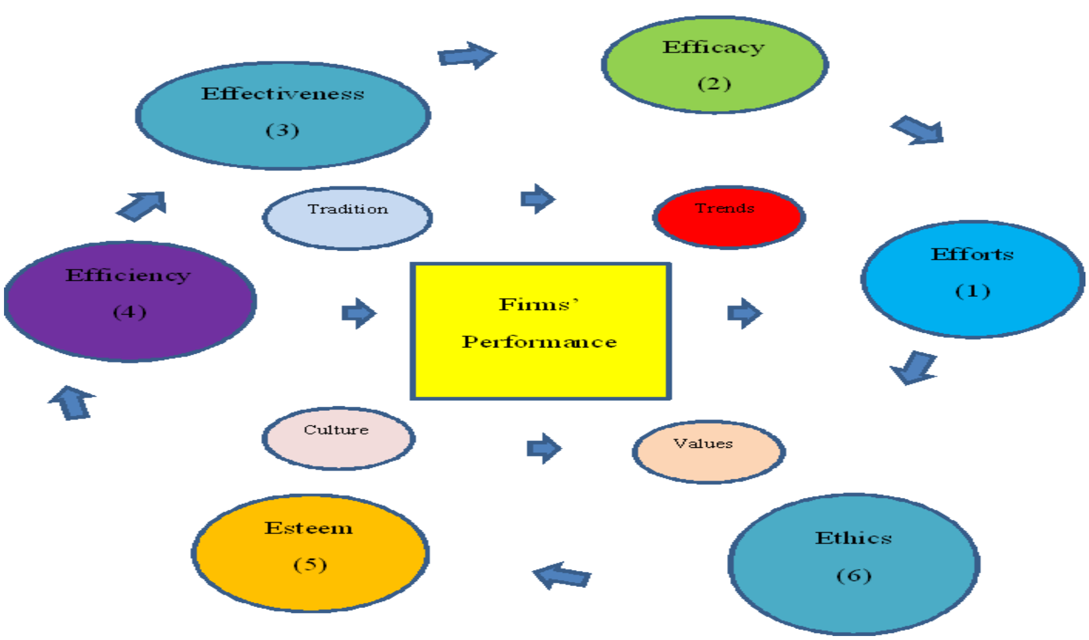

Figure No 1: 5 E's: Key Features of Sustainable Business PerformanceThe figure present

The figure shows that basically organization performance is based on two aspects i. e. EmpowermentE’s + Culture

Organizational Performance= Empowerment E’s (Ethical Accounting Practices) + Culture Empowerment E’s (ethical accounting practices) consisting of esteem, efficiency, effectiveness,efficacy, efforts.

Empowerments E’s (ethical accounting practices) consist of esteem, efficiency, effectiveness, efficacy, and efforts. Accounting ethics refers to the professional ethics of an organization. In the same manner, accounting ethics are part of business ethics and human ethicscollectively. The empowerment process is initiated efforts. An Effort is a continuous process. It is nota one-time process. Apply the best recording and reporting process for sustainable reporting andstrong financial performance and success. Efforts should be made for setting goals, missions, andvisions and to achieve them. Once efforts have been put in, it should be measured to check the changeand value addition in the form of performance. The more the levels of effort made, the more success.An effort is weighted in the form of physical, mental, intellectual, aesthetic, and spiritual equally.

Efficacy is the capacity to enhance the ability to understand the maintaining group dynamics, optimum use of resources, and make strategic policies and decisions.

Efficacy leads to effectiveness. Effectiveness is always required in setting benchmarking, brand image, managing customer profitability, and maintaining the quality of products, strong supply chain management. So, it is not only the step to be a physical presence but registered in the mind of people, clients, and stakeholders for a long time, sustainable survival.

Effectiveness increases the efficiency of taking advantage of the opportunity and makes a place among other firms in the industry.

The efficient firm can take place as esteemed, and reputed, build image and gain super profit; maintain CSR and social responsibility by its position and goodwill.

The self-esteemed firm can be the benchmark for its competitor and other firms by its values and ethical behavior.

Cultural characteristics include things like trends, customs, culture, and values. Organizational culturehas an impact on success and strong financial performance. An important factor that must be considered in the study that may impact an organization's success is ethics in its accounting. The professional ethics of an organization are its accounting ethics.

Similar to business and human ethics, accounting ethics are a subset of both. Accounting ethics, with its emphasis on accounting, can be correctly described as the study of moral standards and judgments in an organization. Multicultural teams must deal with cultural and ethical problems, hence it is the management of these teams' primary responsibility to create and implement effective resolution techniques for multicultural teams. Culture has a direct and indirect impact on performance, according to correlation analysis. The study concludes that an organization's ability to perform at its very best is enhanced when its organizational culture is in line with its vision, goals, and business strategy (Okwata, Wasike, and Andemariam 2022). To avoid any employee from abusing their managerial position, firms must establish and implement strong accounting ethics in this situation. Ensuring the security and accuracy of an organization's financial data is another objective of accounting ethics.

Review of literature

Based the review of the literature, it is tried to present the need for triple entry that goes to Ethical Accounting Practices (Empowerment-E's) and organization cultural aspects of Organizational performance. Most of the papers agreed with the importance of ethics and culture on a firm's performance.

The relevancy of accounting ethics and organizational culture are important factors (Sharma 2012). Organizational commitment favorably influences work ethics. The performance of employees is significantly and favorably affected by work ethics (Pratama, Lumbanraja, and Zarlis 2022).

When employees are dedicated and share the same values as the organization, performance may improve in the direction of accomplishing the organization's ultimate goals (Akpa, Asikhia, and Nneji 2021).

The moral culture and commercial integrity established in the firm are the primary factors determining the occurrence of fraud. Corporate governance standards and prerequisites for the creation of an uncorrupted workplace environment with a proactive approach to fighting fraud are its review and continual improvement (Sabau, Şendroiu, and Sgardea 2013)

The results show a link between organizational culture and job performance that is favourable. Additionally, four organizational culture sub-elements—managing change, achieving goals, coordinating teamwork, and cultural strength—were discovered to have a favourable impact on job performance, but with different degrees of severity.(Saad and Abbas 2018)

Regardless of the employees' diverse countries and cultural backgrounds, there is a significant impact on their work performance, attitudes, and behaviors in the two companies that were chosen (Cherianet al. 2021)

Now the research questions come to mind

Research methodology

The research methodology comprises the research design, sample design, sources of data, selection of data, and various designs and techniques used for analyzing the data.

Primary data has been collected through structured questionnaires from respondents. But out of 300, only 252 were found complete and have been used for further study purposes. Likert's Five-Point scale was applied to analyze the results.

Kolmogorov–Smirnov test was applied to check the normality of data. Due to the non-normality of data, Kruskal Wallis Test has been used to test the hypotheses.

Variable of the study

Independent Variables: Empowerment aspects- Efforts, efficacy, effectiveness, Efficiency, Esteem,and Ethics, Cultural Aspects- Trends, tradition, culture, and valuesDependent Variables: Organisational Performance Table 1 presents the list of variables used in this study.

Table No 1: Variable used for Impact of Empowerment and Cultural Aspects on Firms' Performance

Variable	Symbols	Name of the variables
Dependent Variables		
OrganizationalPerformance	FP1	Financial performance
	FP2	Market performance
Experimental Variables		
	E1	Efforts
	E2	Efficacy
Empowerment Aspects	E3	Efficiency
	E4	Effectiveness
	E5	Esteem
	E6	Ethics
	C1	Trends
Cultural Aspects	C2	Tradition
	C3	Culture
	C4	Value

The objective of the study

- To know the impact of empowerment aspects on financial performance
- To know the impact of cultural aspects on financial performance

Hypotheses

Certain hypotheses have been framed based on the gap in a review of the literature.

H01 There is no significant impact of empowerment aspects on financial performance

H02 There is no significant impact of cultural aspects on financial performance

H03 There is no significant impact of empowerment aspects on market performance

H04 There is no significant impact of cultural aspects on market performance

Result and Discussion

To apply the test to prove the hypothesis, the normality of data has been checked with the Kolmogorov-Smirnov test

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Efforts	.262	252	.000	.880	252	.000
Efficacy	.220	252	.000	.876	252	.000
Efficiency	.245	252	.000	.861	252	.000
Effectiveness	.236	252	.000	.880	252	.000
Esteem	.214	252	.000	.870	252	.000
Ethics	.209	252	.000	.883	252	.000
trends	.238	252	.000	.857	252	.000
tradition	.194	252	.000	.876	252	.000
culture	.237	252	.000	.865	252	.000
value	.227	252	.000	.873	252	.000
financial performance	.227	252	.000	.870	252	.000
market performance	.233	252	.000	.876	252	.000

a. Lilliefors Significance Correction

The result shows that P < .05 shows data is not found normal. Here, data is found not normal, so instead of one-way ANOVA, Kruskal Wallis Test has been used for testing the hypotheses. The null hypothesis of the Kruskal-Wallis test is that the mean ranks of the groups are the same.

H01 There is no significant impact of empowerment aspects on financial performance

Table No 2: Test Statistics [a,b]

	Efforts	E2	Efficiency	E4	E5	Ethics
Chi-Square	19.519	71.574	41.402	75.561	91.114	75.132
df	4	4	4	4	4	4
Asymp. Sig.	.001	.000	.000	.000	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: Financial performance

The results of the Kruskal-Wallis test are shown in Table 3 and show that, when the influence of cultural factors on financial performance is accepted (as p 0.05) at the 5% level of significance, thereis a significant discrepancy between the hypothesized test value and the calculated sample statistics. The results reveal that the majority of the time, the p-value is less than 0.05. It declares that the null hypothesis is rejected. It implies that cultural factors have a considerable impact on financial performance. The outcome coincides with The research that examines the effects of corporate culture, organizational structure, and leadership on business performance (Luki Karunia 2020).

H02 There is no significant impact of cultural aspects on financial performance

Table No 3: Test Statistics [a,b]

	Trends	Tradition	Culture	Value
Chi-Square	46.396	37.197	22.725	41.319
df	4	4	4	4
Asymp. Sig.	.000	.000	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: Financial performance

The results of the Kruskal-Wallis test are shown in Table 3 and show that, when the influence of cultural factors on financial performance is accepted (as p 0.05) at the 5% level of significance, there is a significant discrepancy between the hypothesised test value and the calculated sample statistics. The results reveal that the majority of the time, the p value is less than 0.05. It declares that the null hypothesis is rejected. It implies that cultural factors have a considerable impact on financial performance. The outcome coincides with The research that examines the effects of corporate culture, organisational structure, and leadership on business performance.(Luki Karunia 2020)

H03 There is no significant impact of empowerment aspects on market performance

Table No 4: Test Statistics [a,b]

	Efforts	E2	Efficiency	E4	E5	Ethics
Chi-Square	19.493	76.394	54.353	75.277	94.762	80.319
df	4	4	4	4	4	4
Asymp. Sig.	.001	.000	.000	.000	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: Market performance

The Kruskal-Wallis test results are shown in Table 4 and demonstrate that there is a significant discrepancy between the hypothesized test value and the sample statistics calculated to accept the impact of accounting ethical practices (empowerment aspects) on market performance (p 0.05) at the 5% level of significance. According to the findings, the p-value is typically less than 0.05. It says that the null hypothesis is rejected. It means there is a significant impact of empowerment aspects on market performance.

H04 There is no significant impact of cultural aspects on market performance

Table No 5: Test Statistics [a,b]

	Trends	Tradition	Culture	Value
Chi-Square	48.381	44.190	33.215	44.028
df	4	4	4	4
Asymp. Sig.	.000	.000	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: Market performance

The output of the 'Kruskal Wallis Test' in table-3, reveals that a significant gap exists between the hypothesized test value with the calculated sample statistics for accepting the influence of cultural aspects on market performance (as $p < 0.05$) at a 5% level of significance. The result shows that the p-value in most of the cases is less than 0.05. It says that the null hypothesis is rejected. It means there is a significant impact of cultural aspects on market performance.

Conclusion

The study explored major recommendations based on gathered information and analysis to enhance organizational culture and accounting ethics with a primary goal of enhancing organizational performance. According to the report, strong accounting ethics aid companies in enhancing their financial success. This means that to improve their financial performance, businesses must develop and put into place strong policies that accommodate effective accounting ethics. The study also showsthat organizations should enhance their management approaches or leadership philosophies to enhance their performance, as an organization's management style is directly related to its organizational culture (Wong and Gao 2014). An efficient and successful leadership style can aid organizations in enhancing their organizational culture, according to the study of the results. The exploratory method is used in this investigation. Based on the data gathered for the study, it is clear that organizational culture and accounting ethics have good effects on organizational performance. It implies that organizations must prioritize organizational culture and accounting ethics to improve performance. Businesses can benefit from the study's insightful recommendations for enhancing their organizational cultures and accounting ethics. The role of every ethical accounting practice factor, including respect, efficacy, efficacy, and efforts, as well as the beneficial effects of cultural factors like trends, customs, culture, and values, is what matters most in this context.

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ASSESSING PERCEPTION AND AWARENESS OF GREEN BONDS: A QUALITATIVE STUDY

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Ms. Jyothi G. H**

ABSTRACT

The green bonds issuance in India in 2021 was exceptional and is to set a new record in 2022. India issued $6.11 billion of green bonds in 11 months of 2021. It has been the strongest issue since the first issue in 2015. Indian Companies have become increasingly conscious of their carbon footprint. Banks will step up issuance of green debt to fund their growing lending program to accelerate India's energy transition. More Indian issuers will also turn to the offshore bond market to access the wider and deeper capital pool outside their home country. Green bonds issued by emerging markets such as India have a strong appeal to foreign investors due to relatively attractive valuation and decent economic growth prospects. However, it is a long way to go as the gap is $3.546 trillion between the total investment required to achieve net-zero and the amount that can be reasonably contributed by domestic banks, NBFCs and capital markets. India will need $10.103 trillion by 2070 to be carbon-neutral. The cumulative investments needed for net-zero societies may be bigger than India's current size of the economy. In this background, green bonds are receiving importance world over. Even in India, a few guidelines have been issued by the authorities. However, the current regulations are not adequate and therefore, there is a diversity in the green bonds and issuance practices. Further, two important powerful tools in this regard are the perception and level of awareness for the effective promotion and uptake of green bonds. In this backdrop, the present paper makes an attempt to analyze the opinions of different stakeholders' about a few aspects of green bonds and other related issues.

Keywords: Green Finance, Sustainable Development, Green Bonds, Green Initiatives, Green Investments etc.

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Introduction

"A Green Bond: The Responsible Way to Invest"

The first green bond was put out in 2007 by the European investment bank and it is named as the "Climate Awareness Bond" its finance was dedicated to renewable energy and energy efficiency project. In 2012 the first corporate green bond was put away. Green bonds are mostly specified as fixed income securities that produce capital for a project with specific environmental benefits. In 2017 over 200 issuers, among them sovereigns, corporates, development banks and other financial institutions raised more than $ 150 billion through green bonds. Yet, A Green bond has been specifically earmarked to be used for climate and environmental project. These alliances are typically asset-linked and backed by the issuer's balance sheet, and are likewise referred to as climate bonds. This is designated bonds intended to further sustainability and to support climate-related or other types of special environmental project. More specifically, the green bond finance project aimed to at energy efficiency, contamination prevention, sustainable agriculture, fishery and forestry, the protection of aquatic and terrestrial ecosystems, clean transportation, sustainable water management and the cultivation of environmentally friendly technologies.

Green bonds come with tax incentives such as tax exemption and tax credits, making them a more attractive investment compared to a comparable "Taxable bonds". This provides a monetary inducement to use up on prominent social issues such as climate change and a movement to renewable sources of energy. To qualify for green bond states, they are frequently verified by a third party, such as the climate bonds standard board, which certified that the bond will fund projects that include benefits to the environment A Green bond is a bond whose yield is applied to fund environmental friendly projects. Although they're a relatively new segment of the bond market, investors are sure to hear in the year ahead about the environmentally conscious offerings that define green bonds.

The green bond market has seen explosive development in the past decade and presenting an unrivaled opportunity in climate finance. Annual issuance has now grown from nothing to more than $ 155 billion globally, with more development before. But in emerging market green bond area is only starting out. Also, these alliances are taking in greater acceptance and endorsements in Indian financial markets and International multilateral organizations such as the World Bank, International Finance Corporation (IFC), European Bank for Reconstruction and Development

(EBRD) and global banking institutions such as Credit Agricola CIB have issued green bonds in Indian currency. Domestic companies too issued green bonds both in USD and INR denominations. Some issuers have even listed green bond on international stock exchanges.

Statement of the Problem

Green bonds are one of the innovative financial tools; In India green bonds are not more popular. Factually, green bonds have led the same risk and same return as conventional bonds and additional cost are associated with the issue of green bonds. One of the biggest critics when investing in green bonds is a lack of fluidity. Being a little market, getting into and exiting positions is not equally easy as more popular investments. In green bond investment the investor might need to hold until maturity. Another hazard is a deficiency of a clear definition for a green bond; investors might not experience precisely where their money running short. Green bond issuance implies additional cost and risk for a firm and their issuance is not optimal from a price perspective. In this setting, all the above mentioned problems require a bigger attention to establish a comprehensive survey on the present case.

Literature Review

The literature review pointed out that most of the research work in this area done till now has been exclusively limited to developed countries like the United States and other developing nations. But research is still insufficient in case of India. It is also absorbed that, hardly any extensive work has been held out in India to study the Green Bonds Market. Hence, getting after the earliest written accounts have been undertaken for the study more comprehensive and meaningful one. They are:

Dupont et. al., (2015), in their article entitled *"Green Bonds and land conservation: The Evaluation of a new financing tool"* highlighted that the investors still view them as an instate product in the overall fixed income market. There is a rapidly grown in green bonds nearly $ 37 billion in 2014. They pointed out that current and potential future role of the green band in financing sustainable land usage and conservation projects around the world and draws on consultations with land conservation practitioners, bond issuers, investors and financial analysts, etc. The next few years will prove vital in finding out whether or not; A green band will become a significant new instrument for the land preservation system. Land conversation organizations and issuers need to generate success stories and continue to build market momentum for this financing coming.

Jacqueline Yujia Tao (2016), in his article entitled *"Utilizing green bonds for financing renewable energy projects in developing Asian countries"* examined that the strengths, weaknesses, opportunities, and threats (SWOT) of using green bonds to finance renewable energy projects in Asia. The potential for green bonds to become viable financing instruments for renewable energy projects. Even thus, there remain several challenges that can be tacked together with a key support mechanism. Taking into account that internal and external challenges in building a green bond market in the region, one might reason that the creation of such a market is redundant. As such the strengthening or a creation of both markets in parallel while likely reap maximum benefits. Policy instruments to facilitate green bond growth and a potential road map for development are also proposed.

Lake Trampeter (2017), in his article entitled *"Green is Good: How Green Bonds Cultivated into Wall Street's Environmental Paradox"* described that in 2007 the first green bond issued by a European investment bank, few imagined that this debt instrument would attack mainstream investors. These are finance projects ranging from climate change prevention to clean transportation development, green bonds were geared for socially responsible investors concerned with our planet's sustainability. In 2015 green bonds were released by major corporations like Apple and municipalities like New York City. It has the tax-exempt status. This subject also discussed how green bonds were first created their original roles and how they matured into a mainstream of investment instrument.

Panda Pradiptarathi (2017), in his article entitled *"Green Bond: A Socially Responsible Investment (SRI) Instrument"* reveals that the organization of green bond, and it is a new concept and also innovative financial instrument, issued in the year 2008 by the World Bank to the investors with their request. Green bond attracts and help a specific group of investors as well as to the economy which is bigger in size. In India, it is not more popular, but nowadays this financial tool is gaining popularity around worldwide. Since the World Bank has made 130 issues in 18 currencies in total, of US $ 5.7 billion. This legal document is brought out by various establishments; it is especially applied to "Financial Environment Friendly Projects" and Tax exempt financial instrument.

In the above discussion of critiques of literature, a variety of agents are counted which are an evolution of green bonds, socially responsible instruments, effectiveness of financial operation, evaluation of danger and returns of bonds, use of green bonds in Sustainable development and corporate alliances, etc. Hence, the present work tries to assess the perception and awareness of green bonds for financial support of sustainable development along with the basis of above review literature.

Objectives of the Study

The main aim of this research paper is to evaluate the perception and awareness of Green Bonds. In summation to the main target, the supportive objectives are set to produce the study more comprehensive and which are presented as below:

1. To study the conceptual framework of Green bonds.
2. To examine the level of awareness about the green bonds.
3. To evaluate the functional effectiveness of Green bonds.

Hypotheses of the Study

Ho_1: There is no significant relationship between Gender and level of awareness about Green Bonds.

Ho_2: There is no significant relationship between Age and level of awareness about Green Bonds.

Scope of the Study

The present work is confined to evaluate the perception and awareness of Green Bonds. And the study is delimited in Karnataka State only. The work mainly focused on important elements of green bonds such as benefits of bonds, major issues of green bonds prevailing in the Indian economy and recent trends and development of green bonds market and so on,

Research Methodology

Research methodology which mainly explains the flow of research is concerned. It is an important part of the study, which particularly throws light on the study area followed by adoption of the sampling process, sources of information, statistical tools and techniques applied to data analysis and hence along.

Research Design

The present study is purely a descriptive research as it analyses, describes and evaluates the data related to the perception and awareness of Green Bonds and also the measures initiated or taken by the government for the management and promotion of Green Bonds.

Research Approach: Quantitative approach has been applied in the research field

Descriptive and inferential analysis is employed for identifying the characteristics of the population and to try out the hypotheses formulated for the present work.

Sources of Data Collection

For obvious reasons, this survey is primarily founded on the primary and secondary data.

a) **Master Data: The primary data has been gathered through direct interview of the concerned respondents with structured Questionnaire.**
b) **Secondary Data:** The secondary data has been collected from published sources such as textbooks, journals, newspapers, periodicals, websites, annual reports submitted by various committees or departments and commissions, etc.

Sampling Design

a) **Target Population:** The population for the research is Students, Government Employees, Businessmen and Chartered Accountants etc.
b) **Sampling Technique:** Simple random sampling has been used in the selection of the respondents.
c) **Sample Size:** Total sample size 55.
d) **Tools used for Data Analysis:** For the analysis of the data, a few statistical tools are used such as Simple, Graphical Presentation, Percentage Analysis and the hypotheses are tested by using Chi-Square Test with the help of IBM SPSS Statistics version 29.0

Results and Discussions

In the light of the above, and keeping in mind the objectives and hypotheses, a few relevant parameters are identified below for the purpose of evaluating the level of awareness and perception towards green bonds and the corresponding hypotheses are, as stated above. The research has been conducted based on the Survey Data collected from 55 respondents with a structured questionnaire. The questionnaire consists of questions with different parameters. Every question is different in nature and includes all the points of the objective of the study. Each question is given in the appropriate option accordingly.

Table No 1: Demographic Profile of the respondents

SI. No.		Variables	No. of Respondents	Percentage (%)
1	Gender	Male	43	78.2
		Female	12	21.8
		Total	**55**	**100**
2	Education	PUC	2	3.6
		Graduate	17	30.9
		Post Graduate	29	52.7
		Others	7	12.7
		Total	**55**	**100.0**
3	Monthly Income (in Rs.)	Less Than Rs. 15,000	16	29.1
		Rs. 15,001- Rs. 25,000	15	27.3
		Rs. 25,001- Rs. 35,000	10	18.2
		More Than Rs. 35,001	14	25.5
		Total	**55**	**100.0**

Source: (Survey data)

1. Gender

Gender relates to the biological differences between male and female, whereas gender relates to the roles assigned to male and female in the society. Therefore, gender is a socio- economic variable involving roles, obligations, constraints, opportunities and needs of males and females in an economic system.

The above table gives the gender wise distribution of the respondents selected for the survey. The gender is classified as male and female. It is clear that 21.8% (12) of the respondents are female and 78.2% (43) of the respondents are male. The majority of the respondents are male (78.2 percent).

2. Educational Qualification

Education is an integral part of any demographic profile. Educated people are considered elite. Education gives better jobs and better income. Education is considered the foundation for character and liveliness. Educated people command more respect than other groups.

The above table highlights education wise distribution of the respondents selected for the survey. The pedagogy of the respondents is classified as PUC education, Degree level, Post-Graduation and others.

It is clear that the educational level of the respondents is PUC education level 3.6% (02), Degree 30.9% (17), Post-Graduation 52.7% (29) and another 12.7% (07) of the respondents are others respectively. Consequently, the Majority of the respondents go to the Post-Graduation education level (52.7 per cent).

3. Monthly Income

Income is an indicator of the lives of people. Higher income groups are more often than not in the higher strata of the smart set. Lower income people too possess their own methods of depending and saving money.

The above table describes monthly income wise distribution of the respondents selected for the survey. The monthly income of the respondents is classified as less than Rs. 15,000, Rs. 15,001 - Rs. 25,000, Rs. 25,001 - Rs.35,000, and Rs. 35,001 & Above. It is clear that the income level of the respondents is to less than Rs. Rs. 15,000, 29.1% (16), Rs. 15,001 - Rs. 25,000, 27.3% (15), Rs. 25,001 - Rs.35,000, 18.2% (10) and another 25.5% (14), of the respondents are Rs. 35,001 & Above respectively. It can be seen that the majority (29.1 per cent) of the respondents has less than Rs. Rs. 15,000.

Table No 2: Gender and Level of Awareness about Green Bonds

			Awareness				Total
			Highly Unaware	Somewhat aware	Aware	Highly Aware	
Gender	Male	Count	2	12	24	5	43
		% of Total	3.6%	21.8%	43.6%	9.1%	78.2%
	Female	Count	2	3	7	0	12
		% of Total	3.6%	5.5%	12.7%	0.0%	21.8%
Total		Count	4	15	31	5	55
		% of Total	7.3%	27.3%	56.4%	9.1%	100.0%

Source: (Survery Data)

The table shows that highlights that the percentage of level of awareness of the respondents about green bonds. Out of 55 respondents, (78.2%) of the male respondents and the same was the (21.8%) of the female respondents. Followed by this, (56.4%) of the respondents aware and also (7.3%) of the respondents not aware. In order to find the relationship between gender and the level of awareness about green bonds, a chi-square test was implied to test the hypothesis given below:

Hypothesis

Ho$_1$: There is no significant relationship between the Gender of the respondents and level of awareness about Green Bonds.

Table No 3: Chi-Square Test

Pearson Chi-Square	Calculated Chi-Square value	DF	Table Value	Remarks
Gender	3.297	3	7.815	Accepted

Source: Table No. 2

It is observed from the above table that the calculated chi-square value is (3.297) less than the table value (7.815) and the result is not significant at the 5% level. Hence, the null hypothesis (Ho) is accepted. The hypothesis "Gender of the respondents and overall opinions about the awareness level of green bonds are not associated".

From the analysis, it can be concluded that there is no relationship between gender of the respondents and overall opinions towards the level of awareness about green bonds.

Table No 4: Age and Level of Awareness about Green Bonds

			Awareness				**Total**
			Highly Unaware	**Somewhat aware**	**Aware**	**Highly Aware**	
Age	Below 25 Years	Count	2	5	15	0	22
		% of Total	3.6%	9.1%	27.3%	0.0%	40.0%
	26-35 Years	Count	2	10	5	5	22
		% of Total	3.6%	18.2%	9.1%	9.1%	40.0%
	36-45 Years	Count	0	0	9	0	9
		% of Total	0.0%	0.0%	16.4%	0.0%	16.4%
	Above 45 Years	Count	0	0	2	0	2
		% of Total	0.0%	0.0%	3.6%	0.0%	3.6%
Total		Count	4	15	31	5	55
		% of Total	7.3%	27.3%	56.4%	9.1%	100.0%

Source: (Survey Data)

The above table highlights that the percentage of the level of awareness about green bonds of the respondents. Out of 55 respondents, (27.3) of the respondents aware and the same was the lowest (3.6%) highly unaware under the age group below 25 years of the respondents. Followed by this group, (18.2%) of the respondents somewhat aware age group between 26–35 years, (16.4%) of them aware fall under 36–45 years and the remaining (3.6%) of the respondents aware age group belong to 45 years and above respectively. However, the majority of the respondents aware about the green bonds.

In order to find the relationship between age and the level of awareness about green bonds of the respondents, a chi-square test was implied to test the hypothesis given below:

Hypothesis

Ho1: There is no significant relationship between age and level of awareness about green bonds.

Table No 5: Chi-Square Test

Pearson Chi-Square	Calculated Chi-Square value	DF	Table Value	Remarks
Age	23.011	6	16.919	Rejected

Source: Table No. 4, Significant at 5 % level

It is observed from the above table that the calculated chi-square value is (23.011) and the table value (16.919) is greater than the table value and the result is significant at the 5% level. Hence, the null hypothesis (H_o) is rejected and the alternative hypothesis (H_1) is accepted. The hypothesis "Age of the respondents and overall opinion towards the level of awareness about green bonds are associated" and holds good.

From the analysis, it can be concluded that there is a significant relationship between age of the respondents and overall opinion towards the level of awareness about green bonds of the respondents.

Table No 6: Presentation of Investment Types in Green Bonds by the Respondents

Particular	No. of Respondents	Percentage (%)
No Response	16	29.1
Green Use of Process Bonds	3	5.5
Green Use of Revenue Bonds	11	20.0

Green Project Bonds	20	36.4
Green Securitized Bonds	5	9
Total	**55**	**100.0**

Source: (Survey Data)

The table above shows the analysis of respondents about type of green bonds investment pattern. Among 55 respondents, 29.1% (16) of the respondents is not invested any kinds of green bonds instrument, 5.5% (3) they invested in green use of process bonds, 20% invested in green use of revenue bonds, 36.4% (20) invested in green project bonds and the remaining 9% (5) of them invested in green securitized bonds. Therefore, it can be interpreted that most of the respondents invest in green project bonds, because it has, the more awareness compare to other types of green bonds investment.

Table No 7: Presentation of Respondents Reason for Selecting Green Bonds as Investment Avenue

Particular	No. of Respondents	Percentage (%)
No Response	16	29.1
Tax Benefit	20	36.4
Moderate Risk	2	3.6
Fixed Return	5	9.1
Environmental Friendly	12	21.8
Total	**55**	**100.0**

Source: (Survey Data)

Above table highlights the analysis of respondents about the reason for selecting green bonds as an investment avenue. Out of 55 respondents, 29.1% (16) of them not given any response, 36.4% (20) of them given the reason as tax benefits, 3.6% (2) of them agreed with the reason of moderate risk, 9.1% (5) they mentioned that the fixed return and another 21.8% of them indicated that the environmentally friendly. So, it can be interpreted that themajority of the respondents given the reason as it is an instrument which has tax benefit and it is also an environmentally friendly investment.

Summary of major Findings and Suggestions

- ✓ It is found that most of the respondents are male.
- ✓ It is found that a greater number of respondents belong to the age group of more than 46 years.
- ✓ The Majority of the respondents (52.7%) are having Educational qualification of Post-Graduation.
- ✓ It is noted that most of the professional people experience an awareness about Green Bonds.
- ✓ Most of the respondents (29.1%) belong to the Income level of less than Rs. 15000 and incomes between Rs. 15001- 35000.
- ✓ Most of the respondents (45.5%) favor a secure investment in the society compared to high risk and moderate danger.
- ✓ It is observed that the majority of the respondents are not properly aware about Green Bond Investment.
- ✓ Most of the respondents (36.4% & 25.5%) obtained information about Green Bonds from friends and family.
- ✓ Approximately 36.4% of the respondents are investing in green project bonds.
- ✓ It is noted that most of the respondents (47.3%) have the invested in green bonds with the level between 6-10%.
- ✓ The Majority of the respondents (36.4%) given the intellect as it is an official document which has tax benefit and it is also an environmentally friendly investment.
- ✓ The Majority of the respondents (32.7%) are invested in green bonds through brokers and agents.
- ✓ Most of the respondents (45.5%) are holding a neutral view on high risk linked with green bonds.
- ✓ About 45.5% agreed that there is a lack of methodologies and frameworks regarding green bonds for evaluating diverse project in the Indian context.
- ✓ The Majority of the respondents (47.3%) agree that there is no proper awareness about green bonds market.
- ✓ The highest number of the respondents (56.4%) agreed that green bonds are the new investment which offers an opportunity for the new investor to put.
- ✓ Most of the respondents (52.7%) agreed that the green bonds are tax credit instrument and the investors of green bonds can enjoy tax benefits.
- ✓ A larger number of the respondents (47.3%) agreed that there must be a proper public intervention.

- ✓ The Majority of the respondents (47.3%) agree that there is no proper awareness about green bonds market.
- ✓ The highest number of the respondents (56.4%) agreed that green bonds are the new investment which offers an opportunity for the new investor to put.
- ✓ Most of the respondents (52.7%) agreed that the green bonds are tax credit instrument and the investors of green bonds can enjoy tax benefits.
- ✓ A larger number of the respondents (47.3%) agreed that there must be a proper public intervention.
- ✓ The larger part of the respondents (54.5%) opined that there must be a proper framework to enhance market transparency.
- ➢ The Green Bonds are not recognized by the majority of the citizenry and it is not much popular, thus there must be a necessity of awareness program regarding green bond investment and its marketplace. With this plan, there must be an increase in popularity about green bonds instrument.
- ➢ The Majorly the students are not aware about the Green Bonds and its office, so the Educational Institutions must give the awareness and knowledge about this instrument and make the Green Bonds as a division of the syllabus for post-grad students so that they can gather the information about the Green Bonds instrument.
- ➢ There must be a proper sector diversification in green bond issuances, this must help the market participants to know and analyses the complex sectors and broaden out the use of proceeds particularly in the sector other than renewable energy.
- ➢ The government role is also important to the development of green Bonds, the government must adopt proper steps to enable the climate finance or Green Bonds finance.
- ➢ There is a necessity of maintaining particular methodologies and framework for domestic green bonds to enhance market transparency and its help for evaluation of divers' project in the Indian context.
- ➢ The Majority of the investors are invested in Green Project Bonds and the other types of Green Bonds (i.e. Green use of proceeds bonds, Green use of revenue bonds andGreen securitized bonds) are not properly known by the investors, so the other bonds also known by the investor to invest.
- ➢ There no proper source and channel of investment to the investor, so there must be a proper

measure to improve the source and channel of investment.

Conclusion and Notes

Green bonds are an efficient means for a society to demonstrate its dedication to environmental causes to demonstrate their green certification. Green bonds proposition potential cost advantages with wider investor base both domestically and internationally, thus creating better pricing for green bonds than regular bonds. Policy initiatives such as tax reduction, interest subsidies and credit guarantees can reduce the support costs for green bonds. Green finance in India is not so much popular. So far, the World Bank has invested in 5 green projects and International Finance Corporation has put in one green project in India. There are indirect investments in green projects from organizations. This research study has targeted to resolve various questions concerning green bonds and preferences. Thither are many potential drivers behind the changes in preferences, financial and non-financial, green and non-green. It can be reasoned that both types are contributing to changing preferences among investors and issuers. An increased focus on climate change and challenges ahead, from regulators, the media and through multi-national agreements such as the Paris Agreement, reinforces incentives to integrate sustainability concerns into investment strategies. For corporations it is becoming more important to demonstrate dedication to sustainable and green, where green issuances of bonds can reap valuable reputation benefits and send a potent sign to investors with ESG or SRI mandates. Research has demonstrated that investors are paying a premium to obtain green bonds.

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A STUDY ON BENEFICIARIES' OPINIONS REGARDING PRADHAN MANTRA JAN DHAN YOJNA(PMJDY) SCHEME: WITH SPECIAL REFERENCE TO FINTEC TECHNOLOGY (MOBILE BANKING) IN CENTER GUJARAT REGION

Dr. Gaurangkumar C. Barot*

ABSTRACT

Financial inclusion in the formal financial system of the under banked population could lead to improvement of their financial circumstances and living standards, empowering them to create financial assets, generate income and build resistance to meet macroeconomic and livelihood shocks. Indian Government and RBI are making enormous efforts to bring every section of the country into the mainstream financial system ever since the Nationalization of banks in 1969 and 1980 till today's adaptation of fintech, still there is a significant disparity between the growth expectations and the ground realities. The Indian banking sector today is dealing with the issue of financial inclusion. Operating cost of providing financial inclusion and charges levied on the users are important dimensions of the process of financial inclusion. Technology is playing an important role in reducing the operating cost of providing banking services, particularly in rural and unbanked areas. There are Banking technologies that could drive the growth in financial inclusion. The present study aims to examine the impact of Banking Technology and government initiatives towards financial inclusion conducted in selected villages and city of center Gujarat Area, surveying 400 rural households through a structured questionnaire. Descriptive research illustrating the extent of adaptation of Banking technology was mixed in nature still there is a long road ahead to achieve the desired results through technological advancement. No doubt it is playing a significant role and is working in a positive direction as the government is also pushing towards digitalization.

***Key Words*:** Fintec, Mobile Banking, PMJDY, Financial Inclusion, Rural Population, Banking Technology.

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Introduction

"Financial inclusion is the delivery of banking services at an affordable cost ('no frills' accounts,) tothe vast sections of disadvantaged and low-income groups. Unrestrained access to public goods and services is the sine qua non of an open and efficient society. As banking services are a public good,it is essential that the availability of banking and payment services to the entire population without discrimination is the prime objective of the public policy. According to the World Bank report "Financial inclusion, or broad access to financial services, is defined as an absence of price or non-price barriers in the use of financial services." India is growing towards rapid financial sector expansion in terms of the strong growth of existing financial services businesses and new entities emerging in the market. The sector comprises commercial banks, insurance firms, non- banking financial corporations, co-operatives, pension funds, mutual funds, and other smaller financial entities. The banking mechanism has allowed new entities such as payments banks to be created recently thereby adding to the types of entities operating in the sector. Though, the financial sector inIndia is primarily a banking sector with commercial banks accounting for more than 64 percent of the total assets held by the financial arrangement.

Review of Literature

Here, in article only few reviews are considered and details reviews to justify the subject.

Olayinka O. Adegbite, Charles L. Machethe (2020)[i] analyzed a mixed method review from secondary sources (Global Findex Databases 2011, 2014, 2017, Nigeria CGAP Smallholder Household Survey 2016 and literature) to investigate the trend in FIGG in smallholder agriculture in Nigeria. The causes and effects of FIGG on sustainable development were also identified and the strategies to bridge the gap and found that the FIGG in smallholder agriculture was 12% in2016 while considering the whole population; it increased from 7% in 2011 to 20% in 2014 and24% in 2017. The causes of FIGG were ascribed to socioeconomic, socio-cultural, institutional,legal, and regulatory factors which affect the demand and supply of formal financial services and FIGG in smallholder agriculture has interlinked negative effects like high cost on agricultural productivity, income inequality, food insecurity, limited market access and povertywhich retards sustainable development.

Laura Cabeza-Garcíaa, Esther B. Del Briob, and Mery Luz Oscanoa-Victorious (2019)[ii] Investigate the effects of female financial inclusion on inclusive economic development through women's participation in the financial system as the inequality gap decreases, increases both physical and social wellbeing. In this research an instrumental variable analysis is conducted on a sample of 91 countries, comprising both developed and emerging countries, using data from the GlobalFindex (2015) database and the World Bank Databank, and the results effectively provide evidence attesting to the fact that greater financial inclusion of women, measured as access to a bank account and access to credit cards, has a positive effect on economic development.

Dr. Soumyendra Kishore Datta and Dr. Krishna Singh (2019)[iii] attempted to analyze the financial inclusion scenario across several developed or developing countries of the world, for the period2011 and 2014 focused on developing a financial inclusion index (FII) and found its associationwith the value of human development index. Adding explanation of variation in observed FII. here, Principal Component Method has been applied to calculate the three-dimension indices (availability, access, and usages) and finally FII. A pooled OLS with clustered standard error regression model has been used to explain the factors influencing financial inclusion across thecountries of the world.

Thai-Ha Le, Anh Tu Chuc, and Farhad Taghizadeh-Hesary (2019)[iv] examined the trend of financial inclusion in Asia and its impact on financial efficiency and financial sustainability by taking asample of 31 Asian countries during the period spanning from 2004 to 2016. using principal component analysis (PCA) based on normalized variables Composite indicators for the three financial dimensions are constructed and found that the trends are fluctuating across countries and there was no clear pattern in several cases. the second analysis to find the impact of financial inclusion on financial efficiency and sustainability is analyzed using Feasible Generalized Least Squares (FGLS) and the estimation results indicate that growing financial inclusion negatively affected financial efficiency but it favorably influences financial sustainability.

Research Methodology

The research was undertaken by the research to understand the effect of technological aspects of banking on low-income group customers with a structured questionnaire. As the literature studied here has shown emphasize on technology and fintec (Mobile Banking) as the future of financial inclusion.

The Problem Area

As earlier discussed financial inclusion is a very wide aspect. For this study purpose, the government schemes Pradhan Mantra Jan Dhan Yojna is taken and those who are using banking through mobile their/ respondents / beneficiaries primary survey done through structured questionnaire. This kind survey is much needed that how effectively people using and paying for their daily needs. For that this study is very useful.

Significances of the Study

While doing a study on financial inclusion and specially governmentsschemes reaches to all area of the country and get the benefits of it idea available for the same.

Research Gap

This kind of study in this selected region is not done by anyone till date

Research Design

Descriptive type

Objectives of the Study

1. To study the role of banking technology in financial inclusion.
2. To know the bank account holding and PMJDY among low-income individuals.
3. To identify the usage and satisfaction of services provided by the bank.
4. To find out the use of mobile banking and various reason.
5. To study the frequency of mobile banking usage.

Universe of the Study and Sample Design

Keeping in view the limitation of time, efforts and cost it is not possible to study all beneficiaries of using Government Schemes and Fintec in Financial Inclusion hence, a structured questionnaire through goggle survey sheet sent to the users and their replies secured in excel sheet. Researcher has received around 400 responses.

Sampling collection method

The convenient sampling method.

Sampling collection Area

sampling collecting 400 respondents from a rural household fromselected villages which are center Gujarat Area.

Sampling collection time period

Year 2021 to 2022

Research Instrument

A structured questionnaire is used for data collection from the beneficiaries of using GovernmentSchemes and Fintec in Financial Inclusion.

Collection of Data

Primary Data

- The Primary data is collected through questionnaires from 400 beneficiaries of using Government Schemes and Fintec in Financial Inclusion.
- The questionnaire is prepared and present personally in all English languages for the beneficiaries to collect the required information.

Secondary Data

The secondary data is collected from various sources like Books, journals, Website data etc.

Hypotheses

Hypothesis testing is a predictive statement capable of being tested by scientific methods. Hypotheses of study are mention as under:

Table No. 1: Hypotheses

Hypothesis No.	Particulars
1 H_0 =	There would be no significant difference in the scheme of PMJDY bank accountholders' responses towards various services they are aware of and using.
2 H_0 =	There would be no significant difference in the scheme of PMJDY bank accountholders' responses towards their satisfaction level rate.
3 H_0 =	There would be no significant difference in the Respondents' response towardsfrequently use of mobile banking.
4 H_0 =	There would be no significant difference in the beneficiaries' numbers or growth at rural and urban area of PMJDY schemes.

Limitations of the Study

Every social science research study has its limitation

1.) Lacks proper response from respondents.

2.) Higher cost in data collection

3.) The research studyis conducted in the selected area.

4.) The samples received for the research study are 400 only

Data Analysis and Presentation

Data analysis is done manually. All data collected through a structured questionnaire. Data are presented by using tables, charts, selected region and categories wise, hypothesis formulating, calculation test, testing of hypotheses, and Interpretation of Result. Hypotheses tested at a significant level of 5% And Applicable Require Degree of Freedom. As par suitability of collected data for this study various statistical tests applied for hypotheses testing.

Data analysis and interpretation

According to the questionnaire, the collected data are analyzed in a given pattern. First, data transferred into table form. According to hypotheses, various applicable tests were applied for the study. After hypotheses testing appropriate interpretation was given. Also, findings and suggestions are given in the last chapter.

Table No 2: Classification of respondent on basis of gender

Gender	Frequency	Percentage
Male	252	63%
Female	148	37%
Total	400	100%

Table No 3: Classification of respondent on basis of education

Education	Frequency	Percentage
Illiterate	80	20%
SSC or Low	124	31%
HSC	80	20%
Graduate	100	25%
Postgraduate	16	4%
Total	400	100%

Table No 4: Classification of respondent on basis of Annual Income

Annual Income	Frequency	Percentage
<100000	184	46%
100000-200000	108	27%
200000-300000	68	17%
>300000	40	10%
Total	400	100%

Table No 5: Classification of respondent on basis of landholding

Land Holding	Frequency	Percentage
Yes	220	55%
No	180	45%
Total	400	100%

Table No 6: on Respondents response towards having bank in their village

Bank in Village	Frequency	Percentage
Yes	384	94%
No	16	6%
Total	400	100%

Table No 7: on Respondent responses towards having an Account in the bank

Account in bank	Frequency	Percentage
Yes	316	79%
No	84	21%
Total	400	100%

Table No 8: Respondent response towards their bank account in types of bank

Type of bank	Frequency	Percentage
Public Sector	130	41%
Private Sector	85	27%
Micro Finance	13	4%
Cooperative	75	24%
Community	13	4%
Total	316	100%

Table No 9: Respondent response towards type of bank account

Account	Frequency	Percentage
Current account	38	12%
Saving account	218	69%
Fixed account	47	15%
Loan account	13	4%
Total	316	100%

Table No 10: On Respondent response towards zero balance a/c with your bank (PMJDY)

Zero balance account	Frequency	Percentage
Yes	167	53%
No	149	47%
Total	316	100%

Table No 11: on Respondent response towards frequently visit to bank

Bank visit	Frequency	Percentage
Daily	9	3%
Weekly	98	31%
Monthly	158	50%
Yearly	51	16%
Total	316	100%

Hypothesis testing

Hypothesis No. 1: H_0 = There would be no significant difference in the scheme of PMJDY bank account holders' responses towards various services they are aware of and using.

Table No 12: PMJDY bank account holders' responses towards various services they are aware of and using.

Services	Aware	Using	Unaware	Total
Loan	169	133	14	316
Mobile banking	195	88	33	316
Debit card	182	100	34	316
Credit card	178	108	30	316
Deposit of cash	167	134	15	316
Withdrawal of cash	156	148	12	316
Cheque book	162	125	29	316
Over draft	186	80	50	316
Insurance	177	111	28	316
Kisan CC	216	66	34	316
ATM	214	22	80	316

Hypothesis testing result reveal that the beneficiaries of PMJDY account holders experience with various services received that are not par and different with satisfactions they have with the services like Loan, Mobile banking, Debit card, Credit card, Deposit of cash, Withdrawal of cash, Cheque book,over draft, Insurance, Kisan CC and ATM facilities. Here the most important thing is that when government providing services to beneficiaries it should be at par. here researcher from the study recommend to provide services at par to all the categories including Male & female, in all the areas including rural and urban, to all the persons weather educated or not. All deserve equal facilities a satisfaction with same services provider.

For testing of above hypothesis Kruskal-Wallis Test (*H* test) is applicable following is given calculation of the same test.

Table No 13: Kruskal-Wallis Test

	Median	*n*	*Avg. Rank*
Aware	178.00	11	28.00
Using	108.00	11	16.14
Unaware	30.00	11	6.86
Total	108.00	33	

H (corrected for ties)	26.420
d.f.	2
p-value	1.83E-06

P value comparison
P test value < P value
0.00000183 < 0.05
Hence, H_0 = Rejected
H_1 =Accepted

Interpretation of Result

The table value of h test for 2 degree of freedom at 5% level of significanceis 5.991 (H table value) and the calculated value of H is 26.420 (H calculation) which is higher than the table value, hence the result of the experiment does not support the null hypothesis. So, null hypothesis is rejected and alternative hypothesis is accepted. It means there would be no significant difference in the scheme of PMJDY bank account holders' responsestowards various services they are aware of and using.

Hypothesis No. 2: H0 = There would be no significant difference in the scheme of PMJDY bank account holders' responses towards their satisfaction level rate.

Table No. 14 Respondent response towards Satisfaction From the following and Kindly rate.(Their responses in appropriate option from the given 5 likert scale)

Statement	Highly Dissatisfied	Dis- satisfied	Neutral	Satisfied	Highly satisfied	Total
Services provided bybank	58	66	97	69	28	316
Distance to the bankCost incentives	13	87	117	82	17	316
Bank employees Attitude and behavior	17	68	137	74	20	316
Branch timing	22	55	122	96	21	316
Bank charges	16	65	129	84	22	316
Banking KYC	17	73	111	84	22	316
Quick access to loan and deposits	16	68	122	88	22	316
Availability of ATM	11	49	140	82	34	316
Insurance services	23	48	134	89	22	316
Mobile banking	20	55	136	85	20	316
Internet banking	19	43	129	94	31	316
Overall satisfaction	11	38	103	118	46	316

Table No 15: Kruskal-Wallis Test calculation

H (corrected for ties) 52.879

	Median	*n*	*Avg. Rank*
Highly Dissatisfied	17.00	12	9.50
Dis- satisfied	60.00	12	30.50
Neutral	125.50	12	54.17
Satisfied	84.50	12	42.17
Highly satisfied	22.00	12	16.17
Total	61.50	60	

d.f.	4
p-value	9.03E-11

P value comparison

P test value < *P value*

0.0000000000903 < 0.05

Hence, H_0 = Rejected

H_1 =Accepted

Interpretation of Result

The table value of h test for 4 degree of freedom at 5% level of significanceis 9.488 (H table value) and the calculated value of H is 52.879 (H calculation) which is higher than the table value, hence the result of the experiment does not support the null hypothesis. So, null hypothesis is rejected and alternative hypothesis is accepted. It means there would be significant difference in the scheme of PMJDY bank account holders' responses towards their satisfaction level rate.

Table No 16: Respondent response towards having a mobile phone.

Particular	Frequency	Mobile phone
Yes	344	86%
No	56	14%
Total	400	100%

Table No 17: Respondent response towards use of mobile banking

Particular	Frequency	Mobile banking
Yes	252	63%
No	148	37%
Total	400	100%

Table No 18: Purpose of using Mobile Banking

Particular	No. of people use	Percentage
Time Saving	88	35%
Easy Transfer	58	23%
24*7 Service	49	19%
Impress People	14	6%
Secured Transection	29	12%
Cost effective	14	6%
Total	252	100%

Table No 19: Reasons not using Mobile Banking

Particular	**No. of people not using**	**Percentage**
Difficult to use	31	21%
Trust Issue	23	16%
Low internet connectivity	12	8%
Not finding any need	32	22%
Do not have smart phone	22	15%
Do not know how to use	23	16%
Small screen makes it difficult to view	5	3%
Total	148	100%

Hypothesis No. 3: H0 = There would be no significant difference in the Respondents' response towards frequently use of mobile banking.

Table No 20: Respondent response towards frequently use of mobile banking

Particular	Daily	Monthly	Yearly	Never	Total
Balance inquiry	26	89	41	96	252
Mobile recharge	5	90	52	105	252
DTH recharge	0	68	64	120	252
Bill payment	4	71	56	121	252
Stock payment	4	24	59	165	252
Fund transfer	5	24	62	161	252
ATM	28	60	53	111	252
Debit card Request	14	35	68	135	252
Cheque book Request	9	39	73	131	252
To book hotel	5	24	57	166	252
Flight booking	0	11	58	183	252
Bus booking	0	18	56	178	252
Making Investment	3	16	44	189	252

Table No 21: Kruskal-Wallis Test

	Median	n	Avg. Rank
Daily	5.00	13	8.00
Monthly	35.00	13	23.50
Yearly	57.00	13	28.50
Never	135.00	13	46.00
Total	56.00	52	

H (corrected for ties)	41.659
d.f.	3
p-value	4.74E-09

P value comparison

P test value < *P value*

0.00000000474 < 0.05

Hence, H_0 = Rejected

H_1 =Accepted

Interpretation of Result

The table value of h test for 4 degree of freedom at 5% level of significanceis 7.815 (H table value) and the calculated value of H is 41.659 (H calculation) which is higher than the table value, hence the result of the experiment does not support the null hypothesis. So, null hypothesis is rejected and alternative hypothesis is accepted. It means there would be significant difference in the Respondents' response towards frequently use of mobile banking.

Hypothesis No. 4: H_0 = There would be no significant difference in the beneficiaries' numbers or growth at rural and urban area of PMJDY schemes.

Table No 22: Number of Beneficiaries at rural and urban area of Pradhan Mantri Jan - Dhan Yojanaas on 16/03/2022 (All figures in Crore)

Banking sector	Frequency	Number of Beneficiaries at rural/semi urban center bank branches	Number of Beneficiaries at urban metro center bank branches	Number of Total Beneficiaries
Public Sector Banks	Observed	**22**	**13**	35
	Expected	23.63	11.79	35.42
Regional Rural Banks	Observed	**7**	**1**	8
	Expected	5.49	2.74	8.23
Private Sector Banks	Observed	**1**	**1**	1
	Expected	0.87	0.43	1.30
Total	Observed	30	15	45
	Expected	29.99	14.96	44.95

Calculation of χ^2 Test

- Level of Significance = 0.05 or 5%

chi-square	1.91
df	2
p-value	.3852

P value comparison

P test value > P value

0.3852 > 0.05

Hence, H_0 = Accepted

H_1 = Rejected

Interpretation of Result

The table value of h test for 2 degree of freedom at 5% level of significanceis 5.99 (x^2 table value) and the calculated value of H is 1.91 (x^2 calculation) which is lower than the table value, hence the result of the experiment is supporting the null hypothesis. So, null hypothesis is accepted and alternative hypothesis is rejected. It means there would be no significant difference in the beneficiaries' numbers or growth at rural and urban area of PMJDY schemes.

After interpretations and analysis of above all hypotheses, following various findings and suggestions are constructed.

Conclusion

The above data illuminates the major issues on financial inclusion as most respondents weremale and having a low educational level and it has been also discovered that financial literacy is low among them. About 384 respondent has a bank in their village out of it 316 has a saving bank account and there is 167 respondent who has a zero-balance account (PMJDY). The majority of them are farmers and they were having Kisan credit card and was financially inclusive thus PMJDY includes half of them in inclusion. Almost 259 respondents are using facilities provided by the bank. They are aware of services like a loan; mobilebanking, debit card, credit card, and deposit of bank, withdrawal of cash, checkbook, insurance, Kisan CC, overdraft and ATM, so respondents were aware of various financial services but were using few. They were positive toward use of services like income, bank charge, employment status, etc. asking on usage of mobile phone is 86% were having mobile phone and 63% were using a mobile banking (male majority), hence there is a gap of 22% and these cover female respondents as literacy level among female is low. Mainlythe respondent was using mobile banking to save time, 24*7 services, ease of using draw them to one hand stop.Whether some were not using mobile banking because they do not find any need for the same and they find difficult to use mobile banking.

Findings

- Hypothesis testing result reveal that the beneficiaries of PMJDY account holders who experience with various services received that are not par and different with satisfactions they have with the services like Loan, Mobile banking, Debit card, Credit card, Deposit of cash, Withdrawal ofcash, Cheque book, over draft, Insurance, Kisan CC and ATM facilities. Here themost important thing is that when government providing services to beneficiaries it should be at par. here researcher from the study recommend to provide services at par to all the categoriesincluding Male & female, in all the areas including rural and urban, to all the persons weather educated or not. All deserve equal facilities and satisfaction with same services provider.
- Hypothesis testing result reveal that the beneficiaries of PMJDY account holders who experience with of various services satisfaction rate received that are not par and different withsatisfactions they have with the various statements of facilities like Services provided by bankDistance to the bank Cost incentives, Bank employees Attitude and behavior, Branch timing, Bank charges, Banking KYC, Quick access to loan and deposits, Availability of ATM, Insurance services, Mobile banking, Internet banking and Overall satisfaction. Here the most important thing is that

when government providing various much needed facilities to beneficiaries it should be at par. here researcher from the study recommend to provide servicesat par to all the categories including Male & female, in all the areas including rural and urban,to all the persons weather educated or not. All deserve equal facilities and satisfaction with same services provider.

- Hypothesis testing results reveal that the beneficiaries of PMJDY account holders who experience of frequent use of mobile banking on a daily, Monthly, and yearly bases are not par and have a significant difference in comparison to other beneficiaries with reference to servicesof Balance inquiry Mobile recharge, DTH recharge, Bill payment, Stock payment, Fund transfer, ATM, Debit card Request, Cheque book Request, To book a hotel, Flight booking, Busbooking, Making Investment. . Here the most important thing is that when the government provides various much-needed facilities to beneficiaries it should be at par. Here, the researcherfrom this study recommends using mobile banking regularly. It will save their cost, time and energy. Moreover, the government would easily track all transactions, preventing tax embezzlement by any assesse. This should be adopted by all the categories including Male & female, in all the areas including rural and urban, to all the person's whether educated or not.
- Hypothesis testing results reveal that the beneficiaries of PMJDY account holders experience the same for all three formats of banks i.e. Public Sector Banks, RegionalRural Banks and Private Sector Banks with reference to rural and urban areas of the schemes. Day by day number of beneficiaries increases in a very good manner. It is proof that this schemeof government has a good response and people getting benefiting from it.

Suggestions

Few suggestions are given below details are included in thesis:

- Lack of physical and digital connectivity is posing a major hurdle in achieving financial inclusion for rural India. Technological Issue- The technological issues affecting banks from poor connectivity, networking and bandwidth problems to managing costs of maintain infrastructure especially in rural areas. By providing good network this problem should solve by the government.
- Jan Dhan Account withdrawal limit: The withdrawal limit under PMJDY is Rs 10,000 per month. Jan Dhan Account Limit: Account Holders can deposit a maximum of Rs 1, 00,000 in the account, under the scheme. This limit must increase by the Government
- Government should open and provide more branches of bank with all facilities in rural and village area.

- Jan Dhan Account holders get accidental insurance coverage of up to 2 lakhs that should be increase
- Jan Dhan Account ATM Card: The accountholders also get a Rupay debit card, with an overdraft facility of up to Rs 10,000. And that should be increase
- PMJDY Account-holders also get a life insurance cover of Rs 30,000. It will be given to the nominee in case of the death of the account holder and that also should increase by the government.
- Age limit should increase by the government for getting benefits of this schemes
- and income tax return filling persons also include in this schemes

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INVESTMENT OBJECTIVES AND SATISFACTION: A STUDY ON RETAIL INVESTORS OF DELHI-NCR

Dr. Tek Chand*

ABSTRACT

In this article, an attempt has been made to study the retail investors' investment objectives and satisfaction. For the assembling of the data, a well-framed close-ended google survey questionnaire link was forwarded through email to 130 targeted retail investors of Delhi-NCR. Out of which, 120 were responded. The analysis was carried out by using descriptive and inferential statistics **(**Suwardi & Rahardjo, 2022; Sharara & Nkomo, 2022**).** This study explores the components of investment objectives that contribute to the satisfaction level of retail investors (Kothari et al., 2020). The study hasdrawn the inference that there is an insignificant difference between population mean ofage, education and income groups pertaining to their investment objective, except in a few cases it shows the significant results, which means there is at least one group mean is different from the others. Further, the study ascertains that a sizable proportion of retail investors are highly stratified with their investment objectives of wealth creation, additional source of income, long-term investment growth and so on.

Keywords: Stock Market, Retail-Investor, Objective, Satisfaction

JEL Classification: G1, G10, G11

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Introduction

Over the years, India has become one of the quickest-rising economies in the world and offers a growing and lucrative environment for investment. India's investment policy is continuously reviewed on a regular basis to ensure that India remains an attractive and investor-friendly destination (The Economic Times, 2022) for domestic and overseas investors. And it has also been successful in attracting investors to a large extent. Today,investment is the basic need for the financial well-being of every individual (Chaurasia, 2017; Jain et al., 2019). Investment has been broadly defined as the acquisition of valuable asset with the aim of receiving a return (Rosemary et al., 2017). It can also be viewed as the employment of surplus money in financial assets with the objective of achieving additional income (Revathy & Suthendren, 2012) or capital appreciation. Financial assets come in different forms, such as shares, bonds, mutual funds, ULIP, fixeddeposits, and many more. However, the primary goal behind all investments remains thesame, i.e., to increase the value of the invested money. Investing in the stock is not an easy task, and it requires sufficient financial knowledge, investment skills, ability and willingness to take up risks (Shankar & Bhatt, 2022). The investment objectives of an investor refer to what the investor (Rosemary et al., 2017) hopes to achieve with his or her investment. Objectives define the purpose of investing and these objectives may varyfrom one investor to another (Raveendran & Kanakaraj, 2015). Some of the key objectives of investment are the protection of the principal amount, capital growth, generation of regular additional income, wealth creation, tax savings, the need for liquidity, and quick returns (Chaurasia, 2017; Jain et al., 2019). Once an investor knows his objective, it can guide him towards certain asset classes or securities. These classes of assets help investors to create a portfolio. Many financial experts recommend that investors rebalance their portfolios on a regular time interval (www.sec.gov) to reach out their investment objectives and satisfaction. Satisfied investors are a necessary element of thestock market. They help to finance rapid expansion in developing countries (Rashid & Nishat, 2009) like India. Satisfied investors bring new investors (Anderson et al., 1994) tothe market, educate themselves on trading and information management, make the market competitive, and bring new issuers (borrowers) to the market (Rashid & Nishat, 2009).

An Overview of the Existing Research

A review of previous research articles can give a researcher an understanding of different aspects and potential future research areas.

Bishnoi (2014) stated that the insurance scheme is the most picked avenue for investment and it is pursued by bank deposits, PPF, NSC, and postal savings plan. Likewise, Bond is followed by equity investment and debenture is the least preferred instrument for investment. Furthermore, he has found that demographic variables have a significant relationship with investment objectives.

Peng et al., (2015) in their study stated that customer satisfaction is a valuable intangibleasset and it generates positive abnormal returns. They said that even when the share market exhibits negative sentiments, investors who invest in the market confirm customer satisfaction. Furthermore, the authors clarified that customer satisfaction is value-relevant, not even for investors but also for firm management, especially in pessimistic periods.

Raveendran and Kanakaraj (2015) noticed that there is no influence of family members on investment objectives and the level of satisfaction of investors, but most of the investors (respondents) strongly believe that the efforts of regulatory bodies are essential to educate and aware the investors for capitalizing investing goal.

Chaurasia (2017) analyzed that investors' investment objectives of the Protection of Principal amount, Capital Growth, and Regular Income have a significant relationship with the demographic variable of gender, while it shows an insignificant relationship in the case of age. The investment objectives of Quick Returns and Liquidity have also established a significant relationship with regard to age and gender. Further, he has foundthat the safety of the principal is the most preferred and liquidity is the least preferred byinvestors.

Jain et al., (2019) concluded that the primary objective of women investors was to earn high returns, the Tax-saving objective attracted them towards the tax-saver mutual fund, assured return attracted them towards the bank FD and then NSS/PPF, and the Liquidity objective fulfilled by investing in Gold. The overall investment objective of the investors was to get the maximum return with the minimum risk by investing in stocks.

Mayilvaganan & Suganthi (2020) observed that the market was led by male investors in the age group of twenty-to-forty years. They found that more than half of the respondents invest their hard-earned money in the stock market. Authors stated that investors were satisfied with their investments having features of safety, tax benefits, dividends, quick gain, and liquidity. They concluded that in-depth market knowledge gave them an increasing return.

Paulraj & Viji (2021) found that the majority of investors were male and age-wise investors represent the thirty-one to forty-year age group and most of these investors were master-level academically qualified. The authors found that liquidity and a high rate of return made the investor highly satisfied to invest in shares. They also found that investors were happy with their broker's advice for making investment decisions.

Khan (2022) observed that loss aversion acts as an arbitrator to indirectly influence investment objectives due to earlier perceived losses. He also found that for high-risk investors, prior realised losses indirectly influence individuals to invest more in order to achieve a higher projected return aim and less in order to achieve the goal of creating a fund reserve for potential future expense. Further, he claimed that despite having previously suffered losses and being loss-averse, risk-tolerant investors carry on to invest in order to gain a higher expected return.

Research Gap

In India, Retail investor participation is increasing rapidly. Especially, it has been noticed during the COVID pandemic and after the pandemic. As a result, retail investors are now accounting for more than fifty percent of daily market transactions, which shows their aggressive participation in the market. Although lots of studies have been carried out onretail investors, but as per existing research and the present scenario of the market, it is not sufficient to reveal investors' situations, because with the passage of time either these figures have been changed or outdated. In addition, population growth, Income level, Age,Job status, Experience, Financial Literacy, etc. always remained significant factors, and these factors are also transformed rapidly. On the basis of aforesaid factors, the researchgap has been identified and proposed for the study, so it could reveal worthwhile resultsas per the present scenario of the market.

Significance of the Study

The significance of this research is to understand the retail investors' perspective about the importance of investment objectives and satisfaction. It will give insights into the awareness and assess their investment objectives not only of retail investors but also of existing and prospective high-net-worth individual investors too. Moreover, the study will be valuable to fund managers, brokers, and other financial institutions, who manage the investors' hard-earned money as per their aims and expectations.

Scope of the Study

The scope of this research was limited to identify the importance of investment objectives and the satisfaction of individual investors. Geographically, the study was restricted to the Delhi-NCR.

Period of the Study

One of the most important parts of the study was the collection of the primary data, which took place over a six-month period from September 2021 to March 2022.

Research Objectives

1. To study the level of importance of the investment objectives.
2. To know the level of satisfaction of investment objectives.

Hypotheses

The study is based on the formulation of the following hypotheses:

H1 – There is no significant difference among the age groups with regards to importance of investment objectives.

H2 – There is no significant difference among the academic groups with regards to importance of investment objectives.

H3 – There is no significant difference among the income groups with regards to importance of investment objectives.

Limitations

The present study covers only three investment objectives i.e. Long-term investment Growth, Wealth Creation, and Additional source of income. Further, the study is confined to 120 retail investors of Delhi-NCR only. Therefore, the results can't be generalized to other parts of India.

Research Methodology

In nature, the present study is an empirical study and it is devoted to know the retail investors' importance of investment objectives and their satisfaction.

Data Source

This study relied exclusively on primary data. Data collection was ensured through a well-framed google survey questionnaire.

Sample Size

In total 130 digital questionnaires were sent through email, out of which, 120 respondents were responded. Thus, the qualified sample size was 120 and it used forthe further study.

Sampling Technique

The essential information was collected exclusively from retail investors, who invest in the stock market, using the simple random sampling method.

Questionnaire

For this research, a well-structured closed-ended google survey questionnaire was constructed by using scaling approaches such as Nominal and Ordinalscales at five point Likert-Rating scale (Shankar & Bhatt, 2022).

Variables under Study

In the present study the demographic factors are considered asindependent variables and the importance of investment objectives and satisfaction are considered as dependent variables.

Tools and Techniques

In order to achieve the objectives of the study, collected data were processed by the statistical software of SPSS and analysed by using descriptive andinferential statistics (Suwardi & Rahardjo, 2022; Sharara & Nkomo, 2022). As per the need of the objectives and nature of the data Mean, Standard Deviation, Skewness, Rank, Tukey Post Hoc Test, and One-way Anova statistical tools had been applied.

ANALYSIS AND INTERPRETATION

After collecting the data, it was systematically tabulated and analysed by using appropriate statistical measures.

Table No 1: Age Group-wise Responses: One-way Anova Test

Dependent Variables	Groups	Sum of Squares	Df	Mean Square	F	Sig.
Long term Investment Growth	Between Groups	11.788	3	3.929	4.335	.006
	Within Groups	105.137	116	.906		
	Total	116.925	119			
Wealth Creation	Between Groups	.401	3	.134	.215	.886
	Within Groups	71.924	116	.620		
	Total	72.325	119			
Additional Sourceof	Between Groups	22.698	3	7.566	6.816	.000
	Within Groups	128.768	116	1.110		

Income	Total	151.467	119

Source: Computed from Primary Data

One-way anova has been applied to measure the significance of mean difference among the age groups of retail investors with regard to the importance of investment objectivesin the stock market. The analysis shows the P-value is insignificant at 0.05 for the dependent variable of wealth creation, which means there is no difference between age groups of the respondents with regard to the importance of the investment objective of wealth creation. Likewise, a significant P-value specifies that at least one of the age groupmean is different from the others in case of investment of objectives of long-term investment growth and additional source of income. The one-way anova does not tell where the difference exists. For this, Tukey Post Hoc test has been applied.

Table No 1a:Tukey Post Hoc Results

Investment Objectives	Age Groups	Below 30	30-45	45-60	Above 60
Long-term Investment Growth	Below 30		0.852	0.821	0.051
	30-45	0.852		0.191	0.005*
	45-60	0.821	0.191		0.145
	Above 60	0.051	0.005*	0.145	
Additional Source	Below 30		0.721	0.003*	0.888
	30-45	0.721		0.009*	0.432
	45-60	0.003*	0.009*		0.006*
	Above 60	0.888	0.432	0.006*	

Source: Computed from Primary Data

Tukey post hoc test results shown in Table demonstrate that the age group below 30 hasa significant value (0.005) with the age group above 60 and vice-versa above 60 with below 30. This illustrates that age groups below 30 and 45-60 have a different opinion ascompared to other groups for investing in the share market with a long-term investmentperspective. Similarly, values are also found significant for age groups of below 30 and 45-60 years, 30-45 and 45-60 years, 45-60 and above 60 years, and vice-versa all with itsselves. Which signify that the above mentioned age groups have a different opinion as compared to others for investing in the stock market with the opinion of additional sourceof income.

Table No 2: Academic Group-wise Responses: One-way Anova Test

Dependent Variables	Groups	Sum of Squares	Df	Mean Square	F	Sig.
Long term Investment Growth	Between Groups	22.468	3	7.489	9.198	.000
	Within Groups	94.457	116	.814		
	Total	116.925	119			
Wealth Creation	Between Groups	4.815	3	1.605	2.758	.045
	Within Groups	67.510	116	.582		
	Total	72.325	119			
Additional Source of Income	Between Groups	7.209	3	2.403	1.932	.128
	Within Groups	144.257	116	1.244		
	Total	151.467	119			

Source: Computed from Primary Data

One-way anova result highlights that a significant value is greater than 0.05 for the investment objective of additional source of income. It signifies that there is no significant difference in the responses of retail investors from different academic groups. Further, significant results for long-term investment and Wealth Creation signify that there existsat least one of the population mean is different from the others.

Table No 2a: Tukey Post Hoc Results

Investment Objectives	Academic Group	Graduate	Master	Professional	Other
Long-term Investment Growth	Graduate		0.678	0.008*	0.257
	Master	0.676		0.101	0.014
	Professional	0.008*	0.101		0.000*
	Other	0.257	0.014	0.000*	
Wealth Creation	Graduate		0.983	0.429	0.582
	Master	0.983		0.201	0.764
	Professional	0.429	0.201		0.030*

	Other	0.582	0.764	0.030*

Source: Computed from Primary Data

It is quite clear from the above table that values are found significant for respondents having academic qualifications of graduate and professional, and vice-versa. Similarly, professionals and others, and others and Professional. It exhibits that their opinions differfrom the other regarding investing in the share market for long-term investment growth.Further, retail investors having professional qualifications and others are found statistically significant, which ascertains that there exists a difference in their opinion as compared to other groups for investing in the share market for wealth creation. Therefore, it is concluded that the aforesaid groups' opinions slightly differ as compare to other.

Table No 3: Income Group-wise Responses: One-way Anova Test

Dependent Variables	Groups	Sum of Squares	Df	Mean Square	F	Sig.
Long term Investment Growth	Between Groups	4.268	3	1.423	1.465	.228
	Within Groups	112.657	116	.971		
	Total	116.925	119			
Wealth Creation	Between Groups	.797	3	.266	.431	.731
	Within Groups	71.528	116	.617		
	Total	72.325	119			
Additional Source of Income	Between Groups	10.872	3	3.624	2.990	.034
	Within Groups	140.594	116	1.212		
	Total	151.467	119			

Source: Computed from Primary Data

Table depicts the one-way anova result, it shows the significant P-value for investing objective of additional source of income at 5 percent level of significance. Hence, the alternative hypothesis is accepted. So, it is inferred that retail investors from different income groups are having different opinions with regard to investing objective of additional source of income. In order to make it clear, which income group is different from the others, Tukey Post Hoc test has been applied.

Table No 3a: Tukey Post Hoc Results

Investment Objectives	Income Groups	< 3 Lakh	3-6 Lakh	6-9 Lakh	> 9 Lakh
Additional Source o	< 3 Lakh		0.347	0.983	0.286
	3-6 Lakh	0.347		0.012*	1.000
	6-9 Lakh	0.983	0.012*		0.068
	> 9 Lakh	0.286	1.000	0.068	

Source: Computed from Primary Data

The Table reflects the Tukey Post Hoc results for investing objective of additional source of income on the basis of income groups. And it is found that mean difference is highly significant in the case of people having incomes of 3-6 and 6-9 lakh per annum.

Thus, it can be concluded that retail investors from the 3-6 lakh and 6-9 lakh income groups have a different opinion as compared to other income groups for investment objective of additional source of income.

Level of Satisfaction of Retail Investors

The satisfaction level of Retail Investors about their Investment Objectives was measured through a five-point Likert scale.

HD= Highly Dissatisfied, D= Dissatisfied, N= Neutral, S= Satisfied, HS= Highly Satisfied,

Table No 4:Investors Satisfaction about their investment Objectives

Satisfaction	HD	D	N	S	HS	Total	Mean	S.D.	SK	Rank
Wealth Creation	1 (.8%)	2 (1.7%)	27 (22.5%)	62 (51.7%)	28 (23.3%)	120 (100%)	3.95	.776	-.571	1
Additional Source of Income	6 (5%)	13 (10.8%)	22 (18.3%)	39 (32.5%)	40 (33.3%)	120 (100%)	3.78	1.168	-.757	2
Long-term Growth	5 (4.2%)	6 (5%)	42 (35%)	34 (28.3%)	33 (27.5%)	120 (100%)	3.70	1.058	-.497	3

Source: Computed from Primary Data

The satisfaction of long-term investment objective, 27.5 percent of retail investors are found highly satisfied, 28.3 percent of investors are satisfied and 4.2 percent of investorsare highly dissatisfied with their long-term investment objective. The mean value is 3.70,which is above the average value. The Standard Deviation is 1.058, which indicates high variations among the responses of the respondents. Skewness represents the data is negatively skewed. On the basis of the mean score, the third rank is assigned for the investment objective of long-term growth.

Likewise, satisfaction about the wealth creation, the highest percent that is 51.7 of respondents are found highly satisfied about the investment objective of wealth creation.The mean value is 395, which is above average value. The standard deviation is 0.776, which indicates less variation in the responses of retail investors. Skewness is -0.571, which reveals that the data is negatively skewed towards the left side. On the basis of mean value, the first rank is assigned for the investment objective of wealth creation.

In case of additional source of income, 33.3 percent of respondents have shown a high level of satisfaction about the income earned from share market as additional source of income. 18.3 percent of respondents have remained neutral. And 10.8 percent and 5 percent of the retail investors have found dissatisfied and highly dissatisfied. The mean score is 3.78, which is above average value. The standard deviation is 1.168, which meansthere is high variation among the responses of retail investors. Skewness is -.757, which reveals that data is negatively skewed towards the left side. The second rank is assignedfor the investment objective of additional source of income. The investment objective of additional source of income has the second highest mean score, therefore, second place is assigned to additional source of income.

Findings of the Study

- The study finds that there is a significance of mean difference among the age groups of retail investors with regard to investment objectives of long-term investment growth and additional source of income. This indicates that there exists at least one age group mean is different from the others.
- It is evident from the analysis section that academic-wise analysis shows the insignificant result for additional source of income and significant for long-term

- investment growth and wealth creation objectives. This point out that there is at least one of the academic group population mean is different from the others.
- One-way anova result shows the significant result for investing objective of additional source of income, which means there exists at least one of the income-wise group mean is different from the others.
- It is quite clear from the analysis section that the maximum number of retail investors are either satisfied or highly satisfied with their investment objectives (Shrivastava, 2018; Mayilvaganan & Suganthi, 2020). On the basis of mean score, wealth creation is assigned first rank, additional source of income is placed second, and long-term investment growth is assigned third rank respectively.

Conclusion

Over the years, India has emerged as one of the fastest-growing economies in theworld. Especially, after the COVID-19 pandemic, India's economy showed great signs of recovery in (www.ibef.org) the financial year 2022. India has always provided an investor-friendly environment for investors. For an investor, investment helps in achieving his financial goals. And when these financial goals are met, the investor expresses satisfaction towards his investment. The study concludes that the maximum number of retail investors give equal importance totheir investment objectives and they are highly satisfied (Shrivastava, 2018; Mayilvaganan & Suganthi, 2020) with their investment objectives of wealth creation, additional source of income, and long-term investment growth.

Scope for Further Study

In the future, researchers may consider other investment objectives for the study,such as the safety of the principal amount, tax savings, liquidity, quick returns etc.The study is restricted to retail investors in Delhi-NCR and cannot be generalizedto other parts of the nation. Thus, the respondents may also be extended to otherthan retail investors, and similar research can be conducted in other parts of India.

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COMPARISON OF DAIRY UNITS OF PUNJAB USING VARIOUS FINANCIAL HEALTH INDICATORS

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ABSTRACT

In the year 2022, the Punjab dairy sector worth was Rs. 491 billion. The Punjab dairy sector was projected to grow at a compound annual growth rate of 14.7%. (Dairy Industry in Punjab: Market Size, Growth, Prices, Segments, Cooperatives, Private Dairies, Procurement and Distribution) The study aims to analyze the financial performance of selected dairy units in Punjab by using two selected financial health models such as the Springate Score Model and the Zmijewski Score Model.Data was gathered from the selected dairy units' annual reports, which covered the eleven-year period from 2010–2011 to 2020–21. It was concluded from the study that Bathinda and the Sangrur dairy units were in a financial distress zone and would go to bankruptcy in the near future. From the Zmijewski score, Patiala, Sangrur and Ludhiana dairy units were in the financial distress zone. Thus, the Sangrur dairy unit was a financially distressed zone as per both health models.

Keywords: Financial Performance, Financial Health, Punjab, Bankruptcy Scores

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INTRODUCTION

The Dairy Industry of India contributed 5% to the development of the Indian national economy. The dairy industry of India is employing directly 8 crores farmers. The dairy sector will grow 6% in the year 2023-24. (Das) The Punjab State Co-operatives Milk Producers Federation (Milk Fed) works at a three-tier system level including village level, district level and state level, which comprises 6,474 milk producers working at the three-tier levels. (IMARC Services Private Limited., 2022)The Punjab State Co- operative Milk Producers Limited also known as Milk Fed was established in the year 1973 with two main purposes:1) to provide qualitative milk to their consumers at reasonable prices and 2) for the better economic development of the milk producers' various activities carried out such as to hike up milk production, procurement and processing of milk so milk producers will receive enough prices for their milk. (The
Punjab State Cooperative Milk Producer's Federation Ltd., 2022)

REVIEW OF LITERATURE

The present review of literature is based on the study conducted in the research area of the dairy industry in India.

(Santhosa, Gaddi, & Gracy, 2020), analyzed the physical and financial performance of the Shivamogga dairy unit from the period 2008-09 to 2017-18 with the help of selected financial ratios. The result was found that there was a positive annual compound growth rate (CAGR) and current ratio was greater than 2 and quick ratio was greater than 0.95 and the inventory turnover ratio was 39.93. These results suggested that the union working at its satisfactory level and the gross profit ratio and net profit ratio were earned at their satisfactory level.

(Bhandari, 2020),examined the main implications of the COVID-19 predicament on a firmly consolidated dairy supply chain. From the study, it was concluded that dairy farmers have borne heavy losses due to the impracticability of entirely adjusting supply to demand. Dairy farmers, as well as dairy processors, have done hard work the minimize the losses during lockdown by accepting the different master plans. They have converted liquid milk into long-lasting dairy products such as ghee, curd, and paneer. They have also provided dairy products as soon as possible to the doorsteps of the consumers. It was suggested to take special measures for the unavailability of cattle feed and fodder which may have adversely affected the cost of production.

(Bhagyalakshmi, 2020), conferred on the problems of the Indian dairy sector and also explored problems by the 'SWOT' analysis and Porter Five Force Model'. From the study, it was observed that India's milk production capacity was higher than other nations but per capita, milk manufacturing capacity was less than other nations. Indian milky animals' production capacity was too low so the cost of milk in India was very high. It was also seen in the study that Indian farmers do have not proper information about the health of their milky animals and related to their vaccination. A very big problem faced by the Indian dairy sector was not only the proper supply chain but also, they brought up their animals by ancient methods so fruitful results were not achieved.

(Bose, 2018),inspected the outcomes of microfinance on the dairy industry for reducing poverty in India. The primary data was examined by interviewing 150 members of the Kerala district and secondary data was also used for the study. The data was collected in the context of savings and expenditure relation, debt, assets and income. It was concluded that microfinance contributed to the area of income, education, and progress of farmers and it was also helpful for the farmers in the field of decreasing poverty, upgrading their income, and increasing their living standard.

Research Gap

In India, various types of studies are being conducted such as physical and financial performance, comparative financial health analysis, financial leverage and financial performance, capital structure and financial performance and business performance etc. Thus, various research work took place to examine the financial performance analysis of dairy co-operatives in India and outside India but the researcher could not trace any study on the comparative financial performance analysis for the dairy co- operatives in the state of Punjab. Taking this as a research gap, the study has been undertaken to analyze and compare the financial performance of selected dairy units from 2010-11 to 2020-21. The majority of the past studies employed the financial health model Altman's Z score. We did not come across any literature that includes other financial health scores so taking it as a research gap, an attempt was made to analyze the financial health of Punjab dairy units using two selected financial health models, the Springate score model and the Zmijewski score model.

RESEARCH METHODOLOGY

There are eleven cooperative dairy units registered in Punjab state, out of which the researcher has selected five dairy units based on a convenient random sampling method. The selected dairy units are Bathinda, Patiala, Gurdaspur, Ludhiana and Sangrur. This study is based on secondary data which were drawn from the published annual reports for eleven years

2010-11 to 2020-21. The data is then analyzed using two financial health scores; Springate and Zmijewski scores. **Problem Statement**

'Comparison of Dairy Units of Punjab using various Financial Health Indicators'.

Significance of the study

The Indian economy mainly depends on Agricultural and Animal Husbandry and it is also dependent on cooperatives' dairy units. The dairy sector has played an important role in the development of the Indian economy. This study may assist in understanding the financial health of selected five dairy units in Punjab. The study is also helpful for the dairy authorities andthe Government of India to formalize polices and willtake proper steps for strengthen the financial health of the selected dairy units in Punjab.

Objectives of the study

1. To examine the financial performance of the district milk producers' unions of Punjab using Springate and Zmijewski score models.
2. To compare the overall financial performance of selected dairy units of Punjab.

Research Design and Sampling Techniques

A descriptive research design has been selected to analyze the financial health of dairy units in Punjab. Out of 11 dairy units in Punjab, five dairy units were selected based on a convenient sampling method. The selected dairy units are as follows:

Dairy Units of Punjab	
1.	Bathinda District Co-operative Milk Producers' Union Ltd., Bathinda.
2.	Patiala District Co-operative Milk Producers' Union Ltd., Patiala.
3.	Gurdaspur District Co-operative Milk Producers' Union Ltd., Gurdaspur.
4.	Sangrur District Co-operative Milk Producers' Union Ltd., Sangrur.
5.	Ludhiana District Co-operative Milk Producers' Union Ltd., Ludhiana.

Tools and Techniques used

For the present study, data has been analyzed by the use of two selected financial health models.

1. SpringateScore Model

2. Zmijewski Score Model

Springate Score Model

In the year 1978, Springate formulated a bankruptcy prediction model in which a Multiple Discriminant Analysis (MDA) method was used. Four financial ratios were used from a total of nineteen financial ratios. The Springate method according to (Primasari, 2017) can be computed with the following formula:

$$\mathbf{S=1.03\times A+3.07\times B+0.66\times C+0.4\times D}$$

In this score, four financial ratios are used such as working capital to total assets×100 (A), earnings before interest and tax to total assets×100 (B), profit before tax to current liabilities×100 (C), and revenue to total assets×100 (D). (Putri, Badri, Pranyoto, Susanti, & Lestari, 2020)

If the S- score is greater than 0.862, the dairy unit is predicted to be a potentially healthy unit. If the S- score is less than 0.862, the results indicate that the dairy unit is predicted to experience bankruptcy.(Putri, Badri, Pranyoto, Susanti, & Lestari, 2020)

Zmijewski Model

The Zmijewski model was created by Zmijewski in 1984. In this model, ratios are used such as net income to total assets (X1), total liabilities to total assets (X2), and current assets to current liabilities. The formula used to examine the 'Zmijewski' scores:

$$\mathbf{-4.3-4.5\times(X1)+5.7\times(X2)-0.004\times(X3)}$$

In this model, if X score is greater than 0 the dairy unit is not predicted to go into bankruptcy and if X score is less than 0 the dairy unit is likely to go into bankruptcy.

RESULTS AND DISCUSSION

Table no 1, examined the financial health of the Bathinda dairy unit. The highest springate score was 3.57 was observed in the year 2012-13 which indicated that the unit was in a stable condition in the year 2012-13 as working capital and revenue against total assets were in improved condition. The lowest spring score was 0.19 in the year 2010-11.In the year i.e. 2012-13 and 2020-21 the springate score was greater than 0.862 and in the remaining years, it was in the distress zone which predicts the Bathinda dairy unit will go to bankruptcy in near future.

Table no 2, displayed the financial health of the Patiala dairy unit. It was observed that in the eleven years study in 2010-11, 2017-18 and 2018-19, the springate score was lower than 0.862 i.e. 0.75,0.49 and 0.44 so in these years dairy unit was under distress zone because EBIT to total assets and profit before tax to current liabilities is in negative in these years. During the year 2018-19, the working capital is negative. Patiala dairy unit's highest springate score was 17.68 which indicates the financial health was stable in the year 2016-17.

Table no 3, analyzed the financial health of the Gurdaspur dairy unit the highest springatescore was 1.58 observed in 2012-13 which indicated that the unit was in a stable condition in the year 2012-13.During the study period, it was observed that the springate score was less than 0.862 in the year 2010-11which was 0.57, 0.34 in the year 2017-18, 0.28 in the year 2018-19 and 0.71 in the year 2020-21. It was found that in the year 2010-11, the EBIT to total assets and profit before tax to current liabilities was not in improved condition. It was found that in the year 2018-19, the working capital against total assets was negative so in thisfour-year study period the Gurdaspur dairy unit was in the distress zone.

The above table no 4, demonstratesthe financial health of the Sangrur dairy unit. The highest springate score was 1.79 was examined in 2010-11 which indicated that the unit was in a stable condition in the year 2010-11. It was observed that in the study period, the Springate score was less than 0.862 in 2012-13 and 2014-15 to 2019-20 and 202021 because working capital to total assets was not in improved condition indicating the unit was in the distress zone. The dairy unit is likely to experience bankruptcy in the near future as last sevenyears; the dairy unit was inconstant distress.

Table no 5, examined the financial health of the Sangrur dairy unit. The springate score was lower than 0.862 in the year 2011-12 i.e. 0.28 and in the year2017-18 i.e. 0.70 and in the year 2018-19 i.e. 0.36. The highest springate score was 21.89 in the year 2015-
16. The highest springate score was 21.89 in the year 2015-16. Ludhiana dairy unit was financially strong in seven years out of ten years because the Springate score was higher than 0.862. In the years 2011-12, 2017-18 and 2018-19, the Ludhiana dairy unit was in the distress zone because the EBIT against total assets ratio was very low percent and working capital against total assets was negative.

Table no 6, examined the financial health of the Bathinda dairy unit. Here it can be said that the Bathinda dairy unit had the highest Zmijewski score i.e. 1.59 in the year 201112 and the lowest score in the year 2019-20, i.e.-1.26. From the above table, it was examined that in theeleven-year study period out of four years, i.e. 2010-11, 201718and 2018-19 and 2019-20 the Zmijewski score was lower than 0. The Zmijewski scores in these four years i.e. -0.08,-0.92, -1.15 and -1.26 respectively because in the year 2010-11 and 2018-19, current assets to current liabilities ratio was low. In the year 2017-18, the net income to total assets ratio is negative so in these four years, the Bathinda dairy unit was in the distress zone.

Table no 7, examined the financial health of the Patiala dairy unit. Theimproved financial health of the Patiala dairy unit was only observed in two years 2017-18 & 2018-19 having scoresof 0.59 and 0.49 which indicated that the unit was stable inthese two years but the unit struggled from 2010-2011 to 2016-17 and 2019-20 which is a huge red flag for the unit as the score predicted bankruptcy in near future.

Table no 8, examined the financial health of the Gurdaspur dairy unit.It was observed during the entire study period from 2010-11 to 2019-20, that the Gurdaspur dairy unit financial health was stable asZmijewskiscoredabove 0. The score predicts that the chances of the dairy unit going bankrupt is very low.

Table no9,observed, the financial health of the Sangrur dairy unit. It was found in the eleven years study period, seven years from 2010-11 to 2016-17, the financial health of the Sangrur dairy unit was steady and in improved condition, as the score was above 0, but following three years, i.e. from 2017-18 to 2019-20 the score was negative due to reduction in the current assets. The dairy unit is required to improve its current assets to avoid bankruptcy in the near future.

Table no 10,studies the financial health of the Ludhiana dairy unit. It was observed that the dairy unit was struggling to maintain its financial health from the years 2010- 11 to 2019-20, except in the years 2010-11, 2016-17 and 2020-21 the score was greater than 0.

Table11, demonstrates an average of the financial health of selected five dairy units of Punjab on the basis of the Springatemodel and Zmijewski models. The Springate score model suggests that out of five dairy units, the three dairy units Patiala, Gurdaspur and Ludhiana scored more than the standard score while the Bathinda and Sangrur dairy units scored less than the standard score.As per theZmijewski score model, among the five dairy units of Punjab, it was concluded that the Bathinda, Patiala, Sangrurand Ludhiana dairy units' financialhealth was in the distressed zone because the averages of Zmijewski score of these dairy units was less than 0 and Gurdaspur dairy unit financial health was good.

FINDINGS OF THE STUDY

- It was found during the study period, that the average springate score of the Bathinda dairy unit was 0.78 while the Sangrur dairy unit score was -4.62 which indicated that as per the springate score, both these two dairy units were in financial distress zone.
- According to the Zmijewski model, the Bathinda, Sangrur and Ludhiana dairy units are in under financial distress zone because the score was less than 0 in these three dairy units. The Patiala dairy unit score was in a negative mode.

SUGGESTIONS FOR THE STUDY

- Bathinda, Patiala, Gurdaspur, Sangrur and Ludhiana dairy units should use their funds to maintain current assets and current liabilities so that ultimately their working capital is utilized in the proper manner to meet the short-term and long- term obligations. The dairy units should invest their funds in the current assets to fulfill the needs of the current liabilities of their business operations.
- The Patiala and Sangrur dairy units should plan for increasing sales implement proper distribution channels, and effectively utilization of their working capital and in that way, profit gained by the dairy unit should increase their total assets
- for the maximum generation of their sales. Increased sales will ultimately increase the profit of the dairy unit.

CONCLUSIONS

Every associate contributor of any business unit must be aware of the financial health of an organization. Financial health plays a crucial role in the development of the business unit. A financially sound unit can run its business operations in the long run. The present study is carried out with an aim to know the financial health of selected Punjab dairy units with the help ofthe Springate and Zmijewski score models. The study examined that as per the models, the Bathinda and the Sangrur dairy units were not financially healthy so proper steps should be taken to improve the financial health of the dairy units.

LIMITATION OF THE STUDY

- The data taken for the study was based on the annually published reports of the selected dairy cooperatives.
- The study is based on only two health models out of various others.
- The study was limited to a period of eleven years.

FURTHER SCOPE OF THE STUDY

- This study observed selected ten samples so more samples can be taken for further study.
- For future research, various dairy units can be selected as per the geographical zone for the advancement of the study.
- The study has covered the financial performance of the dairy units from the year 2010-11 to 2019-20 so, the researcher can study for further years.

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Annexure

Table 1: Springate Score of Bathinda Dairy Unit

Bathinda	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
A (Working capital/Total Assets)	-0.53	-0.32	2.72	-0.02	0.09	-0.33	-0.35	-0.08	-0.25	0.06	-0.35
B(EBIT/Total Assets)	0.02	-0.03	0.03	-0.04	0.02	0.00	0.02	0.00	0.01	0.01	0.01
C (Profit before tax/Current liabilities)	0.02	-0.04	0.00	-0.13	-0.06	0.00	0.01	-0.01	0.01	0.00	0.01
D (Revenue/Total Assets)	1.64	1.96	1.70	1.37	1.74	2.10	1.62	0.90	1.04	1.14	0.24
Springate Score	0.19	0.35	3.57	0.31	0.80	0.52	0.34	0.28	0.21	0.55	1.41
Bankruptcy	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**

Source: Computed by Authors

Table 2: Springate Score of Patiala Dairy Unit

Patiala	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
A (Working capital/Total Assets)	0.39	-0.16	-0.01	0.03	-0.03	0.55	0.17	-0.01	-0.01	0.57	-0.52
B(EBIT/Total Assets)	-0.01	0.05	0.12	0.06	0.07	0.05	0.08	0.02	0.01	0.05	47.73
C (Profit before tax/Current liabilities)	-0.04	0.02	0.20	0.09	0.12	0.20	0.20	0.01	0.00	0.05	0.02
D (Revenue/Total Assets)	1.02	4.62	4.35	4.26	5.14	2.27	42.85	1.08	1.08	1.74	400.13
Springate Score	0.75	1.84	2.23	1.97	2.33	1.75	17.68	0.49	0.44	1.46	306.05
BANKRUPTCY	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**No**

Source: Computed by Authors

Table 3: Springate Score of Gurdaspur Dairy Unit

Gurdaspur	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
A (Working capital/Total Assets)	0.39	-0.16	-0.01	0.03	-0.03	0.55	0.17	-0.01	-0.01	0.57	0.00
B(EBIT/Total Assets)	-0.01	0.05	0.12	0.06	0.07	0.05	0.08	0.02	0.01	0.05	0.03
C (Profit before tax/Current liabilities)	-0.04	0.02	0.20	0.09	0.12	0.20	0.20	0.01	0.00	0.05	639.21
D (Revenue/Total Assets)	0.56	2.65	2.73	2.80	3.12	1.35	2.57	0.72	0.69	0.97	0.00
Springate Score	0.57	1.05	1.58	1.39	1.52	1.38	1.57	0.34	0.28	1.16	0.71
Financial Stress	**Yes**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**

Source: Computed by Authors

Table 3: Springate Score of Sangrur Dairy Unit

Sangrur	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
A (Working capital/Total Assets)	0.14	0.18	0.30	0.15	0.20	-0.55	-0.22	-0.21	-0.50	-0.19	-0.23
B(EBIT/Total Assets)	0.08	0.04	0.01	0.01	-7.73	0.04	0.02	0.02	0.01	-0.27	8.26
C (Profit before tax/Current liabilities)	0.49	0.11	-0.19	-0.07	-48.4	0.01	0.00	0.01	0.01	-0.60	0.12
D (Revenue/Total Assets)	2.67	1.19	1.10	1.87	1.20	1.68	1.07	1.15	1.37	1.55	-1.28
Springate Score	1.79	0.87	0.66	0.89	-55.0	0.24	0.27	0.32	0.07	-0.79	-0.17
Bankruptcy	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Source: Computed by Authors

Table 4: Springate Score of Ludhiana Dairy Unit

Ludhiana	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
A (Working capital/Total Assets)	0.14	0.03	0.10	-0.27	0.10	0.80	0.61	0.05	-0.30	0.77	-1.06
B(EBIT/Total Assets)	0.04	0.01	0.05	0.06	0.04	0.07	0.07	0.02	0.03	1.68	0.02
C (Profit before tax/Current liabilities)	0.11	0.14	0.09	0.12	0.06	3.94	0.19	0.03	0.03	7.19	0.04
D (Revenue/Total Assets)	3.47	0.35	3.44	4.27	3.30	45.67	3.84	1.41	1.42	1.67	1.72
Springate Score	1.74	0.28	1.71	1.68	1.58	21.89	2.49	0.70	0.36	11.36	-0.32
Bankruptcy	**No**	**Yes**	**No**	**No**	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**Yes**

Source: Computed by Authors

Table 5: Zmijewski Score of Bathinda Dairy Unit

Bathinda	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
X1 (Net Income/Total Assets)	0.01	-0.03	0.05	-0.05	-0.03	0.02	0.01	-0.01	0.00	0.00	0.00
X2 (Total Liabilities/ Total Assets)	0.75	1.01	0.85	0.87	0.87	0.98	0.99	0.59	0.55	0.54	2.06
X3 (Current Assets/Current Liabilities)	0.24	0.55	5.48	0.96	0.80	0.59	0.56	0.79	0.48	1.16	0.49
Zmijewski Score	-0.08	1.59	0.30	0.89	0.76	1.19	1.29	-0.92	-1.15	-1.26	7.42
Financial Stress	**YES**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**	**YES**	**YES**	**No**

Source: Computed by Authors

Table 6: Zmijewski Score of Patiala Dairy Unit

Patiala	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
X1 (Net Income/Total Assets)	-0.02	0.01	0.09	0.04	0.05	0.03	0.05	0.34	0.17	0.01	0.00
X2 (Total Liabilities/ Total Assets)	0.13	0.62	0.63	0.60	0.48	0.74	0.41	0.86	0.84	0.75	1.28
X3 (Current Assets/Current Liabilities)	0.11	0.66	0.97	1.08	0.93	4.19	1.67	0.99	1.00	4.27	0.78
Zmijewski Score	-3.49	-0.78	-1.11	-1.04	-1.80	-0.26	-2.22	0.59	0.49	-0.07	2.97
Yes	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	**Yes**	**No**	

Source: Computed by Authors

Table 7: Zmijewski Score of Gurdaspur Dairy Unit

Gurdaspur	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
X1 (Net Income/Total Assets)	-0.06	0.00	0.00	-0.04	-0.10	-0.07	-0.07	-0.09	0.01	0.00	0.00
X2 (Total Liabilities/ Total Assets)	0.79	0.82	0.85	0.83	0.84	0.99	0.99	0.99	0.99	0.97	1.04
X3 (Current Assets/Current Liabilities)	0.26	0.46	0.49	0.46	0.33	0.37	0.46	0.36	0.30	0.37	0.96
Zmijewski Score	0.49	0.36	0.51	0.64	0.95	1.64	1.68	1.72	1.31	1.22	1.60
Financial Stress	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Source: Computed by Authors

Table 8: Zmijewski Score of Sangrur Dairy Unit

Sangrur	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
X1 (Net Income/Total Assets)	0.03	0.01	-0.02	0.01	0.00	0.01	0.00	0.01	0.01	-0.05	-0.11
X2 (Total Liabilities/ Total Assets)	0.86	0.87	0.88	0.80	0.88	0.98	0.99	0.07	0.53	0.57	1.39
X3 (Current Assets/Current Liabilities)	3.40	2.53	3.97	2.63	2.24	0.43	0.78	0.68	0.48	0.58	0.63
Zmijewski Score	0.46	0.57	0.76	0.23	0.69	1.26	1.34	-3.94	-1.30	-0.82	5.24
Bankruptcy	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	**No**

Source: Computed by Authors

Table 9: Zmijewski Score of Ludhiana Dairy Unit

Ludhiana	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
X1 (Net Income/Total Assets)	0.04	0.01	0.04	0.05	0.04	0.03	0.03	0.01	0.01	0.01	0.01
X2 (Total Liabilities/ Total Assets)	1.77	0.09	0.48	0.44	0.59	0.83	0.88	0.31	0.34	0.24	3.41
X3(Current Assets/Current Liabilities)	1.36	1.78	1.22	0.32	1.18	66.02	3.91	1.16	0.07	4.30	0.29
Zmijewski Score	5.61	-3.80	-1.75	-2.00	-1.11	0.00	0.60	-2.55	-2.40	-2.99	15.26
Bankruptcy	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**No**

Source: Computed by Authors

Table 10: Comparative analyses of Springate Score and Zmijewski Score for the selected dairy units of Punjab

Dairies	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	Average
Springate Model												
Bathinda	0.19	0.35	3.57	0.31	0.80	0.52	0.34	0.28	0.21	0.55	1.41	0.78
Patiala	0.75	1.84	2.23	1.97	2.33	1.75	17.8	0.49	0.44	1.46	306.05	2.81
Gurdaspur	0.57	1.05	1.58	1.39	1.52	1.38	1.57	0.34	0.28	1.16	0.71	1.05
Sangrur	1.79	0.87	0.66	0.89	-55.0	0.24	0.27	0.32	0.07	-0.79	-0.17	-4.62
Ludhiana	1.74	0.28	1.71	1.68	1.58	21.9	2.49	0.70	0.36	11.6	-0.32	3.95
Zmijewski Model												
Bathinda	-0.08	1.59	0.30	0.89	0.76	1.19	1.29	-0.92	-1.15	-1.26	7.42	0.91
Patiala	-3.50	-0.79	-1.11	-1.04	-1.80	-0.25	-2.22	0.59	0.49	-0.06	2.97	-0.61
Gurdaspur	0.49	0.36	0.51	0.64	0.95	1.64	1.68	1.72	1.31	1.22	1.60	1.1
Sangrur	0.46	0.57	0.76	0.23	0.69	1.26	1.34	-3.94	-1.30	-0.82	5.24	0.41
Ludhiana	5.61	-3.80	-1.75	-2.00	-1.11	0.00	0.60	-2.55	-2.40	-2.99	15.26	0.44

Source: Computed by Authors

FINANCIAL OVERVIEW OF SELECT DEFENCE MANUFACTURING COMPANIES: AN INTER-FIRMCOMPARISON FROM INDIAN PERSPECTIVE

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Dr. Sanjib Mitra**

ABSTRACT

The study has been undertaken to show the liquidity position, profitability and financial health of the major defence manufacturing companies as per the IBEF report published in February 2023. As India's defence industry is becoming lucrative to the domesticas well as foreign investors with a market size of 11.3 Billion USD, this study delivers its usefulness towards its potential stakeholders.

Keywords: Defence companies, liquidity, profitability, financial health, India.

INTRODUCTION

Government of India (GOI) has pushed defence industry to be a part of the 'Atmanirbhar Bharat' initiative to reduce the dependency on import of defence products and technologies and be the self-reliant. It encourages research and development to build favourable infrastructure facilities. The government has targeted to achieve the turnover of aerospace anddefence goods and services of 25 Billion USD (including export of 5 Billion USD) by 2025. [1]For the first time ever, the defence productions have touched the benchmark of one lakh crorein the financial year 2022-23. [2] In India's annual budget 2022-23, it was declared that twenty-five percent of defence research and development budget must be devoted for private industryand start-ups. This decision will lead to innovation of more defence technologies in India. [3] FDI in this sector has grown up at 74% from 49% through automatic route. [4] Latest report published by IBEF in February 2023 has revealed that six public sector units namely Bharat Earth Mover Ltd. (BEML), Bharat Electronics Ltd. (BEL), Hindustan Aeronautics Ltd. (HAL),Mazagon Dock Shipbuilders Ltd. (MDL), Bharat Dynamics Ltd. (BDL) and Garden Reach Shipbuilders & Engineers Ltd. (GRSE) are the key players of defence manufacturing in India. A brief description of these companies is enumerated below in Table 1: [5]

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Table No 1:

PSU Name	Formation	Headquarter	Key Defence Products	Revenue for F.Y 2021-22 (in crores)
BEML	1964	Bangalore	Multipurpose weapon loaders, Trolley to load aircraft weapons, Aarmoured recovery and repair vehicle, military rail coaches and military wagons etc.	₹3556.64
BDL	1970	Hyderabad	Indigenous missiles (Prithvi, Agni, Akash, Konkurs-M, Invar etc.), Heavy weight torpedoes and some products such as Amogha-III, CMDS Mk-II enabled with AI feature are in research and development stage.	₹2901
BEL	1954	Bangalore	Different kinds of radars (Weapon Locating Rader, Indian Doppler Rader, Battel Field Surveillance Rader etc.), C41 systems for Indian Air Force, Akash missile, electronic devices for tanks, Indian Navy's combat management system etc.	₹ 15313
GRSE	1884 (Nationalised in 1960)	Kolkata	Naval vessels (guided-missile frigates, fleet tankers, corvettes, fast patrol vessels, hovercraft etc.), recently an order is received for manufacturing of 15 warships of the Indian Navy by 2027-28.	₹1757.51

HAL	1940 (Nationalised in 1963)	Bangalore	Fighter aircrafts (Tejas MK1, Tejas MK2, TEDBF etc.), trainer aircraft (HAL-26 Pushpak, HJT-36 Sitara etc.), helicopters (Rudra, Dhruv etc.), RTOS for Indira Gandhi Centre for Atomic Research.	₹ 24620
MDL	1934 (Nationalised in 1960)	Mumbai	Various warships (Godavari-class frigate, Delhi-class destroyers, Shivalik-class frigates, Kolkata-class destroyers etc.), Coast guard vessels, Floating police stations, Submarines (Shishumar-class submarine, Kalvari-class submarine etc.).	₹ 5733

LITERATURE REVIEW

Das (2019) analysed the major aspects and fault lines existing in the defence industry of India. He discussed the needs to achieve autonomy in the defence sector. Some recommendations and suggestions were also provided by him to arrive at strategic autonomy in this sector.

Chibber & Dhawan (2013) identified the growth in inventories of defence sector from 2000 to 2011. It was also estimated that nearly 150 Billion USD would be spent on purchasing of defence equipment by 2017. The study identified that India's local defence industry could fulfil domestic demand and support export demand also.

Jindal, Jain & Vartika (2017) analysed how the receivables management was impacted by profitability of India's commercial vehicle industry for the period 2009-2016. A significant positive relationship between profitability and debtors-turnover ratio was found in this study.

Saleem & Rehman (2011) explored the relationship between liquidity and profitability of oil and gas companies of Pakistan for the period of 2004 to 2009. The results had reveled that financial position had been significantly impacted by each of the variables.

Prasad & Rajput (2021) forecasted monetary distress using Altman Z score of four Indian IT companies for the period 2015-2016 to 2017-2018. The results indicated that Wipro faced financial distress during the 2017-2018 only.

Research Gap

From the above review of literatures it is observed that hardly any comparativestudy has been conducted so far analysing the financial performance and financial health of themajor defence manufacturing companies in India. Present study is a humble attempt to fill thisgap.

OBJECTIVES

- To investigate and review the liquidity, profitability and financial health of the selected defence manufacturing companies in India.
- To identify the company, that is most efficient in terms of the above parameters.

LIMITATIONS

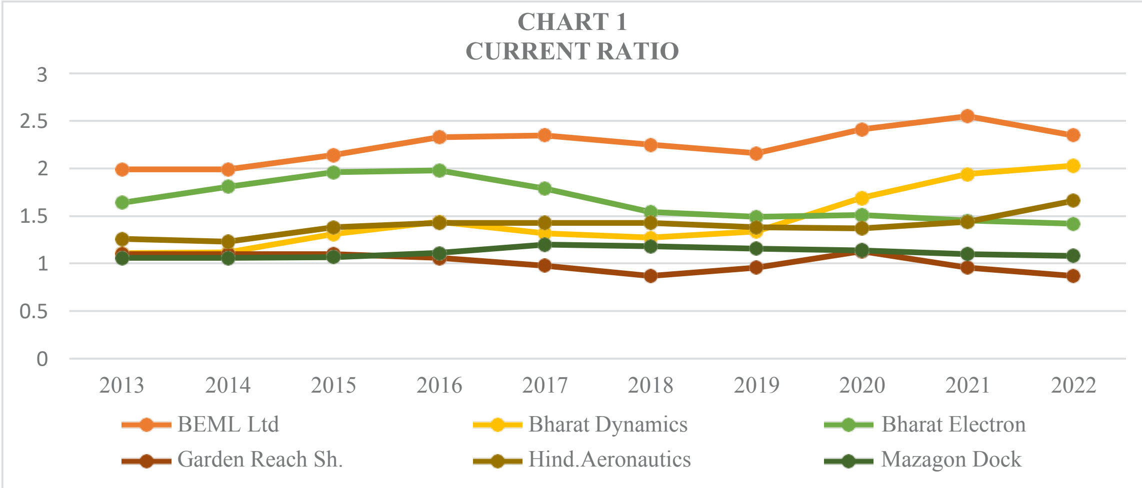
- The study concentrated only on six defence manufacturing companies in India with a limited study period from 2013 to 2022.

RESEARCH METHODOLOGY

The study focuses on financial overview of defense manufacturing companies in India which is based on secondary data collated from Capitaline database. [6] The study period is from 2012-13 to 2021-22. Relevant data have been analysed with the help of proper charts and tables usingMS Excel. To examine the liquidity, current ratio (CR) is taken as a proxy (Saleem & Rehman,2011), Return-on-Capital-Employed (ROCE) is used to measure the profitability (Jindal, Jain,& Vartika, 2017) and Altman Z score is considered as to show the monetary distress risks (Prasad & Rajput, 2021) for measuring financial health of the companies.

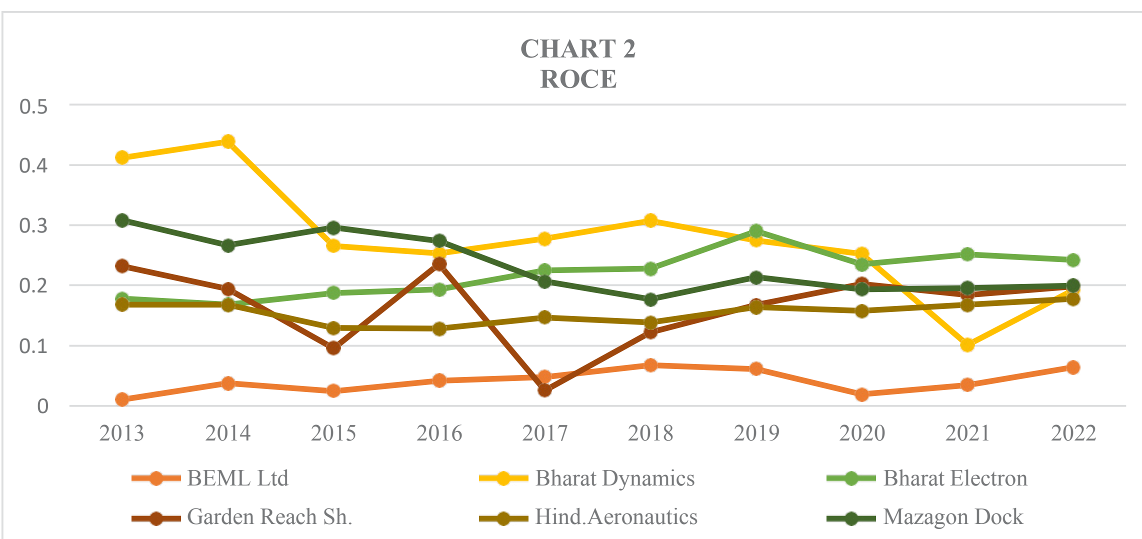
ANALYSIS AND INTERPRETATION

Collected data have been examined and explained as below:



Authors' own calculation

Sufficient liquidity ensures a company to meet up its short-term obligations whereas excessiveliquidity can cause reduction of profit also. If CR remains 1 time or more, it ensures that the company can meet its short-term obligations with the help of current assets. Chart 1 depicts theCR of the companies during the study period of ten years. It shows that BEML is the only company which enjoyed a higher liquidity position (CR 2 times or more) compared to others during these periods. On the other hand, BDL, BEL, HAL and MDL also had a good liquidityposition (CR being more than 1 throughout the period). Only GRSE faced liquidity crisis (CRless than 1) in 2016-17 to 2018-19, 2020-21 and 2021-22.



Authors' own calculation

ROCE is used to show the overall profitability of the companies. Higher ROCE reflects that company is enjoying more profitability. Chart 2 shows ROCE of the companies during the study period of ten years. BDL is more profitable compared to others during most of the years under study. BEML, which is highly liquid also remains less profitable (ROCE less than 10%) throughout the period. In the years 2014-15 and 2016-17 only, GRSE earns a ROCE less than 10% whereas other companies earn more than 10% ROCE during all-over the period.

TABLE 2

Altman Z Score

COMPANY NAME	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
BEML	2.63	2.92	3.06	3.25	3.29	3.59	3.68	2.90	2.87	3.13
BDL	54.11	152.76	7.50	12.85	26.28	5.02	4.33	3.71	2.95	3.40
BEL	5.09	5.12	5.10	3.90	3.91	3.79	4.03	3.78	3.85	3.74
GRSE	20.55	21.18	33.95	36.91	13.87	2.98	4.41	4.42	2.61	3.30
HAL	2.82	3.08	2.80	2.69	2.70	2.92	2.87	2.91	3.21	3.08
MDL	6.07	6.71	7.22	4.10	3.64	3.29	3.24	3.29	3.12	3.70

Authors' own calculation

Altman Z score measures the risk of financial distress of a company. The score of 2.99 and above implies 'safe zone', when the score is higher than 1.81 but less than 2.99 it is consideredas 'grey zone' and the score less than 1.81 is marked as 'distress zone' (Altman, 1968). From table 2, it can be interpreted that BEL and MDL are staying in the 'safe zone' during the wholeperiod of study. BEML has enjoyed safe position in 2014-15, 2019-20 and 2020-21 while in rest of the years the company is in the 'grey zone'. BDL, on the other hand, faces 'grey zone' only in the year 2020-21 but during the rest of the period it enjoys safe position. GRSE has faced the grey area only in the years 2017-18 and 2020-21. Again, HAL stays in the safe area only in the years 2013-14, 2020-21, 2021-22 and grey area for rest of the period.

TABLE No 3:AVERAGE RESULTS

COMPANY NAME	AVERAGE LIQUIDITY		AVERAGE PROFITABILITY		AVERAGE RISK OF FINANCIAL DISTRESS	
	VALUES	RANK	VALUES	RANK	VALUES	RANK
BEML	2.25	I	0.04	VI	3.13	V
BDL	1.46	III	0.28	I	27.29	I
BEL	1.66	II	0.22	III	4.23	IV

GRSE	1.01	VI	0.17	IV	14.42	II
HAL	1.40	IV	0.15	V	2.91	VI
MDL	1.12	V	0.23	II	4.44	III

Authors' own calculation

Table 3 shows the average liquidity, profitability and financial distress risk of the selected companies. In terms of liquidity BEML is in the most favourable position with an average valueof 2.25 followed by BEL, BDL, HAL, MDL and GRSE. Considering the average profitability,it can be stated that BDL is more profitable company compared to the others and BEML comesat the last position. On the other hand, the most profitable company BDL also enjoys least average risk of financial distress as it has the higher average z score compared to others and HAL is the only company which stays in grey area as it has average z score value higher than 1.81 but lower than 2.99.

Thus, out of the six defence companies it has been identified that in terms of overall liquidity,profitability and risk of financial distress, BDL is the most efficient one, followed by BEL, BEML, GRSE, MDL and HAL.

CONCLUSION

Near about 80% of India's defence industry is owned by the Government of India. In 2021-22,2.1% of GDP had been spent on defence. With a market size of 11.3 Billion USD, the industryhas become more lucrative to investors. In this study the liquidity position, profitability position and risk of financial distress situation of the top six government-owned defence manufacturingcompanies have been evaluated. It has been found that liquidity position of BEML is favourablethan others, whereas in terms of profitability measure and low financial distress risk BDL is performing well compared to others. On the other hand, least liquid company is GRSE, lower profitable company is BEML and HAL is facing high risk of financial distress. Finally, it has been observed that BDL is the most efficient company and HAL is the least efficient companycompared to others in terms of the parameters taken together. Thus, this study delivers its usefulness towards potential stakeholders of this industry.

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CARBON DISCLOSURE PRACTICES: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

An increasing interest in Carbon Disclosure study has been generated in recent years as a result of the phenomenon of climate change and its effects on the worldwide market. This study's goal is to conduct a bibliometric examination of prior research. We looked at research papers that used the keywords "Carbon Disclosure" and "Carbon Accounting Disclosure" and were available on the Dimensions Database. The current study makes use of VOSviewer software. Le Luo was discovered to be the author with the most influence, receiving 1802 citations. The most active contributor is Western Sydney University, Australia, with 30 articles and 1852 citations. The most active contributor is Western Sydney University, Australia, with 30 articles and 1852 citations. With 3958 citations, the USA is the most influential nation, followed by Australia (3328 citations). Business Strategy is ranked second with 33 publications, while SSRN Electronic Journal is first with 104 publications and 585 citations. Finally, it was discovered that between 2018 to 2022, the number of researchers studying carbon disclosure dramatically rose.

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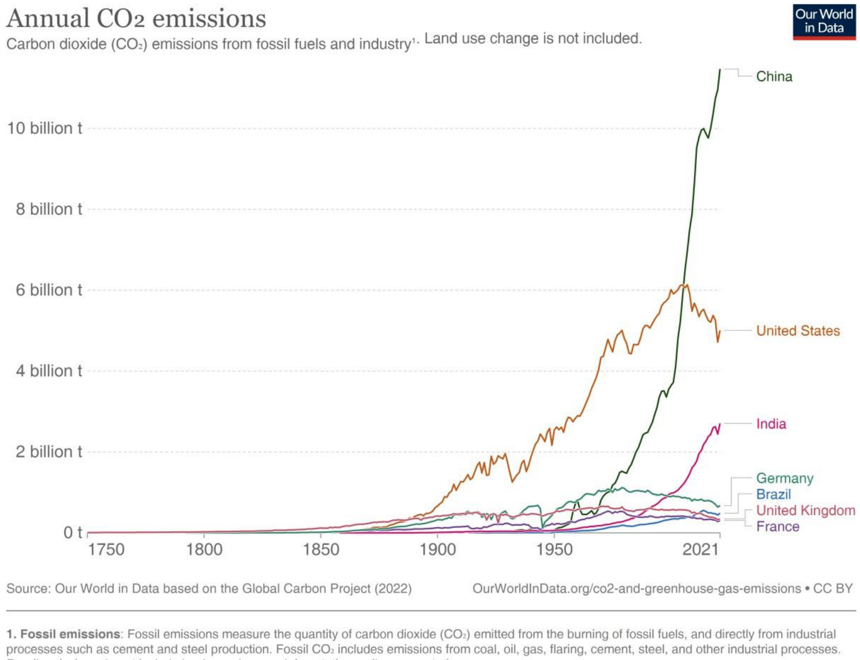
Introduction

The whole world is facing a problem of Global Warming, changing climate and ecological preservation. The United Nations developed the Intergovernmental Panel on Climate Change (IPCC) in response to rising gas emissions, and the Kyoto Protocol, which had been signed by at least 55 nations, was published at an international conference as a means of stabilising the concentration of greenhouse gases. Emission Trading (ET), the Clean Development Mechanism (CDM), and Joint Implementation(JI) are the three instruments used to carry out the Kyoto Protocol . Renewal of the 1997 Kyoto Protocol was agreed upon at the 21st Conference of Parties (COP) with the Paris Agreement, which demonstrates the countries' commitment to keep the earth's temperature increase below 2°C. In response to curb this problem and control carbon emissions, Kyoto Protocol under United Nations Framework Convention on Climate Change was adopted and from here carbon trading and carbon emission allowances came into picture. Absolute gas emission production in Indonesia equals 1.2% of global emissions, placing Indonesia in the 21st position globally. (Saraswati, 2020)

Figure No 1: Annual Co2 Emissions from Fossil Fuels and Industry in world



Source: https://ourworldindata.org

Because it is now a valuable commodity, carbon credit must be financially accounted for at various stages (i.e. when received for free, when purchased, when used, when sold & when surrendered). Firms require instructions on how to account for carbon at each phase because the setting is voluntary and there is no standard accounting practice. Organizations must understand how carbon accounting and disclosure function, which firm-specific factors define the disclosure method, and how disclosure is generated and improved over time in order to highlight climate risks and opportunities. (Borghei, 2021) Additionally, it will improve the preparation of financial statements and their comparability for use in decision-making by accountants, auditors, financial report preparers, investors, and other stakeholders. The significance of revealing carbon emissions is anticipated to encourage businesses to be more open about environmental data so that stakeholders may gauge how seriously they take climate change. (Ernst & Young, 2011)

Due to the lack of clear advice on financial accounting for carbon, companies affected by emission trading systems or companies that produce carbon offsets are not required to disclose carbon information in a consistent manner. Therefore, the disclosure setting is optional. Guidelines are lacking, which results in inconsistent carbon financial accounting and opaque carbon disclosure procedures. This makes it difficult for investors and stakeholders to compare financial accounts and make educated decisions.

Various researches have been conducted in order to study the scope and effects of carbon disclosure practices. (Bazhair et al., 2022) assessed the literature that is currently accessible on corporate carbon reporting by evaluating the themes that have been covered in the field, current research trends, and theoretical viewpoints. (Choi et al., 2013) intended to disclose the extent of the voluntary disclosures of the disclosure of the disclosure of the major major Australian majors, from between 2006 to 2008 majors. (Borghei, 2021) tries to address the current expansion and fragmentation of the carbon disclosure literature by identifying significant study areas and upcoming research trends. (Saraswati, 2020) done systematic literature review of 17 articles to support Sustainable Development Goals for reducing carbon emission We set out to conduct a bibliometric study of prior studies in order to determine the trends in the literature that is currently accessible on carbon disclosure procedures. The purpose of the study was to learn how scientists are investigating the subject of carbon disclosure. To understand the current state of the existing literature, we made an effort to identify the most productive author, organisation, nation, and journal in the relevant topic. The present study has been divided in three parts i.e. Introduction of the topic, the research Methodology for defining the research layout and lastly the Analysis and Findings

Research Gap

As we previously indicated, the topic of corporate carbon disclosure has grown in importance, and researchers are expressing a keen interest in it. Many studies have been done to examine the reasons for and limitations of voluntary disclosures, as well as the voluntary carbon declarations made by businesses or the systematic review of literature has been done of limited research studies. We aim to carry out a bibliometric analysis to provide an overview of the literature that is currently available in this area.

Objectives of Study

Following are the objectives of the study:

1. To identify the most significant author on the basis of citations.
2. To identify the organisation with highest number of publications.
3. To identify the most productive nation on the basis of citations.
4. To identify the most productive journal on the basis of number of publications.

Research Methodology

Research Questions

Following research questions have been formed to help in bibliometric analysis:

RQ1: According to the total amount of citations, which researcher is the most significant?

RQ2. Which organisation has produced the most publications overall?

RQ3: Based on the total number of citations, which nation is the most productive?

RQ4: According to the volume of publications in each journal, which journals are the most productive?

RQ5: How have studies on carbon disclosure changed over time, as evidenced by the number of publications from one year to the next?

Data collection

Data from the dimension database was gathered. VOSviewer is a piece of software that allows academics to conduct bibliometric analysis in addition to offering many other features including data mining and graphical presentation.

We searched for the information using the terms "Carbon Disclosure" and "Carbon Accounting Disclosure." After removal of duplicate papers, 786 articles were included which were taken into account for this bibliometric analysis.

Analysis and Findings:

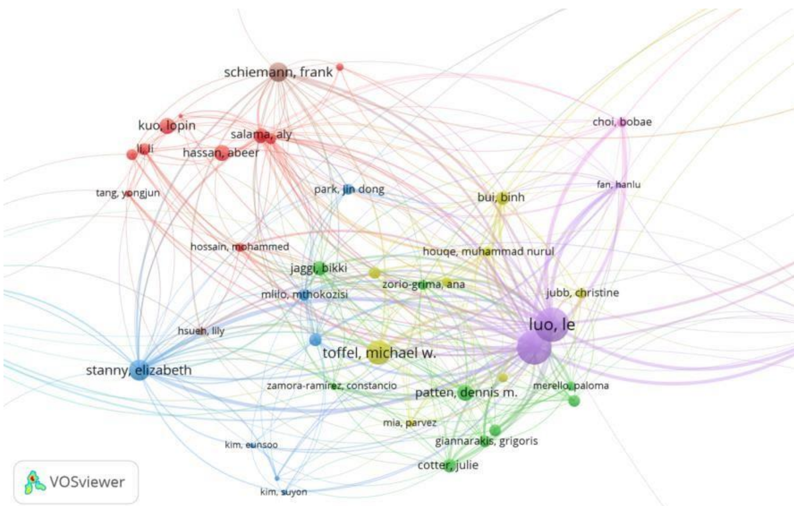
Research Question 1: According to the total amount of citations, which researcher is the most significant?

Table No 1: Most Cited Authors

S.NO.	AUTHOR	CITATION	TOTAL PUBLICATION
1.	Le Luo	1802	24
2.	Qingliang Tang	1780	27
3.	Michael W. Toffell	700	03
4.	Elizabeth Stanny	477	04
5.	Frank Schiemann	362	05
6.	Dennis M. Pattern	222	04
7.	Kuo Lopin	218	03
8.	Abeer Hassan	201	09

The top researchers are listed in Table 1 together with the number of citations they have received. The most cited researcher is Le Luo, who has 1802 citations. 2015 saw the publication of a paper by Le Luo and two other writers, Lin Liang and Qingliang Tang, titled "Gender Diversity, Board Independence, Environmental Committee, and Greenhouse Gas Disclosures." The maximum number of citations for this publication was 638. Le Luo is a senior lecturer and academic researcher at Macquaire University's Department of Accounting and Corporate Governance. Transparency, CSR, carbon accounting, corporate governance, and greenhouse gases are some of his research interests. The H-index for her is 17. Qingliang Tang holds to the second spot. He presently holds the position of Accounting Professor at Western Sydney University. International accounting, carbon accounting, and management have been his areas interest in research. He has 5025 citations overall, and his H-Index is 31. The two of his of works that have received the most citations in this area are "Corporate Incentives to Disclose Carbon Information: Evidence from CDP Global 500 Report" and "Gender Diversity, Board Independence, Environmental Committee & Greenhouse Gas Disclosure." The third most influential author is Michael W. Toffell followed by Elizabeth Stanny at fourth position.

Figure No 2: Bibliometric analysis of Authors on the basis of citations



Research Question 2. Which organisation has produced the most publications overall?

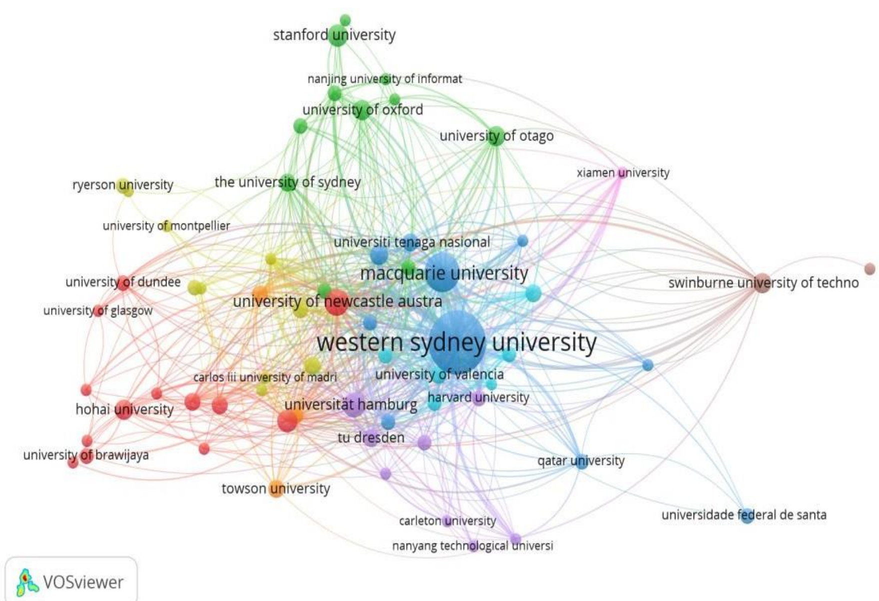
Table No 2: Most Productive Organisation

S.NO.	ORGANISATION	DOCUMENTS	CITATIONS	COUNTRY
1	Western Sydney University	30	1852	Australia
2.	Macquaire University	15	192	Australia
3.	University of New Castle Australia	09	384	Australia
4.	Universtat Hamburg	08	386	Germany

5.	University of South Australia	07	405	Australia
6.	Standford University	07	86	California
7.	University of Otago	06	215	New Zealand
8.	Swinburne University of Technology	06	155	Australia

Table 2 lists the institutions with the highest productivity. The most prolific institution is Western Sydney University of Australia, which has 30 publications and 1852 citations. Table 2 ranks Macquaire University second with 15 publications and 192 citations. With 9 publications and 384 citations, University of New Castle Australia takes third place. The majority of the studies—5—are conducted in Australia, followed by 2 in New Zealand, 1 in Germany, 1 in California, and 1 in the United Kingdom (Table 2). Therefore, it may be said that Australian institutions have made the biggest contributions to carbon disclosure practises. It is important to note that the two most prominent authors in Table 1, Le Luo and Qinglang Tang, are professors at Macquaire University and Western Sydney University, respectively.

Figure No 3: Bibliometric analysis of Organisations on the basis of Publications



S.NO.	COUNTRY	CITATIONS
1.	United States	3958
2.	Australia	3914
3.	United Kingdom	1901
4.	China	1113
5.	Netherlands	746
6.	Germany	702
7.	Canada	690
8.	New Zealand	486

Research Questions 3: Based on the total amount of citations, which nation is the most productive?

Table 3: Most Cited Countries

With 3958 citations, the United States has the highest level of influence. Australia is second with 3914 citations. With 190 citations, the United Kingdom is third. In this field, other nations like China, the Netherlands, Germany, Canada, and New Zealand have also made significant contributions. It is clear that the USA, Australia, and the UK have made the biggest contributions to the carbon disclosure sector.

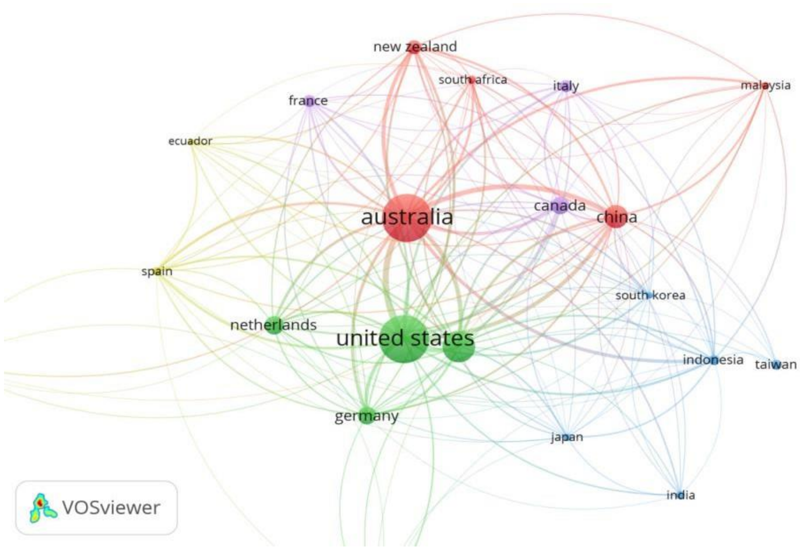


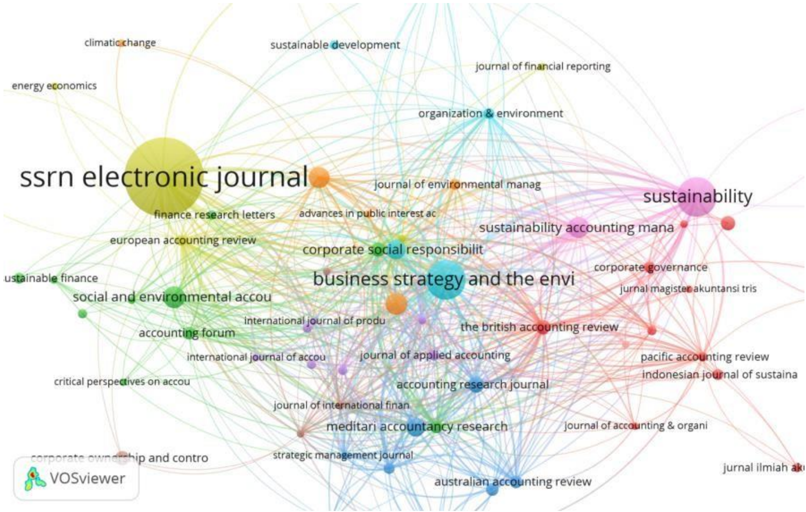
Figure No 3: Bibliometric Analysis of Most Cited Countries

Research Question 4: According to the volume of publications in each journal, which journals are the most productive?

S.NO.	JOURNAL	PUBLICATION	CITATION
1.	SSRN Electronic Journal	104	585
2.	Business Strategy & the Environment	33	1542
3.	Sustainability	32	210
4.	Social & Environmental Accountability Journal	12	122
5.	Environmental Science & Pollution Research	12	95
6.	Sustainability Accounting Management and Policy Journal	11	197
7	International Journal of Environmental Research and Public Health	11	72
8.	Corporate Social Responsibility and Environmental Management	10	820

Leading the pack with 104 publications and 585 citations, SSRN Electronic Journal secures the first spot. This journal's H-index is 129 and its impact factor is 1. "With 33 publications, Business Strategy and the Environment was ranked in second place. This journal's current impact factor is 10.811. The Journal is listed in the UGC CARE, SCOPUS, and Web of Science indexes (SSCI). The third-placed Sustainability Journal had 32 publications. The Journal is listed in the UGC CARE, Scopus, Web of Science, and DOAJ indexes. Journal has a 3.889 Impact Factor. Other noteworthy journals include the International Journal of Environmental Research & Public Health, the Social & Environmental Accountability Journal, Environmental Science & Pollution Research, Sustainability Journal and Accounting, Management & Policy Journal, Corporate Social Responsibility and Environment Management, Accounting Research Journal and lastly Meditari Accounting Research.

Figure No 4: Bibliometric analysis of Journals on the basis of Publications



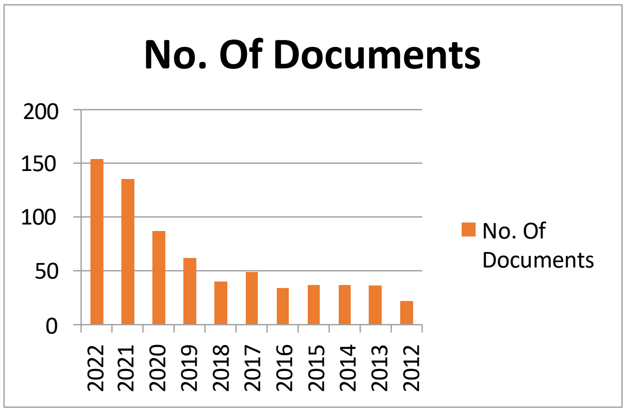
Research Question 5: How have studies on carbon disclosure changed over time, as evidenced by the number of publications from one year to the next?

Table No 5: Number of Publications in last 10 years

Year	Number of Publications
2022	154
2021	135
2020	87
2019	62
2018	40
2017	49
2016	34
2015	37
2014	37
2013	36
2012	22

Figure shows that there have been more publications on carbon disclosures over time. Only 40 academic publications were published in 2018; in 2019, 62 articles were published. This number increased to 87 academic articles in 2020. From 2018 to 2022, there is a noticeable increase of 214.3% in the number of publications in the topic of carbon disclosure. The conclusion is that academics are expressing interest in carbon disclosure procedures. As climate change has emerged as a pressing issue that requires rapid attention, carbon disclosure and accounting have gained attention.

Figure No 6: Graph depicting the number of Publications per year



Conclusion

The idea of disclosure in the context of global environmental governance has changed since it was first introduced. Carbon Disclosure has caused an organisational field where organisations undertake tasks that are partially complementary and partially overlapping to emerge.

Businesses must track and report information about their environmental performance and effects so that investors can judge its significance for "Company's Future". This is known as "Carbon Disclosure".

Investors now support climate related disclosures because they recognise that in order to make informed investments decisions, they need reliable information about climate risks, and that climate can pose significant financial risks to businesses.

Academicians and researchers are examining the approaches taken by businesses for their voluntary carbon disclosures, the transparency of these disclosures, the elements that affect their veracity and the problems associates with these disclosures. Accounting academicians have performed research to go deeply into this area and attempt to uncover the benefits and drawbacks of carbon disclosure policies and well as how they would impact the accounting industry.

We sought to conduct a bibliometric study on prior research studies because these studies are accelerating and becoming more numerous every year. The analysis of this study will provide a summary of the literature produced by different scholars in this subject.

Six research questions were formed to find the most significant researcher, most productive nation, most frequently used keywords, most productive organisation and the trend of publications over years. Dimensions database and VOSviewer software were used to analyse these questions. It was found that Le Luo is the most prominent author. He is a senior lecturer and academic researcher at Macquaire University in Australia in the Department of Accounting and Corporate Governance. Qingliang was placed second. He is presently an accounting professor at Western Sydney University, Australia. Western Sydney University in Australia emerged as the most productive organisation with 30 papers published. With 15 publication Macquaire University in Australia came in second. On the basis of citations, the United states had the highest influence with 3958 citations followed by Australia 3914 citations. SSRN Journal leads the table with highest number of published articles (104 articles) followed by Business Strategy and Environment in second place with 33 publications. An increasing growth rate of 214.3% can be seen in the number of publications from year 2018 to 2022. This suggests that more academics and scholars are becoming interested in this subject. Accounting researchers are attempting to expose the current disclosure methods and the problems associated with them. This study will be useful to future researchers because it identifies the most productive authors, nations, organisations, and journals. This will enable them to concentrate entirely on producing high-quality work. Researchers who want to review papers can find high-quality papers by doing a direct search for the most prolific journals and authors from our analysis.

This research study has a disadvantage that we only used data from one database, the Dimensions Database. Data can also be retrieved from other databases, such as Scopus and Web of Science. These two are regarded as the two biggest databases in the world. Research that incorporates information from these databases can produce more precise results.

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ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) REPORTING OF THE LISTED CORPORATES IN INDIA

Dr. Somnath Ghosh*

The term Corporate Sustainability (CS) is much deliberated at present among the corporates, academics, social activists, governments and international intergovernmental organisations, like the United Nations (UN), Organization for Economic Co-operation and Development (OECD), etc.

CS refers to the attainment of long term growth and profitability, by a corporate, through positive business practices, in the following three areas:

1. **Environment:** Negative impact of the business operations should be minimum on the environment, e.g. carbon emission should be minimised to the extent possible, efforts should be made for conservation of water and biodiversity, safe and recyclable products should be produced and there should be proper waste management.

2. **Society:** Proper care should be taken by a corporate entity for its people, both within and outside, like its employees, customers and local community. Corporates should also have respect and commitment for promotion of human rights.

3. **Economic Performance:** Corporates have to generate surplus, otherwise in the long run, survival will be at stake. Sustainable business practices should be the objectives of the corporates, otherwise promotion of long term profitability will not be possible. Only a corporate which is profitable in the long run can make positive contributions towards the environment and society.

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However, a corporate should not compromise with the following to achieve profitability:

- Healthy corporate governance.
- Ethical business practices.
- Transparent business activities.
- Compliance with the laws of the countries.
- Respectability and responsiveness towards the interests of all the stakeholders.
- Promotion of inclusive growth and equitable development.
- Utilization of the scarce resources of the society in the best possible manner.
- Investment towards sustainable business practices.

All the above three elements of sustainable business practices are equally important; no one should overshadow the others.

Objectives of CS are to ensure, long term values for the stakeholders of a corporate without compromising the long term interests of the environment and society, and also at the same time, the economic interests of itself. CS is concerned with the business practices which will ensure present profitability of the corporates without compromising the ability of the future generations to fulfil their needs. The objectives of CS are to ensure a healthy planet, safe and secure societies, and prosperous economies for the future generations through long term initiatives.

Corporate Social Responsibility and Corporate Sustainability

On the other hand, Corporate Social Responsibility (CSR) may be defined as the accountability of a corporate towards its stakeholders and the public at large. CSR denotes accountability of a corporate to the society, and is a broad multidimensional concept. CSR does not focus only on sustainability. CSR includes CS. Hence, CSR is a broader concept than CS.

So, both CSR and CS focus on the positive contributions of a corporate towards society and environment. The two terms CSR and CS are closely interconnected, yet they are not the same. However, very often these two terms are confused with one another and used interchangeably, though these two terms are not similar.

Environmental, Social and Governance (ESG) Norms

Environmental, Social and Governance (ESG) norms are a set of standards for the business practices of a corporate. Presently, the socially conscious investors evaluate the performances of the proposed investee corporates against the ESG standards to take their economic decisions. ESG norms assist investors in identifying corporates with values, which match with their desired values.

ESG is a broader term, and CS comes under ESG. CS emphasizes compliance with ESG norms.Each element of the ESG norms includes the following:

- **Environmental Norms:** Environmental norms include the qualities of performances of a corporate on, managing environmental risks, energy usage, water management, waste management, pollution control, conserving natural resources, biodiversity, and compliance with government environmental rules.

- **Social Norms:** Social norms include the qualities of performances of a corporate in, managing relationship with the employees, health and safety measures undertaken for the employees, satisfaction of the customers for safe and eco friendly products, inclusion of value evaluation criterion for selecting the suppliers and aligning such values with the values of the corporate, and welfare activities for the local community.

- **Governance Norms:** Governance norms include the qualities of performances of a corporate in compliance with, laws of the land, ethical business practices, transparent accounting practices, fair audit practices, adequate internal controls, avoidance of conflicts of interest in choosing board members and respect for the rights of the shareholders.

Now, another much deliberated term in this respect, ‘Sustainable Development’ may also be looked into, as the principal purpose of complying with ‘ESG Norms’ is ‘Sustainable Development’. So, what is meant by ‘Sustainable Development’?

Sustainable Development (SD)

In simple words, 'Sustainable Development' refers to a concept of development, where the quantum of natural resources consumed at present for the purpose of development, should not exceed the capacity of the planet to regenerate adequately, such resources for future supply, to be used by the future generations, to fulfil their needs. Under such a situation, only the indefinite supply of natural resources, for fulfilling the needs of the generations to come, can be ensured.

However, if the opposite happens, i.e. consumption of natural resources for the present development exceeds the capacity of the earth to regenerate consumed natural resources, then the present development will be at the cost of the future generations, and the same cannot be acceptable as sustainable.

The United Nations Development Programme (UNDP) published a report titled, 'Sustainable Development Goals' (SDGs). The UNDP adopted the SDGs in the year, 2015. The SDGs comprise of 17 goals to be achieved. The UNDP vows to achieve those 17 SDGs by the year 2030.

Present Scenario of Sustainability Reporting

Now, we may look into the present panorama of the 'Sustainability Reporting' of the corporates. The corporates at present publish annual sustainability reports mostly voluntarily. However, till date, there are no internationally accepted measurement and disclosure standards, on the bases of which sustainability reports can be prepared by the corporates. In the absence of such internationally accepted standards, corporates are preparing their sustainability reports, following different measurement and disclosure frameworks, according to their choice. Resultantly, information published by the corporates through those sustainability reports often are devoid of desired quality, consistency, and arealso not globally comparable. Resultantly, investors are also unable to assess the sustainability risks of the corporates from those sustainability reports. Under such a situation, economic decisions of the investors on the bases of such corporate sustainability reports are bound to be sub-optimal.

IFRS Foundation, the investor focused international organization responsible for setting IFRSStandards is competent enough to take initiative in this regard. IFRS Foundation can set internationally accepted sustainability reporting standards, and the sustainability reports prepared by the corporates on the bases of those standards will be consistent, transparent, and comparable around the world.

Initiatives of IFRS Foundation

Trustees of the IFRS Foundation, on October 21, 2021, revised its Constitution with the aim to accommodate the formation of a new standard setting board, responsible for developing a set of sustainability disclosure standards within its structure, to address the demands of the socially conscious international investors.

On November 03, 2021, the Trustees of the IFRS Foundation announced the formation of a new standard setting board, viz. ‘International Sustainability Standards Board’ (ISSB). The objective of forming the ISSB is to deliver a set of comprehensive international sustainability related disclosure standards. Such standards will provide investors and other capital market participants with the following information about the corporates to assist them in making informed economic decisions:

- Sustainability related risks.
- Sustainability related opportunities.

The ‘Objectives’ section of the Constitution of the IFRS Foundation provides that the responsibility of the ISSB will be to develop a set of sustainability disclosure standards, referred to as ‘IFRS Sustainability Disclosure Standards’.

So, at present the two standard setting bodies of the IFRS Foundation are the following:

- International Accounting Standards Board (IASB), for developing ‘IFRS Accounting Standards’.

- International Sustainability Standards Board (ISSB), for developing 'IFRS Sustainability Disclosure Standards'.

The 'IFRS Accounting Standards' and 'IFRS Sustainability Disclosure Standards' are collectively referred to as, 'IFRS Standards'.

Issuance of Global Sustainability Disclosure Standards by the IFRS Foundation

On Monday, June 26, 2023 the ISSB has issued the following two 'IFRS SustainabilityDisclosure Standards':

Serial No.	International Standard No.	Title
1.	IFRS S1	General Requirements for Disclosure of Sustainability-related Financial Information
2.	IFRS S2	Climate-related Disclosures

We can expect that this will usher in a new era in international corporate reporting.

Indian Perspective of Sustainability Reporting

CSR Under the Companies Act, 2013, of India

The Section 135(5) read with the Section 135(1) of the Companies Act, 2013, mandated CSRactivities with respect to the following classes of companies:

- Companies having net worth of Rupees Five Hundred Crore or more; or
- Companies having turnover of Rupees One Thousand Crore or more; or
- Companies having net profit of Rupees Five Crore or more during the immediately preceding financial year.

Any company, covered under any one of the above mentioned three criteria, has to spend inevery financial year, at least two per cent of the average net profits of the company made during the three immediately preceding financial years, or where the company has not completed the period of three financial years since its incorporation, during such immediately preceding financial years, in pursuance of its corporate social responsibility policy.

CSR Reporting Under the Companies Act, 2013Rules and Schedule

The Companies (Corporate Social Responsibility Policy) Rules, 2014, has been promulgated to regulate the CSR policies, activities, expenditure and reporting of the companies. An 'ANNEXURE' has been provided in the said Rule, prescribing a detailed format for the annualreport on the CSR activities which are to be included in the report of the board of directors of a company.

The Companies (Corporate Social Responsibility Policy) Rules, 2014, is applicable to companies to which Section 135(1) of the Companies Act, 2013, is applicable.

Rule 9 of the Companies (Accounts) Rules, 2014, has prescribed that the disclosure of contents of the corporate social responsibility policy in the report of the board of directors and on the website, if any, of the company shall be as per the 'ANNEXURE' attached to the Companies (Corporate Social Responsibility Policy) Rules, 2014.

'Schedule VII' of the Companies Act, 2013, has prescribed the activities which may be included by the companies in their corporate social responsibility policies.

Business Responsibility Reporting Under the Securities and Exchange Board of India (SEBI) Regulation

Under Clauses 34(1)(a) and 34(2)(f) of the 'Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015', it has been made mandatory for the top one thousand listed companies (based on the market capitalisation to be calculated as on March 31 of every financial year) to publish annual reports containing 'Business Responsibility Reports' (BRR) describing the initiatives taken by them from the 'Environmental, Social and Governance' (ESG) perspectives. Such annual reports have to be submitted to the stock exchanges, and also have to be published on the websites of the companies. In the case of other listed companies, publishing of the annual reports containing 'Business Responsibility Reports' is optional.

Business Responsibility and Sustainability Reporting Under the SEBI Regulation

SEBI has amended Clause 34(2)(f) of the ‘Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015’ vide Gazette Notification dated May 05, 2021 and vide Circular dated May 10, 2021 replaced ‘Business Responsibility Report’ (BRR) by ‘Business Responsibility and Sustainability Report’ (BRSR) to report the performances of a corporate on ESG parameters, because of increased focus of the investors and other stakeholders seeking businesses to be responsible and sustainable towards the environment and society. This ‘Business Responsibility and Sustainability Reporting’ has been made mandatory by SEBI for the top 1000 listed companies (based on the market capitalisation to be calculated as on March 31 of every financial year) with effect from the financial year 2022-2023.

Again, based on the recommendations of the ESG Advisory Committee and pursuant to public consultation, vide Circular dated July 12, 2023 SEBI has revised the existing BRSR format and decided to introduce ‘BRSR Core’ and mandated disclosure and assurance (i.e. audit) by specified listed companies as per the updated format. SEBI has further decided to introduce disclosure and assurance (i.e. audit) as per the ‘BRSR Core’ for the value chain (both for purchases and sales) of specified listed companies. This ‘BRSR Core’ is a sub-set of the BRSR and consists of a set of Key Performance Indicators (KPIs)/Metrics under 9 ESG attributes.

The provisions of the ‘Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015’ has been amended vide Gazette Notification dated June 14, 2023 to implement the aforesaid changes.

The disclosures as per the revised BRSR format including ‘BRSR Core’ is mandated for top 1000 listed companies (based on the market capitalisation to be calculated as on March 31 of every financial year) as part of their Annual Reports from the financial year 2023-2024. However, the reasonable assurance (i.e. reasonable audit) of the ‘BRSR Core’ is mandated in the following staggered manner:

Financial Year	Applicability of Reasonable Assurance of BRSR Core to Top Listed Companies (Based on the Market Capitalisation to be Calculated as on March 31 of Every Financial Year)
2023-2024	Top 150 listed companies.
2024-2025	Top 250 listed companies.
2025-2026	Top 500 listed companies.
2026-2027	Top 1000 listed companies.

SEBI has gone a step further, and made mandatory disclosures as per 'BRSR Core' for its value chain by a specified listed company, as part of its Annual Reports. Here, value chain has been referred to as top upstream and downstream partners of a specified listed company, cumulatively comprising 75% of its purchases/sales (by value) respectively.

Specified listed companies must have to report the KPIs in the 'BRSR Core' for their value chain to the extent it is attributable to their businesses with a value chain partner. This reporting may be segregated for upstream and downstream partners or can be reported on an aggregate basis.

The disclosures as per the said 'BRSR Core', i.e. ESG disclosures, for the value chain has been mandated to top 250 listed companies (based on the market capitalisation to be calculated as on March 31 of every financial year) on a comply-or-explain basis from the financial year 2024-2025. The limited assurance (i.e. limited audit) of such ESG disclosures has beenmandated on a comply-or-explain basis from the financial year 2025-2026.

SEBI has also mandated the procedural/disclosure requirements and obligations for the 'ESGRating Providers' vide 'Master Circular for ESG Rating Providers' dated July 12, 2023 and made it applicable from the date of notification of this Master Circular.

'ESG Reporting' and 'ESG Risk Rating & Gradation' of the Listed Companies in India

Now, to have an understanding of the status of 'ESG Reporting' and 'ESG Risk Rating & Gradation' of the listed companies in India, the pattern of 'ESG Reporting' by the top 10 listed companies (by market capitalization on September 18, 2023 in the BSE and NSE Stock Exchanges) and their 'ESG Risk Rating & Gradation' (provided by 'Sustainalytics') are furnished in the Table below:

Sl. No.	Name of the Company	Particulars of ESG Reportingfor the Financial Year 2022-2023	ESG Risk Rating	ESG Risk Grade
01.	Reliance Industries Limited	Published combined 'Business Responsibility & Sustainability Report' (BRSR) and ESG Report.	41.0 On June 24, 2023	Severe Risk
02.	Tata Consultancy Services Limited	Published 'Integrated Annual Report' which contains (a) Corporate Governance Report, (b) Corporate Social Responsibility Report, (c) BRSR and (d) Sustainability Disclosures.	11.4 On August 18, 2023	Low Risk
03.	HDFC Bank Limited	Published 'Integrated Annual Report' which contains (a) Responsible Business Disclosures, (b) Corporate Governance Report and (c) BRSR.	30.6 On May 11, 2023	High Risk
04.	ICICI Bank Limited	Published separately BRSR and ESG Report.	24.0 On September 02, 2023	Medium Risk
05.	Infosys Limited	Published separately 'Integrated Annual Report' which contains (a) Corporate Governance Report and (b) BRSR, and ESG Report.	13.1 On September 02, 2023	Low Risk

06.	Hindustan Unilever Limited	Published separately 'Integrated Annual Report' which contains (a) BRSR and (b) Corporate Governance Report, and ESG Report.	23.0 On September 14, 2023	Medium Risk
07.	ITC Limited	Published separately BRSR and Sustainability Report.	28.0 On April 13, 2023	Medium Risk
08.	State Bank of India	Published separately 'Annual Report' which contains (a) Corporate Governance Report and (b) BRSR, and Sustainability Report.	27.1 On May 19, 2023	Medium Risk
09.	Bharti Airte lLimited	Published 'Integrated Report' which contains (a) BRSR and (b) Report on Corporate Governance.	19.5 On April 13, 2023	Low Risk
10	Bajaj Finance Limited	Published separately 'Annual Report' which contains BRSR, and ESG Report.	18.8 On May 28, 2023	Low Risk

Note 1: The 'ESG Risk Rating' and 'ESG Risk Grade' have been provided by 'Sustainalytics', which is a part of 'Morningstar, Inc.' of 22 Washington Street, Chicago, Illinois 60602, United States of America. 'Morningstar Sustainalytics' provides high-quality, analytical 'Environmental, Social and Governance' (ESG) research, ratings and data to institutional investors and companies. 'Morningstar' and 'Sustainalytics' announced strategic partnershipin the year 2015. Later on, in the year 2017 'Morningstar' acquired 40% ownership stake in 'Sustainalytics'.

Note 2: Scale of 'Sustainalytics' for Determining ESG Risk Grade

Negligible Risk	Low Risk	Medium Risk	High Risk	Severe Risk
0 - 10	10 - 20	20 - 30	30 - 40	40+

Conclusion

Investors at present, specially leading institutional investors and large portfolio holders, are not only concerned with financial performances of their investees, but also with the ESG-driven risks and opportunities of their investee corporates. For this purpose, the investors need adequate ESG related data of their investee corporates, so that they can build up meaningful ESG insights of their targeted investees.

India is moving at the right direction in this regard, as by the time to time amendments of the 'Securities and Exchange Board of India (Listing Obligations and Disclosure Requirements) Regulations, 2015', India has ensured disclosures of ESG related data through BRSR which includes 'BRSR Core', by the specified listed companies, for themselves and also for their upstream and downstream value chain partners (i.e. suppliers and customers). SEBI has also mandated reasonable/limited audit of such 'BRSR Core' disclosures according to a prescribed timeframe.

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DETERMINANTS OF QUALITY IN RESEARCH PUBLICATIONS- A FRAMEWORK

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Abstract

Publication of research work is the most important aspect in research. The work carried out in the research reaches various people interested in that particular field of research if published in a very good subject related journal. Users of the research work understand the contribution made by the researcher, the research methodology adopted, statistical tools used and conclusions emerging out of the study. For the academicians doing research and publishing is further important as they can abreast themselves with the latest updates in the field of research, helps them in establishing as an appraisal tool and also for the organization as a credential. In this context, all the research publications have to be assessed for their conceptual clarity, method of research and result analysis. The assessment is generally taken up with the help of citation analysis, number of downloads, textual analysis and so on. The present study aims at bringing out the quality of research papers published in journal by name "Indian Journal of Accounting ". An analysis of 154 papers published in the past 5 years have been assessed for their quality by considering the various parameters of quality such as abstract, key words, review of literature, research gap, statement of problem, research questions, research methodology, data presentation, structure of the report, referencing style and bibliography.

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The study concludes that any research paper to be called as the best quality must have certain ingredients and the researcher should incorporate all such things so that the quality of the paper remains the best. The journals publishing the research work should mandatorily insist on fulfilling the criteria suggested by the researchers.

Key words: Quality of research publication, assessment, clarity, overview, scope, research writing style

Introduction

Research in various academic fields disseminates the knowledge in that particular field. Research output is expanding day by day as the number of journals is growing. Peer reviewed journals, open access journals, online and off line journals are contributing more to the spread of knowledge and growing percentage of research publications. Thanks to the various bodies such as UGC and AICTE for formulating the rules that all academicians should engage themselves in research, further to UGC, ICMR, ICSSR etc. for funding research proposals.

Academic research involves more than just choosing a topic, collecting and analyzing data. To be considered as a good study, research must meet certain criteria. It is the prime responsibility of researchers to adhere to the quality of research and help in spreading the true knowledge. With wide usage of internet and search engines, no doubt, many of the researchers are producing good research output at the same time they are being misused by majority of researchers. Though the research methodology workshops are conducted and majority of the researchers teach and learn the research methodology, still a big vacuum exists in the theory and practice. The quality research papers are very insignificant in the total research output. In this context, it is necessary for the researchers to assess the quality of their research papers. Though certain metrics such as citation analysis, impact factor, number of downloads, textual analysis are used in the assessment of the quality of research publication, it is still necessary that a framework is to be identified with the various parameters to assess the quality of the work.

Review of Literature

Dirk Schoonbaert, Gilbert Roelants (1996) conclude that citation analysis, even when based on Journal impact factors, can be a worthwhile criterion for evaluating publication records of individual scientists or research units, as long as some of the problems discussed are sufficiently taken into account. However, this conclusion in no way implies that citation analysis may be considered as the one and only evaluation criterion.

Jim Taylor (2010) in his research investigated the extent to which the outcomes of the 2008 Research Assessment Exercise in the UK, determined by peer review, can be explained by a set of quantitative indicators. Three cognate units of assessment are examined in detail: business and management, economics and econometrics, and accounting and finance. The main finding is that each of the three components of research activity (namely, *research output, esteem* and *research environment*) is highly correlated with various quantitative indicators. A further finding is that the judgment of the Research Assessment Exercise panels was biased and there is also evidence of bias by the economics and econometrics panel. The results support the use of quantitative indicators in the research assessment process, particularly a journal quality index.

Lutz Bornmann et all (2011) discussed misuses of journal impact factor to assess impact of separate journal articles and the effect of several manuscript versions on JIF. It also presents some newer alternative journal metrics such as SCIMAGO Journal Rank and the h-index and analysed examples of their application in several subject categories.

According to Alan Reinstein James R and Hasselback, (2014) many of the studies often use three methods to assess faculty research productivity: 'counting' articles written, surveying faculty members or administrators, and using citation analysis. The study titled 'A Literature Review of Articles assessing the productivity of accounting faculty members' has been taken up to help decision-makers make more informed conclusions when relying on studies that assess their colleagues' research productivity.

Raymond Talinbe Abdulai et all (2014) state that the research journey commences with the selection of a research topic and the preparation of a proposal on the selected topic. A research study should have ingredients such as (a) demonstrate knowledge and understanding of what research is all about and its challenging nature; (b) display an enlarged comprehension of research gap, aim, objectives, and hypotheses as well as their distinguishing characteristics; (c) demonstrate a good understanding of the relevant elements to be considered in the constituent sections of a good research proposal; and (d) comprehend the elements of a research proposal that should feature in the final written dissertation or thesis.

Andrea Giovanni et all (2018) in their research discussed that alternative metrics are gaining increasing interest in the scientometrics community as they can capture both the volume and quality of attention that a research work receives online. Nevertheless, there is limited knowledge about their effectiveness as a mean for measuring the impact of research if compared to traditional citation-based indicators. The work aimed at investigating if any correlation exists among indicators, either traditional such as citation count and h-index or altmetrics and which of them may be effective for evaluating scholars. The study is based on the analysis of real data coming from the National Scientific Qualification procedure held in Italy.

Lutz Bornmann and Robin Haunschid (2018) evaluated alternative metrics to analyze the research quality. The research interest was to find out whether alternative metrics do measure the impact and influence of specific research or just represent background noise. To this end, the authors suggest that one could correlate various alternative metrics with traditional metrics, such as citations, or analyze their correlation with expert opinions. In addition, the manifesto addresses a major drawback of altmetrics, namely the susceptibility to manipulation; for instance, the difference between a good or bad indicator value based on Twitter often comes down to just a few tweets.

Abhishek Behl, Pankaj Dutt and Pratima Amol Sheorey (2019) in their article 'Bench marking publication metrics for Indian business researchers: Exploring the role of collaborations'found that the rate of collaboration with researchers from the home country is low for top rated publications. Majority of publications were listed in Scopus indexed journals, whereas a handful featured in A and A* journals. A and A* journals were predominantly co-authored with academics from universities outside the country. Tradeoff was achieved by majority of authors by getting published in B, followed by C category journals to achieve research.

According to Firdissa Aga (2023), research results in quality when research process/researching quality and research groundedness quality were highly valued as determinants of academic research quality. Proper interplay of the three guarantees rightfully situating research undertakings, and ascertaining soundness of the process to produce quality results relevant to policies and practices. It is, therefore, desirable to put in place systemic installation of ensuring proper research planning, implementation, and reporting by guaranteeing all inclusive quality; going beyond the quantitative-driven research reports, publications, and citations

Josephine C. Igbokwe et all(2019) have provided empirical evidence in research skills, editors' competency / areas of specialization and mentor-mentee relationship as determining factor for quality of research outputs by librarians.

A.Shanta et all (2013) opined that the quality of a publication should be judged by its usefulness and acceptability evident in subsequent publications. A new, time dependent, factor for impact of individual published papers could be thought about and recommend this factor as the criteria to evaluate the merit of the publication or that of the researcher. This factor could be easily based on the citation of the paper (number of times referred by other researchers in the specific period) or by generating a system of rating by readers.

Muthu Madhan et all (2018) discussed that the regulatory and funding agencies give too much importance to the number of papers published and use indicators such as average IF, cumulative IF and IF aggregate in the selection of researchers for awards, the selection and promotion of faculty, awarding fellowships to students and grants to departments and institutions, and thus contribute to the lowering of standards of academic evaluation, scholarly communication, and the country's research enterprise. Impact factors, provided by Clarivate Analytics in their Journal Citation Reports (JCR), are applicable to journals and not to individual articles published in the journals. Nor is there such a thing as impact factors of individuals or institutions. One cannot attribute the IF of a journal to a paper published in that journal, as not all papers are cited the same number of times; and the variation could be of two to three orders of magnitude. This metonymic fallacy is the root cause of many ills.

Research Gap

Most of the research studies used various metrics such as counting of articles, citation analysis, H-index, impact factor of the journal, cite score, collaborations and other alternative metrics such as social media, Twitter, Facebook. Further earlier researchers have used survey analysis of faculty members or administrators, reviewers and editorial practices to assess the quality of research publications or the journal in which such works have been published. However, the researchers could not find any literature on what kind of weightage can be assigned to the various components of a research paper, whether they can be segregated into various clusters. Hence the researchers have taken up the present study which uses the analysis of research papers published in the journal 'Indian Accounting Journal' using various parameters of quality segregated into four clusters namely 1) Overview 2)Scope 3) Research Methodology 4) Writing style

Statement of Problem

Off late many journals online and print are publishing the research works of academicians by considering the quality of the papers by applying various parameters. However, there are certain journals which publish the papers without looking into the quality just to earn. Nowadays many journals are emerging which are cloned. It is a need of the hour to bring out a strong framework with the help of which the quality of research works can be assessed.

Research Questions

1. How can a journal classify the research works based on the quality?

2. What are the various parameters that can assess the quality of the research papers?

Objectives of the Study

Based on the review of literature, research gap and research questions raised the following objectives are famed.

1. To establish clusters of parameters of quality of the research publications and build a framework of assessment.

2. To evaluate research works published in Indian Accounting Journal by obtaining a paper score index.

Research methodology

Research Methods

The study uses library method of research where in documentary analysis is taken up. The available past five year issues on the website of "Indian Accounting Association" have been analyzed for the quality assessment with the suggested framework.

Data Sources

The data required for the study have been collected from secondary source that is the published research papers in the last years by the journal "Indian Accounting Journal".

Population

The study takes into consideration all the past issues of "Indian Accounting Journal" that is 10 issues that have been published. All the research works published in all the 10 journals numbering to 154 have been selected for the analysis.

Quantitative techniques used

This study uses percentages, averages that is mean and weighted average and quality index score and Chi-Square test.

For the purpose of calculating paper quality index various parameters identified as abstract clarity, keywords identification, review of literature, research gap, statement of problem , formulation of research questions, research methods, data sources, collection methods, scientific sampling method, scientific sample size determination, hypothesis testing and statistical tool usage, referencing style, bibliography, structure of report and conceptual clarity. All these parameters are clustered into four viz., 1) Overview 2) Scope of the research 3) Research Methodology and 4) Writing style. Over all cluster weights are determined on the basis of components in each cluster. The overview is assigned 5%, scope of the research 25%, Research methodology 35% and writing style 35% each respectively.

Table No 1: Calculations in Weightage Assignment in cluster and score for each component

	Component wise weightage in a cluster	Overall Cluster Weightage	Effective percentage	Score out of 100
Overview				
Abstract Clarity	70%	5%	3.500%	3.5
Keywords Identification	30%	5%	1.500%	1.5
Scope				
Literature Reviewed	30%	25%	7.500%	7.5
Literature Review Clarity	10%	25%	2.500%	2.5
Research Gap	30%	25%	7.500%	7.5
Statement of Problem	10%	25%	2.500%	2.5
Research Questions	20%	25%	5.000%	5
Research Methodology				
Statistical Tool Usage	20%	35%	7.000%	7
Scientific Sampling Method	20%	35%	7.000%	7
Scientific Sample Size	20%	35%	7.000%	7
Research Method	20%	35%	7.000%	7
Hypothesis Testing	20%	35%	7.000%	7
Writing Style				
Citation Style	30%	35%	10.500%	10.5
Report Structure	30%	35%	10.500%	10.5
Conceptual Clarity & articulation	40%	35%	14.000%	14

Source: Calculated by Researchers

Components in each cluster are further assigned weights such as in overview, abstract clarity is assigned 70% and keywords identification 30% respectively. The same process of assigning weights to the individual components is proceeded with and effective percentage is calculated which further reduced to score for each component out of 100. Based on the marks for all components in each paper, the total score for the paper is calculated. All the papers securing marks above 80 are classified as the Best, 60 to 80 as Good, 40 to 60 as Average and below 40 as Below average respectively.

Period of the study

A five year study period is chosen for the analysis. All the issues published by "Indian Accounting Journal" during 2015 to 2020 are considered for the study.

Scope of the study

The study takes into consideration the various elements of research publication that is abstract, key words, review of literature, research gap, statement of problem, research questions, research methodology, data presentation, structure of the report, referencing style and bibliography.

Results and Discussion

The study takes 154 research publications published in select 5 years and analyzed subject wise. The "Indian Accounting Journal" publishes research works relating to accounting, finance, taxation mainly and other fields of commerce too. A subject-wise classification of the papers is given in Table 2:

Table No 2: Subject-wise Research Paper Classification

Year	Accounting				Taxation				Finance					Multi-disciplinary	Total
	Education	Research	Others	Total	Direct tax	Indirect tax	Others	Total	Stock markets	CSR	Working capital	Others	Total		
2016	2	0	5	7	0	0	1	1	6	0	1	8	15	6	
2017	3	0	9	12	0	1	0	1	6	1	2	2	11	11	
2018	2	0	15	17	0	0	0	0	6	0	0	5	11	5	
2019	0	1	13	14	0	1	0	1	6	2	2	6	16	3	
2020	2	0	5	7	2	0	0	2	8	1	0	1	10	4	
Total	**9**	**1**	**47**	**57**	**2**	**2**	**1**	**5**	**32**	**3**	**5**	**22**	**63**	**29**	**154**
%	**16**	**2**	**82**	**37**	**40**	**40**	**20**	**3**	**51**	**6**	**8**	**35**	**41**	**19**	**100**

Source: Compiled from Indian Accounting Journal.

It is evident from the Table – 2 that 41% of the research papers are in the area of Finance followed by 37% in Accounting, 19% in multi-disciplinary research works and just 5% in Taxation. In Finance area 51% of the research work is related to stock market, 8% on working capital, 6% on CSR and 35% is related to other areas of finance. In accounting area, 16% of research work is related to accounting education, 2% accounting research and 82% in the other fields of accounting. In Taxation area, there are very few research papers published of which 40% is related to direct tax, other 40% is related to indirect tax and 20% is related to the other fields of taxation.

Table 3 indicates the clarity of the abstract and identification details of key words. Abstract gives an overall view of the paper whereas key words reflect the concepts discussed in the paper. Abstract generally summarize, describe and highlight important points from major sections of the paper. They help the editors to classify the research interest. A preliminary probe into the abstract will give an idea about the research interest. The appraisal of the paper is done mostly on the basis of the abstract.

Table No 3:Abstract clarity and identification of key words

	Accounting	**Taxation**	**Finance**	**Multi-disciplinary**
Clear picture	53 (93%)	4(80%)	54(86%)	28(97%)
No clear picture	4(7%)	1(20%)	9(14%)	1(3%)
Total	57	5	63	29
Keywords:				
Identified	54(95%)	4(80%)	63(100%)	29(100%)
Not identified	3(5%)	1(20%)	0(0%)	0(0%)
	57	5	63	29

Source: Compiled from Indian Accounting Journal.

Note: Figures in the brackets indicate percentage.

The clarity in abstract can be achieved by recognizing the elements of the research such as background of the study, methods and discussions. It is appreciable that in most of the papers analyzed the abstract is giving a clear picture about the research. The clarity is almost 97% in multi-disciplinary, 93% in accounting, 86% in finance and 80% in taxation.

The keywords in a research paper help other researchers in finding the research paper when they are conducting a search on the topic. They help in finding the content of research. Short keywords, specific keywords and using 5 to 7 keywords is most considerable. The key words are identified and reflecting the content perfectly 100% in multi-disciplinary and finance, whereas in accounting it stands at 95% and 80% in taxation.

Table No 4:Review of Literature

	Accounting	Taxation	Finance	Multi-Disciplinary
Mentioned clearly	38(90%)	3(75%)	41(82%)	16(94%)
Not mentioned clearly	4(10%)	1(25%)	9(18%)	1(6%)
Total review of literatures mentioned	42	4	50	17

Source: Compiled from Indian Accounting Journal.

Note: Figures in the brackets indicate percentage.

A total of 113 papers are analyzed for the review of literature whether they are clearly conveying the earlier research done in the area or not. In Accounting and multi disciplinary papers, more than 90% of the papers very clearly mentioned the findings and conclusions of the research. In case of Finance and Taxation, more clarity is required. Too many reviews without proper explanation or too less reviews make the research work below average. The remaining papers under analysis have not included review of research.

Table No 5: Statement of Problem

	Accounting	Taxation	Finance	Multi-Disciplinary
Identified	7(12%)	1 (20%)	5 (8%)	3 (10%)
Not identified	50(88%)	4 (80%)	58 (92%)	26 (90%)
	57	5	63	29

Source: Compiled from Indian Accounting Journal.

A research problem is a statement about an area of concern, difficulty to be eliminated, a condition to be improved, or a troubling question that exists in scholarly literature, in theory, or in practice that points to the need for meaningful understanding and deliberate investigation. The ultimate goal of a statement of the problem is to transform a generalized problem into a targeted, well-defined problem which can be resolved through focused research and careful decision-making. In accounting area, the statement of problem is not identified in 88% of the research papers and identified in 12% of papers. In taxation area, the statement of problem is not identified in 80% of the research papers and identified in 20% of papers. In finance area, the statement of problem is not identified in 92% of the research papers and identified in 8% of papers. In multi-disciplinary area, the statement of problem is not identified in 90% of the research papers and identified in 10% of papers. Not identifying the statement of the problem affects the scope of research.

Table No 6: Research Questions

	Accounting	Taxation	Finance	Multi-Disciplinary
Raised	4(7%)	0(0%)	2(3%)	1(3%)
Not raised	53(93%)	5(100%)	61(97%)	28(97%)
	57	5	63	29

Source: Compiled from Indian Accounting Journal.

The research question will helps in setting out what is that one wants to answer through the research. It pinpoints exactly what the researchers want to find out and sets a clear focus and purpose. In the accounting area, the research questions are raised only in 7% of research papers whereas in remaining 93% of papers research questions are not raised. In the taxation area, in 100% of papers research questions are not raised. In the finance and multi-disciplinary area, the research questions are raised only in 3% of research papers whereas in remaining 97% of papers research questions are not raised.

Other parameters in Research methodology

Almost all the papers have adequately described the data sources and similarly the sampling methods have been discussed. The sampling method and determination of size are the key factors in deciding the scientific nature of the research work. In the analysis of 154 papers, it is found that probability and non probability sampling methods have been used. Considering the method of sampling the scores have been assigned. However, one should remember that the data sources, data collection techniques and sampling methods become parameters in assessment of the quality of research papers.

Table No 7: Statistical tools

Subject	Accounts	Taxation	Finance	Multi-Disciplinary	
Descriptive	6(19%)	0(0%)	12(26%)	2(11%)	20
Inferential	20(63%)	2(67%)	26(55%)	7(39%)	55
Both	6(19%)	1(33%)	9(19%)	9(50%)	25
Total & %	32	3	47	18	100

Source: Compiled from Indian Accounting Journal

Statistical tools show the maturity of the researcher in analyzing and interpreting the data. Use of appropriate tool of research helps in bringing out the conclusions accurately. Researchers use the tools which are required based on the objectives of the study. Tools are applicable in all fields of research. Descriptive statistics helps the researchers in describing the data where as the inferential statistics helps in inferring conclusions from the sample and generalize to the population. Researchers tend to use descriptive statistics, inferential statistics or both or may not use tools at all depending on the type of research and objectives of research. It is clear from the Table that 100 out of 154 papers used statistical tools. Inferential statistics are used more in the analysis and all most the use of tools is same across the fields. In Finance area 122 types of tools, in Accounting 60 types of tools and in Multi-Disciplinary 40 and in Taxation 14 types of tools have been used. The tools most used in these papers are: regression in 38 research papers followed by measures of central tendency in 32 papers correlation in 30 papers, t tests in 23 papers and variance analysis in 20 papers.

Table No 8: Research Methods

	Accounting	**Taxation**	**Finance**	**Multi-Disciplinary**
EXPLANATORY	1(2%)	0(0%)	1(2%)	1(3%)
DESRCIPTIVE	9(16%)	3(60%)	23(37%)	8(28%)
EXPLORATORY	5(9%)	0(0%)	0(0%)	4(14%)
NOT MENTIONED	42(74%)	2(40%)	39(62%)	16(55%)
Total	57	5	63	29

Source: Compiled from Indian Accounting Journal.

Note: Figures in the brackets indicate percentage.

There are three types of research methods followed by the researchers they are explanatory, descriptive and exploratory. Exploratory research is defined as the initial research into a hypothetical or theoretical idea. This is where a researcher has an idea or has observed something and seeks to understand more about it. Descriptive research focuses on throwing more light on current issues through a process of data collection. Descriptive studies are used to describe the behaviour of a sample population. In descriptive research, only one variable (anything that has quantity or quality that varies) is required to conduct a study.

The three main purposes of descriptive research are describing, explaining and validating the findings. Explanatory research or causal research is conducted to understand the impact of certain changes in existing standard procedures. Conducting experiments is the most popular form of casual research. In accounting area, 74% of the research papers have not mentioned the type of research method, 16% followed descriptive method, 9% exploratory and 2% explanatory. In the Taxation area, 60% followed descriptive method, 40% has not mentioned the method of research. In the Finance area, in 62% of papers no research method is followed, in 37% of the papers descriptive method is used and 2% of the papers are explanatory in nature. In multi- disciplinary area, in 55% of the papers no method is mentioned the research paper, in 28% of the papers descriptive method is used, in 14% of the papers are exploratory and 3% is explanatory.

Table No 9: Hypothesis

	Accounting	Taxation	Finance	Multi-Disciplinary
Framed & tested	26(59%)	4(80%)	37(59%)	13(31%)
Not framed & tested	1(2%)	0(0%)	2(3%)	1(2%)
Framed & not tested	2(5%)	0(0%)	0(0%)	0(0%)
Non hypothesis	15(34%)	1(20%)	24(38%)	28(67%)
Total	44	5	63	42

Source: Compiled from Indian Accounting Journal.

Note: Figures in the brackets indicate percentage.

Hypothesis is a logical prediction of the occurrences without any support of empirical evidence or confirmation. The most commonly used hypotheses are null and alternative hypothesis. These are used basically to test whether any difference exists in sample statistics and population parameters. In the research papers, researchers commit mistakes such as not framing hypothesis but giving conclusions over it or framing the hypothesis but not testing it. Both these errors make the papers as of below the quality. In accounting area, in 59% of research papers the hypothesis is framed and tested, in 2% it is not framed but directly tested, in 5% of papers the hypothesis is framed but not tested and there is no hypothesis in 34% of papers. In taxation area, in 80% of research papers the hypothesis is framed and tested and there is no hypothesis in 20% of papers. In finance area, in 59% of research papers the hypothesis is framed and tested, in 3% it is not framed but directly tested, and there is no hypothesis in 38% of papers. In multi-disciplinary area, in 31% of research papers the hypothesis is framed and tested, in 2% it is not framed but directly tested and there is no hypothesis in 67% of papers. One has to remember that hypothesis may not be required in all kinds of research works.

Table No 10: Structure of Report

	Accounting	Taxation	Finance	Multi-Disciplinary
Followed	39(70%)	5(100%)	52(83%)	23(79%)
Not followed	17(30%)	0(0%)	11(17%)	6(21%)
	56	5	63	29

Source: Compiled from Indian Accounting Journal.

The structure of a report has a key role to play in communicating information and enabling the reader to find the information they want quickly and easily. Each section of a report has a different role to play and a writing style suited to that role. Therefore, it is important to understand what the readers are expecting in each section of a report and put the appropriate information in the appropriate sections. The structure of report includes abstract, introduction, review of literature, research gap, statement of problem, research questions, objectives, hypothesis, research methodology, results and conclusions and references. In accounting area, the structure of report is followed in 70% of research papers whereas it is not followed in 30% of papers. In taxation area, the structure of report is followed in 100% of research papers.In finance area, the structure of report is followed in 83% of research papers whereas it is not followed in 17% of papers. In multi-disciplinary area, the structure of report is followed in 79% of research papers whereas it is not followed in 21% of papers.

Table No 11: Bibliography Style

	Accounting	Taxation	Finance	Multi-Disciplinary
Correct	41 (76%)	3 (60%)	53 (87%)	23 (79%)
Not correct	13 (24%)	2 (40%)	8 (13%)	6 (21%)
	54	5	61	29

Source: Compiled from Indian Accounting Journal

Bibliography is the list of sources that are used during the research. It generally includes the name of the author, the title of works. The bibliography style is 76% correctly followed and 24% not followed correctly in the area of accounting. In the taxation area, it is followed 60%

correctly and remaining 40% of the papers have not followed the style correctly. The papers of finance area (87%) followed the style correctly and rest 13% is incorrect. In multi- disciplinary area, the bibliography is followed correctly in 79% of the papers and 21% is incorrect.

Table No 12:Classification of research papers on the basis of score obtained

Subject	Best Quality	Good Quality	Average Quality	Below Average Quality	Grand Total
Accounting	1	38	11	7	57
Taxation		5			5
Finance	1	49	12	1	63
Multi disciplinary		20	7	2	29
Grand Total	**2(1%)**	**86 (56%)**	**37 (24%)**	**29(19%)**	**154**

Source: Compiled by the researchers

As explained in research methodology each paper is assigned scores and accordingly classified into four types. It is observed that the best papers constitute 1%, Good quality papers 56%, Average quality papers 24% and below average 19%.

Table No 13: Paper quality index

Subject	Count of Research papers	Min.Paper Quality index	Max. Paper Quality index	Average of Paper Quality index
Accounting	57	7.0	83.1	54.3
Taxation	5	60.5	72.1	65.7
Finance	63	22.5	86.4	58.7
Multi disciplinary	29	0.0	75.9	55.2
Grand Total	**154**	**0.0**	**86.4**	**56.6**

Source: Compiled by the researchers

Table 13 indicates the average, minimum and maximum paper quality index in each subject.

Table No 14: Average Score of Papers

Metric	Average Score out of 1
Scope: Research Questions	0.045454545
Scope: SOP	0.077922078
Scope: Literature Reviewed	0.112323846
Scope: Research Gap	0.116883117
RM: Scientific Sampling Method	0.123376623
RM: Research Method	0.357142857
RM: Statistical Tool Usage	0.405844156
Scope: Literature Review Clarity	0.636363636
Writing Style: Citation Style	0.733766234
Writing Style: Report Structure	0.772727273
RM: Scientific Sample Size	0.850649351
Overview: Abstract Clarity	0.876623377
RM: Hypothesis Testing	0.954545455
Overview: Keywords Identification	0.961038961
Writing Style: Conceptual Clarity	0.980519481

Source: Compiled by the researchers

Table – 14 indicates the average score for the papers analysed for the quality. All the scores above 0.6 are considered to be taking care of the quality. However, in case of identification of scope of research and research methodology, authors have to take care.

The individual points of consideration in improving the quality are identified as formulation of research questions, statement of problem, literature reviewed, establishment of research gap, methods used in sampling, writing about research methods and usage of statistical tools.

The editorial board while accepting the papers may keep this point in mind. The reviewers may be given a hint about these parameters, so that they can suggest improvement in papers. By adapting to such practices, the impact factor may increase.

Conclusion

Any research work carried out by the researchers is to be assessed for its quality and accuracy. By calculating the paper score index, one can assess the quality of the publication. If all the authors understand this logic, the research output becomes more qualitative. Based on the paper score, journals can identify the subject wise quality, and areas of improvement. In this context, the researchers suggest that a minimum 10 review of literature with a greater quality help the researcher with defining the scope of research. The framework suggested finding out the paper score should be tested further to popularize as a model by taking into consideration the research publications in other journals too. If this model is validated by further research, it stands as a great tool for the researchers to assess the quality of papers published and journals in which the papers are to be submitted.

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PERCEPTION ANALYSIS OF THE NON-BANKING SERVICE INDUSTRY AS A FINANCIAL INTERMEDIARY IN KERALA: UNDERSTANDING CUSTOMER SATISFACTION AND SERVICE QUALITY

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ABSTRACT

Kerala is a state with decades of tradition of financial intermediaries either organized or unorganized. The first registered NBFC in Kerala started its business in 2007. This paper aims to examine the perception of services availed by customers of NBFCs (Non-Banking Financial Companies) in Kerala. Primary data are collected using a personal interview method, directly from customers selected using stratified random sampling and convenience sampling methods from three districts of Kerala. Correlation and multiple regression analysis are used to analyze the result. The results imply significance of NBFCs in financial needs among common people is positively correlated to their perception of NBFC as a financial intermediary. Perception as a financial intermediary and the attitude of customers towards NBFC's lending policies are positively correlated with the overall satisfaction of common people towards NBFC services. This study provides insight into the Significance of NBFC as a financial intermediary among common people at times of financial needs in society and their perceptions towards this parallel banking system.

Keywords: Financial intermediary, Lending policies, Non-Banking Financial Companies, Perception, Attitude, Customers

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INTRODUCTION

It is commonly understood that 'banking is the pillar that upholds the entire financial system in an economy'. The co-existence of several institutions which facilitate the flow of funds is the key feature of the Indian banking sector. Financial intermediation by organized as well as unorganized gives blood to the veins of the financial system. Unbanked financial sectors may ensure the growth of informal and semi-formal financial intermediaries. In Kerala, NBFCs (non-banking Financial Companies) cater to all types of financial needs of common people with various products and services. Normally, they don't accept public deposits, but they do provide services governed by banking regulations such as loans to the public, retirement planning, underwriting, and more(Chetan et al., 2022). It is universally accepted that customers have more difficulty in evaluating quality when it comes to services. Since, services are intangible, perishable, and have no preset physical standards, the customer may form perception based on ideal expectations.

The role of the NBFCs is reflected in the relative combined asset position of the NBFCs-D (NBFCS accepting Deposits) and NBFCs-ND-SI (Non-Deposit accepting Systematically Important NBFCS). These two sets of class-held assets amounted to almost a fifth of that held by the scheduled commercial banks as of the end of March 2019. The lending and investment activities of the NBFCs were quite concentrated and focused on infrastructure, retail lending, and real estate(Chandrasekhar, 2020). More importantly, the services practiced in the NBFCs can be hugely influential in establishing a positive mindset among consumers. Any change in perception or sentiment about these companies that happens in the market affects the perception of customers elsewhere(Kumar-Director, 2018). It is the customer satisfaction which drives the activities and services of every organization. Attitude and perception are more difficult to analyze and study. However, it can give more insight into what customers expect and what they perceive (Mudholkar & Dr. Gajanan P, 2014). And it is relevant for organizations providing services.

In light of these considerations, this study aims to delve into the perceptions and attitudes of customers availing themselves of services from NBFCs in Kerala. By employing a methodological blend of purposive sampling and convenience sampling, primary data is meticulously collected through personal interviews with participants across three distinct districts. This approach facilitates a comprehensive exploration of customer insights, which are subsequently analyzed through a combination of correlation analysis, multiple regression, and ANOVA techniques.

The focal point of this research is the pivotal role of customer perception in shaping the efficacy and appeal of NBFCs as financial intermediaries. Given the service-oriented nature of financial intermediation, customer perceptions are influenced by a myriad of factors, including but not limited to, the accessibility of services, the transparency of lending policies, and the institution's responsiveness to customer needs. This study posits that a positive correlation exists between the perception of NBFCs as effective financial intermediaries and the overall satisfaction of customers with the services provided.

Through an examination of these dynamics, the study endeavours to shed light on the significance of NBFCs in fulfilling the financial aspirations and needs of the common people in Kerala. The insights garnered from this research aim to contribute to the broader discourse on financial inclusion, emphasizing the crucial role of alternative financial institutions in enhancing the economic well-being of individuals and communities beyond the reach of traditional banking networks.

In essence, this introduction sets the stage for a nuanced exploration of the perceptions and attitudes of customers towards NBFCs in Kerala, aiming to contribute valuable insights into the role of these institutions in the financial landscape of the region.

THEORETICAL BACKGROUND

Non-Banking Financial Companies

Today our Indian financial sector comprises a magnificent coexistence of banks and financial institutions along with a wide variety of financial instruments. A significant increase in all indicators of financial development indicates the growing importance of financial institutions in the financial system and the growth of the flow of funds concerning economic activity. As banks and other financial institutions mobilize the savings of the public, they have an important role in assisting trade and industry and in promoting the economic development of the country to fulfill the financial goals of the people and extend financial facilities to a larger cross-section of the people and rural areas(Resource Commission, 1993). Several aspects have accelerated the rapid growth of NBFCs in the country, especially in Kerala. The comprehensive regulatory framework covered on the banking system by the RBI along with the absence of moderate regulations over NBFCs, has contributed to their rapid growth to a significant extent. Further, high customer orientation, low collateral and approval requirements, and simple and speedy services have assured them a loyal clientele despite high cost (State Planning Board, 2005). The role of the NBFCs is reflected in the relative combined asset position of the NBFCs-D and NBFCs-ND-SI. These two sets of class-held assets amounted to almost a fifth of that held by the scheduled commercial banks as of the end of March 2019. The lending and investment activities of the NBFCs were quite concentrated and focused on infrastructure, retail lending, and real estate (Chandrasekhar, 2020). More importantly, the services practiced in the NBFCs can be hugely influential in establishing a positive mindset among consumers. Any change in perception or sentiment about these companies that happens in the market affects the perception of customers elsewhere (Kumar-Director, 2018). It is the customer satisfaction which drives the activities and services of every organization. Attitude and perception are more difficult to analyse and study. However, it can give more insight into what customers expect and what they perceive (Mudholkar & Dr. Gajanan P, 2014). And it is relevant for organizations providing services.

Financial intermediaries

It is widely acknowledged that there has been an unprecedented amount of financial innovation in recent years (Miller M.H., 1986). However, financial innovation has been occurring for many centuries albeit at a slower pace. (Allen F. & Gale D., 1994)offer a detailed historical account of financial innovation. They point out that numerous different types of instruments have been developed over time but relatively few have survived. By the 1930s, the so-called traditional financial instruments had developed and demonstrated some rigidity. Our understanding of the role or roles played by these intermediaries in the financial sector is found in the many and varied models in the area known as intermediation theory. These theories of intermediation have been built on the models of resource allocation based on perfect and complete markets by suggesting that it is frictions such as transaction costs and asymmetric information that are important in understanding intermediation (Allen & Santomero, n.d.). (Gorton & Winton, 2003) concentrate on research addressing why bank-like financial intermediaries exist, and the implications for their stability. By bank-like financial intermediaries, they mean firms with the following borrowing characteristics: (1) They borrow from one group of agents and lend to another group of agents (2) The borrowing and lending groups are large, suggesting diversification on each side of the balance sheet. (3) The claims issued to borrowers and lenders have different state-contingent payoffs. The terms “borrow” and “lend” mean that the contracts involved are debt contracts. So, to be more specific, financial intermediaries lend to large numbers of consumers and firms using debt contracts and they borrow from large numbers of agents using debt contracts as well.

A financial institution is an intermediary between a deficit unit and a surplus unit in an economy. The difference between banks as financial intermediaries and Non-bank Financial

Intermediaries (NBFIs) is that the financial instruments created by banks (deposits) are treated as money or near-money while those created by NBFIs are not treated as money. To maintain the financial health of NBFCs, it is also necessary to fix the limits of the debt-equity ratio. The Shah Committee recommends that the ceiling on total debt should be 15 times the Net Owned Fund for all NBFCs. Although there have been comprehensive regulatory constraints on banks, the NBFCs have so far enjoyed a lesser degree of control that probably explains their rapid growth (Mody RJ., 1994). They are the middlemen between two parties in a financial transaction (CFI Team, 2022).

Lending policies

For all organizations where economic activities are taking place, an important role belongs to financial aspects. According to M. Weber, the policy is "striving for participation in authority or influencing the distribution of authority, be it between states or within a state between groups of people". It is also opinionated that the financial policy of an economic subject is developed according to the corporate ideology. An evocative representative of such approach by H. Ulrich, who thinks that the stages of formation of financial policy "are the formulation of financial and economic goals, determination of enterprise's potential, and development of strategies of development" (Makarova et al., 2016). It is the policy relating aspects of regulation, supervision and oversight of the financial and payment systems, including markets and institutions, intended for promoting financial stability, market efficiency and client–asset and customer protection (IMF, 2000). It can also be explained as rules or principles of business accounting and financial practices. It should reflect businesses' values and culture (State government of Victoria, 2022).

Attitude and Perception

Some researchers argued that "the concept of attitude is probably the most distinctive and indispensable concept in social psychology" (Allport, 1935). Operationally, we can define an attitude in a three-dimensional approach. First, as a completely personally positive or negative psychological evaluation or judgement toward an evaluated object- the "attitude object" in attitude theory. Second; as a set of mental beliefs, we hold in relation to it. Finally, they provide a subjective value to it, from a scale of values (Herzoy, 2017). The closing decades of the 20th century put an end to the controversies on the measurements of attitudes with the development of a new class of indirect attitude measures (Russell H Fazio, 2003). These measures differ from traditional measures of the self-report that require explicit evaluation of an attitude object. Attitudes inferred from these measures are, rather based on participants' performance on experimental paradigms, such as sequential timing or response interference tasks (Sylvan Kornblum et al., 1990). Perception can be explained as a primary form of cognitive contact with the world. This primary form of awareness is the base from which all conceptual knowledge is derived. The study of perception has always had a unique significance for philosophy and science(Efron, 1969). Perceptions are formed by the individual all the time and are stored away for future reference. Perceptions so formed will come into play when the individual has to make any consumption decisions. Therefore, perceptions about a product or service that are formed in the mind of the customer are vital factors for the success of the product or service in the market.

PURPOSE

Kerala is a state with decades of tradition of financial intermediaries. All of them started as informal financial intermediaries serving society with their funds. This paper aims to examine the perception of services availed by customers of NBFCs (Non-Banking Financial Companies) from these financial intermediaries.

STATEMENT OF PROBLEM

In Kerala, a state renowned for its rich tradition of financial intermediaries evolving from informal setups, the emergence of Non-Banking Financial Companies (NBFCs) marks a significant shift in financial service provisioning. However, there remains a gap in understanding the perception of services among customers availing themselves of NBFC facilities. This study seeks to investigate the nuances of customer perceptions regarding the services provided by NBFCs in Kerala, delving into factors such as satisfaction levels, service quality dimensions, and the influence of traditional financial intermediaries' legacies on these perceptions.

OBJECTIVES:

1. To assess customer satisfaction levels with services provided by Non-Banking Financial Companies (NBFCs) as a financial intermediary in Kerala.
2. To identify key factors influencing customer perceptions of service quality offered by NBFCs in Kerala.

Originality/Value: This study provides insight into the Significance of NBFC as a financial intermediary among common people at times of financial needs in society and their perceptions towards this parallel banking system.

HYPOTHESIS

$H0_1$: There is no significant positive correlation between the perception of NBFC as a financial intermediary and overall satisfaction towards NBFCs.

$H0_2$: There is no significant positive correlation between attitude toward lending policies and overall satisfaction towards NBFC services.

$H0_3$: There is no significant positive correlation between the perception of NBFC as a financial intermediary and attitude towards lending policies.

$H0_4$: The perception of NBFC as a financial intermediary and attitude towards lending policies do not significantly explain the variance in Overall satisfaction with NBFC services.

RESEARCH METHODOLOGY

The present paper researches the overall satisfaction of customers of NBFCs towards the services provided by them. The study is descriptive.

Data collection: A direct interview was conducted among customers of Non-Banking Financial Companies in Kerala during February 2023. Participants were asked to respond specifying their perception of NBFC services, provided as a financial intermediary, and their attitude towards the lending policies of NBFCs in the lending process. Responses were entered in a five-point Likert type. Respondents were also requested to identify whether they availed loans from NBFCs. The interview schedule also includes data on the demographic profile of participants including gender, age, level of education, monthly income, and occupation. Individual customers of NBFCs from urban and rural regions of Kerala participated in the survey.

Sampling unit: Customers of three pioneers of NBFCs registered with RBI operating their business in Kerala for more than 70 years are selected for the study as sampling units. Muthoot Finance, Manappuram Finance, and Kosamattam Finance represent them.

Participants: 120 useful responses were obtained from randomly selected two districts of Kerala where many branches of selected NBFCs operate.

Variables used: Perception of NBFC as a financial intermediary, and Attitude towards lending policy are used as independent variables. Overall satisfaction towards NBFCs is the dependent variable.

DATA ANALYSIS

Product, service, and relationship-related value-based drivers are selected to study the perception of customers (Lapierre, n.d.). ACCION's financial assistance model (Nelson, 1999) identifies six major lessons of informal finance with wide applicability. Some of them are also applied here as they fit under the context of the study, i.e., get to know your borrowers, do not supervise loans, provide appropriate credit, charge commercial interest rates, and be tough on defaulters. Correlation and multiple Regression Analysis were used to analyze the result with the help of MS Excel and SPSS software packages.

Table No 1: Demographic Profile of Respondents

Age Group	Number of Respondents	Percentage (%)
25-35	23	19.16
36-45	32	26.67
46-55	53	44.17
56-65	12	10.00
Total	120	100

Note. Data represent the distribution of respondents' age groups in the study.

Table No 2: Educational Qualification of Respondents

Qualification	Number of Respondents	Percentage (%)
SSLC and below	42	35
Up to graduation	39	33
PG	11	9
Others	28	23
Total	120	100

Note. Data represent the educational qualifications of the respondents.

Table No 3: Occupation of Respondents

Occupation	Number of Respondents	Percentage (%)
Self-employed	53	44
Professional	7	6
Government employee	5	4
Employed in a private firm	38	32
Not employed	17	14
Total	120	100

Note. Data represent the occupation distribution among the respondents.

Table No 4: Level of Income of Respondents

Income Level	Number of Respondents	Percentage (%)
<20,000	82	68
20,000-40,000	31	26
40,000-60,000	7	6
>60,000	0	0
Total	120	100

Note. Data represent the monthly income levels of the respondents.

Table No 5: Emergency Finance Lender of Common People in Emergency

Financial Institution	Number of Respondents	Percentage (%)
NBFCs	96	80
Banks	12	10
Self Help Groups	6	5

Chit funds	4	3
Local money lenders	2	2
Total	120	100

Note. Data represent the preference for emergency financial assistance.

Table No 6: Attractive Factor of NBFC Loans

Factor	**Number of Respondents**	**Percentage (%)**
Quick loan disbursement	66	55
Least collateral requirements	30	25
Minimum documentation	12	10
Relaxation in credit score	4	3
Customized services	8	7
Total	120	100

Note. Data represent the factors contributing to the attractiveness of NBFC loans.

RESULTS

Percentage analysis, Correlation, and Multiple regression are used to test the hypothesis and analyze the results.

Percentage

The higher the percentage, the more valid the model seems to be (Lorenzo-Seva, 2013). In this result, 80 percent of people go for NBFCs in their emergency financial needs. It indicates the significance of NBFC in the lives of common people in deciding the financial institution they want to owe money from when they are in a financial emergency. The largest portion constituting 35 percent of customers falls into the category of SSLC and below qualified, and have relatively lower levels of formal education, which could have implications for the type of financial products and services they seek, as well as the strategies NBFCs employ in serving this demographic.

A significant proportion of NBFC customers derive their income from self-employment, highlighting the importance of NBFCs in catering to the financial needs of this segment of the population, which may have unique financial requirements compared to salaried individuals.

A large segment of NBFC customers belongs to the lower-income strata, emphasizing the importance of NBFCs in catering to the financial needs of this demographic. It also indicates the potential focus of NBFCs on providing accessible and inclusive financial services to individuals with lower incomes.

NBFCs stand out to a significant portion of their customer base due to their ability to provide fast and efficient access to financial resources, highlighting the importance of speed and efficiency in the financial services industry, especially in loan disbursement, in comparison with others.

Correlation

The quantities, necessarily numerical quantities, whose relations desired to be investigated, will be spoken of, as the variables, since their magnitude varies. Instead of speaking "causally related quantities", we will use the term "correlation", or "correlated quantities". This definition is provisional and subject to numerical measures (Yule G. Udny & Udny, 1897). Co-efficient of correlation was computed to find the significant relationship between the variables.

Table No 7: Correlation between Variables

Variable	Perception on NBFC as a financial intermediary	Attitude towards lending policy	Overall satisfaction towards NBFCs
Perception on NBFC as a financial intermediary	-	.000	.012
Attitude towards lending policy	.000	-	.000
Overall satisfaction towards NBFCs	.012	.000	-

Note. Correlation is significant at the 0.05 level (2-tailed). P values are presented to indicate the significance of the correlations.

From the figures in Table 7, all the P value are lesser than 0.05. it is difficult to accept the hypotheses. It indicates the positive correlation between these variables ($H0_1$, $H0_2$). Perception of NBFC as a financial intermediary and Attitude toward lending policy is positively related to overall satisfaction towards NBFCs ($H0_4$). Perception of NBFC as a financial intermediary and Attitude towards lending policies are also correlated positively ($H0_3$). Hence all the null hypotheses ($H0_1$, $H0_2$, $H0_3$, $H0_4$) are rejected.

Regression

The regression test is applied to test how far the perception of NBFC as a financial intermediary and attitude towards lending policy impact the overall satisfaction towards services of NBFCs.

Table No 8: Regression Analysis Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.902	.813	.769	.13929

Note. The regression analysis summary, indicates the relationship between predictor variables and the outcome variable.

R is correlation between predictor and outcome variable. The value indicates how much the dependent variable, overall satisfaction of NBFC services, is correlated with the independent variables, attitude of customers towards lending policies of NBFCs and perception of customers on NBFC as a financial intermediary. Here, the R^2 value is .813, which indicates 81.3 percent variance on the Overall satisfaction on NBFCs services explained by the perception of NBFC as a financial intermediary and attitude towards lending policies. Only the rest is explained by Other external factors.

Findings

Here examined the overall satisfaction of customers towards the NBFC services, using three variables: the significance of NBFC in the financial needs of common people, the perception of customers towards NBFC as a financial intermediary, and the attitude of customers towards lending policies of NBFCs.

80 percent of the respondents consider NBFC as their first option for borrowing, which explains the significance of NBFCs in their financial needs. The correlation values of both independent variables i.e., perception of NBFC as a financial intermediary and attitude of customers towards lending policies of NBFCs, with the overall satisfaction of NBFC services are 0.012 and 0.000 respectively which is lesser than 0.05, indicate they have a positive statistically significant influence on overall satisfaction on the services of NBFCs.

It is noted that 44.17 percent of respondents are between the age of 46-55 and the majority are not well educated. 44 percent of respondents are self-employed with local domestic work and unorganized sector workers. They are extremely relying on the descriptions given by the employees of NBFCs and are satisfied with them.

Quick disbursement of loans with minimum collaterals is considered as the key attraction of NBFC loans, by common people. People are also of the opinion that the organization will provide time-to-time information, which helps to increase credibility in society.

Conclusion

Non-Banking Financial Companies are considered the best alternative to banks by common people. These are the institutions in emergencies, providing adequate credit for the people without any delay and at the convenience of hassle-free procedures. They also treat customers with utmost care and trust. These unique features make NBFCs a significant institution that caters to the financial needs of the common public. While keeping the higher interest rates and unethical modes of recovery procedures apart, customers have a positive perception and attitude towards the services provided by the NBFCs and agree that they can serve society as a better parallel banking institution.

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