

Interplay Between Integrated Reporting, Firm Performance and Valuation: An Empirical Assessment of Indian Firms

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KEYWORDS

Integrated Reporting, IR Index, ROA, ROE, Tobin's Q

ABSTRACT

Purpose: The study aims to analyse the impact of Integrated Reporting (IR) practices on firm performances (Return on Assets (ROA) and Return on Equity (ROE), and firm valuation (Tobin's Q) of Indian companies.

Methodology: The study has used secondary data gathered from annual reports and financial statements of the select Indian companies which have voluntarily adopted IR. The period of the study extends from 2018–2022. Further, panel data regression analysis has been used to analyse the relationships among the variables under the study and examining the impact.

Findings: The results reveal a statistically significant influence of IR practices (measured through IR Index) on the firm performances and firm valuation.

Originality: The study enriches the literature on IR by providing empirical evidence on its impact on firm performance and valuation in Indian context. It analyses the effect of IR adoption on performance and valuation of firms, thereby identifying scope of IR practices in growth and survival of companies.

Implication: The outcome of the study can be utilised by the firms for further investigating the IR Practices adopted by them and by the government and other policy makers in formulating policies related to IR and its implementation in India.

1. INTRODUCTION

The corporate reporting's basic objective is disclosure of suitable information to various stakeholders. It brings up superior accountability, greater transparency, and fosters ease of doing business (GRI, 2020 and IASB, 2018). The Information role of corporate reporting signifies the most substantial act of corporate reports in aiding the stakeholders with the required and appropriate information whenever required (Adegboyegun et al., 2020). The vitality of social, economic, and technical carters and the frequently changing needs of stakeholders have led to substantial revolutions in the reporting systems over years. The varying panorama of the company settings has additionally raised the stakeholders' requirements much more than the conventional requirement for finance-related information for enhanced understanding of value-creation by companies (Goedhart and Koller, 2020).



In this context, a need for non-financial reporting emerged with the existing traditional financial reporting. Hence, various corporate reports like business responsibility reporting, sustainability reporting, ESG reporting, CSR reporting etc. has been developed over the years to supplement customary financial reports. Additionally, the numerous reporting by the company resulted in a complicated business report of corporates. It further increased compliance issues and reporting cost (Nwachukwu, 2022). Hence, 'Integrated Reporting Practices' was developed ensuring adequate non-financial as well as financial disclosures in a single report (Nwachukwu, 2022; Vitolla et al., 2019). Integrated reporting provides a comprehensive overview by consolidating various organizational aspects into a single report (Hoque, 2017; Agarwal and Samanta, 2023). International Integrated Reporting Council (IIRC) defines IR as "a process founded on integrated thinking that results in a periodic integrated report by an organisation about value creation over short, medium, and long-term and related communications regarding aspects of value-creation through its strategies, prospects, performances, and governance amidst its external environments." IR inculcating Integrated thinking leads to sustainable stance for value-creation in incorporated business responsibility (Isiaka, 2022). Its irrational and restricted perspective can indicate the perception of value-creation, which clusters around accountability and operational efficiency. So, the diverse perspectives create differences in the valuation of corporates over time (Herath et al., 2021). Firm value is intricately linked to a organisation's profitability and ability to meet stakeholder needs. Effective integrated reporting enhances firm value by disclosing social and environmental activities, thereby improving financial performance (Khunkaew et al., 2023; Mahmudah et al., 2023; Kurniasih et al., 2022; Akinleye et al., 2019). The studies emphasise financial performance as a critical determinant of firm value (Christofi et al., 2023; Harnovinsah et al., 2023; Adegboyegun et al., 2020). So far as adoption is concerned, Australia, Brazil, Netherlands, and South Africa lead the integrated reporting practices (Kilic and Kuzey, 2018). In territories of Asia, Japan has swiftly absorbed integrated reporting, whereas China, Malaysia, and Singapore are in their initial phase. In India, a circular was issued by SEBI for the voluntary adoption of IR w.e.f. 2017–2018 (SEBI, 2017). However, having voluntarily implemented by only a few Indian corporates IR is yet to popularise in India. Hence, it is momentous to create consciousness and acknowledgement of the significance, benefits, difficulties and resolution to extensive acceptance, and the feasibility of adoption in the Indian context (Islam, 2020).

Therefore, this study examines the effect of integrated reporting on firm performances and valuation, aligning with IIRC framework focus on valuation (Yorke et al., 2023; Conway, 2019; Barth et al., 2017) proliferating few significant marks of interrogation as enlisted below as research questions:

RQ1. Does adoption of IR practices impact firm performances in Indian corporates?

RQ2. Does adopting IR practices influences the value-creation of the Indian companies?

In line with the research questions stated, following research objectives for measuring the impact of IR index have been developed:

To analyse the impact of IR practices on the firm performances.

To analyse the effect of IR practices on firm valuation.

The effect of IR index on performance measurement of the firm includes ROA and ROE as the indicators of performance which have been rationalised under literature review. Further, for the study, a comprehensive review of the literature has been conducted followed by methodology for accomplishment of analysis and acquiring the results to test hypotheses

2. LITERATURE REVIEW

The research on IR originated with the compassion of sustainable and ecological concerns resulting in numerous South African regulations, which was primarily anticipated as a new reporting procedure incorporating sustainability revelations and a response concerning organization catastrophes. The study indicated that the corporate governance lapses and sustainability reporting shortcomings have accelerated the need for IR evolution (de Villiers et al., 2017).

Recent progression of sustainability reports, ever since its inception to present stage of rising momentum for sustainability, fosters further integration of sustainability reporting (Lai and Stacchezzini, 2021). Researchers states that the independence of sustainability reports from the financial reports revealing disconnection of financial and non-financial information (Frías-Aceituno et al., 2013). On the contrary, integrated reporting disclosures reveal interconnected corporate strategies, operational context, and corporate governance. The drive of integrated thinking through IR describes specified elements midst distinctly linked capitals among diverse paths over a period. This influences the orientation of reports about a mutual association between Integrated Thinking and Integrated Reports due to the seeming flow of intelligence (Quarchioni et al., 2021).

The firms using varied reporting approaches with equivalents and differences enable the detection of prospective determinants of IR. The law related to investor protection, ownership construct and market concentration, social and economic growth, and country's value system are a few instrumental determinants of IR (Jensen and Berg, 2012). The IR disclosures related to corporate strategies design and implementation is unacceptable for monopolistic businesses to conserve the abnormal profit earnings. Moreover, the companies reveal significantly distinct traits and systematic demographic differences (Malafrente and Pereira, 2021). The integrated reporting is positively influenced by firm profits and firm size,



while business segment and growth scenario merely influence. Frias-Aceituno et al. (2014) finds existence of insufficient guidelines and structure for IR with the presence of vagueness in the crucial matters' disclosures. Contextually, Barth et al. (2017) argues presence of positively significant link among the IR quality and firm value, liquid assets, and estimated cash flows, thereby aiding capital market and natural effect avenues. Research on Integrated Reporting and firm valuation in Saudi Arabia has predominantly explored a direct link of integrated reporting practices and firm performances (Nimani et al., 2022; AlHares et al., 2021; Hariri, 2021). The IR disclosures positively influence Tobin's Q as an indicator of firms' valuation (Islam, 2020; Barth et al., 2017).

Existing literature focuses on the extent of adopting IR practices, their qualitative assessment, and influence analysis (Agarwall and Samanta, 2023; Nguyen et al., 2021; Adegboyegun et al., 2020; Buallay et al., 2020; Wahl et al., 2020; Dumay et al., 2016). In the Indian environment, the studies were found on the inconsistent and insignificant relationship of sustainability reporting (SR) practices on performance and valuation of the firm (Goel and Misra, 2017; Bhatia and Tuli, 2017). The above literature clearly indicates the early budding stage of IR in India yielding ample scope for undertaking the study to analyse the effect of IR practices on valuation and performances in Indian firms.

Conceptual Framework and Hypotheses Development

The existing research investigates the relationship of IR practices with various performance indicators. The IR practices of publicly listed companies in Malaysia positively influence the ROA (Wen et al., 2017). Similar results are observed in Bangladeshi companies (Islam, 2020). Adopting Integrated reporting practices addressing the stakeholders' information requirement results in companies' enhanced ROA, and ROE (Matemane and Wentzel, 2019). ROA and ROE have widely used performance measures that accurately indicate profitability and intrinsic value (Ohlson, 1995; Islam, 2020). In this context, the hypotheses developed for the study are:

H01: IR practices do not significantly impact firm's performance (ROA).

H02: IR practices do not significantly affect firm's performance (ROE).

Tobin's Q, i.e., ratio of company's market valuation to the total assets, is the company's most widely used valuation measure (Wahl et al., 2020). A firm's market valuation incorporates the intellectual and human capital attributes missing on financial statements; therefore, Tobin's Q is an ideal measure of the valuation of firms (Barth et al., 2017). Consequently, the following hypothesis has been framed:

H03: IR practices do not significantly influence the valuation of firms (Tobin's Q).

Taking into account the hypotheses developed explaining the relationship among variables for examining the effect of independent variables (including explanatory variable and control variables) on performance of the firms and valuation of the firms, two different conceptual frameworks have been developed considering performance and valuation.

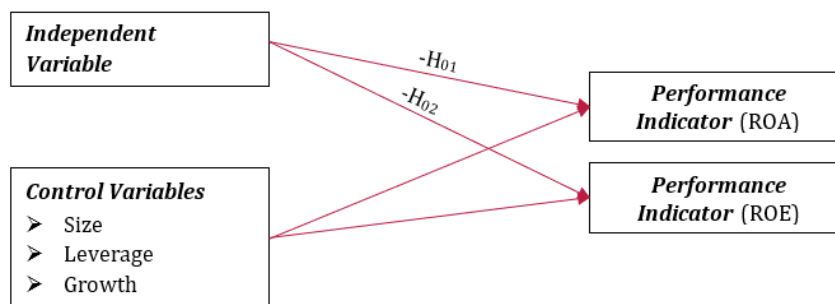


Figure 1: Framework for Measuring IR Impact on Performance

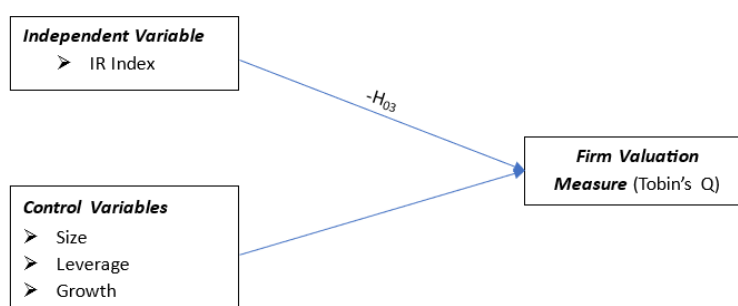


Figure 2: Framework for Measuring IR Impact on Valuation



The first framework presented in Figure 1 proposes a framework to examine the effect on firm’s performance, whereas the second framework proposes a framework for assessing the impact on the firm’s valuation which has been presented in Figure 2.

3. METHODOLOGY

The study uses a quantitative approach and an exploratory research strategy to investigate how IR practices affect the valuation and performance of the company. Using a quantitative technique, secondary data gathered from the sample firms' publicly available annual reports and financial statements during a five-year period (2018–2022) is analyzed. PCA and content analysis have been applied to assess the extent of integrated reporting disclosures. Descriptive statistics, panel data regression analysis, and correlation analysis have been used in data analysis to find the relationships and effects between the variables. The study employed SPSS and EViews as statistical tools.

Sampling and Data Collection

The 75 companies which implemented International Integrated Reporting Framework (IIRF) as per the publication titled ‘India Adopts IR’ (2nd Edition, December 2020) released by AICL Communication Ltd. were initially considered for the study. However, based on the relevant data and information availability, the sample of 69 companies has been finalised for the study which is appropriate for the statistical analysis i.e., regression model as per the previous study suggesting sample size greater than 50 firms is sufficient (VanVoorhis and Morgan, 2007). A five years’ time-period extending from FY 2017-18 to FY 2021-22 has been considered for the study. As SEBI came up with the voluntary IR adoption circular on 6th February 2017, FY 2017-18 has been considered as the base year. The data has been collected from annual reports of the companies and the “Centre for Monitoring Indian Economy” (CMIE) Prowess database.

Integrated Reporting Index (IR_Index)

The method employed to establish the IR index was similar to that of other studies that examine the level and calibre of IR. A comprehensive reporting quality index, called an instance, has been developed by Barth et al. (2017). They achieved this using EY's Excellence in IR Awards score sheets. EY assess the IR quality annually for top 100 JSE listed companies using guiding principles and content elements’-based grading system (Ernst and Young, 2019). In the absence of access to EY's score sheets, an IR index based on scoring of IIRF content elements has been created, utilising a sample from the Indian context. For this study, an IR Index consisting of pre-selected disclosures is used to assess the disclosure level, as described by Liu et al., (2018).

Since 1980s, researchers have been using scoring indices to assess the precision and attribute of environmental disclosures. A noteworthy study conducted by Wiseman (1982) analysed the companies’ annual reports. Wiseman created an indexing method that assigned a score of 0 to items missing in report and a score of 1, 2, or 3 if they were included.

Several studies have developed their indices to evaluate IR (Lee and Yeo, 2016; Pavlopoulos et al., 2019; Cooray et al., 2020; Dey, 2020; Hoang et al., 2020; Nguyen et al., 2021). According to Healy and Palepu (2001), self-constructed indices can capture precisely what the researcher intends to measure. However, they also caution against prejudice of such index. Subjectivity cannot be eradicated when using self-created index, and it is irrational to think otherwise (Marston and Shrikes, 1991). By adhering to content elements of IIRF (IIRC, 2013), this study assessed the disclosure items present or absent in the IR of firms using a weighted approach. The study has used IR index developed using PCA on IIRF content elements.

Variables under Study

Based on the literature reviewed, different variables used for the purpose of the study and hypotheses testing are described in Table 1.

Table 1: List of Variables under Study

Category	Sub-Category	Variables	Formula	Reference
Independent Variable		IR_Index	Scoring is done as per the content analysis of individual factors for the Index formulation. PCA applied to averages of the category-wise actual scores assigned as per content analysis	Agarwall et al., 2023; Aggarwal and Singh, 2019; Lee and Yeo, 2016
Dependent/ Outcome	Performance Indicators	Return on Asset (ROA)	Net Income / Total Asset	Agarwall et al., 2023; Buallay et al., 2020; Conway, 2019; Matemane and Wentzel, 2019



Variables		Return on Equity (ROE)	Net Income / Total Equity	Agarwall et al., 2023; Buallay et al., 2020; Conway, 2019; Matemane and Wentzel, 2019
	Valuation Indicator	Tobin's Q	(Liabilities at Book Value + Equity at Market Value) to Total Asset Ratio	Buallay et al., 2020; Matemane and Wentzel, 2019; Barth et al., 2017; Lee and Yeo, 2016
Control Variables		Growth	(Total Asset in Current Year - Total Asset in Previous Year) / Total Asset in the Previous Year	Pavlopoulos et al., 2019
		Size	Log10 (Market Capitalisation)	Agarwall et al., 2023; Conway, 2019
		Leverage	Debt to Total Asset Ratio	Agarwall et al., 2023; Gal and Akisik, 2020; Girella et al., 2019; Pavlopoulos et al., 2019; Lee and Yeo, 2016

Source: Author Compilation

Model Development

The database for the study comprised one explanatory variable i.e., IR index; three control variables i.e., size, leverage and growth; and three different outcome variables (ROA, ROE and Tobin's Q) for the 69 companies over five years since its voluntary adoption in India. Therefore, to reach the inference, curb the heterogeneity issue, and reduce sample prejudices and measurement slipups, the panel data analysis technique has been applied using EViews 12 (Goel and Sharma, 2015). The equations along which the analysis have been conducted are as follows:

$$ROA_{it} = \beta_0 + \beta_1 IR_Index_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 Growth_{it} + e_{it} \quad \text{Equation (1)}$$

$$ROE_{it} = \beta_0 + \beta_1 IR_Index_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 Growth_{it} + e_{it} \quad \text{Equation (2)}$$

$$Tobin's\ Q_{it} = \beta_0 + \beta_1 IR_Index_{it} + \beta_2 Size_{it} + \beta_3 Leverage_{it} + \beta_4 Growth_{it} + e_{it} \quad \text{Equation (3)}$$

where β_0 = constant, β_{1-4} = slope coeff., and "i" represents firm while "t" represents time.

4. RESULT AND DISCUSSION

Descriptive stats

The study employs descriptive statistics to provide an introductory overview of the data's principal features. These statistics summarize the core characteristics of the variables under study i.e., IR Index, ROA, ROE, and Tobin's Q, thereby revealing their variability and central tendencies. Table 2 gives descriptive statistics results of the variables:

Table 2: Descriptive Stats

	<i>IR_INDEX</i>	<i>ROA</i>	<i>ROE</i>	<i>TOBIN'S Q</i>
Mean	0.888166	0.081212	1.318718	4.123087
Median	0.902043	0.068427	0.162556	2.912297
Maximum	0.950146	0.478185	6.65109	25.96560
Minimum	0.533237	-0.116855	-6.540813	1.000000
Std. Dev.	0.054828	0.075435	6.317463	3.557363
Observations	345	345	345	345

Source: Author Compilation

The IR Index mean value is 88.82%, with minimum and maximum being 53.32 % and 95.01%, which indicates that the companies have complete content element disclosures on average, and even the lowest IR disclosure indicates more than 50% of all items mentioned in IIRF (International Integrated Reporting Framework). It represents a high rank of IR



disclosures by the Indian listed companies.

ROA mean is 0.08, with a minimum of -0.11 and a maximum of 0.48. The negative ROA represents the Indian companies incurring losses. Again, the Mean ROE is 1.32, with minimum and maximum of -6.54 and 6.65, respectively. Also, the Mean value of Tobin's Q is 4.12%, with a minimum of 1.00 and a maximum of 25.97. The higher Tobin's Q signifies a higher market value than the book values (Charumathi and Ramesh, 2020).

The study uses correlation analysis to investigate relationships between variables, measuring the strength and direction of associations between paired quantitative datasets. The correlation analysis test results are given in Table 3 below:

Table 3: Correlation

	<i>IR_Index</i>	<i>ROE</i>	<i>ROA</i>	<i>Tobin's Q</i>
<i>IR_Index</i>	1.000000			
<i>ROE</i>	-0.292058	1.000000		
<i>ROA</i>	0.042088	-0.143172	1.000000	
<i>Tobin's Q</i>	0.045386	-0.136906	0.598679	1.000000

Source: Author Compilation

Table 3 reveals the correlation of ROA and Tobin's Q with IR Index having a positively insignificant relation. A negatively significant correlation exists between ROE and IR Index. It shows that variables under study correlate less than 0.8, representing the absence of multicollinearity as suggested by Gujarati, (1995).

Impact Analysis

Hausmann test is run on the data taking ROA as the dependent variable to identify whether Fixed Effect Model or Random Effect Model is best fit for the hypothesis testing.

Table 4: Hausmann Test Result

Test	Dependent Variables	Chi-Square Stats	Chi-Square (d.f.)	Probability
Cross Section Random	ROA	17.768590	4	0.0014
	ROE	14.618107	4	0.0056
	Tobin's Q	109.847828	4	0.0000

Source: Author Compilation

H₀: Fixed Effect model is inappropriate.

Here, the probability value is less than 0.05 for all the dependent variables i.e., ROA, ROE, & Tobin's Q, revealing there is no evidence to accept the null hypothesis. Also, the fixed-effect model analyses individual differences in the variables over time and not among organisations (Goel and Sharma, 2015). Hence, the Fixed Effect model is considered appropriate, which has been undertaken using E'views, the results of which have been shown in Table 5:

Table 5: Fixed Effect Model

Dependent Variable:	ROA (Coeff.)	ROE (Coeff.)	Tobin's Q (Coeff.)
C	0.099892	-6.346104	-26.89554
IR_Index	-0.066477	0.552329	0.366812
Growth	-0.030602	0.326927	-2.258132
Leverage	-0.029063	-0.112115	4.618282
Size	0.010693	1.306137	5.212139
R ²	0.802116	0.905639	0.875437



Adj. R ²	0.748954	0.880288	0.841972
F-Stats	15.08795	35.72422	26.15999
Probability (F-Stats)	0.000000	0.000000	0.000000
Durbin-Watson Statistics	2.309898	0.873836	1.496643

Source: Author Compilation

The result indicates the data set's absence of autocorrelation. The Durbin-Watson Stats gives a value (within the acceptable range of 0 to 4) of 2.3099, 0.8738, and 1.4966 for ROA, ROE, and Tobin's Q, respectively, representing the absence of autocorrelation among variables (Durbin J. and Watson G., 1951).

The R² value for ROA is 80.21%, i.e., independent variable along with the control variables explains significant portion of the dependent variable. The p-value in the model has been found 0.000 < 0.05 revealing it statistically significant. Thus, the null hypothesis i.e., "IR practices do not significantly affect firm's ROA (profitability measure)" cannot be accepted, and hence, confirms the presence of significant influence of IR practices on ROA of firms. The computed output confirms the result of the previous study (Islam, 2020). The result rationalises the significance of IR in accomplishing the stakeholders' needs, which also fosters the firm performance (Al Hawaj and Buallay, 2021).

The R² is 90.56%, revealing that the explanatory capacity of independent variable with control variables are significant enough. The p-value has been found 0.000 which is less than 0.05, hence, the null hypothesis i.e., IR practices do not significantly influence the firm's ROE (profitability measure) cannot be accepted. Therefore, substantiating the effect of IR on ROA, the results reasoned that there exists a significant influence of IR practices on ROE also as the performance measure of the firms.

The R² value has been found 0.875, which reflects that independent variable and control variables together explains 87.5% of the changes in value of Tobin's Q. Further, the p-value has been found statistically significant (i.e., 0.000 < 0.05) to reject the null hypothesis that IR practices do not significantly influence Tobin's Q (valuation measure) of firms. Hence, substantiating the findings of the previous studies (Baboukardos and Rimmel, 2016; Pavlopoulos et al., 2019), the current findings reveal the presence of a significant relation between IR practices and Tobin's Q value of firms.

Equation (1), (2), and (3) formulated for explaining the relation among the independent variable and the dependent variables has been explained considering the results of FEM for ROA, ROE, and Tobin's Q as follows:

$$ROA_{it} = 0.099 + (-0.066) IR_Index_{it} + (0.011) Size_{it} + (-0.029) Leverage_{it} + (-0.031) Growth_{it}$$

..... Equation (1)

Given the statistically significant influence of the IR Index on ROA, the equation (1) shows that each unit change in the IR Index results in a negative 6.6% change in the ROA of firms. Similarly, one unit change in size, leverage, and growth have been found bringing 1.1%, -2.9%, and -3.1% change in the ROA of the firm, respectively.

$$ROE_{it} = -6.346 + (0.552) IR_Index_{it} + (1.306) Size_{it} + (-0.112) Leverage_{it} + (0.327) Growth_{it}$$

..... Equation (2)

Having found the statistically significant influence of the IR Index on ROE, equation (2) shows that each unit change in the IR Index results in a 55.2% change in the ROE of the firms. Similarly, one unit change in Size, Leverage, and Growth of the firm leads to 131%, -11%, and 33% changes respectively in the ROE of the firms.

$$Tobin's\ Q_{it} = -26.896 + (0.367) IR_Index_{it} + (5.212) Size_{it} + (4.618) Leverage_{it} + (-2.258) Growth_{it}$$

..... Equation (3)

Equation (3) shows the extent of the statistically significant influence of IR practices on value of Tobin's Q of the firms. It shows that each unit change in the IR Index results in 36.7% change in Tobin's Q of the firms. Similarly, the control variables have been found bringing change of 521%, 461.8%, and -225.8% in Tobin's Q because of 1 unit of change in the Size, Leverage, and Growth of the firms, respectively.

5. IMPLICATIONS OF THE STUDY

This study contributes to the literature on IR, providing empirical evidence on its impact on firm performance and valuation in Indian context. It analyses the effect of IR adoption on performance and valuation of firms, thereby identifying scope of IR practices in growth and survival of companies. The outcome of the study can be utilised by the firms for further investigating the IR Practices adopted by them and by the government and other policy makers in formulating policies related to IR and its implementation in India.

The result of the study may be beneficial for the corporate professionals including the regulatory bodies. The study contributes to the development of IR theory, shedding light on its effectiveness in emerging economies. It enhances the



understanding about the non-financial disclosure and financial performance relationship, and substantiates stakeholder theory, highlighting the significance of considering multiple stakeholders in corporate reporting. The research and its outcomes guides investors, analysts, and stakeholders in assessing the corporate performance beyond financial metrics, and contributes to the policy development, encouraging regulatory bodies to promote integrated reporting practices.

6. CONCLUSION

Integrated Reporting (IR) practices inculcate integrated thinking, management assistance in realising long-term objectives, and effectiveness and confirm corporate survival in transforming circumstances. The IR has been voluntarily implemented in India from 2017-18 by a circular issued by SEBI dated 6th February 2017. Transformation in any policy or procedure makes it essential to understand the relevance of the transformations to facilitate appropriate strategies (Conway, 2019). Hence, this study attempts to assess influence of integrated reporting practices on ROA & ROE as firm performance indicators and Tobin's Q as firm valuation. The sample of 69 IR-adopted Indian-listed companies for five years has been used for the study. The content analysis and principal component analysis has been employed to measure the reporting practices through IR Index. The panel data regression model has been applied to study its influence on the performance and value of firms.

The research findings state that the IR Index has a statistically significant relationship with the performance and value of the sample companies under study. However, even if it has a significant relationship, the extent of influence is not so enormous. IR's significant but meagre impact on performance and value may be because any shift into a novice reporting practice wants additional time and sources. Furthermore, owing to time trail impacts and the new idea of IR, its advantages cannot be drawn instantly (Conway, 2019). The organisations' stakeholders also need awareness and time to be acquainted with the IR disclosures (Baboukardos and Rimmel, 2016). So, it can be inferred that IR practices in India are progressively advancing to longstanding value creation.

The fundamental constraint in this study is the sample size and period, as only a handful of Indian companies have adopted IR practices, and it has been voluntarily adopted since 2017-18, limiting the study period to 5 years. The subjectivity involved in content analysis for IR Index development also adds to the limitation of the study. Future research may also consider other performance and value measures since this study considers only ROA and ROE as performance measures and Tobin's Q as a valuation measure. Further, it provides future research directions towards investigating industry-specific effects of IR, comparing the cross-country IR practices, examining impact of IR on sustainability performances, etc.

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