# IFRS Convergence and Value Relevance of Indian Accounting Information: The Earnings-Returns Association Analysis

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## ABSTRACT

**Manuscript type**: Research paper
**Research aims**: India has recently joined the accounting revolution by implementing the International Financial Reporting Standards (IFRS) through the convergence mode. This paper aims to examine the value relevance of Indian accounting information by finding an association between stock returns and the levels of earnings and changes in earnings.
**Design/Methodology/Approach**: The study follows both relative and incremental association approaches to investigate changes in the value relevance of accounting information prepared using the IFRS converged Indian Accounting Standards (Ind-AS), while also examining the impact of their voluntary use. The study employs the Easton and Harris (1991) model on accounting data collected from 2012-13 to 2019-20. The panel data of 7,064 firm-year observations covers 883 firms listed on the National Stock Exchange (NSE) and uses relevant econometric tests and multivariate panel regressions to test the hypotheses.
**Research findings**: The findings reveal a decline in the returns value relevance following both mandatory and voluntary IFRS convergence.
**Theoretical contribution/Originality**: The study is the first to document the changes in value relevance based on stock returns since the IFRS convergence process began in India.
**Practitioner/Policy implication**: This line of research is significant in Indian capital markets to unravel the effects of the new standards on accounting as well as stock market variables. It has managerial implications for firm and standard-setters.

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**Research limitation**: The value relevance results are based on the returns model alone and the study does not analyse the price model.

**Keywords**: Earnings-returns association, IFRS, Ind-AS, Mandatory convergence, Value relevance, Voluntary convergence
**JEL Classification**: C33, G10, M41

## 1. Introduction

Financial reporting was long a country-specific activity, with each nation following its local standards, also known as Generally Accepted Accounting Principles (GAAP). Over the last few decades, with a large number of businesses seeking expansion and investment opportunities overseas, the need was felt for a consistent and comparable reporting system. The International Financial Reporting Standards (IFRS) introduced in 2002 brought about the harmonisation of accounting principles and enabled countries to cut costs on reporting, avoid complexities and reduce risks in international business deals. The expansive literature on IFRS adoption covers its impact on financial reporting quality, capital markets, corporate decision-making and governance (De George et al., 2016). Armstrong et al. (2010), Ball (2006), Daske et al. (2008), and Hung and Subramanyam (2007) are among the many researchers who have attempted to understand the consequences of adopting the new unifying standards. A change in quality of accounting information is one of the most widely researched impacts of IFRS and is often quantified in terms of reduced earnings management, timely recognition of losses and increase in value relevance of earnings than that of the domestic standards (Ball, 2006; Barth et al., 2008).

Accounting information reported by firms is believed to have a significant influence on stock prices and returns of those entities. This belief has given rise to a line of accounting research known as capital market-based accounting research (CMBAR), which advanced through the seminal publications of Ball and Brown (1968). Value relevance has emerged as an important area in CMBAR, as it helps examine whether the financial reports produced by companies provide its users with high-quality, valuable information which is useful in making informed investment decisions (Outa et al., 2017). Since the quality of financial reports is determined by the accounting standards followed, it is imperative to understand the effect of change in accounting regimes on reporting quality metrics such as value relevance. Since the European Union made the use of the IFRS mandatory for its members, there was a considerable amount of research done to identify the impacts of IFRS adoption on the value relevance of accounting information in those jurisdictions. However, mixed results have been observed in different countries. Barth et al. (2008), in a multi-jurisdiction study, saw improved accounting quality in terms of increased value relevance among other metrics. Countries like Germany and the United Kingdom also reported an increase in value relevance after adopting IFRS (Elbakry et al., 2017; Iatridis, 2010), while Greek financial reports saw no significant changes even after switching from their local GAAP to IFRS (Tsoligkasa & Tsalavoutas, 2011). Also, non-European countries like Canada and Turkey recorded evidence of an improved association between stock markets and accounting variables (Kargin, 2013; Okafor et al., 2016). A growing body of literature in this area has emerged in developing countries in recent years. South Korea's IFRS adoption led to a decline in value relevance (Ki et al., 2019), while Wu et al. (2017) report no improvement in the same.

Value relevance has been studied from different perspectives, the most common approaches being price value relevance and return value relevance. The majority of the investigations in this area are conducted using the price value relevance approach (Nijam & Jahfer, 2018; Outa et al., 2017; Temiz & Gulec, 2017), while some researchers have attempted to study both (Alnodel, 2018; Kouki, 2018; Okafor et al., 2016). The present study considers the information content of accounting information, such as earnings and change in earnings, in ascertaining stock returns as the proxy for measuring value relevance based on the Easton and Harris (1991) model. The model is based on the idea that equity book value and market value are both "stock variables" which indicate shareholder wealth, whereas earnings lagged by price at the beginning of the return period and market returns are "flow variables." Thus, if price is a function of earnings, then stock returns can also be explained by earnings and earnings changes. The study, therefore, aims at assessing this earnings-returns association in the context of Indian capital markets. The study is further extended to understand the impact of the IFRS convergence (mandatory and voluntary) process on this association.

Companies in India have for long followed the Indian GAAP to produce financial reports. These differ from the GAAP of other countries or the IFRS in terms of disclosure requirements, segment reporting, related party transactions among other differences. To bridge these gaps, the Institute of Chartered Accountants of India (ICAI)—the premier standard-setting body in India—under the purview of the Ministry of Corporate Affairs (MCA), converged the existing standards with IFRS to create the new Indian Accounting

Standards (Ind-AS). The voluntary use of the Ind-AS was permitted from the fiscal year 2015-16, and subsequently in 2016-17 it was made mandatory for all companies with a net worth of Rs. 5 billion and above. Their mandatory use for all listed companies became applicable from the year 2017-18 onwards. Therefore, this study adds to the value relevance literature by examining the impact of IFRS convergence on the earnings-returns association in the developing markets of India. The country offers a unique setting for conducting capital market-based research due to the prevalence of thousands of firms of varying sizes, capitalisation and industry classifications. Value relevance studies of Indian firms have revealed a positive relationship between accounting information and market values (Bhatia & Mulenga, 2019; Robu et al., 2017; Sharma et al., 2012; Vardia et al., 2016). However, few researchers have addressed the issue of value relevance since the IFRS convergence process began in India using relatively smaller samples (Bansal & Garg, 2021; Kaur & Yadav, 2020; Srivastava & Muharam, 2021; Vardia et al., 2016). The aim of this paper is, therefore to widen the knowledge on Indian financial reporting quality in the post-IFRS convergence phase using returns value relevance as the quality metric. The study tests a large sample of 883 Indian listed firms over eight years (2012-13 to 2019-20) by employing the Easton and Harris model to regress stock returns on earnings and earnings growth. The findings of this paper make a considerable contribution to the growing literature on value relevance in India. It reveals the existence of a significant earnings-returns association that declines in the post-IFRS convergence phase. The results provide evidence that the use of IFRS converged standards—whether mandatory or voluntary—reduces the information content of stock returns of Indian listed firms.

The paper is structured in the following manner. The existing literature is reviewed in Section 2 to build the conceptual framework and derive the hypotheses for the study. The data and sample selection procedure are described in Section 3. Further, we test the hypotheses and document the empirical analysis of the relation between the earnings variables and stock returns, while also testing for the influence of IFRS converged standards in Section 4. Lastly, Section 5 provides a summary of the results and concluding statements.

## 2. Literature Review and Hypotheses Development

Information relevance is a principal attribute of financial reports, which is closely connected with its usefulness. It measures the level of association between accounting information, such as earnings and book value of earnings, with the stock prices or returns of the company. This section provides the conceptual framework for value relevance supported by relevant literature, and simultaneously presents the hypotheses developed from the prevailing research gap.

### 2.1. *Price Value Relevance*

Numerous studies provide strong evidence of a significant association between stock prices and accounting variables like earnings and book value of equity. Charitou et al. (2000) find a positive relationship between earnings and cash flows in Japan. Similarly, Bartov et al. (2001) prove that earnings are more value relevant than cashflows in a study conducted across the US, UK, Canada, Germany and Japan. An empirical study in Korean stock markets also revealed higher value relevance of equity book value and cash flows against book value and earnings (Kwon, 2009). Similarly, the earnings of listed banks in Nigeria (Uwuigbe et al., 2016) had a stronger ability to explain the variation in share prices in comparison to book value per share. Chandrapala (2013) studies the impact of firm size and ownership concentration on the value relevance of book value and earnings of Sri Lankan firms. The study identifies higher value relevance in large and ownership concentrated firms as compared to small and ownership non-concentrated firms. In the Indian context, most of the value relevance studies were carried out before IFRS convergence became mandatory. Srinivasan and Narasimhan (2012) find no value relevance in annual consolidated financial statements (CFS), while annual parent-only financial statements were found to be value relevant. Vishnani and Shah (2008) reveal that ratios based on financial statements showed significant relation with stock market metrics, but that the value relevance of published financial statements per se was negligible. However, the financial reports of Indian banks were found to be value relevant in a study from 2002 to 2016 (Bhatia & Mulenga, 2019).

### 2.2. *Return Value Relevance*

The earnings-returns association provides a different perspective on value relevance as compared to price models. According to Easton (1999), theoretical models that form a basis for the use of stock prices as a market metric also provide a foundation for the use of the rate of return as a market metric. He argues that regressions that use security prices as the regressand suffer from scale problems which can be overcome by relying on returns specification. While studying the value relevance of Nigerian deposit money banks, Akeem Adetunji (2016) finds earnings to be less value relevant than the change in earnings. Similarly, He and Hu (2014) analyse data of 28 non-US markets to show that aggregate earnings changes are positively associated with contemporaneous stock returns. Conversely, Cheng et al. (2013) observe that earnings levels explain variations in returns better than earnings changes. Alduais (2020) investigates the data for Chinese listed 'A' shares and found similar results. Habib (2008), on the other hand, finds that earnings have higher explanatory power than cash flows in New Zealand. Hai et al. (2015) finds a rather weak and unstable but positive association between returns and earnings and change in earnings in Vietnam. To add to the literature on the returns value relevance patterns in developing economies, the present study is motivated to find an association between the stock returns of Indian listed firms and accounting variables through the first hypothesis:

*$H_1$: The reported earnings (EPS) and change in earnings (ΔEPS) of Indian listed firms are associated with their stock returns*

We expect to find a positive relation between earnings of our sample firms and their stock returns.

### *2.3. Impact of IFRS Implementation on the Value Relevance of Accounting Information*

A vast pool of research on the impact of IFRS implementation on value relevance prevails, especially in developed economies. Iatridis (2010) finds positive effects of IFRS on the quality of financial statements information. IFRS-based financial information of German and UK firms showed increased levels of value relevance of earnings, but a decline in the same for book values (Elbakry et al., 2017). In developing markets like the Middle East, Kargin (2013) finds that the book value and earnings of Turkish firms were value relevant, while Temiz and Gulec, (2017) also observe a gradual increase in the value relevance after transitioning from local standards to IFRS. Among African firms too, accounting information had become more value relevant after convergence with the International Accounting Standards (IAS)/IFRS (Outa et al., 2017). However, the study observes that the value relevance in East African firms is lower than that of developed countries as reviewed in previous studies. Mixed results of IFRS implementation effects were also seen in Asian markets. Nijam and Jahfer (2018), in their value relevance study in

Sri Lanka between 2010 and 2014, find that both book value of equity and earnings per share are value relevant. They further observed a higher explanatory power of the value relevance model during the post-IFRS adoption phase than the pre-IFRS phase. Conversely, Wu et al. (2017) observe different results in Taiwan, wherein they claim that convergence with IFRS does not significantly improve financial accounting quality. Ki et al. (2019) also finds similar evidence that the value relevance declines after IFRS adoption in South Korea. A majority of these studies are based on price regressions and do not employ the return value relevance models.

A few researchers like Kouki (2018), Okafor et al. (2016), and Paglietti (2009) employ both price and return regressions. Canadian accounting information under IFRS showed incremental value relevance as compared to Canadian and US GAAP (Okafor et al., 2016). Kouki (2018) studies the value relevance of firms across France, Germany and Belgium based on both price and returns. On comparing the pre- and post-IFRS adoption results, he found that earnings and change in earnings are related to lower value relevance. In Italy, Paglietti (2009) observes an increase in the statistical association between earnings and stock returns in the post-adoption period vis-à-vis the pre-adoption period and higher value relevance of earnings changes under IFRS than under the Italian GAAP (I-GAAP).

Research on IFRS effects on value relevance is new and rather scarce in the Indian context, since the convergence process in the country is recent as compared to its Western counterparts. The country's mode of implementing the IFRS is also unique, since it chose to converge its existing local standards instead of a full-fledged adoption of global standards. It, therefore, provides a favourable setting for researching the benefits or consequences that IFRS brings to the Indian financial reporting scene. Kaur and Yadav (2020) use the Ohlson (1995) model on a sample of only the top-listed companies in India and find a positive association between the variables. However, this study fails to cover a larger sample of Indian firms as it focuses only on top-listed firms. Bansal and Garg (2021) test the impact of IFRS on reporting quality in India and find positive value relevance when IFRS-converged standards are followed. The findings of the study are, however, based on the analysis of only two years, as it compares one year each as a pre- and post-IFRS year. Similarly, Srivastava and Muharam (2021) carry out a cross-sectional and pooled data analysis on Indian financial reporting data between 2015-2019. They observe a gradual increase in the year-wise adjusted $R^2$, implying an increase in value relevance. However, the study relies upon post-IFRS (2015-2019) data alone to conclude an improvement in value relevance, without comparing the pre- and post-convergence phases. Therefore, the evidence from the aforementioned studies cannot be considered conclusive as they are limited to very short periods, during which the new standards were still in implementation mode and their effects not entirely reflected in financial reports. Further, the studies are based on the price regression model alone, and do not test the returns model. IFRS adoption studies in India ignore the association between returns and earnings, while only focusing on the price-earnings relationship. In the present paper, we attempt to bridge this gap in the literature by carrying out an extensive study of 883 Indian firms over eight years to compare the return value relevance before and after the IFRS convergence process. It adds a new dimension to the study of value relevance in the Indian context. Our second objective expects to find a relationship between IFRS convergence and returns value relevance and it is hypothesised as follows:

> $H_2$: *The returns value relevance of reported earnings (EPS) and change in earnings (ΔEPS) of Indian listed firms is affected by the transition to IFRS converged Ind-AS*

## 2.4. *Impact of Voluntary IFRS Implementation on the Value Relevance of Accounting Information*

In the process of integrating accounting systems, countries across the world have either mandated the use of IFRS or locally converged standards, or have permitted their firms to use the same voluntarily. The effects of IFRS voluntary adoption are expected to be different than those documented for mandatory adoption (Patro & Gupta, 2014). Voluntary adopters are motivated by incentives to improve the quality of their financial reports to attract foreign capital (Capkun et al., 2016), while others apply IFRS only after its use is forced. The process of voluntary adoption, therefore, reveals interesting results in the existing literature. Even before the IFRS was introduced, Barth et al. (2008) carried out a multi-country study of 21 firms that had adopted IAS, which later became the IFRS. They find very little difference in the accounting information quality of IAS adopters as compared to non-adopters in the voluntary adoption period. However, the quality improves in the post-mandatory convergence period. On the other hand, Daas (2014) measures the impact on accounting quality in Jordan during IAS, IFRS (voluntary phase) and

IFRS (mandatory phase). He finds that earnings and book value of equity became less value relevant during IFRS (mandatory phase) as compared to the IAS and IFRS (voluntary phase). Daske et al. (2008) compares mandatory and voluntary adopters, and observes pronounced capital market effects for firms that voluntarily adopt IFRS, both in the year of such adoption as well as later, when IFRS became mandatory for others. The voluntary adoption of IFRS in Germany, France and Belgium did not improve the value relevance of their accounting information. However, the value relevance of book value and earnings was higher after the mandatory transition to IFRS (Kouki, 2018). Christensen et al. (2015) provide a contrasting view in a single-country study of German firms. They observe that voluntary adopters exhibit greater value relevance in comparison to mandatory adopters. Given the incentives involved in voluntary adoption, the study intends to isolate the sample pertaining to the year of voluntary adoption of the IFRS converged standards in order to understand the impact of its voluntary use on returns value relevance. It is hypothesised that:

> *$H_3$: Voluntary adoption of the IFRS converged Ind-AS impacts the returns value relevance of reported earnings (EPS) and change in earnings (ΔEPS) of Indian listed firms*

## 3. Research Design

### *3.1. Sample and Data*

The sample comprises 7,064 firm-year observations for 883 firms listed on the National Stock Exchange (NSE) that began mandatorily following Ind-AS from 2017-18. We obtain our sample from the firms which remained listed on the NSE during our entire study period (2012-13 to 2019-20). The usable sample was arrived at after excluding financial companies (banking, insurance and non-banking financial companies), companies delisted from NSE during the study period, companies that have failed to release financial statements under Ind-AS during the post-mandatory convergence period, or failed to disclose financial statements for any of the financial years under study. The study uses data beginning from 2012-13, which provides us with three years (2012-13 to 2014-15) of pre-convergence period data (referred to as sub-sample 1) and three years' post-mandatory convergence data, from 2017-18 to 2019-20, (referred to as sub-sample 2). The data for 2015-16 is used to study the impact of voluntary convergence by listed firms, while that for 2016-17 forms part of the full sample, which is used to determine the overall value relevance of the sample. We gather financial and accounting data from the ProwessIQ database.

## 3.2. *Models and Variables*

### *3.2.1. Returns Value Relevance*

The returns model developed by Easton and Harris uses explanatory powers of earnings and change in earnings for the stock returns of a firm as metrics of value relevance. The present study first employs the base model to determine the returns value relevance for the full sample, and also to compare between the pre- and post-IFRS value relevance levels. The basic model is presented as follows:

$$R_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 \Delta EPS_{it} + e_{it} \tag{1}$$

The variables are described in Table 1. All the variables are deflated by $P_{i(t-1)}$, i.e., the stock price as on the previous balance sheet date. Consistent with prior research (Kouki, 2018; Kousenidis et al., 2010; Li & Guo, 2016; Okafor et al., 2016; Paglietti, 2009), to ensure that financial data is in the public domain, the stock price data is collected at the end of two months from the balance sheet date.[1]

### *3.2.2. IFRS Convergence and Returns Value Relevance*

Holthausen and Watts (2001) classify value relevance studies into the relative association approach, incremental association approach, and marginal information content studies. Based on the first two approaches, we analyse the impact of the IFRS-converged Ind-AS on the returns value relevance of our sample. The relative association approach aims at examining whether the value relevance under the existing GAAP is higher than that under IFRS. The study, therefore, makes a comparison using model (1) on the pre- and post-IFRS convergence data. Further, we follow the incremental association approach by modifying the base model to introduce a dummy variable, IndAS. The modified version of the model is as follows:

[1] Existing regulations require Indian-listed firms to furnish their annual financial reports within two months from the end of each financial year. However, for the year 2019-20, the deadline for releasing financial statement data was extended by another two months. The stock price data is therefore collected four months after the end of the fiscal year.

$$R_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 \Delta EPS_{it} + \beta_3 IndAS_{it} + e_{it} \quad (2)$$

In line with priorly reviewed literature, the study uses this model to identify whether IFRS convergence has positively affected stock returns in India. $\beta_3$ denotes the coefficient value, which represents the explanatory power of the switch from Indian GAAP to Ind-AS. We expect this coefficient to be positive to prove H2. Additionally, in model (3), we add the interactions of earnings and earnings changes with the dummy variable IndAS to measure the incremental effects of Ind-AS on each of the tested variables.

$$R_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 \Delta EPS_{it} + \beta_3 IndAS_{it} + \beta_4 IndAS \times EPS_{it} + \beta_5 IndAS \times \Delta EPS_{it} + e_{it} \quad (3)$$

### *3.2.3. Voluntary IFRS Convergence and Value Relevance*

Out of the 883 firms in our sample, 463 (52%) firms voluntarily prepared their financial statements as per Ind-AS in 2015-16. We, therefore, attempt to investigate if voluntary use of IFRS-converged standards improves the returns value relevance. The basic model is therefore extended to include 'Vol' as a dummy variable in model (4). If the coefficient of this variable is positive, it suggests an increase in the value relevance of returns due to voluntary convergence.

$$R_i = \beta_0 + \beta_1 EPS_i + \beta_2 \Delta EPS_i + \beta 3\mathrm{Voli} + e_i \quad (4)$$

Model (5) is employed to analyse the incremental effects of voluntary adoption on the chosen accounting variables.

$$R_i = \beta_0 + \beta_1 EPS_i + \beta_2 \Delta EPS_i + \beta_3 Vol_i + \beta 4 Vol \times EPS_i + \beta_5 Vol \times \Delta EPS_i + e_i \quad (5)$$

The study analyses the panel data using the above-mentioned models and tests the hypotheses using econometric tools and estimators. We expect a high adjusted $R^2$ to prove a strong association between earnings and returns.

**Table 1: Description of variables**

| Variable | Description |
|---|---|
| $R_{it}$ | Stock return of firm *i* at time *t* measured as $(P_{it} - P_{i(t-1)}) + D_{it}$ where $P_{it}$ is the stock price of firm *i* at the current balance sheet; $P_{i(t-1)}$ is the stock price of firm *i* as on the previous balance sheet date and $D_{it}$ is the dividend per share paid by firm *i* at time *t*. The variable $R_{it}$ is deflated by $P_{i(t-1)}$ |
| $EPS_{it}$ | Earnings per share of firm *i* at time *t* deflated by $P_{i(t-1)}$. |
| $\Delta EPS_{it}$ | Year-over-Year (YOY) change in EPS of firm i at time t deflated by $P_{i(t-1)}$. |
| $IndAS_{it}$ | Dummy variable for IFRS converged Ind-AS, which equals 1 when firm *i* follows Ind-AS (voluntarily or mandatorily) at time *t* and 0 otherwise |
| $IndASxEPS_{it}$ | Interaction variable of Ind-AS and EPS of firm *i* at time *t* |
| $IndASx\Delta EPS_{it}$ | Interaction variable of Ind-AS and change in EPS of firm *i* at time *t* |
| $Vol_i$ | Dummy variable for voluntary use of Ind-AS during the year 2015-16, which equals 1 when firm *i* follows Ind-AS voluntarily and 0 otherwise |
| $VolxEPS_i$ | Interaction variable of voluntary convergence and EPS of firm *i* |
| $Volx\Delta EPS_i$ | Interaction variable of voluntary convergence and change in EPS of firm *i* |
| $e_{it}$ | Error term |

## 4. Results and Discussions

A balanced panel data set was analysed using the Eviews 11 software. Appropriate panel data models and estimators were chosen for the analysis. The regression analysis uses fixed effects and random effects estimators based on the results of the Hausman tests applied to each of the models. The results from the analysis are detailed as follows:

### *4.1. Descriptive Statistics*

Table 2 presents the descriptive statistics of the variables used in the study. The minimum values of EPS and change in EPS are negative indicating the presence of loss-making firms in the sample. The minimum returns are also negative which suggest that the sample has firms with declining market values. The mean comparison (t-test) and the variance comparison (f-test) of the variables are shown in Table 3. Average returns reduced to negative in the post-convergence period while EPS has further declined significantly. There is, however, no significant difference in the change in EPS between the pre- and post-convergence periods. The standard deviation of returns also saw a significant decline, while that of EPS and change in EPS increased after IFRS convergence.

**Table 2: Descriptive statistics (n = 7,064)**

| | Mean | Median | SD | Maximum | Minimum |
|---|---|---|---|---|---|
| **Returns** | 0.1855 | 0.0369 | 0.8625 | 25.2773 | -0.9987 |
| **EPS** | -0.0848 | 0.0365 | 0.9912 | 23.3344 | -33.2000 |
| **ΔEPS** | 0.0271 | 0.0021 | 0.9356 | 36.1966 | -13.2138 |

**Table 3: Parametric tests (pre- and post-mandatory convergence periods; n = 2,649 per period)**

| | Mean (pre) | Mean (post) | t-test | Std. Dev (pre) | Std. Dev. (post) | f-test |
|---|---|---|---|---|---|---|
| Returns | 0.3766 | -0.0769 | 18.1417** | 1.0267 | 0.7268 | 1.9951** |
| EPS | -0.0266 | -0.1541 | 4.486** | 0.7437 | 1.3306 | 3.2011** |
| ΔEPS | 0.0201 | 0.0369 | 0.5909 | 0.6232 | 1.3357 | 4.5934** |

Note: **$p < 0.01$; *$p < 0.05$

### *4.2. Correlation and Multicollinearity Analysis*

As illustrated in panel A of Table 4, the Pearson correlation coefficients calculated for the entire sample indicate that there is a significant positive correlation between EPS and change in EPS and the dependent variable.

**Table 4: Correlation matrix**

| | Returns | EPS | Change_EPS | Ind-AS | VIF |
|---|---|---|---|---|---|
| **Panel A: Correlation matrix for the full sample (2012-13 to 2019-20)** | | | | | |
| **Returns** | 1 | | | | |
| **EPS** | 0.0679** | 1 | | | 1.058 |
| **ΔEPS** | 0.1046** | 0.1555** | 1 | | 1.058 |
| ***Ind-AS*** | -0.1895** | -0.0415** | 0.0072 | 1 | 1.000 |
| **Panel B: Correlation matrix for sub-sample 1 (Pre-mandatory convergence: 2012-13 to 2014-15)** | | | | | |
| **Returns** | 1 | | | | |
| **EPS** | 0.0851** | 1 | | | 1.042 |
| **ΔEPS** | 0.2818** | 0.2016** | 1 | | 1.042 |
| **Panel C: Correlation matrix for sub-sample 2 (Post-mandatory convergence: 2017-18 to 2019-20)** | | | | | |
| **Returns** | 1 | | | | |
| **EPS** | 0.0432* | 1 | | | 1.024 |
| **ΔEPS** | 0.0156 | 0.1542** | 1 | | 1.024 |

Note: **p<0.01; *p<0.05

Change in EPS has a slightly higher correlation with returns than EPS. It is worth noting that the dummy variable, Ind-AS, has a significant negative correlation with stock returns and EPS. As seen in panels B and C, the correlation between returns and EPS reduces in the post-mandatory convergence phase while there is no statistically significant correlation between ΔEPS and returns during that period. The analysis also reveals a positive correlation between the independent variables under all three panels, which gives rise to the possibility of multicollinearity. We use the variance inflation factors (VIF) which rule out the presence of multicollinearity, since all the VIF values are less than 5.

### *4.3. Regression Analysis*

The specified regression models were run on the full sample and sub-samples to test the hypotheses. The Durbin-Watson test statistic value was approximately two for the regression outputs thereby ruling out the presence of autocorrelation. Furthermore, we check for endogenous variables by determining the residuals for independent variables and estimating the equations with the residual series of each regressor. The p-value for the residual series for all was greater 0.05, thereby proving the absence of endogeneity in the regressors. We further perform the Wald test which confirms the same. The results of the regression analysis are presented below.

*4.3.1. Returns Value Relevance of Accounting Information in India*

The regression equation (1) is first run on the full sample of 7,064 observations to determine the earnings-returns relation among Indian listed firms. We use the Hausman test to specify random or fixed effects in the model. With a $\chi^2$ value of 6.949 and p-value of 0.0310, the Hausman test suggests that model (1) is a fixed-effects model. The regression results of the model are presented in Table 5.

**Table 5: Regression results for model (1)**

| | Full sample n = 7,064 | Pre-mandatory convergence n = 2,649 | Post-mandatory convergence n = 2,649 |
|---|---|---|---|
| **Intercept** | 0.1857(19.117)** | 0.3689** (19.85) | -0.0745** (5.34) |
| **EPS** | 0.0312(3.152)** | 0.0475 (1.86) | 0.0169 (1.6) |
| **ΔEPS** | 0.0924(8.822)** | 0.4467** (14.69) | 0.0065 (0.62) |
| **Adjusted $R^2$** | 0.1127 | 0.135 | 0.039 |
| **F-statistic** | 100.70** | 104.15** | 27.52** |

Note: Values in the parentheses are t-statistics; **$p < 0.01$

The adjusted $R^2$ is 0.1127, which means that the predictor variables explain the stock returns by 11.3% and the model is statistically significant (F-statistic = 100.7; p-value = 0.000). The results show positive and statistically significant regression coefficients for EPS (0.0312) and ΔEPS (0.0924). The explanatory power of ΔEPS is higher than that of EPS.

*4.3.2. Impact of IFRS Convergence on the Returns Value Relevance of Accounting Information in India*

*4.3.2.1 The relative association approach*

Table 5 results for model (1) also highlight the difference between the pre and post value relevance of earnings. Earnings and change in earnings are more value relevant in the pre-mandatory convergence period (Adj. $R^2$ = 0.135; F-statistic = 104.15) than the post-convergence phase (Adj. $R^2$ = 0.039; F-statistic = 27.52). The regression coefficients for EPS are not statistically significant for both periods, while those for

ΔEPS are positive and significant for the pre-convergence period only.

*4.3.2.1 The incremental association approach*

In this section, the study employs the modified versions of the Easton and Harris model to analyse the influence of IFRS convergence on the returns value relevance. It conducts an incremental association study to estimate the impact of Ind-AS on returns and its interaction with independent variables. The estimation of models (2) and (3) for the full sample provides results as presented in Table 6.

**Table 6: Regression results for models (2) and (3)**

| | **Model (2)**<br>**n = 7,064** | **Model (3)**<br>**n = 7,064** |
|---|---|---|
| **Intercept** | 0.3402** (3.67) | 0.3018** (9.15) |
| **EPS** | 0.0321** (3.24) | 0.0632** (2.62) |
| **ΔEPS** | 0.0923** (8.82) | 0.3724** (15.07) |
| **IndAS** | -0.2740** (5.34) | -0.2138** (3.81) |
| **IndASxEPS** | | -0.0876** (3.29) |
| **IndAS*ΔEPS** | | -0.3447** (12.56) |
| **Adjusted $R^2$** | 0.0174 | 0.1468 |
| **F-statistic** | 42.68** | 2.36** |

Note: Values in the parentheses are t-statistics; **$p < 0.01$

The Hausman test for model (2) confirmed the existence of random effects ($\chi^2$ = 6.949; p-value = 0.448) whereas model (3) is a fixed-effects model with $\chi^2$ value of 63.75 and p-value of 0.000. In model (2) we introduce IndAS as the dummy variable for use of IFRS-converged standards. As compared to the adjusted R2 of 0.1127 for the base Easton and Harris model (see Table 5), the adjusted R2 was reduced to 0.0174 upon the introduction of the IndAS variable. This can be explained by its negative and significant regression coefficient at -0.274. The model is further modified to include interaction between Ind-AS and the predictors. The adjusted R2 of model (3) increases to 0.1468 as compared to 0.0174 of model (2). The interaction terms IndASxEPS (-0.0876) and IndASxΔEPS (-0.3447) are also negative and statistically significant implying that the incremental effect of earnings and change in earnings associated with IFRS convergence decreases the returns value relevance of accounting information in India.

### 4.3.3. *Impact of Voluntary IFRS Convergence on the Returns Value Relevance of Accounting Information in India*

In this section, the study introduces Vol as a dummy variable to the basic model to develop regression models (4) and (5) which are aimed at investigating the effects of voluntary IFRS convergence on the returns value relevance of earnings and change in earnings. The models are run on the cross-sectional data for the year 2015-16 during which voluntary use of Ind-AS was allowed. The regression output obtained using the Ordinary Least Squares (OLS) estimation method is presented in Table 7.

**Table 7: Regression results for models (4) and (5)**

| | **Model 4** n = 883 | **Model 5** n = 883 |
|---|---|---|
| **Intercept** | 0.3371**(10.48) | 0.3371**(10.48) |
| **EPS** | 0.068*(2.01) | 0.0712 (1.86) |
| **ΔEPS** | 0.2677**(5.59) | 0.2311**(4.31) |
| **Vol** | -0.2789**(6.31) | -0.2821**(6.31) |
| **Vol x EPS** | | -0.0226 (0.27) |
| **Vol x ΔEPS** | | 0.1792 (1.5) |
| **Adjusted $R^2$** | 0.0802 | 0.0805 |
| **F-statistic** | 26.64** | 16.45** |

Note: Values in the parentheses are t-statistics; **p < 0.01; *p < 0.05

The regression coefficients for Vol are negative and significant for both models (-0.2789 and -0.2821, respectively). In model (5), the study adds interactions of EPS and ΔEPS with the dummy variable. VolxΔEPS has a positive effect on returns while VolxEPS has a negative effect. However, the results are not statistically significant. Overall, the incremental effects of the predictors related to voluntary use of converged standards reduce the returns value relevance of the accounting information.

## 5. Summary and Conclusion

One of the primary goals of implementing IFRS is improvement in accounting quality with value relevance being an important metric. The available literature across countries has provided mixed results in this regard and through the present study, we provide evidence on returns value relevance in the Indian context. The analysis uses a sample of 883 listed firms on NSE and estimates returns-earnings regression using the Easton and Harris model to prove the value relevance of earnings and earnings changes at three levels.

First, the study determines that stock returns of the sample firm are positively and significantly associated with the accounting variables. This confirms H1 that reported earnings and change in earnings of Indian listed firms are associated with their stock returns. However, the explanatory power of ΔEPS was found to be higher than that of EPS. These results share similarities with the findings of Akeem Adetunji (2016) for Nigerian deposit money banks.

The relative association study carried out at the second level provides contrasting results as compared to earlier findings. The accounting information of Indian firms concerning stock returns is more value relevant in the pre-mandatory convergence period. These results differ from Kouki (2018), Okafor et al., (2016), and Paglietti (2009), who report an increase in value relevance in the post-IFRS adoption periods. The present study finds that earnings are not statistically significant for both periods, while earnings changes are significantly positive for the pre-convergence period only. Kouki's (2018) study of European countries provides contradictory findings. He reveals that EPS was positive and statistically significant in the pre-IFRS period, while ΔEPS was negative and non-significant in the same period.

At the third level of analysis, we tested the incremental association of the IFRS converged Ind-AS. The results revealed that the dummy variable IndAS reduced the explanatory power of the model and it had a negative and significant association with stock returns. This again differs from Kouki (2018), who saw an increase in value relevance post-IFRS and a positive coefficient for the IFRS variable. Also, the interaction of Ind-AS with EPS as well as change in EPS is negative, implying that the incremental effect of the predictor variables associated with IFRS convergence decreases the returns value relevance in India. These findings are not consistent with our expectations that transition to IFRS converged standards increases the returns value relevance of Indian financial information. Since stock returns are made up of dividends and changes in stock prices, these two components may have likely caused a decline in the returns-earnings association in the post-convergence period. We, therefore, fail to accept H2. Future studies may compare price and returns value relevance to understand the factors causing the improvement or decline in value relevance after IFRS adoption.

The final level of our analysis answers the questions on the impact of voluntary IFRS convergence in India. The study finds that the dummy variable for voluntary convergence is negative and significant wherein its interaction with change in earnings is positive, while that with earnings levels is negative and non-significant. This result stipulates the rejection of H3 that voluntary use of IFRS-converged standards increases returns value relevance. It is difficult to draw a direct comparison of our results with those found in other economies due to differences in the IFRS implementation modes, diversity of firms and legal enforcement. Nevertheless, the study provides a foundation for value relevance research in India that provides contrasting results.

The study offers important implications and scope for future research. Prior literature on mandatory IFRS adoption has documented improvements in value relevance for mandatory as well as voluntary adopters. This research, however, contradicts such findings, especially from developed countries, to conclude that IFRS convergence reduces the returns value relevance of accounting information in the Indian context. The conclusions are well-substantiated by results from a thorough analysis carried out on a large and diverse sample of Indian firms. The significance of this study lies in the fact that it provides the first empirical evidence on the issue of returns value relevance in India post-IFRS implementation. IFRS convergence being in its nascent stages in India offers an interesting opportunity for value relevance research. However, the available data is only for three years after the mandatory convergence took place. As more data becomes available over the years, more conclusive results can also be derived. Future research may also compare the returns and price value relevance of accounting information in India. This line of research is significant in Indian capital markets to unravel the effects of the new standards on accounting as well as stock market variables. It has managerial implications for firm and standard-setters. Firms can assess the benefits of their transition to the IFRS converged standards. The results also provide insights to unlisted firms, which may intend to voluntarily switch to the new international standards shortly.

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