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ARTICLE

Business Strategies: An Approach to Earnings Analysis

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Abstract

This study attempts to analyse Indian firms sustainability of earnings. Investors, security analysts, and managers focus on firms earnings. Therefore, concerns about Earnings quality arise. Low-quality earnings are more likely to decay in future and vice-versa (Penman and Zhang 2004). Firms were classified into two strategy groups: revenue growth group and non-revenue growth group (which is also the cost-reduction strategy group). Further, these groups are divided into an operating earnings measures group and a non-operating earnings measures group. To analyse the sustainability of earnings of Indian Firms, Panel data regression methodology has been applied. Panel data captures both cross-sectional and time-series dimensions. Also, various assumptions have been tested, and robust regression analysis has been applied to deal with heteroscedasticity and autocorrelation. The study is done for a period from 2001 to 2021. The study included 223 firms as a sample size. This study finds that in the Indian scenario, operating earnings and non-operating earnings do impact the sustainability of earnings. Most studies pertain to the developed nations. Indian firms were analysed for the sustainability of Earnings by modifying and calculating various variables from the firms financial statements. Security Analysts, Assets Management Companies, and consultants could use this study to pick various stocks for their clients. Also, managers could use it to frame policies for the prospective future of the firm.

Keywords: Sustainable Earnings, Revenue-growth Strategy, Cost-reduction Strategy, Panel Data, Panel Regression Analysis

1 Introduction

An investment in equity shares is primarily done either to earn dividends or to have a capital gain, or both. Both prices and dividends are market-sensitive and depend on numerous factors. An investor needs to carefully analyze and understand these factors dynamics and check the earnings persistence. Studies have shown that sustained increases in earnings firms have a competitive advantage and higher earnings growth in the future than firms that do not report sustained increases in earnings [Barth et al. (1999), Demski (1998), Porter (1985)]. Ghosh et al. (2005) went into the components of earnings and laid down two broad groups. One group is composed of all those firms who followed the revenue growth strategy for the enhancement of earnings, and the second group is composed of all those firms who followed the cost reduction strategy for the enhancement of earnings. They predicted that the former group would have more sustainable earnings and higher ERCs. Studies have also highlighted the importance of revenue for a firm's earnings (Holliday, 2000).

If firms follow a cost-reduction strategy, it is hard for them to maintain their cost leadership, as other firms can imitate them by cutting their costs. Costs cannot be reduced after a certain limit, whereas if the firm follows a revenue-increasing

strategy, it has an unlimited growth potential. Costs are even sticky (Anderson et al., 2003), as they increase faster when activity level changes than they decrease, so steady cost reduction is not possible as cost reduction is a short-term phenomenon, not a long-run solution. Ghosh et al. (2005) elaborated, "One Concern with cost-cutting programs is that firms are likely to lose the muscle while cutting the fat, thus hurting the profitability in the long run." Aggarwal, et al. (2017) showed the importance of business strategies and highlighted how earnings are impacted by a firm's strategies.

The contemporaneous increase in earnings, along with sustained increases in revenues, shows the higher quality of earnings and higher Earnings Response Coefficients (ERCs) as per Ghosh et al. (2005). Earnings increase can also emerge through cost reduction [Ertimur, et al (2003)]. To understand the impact of revenue increases and cost reduction simultaneously on the valuation of the firms and stock markets, firms are divided into two parts:

a) Firms reporting sustained increases in earnings along with sustained increases in revenues.

b) Firms reporting sustained increases in earnings but do not report sustained increases in revenues; these firms are treated as cost-reduction firms.

The need was felt to analyze the Indian market for various earnings strategies a firm follows and to see the impact of those strategies on the sustainability of earnings. Also, how revenue growth strategy, cost-reduction strategy, operating income strategy, non-operating income strategy and the difference in parameters of these strategies. Based on this need, the study has the primary objective of analyzing the role of business strategies for persistent earnings and how different strategies behave in the Indian context.

1.1 Literature Review

This study mainly emphasis on India's sustainable earnings along with its determinants. Few studies, belonging to developed nations, have previously captured this aspect, like Beaver, et al. (1982). Their study inspected the prospect of inflation-adjusted earnings, raising the descriptive power of cross-sectional differences in yearly security returns. This analysis incorporated a two-stage regression approach, concluding that pre-holding gain net income comparatively has a lower correlation with security return than historical cost earnings variables.

According to a study by Freeman et al. (1982), earnings do not follow the drunkard's walk. Their hypotheses led to two observations. First, Since the rate of return follows a mean-reverting process and variations in rates of return are closely correlated with changes in earnings, empirical studies suggest that the rate of return can anticipate changes in earnings. Secondly, they hypothesized that the probability of an earnings increase (or decrease) is independent of the predictor of rates of return. They concluded that accounting rates of return are consistent with a mean-reverting behaviour, and there is also a negative relationship between Earnings Price Share changes and rates of return. Kormendi and Lipe (1987) analysed accounting earnings. They applied a time-series model. They concluded that stock returns have not shown excessive sensitivity to the earnings innovations. After removing the ephemeral components of current earnings, Ou and Penman (1989) extracted the information in prices.Their work is an extension of Beaver and Morse (1978). They used the Logit Estimation Technique to assess the probability of a one-year-ahead earnings increase. They calculated a price-earnings ratio using earnings per share for a given year and per share price three months after the fiscal year-end. In addition, their work exhibited the Molodovsky effect as price-earnings and subsequent earnings changes are positively correlated, while the former is negatively correlated with current earnings changes. Changes in profits that pricing predicts would eventually be reversed and classified as transitory earnings.

Bernard and Thomas (1990) affirmed that stock prices are a partial reflection of earnings expectations. They checked a variety of substitute evidence like transaction costs impact, and risk adjustment problems, but they did not find their validity. They also found that the degree of mispricing is small due to post-announcement drift. The incremental value significance of twelve analysts' variables over earnings was studied by Lev and Thiagrajan (1993). They showed mixed results for different variables.

Dechow (1994) examined the relevance of accruals in assessing the shorter performance evaluation interval. It has been found that the greater the volatility of the working capital needs for financing and investment activities, the longer the firm's operating cycle. Here, cash flows have been significantly impacted by issues related to timing and matching, undermining their effectiveness in reflecting the performance of the firm. Feltham and Ohlson (1995) are credited for modelling the accounting data concerning operating and financial activities along with the firm's market position. They observed growth factors, accounting conservatism, and abnormal earnings persistence. They concluded that the value of all three variables depends upon the nature of accounting conservatism the firm follows. Sloan (1996) examined how accrual and cash flow accounting affect stock prices, finding that the persistence of current earnings into the future is influenced by the magnitudes of the accrual and cash flow components of current earnings. They noted that stock prices failed to reflect all available information. However, it neither proved investors" as irrational nor presented some unexploited profit opportunities. They concluded that an active investment strategy helps in generating normal returns. Beneish (1999) presented a sample of earnings manipulators, their attributes and a model to identify these manipulators. The researcher modelled ways to detect misrepresentations in financial statements. The researcher found a systematic relationship between the likelihood of manipulation and some variables of financial statements.

According to Fairfield and Yohn (2001), though dividing profitability into asset turnover and profit margin does not enhance the ability to predict changes in return on assets after a year, analyzing changes in asset turnover and profit margin separately improves the forecast accuracy for next year's return on assets. They analyzed the data from 1978 to 1996 period. Additionally, their observations demonstrated that disaggregation of the change in return on net operating assets can also be used to gather information on profitability. It also enhances the predictability of current profitability

levels and net operating assets growth. In addition, it helps in detecting non-recurring items. Aggarwal and Agarwal (2016) talked about the return-beta relationship. Penman and Zhang (2004) detect the sustainability (persistence) of earnings and the Price-earnings ratio (P/E ratio) through a structured financial statement analysis. They observed that stock returns are foreseeable when traded P/E ratios differ from a line fitted to sustainable earnings scores. Ghosh et al. (2005) made a connection between the sustainability of earnings and the different strategies used by businesses to increase their profits. They divided strategies into two categories: the first is the persistence of earnings through a strategy of revenue development, and the second is the persistence of earnings through a strategy of cost reduction. They differentiated it into the purpose of operating earnings and non-operating earnings. Their finding stated that two-thirds of firms are having consistent increases in earnings along with revenues, while the rest are adhering to cross- a cross-reduction strategy. They described this as increases for five consecutive years. They also noted a positive connection between firms' strategy and earnings growth.

Providing an extension of Sloan's (1996) study, Richardson et al. (2005) emphasized the relationship between accrual reliability and earnings persistence. They opined that some accruals have low reliability, and they exhibited that the magnitude of the security mispricing related to accruals is significantly higher than initially affirmed by Sloan's (1996) study. Wei and Xie (2008) linked the anomaly of capital investments to the anomaly of accruals by investigating whether they seized the same underlying force and also to see whether each anomaly separately provides sufficient novel information to touch prices. Aggarwal and Agarwal (2016) examined Earnings growth-capturing business strategies and found that firms mostly adopt cost-reduction methods for earnings enhancements. Agarwal et al. (2019) checked earnings sustainability via firm-level and industry-level analysis and found significant determinants of earnings persistence. Sang-Hyun, et al. (2019) checked Korean firms and analysed the impact of accrual bases management and real earnings management impact in achieving sustainability. Hong, et al. (2020) examined Vietnam firms and found a low level of earnings persistence. Jia & Li (2021 checked Australian firms and found an association between sustainable performance and higher future earnings. After thoroughly analysing the different research studies, the following research gaps were identified:

a) Most studies pertain to developed nations, and studies hardly assess the emerging nation of India.
b) Studies generally talked about financial statement analysis, and very few studies saw that business decisions impact the sustainability of earnings.
c) Even after the advancement of technologies and data availability, primitive methodologies have been applied, and a need was felt to capture the robust nature of panel data.

1.2 Objectives of the Study

Concerning the mentioned research gaps, this study examined the following two major objectives.

i. To study the role of business strategies in analysing the earnings sustainability of Indian Firms.
ii. To examine the influence of diverse business strategies on the earnings analysis of Indian Firms.

1.3 Model of the Study

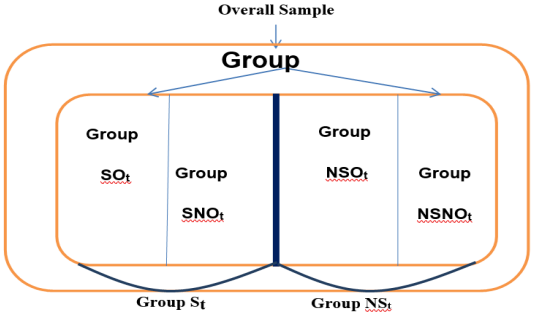
According to Ghosh et al. (2005), a higher quality of earnings is exhibited by a concurrent increase in earnings along with sustained growth in revenues. An increase in earnings can also result from cost reduction [Ertimur, et al. (2003)]. To understand the same, the division of the firm into two parts was required:

i. Firms reporting consistent growth in earnings and revenues.
ii. The firms, treated as cost-reduction firms, report consistent growth in earnings but not in revenues.

In addition, the research extends to operating earnings. Firms witnessing sustained growth in earnings, revenues, and operating income have more tenacious earnings than those with either of them.

1.4 Grouping of Firms

The classification of business strategies is captured in the study by Ghosh et al. (2005). The classification of the firms is as follows:



- Group G_t: All firms with at least five years of consecutive increases in earnings per share up to year t.
- Group S_t: Firms in Group G_t that have at least five years of consecutive increases in revenue per share up to year t.
- Group NS_t: Firms in Group G_t that do not belong to Group S_t.
- Group SO_t: Firms in Group S_t that have at least five years of consecutive increases in operating earnings per share up to year t.
- Group SNO_t: Firms in Group S_t that do not belong to Group SO_t.
- Group NSO_t: Firms in Group NS_t that have at least five years of consecutive increases in operating earnings per share up to year t.
- Group $NSNO_t$ Firms in Group NS_t that do not belong to Group NSO_t

Sustained increases are defined as increases for five consecutive years. The fiscal year is denoted as "t". From all available firms, Group G_t is formed, which is composed of firms with five consecutive years of earnings per share increases up to year t. For Group G_t, $EPS_t - EPS_{t-1}$ is greater than zero for t-4 to t. Groups for revenue-supported firms and cost-reduction firms are made within Group G_t, and they were named Group S_t (firms having five consecutive years of revenue per share increases up to year t) and Group NS_t (firms in Group G_t that do not belong to Group S_t) respectively. Firms in group NS_t are made up of all those firms whose earnings per share increased for five consecutive years but these firms have experienced revenue per share decrease for one or more years up to year t. So firms in group NS_t need not reduce costs every year but have reduced costs more than revenue increase for one or more years to maintain the earnings growth level of the firm. Similarly, Group S_t may have firms that have decreased their costs for one or more years, but their revenue increase is more than their cost reduction.

To consider the effect of operating and non-operating earnings on the quality of earnings further, sub-groups were created from group S_t and group NS_t. Those firms which are having five years of operating earnings per share increases up to year t are considered in sub-group SO_t and NSO_t, for Group S_t and group NS_t respectively. The Remaining firms are considered in group SNO_t and $NSNO_t$ for group S_t and group NS_t, respectively, denoting operating earnings per share decreases in one or more years; that is, operating costs either increase more than sales increase or decrease less than sales decrease. This shows the failure of firms to manage their operating earnings and they have to take non-operating measures to maintain their level of profitability in sub-groups SNO_t and $NSNO_t$.

1.5 Business Strategies

After classifying the firms into various groups, Ghosh et al. (2005) constructed the following model based on Freeman, Ohlson and Penman (1982) to examine the persistence of earnings level:

$$\frac{E_{t+1}}{P_t} = b_0 + b_1\frac{E_t^-}{P_{t-1}} + b_2\frac{E_t^+}{P_{t-1}} + b_3\frac{E_t}{P_{t-1}} * D_t^S + b_4\frac{E_t}{P_{t-1}} * D_t^{NS} + \varepsilon_t \qquad (1)$$

$$\frac{E_{t+1}}{P_t} = b_0 + b_1\frac{E_t^-}{P_{t-1}} + b_2\frac{E_t^+}{P_{t-1}} + b_{31}\frac{E_t}{P_{t-1}} * D_t^{SO} + b_{32}\frac{E_t}{P_{t-1}} * D_t^{SNO} + b_{41}\frac{E_t}{P_{t-1}} * D_t^{NSO} + b_{42}\frac{E_t}{P_{t-1}} * D_t^{NSNO} + \varepsilon_t \qquad (2)$$

The above-given equation presents the stock price at the end of the third month following the fiscal year's end as P, while D_s are dummy variables denoting Groups S_t, NS_t in equation (1) and Groups SO_t, SNO_t, NSO_t, $NSNO_t$ in equation (2). The fiscal year is represented by t and E is earnings per share, while E- and E+ denote negative and non-negative measures of E.

The parameters b3 and b4 in the aforementioned models reflect the influence of earnings persistence from different components of profits, while b1 and b2 in the models above capture the earnings persistence of negative and positive earnings for firms without earnings persistence. For equation (1), it is anticipated that b3>b4>0, or that incremental persistence parameters are larger for enterprises whose revenue increases are accompanied by profitability increases.

In equation (2), it is anticipated that b31>b41>0 and b32>b42>0, which implies that, for both the groups, the firms supporting revenue growth should have greater incremental earnings persistence parameters than non-revenue-supported enterprises. Additionally, it is anticipated that working sub-groups will have larger incremental persistence parameters than non-operating sub-groups, with b31>b32>0 and b41>b42>0.

2 Research Design

The complex research design has goals, variables, data, hypotheses, and statistical instruments. Following is an elaborate discussion:

2.1 Hypotheses

The following are the null hypotheses for the different objectives:
Objective 2: To examine the influence of diverse business strategies on the earnings analysis of Indian Firms.
H1: Non-sustained negative earnings have no prominent influence on the durability of earnings.
H2: Non-sustained positive earnings have no prominent influence on the durability of earnings.
H3: There is no discernible difference between Group S_t. and Group NS_t enterprises' earnings persistence.
H4: There is no discernible difference between the Group SO_t and Group NSO_t enterprises' earnings persistence.
H5: There is no discernible difference between Group SNO_t and Group $NSNO_t$ enterprises' earnings persistence.
H6: There is no discernible difference between the Group SO_t and Group SNO_t enterprises' earnings persistence.
H7: There is no discernible difference between the Group NSO_t and Group $NSNO_t$ enterprises' earnings persistence.

2.2 Sample

Annual data for the NSE NIFTY 500 index was analyzed for the period beginning in January 2001 and ending in December 2021 to calculate various variables. All financial and banking companies, due to the different structures of financial statements, were removed along with companies having missing data. Finally, 223 firms were shortlisted for analysis. The data was collected from Bloomberg. The structure of panel data is micro and balanced.

2.3 Variables

The increases for five consecutive years are considered sustained increases. Group G_t is made up of companies that have increased their earnings per share for five years, running up to year t. The following is the computation of the variables for fiscal year t:

- E_t: Profits per share

First,the following formulas are used to determine earnings:Profit after taxes less exceptional income less prefcrence dividend equals earnings.
Second, information regarding paid-up outstanding shares was gathered.
Lastly, earnings divided by the number of outstanding shares are computed.

$$E_t = \frac{\text{Earnings available for shareholders}}{\text{Outstanding shares}}.$$

- Revenue per share

It is calculated by dividing a company's net sales by the number of outstanding shares.

$$\text{Revenue Per Share} = \frac{\text{Net Sales}}{\text{Outstanding shares}}.$$

- Operating Profitability per Share

It is calculated by dividing a company's operating earnings before depreciation by the number of outstanding shares.

$$\text{Operating Earnings Per Share} = \frac{\text{Operating Profit before depreciation}}{\text{Outstanding shares}}.$$

- $\frac{Et+1}{Pt}$

The computation involves dividing the end of the third month of the fiscal year (t) by the market price per share (Pt).

- $\frac{E_t^-}{P_{t-1}}$

It is the difference between the market price per share after the third month of the fiscal year t-1 and earnings per share (E_t), expressed negatively.

- $\frac{E_t^+}{P_{t-1}}$

It is calculated as the market price per share after the third month of the fiscal year $t-1$ divided by the positive measure of earnings per share (E_t).

- $\frac{E_t}{P_{t-1}}$

E_t divided by the market price per share (P_{t-1}) is how it is computed.

- D^S is a dummy variable that denotes companies who have seen rises in earnings per share for five years running, along with five years running with increases in revenue per share, up to year t.
- D^{NS} is regarded as a dummy variable that represents companies that have increased their earnings per share for five years running without increasing their revenue per share for five years running up until year t. These companies have seen decreases in revenue per share for one or more years and have implemented cost-cutting measures to keep their earnings growth rates stable.
- D^{SO} is a dummy variable that indicates companies that have increased their earnings per share for five years running, together with five years running that have increased their revenue per share and five years running that have increased their operating earnings per share up to year t.
- D^{SNO} a dummy variable, denotes companies that have experienced five years in a row of increases in earnings per share in the past and five years in a row of increases in revenue per share but have not experienced five years in a row of increases in operating earnings per share up until year t. This indicates that the companies' operating profits have been declining for one or more years, and they are now depending on nonoperating measures to support their earnings growth.
- D^{NSO} is a dummy variable that indicates companies who have increased their earnings per share for five years running in addition to five years of operational earnings per share growth, but not for five years in a row with increases in revenue per share up to year t. It is thought that cost reduction strategies, which are non-operating earnings measures, have been adopted by firms to maintain the level of earnings growth.
- D^{NSNO} is a dummy variable that represents firms having five consecutive years of earnings per share increases without five consecutive years of revenue per share increases and five consecutive years of operating earnings per share increases up to year t.

2.4 Statistical Techniques

To analyze the panel data, the panel regression methodology has been applied. It can be depicted as follows:

$$Y_{it} = a + b_1X_{1,it} + b_2X_{2,it} + \ldots + b_kX_{k,it} + e_{it}.$$

Where, Y denotes the dependent variable, X's denotes independent variables, a is an intercept, b's denotes the slope coefficients, i denotes cross-sections, t denotes the period and e is an error term.

First of all, Pooled OLS has been checked. Y_{it} is simply regressed on an intercept (α) and X_{it} ignoring both cross-section and time-series variation in the data. In simple words, pooled regression combines the time series and different cross-sections to test the dependent variable within the framework of multivariate analysis (Schmidt 1997).

Afterwards, to capture the Panel Data cross-sections and time element, either Fixed-effects or Random-effects model ($E(u_{it}/X_{it}) = 0$) has to be applied. It depends upon, whether the intercept is related to the error term or not. To check this, the Hausman Test is applied. As per Greene (2002), Hausman (1978) is used to test for orthogonality of the random effects and the regressors. The test is based on the idea that under the hypothesis of no correlation, both ordinary least squares in the fixed-effects model and generalized least squares are consistent, but ordinary least squares are inefficient, whereas under the alternative, ordinary least squares are consistent, but generalized least squares are not. If the null hypothesis is not rejected then the random-effects panel model is considered else fixed-effects panel model being analysed in this study.

The assumptions of Normality (checked through the Jarque-Bera Test), Mean value of error term (checked through t-statistics), Homoscedasticity (checked through Likelihood ratio), and Autocorrelation (checked through the Wooldridge test) have been analyzed. If the problem of heteroscedasticity and autocorrelation is found, it has been removed with the help of Robust Regression Analysis. Lastly, to determine the significance of the variation between various coefficients, the Wald test has been used.

The initial variables were calculated using MS Excel, and then analysis was performed on Eviews 12.0 and Stata 17.0.

3 Analysis of Results

3.1 Descriptive Statistics

The descriptive statistics are presented in Table 1. There are in total 2230 observations which constitute a very large number for panel data analysis. The mean of the $\frac{E}{P}$ ratio is 0.24 and its standard deviation is 0.572, the mean and standard deviation of its lagged series are 0.402 and 1.092 respectively, the mean of the negative earnings $\frac{E}{P}$ ratio series is -0.004 and its standard deviation is 0.0630 whereas, the mean and standard deviation of positive earnings $\frac{E}{P}$ ratio series is 0.509 and1.089 respectively.

3.2 Objective 1:

To study the role of business strategies in analysing the earnings sustainability of Indian Firms.

In objective one of this study, an attempt is made to define business strategies for earnings persistence in the Indian scenario. As per Ghosh et al. (2005) model, firms whose earnings per share are on the rising side for five consecutive years have quality earnings, and this becomes sustainable if it is supported by revenue growth, which means increases in revenue per share for five consecutive years. Also, the quality of earnings increases if there is sustained growth in operating earnings per share for five consecutive years, along with sustained increases in revenue per share. Therefore, earnings are considered consistent when earnings per share grow consecutively for five years, along with an increase in revenue per share. In addition, there will be growth in operating earnings per share for five consecutive years. This definition makes the basis for objective two, as various variables calculated for analysis are done considering the Indian Laws and Indian Accounting Structure. The 'Institute of Chartered Accountancy of India rules and regulations to maintain books of accounts and auditing, Companies Act rules and regulations, Government of India guidelines, and Indian Tax Laws to mention a few. Numerous back calculations are to be done to calculate variables mentioned in section 2.3.

3.3 Objective 2:

To examine the influence of diverse business strategies on the earnings analysis of Indian Firms.

Panel Data Regression Analysis has been used to analyze equations (1) and (2) to determine the factors that contribute to sustainable profitability and to check the hypotheses constructed.

Examination of Equation (1)

A regression analysis of equation (1) is given in Table 2. Based on the results of the pooled regression analysis, every parameter that represents earnings persistence is positive and significant. The random effects panel model is not applicable as per the Hausman-Test result. Consequently, the panel model with fixed effects has been applied. Robust regression panel analysis has been used to eliminate the autocorrelation and heteroscedasticity issues following the verification of the assumptions (as shown in Table 3). According to robust regression panel analysis, the earnings persistence parameter has proven positive and significant. For nonsustained earnings growth, the results of Ghosh et al. (2005) are consistent with the positive and extremely significant incremental persistence parameter for group S_t. The persistence parameter is large and positive, which is also consistent with the findings of Ghosh et al. (2005).

Because stock prices deflate earnings, these criteria imply that 1% of present ROEs will be able to predict future ROEs for firms in group S_t of 0.337%(0.158 + 0.189) and group NS_t of 0.478% (0.158 + 0.32) of ROEs. The Wald test methodology, which is displayed in Table 2, confirms that even though the Group S_t coefficient is greater than Group NS_t, the difference between the two coefficients is significant.

Analysis of Equation (2)

The results of the pooled regression analysis are shown in Table 4. Except for one group NSO_t, all earnings persistence metrics have been significant and positive. The findings of the Hausman test indicated that the random effects panel model is not relevant. The fixed effects panel model has been applied as a result. In Table 5, assumptions analysis showed the autocorrelation and heteroscedasticity issues, which were resolved by robust regression analysis. Every incremental persistence parameter is positive and significant, as demonstrated by a robust regression analysis. For positive earnings, the persistence parameter is positive and highly significant, which is comparable to the findings of Ghosh et al. (2005). For groups SO_t, SNO_t, NSO_t and $NSNO_t$, the incremental persistence parameter is positive and significant, matching the findings of Ghosh et al. (2005). The incremental persistence parameter for both the operational and non-operating sub-groups is greater in the revenue growth group (b31 = 0.297 > *b*410.169 and *b*32 = 0.785 > *b*42 = 0.487). However, the non-operating subgroup has a greater incremental persistence value than the operating subgroup for revenue growth enterprises (*b*32 = 0.785 > *b*31 = 0.297). In the non-revenue growth group, the incremental persistence parameter of the non-operating sub-group is larger than that of the operating subgroup (*b*42 = 0.487 > *b*41 = 0.169). These findings may suggest that, in the Indian context, non-operating earnings are a significant factor in determining a company's ability to maintain its earnings over time. Using the Wald Methodology, the difference between coefficients is tested. Table 4 indicates that all four paired differences are significantly different.

3.4 Results of Hypotheses

The results of various hypotheses constructed are as follows:

H1: Non-sustained negative earnings have no significant impact on the persistence of earnings. This hypothesis analyses whether non-sustained negative earnings impact the persistence of earnings or not. Unlike Ghosh et al. (2005) study, the null hypothesis has been rejected.

H2: Non-sustained positive earnings have no significant impact on the persistence of earnings. This hypothesis analyses whether non-sustained positive earnings impact the persistence of earnings or not. The null hypothesis was rejected, while the coefficient was positive and significant, similar to Ghosh et al. (2005) study.

H3: There is no discernible difference between Group S_t and Group NS_t enterprises' earnings persistence. This hypothesis examines whether Group S_t firms' incremental persistence of earnings differs from Group NS_t firms' earnings persistence. This was not the case with the null hypothesis, as Ghosh et al. (2005) found. This demonstrates that in India, there is no

differentiation made between the revenue growth tactics and cost-cutting initiatives implemented by businesses that sustain earnings.

H4: There is no discernible difference between Group SO_t and Group NSO_t enterprises' earnings persistence. This hypothesis examines whether Group SO_t firms' incremental persistence of earnings differs from Group NSO_t firms. In keeping with the findings of the Ghosh et al. (2005) study, the null hypothesis was rejected. This demonstrates that operating earnings are taken into account in India while assessing the sustainability of earnings.

H5: There is no discernible difference between Group SNO_t and Group $NSNO_t$ enterprises' earnings persistence. This hypothesis examines whether Group SNO. firms' incremental persistence of earnings differs from Group $NSNO_t$ firms'. This was not the case with the null hypothesis, as Ghosh et al. (2005) found. This demonstrates that when assessing the persistence of earnings in India, operating earnings are disregarded.

H6: There is no discernible difference between Group SO SO_t and Group SNO_t enterprises' earnings persistence. This hypothesis examines whether Group SO_t firms' incremental persistence of earnings differs from Group SNO_t firms'. The null hypothesis was rejected; however, in contrast to the findings of Ghosh et al. (2005), the coefficient of Group SO_t was lower than the coefficient of Group $SNO_{t.}$. This demonstrates that non-operating earnings have received greater weight in India when assessing earnings persistence, which eventually results in unsustainable earnings.

H7: There is no discernible difference between the Group NSO_t and Group $NSNO_t$ enterprises' earnings persistence. This hypothesis examines whether Group NSO_t firms' incremental persistence of earnings differs from Group $NSNO_t$ firms'. The null hypothesis was rejected; nevertheless, in contrast to the findings of Ghosh et al. (2005), the coefficient of Group NSO_s is smaller than the coefficient of Group $NSNO_t$, This demonstrates that non-operating earnings have received greater weight in India when assessing earnings persistence, which eventually results in unsustainable earnings.

4 Conclusion

This research tries to understand various business strategies for the analysis of earnings in India. The sustainability of earnings was classified as the earnings increase consecutively for five years. The sustainability of earnings was classified into revenue-growth strategies and cost-reduction strategies by forming two groups of firms within the group having sustainable earnings. Further, sub-division was made into operating earnings measures and non-operating earnings measures in both groups. To analyse the earnings sustainability of Indian firms, the NSE NIFTY 500 index was selected excluding all banking and financial firms. After, scrutinizing all firms, 189 firms were selected for final Panel regression analysis. First of all, Pooled regression was run, then based on the Hausman-test Fixed effects panel regression was run, and after analysing various regression assumptions, robust panel regression was applied. The results show that in the Indian scenario, firms adopting non-operating earnings measures have significantly higher sustainable earnings than firms following operating earnings measures. However, Revenue growth firms have higher sustainable earnings than cost-reduction firms in the case of operating earnings measures.

The results show that in the Indian scenario, firms who are following cost-reduction strategies have lower sustainable earnings than firms who are following revenue growth strategies. However, their coefficients are not significantly different which means, in India, there is no distinction between firms whether they are following a revenue growth strategy or cost reduction strategy while evaluating sustainable earnings.

This research could be used by security analysts and asset management companies in framing portfolios for their clients. The research could serve as a valuable resource for security analysts, asset management companies, and managers alike, enabling them to make more informed decisions, optimize investment strategies, and effectively manage risks in their respective domains. This research work can also be used by managers to frame their policies for the company.

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TABLES

Table 1: Descriptive Statistics

Variables	Mean	Median	Std. Dev.	Observations
$\frac{E_{t+1}}{P_t}$	0.24002	0.12117	0.57211	2230
$\frac{E_t}{P_{t-1}}$	0.40185	0.20012	1.09166	2230
$\frac{E_t^-}{P_{t-1}}$	-0.00612	0.00000	0.06312	2230
$\frac{E_t^+}{P_{t-1}}$	0.50806	0.10010	1.08913	2230

Table 2: Results for Equation (1)

Variable	Pooled	Fixed-Effects	Robust
b_0	0.20456^{***} (0.001)	0.24452^{***} (0.000)	0.24452^{***} (0.002)
$\frac{E_t^-}{P_{t-1}}$	0.36346^{**}	0.10679^{*}	0.10679^{*}
$\frac{E_t^+}{P_{t-1}}$	0.032)	(0.062)	(0.088)
$\frac{E_t}{P_{t-1}} * D_t^S$	(0.005)	(0.006)	(0.000)
$\frac{E_t}{P_{t-1}} * D_t^{NS}$	(0.000)	(0.000)	(0.036)
Wald Test for b_3 and b_4 coefficients	0.37865^{***} (0.000)	0.31986^{**} (0.065)	0.31986^{**} (0.045)
Adjusted R-Squared	0.722	0.04302	0.02248^{*}

Note:
**denotes significant at 10%.
***denotes significant at 5%.
****denotes significant at 1%.
Value in parenthesis denotes *p*-values.

Table 3: Testing of Assumptions for Equation (1)

Test	Null Hypothesis	Statistic
Jarque-Bera Test	Residuals are normally Distributed	29462.6^{****} (0.000)
t-statistics	The mean value of the Error term is zero	0.0000 (1.000)
Likelihood ratio test	Homoscedasticity of Residuals	4674.75^{***} (0.000)
Wooldridge Test	No autocorrelation	5.678^{**} (0.015)

Note:
***denotes significant at 5%.
****denotes significant at 1%.
Value in parenthesis denotes p-values.

The null hypothesis of the Jarque-Bera test is rejected. However, based on the Central Limit theorem, the normality of the sampling distribution can be assumed if the sample size is big enough, even in cases when the actual population is not normally distributed. The error term's mean value is zero. According to the likelihood ratio finding, this model contains heteroscedasticity. As per Wooldridge test results, there is a problem of autocorrelation.

Table 4: Results of Equation (2)

Variable	Pooled	Fixed-Effects	Robust
b_0	0.09601*** (0.000)	0.12886*** (0.000)	0.12886 * ** (0.000)
$\frac{E_t^-}{P_{t-1}}$	0.28627** (0.114)	0.04692* (0.088)	0.04692 * * (0.048)
$\frac{E_t^+}{P_{t-1}}$	0.25711*** (0.000)	0.22904 * ** (0.000)	0.22904*** (0.000)
$\frac{E_t}{P_{t-1}} * D_t^{SO}$	0.22482 * ** (0.000)	0.29725 * ** (0.000)	0.29725*** (0.000)
$\frac{E_t}{P_{t-1}} * D_t^{SNO}$	0.90095*** (0.000)	0.78455*** (0.000)	0.78455*** (0.000)
$\frac{E_t}{P_{t-1}} * D_t^{NSO}$	0.06448 (0.682)	0.16874 (0.191)	0.16874* (0.064)
$\frac{E_t}{P_{t-1}} * D_t^{NSNO}$	0.58914*** (0.000)	0.48672 * ** (0.000)	0.48672 * * (0.022)
Wald Test for b_{31} and b_{41} coefficients	1.46792 (0.201)	1.56034* (0.094)	2.08392 * * (0.038)
Wald Test for b_{32} and b_{42} coefficients	1.84567 (0.458)	2.98836 * * (0.026)	2.14328* (0.073)
Wald Test for b_{31} and b_{32} coefficients	−6.40719 * * (0.036)	21.87024*** (0.000)	15.57732 * * (0.018)
Wald Test for b_{41} and b_{42} coefficients	−4.86648** (0.044)	3.20805 * * (0.041)	3.34806 * * (0.031)
Adjusted R-Squared	0.682	0.724	0.732

Note:
**denotes significant at 10%.
***denotes significant at 5%.
****denotes significant at 1%.
Value in parenthesis denotes p-values.

Table 5: Assumptions testing of Equation (2)

Test	Null Hypothesis	Statistic
Jarque-Bera Test	Residuals are normally distributed	288144.5*** (0.000)
t-statistics	The mean value of the Error term is zero	0.0000 (1.000)
Likelihood ratio test	Homoscedasticity of residuals	3205.19*** (0.000)
Wooldridge Test	No serial autocorrelation	0.6242** (0.027)

Note:
*** denotes significant at 5%.
**** denotes significant at 1%.
Value in parenthesis denotes p-values. The null hypothesis of the Jarque-Bera test is rejected. However, based on the Central Limit theorem, the normality of the sampling distribution can be assumed if the sample size is big enough, even in cases when the actual population is not normally distributed. The error term's mean value is zero. According to the likelihood ratio finding, this model contains heteroscedasticity. As per Wooldridge test results, there is a problem of autocorrelation.