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Testing the Theory of Planned Behaviour on Entrepreneurial Intention among Odisha Graduates: A PLS-SEM Approach

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Entrepreneurial Intention; Theory of Planned Behaviour; Attitude toward Entrepreneurship

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M13; I23; L26

Abstract: This research investigates the factors influencing entrepreneurial ambition (intentions) among graduate students in Odisha via the lens of the Theory of Planned Behaviour (TPB). The research examines three primary predictors: attitude toward entrepreneurship, subjective norms, and perceived behavioural control. It also assesses the impact of such predictors on entrepreneurial intention through Partial Least Squares Structural Equation Modelling (PLS-SEM). The research utilises primary data gathered from 408 graduate students from institutions in the Khordha and Cuttack districts of Odisha, employing a structured questionnaire and a five-point Likert scale. The measurement and structural models were evaluated using SmartPLS 4 to determine reliability, validity, and path connections. The findings demonstrate that attitude toward entrepreneurship significantly positively affects entrepreneurial intention ($\beta = 0.141$, $p = 0.025$), while subjective norms and perceived behavioural control were identified as statistically unimportant predictors. The model accounts for 7.6% of the variance in entrepreneurial intention ($R^2 = 0.076$), signifying limited predictive capability and implying that more variables may be necessary to more comprehensively elucidate entrepreneurial intention among students. The results indicate that the entrepreneurial intentions of graduates in Odisha are predominantly shaped by personal views rather than social pressures or perceived control over entrepreneurial actions. The study holds significant implications for policymakers and educational institutions, indicating that entrepreneurship education programs should prioritise attitude development, entrepreneurial exposure, and experiential learning over just skill-based training. The study emphasises the necessity of enhancing the entrepreneurial environment, encompassing access to financing, incubation assistance, and institutional mentoring, to foster entrepreneurial intention among students in Odisha.

1. Introduction

Entrepreneurship has transformed a common business activity into a meaningful contributor to youth empowerment, innovativeness, and job creation. This change is of extreme importance in the Indian context. Despite the rapid growth of higher education, graduate unemployment continues to rise, leading to curiosity about why some educated young people choose job-seeking and instead pursue an entrepreneurial career. This is the dominant atmosphere that causes the researchers and policymakers to discover the psychological, contextual motivation in influencing the entrepreneurial intention of the young graduates. The Theory of Planned Behaviour (TPB), developed by Ajzen (1991), gives an effective theoretical background to learn the development of entrepreneurial intentions. Intention is a resultant state of behavior as per the TPB framework, which is a result of three important constructs,

such as attitude to the behaviour, subjective norms, and perceived control of behaviour. As time passed, TPB is currently widely used and improved in different fields, including the study of entrepreneurship. It describes the role played by beliefs, social expectations, and perceived capabilities in influencing the decision any individual makes to become an entrepreneur. TPB is specifically applicable to the emerging economies such as India, whose socio-cultural environment and institutional support systems are significantly different and evolve entrepreneurial mindsets at different levels. The progress in the industry and the employment rate in Odisha has been remarkable in recent years. According to the Odisha economic survey 2024-25, the growth in the industrial sector in the state is 6.1% for the year 2024-25. The share of the manufacturing sector in the state's GDP has increased from 42.6% in the year 2012-13 to 52.6% in the year 2024-25. Another survey report on the periodic labour force survey by the Ministry of Statistics and Program Implementation, Government of Odisha, states that in total 58.9 lakh people are employed in the industrial sector in Odisha. The most revealing fact is that the construction sector employs the highest number of people (70%) in Odisha. This is the picture that raises the research question for this paper. The construction sector's expansion and associated employment opportunities primarily contribute to the industrial sector's growth. The manufacturing and other entrepreneurial growth is not visible in the state of Odisha. This paper aims to highlight that intrapreneurial growth in Odisha is not as remarkable as the projections for startups had anticipated. Why is the inclination toward entrepreneurship not prominent? This study focuses on the applicability of the theory of planned behaviour among the graduating students of Odisha. Being a very vast state, an appropriate sample selection is vital for the success of the study. For the selection of the samples, we have selected the degree colleges of the districts of Khordha and Cuttack; these two districts are the perfect forum for a study of this theoretical prototype. These are urban and semi-urban areas in a mixed form with variations in the extent of exposure to entrepreneurship education, institutional framework, and social-cultural stimulation to individual employment. More importantly, as the educational hub of Odisha, students from all corners of the state come to the educational institutions of these districts. This renders them a perfect choice in determining the functioning of TPB constructs working under different contextual influences. The empirical studies carried out recently also emphasize this relevance. As an example, Lakra (2023) discovered that perceived behavioral control has been established to be the most significant predictor of entrepreneurial intention as compared to attitude and subjective norms, which did not always show significant relevance among Berhampur University students. In the same way, the comparative analysis of the entrepreneurship learning in Odisha reveals that non-state organizations and extracurricular entrepreneurial behaviors are also very good at enhancing the students' entrepreneurial intention, which in many cases supersedes the demographic factors of entrepreneurship education, like gender or socio-economic status. Along with these insights, there is also one major research gap: little research has been conducted to assess how the TPB model applies specifically in the case of graduate students in Khordha and Cuttack, where, in comparison to other areas, the institutional exposure, the levels of urbanization, and the socio-cultural expectations are also different. Furthermore, the previous studies tended to stress individual factors rather than using a sound statistical framework to test the interconnectedness of all the TPB constructs at the same time. To fill this gap, the present study uses the Partial Least Squares tool within the Structural Equation Modelling framework (PLS-SEM) to test the impact of the attitude of the respondent, subjective norms, and the perceived behavioural control on the entrepreneurial intention among graduate students in these two districts in a systematic and logical manner. The study will be able to produce evidence-based outcomes following the analysis of the strength of these relationships that may be used in policy formulation, curriculum design and development, and specific interventions in various areas. These results are projected to make significant contributions to the current state and institutional activities to change the minds of Odisha graduates into more active job creators instead of mere job-seekers. Based on the above backdrop, the study is done with the objective, (i) to study the impact of components of the Theory of Planned Behavior (TPB) with respect to entrepreneurial intention creation in Odisha, and (ii) to evaluate the applicability and explanatory power of the TPB model in predicting entrepreneurial intentions among graduating students in Odisha, with a specific focus on the Khordha and Cuttack districts.

2. Literature Review

2.1. Entrepreneurial Intention

The construct of entrepreneurial intention is highly accepted as one of the important factors that result in entrepreneurial behavior. In line with Kabir et al. (2017), the concept of entrepreneurial intention predicts the motivation or the diligence portrayed by individuals to develop attributes that required for entrepreneurship. According to the scholars, entrepreneurship is not accidental or random; it is the outcome of a series of actions and behaviors that are carefully designed and trained throughout the development of such intention as entrepreneurship (Zimbroff and Jorgensen, 2019). In the same line of thought, Owoseni and Akambi (2010) outline that entrepreneurial activities tend to be influenced by the presence of strong entrepreneurial intentions, and the present study is aimed at investigating factors that affect the determinants of the entrepreneurial intention in graduates in Khordha and Cuttack districts by considering the entrepreneurial intention as the dependent variable in the study.

2.2. Theory of Planned Behavior (TPB)

Among the most influential models that would explain human behaviour, in the context of entrepreneurship, is the Theory of Planned Behaviour (TPB). According to Ajzen, a set of three fundamental elements that include attitude towards a behaviour, subjective norms, and the perceived behavioural control that TPB uses to explain the behavioural intentions in an individual, and that the intentions have a very strong predictive validity upon actual behaviour (Ajzen, 1991, 2015). TPB expands TRA with the introduction of the so-called perceived behavioral control into the Theory of Reasoned Action (TRA) by Ajzen and Fishbein (1980) to explain that there are cases when a person might not possess full control over his or her conscious actions (Sheppard et al., 1988).

TPB has gained acceptance over the years and has been proven valid by various studies related to research in the entrepreneurship course. Its strength has been shown consistently by scholars regarding the ability to forecast among the students within various contexts the so-called entrepreneurial intention (Khalifa and Dhiaf, 2016; Malebana, 2014; Mahmoud et al., 2020; Rasli et al., 2013). The validity of its applicability is also supported by empirical literature; as it was revealed by Rengiah and Sentosa (2017) and Taha (2018), TPB offers one of the most valid conceptual frameworks to explore the concept of entrepreneurial intention in higher education. Similaly, TPB has been noted to be the most encompassing model when compared to other theoretical frameworks of entrepreneurial action (Ogundipe et al., 2012). It is against this good empirical evidence that the current research uses TPB as its theoretical backbone to determine the factors that affect entrepreneurial intention among graduate students.

Recent study on entrepreneurship utilizing the Theory of Planned Behaviour consistently identifies attitude toward entrepreneurship and perceived behavioural control as the most significant determinants of entrepreneurial intention, but subjective norms have inconsistent impacts. Entrepreneurship education indirectly influences intention through attitudes and perceived behavioral control. Incorporating self-efficacy, risk perception, and digital orientation enhances the model's explanatory power across various contexts (Haddoud et al., 2022; Nabi et al., 2023; Al-Jarrah et al., 2024).

2.3. Attitude and Entrepreneurial Intention

Attitude has been considered as one of the most important determinants of entrepreneurial intention in the realms of the Theory of Planned Behaviour (TPB). Ajzen (1991) believes that there is a direct and positive relationship between attitude and intention. This assists in determining the intention of individuals to join events of entrepreneurship. Attitude is usually represented as the evaluative tempering nature an individual acquires, which is based on individual feelings, beliefs, and his/her behavioural inclinations toward definite social objectives and group-related happenings (Ryu et al., 2010). In the entrepreneurial paradigm, the attitude to behaviour depicts the favorable or unfavorable

assessment of initiating a venture (Linan et al., 2011), usually the gut or the emotional reaction of the person towards entrepreneurship (Tadesse and Batra, 2015).

Empirical research enhances the emphasis of attitude as a predictor of entrepreneurial intention. In fact, Malebana (2014) established that positive attitudes of students have a significant effect on the entrepreneurial intention in South Africa. Taha (2018) found in a study of students from the Universitas Malaysia Perlis (UniMap) and Universitas Utara Malaysia (UUM) that their attitudes have a significant positive relationship with the intention to become entrepreneurs. The attitude also positively affected students' entrepreneurial intention in Nigeria, according to Mahmoud and Garba (2019).

Research combining the Theory of Planned Behavior with supplementary constructs, including innovation self-efficacy and entrepreneurial knowledge, demonstrates that a positive entrepreneurial attitude markedly increases the intention to pursue entrepreneurial endeavors, even when other predictors, such as subjective norms, are not statistically significant (Relente & Capistrano, 2024). Research involving Romanian engineering students indicates that attitude, along with perceived behavioral control and curiosity, positively influences entrepreneurial intention, highlighting the psychological underpinnings of intention formation (Balgiu & Simionescu-Panait, 2024). Recent empirical evidence highlights that attitude is a primary determinant of entrepreneurial intention, corroborating the Theory of Planned Behavior's assertion that favorable personal assessments of entrepreneurship are essential in motivating individuals toward future entrepreneurial endeavors (Relente & Capistrano, 2024; Balgiu & Simionescu-Panait, 2024).

Although there are available international indications, there is little empirical research on the same conducted within the Indian context, meaning that there is a significant gap in the literature. To fill this gap, the current research paper presents the following hypothesis:

H_1: There is a positive relationship between attitude and Entrepreneurial intention.

The relationship between subjective norms and Entrepreneurial intention

Subjective norms are the perceived social pressure or support that influences the behaviour of an individual to participate in a certain activity, including entrepreneurship. According to Hassan et al. (2021), subjective norms are the social inspiration and encouragement that will define the entrepreneurial decision of an individual. Similar statements have been made by Farrukh et al. (2018), indicating that one of the most potent factors influencing human behaviour is subjective norms, implying that the process of making entrepreneurial decisions is not beyond the social stimuli. Empirical evidence is, however, divided on this. Indicatively, Mahmoud et al. (2020) concluded that subjective norms failed to positively influence the intention of students to be entrepreneurs, which indicates the effect of cultural and situational factors on the relevance of the construct. The influence of the familial background on the formation of entrepreneurial decisions appears to be particularly topical in the Indian context, since most young entrepreneurs are children of families with a history of business activities, which reinforces the theoretical hypothesis concerning the social impact. Similar results were obtained in one of the studies carried out at Debre Tabor University in Ethiopia, wherein it was stated that family background was the most influential factor in determining the entrepreneurial intention amidst 348 students (Students, 2021).

Empirical evidence indicates that subjective norms influence entrepreneurial intention via serial mediation mechanisms that include attitude toward entrepreneurship and entrepreneurial self-efficacy, implying that social approval enhances personal evaluations and perceived capability (Pham et al., 2023). Research among university students in Southeast Asia indicates that subjective norms have a

positive yet comparatively weak direct impact on entrepreneurial intention, highlighting the conditional influence of family, peers, and societal expectations in entrepreneurial decision-making (Othman et al., 2023). Supporting this perspective, recent behavioral research differentiates between descriptive norms and injunctive norms, revealing that perceptions of others' entrepreneurial involvement positively influence entrepreneurial intention, with anticipated regret serving as a crucial psychological mediator (Zhang et al., 2023).

The results of such studies indicate that subjective norms, especially those that are based on family and small social groups, can be a significant factor in promoting entrepreneurial goals. In accordance with these, the current research paper falls under the following hypothesis:

H_2: There is a positive relationship between subjective norms and Entrepreneurial intention.

The relationship between perceived behavioral control and Entrepreneurial intention

Perceived behavioural control (PBC), as proposed by Ajzen (1991), can be defined as how one thinks that it is easy or difficult to engage in each situation. The more one thinks an action is easy, the higher the PBC and believability, and vice versa. In the study of entrepreneurship, PBC has been constantly determined as an imperative factor that influences entrepreneurial intention. As an example, Shabbir et al. (2016) discovered that PBC was significant in mediating the relationship between the personal abilities of an entrepreneur and different levels of entrepreneurial intention among Pakistani IT professionals in Punjab. Equally, Malebana (2014) said that PBC positively affects the entrepreneurial intention of university students in South Africa. The cross-cultural evidence also confirms this correlation; Linan et al. (2013) provided evidence that the British undergraduates had a higher PBC than the Spanish students, which is then superimposed on their entrepreneurial intention to the beneficial effect. Similarly, Kuttim et al. (2014) found that PBC is a vast predictor of entrepreneurial intention among students in 17 European countries.

Research from higher-education samples indicates that perceived behavioral control (PBC) exerts a direct, significant positive influence on entrepreneurial intention and frequently serves as a crucial mechanism connecting upstream factors such as proactive personality, entrepreneurship education, and opportunity perception to intention outcomes (Huang et al., 2024). In sustainable entrepreneurship contexts, supportive environments, such as university assistance and associated facilitators, enhance students' perceived behavioral control (PBC), subsequently elevating sustainable entrepreneurial intentions. This indicates that institutional contexts can enhance perceived control and, subsequently, intention (Sharma et al., 2023). Recent research that integrates the Theory of Planned Behavior (TPB) with effectuation theory indicates that Perceived Behavioral Control (PBC) not only directly predicts entrepreneurial intention but also functions through effectual decision-making processes, such as experimentation and pre-commitment, which convert perceived capability into intention, thereby underscoring PBC's pivotal explanatory role in modern entrepreneurship frameworks (Mumi, 2025).

Nonetheless, the works are not uniform in all situations. As an example, Mahmoud et al. (2020) noted that PBC was negatively related to entrepreneurial intention, which indicates the possibility of cultural or study design variation. Direct empirical research on the relation between PBC and entrepreneurial intention is not customary in the context of India. However, the rationale based on a larger scope of international evidence indicates that perceived behavioral control (PBC) plays a crucial role in defining the entrepreneurial goals of students. Thus, the hypothesis of the current study is as follows:

H_3: There is a positive relationship between perceived behavioural control and entrepreneurial intention.

3. Research Methodology

The current research paper follows the quantitative, cross-sectional design relying on the Theory of Planned Behaviour (TPB) to investigate the review of entrepreneurial intention of graduate students of Odisha between January and July 2025. The data gathered through the primary source is analyzed using the data collected with the help of a structured questionnaire. Latent constructs were the TPB variables, including attitude-towards-entrepreneurship, subjective norms, perceived behavioral control, and entrepreneurial intention, which were all measured using multi-item scales based on previous research TPB scales. The questionnaire adopted a five-point Likert scale to capture the perception of the respondents so that there would be the same scale of response.

The research population comprised graduate colleges in the districts of Cuttack and Khordha, Odisha, which were chosen based on various factors such as socio-economic factors and institutional factors. The total population of these two districts is around 4.8 million, according to the 2011 census, which constitutes 11.62% of the total population of the state of Odisha. As previously mentioned, students from all corners of the state make up these two districts. Therefore, these two districts are chosen as an ideal representatives of students of Odisha. To finalize an adequate sample size, this research refers to the criteria proposed by Morgan and Krejcie (1970). They justify a sample size of 384 for a population of 10,000 units. In this case, the total population is around 5 million; therefore, a sample size greater than 400 would justify the study. After all the effort and refining of the responses received from various respondents, this research study finalized a total sample unit of 408 obtained through stratified random sampling to represent all disciplines in academia, genders, and types of colleges situated in the districts of Cuttack and Khorda. Using electronic methods (google form), data was obtained that was guaranteed to capture all the responses.

The analysis used the Smart PLS 4 application because it can examine complex frameworks with multiple latent variables by implementing Partial Least Squares within the Structural Equation Modelling framework (PLS-SEM). Such a method was suitable because it has predictive modelling strength and the capability of dealing with the non-normal distribution of data that is present in behavioural studies. The model specification involved direct relationships between attitude, subjective norms, and perceived behavioural control, and the entrepreneurial intention and evaluation of construct reliability, construct validity, and model fit. Figure 1 shows the suggested conceptual model that has been used in the research.

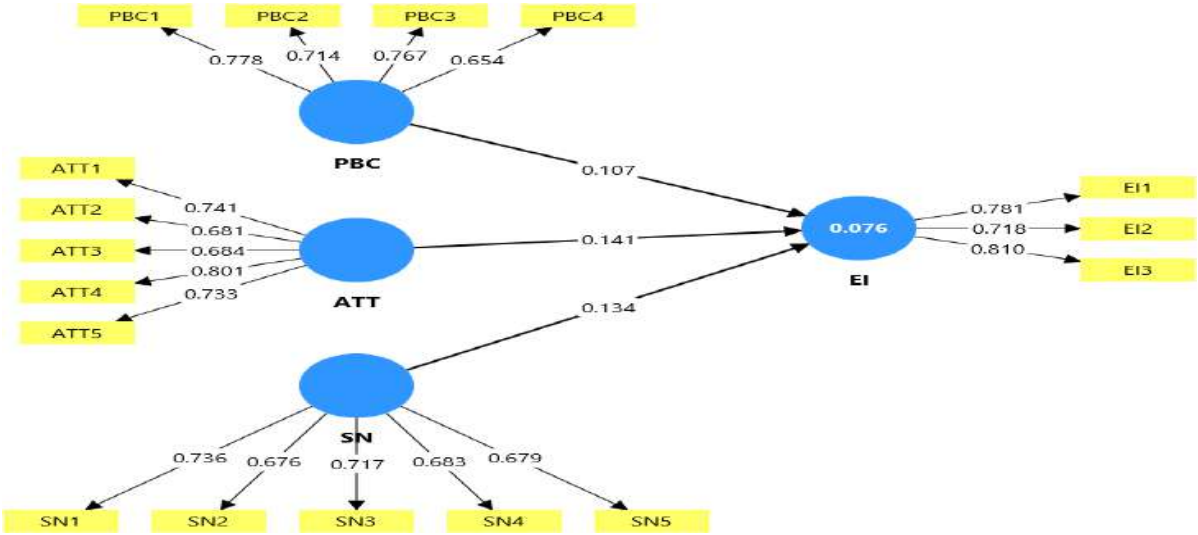


Figure 1: The Proposed Model

Source: Authors' Work.

4. Data Analysis and Interpretations

4.1. Descriptive Statistics

Table 1: Descriptive Statistics of the Respondents

Details	Subsections	(n)	(%)
Gender	Male	228	55.9
	Female	180	44.1
Age	17–18 years	72	17.6
	19–20 years	168	41.2
	21–22 years	168	41.2
Graduation Stream	Arts/Humanities	120	29.4
	Commerce	132	32.4
	Science	156	38.2
Entrepreneurial Background	Yes	102	25.0
	No	306	75.0
Family Income (Annual)	Rs. 100,000 – Rs. 200,000	96	23.5
	Rs. 200,001 – Rs. 300,000	144	35.3
	Rs. 300,001 – Rs. 400,000	108	26.5
	Rs. 400,001 – Rs. 500,000	60	14.7

Source: Self-compiled.

The sample of 408 graduate students exhibits a high degree of balance in both demographic and socio-economic aspects. Most of the respondents were males (55.9%), with women making up 44.1%. Age distribution indicated that there was a high percentage of young population, where 82.4% fell under the (19-22) year group, with an equivalent percentage (41.2% each) between the 19-20 and (21-22) year intervals; 17.6% were aged 17-18 years.

Regarding the academic background of the graduating students, the overwhelming majority (38.2 percent) are in the science stream, which is in turn outnumbered by commerce (32.4 percent) and arts/humanities (29.4 percent), meaning that there is a diversified academic composition of the respondents. A quarter of the participants (25 percent) said they had a familial background of an entrepreneur, implying that most of them (75 percent) did not have direct experience of the entrepreneurial world.

The family income profile indicated that most respondents are representatives of lower-to-middle-income families. The annual incomes of 58.8% fell in the range of Rs. 100,000-300,000, with only 14.7% in the top income range consisting of 400,001-500,000. It could be indicative of mediocre economic status and is indicative of the possible effect of financial background on entrepreneurial preparedness.

4.2. Outer Loadings of Construct Items

Table 2: Outer Loadings of Construct Items

Items	ATT	EI	PBC	SN
ATT 1	0.741			
ATT 2	0.681			
ATT 3	0.684			
ATT 4	0.801			
ATT 5	0.733			
EI1		0.781		
EI2		0.718		
EI3		0.810		
PBC1			0.778	

Items	ATT	EI	PBC	SN
PBC2			0.714	
PBC3			0.767	
PBC4			0.654	
SN1				0.736
SN2				0.676
SN3				0.717
SN4				0.683
SN5				0.679

Source: Analysis results of the study.

The outcomes of the measurement model prove that all the constructs, Attitude (ATT), Entrepreneurial Intention (EI), Perceived Behavioural Control (PBC), and Subjective Norms (SN), are reflected by sufficiently loaded indicators (Table 1). For Attitude (ATT), the outer loadings range from 0.681 for ATT2 to 0.801 for ATT4, indicating acceptable reliability, with ATT4 being the best measure of the construct. The factor loadings of entrepreneurial intention (EI) items are also high and range between 0.718 (EI2) and 0.810 (EI3), meaning that they are strong variables in measuring the latent construct. In the same manner, similar indicators displayed under the title of Perceived Behavioural Control (PBC) depict satisfactory loadings ranging from 0.654 (PBC4) to 0.778 (PBC1), which suggest that though PBC4 represents a relatively low contribution, nonetheless, the loadings are within acceptable ranges of research under exploration. Lastly, Subjective Norms (SN) items display loadings ranging between 0.676 (SN2) and 0.736 (SN1), which proves their reliability and their role in the measurement of the construct.

Table 3: Reliability of the Constructs and Validity

	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
ATT	0.784	0.811	0.850	0.532
EI	0.656	0.661	0.814	0.594
PBC	0.711	0.725	0.820	0.533
SN	0.740	0.746	0.826	0.488

Source: Self-compiled.

The results of the measurement model give satisfactory levels of internal consistency and convergent validity of the four constructs: Attitude (ATT), Entrepreneurial Intention (EI), Perceived Behavioural Control (PBC), and Subjective Norms (SN) (Table 3). The Attitude (ATT) has a high degree of reliability, where the Cronbach alpha (0.784) and the composite reliability (rc = 0.850) are above the recommended limits (reliability must not be below 0.70), and the AVE of 0.532 shows good convergent validity. There is medium reliability in respect to entrepreneurial intention (EI), and Cronbach's alpha (0.656) is slightly below the level of 0.70, but its composite reliability (0.814) and AVE (0.594) demonstrate that it is a robust construct to be measured. Perceived behavioural control (PBC) has good psychometrics with a 0.711 Cronbach's alpha, 0.820 composite reliability, and an AVE of 0.533 that exceeds the criterion values. Finally, Subjective Norms (SN) show acceptable reliability, with a Cronbach alpha of 0.740 and a composite reliability of 0.826, but an AVE of 0.488 is slightly lower than the 0.50 mark, indicating weak convergent validity, which can be accepted by considering the reliability parameters (Fornell & Larcker, 1981).

4.3. Discriminant Validity of the Model

Table 4: Heterotrait-Monotrait Ratio (HTMT) – Matrix

	ATT	EI	PBC	SN
ATT				
EI	0.248			
PBC	0.257	0.287		
SN	0.238	0.296	0.682	

Source: Self-compiled.

The inter-construct correlations point out the crucial data on the discriminant validity of the model (table-4). Attitude (ATT) has low levels of correlation with Entrepreneurial intention (EI = 0.248), perceived behavioural control (PBC = 0.257), and subjective norms (SN = 0.238). These values indicate that although ATT is connected to the other constructs, the correlation is not too high, which favours uniqueness. Entrepreneurial intention (EI) indicates a slightly higher relationship with PBC (0.287) and SN (0.296), suggesting that there are meaningful contributions of these constructs in the creation of intention. The highest correlation exists between PBC and SN (0.682), indicating a significant overlap that can be explained by theoretical reasons, as social pressures tend to shape people's perception of control.

Table 5: Fornell-Larcker Criterion

	ATT	EI	PBC	SN
ATT	0.729			
EI	0.186	0.770		
PBC	0.193	0.200	0.730	
SN	0.176	0.211	0.488	0.698

Source: Self-compiled.

The results of Table 5 show the results of the Fornell-Larker criterion to determine the discriminant validity of the constructs. ATT (0.729), EI (0.770), PBC (0.730), and SN (0.698) are the square roots of the AVE values, as evident in the diagonal. These values exceed their corresponding correlation between constructs in most cases, thereby supporting the discriminant validity. As one example, the AVE square root of ATT (0.729) is higher than its correlation with EI (0.186), PBC (0.193), and SN (0.176), which proves the uniqueness of the concept. In the same way, the EI (0.770) has a higher value when compared to its correlation with ATT (0.186), PBC (0.200), and SN (0.211). PBC (0.730) is also stronger than the correlation of this variable with ATT (0.193), EI (0.200), and SN (0.488).

Table 6: Collinearity Statistics (VIF)

Items	VIF
ATT 1	1.572
ATT 2	1.369
ATT 3	1.535
ATT 4	1.501
ATT 5	1.498
EI 1	1.348
EI 2	1.193
EI 3	1.370
PBC 1	1.398
PBC 2	1.375

PBC 3	1.374
PBC 4	1.314
SN 1	1.341
SN 2	1.380
SN 3	1.394
SN 4	1.281
SN 5	1.410

Source: Self-compiled.

Table 6 presents the statistics of collinearity (VIF values) of all measurement items of all four constructs. The findings indicate that the VIF values are within the range of 1.193 to 1.572, which is less than the conservative 5.0 and 3.3 (that is, the stricter threshold) limits of PLS-SEM. This implies that multicollinearity is not a cause for concern in this measurement model. In the case of Attitude (ATT), the value of VIF is between 1.369 (ATT2) and 1.572 (ATT1), with moderately acceptable inter-item correlations. The weakest values of VIF (1.193 (EI2) and 1.370 (EI3)) can be observed among the indicators of entrepreneurial intention, which indicates a low level of multicollinearity. In the same way, the values that are obtained by using Perceived Behavioural Control (PBC) items (0.314 (PBC4) and 0.398 (PBC1)) indicate a stable level of collinearity. Lastly, there are Subjective Norms (SN) indicators with a range of 1.281 (SN4) to 1.410 (SN5), yet again proving that there is no problematic multicollinearity.

Table 7: Inner Model VIF

Models	VIF
ATT -> EI	1.048
PBC -> EI	1.333
SN -> EI	1.325

Source: Self-compiled.

Table 7 represents the path from Attitude (ATT) to EI and shows the lowest VIF (1.048), indicating almost no collinearity with other predictors. The paths from “Perceived behavioural control” (PBC) to EI (1.333) and from Subjective Norms (SN) to EI (1.325) also fall within the safe range, confirming that the predictors are sufficiently independent of one another.

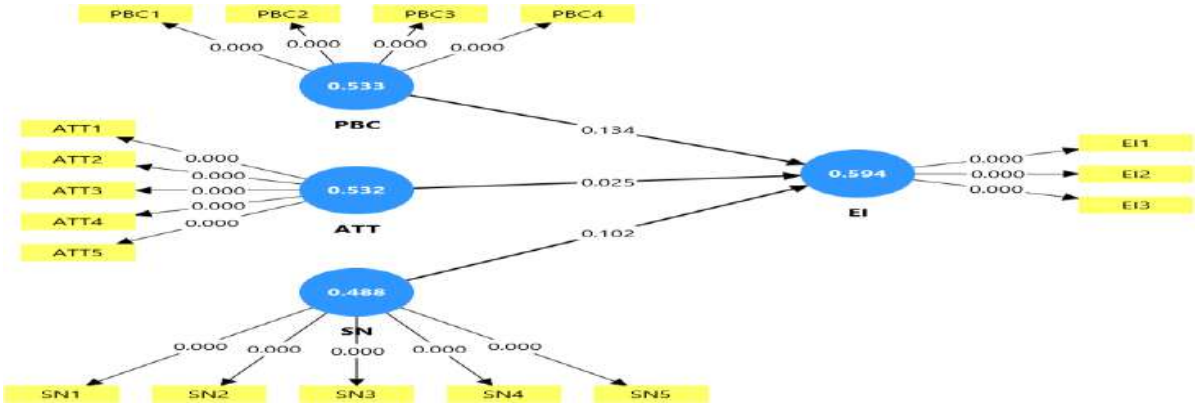
Table 8: Model Fit Summary

	Saturated Model	Estimated Model
SRMR	0.072	0.072
d_ULS	0.787	0.787
d_G	0.184	0.184
Chi-square	444.683	444.683
NFI	0.930	0.910

Source: Self-compiled.

Table 8 contains the model fit summary of both the saturated and the estimated models. Both cases have the SRMR = 0.072, which is lower than the acceptable level of 0.08, which shows a good fit between the hypothesised model and the observed data. The d_ULS value (0.787) and d_G (0.184) values are low, which additionally implies that the deviation between the observed and predicted model correlation matrix is not significant. The chi-square value (444.683), although meaningful in most of the instances because of the sensitivity of the statistic to the sample size, is not the major influence in PLS-SEM. The Normed Fit Index (NFI) presents 0.930 (saturated) and 0.910 (estimated), which is just higher than 0.90, which is a recommended value, and attests that the model is at an acceptable level of fit.

4.4. Hypothesis Testing



Source: Authors' Work.

4.5. Bootstrapping Results

Table 9: Path Coefficients among the Constructs

	Original Sample (O)	Sample Mean (M)	Standard Deviation	T Statistics (|O/STDEV|)	P-values
ATT -> EI	0.141	0.152	0.063	2.243	0.025
PBC -> EI	0.107	0.113	0.071	1.499	0.134
SN -> EI	0.134	0.141	0.082	1.634	0.102

Source: Self-compiled.

The output of the structural model gives the data on the role of Attitude (ATT), Perceived Behavioural Control (PBC), and Subjective Norms (SN) in influencing the Entrepreneurial Intention (EI). The transition between ATT and EI is positive and statistically significant (b = 0.141, t = 2.243, p = 0.025), proving that positive attitudes positively influence the Entrepreneurial intention of students. This observation highlights the role of individual attitudes and assessments of entrepreneurship in shaping intentions. Conversely, the PBC (B=0.107, t=1.499, p=0.134) and SN (B=0.134, t=1.634, p=0.102) to EI paths are positive but inconsistent with the 5% level of significance. It means that the perceived ability to control entrepreneurial behaviour, as well as social pressures, is not decisive in intention in this model.

The study's findings reveal that attitude significantly positively affects entrepreneurial intention, but perceived behavioural control and subjective standards do not serve as major indicators of entrepreneurial intention among students. This indicates that students' self-assessment and perception of entrepreneurship are more significant than societal pressure or the perceived capability to initiate a firm. This outcome in Odisha might be ascribed to restricted access to financial resources, insufficient entrepreneurial infrastructure, apprehension regarding company failure, and a desire for stable employment, such as government positions. Despite possessing favourable attitudes toward entrepreneurship, students may lack confidence in their capacity to initiate a business due to financial and institutional obstacles. In Odisha, familial and social networks generally favour secure employment over entrepreneurship, hence diminishing the impact of subjective standards on entrepreneurial intentions. Consequently, the entrepreneurial ambition of students in Odisha is predominantly influenced by personal attitude rather than social pressure or perceived behavioural control.

Table 10: R-Square Values

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
EI	0.076	0.102	0.050	1.513	0.130

Source: Self-compiled.

Table-10 shows the R-square of Entrepreneurial Intention (EI). The initial sample R^2 is 0.076, the sample mean is 0.102, and the standard deviation is 0.050. The t-value of 1.513 and the p-value of 0.130 are lower, suggesting that the explained value is statistically insignificant at the 5% level. The implication of the result is that the predictors, attitude, perceived behavioural control, and subjective norms provide an explanation of 7.6% EI variation, which is regarded as a weak explanatory power. The implication of this is that even though the model explains a portion of the variance in the entrepreneurial intention, a significant portion is yet to be explained.

Table 11: PLS Predict LV Summary

	Q^2 Predict	RMSE	MAE
EI	0.031	0.999	0.738

Source: Self-compiled.

Table 11 gives the predictive ability of the model for entrepreneurial intention (EI). The Q^2 predicted value of 0.031 is positive, and this implies that the model possesses some small level of forecasting abilities of EI, but the effective impact is modest. Any value with a positive sign in PLS-SEM is an indication of a model that is doing better than the naive benchmarks, but when the values are near to zero, the model has limited predictive power. Root Mean Square Error (RMSE = 0.999) and Mean Absolute Error (MAE = 0.738) also help to understand the characteristics of the prediction better. Both values indicate that the error in prediction is still high, which means that the model is not very precise in predicting the results of EI.

5. Conclusion

The research investigated the antecedents of the "Entrepreneurial Intention" (EI) in graduate students in Odisha via what is known as the Theory of Planned Behaviour (TPB). It was observed that the measurement model provided resultant accepted reliability and validity of the latent constructs: Attitude (ATT), Perceived Behavioural Control (PBC), Subjective Norms (SN), and "Entrepreneurial Intention" (EI). The outer loadings, composite reliability, and discriminant validity scores were mostly within reasonable standards, which test the reliability of the constructs.

Only attitude had a statistically significant relationship with "entrepreneurial intention" (b = 0.141, p = 0.025), and it means that the more the students had positive attitudes toward entrepreneurship, the more likely they were to express entrepreneurial intention. Nevertheless, PBC and SN had negligible effects, indicating that control perceptions and social influence do not significantly determine outcomes in this scenario. The model accounted for 7.6 per cent of the variance in EI (R^2 = 0.076), which indicated a weak prediction performance.

The results of the study indicate that attitude is the only significant predictor of entrepreneurial intention, while subjective norms and perceived behavioural control are not significant. However, the model explains only 7.6% of the variance in entrepreneurial intention, indicating weak predictive power; therefore, conclusions should be interpreted cautiously. The results suggest that in the Odisha context, students' entrepreneurial intentions are influenced more by personal attitudes rather than social pressure or perceived control over entrepreneurial behaviour. This may be due to limited entrepreneurial infrastructure, lack of financial support, inadequate incubation facilities, and a traditional preference for salaried employment in the region. The low R^2 value further suggests that other important factors, such as entrepreneurial education, access to finance, institutional support, personality traits, and risk-taking ability, may play a significant role in shaping entrepreneurial

intention. Therefore, future research should incorporate these variables to develop a more comprehensive model of entrepreneurial intention.

The findings highlight the necessity of campaigns promoting a constructive attitude toward entrepreneurship among students. To have a favourable impact on the attitudes of students, the educational institutions and policymakers must work on establishing experiential learning settings and an entrepreneurial exposure programme. The insignificance of the PBC and SN would mean that students may view entrepreneurship as a personalised decision and a personal drive, but not directed by the factors of social or perceived controls. This observation can transform the design of the programmes to be more ideation-centred and mindset-centred.

The study carries several limitations, even though it makes its contributions. The students were taken randomly from two districts of Odisha, and the findings' external validity is restricted to a wider geographical or cultural setting. The cross-sectional research also does not allow drawing a causal conclusion. Also, the low explanatory power ($R^2 = 0.076$) indicates that other important predictors, including personality traits, access to resources, role models, or entrepreneurial education, were not used in the model.

The future research may broaden the sample to other geographical areas and fields of study to make it wider in application. It is possible to enhance the study by including more TPB extensions, such as entrepreneurial self-efficacy, innovativeness, risk-taking propensity, and perceived barriers. The longitudinal designs would be capable of measuring how the entrepreneurial intention changes with time when there is an educational intervention or a change in socio-economic conditions. Moreover, the qualitative approaches can reveal the hidden factors of motivation and hindrances that are absent in quantitative models.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2015). The theory of planned behaviour is alive and well and not ready to retire: A commentary on Sniehotta, Presseau, and Araújo-Soares. *Health Psychology Review, 9*(2), 131–137. https://doi.org/10.1080/17437199.2014.883474

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Prentice-Hall.

Farrukh, M., Khan, A. A., Khan, M. S., Ravan Ramzani, S., & Soladoye, B. S. A. (2018). Entrepreneurial intentions: The role of personality traits in perspective of theory of planned behaviour. *Asia Pacific Journal of Innovation and Entrepreneurship, 12*(3), 399–414. https://doi.org/10.1108/APJIE-01-2018-0004

Hassan, M. U., Anwar, I., Usman, M., & Hussain, A. (2021). The mediating role of entrepreneurial passion in the relationship between subjective norms and Entrepreneurial intentions among university students. *Journal of Innovation and Entrepreneurship, 10*(1), 1–17. https://doi.org/10.1186/s13731-021-00162-5

Kabir, M. R., Haque, A., Sarwar, A., & Zainuddin, Y. (2017). Entrepreneurial intention among university students: Empirical evidence from developing countries. *International Journal of Entrepreneurship*, 21(3), 1–18.

Khalifa, A. S., & Dhiaf, M. M. (2016). The impact of the theory of planned behaviour on "Entrepreneurial intention": Cognitive approach. *Journal of Business & Management, 18*(2), 77–90.

Kuttim, M., Kallaste, M., Venesaar, U., & Kiis, A. (2014). Entrepreneurship education at university level and students' Entrepreneurial intentions. *Procedia - Social and Behavioral Sciences, 110*, 658–668. https://doi.org/10.1016/j.sbspro.2013.12.910

Liñán, F., Nabi, G., & Krueger, N. (2011). British and Spanish Entrepreneurial intentions: A comparative study. *Revista de Economía Mundial, 33*, 73–103.

Malebana, M. J. (2014). Entrepreneurial intentions of South African rural university students: A test of the theory of planned behaviour. *Journal of Economics and Behavioral Studies, 6*(2), 130–143.

Mahmoud, M. A., Blankson, C., Owusu-Frimpong, N., Nwankwo, S., & Trang, T. P. (2020). Entrepreneurship education and Entrepreneurial intentions: The moderating role of passion. *Education + Training, 62*(5), 613–636. https://doi.org/10.1108/ET-02-2019-0036

Mahmoud, M. A., & Garba, A. S. (2019). Entrepreneurial intentions among Nigerian university students: The role of attitude, subjective norms and perceived behavioural control. *Journal of Entrepreneurship Education, 22*(3), 1–12.

Ogundipe, S. E., Kosile, B. A., Olaleye, S. O., & Aina, F. (2012). Entrepreneurial intention among business and counselling students in Lagos State University Sandwich Programme. *Journal of Education and Practice, 3*(14), 64–72.

Owoseni, O. O., & Akambi, P. A. (2010). Entrepreneurial intentions: A theoretical framework. *Journal of Management and Corporate Governance*, 2, 1–12.

Ryu, H. S., Kim, S. H., & Kim, H. J. (2010). The relationship among attitude, subjective norm, and behavioral intention in software piracy. *Journal of Business Ethics, 95*(4), 431–443. https://doi.org/10.1007/s10551-010-0432-3

Rasli, A., Khan, S. U. R., Malekifar, S., & Jabeen, S. (2013). Factors affecting Entrepreneurial intention among graduate students of Universiti Teknologi Malaysia. *International Journal of Business and Social Science, 4*(2), 182–188.

Rengiah, P., & Sentosa, I. (2017). The use of the theory of planned behaviour (TPB) in predicting entrepreneurship intention. *International Journal of Advanced and Applied Sciences, 4*(2), 124–128.

Shabbir, M. S., Shariff, M. N. M., & Shahzad, A. (2016). A conceptual development of entrepreneurial skills and Entrepreneurial intentions: A mediation role of entrepreneurial skills. *International Journal of Academic Research in Business and Social Sciences, 6*(2), 273–282. https://doi.org/10.6007/IJARBSS/v6-i2/2020

Sheppard, B. H., Hartwick, J., & Warshaw, P. R. (1988). The theory of reasoned action: A meta-analysis of past research with recommendations for modifications and future research. *Journal of Consumer Research, 15*(3), 325–343. https://doi.org/10.1086/209170

Sniehotta, F. F., Presseau, J., & Araújo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychology Review, 8*(1), 1–7. https://doi.org/10.1080/17437199.2013.869710

Students, D. T. U. (2021). Family background and Entrepreneurial intention among university students: Evidence from Ethiopia. *International Journal of Research in Business and Social Science, 10*(2), 48–56. https://doi.org/10.20525/ijrbs.v10i2.1042

Tadesse, S., & Batra, D. K. (2015). The impact of entrepreneurship education on Entrepreneurial intention of business and engineering students in Ethiopia: A comparative study. *Journal of Entrepreneurship Education, 18*(2), 1–14.

Taha, R. (2018). Entrepreneurial intention among undergraduate business students: Application of theory of planned behaviour. *Global Journal of Management and Business Research, 18*(1), 1–10.

Zimbroff, A., & Jorgensen, J. (2019). Predicting Entrepreneurial intentions: A conceptual framework and empirical assessment. *Journal of Entrepreneurship Education*, 22(4), 1–13.

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Does IFRS Convergence Improve Firm Performance in an Emerging Economy? Quasi-Experimental Evidence from Mandatory Ind AS Adoption in India

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IFRS Convergence; Ind AS; Financial Performance; Return on Assets; Difference-in-Difference; Panel Data

JEL Classification
M41; M48; G14; G15; C23

Abstract: This study investigates whether the mandatory adoption of IFRS enhances the financial performance of non-financial companies listed on the National Stock Exchange (NSE). This study estimates a within-firm Difference-in-Differences (DiD) panel regression on 1,692 firm-year observations from 282 firms, where identification is based on within-firm variation across time rather than a distinct never-treated control group. The main outcome variable is return on assets (ROA). The Pooled OLS, Two-Way Fixed Effects, and Random Effects estimators are compared, with model selection guided by the Hausman test. Our firm-level controls include operating cash flow, inventory intensity, receivables, leverage, and size. The preferred Random Effects model shows that mandatory Ind AS adoption leads to an increase in ROA of about 1.52 percentage points ($\beta_1 = 0.0152$, $p < 0.01$). ROA is most negatively associated with inventory intensity, while cash flow from operations is the dominant predictor of profitability in this subdomain. The cutting-edge DiD design provides rare quasi-experimental evidence on the actual economic effects of IFRS convergence in an emerging economy with a code-law system, concentrated ownership, and a gradual regulatory transition.

1. Introduction

The globalisation of financial markets has put pressure on the convergence of accounting principles across jurisdictions. International Financial Reporting Standards (IFRS) have become a prominent development in the global accounting harmonisation scenario as implied by the consensus to converge into IFRS by more than 140 jurisdictions (IASB, 2023). Burgeoning support for these international accounting standards was driven by the European Union Regulation 1606/2002, which required full IFRS adoption from 2005 onward for all EU-listed companies and kick-started pivotal worldwide reforms to national accounting frameworks (Soderstrom & Sun, 2007). This moment of regulatory turmoil had a domino effect that forced other major economies, including India, to seriously rethink their domestic accounting systems. India's path toward accounting harmonisation has relied upon a full convergence approach, instead of the absolute adoption of IFRS. The then Finance Minister of India, P. Chidambaram, proposed the initial adoption of the Indian version of IFRS by 2011 in 2006. But the migration faced major structural barriers like misalignment between IFRS requisites and several segments of the Companies Act 1956, disagreement with tax laws applicable to current businesses in the country, and larger domestic opposition to principles-based reporting (Banerjee, 2011). Such institutional restrictions forced the evolution of a distinctly Indian IFRS - Indian Accounting Standards (Ind AS) - that converged with IFRS to a large extent while carving out some features for intricate coordination with regulations and the socio-economic landscape (Sunder, 2011). The pending proposition took flight after the announcement of voluntary adoption by the year 2014-2015 and mandatory adoption by 2016-2017 from the Ministry of Corporate

Affairs in 2015 for voluntary adoption. The initial compulsory phase covered listed and unlisted firms with a net worth of Rs 500 crore or more, and in subsequent phases, the companies had to have a net worth of Rs 250 crore or more. This staged implementation provided a unique natural experiment that allows for rigorous empirical testing of the financial performance implications of accounting standard change (Leuz and Wysocki, 2016). To that end, the key question this study seeks to answer is whether mandatory Ind AS convergence (per se) led to any statistically significant improvement in firm financial performance as measured by a proxy such as return on assets, controlling for other confounding firm-level and macroeconomic factors. The Accounting Standards Board defines material information as that which could change users' decision-making (ASB, 1995, para. (e.g., Sph 2.7) - highlights the presumption that higher reporting quality will yield better economic outcomes as well. This study empirically tests that presumption using a Difference-in-Differences setup, which has become extensively used in the accounting literature to estimate causal effects of mandatory changes in accounting regimes (Bertrand et al., 2004; Roberts and Whited, 2013). Since Phase I Ind AS adoption was mandatory and simultaneous for all non-financial listed firms with a net worth of ₹500 crore or more, no comparable group of large listed firms remained untreated during 2017–2019. The absence of a separate control group is therefore a structural feature of this regulatory setting - not a design limitation. According to Bertrand et al. (2004) and Baker et al. (2022), identification relies on within-firm variation across time such that each firm's pre-adoption period (2014–2016) serves as its own counterfactual, where firm fixed effects absorb all time-invariant unobserved heterogeneity, an external control group would be required to account for. The rest of this paper is organised as follows. Section 2 reviews the theoretical and empirical literature on IFRS adoption and firm performance. Section 3 outlines the research design, sample selection, and variable construction. Section 4 also presents and interprets the empirical results. Section 5 contains the implications of the study findings and the limitations.

2. Literature Review

IFRS has held prominence in the global accounting system over the past two decades as a result of long-standing visionary fulfillment for the proponents of accounting harmonisation. IFRS adoption is a multi-disciplinary area of research, including fields such as financial accounting, corporate governance, capital market studies, and institutional theory. This paper synthesises available literature thematically — starting with theoretical rationale for IFRS adoption, then empirical evidence on financial reporting quality and firm performance effects of IFRS (International Financial Reporting Standards) implementation, and finally concluding with the tributary stream of research in the direct context of IFRS convergence in India.

2.1. Theoretical Background of IFRS Adoption

The motivation towards accounting harmonization due to IFRS can be examined by using three main theoretical viewpoints: Agency Theory, Stakeholder Theory, and Institutional Theory. Each theory explains a motivation underlying the adoption and the impact of IFRS convergence.

2.1.1. Agency Theory

According to agency theory by Jensen and Meckling (1976), information asymmetry results in conflicting interests between the principal (shareholders) and agent (management). Managers, having better private information regarding firm operations and performance, may then act in ways that do not align perfectly with the interests of shareholders. In such a context, high-quality financial reporting acts as a disciplinary device since its presence alleviates the information asymmetry between the parties (Chidambaran et al., 2002). By establishing more transparent, internationally comparable disclosure standards, IFRS theoretically is poised to potentially lower agency costs and strengthen the quality of financial communication (Barth et al., 2008). Healy and Palepu (2001) further argue that information intermediaries, such as auditors and financial analysts, will be crucial for the realization of high-quality accounting standards resulting in credible disclosures, which is a precondition to any agency-cost reduction associated with IFRS adoption.

However, an empirical study showed inconsistency with the theoretical predictions. Barghathi et al. (2025) find an increase in earnings management across 70 firms during India's first phase of voluntary IFRS adoption, despite theoretical expectations to the contrary. Ahmed et al. (2013), in a different context, also find that after mandatory IFRS adoption, firms engage more in income smoothing and use more accruals, depending on jurisdictional rules; i.e., principles-based flexibility can be used as an opportunity rather than a restriction. Zéghal et al. (2011) report a sharp reduction in accruals-based earnings management post IFRS adoption in France, and emphasize institutional context as a moderator of whether IFRS adoption exerts strengthening or weakening effects on managerial discipline. Together, these findings suggest that IFRS adoption in itself does not lead to agency cost reductions of the type envisaged by theory.

2.1.2. Stakeholder Theory

Stakeholder theory encompasses a larger portion of the population as users of corporate reporting, including creditors, employees, customers, regulators, and the public (Freeman 1984). IFRS adoption, under this framework, is perceived as a device to enhance accountability and openness to all stakeholders. FASB (1995, para. 2.7) defines material information as any information that could affect the decisions of users a cornerstone concept underpinning the enhanced disclosure philosophy behind IFRS. In India, where business material information is highly concentrated among family-oriented businesses, public enterprises, and retail investors, material disclosures are highly valued. The economic implications of accounting standards can be vitally important under certain conditions. Ball (2006) argues that the economic effects of accounting standards critically depend upon the incentives of preparers and institutional enforcement context, both of which vary widely across stakeholder systems. Ioannou & Serafeim, (2012) also evidence that stakeholder-oriented reporting frameworks are associated with improved corporate conduct and natural value creation more closely aligned with society's large aspirations of IFRS convergence in India.

2.1.3. Institutional Theory

Institutional theory (DiMaggio and Powell, 1983) suggests that organisations follow practices in reaction to coercive, normative, and mimetic pressures from the institution. We observe that the export of IFRS internationally is justified by coercive pressure from regulators and the IASB, normative pressure from professional accounting bodies and mimetic pressure from countries that wish to send out a signal of alignment with globally accepted best practice – three distinct but interrelated isomorphic mechanisms. Under the isomorphic pressure, India faces an institutional challenge of legal, political, and corporate regulation differences that hamper the swift adaptation to the new accounting standard (Ernst and Young, 2007). According to Nobes (2006) the application of IFRS to local practice is embedded within existing legal, taxation, and ownership systems in adopting countries, which may crystallise significant differences between domestic reporting outcomes as opposed to the ideal outputs that IFRS was created for. Ramanna and Sletten (2014) also show that stronger political power relative to the IASB leads countries to make changes to IFRS standards to accommodate local interests.

2.2. IFRS Adoption and Financial Reporting Quality

2.2.1. Value Relevance

Value relevance measures the proportional relationship between the material information of corporate information and stock market valuation. Barth et al. (2008) find that IFRS adopters show increased value relevance of earnings and book values compared to local GAAP reporters, as well as improved earnings quality and less accruals management. Examining the German experience, Paananen and Lin (2009) document temporal variation in value relevance effects and stress, measuring both short-run and long-run consequences of accounting transitions. Financial studies from Morais and Curto (2009) showed improved value relevance with a variation in the degree depending on the country's institutional factors. Landsman et al. (2012) back the findings through data from 16 countries reporting significant reductions in bid-ask

spreads and increases in trading volume around the mandatory IFRS adoption date. Horton et al. (2016), represent the mandatory IFRS adoption as a model of better quality of analysts' earnings forecasts, indicating that better reporting information in turn leads to lower costs on information processing by various market participants and results in clearer price formation.

2.2.2. Earnings Management and Reporting Discretion

It is theoretically ambiguous as to whether IFRS adoption leads to more or less earnings management. IFRS is a principle-based approach that may decrease discretionary manipulation but allows for more latitude to managerial judgement. In India, Barghathi et al. (2025) paradoxically report an increase in earnings management post voluntary Ind AS adoption. Ahmed et al. (2013) also find evidence of increased accruals-based earnings management among some mandatory IFRS adopters, whereas Christensen et al. (2015) show that the actual performance improvements after IFRS adoption are mostly found in those countries in which there were simultaneous improvements in enforcement. In contrast, Zéghal et al. (2011) provide evidence from France that IFRS adoption is related to lower discretionary accruals and improved earnings quality. Ewert and Wagenhofer (2005) theoretically show that stricter accounting standards reduce earnings management, which in turn contributes to increasing the informativeness of reported earnings, as such potentially providing a theoretical basis for beneficial performance effects found in this study. Yet the mixed evidence still collectively motivates using ROA, a performance-based metric less prone to being distorted by earnings management, as the dependent variable.

2.2.3. Accounting Comparability and the Gray Comparability Index

Another beneficial aspect of IFRS adoption is the financial report comparability of firms and among different jurisdictions. The comparability index of Gray, as applied by Weetman et al. (1998), applies a quantitative framework that compares the profit and equity under various accounting systems. Hughes and Sander (2007) investigate IFRS–US GAAP divergence through this lens, finding that differences remain due to recognition and measurement discrepancies. De George et al. (2016), upon reviewing the IFRS adoption literature, suggest that comparability actually increases significantly after the mandatory adoption of IFRSs, which leads to reductions in information processing costs and improvements in cross-border investment. Young and Guenther (2003) report a similar finding when they show that impediments to international capital flows are reduced by pan-European accounting harmonisation, thus providing an economic justification for the move towards global accounting convergence. Brochet et al. (2013) also find declines in insider trading profitability after mandatory IFRS adoption, consistent with reduced information asymmetry between corporate insiders and outside investors.

2.3. IFRS Adoption and Firm Financial Performance

2.3.1. Capital Market Effects

Daske et al. (2008), in a comprehensive study across 26 countries, find evidence of significant reductions in the cost of equity capital, increases in market liquidity, and higher firm valuations after mandatory IFRC adoption. These results were concentrated on jurisdictions with stringent legal institutions and enforcement infrastructure. In support of this, Li (2010) shows that mandatory adoption of IFRS, which reduces estimation risk through high-quality accounting information, can lower the cost of equity capital of EU firms in a sizable manner by 50 basis points. Hail and Leuz (2006) provide more general evidence that better legal environments and higher disclosure quality are associated with significantly lower cost of equity capital, in line with the benefits we expect from IFRS convergence in India. Stergios et al. (2005), focusing on Greece, find substantial impacts on reported financial statement numbers post IAS adoption, encouraging the DiD methodology matched here to decompose true performance contemporaneous effects from accounting reclassification ones.

2.3.2. Performance Effects in Developing and Emerging Economies

The impact of IFRS adoption on financial performance has been increasingly the subject of research in developing and emerging market economies, although the evidence to date is mixed. Nepal and Deb (2024) study of Indian-listed manufacturing firms found that IndAS adoption affects profitability outcomes depending on the firm size and industry segment. Gordon et al. (2012) study of IFRS adoption over a wider cross-section of developing countries found heterogeneous effects that depend on the strength of domestic institutions as well as capital market development. Interestingly, Nnadi and Soobaroyen (2015) show that the most significant effects are actually on foreign direct investment into African firms, indicating additional signalling benefits associated with IFRS convergence to broader regional economic impact beyond firm financial performance. Conditions that partly describe India's large-cap corporate sector are the observation by Zehri and Chouaibi (2013) that developing countries with common law legal systems, higher economic openness, and more robust capital markets benefit most from IFRS adoption. This implies that macroeconomic context (including the sophistication of financial markets, the structure of tax systems, and so on), which all affect how effective IFRS implementation is going to be in these countries, shapes accounting system development in these emerging economies of varieties of Capitalism (Salter & Niswander, 1995).

2.3.3. The Role of Control Variables

The empirical literature consistently identifies numerous firm-level attributes as important determinants of financial performance that may confound estimated IFRS effects in pre-post designs. Commonly used control variables in this literature include operating cash flow, leverage, firm size, inventory intensity, and receivables management (Barth et al., 2008; Nepal and Deb, 2024). Dechow (1994) documents cash flow from operations as a reliable predictor of ROA, showing that accrual accounting is an improvement over cash flows for assessing short-term firm performance. Fama and French (1995) document that firm size, measured as the natural logarithm of total assets, reflects the scale effects typically negatively related to ROA in large-firm samples due to diminishing returns to scale. Modigliani and Miller (1963) showed that leverage creates financial risk, which will magnify or dampen profitability based on the conditions of interest rates at that time. Sloan (1996) shows that the persistence of the accruals component of earnings is lower than that of its cash flow component, thus also substantiating this previously mentioned inclusion and control variable, operating cash flow, isolating real economic performance from bookkeeping-induced variation in ROA.

2.4. IFRS Convergence in India: Context and Prior Evidence

India's approach of convergence through interweaving IFRS carve-outs reflects the complexity behind the code law-regulated promoter-dominated firms. The phased mandatory adoption framework provides a natural experiment structure for pre- and post-comparability, as the first mandatory cohort comprised of firms with a net worth of ≥ Rs 500 crores for the financial period of 2017. Empirical evidence on the consequences of IndAS adoption in India is limited; however, over the course of time, studies related to the IndAS adoption impact on the literature are growing. Direct evidence of accounting harmonization improved the decision usefulness of financial reporting in the Indian context through a significant enhancement in the value relevance of both earnings and book values among India's largest listed companies after the IndAS application was found by Lodha et al (2020) in their application of Ohlson (1995) pricing model to a panel of Nifty 50 firms. Their finding about large, blue-chip firms' strong reactions on value relevance following IndAS adoption serves as an important focus for the present study as a similar focus on first-phase mandatory adopters characterised by large net worth and significant capital market visibility, is the area of interest for the current study. Bansal and Garg (2021) extend the evidence of mandatory IndAS adoption further to accounting quality, which showed significance, including reductions in discretionary accruals and enhanced earnings persistence. Eventually, the implication of the result meant strengthened reliability and comparability of financial information after the IndAS adoption. Adhiri et al. (2021) corroborated the findings with their result of improved accounting

quality, reduced information asymmetry, and positive capital market responses on the examination of economic consequences of IndAS adoption using a broader sample of listed companies, which were consistent with the theoretical predictions of agency theory and international evidence documented by Barth et al.(2008) and Daske et al (2008). The broader international experience offers different but instructive parallels. Daske and Gebhardt (2006) find that in Germany, voluntary IFRS adopters are associated with lower cost of capital and higher market liquidity, while Soderstrom and Sun (2007) provide evidence that the benefits of IFRS adoption depend critically on pre-existing domestic accounting standards, a critical finding for India, where prior Indian GAAP standards diverged widely from principles set out by IAS / IFRS in many areas including financial instrument recognition; consolidation and segment reporting. Despite the increasing amount of evidence, there are still several gaps in the literature. First, the majority of studies combine voluntary and mandatory adopters, thus confounding causal inference. Second, the same year for pre-post comparisons is vulnerable to idiosyncratic year effects. Third, compared to DiD with two-way fixed effects used here, the earlier Indian IFRS literature has largely less rigorous identification strategies. Fourth, in line with Callaway and Sant'Anna (2021), the current analysis uses a clean pre-post design confined to one adoption cohort, and it avoids biases associated with multi-cohort DiD situations as outlined by Goodman-Bacon (2021). Fifth, since endogeneity concerns are common in corporate finance research (Roberts and Whited, 2013), the mandatory nature of first-phase adoption here mitigates this concern by providing a plausibly exogenous source of variation in the accounting regime. Sixth, it contributes to the institutional discussion of whether IFRS provides theoretical advantages in an emerging economy with a code-law legal system under a phased convergence regime.

3. Research Methodology

3.1. Research Design

This study employs a within-firm (single-group) Difference-in-Differences (DiD) design, in which causal identification relies on temporal variation within the same firms rather than on a separate untreated control group. While traditional DiD frameworks compare treated and untreated groups, recent econometric literature recognises that valid identification can also be achieved in settings where all units are exposed to treatment simultaneously, provided that pre-treatment observations serve as a credible counterfactual (Bertrand et al., 2004; Goodman-Bacon, 2021; Callaway and Sant'Anna, 2021). In the present context, Phase I Ind AS adoption was mandatory and applied uniformly to all non-financial listed firms with a net worth of ₹500 crore or more, leaving no comparable untreated group during the post-adoption period (2017–2019). Consequently, each firm's pre-adoption period (2014–2016) serves as its own counterfactual. Firm fixed effects absorb all time-invariant heterogeneity, while year fixed effects control for common macroeconomic shocks. Therefore, the absence of a separate control group is not a limitation of the research design but rather a structural feature of the regulatory setting, and the within-firm DiD estimator provides a credible quasi-experimental framework for identifying the effect of Ind AS adoption.

3.2. Sample Selection and Data Sources

The target population comprises non-financial firms listed on the National Stock Exchange (NSE) of India that were required to transition their financial statement preparation and presentation to Ind AS for IndASs first tranche of mandatory adoption applicable to entities having a net worth of Rs 500 crore or more from the financial year 2016–2017. Financial entities, such as banks, insurance companies, and non-banking financial corporations, are excluded due to their fundamentally different structure in terms of financial reporting and performance metrics compared to non-financial entities (Barth et al., 2008). Financial data were obtained from the Prowess database, produced by the Centre for Monitoring Indian Economy (CMIE), in line with prior research using accounting data in India (Nepal and Deb, 2024; Barghathi et al., 2025). After removing financial firms, firms with missing data across the six-year study window, and extreme outliers (five or more standard deviations away from the sample mean ROA), the final sample includes 282 firms, resulting in 1,692 firm-year observations for the period 2014–2019.

3.3. Variable Measurement

ROA is the dependent variable, calculated as profit after tax to total assets. The ROA is a commonly used overall measure of firm-level financial performance (Fama and French, 1995) and reflects how efficiently a firm converts its asset base into earnings. Retaining the corroborative proxies, it is less affected by earnings management disturbances as compared to accruals-based measures (Dechow, 1994; Sloan, 1996) and thus suitable for analyzing the actual performance implications of the adoption of IFRS in a regime in which discretion for reporting can be observed to have escalated (Barghathi et al., 2025). The main explanatory variable, POST, is a binary dummy equal to one for firm-year observations in the post-adoption period (2017–2019) and zero for those in the pre-adoption period (2014–2016). Its coefficient, β1, measures the average treatment effect of IFRS adoption on ROA while controlling for firm-level characteristics and fixed effects. To ensure that the IFRS effect is disentangled from other determinants of financial performance, five control variables are included. Cash flow from operations (CF) is scaled by total assets to reflect how efficiently the entity generates cash through its operations (Dechow, 1994). Inventory (INV) is computed by dividing inventory by total assets, and serves as a proxy for the effectiveness of working capital management. The receivables (REC) is calculated as trade receivables/ total assets, which reflects the efficiency of collection. Leverage (LEV) is measured as the ratio of total debt to total assets and presents financial risk (Modigliani and Miller, 1963). Readers should note that LEV values cluster near unity in this sample (mean = 0.9995), which may reflect total liabilities rather than total debt in the underlying data. This limits within-firm variation and should be verified against the source data in future replications. Second, we introduce firm size (Size) as a control variable measured by taking the natural logarithm of total assets, which is a common proxy for scale (Nobes, 2006). Firm and year dummies (αi, γt) account for time-invariant firm features and common shocks at a particular point in time.

3.4. Model Specification

This study's panel regression model used in this study is expressed as follows:

$$ROA_{it} = \beta_0 + \beta_1 POST_{it} + \beta_2 CF_{it} + \beta_3 SIZE_{it} + \beta_4 INV_{it} + \beta_5 REC_{it} + \beta_6 LEV_{it} + \alpha i + \gamma t + \epsilon it$$

where the subscripts i and t indicate firm and year, respectively; αi is a firm-specific fixed effect, which accounts for all time-invariant unobserved heterogeneity; γt is a year fixed effect that accounts for economy-wide shocks common to all firms, and εit is the idiosyncratic error term. We apply three estimators: Pooled OLS, Two-Way Fixed Effects (within estimator), and Random Effects (Swamy-Arora GLS). The Hausman (1978) specification test decides between Fixed Effects and Random Effects based on whether the firm-specific effects are systematically correlated with the regressors. The Random Effects model is selected as the preferred specification, and all main inferences are drawn from this model. Standard errors are calculated to be robust to potential heteroskedasticity and serial correlation in the panel error structure (Wooldridge, 2010); it is recommended when using DiD panel designs to use clustered or robust standard errors.

4. Empirical Results

4.1. Descriptive Statistics

Descriptive statistics for all variables used in this study are provided in Table 1. The final sample includes 1,692 firm-year observations of 282 firms from the years 2014–2019, encompassing three pre-IFRS convergence years (2014–2016) and three post-IFRS convergence years (i.e., 2017–2019). Mean return on assets (ROA) for the full sample is 0.0714, with a standard deviation of 0.1478, indicating substantial cross-firm variation in profitability, which is consistent with the heterogeneity of performance reported for Indian listed firms by Nepal and Deb (2024). The mean of the POST dummy variable in this data is approximately 0.50, consistent with the balanced panel design. The average (mean) cash flow from

operations (CF), relative to total assets, was 0.0966, while the mean ratios of inventory and receivables relative to total assets were 0.1630 and 0.2176, respectively. The leverage ratio (LEV), built from the raw total debt figures in the dataset, hovers around unity for most observations.

Table 1: Descriptive Statistics

Variable	Role	N	Mean	SD	Min	Max
ROA	Dependent	1,686	0.0714	0.1478	0.0000	4.1200
POST	Main (DiD)	1,686	0.4982	0.5001	0.0000	1.0000
CF	Control	1,686	0.0966	0.3053	0.0000	12.0867
INV	Control	1,686	0.1630	0.1540	0.0000	0.9233
REC	Control	1,686	0.2176	0.1521	0.0000	0.9282
LEV	Control	1,686	0.9995	0.0205	0.1600	1.0000

Note: ROA = Profit After Tax / Total Assets. POST = 1 for post-IFRS period (2017–2019), 0 for pre-IFRS period (2014–2016). CF = Cash Flow from Operations / Total Assets. INV = Inventory / Total Assets. REC = Receivables / Total Assets. LEV = Total Debt / Total Assets. Sample: 282 firms, 6 years (2014–2019).
Source: Self-compiled.

4.2. Pre- and Post-IFRS Period Comparison

Table 2 compares means for the variables between pre-IFRS (2014–2016) and post-IFRS (2017–2019) using two-sample t-tests. With a total of 846 observations per period and the Central Limit Theorem, it means that regardless of whether the underlying variables follow a normal distribution or not, we can use t-tests for making inferences (Bertrand et al., 2004). The findings show that IFRS adoption significantly increases firm profitability. The mean ROA increased from 0.0616 in the pre-adoption period to 0.0812 in the post-adoption period with a difference of 0.0196, which is significant at the 1% level ($t = -2.725$, $p = 0.007$). This initial evidence suggests that Ind AS convergence has potential for a positive impact on firm financial performance in India, which is consistent with the international evidence reported by Daske et al. (2008) and Li (2010). Of the control variables, inventory (INV) consistently decreased from 0.1726 to 0.1534 ($p = 0.010$), indicating lower relative inventory holdings in the post-adoption window. There are no statistically significant differences in cash flow (CF), receivables (REC), and leverage (LEV) across periods, suggesting that these controls were generally stable over time and unlikely to confound the detected change related to ROA.

Table 2: Mean Comparison: Pre-IFRS vs Post-IFRS Period

Variable	Pre-IFRS Mean	Post-IFRS Mean	Difference	t-statistic	p-value
ROA	0.0616	0.0812	0.0196	−2.725	**0.007*** **
CF	0.0914	0.1018	0.0105	−0.704	0.482
INV	0.1726	0.1534	−0.0193	2.574	**0.010** **
REC	0.2142	0.2210	0.0068	−0.919	0.358
LEV	0.9990	1.0000	0.0010	−0.996	0.319

Note: *** p < 0.01, ** p < 0.05, * p < 0.10. Two-sample t-test for equality of means. Given the large sample size (n = 846 per period), the Central Limit Theorem ensures the sampling distribution of the mean is approximately normal, validating the use of t-tests.
Source: Self-compiled.

4.3. Model Fit

Table 3 shows that the preferred Random Effects Model explains approximately 47% of the variance in ROA (Conditional R-squared = 0.4728). The overall model is highly statistically significant (F = 251.09, p <.001). The Two-Way Fixed Effects specification provides a slightly higher within R-squared of 0.5119. Results show that the adjusted R-squared for a Pooled OLS model is 0.4714, which was consistent across specifications. These fit metrics are consistent with the R-squared values reported in similar studies of IFRS performance (Nepal and Deb, 2024; Gordon et al., 2012).

4.4. Panel Regression Results

The DiD panel regression model is estimated in three specifications: Pooled OLS, Two-Way Fixed Effects (firm and year), and Random Effects to estimate the causal relationship of IFRS adoption on ROA, controlling for firm-level characteristics as well as unobserved heterogeneity. Table 3 reports the results. Using three specifications is a best practice for estimating panel data following the recommendations of Wooldridge (2010), and allows us to evaluate how stable coefficients are over different estimators, while also introducing transparency about unobserved heterogeneity.

Table 3: Panel Regression Results - Dependent Variable: ROA

Variable	Role	Pooled OLS		Two-Way Fixed Effects		Random Effects	
		Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
POST	Main	**0.0150*** **	0.004	−0.0322	0.507	**0.0152*** **	0.004
CF	Control	**0.3284*** **	0.000	**0.3264*** **	0.000	**0.3281*** **	0.000
INV	Control	**−0.0593*** **	0.001	0.0218	0.641	**−0.0482***	0.056
REC	Control	0.0054	0.757	0.0145	0.733	0.0065	0.794
LEV	Control	−0.0538	0.675	−0.1285	0.317	−0.0763	0.573
Constant		0.0944	0.461	—	—	0.1148	0.395
R-squared		0.4729		0.5119		0.4728	
Adj. R-squared		0.4714		—		—	
F-statistic		301.48***		292.87***		251.09***	
N		1,686		1,686		1,686	
Firm FE		No		Yes		GLS	
Year FE		No		Yes		No	

Note: *** p < 0.01, ** p < 0.05, * p < 0.10. Two-Way Fixed Effects includes firm and year fixed effects estimated via iterative demeaning. Random Effects estimated using Swamy-Arora GLS.
Model: $ROA = \beta 0 + \beta 1POST + \beta 2CF + \beta 3INV + \beta 4REC + \beta 5LEV + \alpha i + \gamma t + \varepsilon it$.
Source: Self-compiled.

4.5. Hausman Specification Test

The appropriate panel estimator is determined by a Hausman specification test. If we assume the null hypothesis should hold, the biases from individual firm-specific effects are uncorrelated with respect to regressors, and therefore the Random Effects estimator will be consistent and efficient. The alternative hypothesis is that firm effects are correlated with the regressors, and this correlation warrants Fixed Effects for consistency (Hausman, 1978).

Table 4: Hausman Specification Test

Test Statistic	Degrees of Freedom	p-value
$\chi^2 = 4.1337$	5	0.5303

Note: H0: firm-specific effects uncorrelated with regressors (Random Effects consistent and efficient). H1: firm effects correlated with regressors (Fixed Effects required). Failure to reject H0 ($p = 0.5303 > 0.05$) indicates Random Effects is the preferred specification.
Source: Self-compiled.

Hausman test produces a chi-squared statistic of 4.1337 (5 degrees of freedom) and the p-value equals 0.5303. The null hypothesis is not rejected since $p = 0.5303$ is larger than the commonly used significance level of 5%. This result, in line with the evidence presented in Daske et al. (2008) in cross-country IFRS studies, states that horizontal firm effect and the regressors in this sample are uncorrelated, such that the random effects estimator is identified as the preferred specification.

4.6. Interpretation of Key Results

The empirical results from all three model specifications are reported below, with particular focus on the preferred Random Effects model.

4.6.1. Effect of IFRS Adoption (POST)

The POST coefficient is both positive and statistically significant at the 1% level in specifications using Pooled OLS ($\beta1 = 0.0150$, $p = 0.004$) and Random Effects ($\beta1 = 0.0152$, $p = 0.004$). We find that adoption of Ind AS is associated with an increase in ROA of about 1.52 percentage points after controlling for operating cash flow, inventory intensity, receivables, and leverage. This finding strongly supports the notion that mandatory IFRS convergence leads to improved firm-level financial performance, echoing prior academic work demonstrating enhanced reporting quality, comparability, and investor confidence after adoption of IFRS (Barth et al., 2008; Daske et al., 2008; Li, 2010; Horton et al., 2013). In the Two-Way Fixed Effects specification, the POST coefficient loses statistical significance ($\beta1 = -0.0322$, $p = 0.507$). This is a well-known econometric problem in DiD designs with common treatment timing, where when all firms receive the treatment simultaneously and year fixed effects are added, the POST dummy gets collinear with the year dummies and hence causes failure of independent identification of treatment effect (Callaway and Sant'Anna, 2021; Goodman-Bacon, 2021). Consequently, the Random Effects estimate is more suitable for revealing the size of IFRS influence in this analysis.

4.6.2. Cash Flow from Operations (CF)

Across all three model specifications, the CF variable is also the most significant predictor of ROA. We report the liquidity channel between CF and ROA in the preferred Random Effects model, where CF has a coefficient of 0.3281 ($p < 0.001$), suggesting that an increase by one standard deviation in operating cash flow scaled by total assets is associated with an increase of approximately 0.33 units in ROA. This result corroborates Dechow (1994) and Sloan (1996), who show that operating cash flows are strongly predictive of future firm performance. Stability of the CF coefficient across Pooled OLS ($\beta2 = 0.3284$), Fixed Effects ($\beta2 = 0.3264$), and Random Effects ($\beta2 = 0.3281$) provides additional evidence regarding the robustness of our results.

4.6.3. Inventory Intensity (INV)

In the Pooled OLS specification, we again find a negative and significant association between INV and ROA ($\beta3 = -0.0593$, $p = 0.001$), with marginal significance in the Random Effects model ($\beta3 = -0.0482$, $p = 0.056$). This indicates that companies hold in stock a larger proportion of their assets and report lower profitability, in line with working capital inefficiency referred to in the previous literature. $p = 0.641$, not significant in the Two-Way Fixed Effects model/indicates that the inventory-profitability relationship is partly driven by between-firm structural differences compared to within-firm time.

4.6.4. Receivables (REC) and Leverage (LEV)

Neither receivables (REC) nor leverage (LEV) is statistically significant across the three model specifications. The coefficients of REC are consistently close to zero across models (Random Effects: $\beta4 = 0.0065$, $p = 0.794$), and LEV remains statistically insignificant (Random Effects: $\beta5 = -0.0763$, $p = 0.573$). Although Modigliani and Miller (1963) suggest that leverage has an influence on firm value under imperfect capital markets, the absence of a material effect for LEV here also likely reflects the near-unity values for LEV in the dataset, which greatly restrain within-firm variation. For example, Hail and Leuz (2006) show that the effects of disclosure quality on cost of capital are strongest in high-enforcement jurisdictions; the insignificant LEV result may partially reflect limited enforcement-related benefits in India during the period studied.

4.6.5. Findings and Discussion

The panel regression analysis yields consistent and statistically significant evidence supporting that the Ind AS adoption had a positive impact on firm financial performance (ROA). According to the preferred random effects model, the average ROA among firms was approximately 1.52 percentage points higher ($\beta1 = 0.0152$, $p < 0.01$) in the post-IFRS period as compared to the pre-IFRS period after controlling for operating cash flow, inventory, and receivables, as well as leverage (Model C). Cash flow from operations appears as the dominant control variable in Panel A, highlighting the importance of operational efficiency in generating asset returns, a well-known result (Dechow (1994), Sloan (1996), Fama and French (1995)).

5. Conclusion

The empirical findings of this study have several theoretical and practical implications. We find that mandatory Ind AS adoption is associated with significant improvement in ROA, which provides empirical evidence for the agency theoretic argument that better quality of financial reporting help to reduce information asymmetry and also increase the efficiency of managerial decisions (Jensen and Meckling, 1976; Healy and Palepu, 2001). As firms grapple with internationally accepted, disclosure-heavy framework, they are perhaps forced into more rigorous accounting practices, better internal controls, and greater conservatism in asset management, which would all show up in higher asset returns. This result is consistent with Barth et al. (2008), Daske et al. (2008), Li (2010), and Horton et al. (2013), who find positive economic effects of mandatory IFRS adoption worldwide. This finding, however, does not allow for an unqualified endorsement of the agency theory prediction. The insignificance of the Post coefficient in the Two-Way Fixed Effects model warrants caution against overstating causal interpretation, as collinearity between the treatment dummy and year fixed effects under common treatment timing is a well-documented issue in single-cohort DiD designs (Callaway and Sant'Anna, 2021; Goodman-Bacon, 2021).

Regarding the parallel trends assumption, a necessary condition for DiD identification, it bears emphasis that the within-firm design employed here does not require a never-treated external control group for the assumption to hold. As Baker, Larcker, and Wang (2022) confirm, DiD estimates are unbiased under a single simultaneous treatment period, and the firm fixed effects (αi) serve precisely the role that an external control group would serve in a classical 2×2 DiD, by absorbing each firm's baseline trajectory and isolating the post-adoption deviation attributable to Ind AS. The mandatory and exogenous nature of Phase I adoption further mitigates self-selection concerns that would otherwise threaten identification (Roberts

and Whited, 2013). Nevertheless, future research employing Phase II adopters as a comparison cohort, or using instrumental variable or regression discontinuity designs, would further strengthen causal claims beyond what the present quasi-experimental framework can establish." At least from an institutional theory perspective (DiMaggio and Powell, 1983), the study provides evidence that coercive adoption elicit measurable performance improvements even in environments where the institutional infrastructure for accounting enforcement is less developed, again supporting Christensen et al. (2015) cross-country evidence. The observation by Ramanna and Sletten (2014) that powerful countries are able to co-opt IFRS standards to meet their local requirements is evidenced in the case of India's Ind AS framework. The findings show that even a path of modified convergence can deliver tangible economic benefits.

For investors and analysts, the non-realisation of smooth ROA post-Ind AS adoption indicates that financial statements prepared by initial phase Ind AS adopters contained more information and are more decision-useful than those prepared by their predecessors. The greater comparability of Ind AS statements, both within India and with IFRS-using international peers, allows for more meaningful cross-firm performance benchmarking, thereby reducing the information disadvantage faced by retail investors vis-à-vis the institutional players, consistent with evidence of Landsman et al. (2012) and Brochet et al. (2013) on liquidity and information asymmetry improvements due to IFRS adoption. Hail and Leuz (2006) further show that higher quality of disclosure is associated with lower cost-of-equity capital for firms, an advantage that accrues gradually to investors in first-phase Ind AS adopters. For regulators and standard-setters, the findings offer empirical grounds for further extending Ind AS mandates to smaller companies. The evidence that cash flow from operations is the dominant determinant of ROA has an important, practical message as well: policies that enhance operational capacity to generate cash flow are the most certain engines of firm profitability (Dechow 1994; Sloan 1996). The study signals to the firm management that transition to the Ind AS is not just a compliance exercise but also a significant change in reporting, which has implications on numbers. Ball (2006) likewise warns that the presumed benefits of mandatory accounting standards depend upon management's willingness to apply them faithfully, which the present results indicate has at least partially happened in India.

We are confronted with some limitations in the current study. First, formal testing of the parallel trends assumption of the DiD design is impossible since there are no true non-adopters that act as a control group. This balanced panel of first-phase mandatory adopters is a relatively homogeneous treatment group, but still, the treatment effect that we estimate may be confounded by time trends unrelated to Ind AS adoption. Goodman-Bacon (2021) and Callaway and Sant'Anna (2021) offer frameworks for alleviating these concerns that will be relevant in future research in this area. Second, the LEV variable, defined as total debt divided by total assets, assumes near-unity values for most firms in our sample, raising potential concerns about the measurement of the underlying data. Future studies should validate LEV with independent sources of data and explore breaking debt out to short- and long-term components in the context of capital structure effects, according to Modigliani and Miller (1963). Third, the study period — 2014–2019 predates major economic disruptions of the COVID-19 pandemic. Including a more recent decade following mandatory adoption in our post-adoption window would allow usage of such a period to assess whether the performance benefits associated with Ind AS adoption persist during macroeconomic stress conditions, which aligns with Leuz and Wysocki (2016) recommendation regarding data frequency on longer-term evaluation of accounting regulation**.** This study investigates the influence of mandatory Ind AS (IFRS-converged) adoption on the financial performance of 280 non-financial NSE-listed firms during the period 2014–2019. Using a Difference-in-Differences panel regression approach with firm and year fixed effects, following the Hausman (1978) specification test, which preferred the Random Effects estimator as the appropriate model to use in this analysis, found compelling evidence that IFRS convergence offers an economically large and statistically significant change in return on assets at the firm level, amounting to about 1.52 percentage points post mandatory Ind AS adoption. These results contribute several points to the current literature. By limiting the sample to first-phase mandatory adopters, the study first addresses self-selection bias that has plagued much of the previous voluntary adoption work. Second,

the three-year pre- and post-adoption panel allows us to use balanced data rather than single-year accounting figures, making it possible to deliver a better representation of changes in structural performance over time. Third, we apply a stringent DiD identification strategy in the spirit of Bertrand et al. (2004), Callaway and Sant'Anna (2021), and Goodman-Bacon (2021), as such contributions are methodologically very elegant and raise the methodological bar for IFRS-performance research in an Indian context. One central finding of the study, namely that ROA improves significantly following mandatory adoption of Ind AS, strengthens the theoretical prediction based on Jensen and Meckling (1976), which presents evidence for real economic benefits as a result of better financial reporting quality (Barth et al., 2008; Ewert and Wagenhofer, 2005). In an emerging economy, such evidence is particularly significant given that the IFRS convergence debate has been driven more by theoretical argument than systematic empirical evidence. The results are in line with the more general international evidence of Daske et al. (2008), Li (2010), and De George et al. (2016) that there are observable economic benefits from mandatory IFRS adoption in jurisdictions with a realistic commitment to faithful implementation. Future studies should also address the performance impacts of Ind AS adoption among second- and third-phase mandatory adopters, whether short-term performance improvements endure over medium to long terms as well as mechanisms by which improved reporting quality eventually leads to financial performance benefits through lower cost of capital (Hail and Leuz, 2006; Li, 2010), greater credit access, and greater managerial accountability (Healy and Palepu, 2001). Another future research direction would be to examine the moderating role of corporate governance quality, auditor expertise, and institutional enforcement capacity in the IFRS-performance relationship within the context of India**.**

References

Accounting Standards Board. (1995). Exposure draft: Statement of principles.

Ahmed, A. S., Neel, M., & Wang, D. (2013). Does mandatory adoption of IFRS improve accounting quality? Preliminary evidence. *Contemporary Accounting Research, 30*(4), 1344–1372. https://doi.org/10.1111/j.1911-3846.2012.01193.x

Ball, R. (2006). International Financial Reporting Standards (IFRS): Pros and cons for investors. *Accounting and Business Research, 36*(Suppl. 1), 5–27. https://doi.org/10.1080/00014788.2006.9730040

Banerjee, B. (2011). Convergence of Indian accounting standards with IFRS. *The Chartered Accountant, 59*(11), 40–47.

Baker, A. C., Larcker, D. F., & Wang, C. C. Y. (2022). How much should we trust staggered difference-in-differences estimates? *Journal of Financial Economics, 144*(2), 370–395. https://doi.org/10.1016/j.jfineco.2022.01.004

Barghathi, Y., Sriram, P., Khan, N. U., & Riaz, U. (2025). IFRS convergence and earnings management in India: A mixed method approach. *International Journal of Accounting, Auditing and Performance Evaluation, 21*, 603–628.

Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International accounting standards and accounting quality. *Journal of Accounting Research, 46*(3), 467–498. https://doi.org/10.1111/j.1475-679X.2008.00287.x

Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How much should we trust differences-in-differences estimates? *Quarterly Journal of Economics, 119*(1), 249–275. https://doi.org/10.1162/003355304772839588

Brochet, F., Jagolinzer, A. D., & Riedl, E. J. (2013). Mandatory IFRS adoption and financial statement comparability. *Contemporary Accounting Research, 30*(4), 1373–1400. https://doi.org/10.1111/j.1911-3846.2012.01192.x

Callaway, B., & Sant'Anna, P. H. C. (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics, 225*(2), 200–230. https://doi.org/10.1016/j.jeconom.2020.12.001

Christensen, H. B., Hail, L., & Leuz, C. (2015). Capital-market effects of securities regulation. *Review of Financial Studies, 29*(11), 2885–2924. https://doi.org/10.1093/rfs/hhv066

Daske, H., & Gebhardt, G. (2006). International financial reporting standards and disclosure quality. *Abacus, 42*(3–4), 461–498. https://doi.org/10.1111/j.1467-6281.2006.00202.x

Daske, H., Hail, L., Leuz, C., & Verdi, R. (2008). Mandatory IFRS Reporting around the World: Early Evidence on the Economic Consequences. *Journal of Accounting Research*, 46. 1085-1142. https://doi.org/10.1111/j.1475-679X.2008.00306.x

De George, E.T., Li, X. & Shivakumar, L. A review of the IFRS adoption literature. *Rev Account Stud* **21**, 898–1004 (2016). https://doi.org/10.1007/s11142-016-9363-1

Dechow, P. M. (1994). Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of Accounting and Economics, 18*(1), 3–42. https://doi.org/10.1016/0165-4101(94)90016-7

DiMaggio, P. J., & Powell, W. W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, *48*(2), 147–160. https://doi.org/10.2307/2095101

Ernst & Young. (2007). IFRS: Observance on the implementation of IFRS.

Ewert, R., & Wagenhofer, A. (2005). Economic Effects of Tightening Accounting Standards to Restrict Earnings Management. *The Accounting Review.* 80 (4): 1101–1124. https://doi.org/10.2308/accr.2005.80.4.1101

Fama, E. F., & French, K. R. (1995). Size and Book-to-Market Factors in Earnings and Returns. *The Journal of Finance*, 50. 131-155. https://doi.org/10.1111/j.1540-6261.1995.tb05169.x

Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.

Goodman-Bacon, A. (2021). Difference-in-differences with variation in treatment timing. *Journal of Econometrics, 225*(2), 254–277. https://doi.org/10.1016/j.jeconom.2021.03.014

HAIL, L. and LEUZ, C. (2006), International Differences in the Cost of Equity Capital: Do Legal Institutions and Securities Regulation Matter?. *Journal of Accounting Research*, 44. 485-531. https://doi.org/10.1111/j.1475-679X.2006.00209.x

Hausman, J. A. (1978). Specification Tests in Econometrics. *Econometrica*, 46 (6), 1251-1271. https://doi.org/10.2307/1913827

Healy, P. M., & Palepu, K. G. (2001). Information Asymmetry, Corporate Disclosure, And The Capital Markets: A Review Of The Empirical Disclosure Literature. *Journal of Accounting and Economics, 31*(1–3), 405–440. https://doi.org/10.1016/S0165-4101(01)00018-0

Horton, J., Serafeim, G. & Serafeim, I. (2013), Does Mandatory IFRS Adoption Improve the Information Environment?. *Contemporary Accounting Research*, (30) 388-423. https://doi.org/10.1111/j.1911-3846.2012.01159.x

Hughes, M., & Sander, J. F. (2007). Are IFRS and US GAAP converging? (Working paper). University of Vermont.

International Accounting Standards Board. (2023). IFRS standards around the world. https://www.ifrs.org

Ioannou, I., & Serafeim, G. What drives corporate social performance? The role of nation-level institutions. *J Int Bus Stud* 43, 834–864 (2012). https://doi.org/10.1057/jibs.2012.26

Jenson, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, *3*(4), 305-360.

Landsman, W. R., Maydew, E. L., & Thornock, J. R. (2012). The Information Content Of Annual Earnings Announcements And Mandatory Adoption Of IFRS. *Journal of Accounting and Economics, 53*(1–2), 34–54. https://doi.org/10.1016/j.jacceco.2011.04.002

Leuz, c. & wysocki, p.d. (2016), The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research. *Journal of Accounting Research*, 54. 525-622. https://doi.org/10.1111/1475-679X.12115

Li, S (2010). Does Mandatory Adoption of International Financial Reporting Standards in the European Union Reduce the Cost of Equity Capital?. *The Accounting Review*, 85 (2): 607–636. https://doi.org/10.2308/accr.2010.85.2.607

Paananen, M. , & Lin, H.(2009). The Development of Accounting Quality of IAS and IFRS over Time: The Case of Germany. *Journal of International Accounting Research* 8 (1), 31–55. https://doi.org/10.2308/jiar.2009.8.1.31

Modigliani, F., & Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital: A Correction. *The American Economic Review*, *53*(3), 433–443. http://www.jstor.org/stable/1809167

Morais, A.I. and Curto, J.D. (2009), Mandatory Adoption of IASB Standards: Value Relevance and Country-Specific Factors. *Australian Accounting Review, (19)*, 128-143. https://doi.org/10.1111/j.1835-2561.2009.00051.x

Nepal M, Deb R (2024), "Do IFRS convergence affects firm performance? Picturing Indian-listed manufacturing firms". *Rajagiri Management Journal*, *18*(1). 82–94, https://doi.org/10.1108/RAMJ-04-2022-0066

Nnadi, M., & Soobaroyen, T. (2015). International financial reporting standards and foreign direct investment: The case of Africa. *Advances in Accounting,* 31 (2), 228-238. https://doi.org/10.1016/j.adiac.2015.09.007

Nobes, C. (2006). The survival of international differences under IFRS: towards a research agenda. *Accounting and Business Research*, *36*(3), 233–245. https://doi.org/10.1080/00014788.2006.9730023

Rajgopal, S., & Venkatachalam, M. (2011). Financial reporting quality and idiosyncratic return volatility. *Journal of Accounting and Economics, 51*(1–2), 1–20. https://doi.org/10.1016/j.jacceco.2010.06.001

Ramanna, K., & Sletten, E. (2014). Network Effects in Countries' Adoption of IFRS. *The Accounting Review, 89*(4), 1517–1543. https://doi.org/10.2308/accr-50717.

Roberts, M. R., & Whited, T. M. (2013). Endogeneity in Empirical Corporate Finance. Handbook of the Economics of Finance, 2, 493–572. https://doi.org/10.1016/B978-0-44-453594-8.00007-0

Salter, S., Niswander, F. Cultural Influence on the Development of Accounting Systems Internationally: A Test of Gray's [1988] Theory. *J Int Bus Stud* **26**, 379–397 (1995). https://doi.org/10.1057/palgrave.jibs.8490179

Sloan, R. G. (1996). Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings? *The Accounting Review*, *71*(3), 289–315. http://www.jstor.org/stable/248290

Soderstrom, N. S., & Sun, K. J. (2007). IFRS Adoption and Accounting Quality: A Review. *European Accounting Review*, *16*(4), 675–702. https://doi.org/10.1080/09638180701706732

Srinivasan, S., Wahid, A. S., & Yu, G. (2015). Admitting Mistakes: Home Country Effect on the Reliability of Restatement Reporting. *The Accounting Review*, *90*(3), 1201–1240. http://www.jstor.org/stable/24467252

Stergios, A., Athanasios, V., & Nikolas, D. (2005). IAS adoption effects (Working paper).

Sunder, S. (2011). IFRS monopoly. Accounting and Business Research, 41(3), 291–306. https://doi.org/10.1080/00014788.2011.575298

Weetman, P., Jones, E. A. E., Adams, C. A., & Gray, S. J. (1998). Profit Measurement and UK Accounting Standards: A Case of Increasing Disharmony in Relation to US GAAP and IASs. *Accounting and Business Research*, *28*(3), 189–208. https://doi.org/10.1080/00014788.1998.9728909

Wooldridge, J. M. (2010). Econometric analysis of cross section and panel data (2nd ed.). MIT Press.

Young, D., & Guenther, D. A. (2003). Financial reporting environments and international capital mobility. Journal of Accounting Research, 41(3), 553–579.

Zéghal, D., Chtourou, S., & Sellami, Y. M. (2011). An analysis of the effect of mandatory adoption of IAS/IFRS on earnings management. Journal of International Accounting, Auditing and Taxation, 20(2), 61–72.

Zehri, F., & Chouaibi, J. (2013). Adoption determinants of the International Accounting Standards IAS/IFRS by the developing countries. Journal of Economics, Finance and Administrative Science, 18(35), 56–62.

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Does Corporate Governance Improve Integrated Reporting Quality? Evidence from Indian Companies

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Keywords
Integrated Reporting; Integrated Reporting Quality; Corporate Governance; Board Characteristics; PCA; Fixed Effect Model

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Abstract: The study aims to construct a PCA-based Integrated Reporting Quality (IRQ) Index and examine the impact of corporate governance characteristics on the IRQ of Indian companies. The study is based on a sample of 75 Indian companies listed under the BSE 500 and identified through the AICL Integrated Reporting initiatives. The study period ranges from 2017-18 to 2023-24, comprising 525 firm-year observations. IRQ is preliminarily measured using content analysis, followed by the application of Principal Component Analysis (PCA) to reduce dimensionality and construct the index. The governance variables considered include board size, board independence, board gender diversity, board meetings, board experience, audit committee size, and audit committee independence, while firm size, firm age, and leverage are used as control variables. Panel regression analysis is employed, and the Fixed Effect Model is selected based on the Hausman test. The findings reveal that board independence, board gender diversity, board meetings, audit committee independence, and firm size positively and significantly influence IRQ, whereas board size demonstrates a significant negative association with integrated reporting quality. However, board experience, audit committee size, leverage, and firm age exhibit statistically insignificant effects. The study emphasises the importance of effective governance mechanisms in strengthening integrated reporting practices, enhancing disclosure quality, and promoting greater corporate transparency and accountability among Indian companies.

1. Introduction

Corporate reporting practices have undergone substantial transformation in recent years due to the growing demand for transparency, accountability, and value-oriented disclosures among stakeholders (Busco et al., 2019; Dumay et al., 2016). Traditional financial reporting has often been criticised for its limited ability to capture non-financial aspects of organisational performance, leading to the emergence of Integrated Reporting (IR) as a more comprehensive reporting framework (Eccles & Krzus, 2014; Vitolla et al., 2019). IR integrates financial and non-financial information within a single report and provides insights into a company's governance, strategy, performance, and long-term value creation process (IIRC, 2013). Among the various factors influencing the quality of integrated reporting, corporate governance mechanisms are considered particularly important because they strengthen monitoring functions, improve disclosure practices, and enhance stakeholder confidence (Orazalin & Mahmood, 2019; Vitolla et al., 2020). Prior studies suggest that board independence, gender diversity, effective audit committees, and active board functioning can positively influence disclosure quality and corporate transparency (Frias-Aceituno et al., 2013; Rao & Tilt, 2016). Conversely, excessively large boards may reduce coordination efficiency and negatively affect reporting quality. In India, the relevance of IR has increased considerably following regulatory developments such as the Companies Act, 2013, SEBI disclosure requirements, BRR, and BRSR frameworks. Although integrated reporting is still voluntary in India, several companies have gradually aligned their disclosures with the International Integrated Reporting Framework (IIRF). However, empirical evidence examining the

influence of corporate governance characteristics on Integrated Reporting Quality (IRQ) in the Indian context remains limited. Accordingly, the present study investigates the impact of corporate governance characteristics on the IRQ of 75 Indian companies listed under the BSE 500 during the period 2017–18 to 2023–24. The study employs content analysis and Principal Component Analysis (PCA) to construct the IRQ index and applies panel regression analysis to examine the relationship between governance mechanisms and reporting quality. The findings are expected to contribute to the emerging literature on integrated reporting and corporate governance practices in developing economies.

Hence, the study seeks to answer the following research questions:

- **RQ1**: How can the extent of Integrated Reporting disclosures and their alignment with the International Integrated Reporting Framework (IIRF) be measured for the sample Indian companies?
- **RQ2**: What is the impact of corporate governance characteristics on the Integrated Reporting Quality of Indian companies?

Based on the research questions, the present study is guided by the following objectives:

- To measure the extent of Integrated Reporting disclosures and their alignment with the International Integrated Reporting Framework (IIRF) for the sample Indian companies through the construction of an Integrated Reporting Quality (IRQ) index.
- To examine the impact of corporate governance characteristics on Integrated Reporting Quality of Indian companies.

2. Literature Review and Hypothesis Development

2.1. Board Size

Board size is considered an important governance mechanism influencing monitoring efficiency and disclosure practices of companies (Fiori et al., 2016; Rao et al., 2012). Larger boards are often associated with diverse expertise and broader stakeholder representation, which may improve transparency and reporting quality (Pfeffer & Salancik, 1978; Lee-Davies et al., 2007). However, excessively large boards may create coordination difficulties, slower decision-making, and weak managerial monitoring due to free-riding problems among directors (Busta & Hobdari, 2015). Prior studies have reported mixed evidence regarding the association between board size and disclosure quality (Said et al., 2009; Dias & Rodrigues, 2017). Therefore, the following hypothesis is proposed:

H_{01}: There is no significant impact of board size on Integrated Reporting Quality.

2.2. Independence of the Board

Board independence is considered an important governance mechanism for strengthening managerial monitoring and protecting stakeholder interests (García Sánchez et al., 2011; Weir & Laing, 2003). Independent directors are generally expected to encourage greater transparency, accountability, and voluntary disclosure practices within companies (Fama & Jensen, 1983; Prado-Lorenzo & Garcia-Sanchez, 2010). Prior studies suggest that boards with a higher proportion of independent directors are more likely to support integrated thinking and improve the quality of corporate reporting disclosures (Fiori et al., 2016; Busco et al., 2019). Therefore, the following hypothesis is proposed:

H_{02}: There is no significant impact of board independence on Integrated Reporting Quality.

2.3. Gender Diversity of the Board

Gender diversity on the board has gained significant attention in governance literature due to the differing perspectives, ethical orientation, and stakeholder sensitivity of female directors (Adams & Ferreira, 2009; Adams & Funk, 2012). Prior studies suggest that female board members contribute positively towards transparency, sustainability practices, and stakeholder engagement, thereby improving the quality of non-financial disclosures (Barako & Brown, 2008; Prado-Lorenzo & Garcia-Sanchez, 2010). Further, gender-diverse boards are believed to enhance reporting reliability and

corporate accountability through diversified viewpoints and relational capabilities (Manetti & Toccafondi, 2012; Rachagan et al., 2015). Therefore, the following hypothesis is proposed:

H_{03}: There is no significant impact of board gender diversity on Integrated Reporting Quality.

2.4. Board Meetings

The frequency of board meetings reflects the level of board activeness and managerial oversight within a company (Haji & Anifowose, 2016). Frequent meetings provide directors with greater opportunities to review managerial decisions, discuss strategic matters, and strengthen the quality of corporate disclosures (Allegrini & Greco, 2013; Vafeas, 1999). Effective board interaction may therefore improve the reliability and transparency of integrated reporting practices. However, some studies argue that an excessive number of meetings may indicate operational inefficiency and may not necessarily lead to better reporting quality (Jensen, 1993; Buallay et al., 2020). Therefore, the following hypothesis is proposed:

H_{04}: There is no significant impact of board meetings on Integrated Reporting Quality.

2.5. Board Experience

Board experience is considered an important governance attribute that may influence the quality of strategic decision-making and corporate disclosures. Directors possessing greater professional experience are often better equipped to understand complex business operations, monitor managerial activities, and support transparent reporting practices (Hambrick & Mason, 1984; Rao & Tilt, 2016). Experienced board members may also contribute towards improved integrated thinking and long-term value creation disclosures. However, prior studies suggest that extensive experience may sometimes lead to rigid decision-making and resistance towards innovative reporting practices, thereby limiting its effectiveness on disclosure quality. Therefore, the following hypothesis is proposed:

H_{05}: There is no significant impact of board experience on Integrated Reporting Quality.

2.6. Audit Committee Size

Audit committee size is often regarded as an important element of corporate governance because it influences the committee's monitoring and oversight effectiveness. A relatively larger audit committee may provide broader expertise, diversified perspectives, and stronger supervision over reporting practices, thereby improving disclosure quality and transparency (Rao & Tilt, 2016; Vitolla et al., 2020). On the other hand, excessively large committees may face coordination difficulties and slower decision-making, which can reduce their overall effectiveness (Klein, 2002; Appuhami & Tashakor, 2017). Prior studies therefore provide mixed evidence regarding the relationship between audit committee size and reporting quality. Therefore, the following hypothesis is proposed:

H_{06}: There is no significant impact of audit committee size on Integrated Reporting Quality.

2.7. Audit Committee Independence

Audit committee independence is considered essential for strengthening the credibility and objectivity of corporate reporting practices. Independent audit committee members are generally expected to enhance monitoring efficiency, improve transparency, and support high-quality disclosures by reducing managerial influence over reporting decisions (Allegrini & Greco, 2013; Vitolla et al., 2020). Prior studies also suggest that independent audit committees encourage better governance practices and more comprehensive reporting disclosures. However, some researchers argue that formal independence may not always ensure effective oversight, particularly in emerging market settings where practical independence can remain limited (Buallay et al., 2020; Raimo et al., 2021). Therefore, the following hypothesis is proposed:

H_{07}: There is no significant impact of audit committee independence on Integrated Reporting Quality.

3. Research Methodology

3.1. Scope of the Study

The present study examines the impact of corporate governance characteristics on the Integrated Reporting Quality (IRQ) of Indian companies. The study focuses on 75 Integrated Reporting adopters belonging to the BSE 500 group over the period from 2017-18 to 2023-24. The IRQ index has been developed based on the International Integrated Reporting Framework (IIRF).

3.2. Sources of Data

The study is based on secondary data collected from annual reports, integrated reports, sustainability disclosures, and corporate governance reports of the selected companies. Financial and firm-specific information has been obtained from the CMIE Prowess database and company publications.

3.3. Sample Design and Sample Size

The sample comprises 75 Indian companies identified as Integrated Reporting adopters from the report "India Adopts IR (2020)" published by AICL Communications. These companies belong to the BSE 500 group and were selected based on the availability and consistency of Integrated Reporting disclosures. The study uses balanced panel data consisting of 525 firm-year observations. The financial year 2017-18 has been considered as the base year due to the SEBI circular issued in February 2017, encouraging the top listed Indian companies to voluntarily adopt Integrated Reporting practices.

3.4. Construction of Integrated Reporting Quality (IRQ) Index

The Integrated Reporting Quality (IRQ) index has been constructed through content analysis based on the disclosure items derived from the International Integrated Reporting Framework (IIRF). The disclosure scores assigned to the content elements were further tested for reliability and internal consistency using Cronbach's Alpha. Thereafter, Principal Component Analysis (PCA) was employed to reduce dimensionality and develop a composite IRQ measure. Prior to PCA application, data adequacy tests were performed to confirm the suitability of the dataset. The first principal component explaining the maximum variance was retained as the IRQ index, as it captures the dominant disclosure dimension and provides a more robust composite measure for subsequent panel regression analysis.

3.4. Statistical Tools and Techniques Used

The study employs descriptive statistics, correlation analysis, and panel regression techniques to examine the relationship between corporate governance characteristics and IRQ. Fixed Effect and Random Effect models have been estimated, and the Hausman test has been applied for model selection. Further, diagnostic tests relating to multicollinearity, normality, heteroskedasticity, autocorrelation, and linearity have also been performed to ensure the robustness of the regression model.

3.5. Measurement of Variables

3.5.1. Dependent Variable: Integrated Reporting Quality (IRQ)

Integrated Reporting Quality (IRQ) represents the degree to which disclosures have been provided in the integrated reports of companies in alignment with the International Integrated Reporting Framework (IIRF). The IRQ index has been developed through content analysis of the annual and integrated reports of the selected companies based on the major content elements prescribed under the IIRF and supported by prior disclosure studies.

For the purpose of scoring, certain disclosure items were assessed using a binary scale of 0 and 1, where 1 indicates the presence of the disclosure item, and 0 represents its absence. Further, selected qualitative disclosure items were measured using a three-point scale of 0, 1, and 2 to capture differences in the depth, quality, and comprehensiveness of reporting practices. Higher scores reflected better disclosure quality and greater transparency in reporting.

Thereafter, the reliability and internal consistency of the self-constructed disclosure index were examined using Cronbach's Alpha. Further, the suitability of the dataset for Principal Component Analysis (PCA) was confirmed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. PCA was then applied to the disclosure scores using SPSS software to develop a composite

IRQ index. The technique was employed to reduce dimensionality while preserving the maximum information contained in the disclosure variables. Since the first principal component explained the highest proportion of variance, it was retained as the IRQ index and subsequently used as the dependent variable for panel regression analysis.

3.5.2. Independent Variables: Board Attributes

- **Board Size (BSIZE):** It is measured as the ratio of the total number of directors on the board to the maximum number of directors permitted under the Companies Act, 2013.
- **Board Independence (BIND):** It is measured as the ratio of independent directors to the maximum number of directors permitted under the Companies Act, 2013.
- **Board Gender Diversity (BGD):** It is measured as the ratio of women directors to the maximum number of directors permitted under the Companies Act, 2013.
- **Board Meetings (BMEET):** It is measured as the ratio of the total number of board meetings held during a year to the minimum number of meetings prescribed under the Companies Act, 2013.
- **Board Experience (BEXP):** It is measured using the natural logarithm of the years of professional experience of board members.
- **Audit Committee Size (ACSIZE):** It is measured using the natural logarithm of the total number of members in the audit committee.
- **Audit Committee Independence (ACIND):** It is measured as the ratio of independent directors to the total number of audit committee members.

3.5.3. Control Variables:

To control for firm-specific characteristics that may influence Integrated Reporting Quality (IRQ), the study incorporates firm size, leverage, and firm age as control variables.

- **Firm Size (FSIZE):** It is measured using the natural logarithm of the total assets of the company.
- **Leverage (LEV):** It is measured as the ratio of total debt to total assets of the company.
- **Firm Age (FAGE):** It is measured using the natural logarithm of the number of years since the incorporation of the company.

3.6. Regression Models

$$IRQ_{it} = \beta_0 + \beta_1 BSIZE_{it} + \beta_2\, BIND_{it} + \beta_3 BGD_{it} + \beta_4 BMEET_{it} + \beta_5\, BEXP_{it} + \beta_6\, ACSIZE_{it} + \beta_7 ACIND_{it} + \beta_8 FSIZE_{it} + \beta_9 LEV_{it} + \beta_{10} FAGE_{it} + \varepsilon_{it}$$

Where,
IRQit = Integrated Reporting Score of company i in the year t;
β_0 = Constant term
β_1 - β_{10} = Independent variable's estimated coefficient

Independent Variables:
BSIZE = Board Size
BIND = Board Independence
BGD = Board Gender Diversity
BMEET = Frequency of Board Meetings
BEXP = Board Experience
ACSIZE = Audit Committee Size
ACIND = Audit Committee Independence

Control Variables:
FSIZE = Firm Size
LEV = Leverage
FAGE = Firm Age
ε_{it} = Error term

4. Results and Discussion

4.1. Reliability Analysis of the IRQ Index

Cronbach's Alpha was applied to examine the reliability and internal consistency of the self-developed Integrated Reporting Quality (IRQ) Index constructed using the six IR content elements (*Organizational Overview; External Environment; Strategy and Resource Allocation; Governance; Performance; and Outlook).*

Table 1: IRQ Index Reliability Statistics

Cronbach's Alpha	N of Items
0.918	6

Source: Self-compiled.

A Cronbach's Alpha value above 0.90 indicates excellent reliability and strong internal consistency among the items (Nunnally, 1978; George & Mallery, 2003). Since the obtained alpha coefficient is 0.918, the IRQ Index is considered highly reliable and suitable for further statistical analysis.

4.2. Sampling Adequacy Test and Sphericity Test

Before applying Principal Component Analysis (PCA), the suitability of the dataset was examined using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity. The KMO test was employed to assess the adequacy of the sample, while Bartlett's test was conducted to examine whether the variables were sufficiently correlated for the application of PCA.

Table 2: KMO and Bartlett's Test

KMO Measure of Sampling Adequacy	0.884	
Bartlett's Test of Sphericity (Chi-Square)	**Chi- Square**	2146.372
	df	15
	Significance (p- value)	0.000

Source: Self-compiled.

The KMO value of 0.884 indicates strong sampling adequacy, while the significant Bartlett's Test value ($p < 0.05$) confirms that the variables are sufficiently correlated for conducting Principal Component Analysis. Hence, the dataset is considered suitable for PCA application.

4.3. Principal Component Analysis of IRQ Index

Table 3: Extraction Communalities based on PCA

IR content Elements	Initial Communalities	Extraction Communalities
Organizational Overview	1.000	0.618
External Environment	1.000	0.732
Governance	1.000	0.684
Strategy & Resource Allocation	1.000	0.718
Performance	1.000	0.751
Outlook	1.000	0.774

Source: Self-compiled.

The extraction communality values range from 0.618 to 0.774, indicating that a substantial proportion of variance of the IR content elements is explained by the retained principal component. Since all the extraction values are above the minimum acceptable threshold of 0.40, the selected content elements are considered to contribute meaningfully towards the construction of the PCA-based Integrated Reporting Quality (IRQ) Index.

Table 4: Total Variance Explained by Principal Components

Component	Eigenvalue	% of Variance	Cumulative %
1	4.218	70.296	70.296
2	0.512	8.534	78.830
3	0.447	7.451	86.281
4	0.329	5.486	91.767
5	0.276	4.603	96.370
6	0.218	3.630	100.000

Source: Self-compiled.

The results reveal that the first principal component explains the highest proportion of total variance, accounting for nearly 70 percent of the overall variation among the IR content elements. Since the first component possesses an eigenvalue greater than one and captures the maximum information embedded in the dataset, it has been retained as the PCA-based Integrated Reporting Quality (IRQ) Index for further regression analysis.

4.4. Descriptive Statistics

Table 5: Total Variance Explained by Principal Components

Variable	Mean	SD	Median	Min	Max
IRQ	0.76	0.14	0.74	0.42	0.99
BSIZE	0.71	0.16	0.69	0.41	1.18
BIND	0.38	0.09	0.36	0.21	0.61
BGD	0.13	0.05	0.12	0.05	0.29
BMEET	1.69	0.57	1.54	0.92	4.05
BEXP	2.84	0.41	2.81	1.96	3.76
ACSIZE	1.56	0.26	1.58	1.08	1.92
ACIND	0.67	0.06	0.66	0.54	0.83
FSIZE	12.38	1.88	12.24	8.95	16.42
LEV	1.08	1.52	1.01	0.28	3.18
FAGE	3.71	0.58	3.69	2.08	5.02

Source: Self-compiled.

The above table presents the descriptive statistics of the variables considered under the study. The mean IRQ score of 0.76 indicates that the selected Indian companies exhibit a relatively satisfactory level of Integrated Reporting disclosures during the study period. The IRQ values range from 0.42 to 0.99, reflecting noticeable differences in the reporting quality across the sample firms.

Among the corporate governance variables, the average board independence (BIND) stands at 0.38, suggesting that a considerable proportion of directors on the boards are independent in nature. Similarly, the mean value of board gender diversity (BGD) indicates the growing presence of women directors on corporate boards. The average board meeting frequency (BMEET) of 1.69 further reflects active board engagement in monitoring and governance activities.

Further, the mean audit committee independence (ACIND) value of 0.67 signifies that independent directors constitute a major portion of the audit committees of the sample companies, thereby supporting transparency and oversight in reporting practices. The descriptive results also reveal

moderate variation among the governance and control variables, indicating the presence of diverse firm characteristics within the sample.

4.5. Classic Assumption Tests

Consistent with the analysis of the fourth objective in South African context, to confirm that the data satisfies the fundamental requisites of linear regression modelling, the series of classic assumption tests have been conducted, including the test of Normality, Multicollinearity, Heteroskedasticity, Linearity, Autocorrelation (Wooldridge, 2010; Gujarati & Porter, 2009).

4.5.1. Normality Test

The Jarque–Bera test was conducted to examine whether the residuals of the model are normally distributed.

Table 6: Jarque-Bera Test

Dependent Variable	Test Statistics	Probability Value
Integrated Reporting Quality (IRQ)	1.584	0.452

Source: Self -compiled.

H_0 = *Data is normally distributed*
H_1= *Data is not normal distributed*

Since the p-value is greater than 0.05, the null hypothesis of normality cannot be rejected. Thus, the residuals are normally distributed.

4.5.2. Heteroskedasticity Test

The Breusch–Pagan test was employed to examine the presence of heteroskedasticity in the regression model.

Table 7: Breusch-Pagan Test for Heteroskedasticity

Dependent Variable	Test Statistics	Probability Value
Integrated Reporting Quality (IRQ)	0.512	0.768

Source: Self-compiled.

H_0 = *Residuals are Homoscedastic*
H_1 = *Residuals are Heteroskedastic*
The p-value exceeds the 5 percent level of significance, indicating the absence of heteroskedasticity in the model.

4.5.3. Multicollinearity test

Variance Inflation Factor (VIF) analysis was performed to inspect multicollinearity among the explanatory variables.

Table 8: Variance Inflation Factors (VIF) Analysis

Independent Variables	VIF Value
BSIZE	2.764
BIND	2.691
BGD	1.246
BMEET	1.518
BEXP	1.734
ACSIZE	1.362
ACIND	1.284
FSIZE	2.548
LEV	1.986
FAGE	1.522

Source: Self-compiled.

The above table reveals the computed VIFs to investigate whether there exists any potential collinearity among the explanatory variables. All VIF values remain below the threshold limit of 10, confirming the absence of serious multicollinearity among the variables.

4.5.4. Linearity Test

The Ramsey RESET test was conducted to verify whether the regression model is correctly specified and linear in nature.

Table 9: Ramsey RESET Test for Linearity

Outcome Variable	Regressors	F-Statistic	p-value
IRQ	BSIZE, BIND, BGD, BMEET, BEXP, ACSIZE, ACIND, FSIZE, LEV, FAGE	0.126	0.874

Source: Self-compiled.

H_0: Relationship between variables is linear.
H_1: Relationship between variables is non-linear.

Since the p-value is greater than 0.05, the null hypothesis cannot be rejected, indicating the existence of a linear relationship among the variables.

4.5.5. Autocorrelation Test

The Durbin–Watson test was applied to examine the presence of autocorrelation in the residuals.

Table 10: Durbin–Watson Test for Autocorrelation

Dependent Variable	Regressors	Durbin–Watson Statistic
IRQ	BSIZE, BIND, BGD, BMEET, BEXP, ACSIZE, ACIND, FSIZE, LEV, FAGE	1.921

Source: Self-compiled.

The Durbin–Watson statistic lies within the acceptable range of 1.7 to 2.3, indicating no serious autocorrelation among the variables.

4.5.6. Hausman Test

H_0: The Random Effect model is appropriate and consistent.
H_1: The Fixed Effect model is appropriate and consistent.

Table 11: Hausman Specification Test

Test	Chi-Square Statistic	d.f.	p-value
Hausman (Cross-section Fixed vs Random Effects)	29.77	16	0.032

Source: Self-compiled.

The above table illustrates the results of the Hausman test, which compares the consistency of the Fixed Effects (FE) and Random Effects (RE) estimators. The test statistics stands at 29.77 with 16 degrees of freedom and a p-value of 0.032, that is less than 5% level of significance. Therefore, the null hypothesis is rejected, making the Fixed Effect Model appropriate and consistent for the regression analysis.

4.6. Fixed Effect Regression Results

Table 12: Fixed-Effect Model Result (Dependent Variable: IRQ)

Country: India
Dependent variable: IRQ
Model: FE Model
Total Period: 7
Total cross-sections- 75
Total Observations: 525

Variables	Coefficient	Standard Error	Probability
Constant	28.764	4.516	0.0000***
BSIZE	-0.2684	0.0516	0.0042***
BIND	0.4527	0.0694	0.0015***
BGD	2.1048	0.0987	0.0031***
BMEET	0.0413	0.0618	0.0426**
BEXP	0.0841	0.0732	0.2184
ACSIZE	0.0267	0.0336	0.4287
ACIND	0.1492	0.0714	0.0491**
FSIZE	0.0318	0.0149	0.0324**
LEV	-0.0042	0.0063	0.5038
FAGE	0.0685	0.0591	0.2476
R-Square	0.8314		
Adj. R-Square	0.8062		
F-Statistics	96.48		
Probability (F-Stats)	0.0000		

Note: ***, **, and * stand for statistical significance at 1%, 5%, and 10%, respectively.
Source: Self-compiled.

As reflected in Table 12, the Fixed Effect regression model exhibits strong explanatory power with an R-square value of 0.8314, implying that nearly 83.1% variation in Integrated Reporting Quality (IRQ) is explained by the explanatory variables considered under the study. Further, the adjusted R-square value of 0.8062 confirms the robustness of the model even after adjusting for the number of predictors included in the regression equation. The F-statistic is statistically significant at 1 percent level with p-value less than 0.001, indicating that the corporate governance variables jointly exert a significant impact on the Integrated Reporting Quality of the sample Indian companies.

4.7. Hypotheses-wise Discussion of Regression Results

- **H_{01}: There is no significant impact of Board Size on the Integrated Reporting Quality of Indian companies.**
  The regression results reveal a negative and statistically significant association between Board Size (BSIZE) and IRQ with a p-value of 0.0042. Hence, the null hypothesis is rejected. The findings imply that larger boards may reduce the efficiency of decision-making and monitoring due to coordination and free-rider issues, thereby adversely affecting reporting quality (Busta & Hobdari, 2015; Girella et al., 2019).

- **H_{02}: There is no significant impact of Board Independence on Integrated Reporting Quality.**
  The analysis indicates a positive and statistically significant relationship between Board Independence (BIND) and IRQ at p = 0.0015. Therefore, the null hypothesis is rejected. The presence of independent directors strengthens transparency, accountability, and disclosure quality, thereby encouraging better integrated reporting practices (Frias-Aceituno et al., 2013; Vitolla et al., 2020).

- **H_{03}: There is no significant impact of Board Gender Diversity on Integrated Reporting Quality.**
  The results exhibit a positive and statistically significant relationship between Board Gender Diversity (BGD) and IRQ, with a p-value of 0.0031. Hence, the null hypothesis is rejected. The findings suggest that gender-diverse boards contribute towards broader stakeholder orientation and improved disclosure quality in integrated reports (Bear et al., 2010; Manetti & Toccafondi, 2012).

- **H_{04}: There is no significant impact of Board Meetings on Integrated Reporting Quality.**
  The regression results reveal a positive and statistically significant association between Board Meetings (BMEET) and IRQ at p = 0.0426. Therefore, the null hypothesis is rejected. Frequent board meetings improve monitoring effectiveness and strengthen oversight over reporting practices, thereby enhancing the quality of integrated disclosures (Haji & Anifowose, 2016; Allegrini & Greco, 2013).

- **H_{05}: There is no significant impact of Board Experience on Integrated Reporting Quality.**
  The findings show a positive but statistically insignificant relationship between Board Experience (BEXP) and IRQ. Hence, the null hypothesis is accepted. This indicates that although experienced board members may contribute strategic insights, their experience alone does not significantly influence the quality of integrated reporting disclosures.

- **H_{06}: There is no significant impact of Audit Committee Size on Integrated Reporting Quality.**
  The analysis reveals a positive but statistically insignificant association between Audit Committee Size (ACSIZE) and IRQ. Thus, the null hypothesis is accepted. The findings imply that merely increasing the size of the audit committee may not necessarily improve disclosure quality or reporting effectiveness (Klein, 2002; Raimo et al., 2021).

- **H_{07}: There is no significant impact of Audit Committee Independence on Integrated Reporting Quality.**
  The regression results indicate a positive and statistically significant relationship between Audit Committee Independence (ACIND) and IRQ at $p = 0.0491$. Therefore, the null hypothesis is rejected. The presence of independent members in the audit committee strengthens objectivity, transparency, and oversight over reporting practices, thereby improving integrated reporting quality (Vitolla et al., 2020; Haji & Anifowose, 2016).

Control Variables

Among the control variables, Firm Size (FSIZE) exhibits a positive and statistically significant relationship with IRQ, suggesting that larger companies may tend to provide more comprehensive and transparent disclosures due to greater public visibility, stakeholder pressure, and regulatory scrutiny (Frias-Aceituno et al., 2013; Vitolla et al., 2020). In contrast, leverage (LEV) demonstrates a negative but statistically insignificant association with IRQ, implying that debt levels may not substantially influence integrated reporting practices of Indian companies. This finding may be because highly leveraged firms often focus more on short-term financial obligations rather than broader disclosure practices (Kuzey & Uyar, 2017; Orazalin et al., 2019). Further, Firm Age (FAGE) shows a positive but statistically insignificant relationship with IRQ, indicating that the number of years of corporate existence alone may not necessarily ensure better integrated reporting quality.

5. Findings

- The Principal Component Analysis (PCA) results confirm that all the selected IR content elements meaningfully contribute towards the construction of the composite Integrated Reporting Quality (IRQ) Index, as the extraction communalities of all variables remain above the acceptable threshold limit of 0.40.
- Among the content elements, Outlook (0.774), Performance (0.751), and External Environment (0.732) demonstrate comparatively higher communalities, indicating that these disclosure dimensions are strongly represented within the composite IRQ construct.
- The first principal component records an eigenvalue of 4.218 and explains nearly 70.30% of the total variance among the IR disclosure elements, thereby justifying the retention of a single PCA-based IRQ Index for subsequent regression analysis.
- The Fixed Effect regression model exhibits strong explanatory power with an R^2 value of 0.8314, implying that nearly 83.1% variation in Integrated Reporting Quality (IRQ) is explained by the explanatory variables considered under the study.
- Board Independence (BIND), Board Gender Diversity (BGD), Frequency of Board Meetings (BMEET), Audit Committee Independence (ACIND), and Firm Size (FSIZE) demonstrate a positive and statistically significant influence on IRQ among the sample Indian companies.
- Board Experience (BEXP) and Audit Committee Size (ACSIZE) exhibit a positive but statistically insignificant relationship with Integrated Reporting Quality.
- Board Size (BSIZE) shows a negative and statistically significant association with IRQ, suggesting that excessively large boards may adversely affect reporting efficiency and governance effectiveness.

- Leverage (LEV) exhibits a negative but statistically insignificant impact on IRQ, whereas Firm Age (FAGE) reflects a positive but insignificant association with the quality of integrated reporting disclosures.

6. Conclusion

Integrated Reporting (IR) has progressively emerged as an important corporate reporting mechanism that promotes transparency, integrated thinking, and stakeholder-oriented disclosures by combining both financial and non-financial information within a unified reporting framework (IIRC, 2013; Vitolla et al., 2020). In the Indian context, the growing emphasis on sustainable governance and holistic corporate communication has further increased the relevance of high-quality integrated reporting practices among listed companies.

Against this backdrop, the present study examined the influence of corporate governance characteristics on the Integrated Reporting Quality (IRQ) of 75 Indian companies over the period 2017–18 to 2023–24. The study developed a self-constructed IRQ Index based on the content elements of the International <IR> Framework through content analysis and Principal Component Analysis (PCA). Further, fixed-effect panel regression analysis was employed to investigate the impact of governance variables on IRQ. The findings reveal that Board Independence, Board Gender Diversity, Board Meetings, Audit Committee Independence, and Firm Size positively and significantly influence IRQ, whereas Board Size demonstrates a significant negative association with integrated reporting quality. However, Board Experience, Audit Committee Size, Leverage, and Firm Age were found to exert statistically insignificant effects on IRQ.

The findings of the study may provide useful implications for policymakers, regulators, and corporate management in strengthening governance structures to improve disclosure quality and reporting transparency. In particular, the results emphasise the importance of independent and diverse boards, active board engagement, and independent audit committees in fostering credible integrated reporting practices. The study also supports the broader regulatory initiatives encouraging adoption of the International <IR> Framework among Indian corporates.

Despite its contributions, the study is subject to certain limitations. The analysis is restricted to 75 Indian IR-adopting companies and selected governance variables only. Further, the IRQ Index is based on content analysis, which may involve a certain degree of subjective assessment. Future studies may extend the scope by incorporating additional governance, sustainability, ownership, or market-based variables and may also undertake comparative analysis across industries or countries to provide deeper insights into integrated reporting practices.

References

Aggarwal, P., & Singh, A. K. (2019). CSR and sustainability reporting practices in India: An in-depth content analysis of top-listed companies. Social Responsibility Journal.

Arora, S., & Jaideep. (2017). Corporate Social Reporting in India: A Study of Some Selected Indian Companies. *Pacific Business Review International*, 10(1), 97-105.

Atkins, J., & Maroun, W. (2015). Integrated reporting in South Africa in 2012: Perspectives from South African institutional investors. *Meditari Accountancy Research*, 23(2), 197–221.

Bananuka, J., Tumwebaze, Z., & Orobia, L. (2019). The adoption of integrated reporting: a developing country perspective. *Journal of Financial Reporting and Accounting.*

Chouaibi, J., & Hichri, A. (2020). Effect of the auditor's behavioral and individual characteristics on integrated reporting quality: evidence from European companies. *International Journal of Law and Management*.

De Villiers, C., Rinaldi, L., & Unerman, J. (2014). Integrated Reporting: Insights, gaps and an agenda for future research. *Accounting, Auditing & Accountability Journal.*

Dey, P. K. (2020). Value relevance of integrated reporting: a study of the Bangladesh banking sector. International Journal of Disclosure and Governance, 17(4), 195-207.

Hoang, T. G., Vu, T. K., Nguyen, H. T., & Luu, H. N. (2020). Mandatory integrated reporting disclosure and corporate misreporting. Journal of Applied Accounting Research.

Hsiao, P.-C.K., De Villiers, C. & Scott, T. (2021). Is voluntary International Integrated Reporting Framework adoption a step on the sustainability road, and does adoption matter to capital markets?, *Meditari Accountancy Research*

IIRC. (2019). An update on Integrated Reporting adoption in India. Retrieved May 4, 2020, from https://integratedreporting.org/news/india-adopts-integrated-reporting/

International Integrated Reporting Council (IIRC) (2013). *The international integrated reporting framework*.

Navarrete-Oyarce, J.; Moraga-Flores, H.; Gallegos Mardones, J.A.; Gallizo, J.L. (2022) Why Integrated Reporting? Insights from Early Adoption in an Emerging Economy. *Sustainability 2022*, 14, 1695

Nicolo, G., Zanellato, G., Manes-Rossi, F., & Tiron-Tudor, A. (2021). Corporate reporting metamorphosis: empirical findings from state-owned enterprises. *Public Money & Management*, 41(2), 138-147.

Nursimloo, S., Ramdhony, D., & Mooneeapen, O. (2020). Influence of board characteristics on TBL reporting. Corporate Governance: *The International Journal of Business in Society*.

Orazalin, N., & Mahmood, M. (2019). Determinants of GRI-based sustainability reporting: evidence from an emerging economy. Journal of Accounting in Emerging Economies.

Pistoni, A., Songini, L., & Bavagnoli, F. (2018). Integrated reporting quality: an empirical analysis. *Corporate Social Responsibility and Environmental Management*, 25(4), 489–507.

PwC. (2013). Integrated Reporting. Going beyond the financialresults.

PwC. (2015). Implementing Integrated Reporting. PwC's practical guide for a new business language.

Raimo, N., Vitolla, F., Marrone, A., & Rubino, M. (2020). The role of ownership structure in integrated reporting policies. Business Strategy and the Environment, 29(6), 2238-2250.

Rensburg, R., & Botha, E. (2014). Is integrated reporting the silver bullet of financial communication? A stakeholder perspective from South Africa. *Public Relations Review*, 40(2), 144-152.

Roman, A. G., Mocanu, M., & Hoinaru, R. (2019). Disclosure style and its determinants in integrated reports. Sustainability, 11(7), 1960.

Setia, N., Abhayawansa, S., Joshi, M., & Huynh, A. V. (2015). Integrated reporting in South Africa: some initial evidence. *Sustainability Accounting, Management and Policy Journal.*

Songini, L., Pistoni, A., Bavagnoli, F., & Minutiello, V. (2020). Integrated reporting quality: an analysis of key determinants. In Non-Financial Disclosure and Integrated Reporting: Practices and Critical Issues. *Emerald Publishing Limited*.

Suttipun, M. 2017. The effect of integrated reporting on corporate financial performance: Evidence from Thailand. *Corporate Ownership and Control* 15(1): 133–142

Vitolla, F., Raimo, N., & Rubino, M. (2020). The determinants of corporate governance disclosure level in the integrated reporting context. *In 8th OFEL (Organizational, Financial, Ethical and*

Legal Issues) conference on Governance, Management and Entrepreneurship,"From corporations to social entrepreneurs: exploring the different faces of social innovation", April 17-18 2020, Dubrovnik, Croatia (pp. 47-58). *Zagreb: Governance Research and Development Centre (CIRU)*.

Vitolla, F., Raimo, N., & Rubino, M. (2019). Appreciations, criticisms, determinants, and effects of integrated reporting: A systematic literature review. Corporate Social Responsibility and Environmental Management, 26(2), 518-528.

Wahl, A., Charifzadeh, M., & Diefenbach, F. (2020). Voluntary adopters of integrated reporting–evidence on forecast accuracy and firm value. *Business Strategy and the Environment*, 29(6), 2542-2556.

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Influence of Investor Biases on Decision Making in Indian Stock Market

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Abstract: This study examines how key behavioural biases, such as overconfidence, disposition effect, cognitive dissonance, optimism, anchoring, and herding, influence investment decision-making in the Indian stock market. The study uses primary data from 400 retail investors. Exploratory Factor Analysis (EFA) validates the underlying bias constructs. Correlation and multiple regression analysis are then used to assess their impact on decision-making. The findings reveal that overconfidence and cognitive dissonance significantly influence investment behaviour. The disposition effect shows a weak but positive association. In contrast, optimism, anchoring, and herding biases have no significant impact. These results highlight that investor behaviour in emerging markets is shaped by different psychological dynamics compared to developed markets. The study contributes to behavioural finance literature by providing an integrated analysis of multiple biases in the Indian context. From a practical perspective, the findings suggest that financial advisors should incorporate behavioural profiling in investment advisory, while policymakers should design targeted investor education programs to mitigate cognitive biases and promote rational decision-making.

1. Introduction

The Efficient Market Hypothesis (EMH) is part of the bedrock of conventional financial theory and states that investors act flexibly and the price of assets reflects all available information instantaneously and accurately (Fama, 1970). In this paradigm, investment decisions are assumed to be based on objective analysis to maximise expected returns while adhering to efficient risk-pricing procedures. For the past several decades, this framework has been used to govern financial research and policy deliberations and includes models of asset pricing, portfolio construction, and regulation of markets. However, the conclusion of investor rationality has gradually been under pressure due to persistent anomalies in the market, including excessive volatility, speculative bubbles, momentum effect, and systematic mispricing. Empirical evidence is mounting, however, suggesting that investors will often use heuristics, emotions, and social cues to make investment choices, and this can lead to regular and predictable departures from pure rationality (Barberis & Thaler, 2003; Shefrin, 2007). Behavioural finance, which draws on financial theory as well as psychological knowledge to understand anthropological effects on investment behaviour, has arisen as a theoretical response to these observations. Behavioural finance attributes a pair of common psychological biases that regularly unbalance the judgment and decision-making of investors. Some of the most salient are overconfidence, optimism, anchoring, herding behaviour, the disposition effect, and cognitive dissonance. These biases affect the way investors interpret information, take on risk, interpret market signals, and react to gains and losses. Prior empirical studies show that such behavioural tendencies can lead to overtrading, poor portfolio diversification, slow responses to new information, and

persistent inefficiencies in prices (Odean, 1998; Barber & Odean, 2001; Statman, 2014). Although behavioural finance has been well studied in developed financial markets, its applicability and explanatory ability in emerging economies are relatively understudied. Emerging markets are very different from developed markets in terms of institutional maturity, depth of regulation, information dissemination, and the sophistication of investors. These differences in structure may strengthen some of the behavioural biases while weakening some other biases. The Indian stock market, with the defining features of high rate of growth, high volatility, growth in the number of retail investors, and significant information asymmetry, provides an especially relevant context for understanding behavioural factors in investment decision-making. Despite an emerging body of behavioural finance research from India, there are still a number of shortcomings in the existing literature. First, many studies focus on individual biases in isolation, which is limited in telling us about the influence of multiple biases on investor decisions. Second, empirical findings with regard to the relative strength and significance of specific biases are not consistent, and suggest that there may be contextual and psychological factors that differentially determine the salience of bias across markets. Third, there is little evidence for which behavioural biases have the most impact on the decision-making of Indian retail investors in an integrated analytical system. Addressing these gaps is critical to both the development of behavioral finance theory and to improving investment decision-making. A better understanding of prevailing behavioural biases can help financial advisors in individualising behavioural interventions, enable policymakers to develop effective investor education programs, and help produce more stable and efficient market outcomes. Accordingly, the present study empirically explores the effect of six major types of behavioural biases, viz., overconfidence, optimism, anchoring, herding behaviour, disposition effect, and cognitive dissonance, on the investment decision-making of the retail investors in the Indian stock market. The study uses Exploratory Factor Analysis (EFA) to validate the behavioural constructs from primary survey results from 400 individual investors. Subsequent correlation and multiple regression analyses are used thereafter to determine the relative effects of each bias on the outcome of investments.

2. Literature Review

According to classical finance theory, investors are assumed to be consistent and rational beings in order to maximise expected benefit. The Efficient Market Hypothesis (EMH) further continues that systematic investor error is minimal and asset prices totally incorporate all extant information (Fama, 1970). Nonetheless, regular departures from predictions by the models (excessive trading, continued mispricing, and speculative bubbles) have led to doubts about the sufficiency of simply rational models for explaining real investor behaviour. In response to these limitations came behavioural finance to combine psychological insight and financial judgment. Early scholarly contributions determined that investors use heuristics and are vulnerable to cognitive and affective biases, which systematically render decision-making under uncertainty distorted (Tversky & Kahneman, 1974; Kahneman & Tversky, 1979). Subsequent empirical studies supported the latter by affirming that these biases do affect the processing of information, perception of risk, and trading behaviour, resulting in outcomes that do not conform to the rational expectations (Barberis & Thaler, 2003; Shefrin, 2007). Overconfidence has received extensive empirical focus among the behavioural biases that have been identified in the literature. Overconfident investors overstate their expertise and forecasting abilities, which prompts them to trade heavily and perform operationally worse (Odean, 1998). Empirical research has shown that such investors trade more than is warranted by information advantages and therefore bear greater transaction costs (Barber & Odean, 2001). Evidence of overconfidence in emerging markets from limited financial literacy and higher market volatility suggests the potential confinement of the latter factors into enhancing speculative behaviour (Chandra, 2009; Mishra & Metilda, 2015). Optimism bias is another prominent psychological bias, whereby investors have a tendency to overestimate a good outcome and underestimate the risks. According to a psychological study, people think of themselves as less likely to experience bad things than other people (Weinstein, 1980). Within financial frameworks, optimistically biased investors are more risk-tolerant and less fearful of participating in equity markets (Puri & Robinson, 2007). However,

over-optimism has also been linked to over-expectations and lower realised returns if the outcome of markets deviates negatively from good forecasts (Hilary &Menzly, 2006). Empirical results from India have indicated that optimism is the determining factor in asset distribution and risk perception, especially during bullish market periods (Chandra & Kumar, 2011). Anchoring bias, which emphasises the tendency of investors to reference points initially (e.g., historical prices or valuations), provides a framework for explaining deviations from rational investing behaviour (Tversky & Kahneman, 1974). Once the anchors are set, the investors often are not able to adjust enough to new information and thus are slow to react to changing market conditions. Empirical investigations show that anchoring also impacts both individual investors and professionals and is one of the causes of inertia in price expectations and forecasting errors (Campbell & Sharpe, 2009; Kaustia et al., 2008). On the Indian stock market, evidence suggests that investors often anchor on past prices, which influences both entry and exit decisions (Chandra et al., 2012). Herd behaviour refers to the tendency of investors to follow other people's behaviour rather than use private, confidential information. Theoretical models explain herding as being caused by informational cascades, where people make assumptions about hidden information based on what they see in the market behaviour (Banerjee, 1992; Bikhchandani et al., 1992). Empirical research shows that herding increases during times of uncertainty and market stress, and causes volatility and asset mispricing (Chang et al., 2000). Studies dedicated to emerging markets observe consistently higher herding tendencies compared to the situation in developed economies and ascribe this phenomenon to information asymmetry and lack of transparency (Demirer &Kutan, 2006). The evidence from the Indian markets indicates how widespread herding is in general among retail investors, especially in times of high volatility (Sehgal et al., 2009; Kumari & Mahakud, 2015). The disposition effect summarises the fact that investors are averse to realising losses, but will readily sell winning assets. Rooted in the fields of prospect theory and mental accounting, this is a biased emotional response to gains vs. losses (Shefrin & Statman, 1985). Empirical research shows that the disposition effect causes inefficient portfolio rebalancing and poor long-term performance (Odean, 1998; Grinblatt & Han, 2005). Research done in emerging markets shows that low experience and higher emotional involvement could be worsening this bias on the part of retail investors (Chandra, 2012; Kumari and Mahakud, 2016). Cognitive dissonance bias helps to explain how investors deal with information that contradicts their previous beliefs or decisions. In order to reduce the psychological discomfort, people selectively interpret or ignore disconfirming evidence, which therefore reinforces existing viewpoints (Festinger, 1957). Within the context of financial markets, this type of behaviour means that adverse information is not taken into account quickly enough and contributes to persistence in suboptimal investment choices (Hirshleifer, 2001). Empirical studies indicate that investors often rationalise poor performance rather than changing beliefs, with the final result being the confirmation bias and the inertia in portfolios (Goetzmann & Peles, 1997). Evidence from India suggests that cognitive dissonance plays an important role in investors not wanting to admit their own mistakes and moving out of any losing positions (Chandra, 2012; Kumari & Mahakud, 2015). Although there is a lot of evidence in the literature that behavioural biases influence the behaviour of investors, there are several limitations. Firstly, much of the empirical evidence comes from developed markets, where the generalizability of findings for emerging economies that are characterised by different institutional and informational contexts is cast in doubt. Secondly, existing studies tend to examine behavioural biases in isolation, allowing for little understanding of the way in which they may combine or be two in comparison to one another when it comes to investment decision-making. Thirdly, there are inconsistencies in findings relating to the dominance of various biases across contexts that suggest the need for integrated empirical models to examine multiple biases simultaneously in a single market context.

2.1. Recent Developments in Behavioural Finance Research

In recent years, behavioural finance research has expanded significantly, particularly in the context of emerging markets and retail investor behaviour. Contemporary studies have emphasised the growing influence of psychological biases in increasingly digital and volatile financial environments. Recent empirical evidence suggests that behavioural biases continue to play a crucial role in shaping investment

decisions, especially with the rise of online trading platforms and increased retail participation. For instance, studies have found that overconfidence and herding behaviour intensified during periods of market uncertainty, such as the COVID-19 pandemic, leading to excessive trading and speculative investment patterns (Bouri et al., 2021; Goodell et al., 2020). Further, research by Kumar and Goyal (2020) highlights that behavioural biases in emerging markets like India are more pronounced due to lower financial literacy and higher information asymmetry. Similarly, Sahi (2019) found that emotional and cognitive biases significantly influence investment choices among Indian retail investors, particularly under conditions of market volatility. Recent studies have also explored the role of technology and social media in amplifying behavioural biases. Investors are increasingly influenced by online information, peer behaviour, and digital forums, which reinforces herding tendencies and confirmation bias (Nofsinger, 2018; Barber et al., 2021). Moreover, contemporary research has focused on integrated models of behavioural biases rather than studying them in isolation. For example, Jain et al. (2022) examined multiple biases simultaneously and found that overconfidence and cognitive dissonance remain dominant predictors of investment decision-making, supporting the multidimensional nature of investor psychology. These recent advancements indicate that while traditional behavioural biases remain relevant, their manifestation has evolved with changing market structures and technological advancements. However, there is still limited empirical research that simultaneously examines multiple behavioural biases within a unified analytical framework in the context of Indian retail investors. This gap justifies the need for the present study. Accordingly, the present study is undertaken with the following objectives:

1. To identify and validate key behavioural biases influencing retail investors in the Indian stock market.
2. To examine the relationship between selected behavioural biases and investment decision-making.
3. To analyse the relative impact of behavioural biases, namely, overconfidence, optimism, anchoring, herding behaviour, disposition effect, and cognitive dissonance, on investors' decision-making.
4. To determine which behavioural biases exert the most significant influence on investment decisions in the Indian stock market.

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

- **H_1:** Overconfidence bias has a significant impact on investment decision-making among retail investors in the Indian stock market.
- **H_2:** Optimism bias has a significant impact on investment decision-making among retail investors in the Indian stock market.
- **H_3:** Anchoring bias has a significant impact on investment decision-making among retail investors in the Indian stock market.
- **H_4:** Herding behaviour has a significant impact on investment decision-making among retail investors in the Indian stock market.
- **H_5:** Disposition effect has a significant impact on investment decision-making among retail investors in the Indian stock market.
- **H_6:** Cognitive dissonance bias has a significant impact on investment decision-making among retail investors in the Indian stock market.

3. Research Methodology

3.1. Research Design

To investigate the role of behavioural biases in terms of the impact on investment decision-making of retail investors operating in the Indian equity market, the current study uses a quantitative, cross-sectional study design. This methodological choice allows for the objective evaluation of the psychological constructs and to validate the hypothesised relationships statistically, thus making the quantitative approach a very appropriate one regarding the research objectives. Consistent with well-established practices in behavioural finance scholarship, a cross-sectional framework makes it possible to capture the perceptions of investors and their behavioural inclinations at a single point in time.

3.2. Population and Sample

The target population of the study comprised individual retail investors actively participating in the Indian equity market. To ensure the relevance and reliability of responses, only those individuals with prior trading experience were included, thereby capturing informed and experience-based investment behaviour rather than hypothetical responses. A total of 400 valid responses were collected and analysed. The sample size is considered adequate for multivariate statistical techniques such as Exploratory Factor Analysis (EFA) and multiple regression analysis, as suggested by established methodological guidelines (Hair et al., 2019). The study employed a purposive sampling technique, which is particularly suitable in behavioural finance research where the objective is to select respondents with specific characteristics relevant to the research problem. Since the study aims to examine behavioural biases in actual investment decision-making, it was essential to include only those respondents who actively engage in stock market transactions. Random sampling may include non-investors or inexperienced participants, which could dilute the validity of behavioural insights. Therefore, purposive sampling ensures that the selected participants possess adequate exposure, knowledge, and decision-making experience, thereby enhancing the internal validity and relevance of the findings.

3.3. Data Collection Procedure

For the present investigation, an instrument that was standardised and self-administered was developed and used to gather primary data. In order to maintain conceptual clarity and content validity, the questionnaire included existing instruments that were taken from the literature on behavioural finance. Data were gathered using in-person interactions and distribution through online information delivery possibilities based on respondent availability.

Prior to the implementation of the main survey, pilot research was carried out with forty participants so that the relevance, reliability, and clarity of the items on the questionnaire could be evaluated. The feedback received from the pilot was used to make adjustments to ensure better uniformity of response and to improve the wording of the items. Responses from the pilot were excluded from the final analytical data set. The pilot study also enabled a preliminary assessment of the reliability of the instrument, ensuring that the items were internally consistent before final data collection.

3.4. Measurement of Variables

The questionnaire measured six constructs of behavioural biases, namely overconfidence, optimism, anchoring, herding behaviour, and disposition effect, in addition to cognitive dissonance and investment decision-making behaviour. All of the items were assessed on a five-point Likert scale, from 1 (Strongly Disagree) to 5 (Strongly Agree). The measurement scales were drawn from well-established studies in behavioural finance in order to maintain validity and reliability. Items regarding overconfidence were adapted from Barber and Odean (2001), optimism from Puri and Robinson (2007), anchoring from Kaustia et al. (2008), herding behaviour from Bikhchandani et al. (1992), disposition effect from Shefrin and Statman (1985), and cognitive dissonance from Pompian (2006). Minor contextual adjustments were made to make the scales appropriate to the stock market situation in India without any changes in the basic theoretical constructs of the scales. To ensure the reliability and validity of the measurement

instrument, several statistical checks were performed. Internal consistency reliability was assessed using Cronbach's alpha coefficient, and all constructs demonstrated acceptable reliability levels exceeding the recommended threshold of 0.70. Construct validity was evaluated through Exploratory Factor Analysis (EFA), where factor loadings for all items exceeded 0.50, indicating satisfactory convergent validity. Furthermore, the adequacy of the data for factor analysis was confirmed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. The KMO value exceeded the minimum acceptable level of 0.60, and Bartlett's test was statistically significant ($p < 0.001$), confirming the suitability of the data for factor extraction. These results collectively establish the robustness, reliability, and validity of the measurement scales used in the study.

Table 1: Reliability Analysis of Measurement Constructs

Construct	No. of Items	Cronbach's Alpha
Overconfidence	3	0.781
Optimism	4	0.752
Anchoring	2	0.738
Herding Behaviour	3	0.721
Disposition Effect	4	0.769
Cognitive Dissonance	2	0.734
Investment Decision-Making	2	0.802

Source: SPSS output.

The reliability of the measurement constructs was assessed using Cronbach's alpha coefficient. As shown in Table 1, all constructs exhibit alpha values above the recommended threshold of 0.70, indicating satisfactory internal consistency reliability (Hair et al., 2019). The results confirm that the measurement scales used in the study are reliable and suitable for further statistical analysis.

4. Results and Discussion

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS). A structured and sequential analytical approach was adopted. Initially, Exploratory Factor Analysis (EFA) was performed to identify the underlying factor structure of behavioural bias constructs and to assess construct validity. The suitability of the data for factor analysis was evaluated using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. Subsequently, correlation analysis was employed to examine the strength and direction of relationships between behavioural biases and investment decision-making. Finally, multiple regression analysis was conducted to test the proposed hypotheses and to determine the relative influence of each behavioural bias on investment decision-making.

4.1. Demographic Profile of Respondents

The demographic characteristics of the respondents were checked to ensure the proper understanding of the composition of the sample. The study was based on valid responses from 400 participants who are retail investors who actively participate in the Indian stock market. The demographic variables considered in this study were gender, age, income, educational background, and investment experience. Table 2 provides an overview of the demographic characteristics of the respondents.

Table 2: Demographic Profile of Respondents (N = 400)

Variable	Category	Frequency	Percent	Valid%	Cumulative%
Gender	Male	232	58	58	58
	Female	168	42	42	100
Marital status	Married	222	55.5	55.5	55.5
	Unmarried	178	44.5	44.5	100
Age	Less than 30	79	19.8	19.8	19.8
	30-40	187	46.8	46.8	66.5

Variable	Category	Frequency	Percent	Valid%	Cumulative%
	41-50	54	13.5	13.5	80
	More than 50	80	20	20	100
Qualification	Undergraduate	107	26.8	26.8	26.8
	Graduate	188	47	47	73.8
	Post Graduate	39	9.8	9.8	83.5
	Any Other (PhD)	66	16.5	16.5	100
	Less than 4 lakhs	274	68.5	68.5	68.5
Income	4-6 lakhs	60	15	15	83.5
	7-9 lakhs	40	10	10	93.5
	Above 9 lakhs	26	6.5	6.5	100
	Less than one year	212	53	53	53
Investing Period	1-3 year	78	19.5	19.5	72.5
	3-5 year	75	18.8	18.8	91.3
	More than 5 years	35	8.8	8.8	100

Source: SPSS output.

4.2. Interpretation of Demographic Profile

The demographic perspective shows that the sample consists of active retail investors who have a heterogeneous market exposure and experience. The number of male participants, reflecting a higher ratio, reflects the gender structure that is commonly found in the Indian equity markets, whereby male participation in retail trading remains the leading trading activity. Using age structure, it suggests that a high percentage of the respondents are in the economically active age groups, suggesting that there is a high level of involvement in financial decisions. In terms of educational level, most of the surveyed participants have graduate or postgraduate degrees, which means that they possess an adequate financial literacy level and mental ability to evaluate investment-related data critically. Therefore, the sample can be considered suitable in terms of the study of the behavioural bias, which requires reflective consideration but not intuitive processing. Additional data on experience in investing supports the fact that the respondents are not passive participants but are actively engaged in equity-market transactions. These attributes increase the validity of the data on behaviour gathered because the choices reported are based on actual field experience in the market and not imaginary. Overall, the demographic structure justifies the suitability of the sample to examine behavioural antecedents of investment decision-making in the Indian stock market.

4.3. Exploratory Factor Analysis (EFA)

To confirm the dimensional validity of the constructs of behavioural bias and to explore the structure behind the measurement items, an exploratory factor analysis was performed. The test of sphericity conducted by Bartlett showed statistically significant outcomes ($\chi 2 = 1096.273$, $p < 0.001$) and, thus, proved that the data were suitable to extract factors. The Kaiser-Meyer-Olkin sampling adequacy measure was 0.612, which was found to have an adequate sample size (see Table 3). This analysis has discovered that there are six different components, such as overconfidence, optimism, anchoring, herding, disposition effect, and cognitive dissonance, that are very similar to the theoretical framework. All items redeemed their own construct, and all factor loadings were over 0.50, which presented a measure of satisfactory convergent validity.

All these facts support the idea that the chosen variables represent the complex character of behavioural biases displayed by Indian retail investors and testify to the effectiveness of the measurement model. A detailed overview of the outputs of the exploratory factor analysis is given in Table 4.

Table 3: KMO and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.612
Bartlett's Test of Sphericity	Approx. Chi-Square	1096.273
	Df	190
	Sig.	0

Source: SPSS output.

Table 4: Results of Scale Purification

Dimension	Item No.	Element	Factor Loadings	Communalities	Eigen Values	Explained Variance
Overconfidence	viii)	While making wrong investment decisions, you justify your mistakes.	**0.791**	0.577	2.563	12.814
	vii)	While trading, stop-losses do have an influence on your trade.	**0.676**	0.562		
	xi)	If you are severely criticised for holding a losing stock or selling off a winning stock, you will rethink your decision.	**0.593**	0.585		
Optimism	xxviii)	My outlook for the Indian equity market in the near future is optimistic	**0.764**	0.599	2.068	10.34
	xxv)	A particular experienced investor who has gathered all the information available to him before deciding to invest made a successful investment. His investment can be described more in terms of skill than luck.	**0.628**	0.448		
	xxiv)	You tend to collect as much information as possible before making a decision to buy the stock.	**0.624**	0.491		
	xxii)	The last investment was more of bad luck than it was my own poor judgment.	**0.547**	0.532		
Anchoring	xv)	A stock which follows an increasing trend will show a decelerating growth afterwards.	**0.88**	0.759	1.603	8.014
	xiv)	Indian stock market is going to see a severe crash in the coming times.	**0.877**	0.769		
Herd Behaviour	v)	You will invest in a stock even if your valuation does not match with that of an expert.	**0.701**	0.533	1.439	7.195
	xii)	The buying and selling of stocks by other investors affects your decision-making to invest.	**0.592**	0.504		
	x)	If an expert makes an opinion about a stock that contradicts your opinion, you will change your opinion	**0.554**	0.59		

Dimension	Item No.	Element	Factor Loadings	Communalities	Eigen Values	Explained Variance
		immediately.				
Decision Making	ii)	You did an analysis of a share, and you did not find it worth investing in. You meet your coworkers/friends the other day and they had invested heavily in the same stock. This will not positively influence your investment behaviour.	**0.897**	0.744	1.364	6.821
	i)	While making investment decisions you trust yourself the most.	**0.833**	0.711		
Disposition Effect	xviii)	The expected return from my investment will be between 10 and 20 percent.	**0.764**	0.609	1.294	6.472
	xix)	I am holding to my investment because selling them would not be painful to me since I would incur a loss.	**0.645**	0.597		
	xx)	I intend to sell my investments immediately if it goes back to the acquisition price.	**0.523**	0.423		
	xvii)	Your loss margin was not more than 50 percent when subprime crisis hit the market.	**0.4**	0.409		
Cognitive Dissonance	xxiii)	I am holding to my investments because I know the prices will revert soon.	**0.772**	0.601	1.194	5.972
	ix)	You indulge in making an investment while your mind does not agree.	**0.675**	0.483		

Source: SPSS output.

4.4. Correlation Analysis

Correlation analysis was used to investigate the interrelations between six behavioural biases and the styles of decision-making (investors). Table 5 indicates that overconfidence (r = 0.262, p = less than 0.01) and cognitive dissonance (r = 0.200, p = less than 0.01) have significant positive relationships with decision-making in investments. These results indicate that investors with increased confidence in their judgements or with cognitive immunity to counter-evidence are more likely to make determinate, though possibly biased, financial judgements. On the other hand, the relationships showed no statistically significant, thematic relations between optimism, anchoring, herding, and the disposition effect on the results of decisions. This trend shows that these biases could have been embedded in the cognitive structures of investors, but their immediate influence on decision-making could be mitigated or depend on situational variables. Each of the six behavioural dimensions was retained to be analysed since they have a robust theoretical support in the available extant literature of behavioural finance and thus were used to offer a holistic assessment of psychological factors affecting investment behaviour.

Table 5: Relationship between Various Behavioural Biases and Decision Making

Psychological Traits	Decision Making	
	r- value	p-value
Over Confidence	.262*	0
Optimism	0.023	0.654
Anchoring	0.02	0.697
Herd behaviour	0.001	0.983
Disposition effect	0.091	0.068
Cognitive dissonance	.200**	0

Source: SPSS output.

4.5. Multiple Regression Analysis

A multiple regression model was employed to examine the combined predictive ability of six behavioural biases on investors' decision-making. The overall model was found to be statistically significant ($F = 10.430$, $p < 0.01$), indicating that the selected predictors jointly explain variations in investment behaviour. The coefficient of determination ($R^2 = 0.140$; Adjusted $R^2 = 0.126$) suggests that approximately 14% of the variance in investment decision-making is explained by the included behavioural biases. Although the explanatory power appears modest, such values are not uncommon in behavioural finance research, where decision-making is influenced by a wide range of psychological, situational, and market-related factors that are difficult to fully capture within a single model. The relatively low R^2 indicates that additional variables, such as demographic characteristics (e.g., age, income, education), market experience, financial literacy, and macroeconomic conditions, may further improve model specification. However, the present model remains theoretically grounded, as it focuses specifically on well-established behavioural biases identified in prior literature. Importantly, the statistical significance of the model ($p < 0.01$) confirms that behavioural biases, taken together, have a meaningful impact on investment decision-making. Furthermore, individual coefficient analysis (as reported in the subsequent section) highlights those certain biases, particularly overconfidence and cognitive dissonance, that exert a stronger predictive influence compared to others. Overall, the findings reinforce the relevance of behavioural factors in explaining investor behaviour, while also suggesting scope for incorporating additional explanatory variables in future research to enhance model robustness.

Table 6: Model

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics				
					R^2 Change	F Change	df1	df2	Sig. F Change
1	.374[a]	.140	.126	.92275	.140	10.430	6	386	.000

a. Predictors: (Constant), CD, DE, HE, AN, OP, OC
b. Dependent Variable: DM

4.6. Coefficients

The coefficients table provided insights into the relative contribution of each predictor to the model. Results are summarised as follows:

Table 7: Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
Model	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.013	.047		-.277	.782		
OC	.233	.049	.234	4.810	.000	.942	1.062

OP	.054	.048	.054	1.113	.267	.948	1.055
AN	-.050	.049	-.050	-1.029	.304	.947	1.056
HE	.012	.048	.012	.248	.804	.975	1.026
DE	.120	.049	.120	2.473	.014	.940	1.063
CD	.238	.049	.237	4.905	.000	.955	1.047

a. Dependent Variable: DM
Source: SPSS output.

The findings confirm that overconfidence (0.234, $p < 0.001$) and cognitive dissonance (0.237, $p < 0.001$) are significant predictors of decision-making in the cohort group of Indian retail investors. Whereas the other biases were deemed statistically significant despite their theoretical significance, the rest of the biases did not reach statistical significance in the current sample.

5. Findings

The study set out to identify and analyse the impact of behavioural biases on retail investors' decision-making in the Indian stock market. In line with the first objective, the exploratory factor analysis confirmed the presence of key behavioural biases, including overconfidence, optimism, anchoring, herding behaviour, disposition effect, and cognitive dissonance among retail investors. These findings are consistent with earlier studies that highlight the prevalence of psychological biases in financial decision-making (Ricciardi & Simon, 2000; Kumar & Goyal, 2016). Addressing the second objective, the correlation analysis revealed significant relationships between these behavioural biases and investment decision-making, indicating that psychological factors play a crucial role in shaping investor behaviour. This result supports the behavioural finance perspective proposed by Kahneman and Tversky (1979), which emphasises that investor decisions are often influenced by cognitive heuristics and biases rather than purely rational evaluation. With respect to the third and fourth objectives, the regression results demonstrated that overconfidence and cognitive dissonance exert the most significant influence on investment decisions, while other biases such as optimism, anchoring, herding, and disposition effect showed comparatively weaker predictive power. The strong influence of overconfidence is consistent with the findings of Barber and Odean (2001) and Odean (1998), who observed that overconfident investors tend to trade excessively and make suboptimal decisions. Similarly, the role of cognitive dissonance aligns with the theoretical arguments of Festinger (1957), which explain how investors may ignore contradictory information to maintain consistency in their beliefs. These findings suggest that self-perception and information-filtering mechanisms are critical determinants of investor behaviour, particularly in emerging markets characterised by uncertainty and information asymmetry. Similar observations have been reported in studies focusing on emerging market investors (Chen et al., 2007; Sahi, 2019). Based on these findings, it is recommended that retail investors enhance their awareness of behavioural biases to improve decision-making quality. Financial advisors should incorporate behavioural assessment tools to better understand client biases and design suitable investment strategies. Furthermore, policymakers should strengthen investor education initiatives by integrating behavioural finance concepts to promote more rational and disciplined investment practices.

6. Conclusion

The study was empirical research that investigated how Indian stock market retail investors make investment decisions, considering six big behavioural biases- overconfidence, optimism, anchoring behaviour, herding behaviour, disposition effect, and cognitive dissonance. The presented work offered empirical data concerning the role of psychological factors in the investment behaviour of a group of investors in a developing market, using primary data on 400 investors and applying the methods of exploratory factor analysis, correlation analysis, and multiple regression analysis. The findings have shown that overconfidence and cognitive dissonance are the most serious biases that influence investor decision-making. Over-confident investors are more prone to over-reliance on their own judgment and

underestimate risk, and people affected by cognitive dissonance are more likely to rationalise previous choices and selectively ignore information that contradicts these choices. These biases are collectively important in explaining differences in decisions made on investments, and therefore, the internal influences of cognitive distortions take an upper hand over external influences of bias. On the contrary, though optimism, anchoring, herding behaviour, and the disposition effect are theoretically applicable and empirically proven as latent constructs, no statistically significant direct effect on the decision making in the current sample was observed, indicating that they could be situation or context-specific. The analysis confirms the behavioural finance theory by showing how the decision-making of investors always deviates from the assumptions of rational choice and market efficiency. The results of the study related to the differentiated impacts of behavioural biases emphasise the relevance of situational factors in defining bias salience. The study, therefore, moves the study of investor psychology in a less dramatic hierarchy of behavioural bias, as it also shows that not every behavioural bias will have an equally strong impact in a developing market like India. The study offers several important implications for investors, financial practitioners, and policymakers. From a managerial perspective, the findings highlight the need for retail investors to develop greater self-awareness of cognitive biases such as overconfidence and confirmation bias, which adversely affect rational decision-making. Financial advisors and portfolio managers can incorporate behavioural profiling tools into their advisory processes to identify client-specific biases and tailor investment strategies accordingly. This can enhance advisory effectiveness, improve portfolio outcomes, and strengthen client trust. From a policy perspective, the results underscore the necessity for regulators and policymakers to design more comprehensive investor education programs that extend beyond technical and financial literacy. Specifically, such programs should incorporate modules on behavioural biases and decision-making errors to help investors recognise and mitigate common psychological traps. Policymakers may also consider integrating behavioural nudges, simplified disclosure frameworks, and digital interventions to guide investors toward more disciplined and informed investment practices in equity markets. Overall, the study provides actionable insights that can contribute to improving investment decision-making quality and promoting greater stability and efficiency in financial markets. The study is subject to certain limitations. The cross-sectional research design restricts the ability to observe changes in investor behaviour across different market cycles over time. Additionally, the reliance on self-reported data may introduce response bias, as actual trading behaviour may not fully align with reported perceptions. Although the sample size is adequate for statistical analysis, it is limited to individual investors and does not include professional or institutional market participants. These limitations provide avenues for future research, particularly through longitudinal designs and more diverse samples. Overall, the research proves that behavioural biases are critical influences in the decisions made by investors in the Indian stock exchange. The discovery and reduction of these biases is the key to enhancing the results of investment in the emerging economies, improving the level of financial literacy, and ensuring market efficiency.

References

Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics, 116*(1), 261–292. https://doi.org/10.1162/003355301556400

Barber, B. M., Huang, X., Odean, T., & Schwarz, C. (2021). Attention-induced trading and returns: Evidence from Robinhood users. *The Journal of Finance, 76*(6), 3141–3195. https://doi.org/10.1111/jofi.13085

Barberis, N., & Thaler, R. (2003). A survey of behavioral finance. In G. Constantinides, M. Harris, & R. Stulz (Eds.), *Handbook of the economics of finance* (Vol. 1, pp. 1053–1128). Elsevier. https://doi.org/10.1016/S1574-0102(03)01027-6

Bouri, E., Demirer, R., Gupta, R., & Nel, J. (2021). COVID-19 pandemic and investor herding in international stock markets. *Risks, 9*(9), 168. https://doi.org/10.3390/risks9090168

Chen, G., Kim, K. A., Nofsinger, J. R., & Rui, O. M. (2007). Trading performance, disposition effect, overconfidence, representativeness bias, and experience of emerging market investors. *Journal of Behavioral Decision Making, 20*(4), 425–451. https://doi.org/10.1002/bdm.561

Chen, G., Kim, K. A., Nofsinger, J. R., & Rui, O. M. (2007). Trading performance, disposition effect, overconfidence, representativeness bias, and experience of emerging market investors. *Journal of Behavioral Decision Making, 20*(4), 425–451. https://doi.org/10.1002/bdm.561

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance, 25*(2), 383–417. https://doi.org/10.2307/2325486

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.

Goodell, J. W. (2020). COVID-19 and finance: Agendas for future research. *Finance Research Letters, 35*, 101512. https://doi.org/10.1016/j.frl.2020.101512

Jain, J., Walia, N., & Gupta, S. (2022). Evaluation of behavioral biases affecting investment decision making of individual investors. *Journal of Behavioral and Experimental Finance, 33*, 100605. https://doi.org/10.1016/j.jbef.2021.100605

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*(2), 263–291. https://doi.org/10.2307/1914185

Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1991). Anomalies: The endowment effect, loss aversion, and status quo bias. *Journal of Economic Perspectives, 5*(1), 193–206. https://doi.org/10.1257/jep.5.1.193

Kumar, A., & Goyal, N. (2016). Evidence on rationality and behavioural biases in investment decision making. *Qualitative Research in Financial Markets, 8*(4), 270–287. https://doi.org/10.1108/QRFM-05-2016-0016

Kumar, S., & Goyal, N. (2020). Behavioural biases in investment decision making: A systematic literature review. *Qualitative Research in Financial Markets, 12*(2), 219–241. https://doi.org/10.1108/QRFM-07-2018-0089

Nofsinger, J. R. (2018). *The psychology of investing* (6th ed.). Routledge.

Odean, T. (1998). Volume, volatility, price, and profit when all traders are above average. *Journal of Finance, 53*(6), 1887–1934. https://doi.org/10.1111/0022-1082.00078

Odean, T. (1998). Volume, volatility, price, and profit when all traders are above average. *Journal of Finance, 53*(6), 1887–1934. https://doi.org/10.1111/0022-1082.00078

Odean, T. (1999). Do investors trade too much? *American Economic Review, 89*(5), 1279–1298. https://doi.org/10.1257/aer.89.5.1279

Park, A., & Sabourian, H. (2011). Herd behavior in efficient financial markets. *The Economic Journal, 121*(555), 569–601. https://doi.org/10.1111/j.1468-0297.2010.02407.x

Pompian, M. M. (2012). *Behavioral finance and investor types: Managing behavior to make better investment decisions*. John Wiley & Sons.

Ricciardi, V., & Simon, H. K. (2000). What is behavioral finance? *Business, Education & Technology Journal, 2*(2), 1–9.

Ricciardi, V., & Simon, H. K. (2000). What is behavioral finance? *Business, Education & Technology Journal, 2*(2), 1–9.

Sahi, S. K. (2019). Role of behavioral biases in investment decisions: A study of Indian investors. *IIMB Management Review, 31*(3), 248–261. https://doi.org/10.1016/j.iimb.2019.07.001

Shefrin, H., & Statman, M. (1985). The disposition to sell winners too early and ride losers too long: Theory and evidence. *Journal of Finance, 40*(3), 777–790. https://doi.org/10.2307/2327802

Shiller, R. J. (2000). *Irrational exuberance*. Princeton University Press.

Statman, M. (2008). Countries and culture in behavioral finance. *CFA Institute Conference Proceedings Quarterly, 25*(3), 38–44. https://doi.org/10.2469/cp.v25.n3.2

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185*(4157), 1124–1131. https://doi.org/10.1126/science.185.4157.1124

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Corporate Borrowings and Financial Performance across Life-Cycles

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Abstract: This study examines the effect of corporate borrowings on financial performance across different firm life-cycles in Indian manufacturing firms. Using a panel dataset from 2011 to 2024 of 1,527 firms, the findings reveal that corporate borrowings have a negative effect on financial performance, indicating that excessive reliance on debt financing adversely affects profitability. Further, the life-cycle analysis demonstrates that the adverse effect of borrowings varies across different stages of corporate development. The negative impact is strongest during the maturity and shakeout stages, while comparatively weaker effects are observed during the introduction and decline stages. The result aligns with the trade-off theory and agency theory by suggesting that costs associated with excessive leverage compensate its potential benefits.

1. Introduction

Corporate borrowing is one of the most significant financing decisions affecting a firm's operational efficiency, profitability, and long-term sustainability. The choice between debt and equity financing has remained a central issue in corporate finance since the seminal work of Modigliani & Miller (1958), who argued that capital structure is irrelevant to firm value under perfect market conditions. However, in real-world markets characterised by taxes, bankruptcy costs, information asymmetry, and agency conflicts, financing decisions become highly relevant to firm performance and value. In this regard, subsequent theoretical developments, such as the trade-off theory, pecking order theory, and agency theory, offer different explanations of firms' borrowing behaviour. The trade-off theory (Kraus & Litzenberger, 1973) suggests that firms maintain an optimal level of borrowings by balancing the tax advantages of debt against financial distress and bankruptcy costs. In contrast, the pecking order theory (Myers & Majluf, 1984) claims that firms prefer internally generated funds over external financing and rely on debt only when internal resources are insufficient. These theories imply that corporate borrowings can either enhance or deteriorate firm profitability depending on the level of debt utilisation and firm-specific conditions.

The association between corporate borrowings and financial performance has attracted extensive empirical attention across developed and developing economies. Several studies (Cobham & Subramaniam, 1998; DeAngelo et al., 2010; Owen & Yawson, 2010) report that moderate levels of debt improve financial performance through tax shields, managerial discipline, and efficient allocation of resources. Conversely, excessive dependence on debt may increase financial risk, agency costs, and the probability of financial distress, thereby negatively affecting profitability. Another empirical evidence also indicates the presence of a non-linear relationship between leverage and financial performance, supporting the existence of an optimal borrowing level (Le & Phan, 2017; Ronoowah & Seetanah, 2024). Despite this, empirical findings remain inclusive due to differences in institutional regulations, industrial structures, and firm characteristics. An important limitation of prior studies is that they treat firms as homogeneous entities and

ignore the dynamic nature of firms across different stages of development. Firms evolve through various life-cycle stages, such as introduction, growth, maturity, shakeout, and decline, and their financing requirements, investment opportunities, risk profile, and profitability vary substantially across these stages (Dickinson, 2011). Generally, young firms in the introduction and growth stages face higher information asymmetry, lower retained earnings, and greater financing constraints, which may increase dependence on external borrowings (Mueller, 1972). On the other hand, mature firms possess stable cash flows and easier access to debt markets, enabling them to use the borrowings more efficiently (Dickinson, 2011). Therefore, the effect of corporate borrowings on financial performance is likely to differ across firm life-cycle stages.

The life-cycle perspective has become more relevant in explaining corporate financial behaviour because it captures the changing financial needs and strategic priorities of firms over time. Financing decisions that may positively influence performance in one stage could adversely affect firms in another stage. Consequently, examining the borrowing effects on the performance nexus without considering firm life-cycle heterogeneity may reveal an incomplete conclusion. Although some studies have investigated capital structure determinants across life-cycle stages, there is a lack of evidence regarding how corporate borrowings affect financial performance throughout firm life-cycle phases, particularly in Indian firms. Manufacturing firms in India operate in a highly competitive and financially constrained environment (Mehta & Rajan, 2017) where borrowings are essential for expansion, technological advancement, and working capital management (Dash et al., 2023). At the same time, increasing debt obligations may adversely affect profitability due to rising interest burdens and financial risks. Moreover, Indian manufacturing firms exhibit substantial heterogeneity in terms of size, growth, and financial conditions across life-cycle periods. So, analysis of borrowings and financial performance is particularly important. Similarly, from the investors and lenders' point of view, it may benefit from identifying how borrowing decisions influence firm efficiency and risk across different phases of firm development.

The subsequent sections of the paper are organised as follows: the second section depicts the review of related papers. The third section describes the methodology used in this paper. The fourth section analyses the results, and the final section concludes the study.

2. Review of Literature

The relationship between corporate borrowings and financial performance has remained one of the central issues in corporate finance literature. Since the pioneering work of Modigliani & Miller (1958), studies have extensively examined whether financing decisions influence firm profitability and value. The MM approach initially argued that capital structure is irrelevant to firm value under perfect market conditions. However, the assumptions of perfect markets rarely hold in practice because firms operate under taxes, bankruptcy costs, and information asymmetry (Behera & Sethi, 2024), and agency conflicts. Subsequently, several theories have been developed to explain how corporate borrowings affect financial performance, like the trade-off theory, which suggests that firms determine an optimal capital structure by balancing the tax benefits of debt financing against the cost of financial distress and bankruptcy (Kraus & Litzenberger, 1973). Similarly, agency theory (Jensen & Meckling, 1976) argues that higher leverage gives rise to conflicts between managers and shareholders. Excessive debt obligations reduce managerial flexibility, increase monitoring costs, and negatively influence the firm's performance. In contrast, the pecking order theory suggests that firms prefer internal financing over external financing due to information asymmetry and transaction costs (Sahoo & Sethi, 2025).

Several studies report a negative association between leverage and financial performance. According to Zeitun & Tian (2007), using data from Jordanian firms, excessive debt financing increases financial distress costs and reduces operational efficiency. Similarly, Salim & Yadav (2012) document a significant negative relationship between leverage and financial performance among Malaysian listed firms, showing that high debt burdens weaken profitability and increase financial risk. Likewise, Le & Phan (2017) reported that leverage adversely affects firm performance in Vietnamese firms, as highly leveraged firms face rising borrowing costs and financial instability. Some studies conducted in the Indian context, such as those by

Majumdar & Chhibber (1999), observed that highly leveraged Indian firms exhibit lower profitability and operational efficiency due to financial burden and agency-related inefficiencies. Similarly, Chakraborty (2010) finds that Indian firms prefer internal financing over debt financing. The study argues that higher debt levels negatively influence firm profitability. In contrast, some studies report a positive relationship between debt financing and firm performance. Studies of Abor (2005), Berger et al. (2003), and Sahoo & Behera (2025) find that short-term debt positively influences profitability because firms efficiently utilise external financing for business expansion. Despite the extensive literature, most previous studies treat firms as homogenous entities and ignore the dynamic nature of firms across different stages of development, while Mueller (1972) reveals that financial needs, growth opportunities, profitability, and investment behaviour change across firm life-cycle stages. Similarly, according to Dickinson (2011), firm life-cycle theory, firms exhibit different financial characteristics during introduction, growth, maturity, shakeout, and decline stages. However, most existing studies focus on the overall relationship between leverage and performance without integrating the life-cycle perspective, and the dynamic impact of corporate borrowings on financial performance across the stage remains insufficiently explored. Therefore, this study attempts to fill this gap by examining the effect of corporate borrowings on financial performance across different firm life-cycle stages in Indian manufacturing firms.

3. Methodology

3.1. Data

The study has used firm-level data of 1,527 Indian manufacturing firms listed on both NSE and BSE for the period 2011- 2024. The data have been collected from PROWESS database of the Centre for Monitoring Indian Economy (CMIE). This study focuses specifically on listed manufacturing firms because these firms adhere to the financial reporting norms prescribed by the Securities and Exchange Board of India (SEBI). These regulations ensure transparency and consistency in financial disclosures and make more reliable data sources for analysis. In addition, firms with missing data are excluded from the sample.

3.2. Model Specification

To empirically determine the impact of corporate borrowings on financial performance, this study employs a pooled Ordinary Least Squares (OLS) regression model. The model is applied in two parts: first, to estimate the overall effect of corporate borrowings on the financial performance of all firms in the sample, and second, to examine how these relationships change across different stages of the firm life-cycle, classified based on the framework of Dickinson (2011). This model allows for capturing the average effect of the variables across firms and time, assuming homogeneity in slope coefficients and ignoring unobserved firm-specific effects (Baltagi, 2008; Wooldridge J M, 2010). To ensure the robustness of the findings, the same models are also estimated using a fixed-effect regression approach, and the results remained consistent in terms of sign and significance of variables, so that the validity of the fixed-effect estimates is emphasised. The estimated autoregressive dynamic panel model is as follows:

$$FP_{it} = \alpha_i + \beta_1 CB_{it} + \beta_2 Size_{it} + \beta_3 Age_{it} + \beta_4 CA_{it} + \beta_5 RD_{it} + \beta_6 Div_{it} + \varepsilon_{it}$$

Where,
FP = Financial performance, measured as the ratio of profit after tax to total assets.
CB = Corporate borrowings measured by the total borrowings to total assets ratio.
Size = Natural logarithm of total assets.
Age = Firm age, measured as the natural logarithm of the number of years since the firm's incorporation.
CA = Collateral ability, measured as the ratio of fixed assets to total assets.
RD = Research & Development expenditure, measured as the ratio of R&D expenditure to total assets.
Div = A dummy variable that takes 1 for dividend payment, and 0 otherwise.

4. Results and Discussion

4.1. Summary Statistics

Table 1: Descriptive Statistics

Variable	Mean	Median	S.D.	Min	Max
FP	0.046	0.038	0.075	-0.975	0.592
CB	0.510	0.527	0.208	0.001	0.930
Size	12.5	12.4	2.04	2.30	20.7
Age	35.1	31.0	19.9	1.00	161.0
CA	0.306	0.290	0.170	0.000	0.971
RD	0.008	0.003	0.013	0.000	0.195
Div	0.481	0.00	0.500	0.00	1.00

Source: Authors' compilation.

Table 1 reports the descriptive statistics that provide an overview of the dataset and key characteristics of the variables. All the variables seem normally distributed with little variability, as indicated by small standard deviations.

4.2. Correlation Matrix

Table 2: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	VIF
(1) FP	1							
(2) CB	-0.321	1						1.098
(3) Size	0.201	-0.005	1					1.154
(4) Age	0.072	-0.106	0.350	1				1.098
(5) CA	-0.130	0.124	0.048	0.005	1			1.040
(6) RD	0.089	-0.133	-0.024	-0.131	-0.083	1		1.042
(7) Div	0.362	-0.192	0.450	0.254	-0.015	0.024	1	1.137

Source: Authors' compilation.

The Karl Pearson coefficient of correlation is shown in Table 2. The correlation coefficient lies within 0.005 - 0.450, implying that the variables are free from the collinearity issue. Further, the highest variance inflation factor (VIF) of 1.137 implies the absence of multicollinearity issues among the variables (Chatterjee & Hadi, 2015; O'Brien, 2007).

4.3. Regression Result

Table 3. Effect of Corporate Borrowings on Financial Performance

	OLS Estimation			Fixed-Effect Estimation		
	Coefficient	***t-test***	***p-value***	***Coefficient***	***t-test***	***p-value***
Intercept	0.102***	16.96	0.001	0.308***	14.03	0.001
CB	−0.130***	−33.00	0.001	−0.144***	−23.64	0.001
Size	0.001***	3.627	0.001	−0.011***	−5.590	0.001
Age	−0.000***	−2.933	0.003	−0.001	−0.9650	0.334
CA	−0.065***	−13.69	0.001	−0.103***	−14.10	0.001
RD	0.117**	2.202	0.027	0.161*	1.806	0.071
Div	0.038***	22.77	0.001	0.027***	14.27	0.001
Observations		*7350*		***Observations***	*7350*	
Adjusted R^2		*0.264*		***Within R^2***	*0.154*	
F (6, 7343)		440.445		***F (715, 6634)***	14.171	
p-value (F)		*0.000*		***p-value (F)***	*0.000*	

Source: Authors' compilation.

*Note: ***, **, and * stand for statistical significance at 1%, 5%, and 10%, respectively.*

Table 3 shows the regression results examining the effect of corporate borrowings on financial performance. The findings reveal a significant negative (-0.130***) relationship between corporate borrowings and firm performance, which suggests that a higher level of borrowings adversely affects firm performance among Indian manufacturing firms. The negative impact of borrowings on financial performance indicates that excessive dependence on debt financing imposes substantial financial burdens on firms through interest obligations, repayment commitments, and increased financial distress costs. Although debt financing offers certain advantages, such as tax shield and leverage benefits, excessive borrowing reduces operational flexibility and increases financial risk, which weakens firm profitability and efficiency. This finding aligns with the trade-off theory, which argues that firms balance the tax benefits of debt against the costs associated with financial distress and bankruptcy (Kraus & Litzenberger, 1973). This finding also supports the agency cost theory (Jensen & Meckling, 1976), which argues that higher leverage can intensify agency conflicts between shareholders, managers, and creditors. Excessive debt obligations encourage managers to undertake short-term decisions focused on meeting debt commitments rather than maximising long-term firm value. Further, the financing environment of emerging economies like India, where borrowing costs, refinancing risks, and financial market imperfections remain relatively high (Bhadury & Pratap, 2018). Manufacturing firms with greater leverage are likely to face increasing interest burdens and cash flow pressures, particularly during periods of economic uncertainty and fluctuating market conditions. Therefore, higher debt levels adversely affect firms' operational performance and financial stability. This finding is similar to various studies, such as Rajan & Zingales (1995), Salim & Yadav (2012), and Abor (2005), which report a negative relationship between leverage and firm profitability, particularly in developing economies.

The results indicate that Indian manufacturing firms tend to experience diminishing performance as debt levels increase, meaning that conservative borrowing strategies contribute to better operational outcomes. It suggests that internally generated funds remain comparatively more efficient and less risky than excessive reliance on external financing, which is also revealed by Zeitun & Tian (2007) and Sethi & Swain (2019). Therefore, firms maintaining moderate borrowing levels are better positioned to sustain profitability, liquidity, and long-term financial stability. Additionally, the study employs the fixed-effect model to ensure the robustness of the findings. The fixed-effect approach effectively controls the time-invariant firm-specific factors and provides more reliable within-firm estimates (Wooldridge, 2010). The persistence of the negative and significant relationship between corporate borrowings and firm performance after applying the fixed-effect model strengthens the validity and robustness of the results.

Table 4. Effect of Corporate Borrowings on Financial Performance across Life-Cycles

	OLS Estimation				
Coefficient	**Introduction**	**Growth**	**Mature**	**Shakeout**	**Decline**
CB	−0.085***	−0.097***	−0.139***	−0.114***	−0.079***
	(−5.202)	*(−13.63)*	*(−27.71)*	*(−8.643)*	*(3.00)*
Intercept	0.144***	0.138***	0.106***	0.086***	−0.087**
Firm Control	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Year effect	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
N	*478*	*1459*	*4233*	*891*	*278*
p-value (F)	*0.000*	*0.000*	*0.000*	*0.000*	*0. 000*
Adj. R^2	*0.233*	*0.216*	*0.301*	*0.229*	*0.164*

*Note: ***, and ** stand for statistical significance at 1%, and 5%, respectively. Figures in parentheses denote t-statistics.*
Source: Authors' compilation.

Table 4 presents the regression results examining the relationship between corporate borrowings and financial performance across the different firm life-cycle stages, i.e., introduction, growth, maturity, shakeout, and decline. The analysis is based on the firm life-cycle framework, which argues that firms

experience substantial changes in financing behaviour, profitability, investment opportunities, and risk profile as they evolve over time (Anthony & Ramesh, 1992; Dickinson, 2011). The results indicate that corporate borrowings have a consistently negative effect on financial performance throughout the firm's life-cycle stages. However, the magnitude of the effect differs considerably across stages, indicating the influence of borrowings on financial performance is dynamic rather than uniform across firms. In the introduction stage, corporate borrowings negatively affect financial performance with a coefficient of -0.085, which indicates that higher leverage reduces the performance of newly established firms. Generally, young firms face high operational uncertainty, unstable cash flows, limited market reputation, and severe information asymmetry (Berger & Udell, 1998). Since such firms often lack sufficient retained earnings and stable earnings capacity, excessive debt obligations intensify repayment pressure and increase financial distress costs, which adversely affect operational performance.

The negative effect of corporate borrowings becomes stronger during the growth stage, where the firms generally require significant external financing to support expansion, technological investment, and production capacity enhancement (Mueller, 1972). Although debt financing facilitates rapid expansion, excessive leverage simultaneously increases financial obligations and refinancing risks. The findings imply that growth firms with higher debt burdens experience declining operational efficiency and profitability due to rising interest commitments and financial pressure. This result supports the trade-off theory, which argues that the benefits of debt financing diminish when firms approach excessive leverage levels (Kraus & Litzenberger, 1973).

Similarly, the maturity stage exhibits the strongest negative (−0.139) relationship between borrowings and financial performance. This result shows that excessive debt financing has the most severe adverse effect on mature firms compared to all other life cycle states. Mature firms possess stable earnings, accumulated retained earnings, predictable cash flows, and easier access to internal financing sources (Dickinson, 2011). Therefore, greater dependence on debt financing among mature firms reflects overleveraging rather than financing necessity. The strong negative coefficient indicates that mature firms benefit more from conservative financing policies and lower leverage levels. Similar evidence is documented by Majumdar & Chhibber (1999), who find that higher leverage negatively influences profitability among Indian firms due to increasing financial burden and operational inefficiency.

In the shakeout stage, firms often encounter slowing growth opportunities, market saturation, increasing competitive pressure, and declining expansion possibilities (Miller & Friesen, 1984). In this stage, the negative influence indicates that higher debt obligations also reduce managerial flexibility and increase financial vulnerability during periods of declining growth. It suggests that leverage becomes increasingly costly for firms transitioning toward reduced market dynamism. This finding is also in line with the study of Jensen (1986), which emphasised that excessive debt creates inefficiencies and reduces firms' strategic flexibility when growth opportunities weaken.

The decline stage reports the weakest negative effect of corporate borrowings on financial performance. According to Miller & Friesen (1984), declining firms experience shrinking revenues, weak profitability, declining market share, and decreasing operational efficiency. In such circumstances, debt financing becomes more difficult to manage due to insufficient cash flows and rising repayment risk. However, a comparatively smaller degree of coefficient (−0.079) suggests that declining firms already operate at relatively lower performance levels, thereby reducing the marginal adverse effect of additional borrowings. Overall, the results indicate that the costs associated with excessive borrowings outweigh their potential benefits across all life-cycle stages of Indian manufacturing firms.

4.4. Robustness Check

To ensure the reliability and consistency of the empirical findings, a robustness check has been conducted using a fixed-effect panel regression model. The fixed-effect model is used for time-invariant and firm-specific heterogeneity, which controls for estimation bias (Baltagi, 2008). This result (Table 5) is consistent

with initial findings, which indicate that the observed relationship between corporate borrowings and financial performance is robust to alternative model specifications

Table 5: Effect of Corporate Borrowings on Financial Performance across Life-Cycles

	Fixed-Effect Estimation				
Coefficient	**Introduction**	**Growth**	**Mature**	**Shakeout**	**Decline**
CB	−0.141***	−0.113***	−0.155***	−0.119***	−0.110*
	(−4.854)	(−9.278)	(−19.09)	(−4.546)	(−1.310)
Intercept	0.218***	0.273***	0.381***	0.227**	−0.642*
Firm Control	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Year effect	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
N	*478*	*1459*	*4233*	*891*	*278*
p-value (F)	*0.000*	*0.000*	*0.000*	*0.000*	*0.003*
Within R^2	*0.237*	*0.156*	*0.184*	*0.082*	*0.097*

*Note: ***, and ** stand for statistical significance at 1%, and 5%, respectively. Figures in parentheses denote t-statistics.*
Source: Authors' compilation.

5. Conclusion

This study examined the effect of corporate borrowings on financial performance across different firm life-cycle stages in Indian manufacturing firms. Using panel data of manufacturing firms and employing both Ordinary Least Squares and Fixed-Effect Estimation techniques, the study investigated whether the impact of corporate borrowings on financial performance varies systematically throughout the stages of corporate development. The findings reveal that corporate borrowings exert a negative effect on financial performance, and excessive reliance on debt financing adversely affects firms' operational efficiency and profitability. The robustness of the results under the fixed-effect estimation further confirms that the negative relationship persists even after controlling for unobservable firm-specific heterogeneity. The overall findings suggest that although debt financing may provide certain benefits, such as tax advantages, excessive borrowing imposes financial burdens through higher interest obligations, financial distress costs, agency conflict, and managerial flexibility. As a result, the cost of excessive leverage seems to exceed any potential advantages. The findings support the trade-off theory of capital structure, which argues that a firm's effort to balance the benefits of debt and the cost of financial distress (Kraus & Litzenberger, 1973). Similarly, the results are also consistent with agency theory, which suggests that excessive leverage increases managerial conflict, reducing operational efficiency and financial performance (Jensen & Meckling, 1976).

The life-cycle analysis further reveals that the impact of corporate borrowings on the financial performance is not uniform across stages of corporate development. The negative effect of borrowings is observed throughout all stages of the firm's life-cycle, but the degree of the effect differs across the stages. The adverse impact of borrowings becomes strongest during the maturity and shakeout stages, which indicates that firms with stable earnings and stronger internal financing capacity suffer more in performance when excessively dependent on debt financing. On the other hand, relatively weaker effects observed during the introduction and decline stages reflect the financial vulnerabilities and structural constraints describing firms operating at the early and final phases of the corporate life-cycle. The findings of the study carry important implications for corporate managers, investors, and policymakers. The study suggests that firms should avoid maintaining uniform borrowing policies throughout the life-cycle because financing requirements and financial capacities vary substantially across developmental stages. Despite this, the study has limitations as it focuses only on the listed manufacturing firms for the period from 2011 to 2024.

References

Abor, J. (2005). The Effect of Capital Structure on Profitability: An Empirical Analysis of Listed Firms in Ghana. *Journal of Risk Finance*, *6*(5), 438–445. https://doi.org/10.1108/15265940510633505

Anthony, J. H., & Ramesh, K. (1992). Association between Accounting Performance Measures and Stock Prices: A Test of the Life Cycle Hypothesis. *Journal of Accounting and Economics*, *15*(2), 203–227. https://doi.org/https://doi.org/10.1016/0165-4101(92)90018-W

Baltagi, B. H. (2008). *Econometric Analysis of Panel Data Third edition* (Vol. 4). John Wiley & Sons. https://doi.org/10.1007/978-3-030-53953-5

Behera, S. N., & Sethi, M. (2024). Corporate Borrowings: A Conceptual Perspective. *European Economic Letters (EEL)*, *14*(1), 396–404. https://doi.org/10.52783/eel.v14i1.1036

Berger, A. N., Bonaccorsi, E., & Patti, D. (2003). *Capital Structure and Firm Performance: A New Approach to Testing Agency Theory and an Application to the Banking Industry*.

Berger, A. N., & Udell, G. F. (1998). The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle. *Journal of Banking and Finance*, *22*, 613–673. https://doi.org/10.1016/S0378-4266(98)00038-7

Bhadury, S., & Pratap, B. (2018). India's Bad Loan Conundrum: Recurrent Concern for Banking System Stability and the Way Forward. In *International Symposia in Economic Theory and Econometrics* (Vol. 25, pp. 123–161). Emerald Group Publishing Ltd. https://doi.org/10.1108/S1571-038620180000025007

Chakraborty, I. (2010). Capital Structure in an Emerging Stock Market: The Case of India. *Research in International Business and Finance*, *24*(3), 295–314. https://doi.org/10.1016/j.ribaf.2010.02.001

Chatterjee Samprit, & Hadi, A. S. (2015). Regression Analysis by Example. In *John Wiley & Sons* (5th ed.). John Wiley & Sons.

Cobham, D., & Subramaniam, R. (1998). Corporate Finance in Developing Countries: New Evidence for India*. *Pergamon World Development*, *26*(6), 1033–1047. https://doi.org/10.1016/S0305-750X(98)00025-4

Dash, S. R., Sethi, M., & Swain, R. K. (2023). Financial Condition, Working Capital Policy and Profitability: Evidence from Indian Companies. *Journal of Indian Business Research*, *15*(3), 318–355. https://doi.org/10.1108/JIBR-12-2020-0378

DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2010). Seasoned Equity Offerings, Market Timing, and the Corporate Life-cycle. *Journal of Financial Economics*, *95*(3), 275–295. https://doi.org/10.1016/j.jfineco.2009.11.002

Dickinson, V. (2011). Cash Flow Patterns as a Proxy for Firm Life Cycle. *Accounting Review*, *86*(6), 1969–1994. https://doi.org/10.2308/accr-10130

Jeffrey M. Wooldridge. (2010). *Econometric Analysis of Cross Section and Panel Data* (2nd ed.). MIT Press.

Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, *76*(2), 323–329. https://www.jstor.org/stable/1818789

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. In *Journal of Financial Economics* (1st ed., Number 4). Harvard University Press.

Kraus, A., & Litzenberger, R. H. (1973). A State-Preference Model of Optimal Financial Leverage. *The Journal of Finance*, *28*(4), 911–922. https://doi.org/10.2307/2978343

Le, T. P. V., & Phan, T. B. N. (2017). Capital structure and firm performance: Empirical evidence from a small transition country. *Research in International Business and Finance*, *42*, 710–726. https://doi.org/10.1016/j.ribaf.2017.07.012

Majumdar, S. K., & Chhibber, P. (1999). Capital Structure and Performance: Evidence from a Transition Economy on an Aspect of Corporate Governance. In *Public Choice* (Vol. 98).

Mehta, Y., & Rajan, A. J. (2017). Manufacturing Sectors in India: Outlook and Challenges. *Procedia Engineering*, *174*, 90–104. https://doi.org/10.1016/j.proeng.2017.01.173

Miller, D., & Friesen, P. H. (1984). A Longitudinal Study of the Corporate Life Cycle. *Management Science*, *30*(10), 1161–1183. https://doi.org/10.1287/mnsc.30.10.1161

Modigliani, F., & Miller, M. H. (1958). *The Cost of Capital, Corporation Finance and the Theory of Investment*. *48*(3), 261–297. https://www.jstor.org/stable/1809766

Mueller, D. C. (1972). A Life Cycle Theory of the Firm. *The Journal of Industrial Economics*, *20*(3), 199–219. https://doi.org/10.2307/2098055

Myers, S. C., & Majluf, N. S. (1984). Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have. *Journal of Financial Economics*, *13*(2), 187–221. https://doi.org/10.1016/0304-405X(84)90023-0

O'Brien, R. M. (2007). A Caution Regarding Rules of Thumb for Variance Inflation Factors. *Quality and Quantity*, *41*(5), 673–690. https://doi.org/10.1007/s11135-006-9018-6

Owen, S., & Yawson, A. (2010). Corporate Life Cycle and M&A Activity. *Journal of Banking and Finance*, *34*(2), 427–440. https://doi.org/10.1016/j.jbankfin.2009.08.003

Rajan, R. G., & Zingales, L. (1995). What Do We Know about Capital Structure? *The Journal of Finance*, *L*(5), 1421–1460. https://doi.org/10.1111/j.1540-6261.1995.tb05184.x

Ronoowah, R. K., & Seetanah, B. (2024). Capital Structure and the Firm Performance Nexus: The Moderating and Mediating Roles of Agency Cost. *Managerial Finance*, *50*(9), 1598–1621. https://doi.org/10.1108/MF-03-2024-0177

Sahoo, A. K., & Behera, S. N. (2025). R&D Intensity and Corporate Borrowings in Indian Pharmaceutical Firms. *Orissa Journal of Commerce*, *46*(1), 57–70. https://doi.org/10.54063/ojc.2025.v46i01.05

Sahoo, A. K., & Sethi, M. (2025). Cash flow sensitivity of cash: a systematic literature review and bibliometric analysis. EuroMed Journal of Business, 1-26. https://doi.org/10.1108/EMJB-05-2025-0203

Salim, M., & Yadav, R. (2012). Capital Structure and Firm Performance: Evidence from Malaysian Listed Companies. *Procedia - Social and Behavioral Sciences*, *65*, 156–166. https://doi.org/10.1016/j.sbspro.2012.11.105

Sethi, M., & Swain, R. (2019). Determinants of cash holdings: A study of manufacturing firms in India. *International Journal of Management Studies,* Vol. VI, Issue –2(2), 11-26. http://dx.doi.org/10.18843/ijms/v6i2(2)/02

Zeitun, R., & Tian, G. G. (2007). Does Ownership Affect a Firm's Performance and Default Risk in Jordan? *Corporate Governance*, *7*(1), 66–82. https://doi.org/10.1108/14720700710727122

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