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A Panel Data Analysis to Assess the Impact of Sustained Earnings on Stock Returns: A Special Reference to the Indian Financial Service Sector

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ABSTRACT

This study was focused on addressing the comprehensive issue of sustainability with special emphasis on sustained earnings as a measurement of earnings. The research work attempted to define the operating and non-operating elements of the earnings model and then examine the variations in the normal profit margin. The sustained earnings were also estimated separately by adopting the Firm-Related Approach and Industry-Based Approach. Dynamic Panel Data-based approach was used for analysis. Findings suggested that the operating elements of earnings are significantly higher than the non-operating elements. In addition, measures related to the intensity of operating earnings were positively associated with sustained earnings. Therefore, this study contributes sizeable evidence on sustained earnings of the financial service sector of the Indian stock market and can potentially be of extensive use to investment companies for managing investors' funds, security analysts, investors, and firms.

JEL Classification: G12, G13, G17, G21, G22, G23.

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1. Introduction

Financial markets and institutions have a substantial influence on the economy as well as the society (Helleiner, 2011; Mezher et al., 2002; Scholtens, 2008, 2011). They are the intermediaries who can channel capital to varied markets, sectors, regions, etc. Retail investors consider investing in the security market as risky due to its volatility. However, it has a flip side also, as this volatility provides an opportunity to investors to take benefit of these price fluctuations. Security prices get affected by various market factors but fundamental factors are most influential as they consider current cash inflows to arrive at future earnings of the firm. Earnings are affected by various quantitative factors as mentioned in the research works of Sharpe (1964), Lintner (1965), and Mossin (1966). All these studies focused majorly on risk and return. Qualitative factors were picked by Fama and French (1993), while Mendenhall (2004) captured the effect of new information on size, value factor, and market by using the multifactor model. Existing literature on investor psychology validates that organizations that have sustained earnings have better stability in stock returns and, therefore, enjoy better investor loyalty. Financial analysts and investors have always been concerned about the sustainability of their earnings and have been continually paying more for sustainable earnings. In the global capital markets, the urge for sustainability is now being evident and has had a strong impact on investment activities. Due to a sharp increase in its popularity, sustainability has become the mission of global stock exchanges. Assumptions of traditional finance focus on financial return and risk whereas sustainable finance encapsulates social and environmental returns in addition to financial returns (OICV-IOSCO, 2019). Sustainable investing is, therefore, a concept that is evolving and can be better termed as an ongoing process that encapsulates investing, doing the stock selection, and managing active ownership activities. Hence, it is backed by the belief that such factors tend to improve risk management in the long run, which may raise the expected returns on investment.

Numerous studies are conducted on the theme of sustainability but most of them are not related to the financial or business dimension of sustainability. Research conducted in the area of sustained earnings is concentrated majorly in developed nations and does not generally target emerging nations like India. Moreover, these nations have not been evaluated through vertical and horizontal analysis, either. Based on an in-depth literature review, the study identified that sustained earnings amongst Indian firms had been studied in a very limited way, the relation between sustained earnings and the stock market return had not been studied for the Indian stock market with special reference to the financial service sector, and time-series and cross-section data analysis have been mainly used to give partial results only. These research gaps helped with formulating the primary objective for this study, i.e., to evaluate the impact of sustained earnings on stock returns. To work on this primary objective, the following secondary objectives (SO) were also framed:

SO1: To define a modeling equation for operating and non-operating elements of earnings

SO2: To examine which is superior amongst operating elements and non-operating elements of earnings

SO3: To examine the Intensity of Operating Earnings (IOE) as a determinant of sustainable earning in the financial service sector

This study started with the investigation of the determinants of overall earnings being bifurcated into the operating elements and the non-operating elements. The estimation of operating and non-operating earnings was done for both individual firms as well as industries, and their sustainability was also checked. It was further investigated whether earnings related to operating elements of a firm are superior to earnings related to non-operating elements. Thereafter, the Intensity of Operating Earnings (IOE) was evaluated for both (firm and Industry) approaches, and their relationship with stock return has been evaluated. Sample data for the year 2012–2019 from the Financial Service Index firms of NSE, their annual observations with complete share price, and required income statement data were extracted from the database *Prowess_{dx}* by CMIE. This index represents the performance of companies that depict a movement of all stocks listed and traded in the related sector. Values of the index are computed using the free-float market capitalization method. The index's base date is 1 January 2004 and it is reconstituted semi-annually.

This research revealed that operating earnings are comparatively more persistent than non-operating earnings. Additionally, this research also noted that persistent earnings increase at the same pace as ICE. However, due to the novelty of this concept in the stock market, market players including

investors are not able to examine operating and non-operating elements of earnings separately. The underlined study would help future researchers to draw special attention to the number of means to encapsulate sustained earnings along with their effect on stock returns while analyzing the significance of earnings (being bifurcated as operating and non-operating elements) as the descriptive variable for the determination of stock return.

The rest of the paper is arranged into sections converging on a detailed literature review and hypotheses formulation, research methodology, data analysis and findings, discussion, and further research scope and conclusion.

2. Literature Review and Hypotheses Formulation

2.1 Sustainable Development and Sustainable Finance

Sustainable development is a cohesive notion with three facets: economic, social, and environmental. The basic role of the financial system is to apportion funds for the most beneficial use. Finance plays a dominant part in apportioning and allocating funds to sustainable corporates and projects and consequently fast-track the changeover to low carbon and a more circular economy. Sustainable finance looks at how finance intermingles with economic, social, and environmental issues. In the fund allocation role, finance assists in formulating tactical policies and decisions based on trade-offs amid sustainable objectives. Accordingly, long-term investors can lead corporates on the road to sustainable business practices. In addition, finance plays a pivotal role in estimating risk and can be of great assistance in managing the intrinsic ambiguity related to environmental issues, like the impact of carbon emissions on climate change (Schoenmaker & Schramade, 2019). Finance and sustainability both are futuristic concepts. The process of the evolution of sustainable finance has moved through various stages over the last decades, and now the attention is swiftly moving from short-term profit to long-term value creation. As and when the future probable cost of carbon emissions will become clear, investors and companies will have a temptation to decrease these emissions.

Gladwin et al. (1995) gave five principles of sustainable development. They mentioned the first principle as “Comprehensiveness” because sustainable development is conceptually holistic about space, time, and its parts. It covers environmental and human systems in both current and future conditions. The second principle is “Connectivity,” as sustainability conceptually stresses being considerate of the world’s challenges. The next principle is “Equity,” as sustainability focuses on an equitable allocation of resources and property rights, within and between present and next generations. Next is “Prudence” because sustainability focuses on strong life-supporting ecosystems and socio-economic systems, evading irreparable human actions, and maintaining human activities within reformative capacities. Last is “Security,” as sustainable development focuses on confirming a secure, strong, and high-quality life for the present as well as coming generations.

Levine (2005) listed certain functions of the financial system to emphasize the role of the financial system to enable decision-making on the trade-offs amongst economic, social, and environmental goals. He mentioned functions like giving information about probable investment opportunities and accordingly distributing capital; overseeing investments and applying corporate governance diligently after fund allocation; enabling trading, diversification, and risk management; mobilizing and pool saving; and facilitating the exchange of goods and services. The first three functions are specifically important for sustainable finance. Fund allocation in the most efficient way is the primary finance function. Finance is consequently well positioned to contribute to strategic decision-making related to trade-offs amid sustainable objectives. However, its wider contemplation is to manage an organization’s strategy on sustainability, as it is the premise to reach sustainable objectives. Along with the functions of finance, a due emphasis is required on how finance supports sustainable development. It is imperative to select a suitable blend of financial, social, and environmental aspects. The three stages of sustainable finance typology are mentioned in detail in the research work by Schonemaker (2017). The stages include finance to social environmental impact.

2.2 Sustainable Earnings

The accounting statement of any business contains activities associated with normal or recurring business activities as well as abnormal or non-recurring activities. Operating earnings are the income generated from the core business activities. Operating earnings help with eliminating the noise in the

accounting statement and provide a cleaner look at the underlying business for all interested parties or stakeholders. Understanding a company's risks and opportunities is the major concern for investors and stakeholders to know more about their performance related to sustainability concerns. According to Ghosh et al. (2005), earnings are observed to be of high quality and sustainable nature when an increase in earnings is assisted by a concurrent sustained increase in revenues. Revenue being a key value driver is likely to ensure earnings' growth and sustainability because growth often indicates and projects the underlying strategy related to product differentiation (Porter, 1980). Similarly, in the research work carried out by Agarwal et al. (2019), the evaluation of earning sustainability is connected with the average net profit margin sustainability of each firm or industry in the previous four years. Research work by Agarwal et al. (2019) and Chawla and Sharma (2020) mentioned that the operating elements of earnings are significantly higher than the non-operating elements. They also found a positive correlation between IOE measures and the sustainability of earnings in the Indian stock market with special reference to the financial sector. The work of Doukakis (2010) mentioned disaggregating reported earnings into operating income, non-operating income, and extraordinary charge and credit, capturing differences in the information content of the underlying events. Subsequently, earnings disaggregation can also be used to improve the prediction of future profitability. Along similar lines, Fairfield et al. (1996) showed improvements from increasingly disaggregating earnings up to the components of operating income, non-operating income in addition to taxes, and other special items. According to this research, extraordinary items and obsolete operations do not improve the prediction of future ROE. However, Hevas (2007) reported that it is only operating income that increases the explanatory power of the earnings based on the book value capitalization model in the Greek context. Earnings components such as income from exceptional and extraordinary activities that are regarded as transitory do not seem to be value relevant. Based on the above literature, the following hypothesis has been framed to identify the similarity or difference between operating and non-operating elements of earnings.

H1: There is no meaningful difference among operating as well as non-operating elements of earnings.

2.3 Sustainable Earnings Framework

Persistent and sustainable earnings indicate better forthcoming cash flows and are beneficial valuation input. A confusion for analysts, researchers, and practitioners is that forecasting the following period's earnings is not the same as forecasting the course of forthcoming cash flows. For earnings to be persistent and sustainable, investors are interested in replicating these future cash flow streams. However, if investors start considering current cash flows in place of present earnings as an improved indication of the future cash flow streams, it will lead to reducing the significance of earnings persistence as a substitute for quality. Consequently, it is imperative to recognize which is more relevant between earnings and cash flows, as this will validate the research for investigating earnings persistence as a necessary quality characteristic. Accruals as a constituent of earnings have occupied a considerable place in existing literature as a determinant of earnings persistence. Here, the definition of "accruals" stands as an attention-grabbing element due to its continuously evolving character. In the available literature on laws for compulsory reporting of the statement of cash flows, the term, "accruals" was described as non-cash working capital and depreciation. Sloan (1996), Jones (1991), and Healy (1985) used this definition of accruals in their work. The majority of the available literature is on the outcomes of the persistence of equity market consequences. The research work of Sloan (1996) explained that due to measurement problems with the accounting system, the accruals component shows lower persistence. However, research work by Kormendi and Lipe (1987), Collins and Kothari (1989), and Easton and Zmijewski (1989) stipulated that stronger stock price response leads to more persistent earnings. The work of Bartov et al. (2000) summarized adverse stock market responses as a result of the declaration of special items, but also mentioned that these adverse reactions were very small (around 1%). In this regard, Dechow and Ge (2005) emphasized that firms with high negative accruals resulting from special items have positive future returns. Barth et al. (2001) mentioned that cash flows are better indicators for predicting future cash flows. On the contrary, Bowen et al. (1986) and Greenberg et al. (1986) mentioned that aggregate earnings are superior to cash flows.

2.4 Financial Intervention and Earning Quality

Beaver and Morse (1978) calculated aggregate earnings as earnings before extraordinary gains/losses. Nonetheless, Patell and Wolfson (1984) mentioned that investment advisers usually describe earnings according to reported net income without special items. Hitherto and Lev (1989) mentioned that a great part of the available literature on the association between stock prices and earnings is based on the net income definition of earnings, which is inclusive of special items. Wiek (2014) discussed the approach of bringing the concept of sustainability science and finance research to the common platform and designed effective finance interventions in a participatory way to address the complex sustainability problems. It was concluded that the financial sector needed to pursue sustainability opportunities more rigorously that could create a value return, offering a blend of both social and financial returns and providing new ways of financing. This integration would ensure the quality of earnings for businesses. The quality of earnings is explained as the proportion of income that can be attributed to the operating activities of a business. Thus, if a business's financials report an increase in profits due to cost reductions or improved sales, the quality of earnings is considered to be high. A key feature of high-quality earnings is that similar earnings are claimed to be repeated over a series of future reporting periods and are thus termed sustainable earnings. Penman (1996) developed a sustainable earnings model through a cross-sectional approach that explained the structure of the accounting system that could conjointly produce earnings and an assortment of additional accounting numbers informing the sustained earnings. On the other hand, Ohlson and Gao (2006) worked on the implications of such models and concluded that the income statement approach is better compared to the balance sheet approach in accounting. Dechow and Schrand (2004) used several measures such as accruals, persistence, smoothness, timeliness, investor responsiveness, and external indicators as a proxy of "earnings quality." Amir et al. (2013) had a different approach to measuring sustained earnings, that is, differentiating the operating elements of earnings from non-operating elements and evaluating the deviations in earnings from normal profit margins. They introduced the concept of Intensity of Operating Earnings (IOE) and further used the ratio analysis in explaining future earnings. They also found that IOE is positively related to earnings persistence, better forecasting of earnings, and recording the robust market reaction to unexpected earnings. IOE is also reported to be positively associated with post-earnings announcement excess stock returns. In addition to this, a decline in firm-market correlation intensity has shown incremental core earnings in a manner consistent with the capital asset pricing model in the research work of Dempsey et al. (2015). Monahan (2017) worked in the same direction and analyzed that historical accounting records extend a great help and play a pivotal role in the earnings-forecasting process. Rajgopal and Venkatachalam (2011) mentioned that the low quality of earnings is the result of higher firm-level instability. Additionally, according to the research work of Graham et al. (2005), financial executives are keen to control earnings via real activities instead of accruals. On a similar note, Jian and Wong (2004) contended that large Chinese listed firms operate on a broad grid of associated parties, and so the manipulation of earnings via non-operating transactions is easier for them. The research work of Lee (2019) scrutinized earnings quality, stock returns, and firm value of 40 Taiwanese biotechnology firms. The results indicated that the non-operating earnings of the industry are not consistent and positive. Results also specified a substantial association between stock returns and firm value; nevertheless, operating income was found to have a low impact on the firm value. Except for financial firms, the research work of Dhaliwal et al. (1999) found no indication supportive of a strong correlation between aggregate income and returns. Moreover, the only element of aggregate income that played a credible role in improving the relationship between aggregate income and returns was the marketable securities adjustment. The study of Agnes et al. (1993) assessed the efficacy of operating income, net income, and aggregate income in elucidating residual security returns. The analysis confirmed that operating income has a weak association with net income, and both operating income and net income lead to aggregate income. Based on the above literature, the following hypothesis has been framed to identify the existence or non-existence of an association between the intensity of operating earnings and sustainable earnings.

H₂: There is no meaningful association between the intensity of operating earnings and sustainable earnings.

2.5 Impact of Sustained Earnings on Stock Returns

The market share of the industry has a great impact on the sustainability of firms in the industry. According to Chen (2004) and Dechow et al. (2009), the market share of a firm shows its standing in the industry and has a direct positive influence on the quality of earnings. The market share pattern also depicts market strength. When the majority market share is acquired by a small number of firms, it indicates a high market concentration and as a result, those firms can sustain their earnings for a longer period. A small number of researchers endeavored to analytically analyze the effect of earnings perseverance on market concentration (Chen, 2004; Hogan, 2013), but the majority of those studies gave statistically insignificant results. The existing literature also validates that firms with a sustained increase in earnings have comparatively higher earnings response coefficients (ERCs) than other firms, indicating that growth in earnings is value-based (Barth et al., 1999). The results of Eccles et al. (2001) were coherent with the contention that a series of increased earnings indicates a firm's competitive advantage and a higher probability of future earnings growth. While Barth et al. (1999) studied sustained increase in earnings, they did not differentiate between various basis of growth in earnings. As sustained increase in earnings can be attained through diverse components of earnings, that can provide incremental information beyond the overall growth pattern. Dichev and Tang (2009) and Frankle and Litov (2008) also worked on the influence of earnings unpredictability on earnings predictability by assessing the latter within groups of firms with unlike earnings volatility. Other studies were based on past profitability and considered elements of sustainable earnings as cash flows and accruals for predicting future profitability without any forecasting model for future earnings (Fairfield & Yohn, 2001; Richardson et al., 2005). The work of Sayari et al. (2013) compared four earnings management measurement models based on "discretionary accruals" and then analyzed their effect on returns based on Tunisian stock market information content and the ability to forecast managers' behavior. The results confirmed that discretionary accruals allow Tunisian investors to better evaluate the firm value and optimally form their stock portfolios. In this regard, Chen (2004) exclusively created a proxy that meticulously signified earnings persistence and integrated it into his future earnings forecasting model. Similarly, the work of Kundu and Bannerjee (2021) found that the firms that report better earnings as compared to the previous period generate significantly higher stock returns. In their work, they inferred that the market could anticipate whether the firm will announce better earnings than in the prior period. The paper also mentions that changes in revenue and core earnings are better anticipated. After announcement, stock prices adjust to reflect the disclosed earnings information, and only non-performers experience a drop in stock prices. However, the study by Yousaf and Ali (2021) furnished a new measure of earnings quality that pertains to the sustainability of core-component and non-core components of earnings measured through firms and industry profitability benchmarks and found its impact on the stock performance in the context of the pharmaceutical sector of Pakistan. This study affirmed that the earnings of the firms operating in the pharmaceutical sector were sustainable, firms' intensity of core earnings was a significant determinant of their profitability, and industry intensity of core earnings was an insignificant determinant of firms' profitability for the firms operating in the pharmaceutical sector of Pakistan. However, the study did not find any significant impact of unexpected earnings on the stock's performance on the firms. Figure 1 shows the theoretical framework of variables generated by literature review. Based on the findings of the foregoing studies, the following hypothesis has been framed to identify the impact of sustained earnings on stock returns:

H₃: There is no significant impact of sustained earnings on returns of a stock.

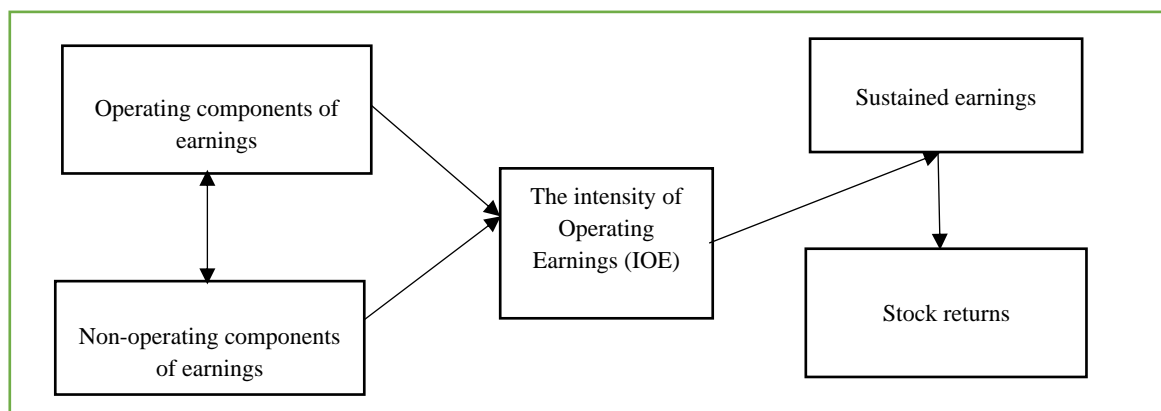


Figure 1. Theoretical Framework

3. Research Methodology

3.1 Data Set

The study at hand used the data of NSE NIFTY Financial Services index from April 2012 to March 2019. Data up to only 2019 was considered to avoid the impact of the COVID -19 pandemic on research results. However, for this research, the financial firms under the given index was broadly categorized under three sub-industries, namely Banks, Non-banking financial companies (NBFC), and Insurance companies. The NIFTY Financial Services index is composed of 20 stocks and all these 20 stocks, listed on NSE, were included. In this study, earnings were referred to as the after-tax net income of a company or simply the company's profits. The two benchmarks that were used for bifurcating the operating from the non-operating elements of income were a firm-related benchmark – calculated using previous profit margins – and an industry benchmark based on NSE NIFTY Financial Service Index. The industry-based operating elements of earnings, $IOPER_{it}$, were measured by industry profit margin. For this purpose, the industry affiliation was determined using sub-categories of firms created under the financial service index. Initially, the industry net profit margin was measured every year using all the firms belonging to the same industry. Then, the same was multiplied by firm i 's sales each year.

3.2 Statistical Techniques

In the undertaken study, the data was analyzed through Panel Data Approach. Data screening was comprised of

1. heteroscedasticity (likelihood ratio- not much considerable heteroscedasticity was observed in the data)
2. multicollinearity (correlation matrix- all the values in the matrix were less than 0.90, so no multicollinearity was found in the data)
3. normality of residuals (Jarque-Bera test- all the p values were less than 0.05, indicating data normality, and
4. mean value of error terms (t-statistics- data revealed value of 0.034, which was within acceptable limit.

3.2.1 Hypotheses

To work on the primary objective and secondary objectives, three primary null hypotheses were framed as mentioned in the literature review and hypotheses formulation section. Further, the nine secondary null hypotheses were also framed, as stated below:

H_{11} : Prior year net income of firm does not significantly determine present year net income of the firm.

H_{12} : Prior year FOPER does not significantly determine present year FOPER.

H_{13} : Prior year FNOPER does not significantly determine present year FNOPER.

H_{14} : Prior year IOPER does not significantly determine present year IOPER.

H_{15} : Prior year INOPER does not significantly determine present year INOPER.

H₂₁: FINT has no significant association with firms' sustainable earnings.

H₂₂: IINT has no significant association with industry sustainable earning.

H₃₁: FINT does not significantly influence the 3-months excess buy and hold return of the stock.

H₃₂: IINT does not significantly influence the 3-months excess to buy and hold return of the stock.

4. Data Analysis

4.1. Descriptive Statistics

Table 2. Descriptive Statistics

Series	Mean	Std. dev.	Max	Min	Median	JargueBera*	P-value	Observation
N	51307.09	22886.59	83575.80	4640.200	51404.40	3.411504	0.031	72
FOPER	63387.69	13328.29	83144.58	42110.69	60519.22	2.816747	0.023	72
FNOPER	-12080.60	21344.74	3371.690	-54809.89	-800.4020	13.93808	0.002	72
IOPER	40558.46	7122.673	48589.83	28138.43	42990.85	5.984467	0.012	72
INOPER	10748.62	16909.90	36684.94	-23498.23	9479.619	2.407823	0.031	72
Δ	445.54575	172.6299	777.2500	229.2400	467.4750	2.872979	0.016	72
β	1.258691	1.085710	2.797706	0.338486	0.498058	9.126812	0.015	72
FINT	0.834	0.104	0.972	0.622	0.849	10.813118	0.007	72
IINT	0.759	0.149	0.909	0.611	0.758	14.187193	0.000	72
Excess Return	-1.625E-16	0.03	0.18	-0.16	-0.0043	9.128723	0.002	58
Forecasted Error	26.81	57.35	1186.27	-347.01	14.27	12.532718	0.000	58

*Ho = Normal Distribution.

Results in Table 2 show that only FOPER, Book to Market Ratio (β), and Market Value (Δ) are right-skewed. The mean of Industry non-operating earnings (INOPER) is 10,748.62, which is smaller than the mean of Industry Operating Earnings (IOPER) 40,558.46, which is further smaller than the mean of Firm operating earnings (FOPER) 63,387.69. During financial statement analysis, as one goes upwards in the income statement, IOE can be observed depicting an increasing pattern. Specifically, as FINT and IINT are 0.83 and 0.75, respectively, this result indicates that non-operating elements have less tendency to influence net income because all the items of non-repeating nature and special items are often presented below N. The FINT values for all the firms in NSE NIFTY financial service index fall in the range from 0.622 to 0.972, carrying a mean value of 0.851. Firm-related intensities of all the firms are above-recommended range of 0.6 but on correlating these values with Δ of firms, it was revealed that firms with high Δ have comparatively higher FINT values. This shows that higher operating earnings of firms with higher Δ depict persistent earnings for those firms in the future. From an industry perspective, the IINT values of the three sub-industries are 0.611, 0.758, and 0.909, respectively. These values indicate that the insurance segment of the financial service sector has comparatively higher sustained earnings over the years followed by NBFC and Banks.

4.2 Correlation

After descriptive statistics analysis, the correlation amongst all variables was calculated. The results are depicted through the correlation matrix as below.

Table 3 shows a pair-wise Pearson correlation (below the diagonal). The correlations between N and its firm and industry-based operating and non-operating elements are significantly positive; however, the correlation values amongst N and its operating elements (FOPER or IOPER) are significantly larger (evaluated at the 0.01 level) as compared to correlation values among N and its non-operating elements (FNOPER or INOPER). Further, the correlations among firm-related and industry-based operating and non-operating elements are positive with values between FOPER and IOPER as 0.79 and between FNOPER and INOPER as 0.56. The correlation matrix analysis proposes that firm-related and industry-based profitability analyses are corresponding to each other. Theoretically, correlations among operating and non-operating elements of net income are negative as the Pearson correlation between FOPER and FNOPER is -0.41. The matrix results of correlation show

that all correlation coefficients are falling below 0.9; hence, no issues related to data multicollinearity have been detected (Gujarati et al., 2012).

Table 3. Correlation Matrix

Correlation								
Probability	N	FOPER	FNOPER	IOPER	INOPER	CV (N)	B	W
N	1							

FOPER	0.899385	1						
	(0.0000)	-----						
FNOPER	0.418791	-0.413379	1					
	(0.0236)	(0.0000)	-----					
IOPER	0.678443	0.792519	0.443787	1				
	(0.0000)	(0.0000)	(0.0000)	-----				
INOPER	0.326022	-0.015980	0.563818	-0.562299	1			
	(0.0041)	(0.0310)	(0.0000)	(0.0000)	-----			
CV (N)	0.058057	0.065796	-0.032835	0.077038	-0.036800	1		
	(0.0159)	(0.0084)	(0.0102)	(0.0029)	(0.0041)	-----		
B	0.317359	0.284099	0.012565	0.403749	-0.178133	0.069161	1	
	(0.0000)	(0.0003)	(0.0017)	(0.0000)	(0.0042)	(0.0018)	-----	
W	-0.088822	-0.092064	0.028383	-0.075167	-0.000310	0.023789	-0.129468	1
	(0.0140)	(0.0000)	(0.0006)	(0.0018)	(0.0069)	(0.0153)	(0.0007)	-----

Note: Parenthesis values denote p-values.

4.3 Primary and Secondary Objective Analysis

SO1: To Define Modeling Equation for Operating and Non-Operating Elements of Earnings

Pursuing the methodology mentioned in the research work of Amir et al. (2013), this research has adopted two given approaches and modified them as per the financial service index in the Indian scenario. The first approach is the time-series perspective, often termed the vertical perspective, wherein the firm-related average profit margin is calculated by considering four preceding years' net income for each firm. The second is the cross-sectional perspective termed as horizontal perspective, where the present year average profit margin related to the industry is considered for evaluation. The postulation here is that the previous year is elementary as the profit margin returns to its average level, whereas in the industry-based average profit margin is taken as the unbiased tool to evaluate the fundamental profit margin (Fairfield et al., 2009). Using these two approaches to calculate the normal profit margins, the estimating modeling equations for operating and non-operating earnings are defined as follows:

$$\text{Operating Earnings} = \text{NPM}_{it} * \text{Present Sales}$$

Here, NPM_{it} denotes the net profit margin and has been computed as follows:

$$\text{NPM}_{it} = \frac{N_{it}}{\text{Sales}_{it}}$$

$$\text{Non-Operating Earnings} = \text{Actual Earnings} - \text{Operating Earnings}$$

SO2: To Examine Which is Superior Amongst Operating Elements and Non-Operating Elements of Earnings

Pursuing Amir et al. (2013) and Aggarwal et al. (2019) works, deviations from NPM assist in obtaining sustained earnings. Along with this, on the premise of available literature, the operating elements of earnings are anticipated to be more sustainable than the non-operating elements of earnings and resultant models (from equation 1 to equation 5) evaluated for earnings persistence (refer to Table 4):

Net Income:

$$N_{it} = \alpha_{0i} + \alpha_{1i} N_{i,t-1} + \alpha_{2i} \text{CV(N)}_{it} + \alpha_{3i} B_{it} + \alpha_{4i} W_{it} + \varepsilon_{it} \quad (1)$$

Firm-Related Benchmark:

The process adopted for equation 1 is similarly repeated here for firm related benchmarks (FOPER), which is shown below:

$$FOPER_{it} = \left[\frac{NPM_{i,t-1} + NPM_{i,t-2} + NPM_{i,t-3} + NPM_{i,t-4}}{4} \right] * Sales_{it}$$

Hence, the following equation is constructed for analysis (refer to Table 4):

$$FOPER_{it} = \alpha_{0i} + \alpha_{1i}FOPER_{i,t-1} + \alpha_{2i}CV(N)_{it} + \alpha_{3i}B_{it} + \alpha_{4i}W_{it} + \varepsilon_{it} \quad (2)$$

Industry Based Benchmark:

The process followed for equation 1 is repeated here for firm-related benchmarks (IOPER). Here, the operating elements of earnings for the industry are measured with the help of industry profit margin. Primarily, for each year net profit margin (NPM) for the industry is calculated by considering every firm belonging to the same industry. Then, firm i's operating earnings are estimated by multiplying the NPM of the industry with the sales of firm i, which is shown as:

$$IOPER_{it} = \left[\frac{\sum_{k \in I(i)} NPM_{kt}}{\sum_{k \in I(i)} Sales_{kt}} \right] * Sales_{it}$$

Hence, the following equation has been constructed for analysis (refer to Table 4):

$$IOPER_{it} = \alpha_{0i} + \alpha_{1i}IOPER_{i,t-1} + \alpha_{2i}CV(N)_{it} + \alpha_{3i}B_{it} + \alpha_{4i}W_{it} + \varepsilon_{it} \quad (3)$$

Firm Related Benchmark:

Now, the non-operating elements of earnings (FNOOPER) are calculated simply as given in the equation:

$$FNOOPER_{it} = N_{it} - FOPER_{it}$$

The following equation is constructed for analysis (refer to Table 4):

$$FNOOPER_{it} = \alpha_{0i} + \alpha_{1i}FNOOPER_{i,t-1} + \alpha_{2i}CV(N)_{it} + \alpha_{3i}B_{it} + \alpha_{4i}W_{it} + \varepsilon_{it} \quad (4)$$

$$INOOPER_{it} = N_{it} - IOPER_{it}$$

The following equation is constructed for analysis (refer to Table 4):

$$INOOPER_{it} = \alpha_{0i} + \alpha_{1i}INOOPER_{i,t-1} + \alpha_{2i}CV(N)_{it} + \alpha_{3i}B_{it} + \alpha_{4i}W_{it} + \varepsilon_{it} \quad (5)$$

Table 4 presents an analysis of equations (1) to (5), respectively. α , the average coefficient of earnings sustainability, for all the given equations of operating earnings is positive and statistically highly significant. This depicts that secondary null hypothesis H_{11} is rejected. Similarly, other null hypotheses, which were termed secondary (H_{12} , H_{13} , H_{14} , and H_{15}) could also not be accepted due to the same rationale. These findings are relevant for the Indian market in the current scenario and results show the sustained earnings in the Indian market, especially in the financial service sector. The detailed analysis of firm-related operating and non-operating elements of earnings (through equations (2) and (4), respectively) depicts higher average persistence of α for the operating earnings as compared to non-operating earnings, i.e., $39.98 > -19.07$. Similarly, the analysis of industry-based operating and non-operating elements of earnings (through equations (3) and (5), respectively) depicts higher average persistence of α for the operating earnings as compared to non-operating earnings, i.e., $21.39 > -19.541$. All the above findings confirm the results of Amir et al. (2013) and Aggarwal et al. (2019). Through this analysis, it can be inferred that Indian financial firms have a higher proportion of sustainable operating elements in their earnings. In addition, operating earnings are more sustainable than non-operating earnings. The difference between FOPER and FNOOPER ($39.98 - 19.07 = 20.91$) is much higher than the difference between IOPER and INOOPER ($21.39 - 19.54 = 1.85$). This gives an impression that firm-related NPM is more reliable in terms of information regarding future earnings as compared to industry-based NPM. Hence, the primary null hypothesis H_2 is not accepted, as data analysis revealed significant differences amongst operating and non-operating elements of earnings in vertical as well as horizontal approaches. The results of the study agree with the findings of Amir et al. (2013). The control variable in Equations (1) to (5), W is positive and reported significant for

Equation numbers (1), (2), and (3), and the coefficients are negative in all the equations except equations (4) and (5). This reveals that industries with larger earnings have a higher average expected growth.

SO3: To Examine the Intensity of Operating Earnings (IOE) as a Determinant of Sustainable Earnings in the Financial Service Sector

Studies by Amir et al. (2013) and Aggarwal et al. (2019) mentioned that IOE should be tested at firm and industry levels. According to these studies, if the values of FINT and IINT are higher than 0.6, IOE is said to have a substantive impact on any variable like N_t as an indicator of firms' earnings. It is expected that IOE measure would be holding a positive relation with the earnings persistence and would exert a sturdier market response. The IOE measure is used widely due to its simplicity and, most important of any other thing, the convenience with which it can be calculated for all types of firms for almost any time range. It also facilitates extracting the transitory part of the income with the help of vertical analysis.

For calculating FINT and IINT, the following formulas have been used:

$$IOE = \frac{\text{Absolute Value of the Operating Component of Earnings}}{\text{Absolute Value of Both Operating and Non – Operating Components of Earnings}}$$

The IOE for firm-related profit margins, denoted by FINT are as follows:

$$FINT_{it} = \frac{|FOPERit|}{|FOPERit| + |FNOPERit|}$$

Similarly, the IOE for industry profit margins, denoted by IINT, is as follows:

$$IINT_{it} = \frac{|IOPERit|}{|IOPERit| + |INOOPERit|}$$

According to Amir et al. (2013) and Aggarwal et al. (2019), the deviations calculated from NPM help with fetching sustained earnings. In a model as adapted from the research work of Aggarwal et al. (2019) for IOE, the sustained earnings and the sustainability of future earnings are anticipated as superior for such firms with higher IOE. Following Fama and MacBeth (1993) and Amir et al. (2013), Aggarwal et al. (2019) have given the following model:

$$N_{it} = Y_{0t} + Y_{1t}DF_{i,t-1} + Y_{2t}N_{i,t-1} + Y_{3t}DF_{i,t-1}N_{i,t-1} + Y_{4t}CV(N)_{it} + Y_{5t}B_{it} + Y_{6t}W_{it} + \varepsilon_{it} \quad (6)$$

As per equation number (6) (refer to Table 4), $DF_{i,t-1}$ is taken as a dummy variable, carrying a value '1' in case the value of firm-related IOE for firm i is higher than the median value during the previous year ($t-1$) and '0' otherwise. There is also an expectation that $Y_3 > 0$, implies an association that is positive between earnings sustainability and IOE. The equation specifies the same three control variables to rule out any kind of error due to misspecification, as mentioned in equations (1) to (5). These variables are $CV(N)_{it}$, B_{it} , and W_{it} . Similarly, for industry-based IOE, the following model is constructed having the same explanations for the variables as Equation (6):

$$N_{it} = Y_{0t} + Y_{1t}DI_{i,t-1} + Y_{2t}N_{i,t-1} + Y_{3t}DI_{i,t-1}N_{i,t-1} + Y_{4t}CV(N)_{it} + Y_{5t}B_{it} + Y_{6t}W_{it} + \varepsilon_{it} \quad (7)$$

Where I stand for industry as against F for firm.

Tables 4 shows the analyses of Equations (6) and (7). The results show that Y_{2t} is highly significant and positive for these two equations. Consequently, hypotheses 'H₂₁' and 'H₂₂' have also not been accepted, as both FINT and IINT collectively determine sustained earnings for the financial service index in India. In addition, the sustained earnings increase by 0.147 in equations (6) and by 0.167 in equation (7), and at the same time, it is significant to note that both FINT and IINT are also reported above the median. This shows that there is an increase in the sustainability of earnings in the Indian scenario. After conducting the Wald test, models are significant. Hence, as a result, the primary null hypothesis, 'H₂' has not been accepted on statistical relevance. This means sustained earnings play a significant role in defining the Indian Financial service sector. All the above findings are in consensus with Amir et al. (2013) and Aggarwal et al. (2019). For both equations (6) and (7), the control variable W is positive and highly significant, the B ratio is negative and significant and N_t is positive and insignificant. The value of $Y_{3t} > 0$ shows a positive and strong correlation between sustained

earnings and IOE. Therefore, it supports the view that there is a possibility to extract useful information on sustained earnings by simply examining the divergence from normal profit margins.

PO1: To Assess the Impact of Sustained Earnings on Stock Returns

Table 4. Equation 1 to Equation 9 Analysis Summary Statistics

Benchmark	Equation No.	A	Ni(t-1)	CV (N)	B	W	Adjusted R square		
Net income	1	27.90917/ (0.000)	0.83198***/ (0.000)	-2.87263/ (0.682)	-0.80250/ (0.231)	0.19241***/ (0.000)	0.981171		
Firm-related benchmark	2	39.98015/ (0.000)	0.624057***/ (0.000)	-0.32985/ (0.782)	-2.19012/ (0.361)	0.21908/ (0.000)	0.973895		
Industry based benchmark	3	21.39801/ (0.0278)	IOPER (t-1) 0.98660/ (0.000)	-0.0372/ (0.991)	- 1.84301***/ (0.000)	0.07190/ (0.000)	0.934404		
Firm related benchmark	4	-19.0701/ (0.193)	FNOPERi, (t-1) 0.621346/ (0.000)	-1.06205/ (0.7869)	9.62221/ (0.837)	-0.06228/ (0.000)	0.4109		
Industry based benchmark	5	-19.541/ (0.526)	INOPERi, (t-1) 1.09557/ (0.000)	1.22337/ (0.0423)	6.85211/ (0.654)	-0.04512/ (0.029)	0.9073		
		Y _{0t}	Y _{1t}	Y _{2t}	Y _{3t}	Y _{4t}	Y _{5t}	Y _{6t}	Adjusted R square/Wald Test
Pooled	6	61.21451**/ (0.021)	-98.245**/ (0.035)	0.79245***/ (0.000)	0.14752**/ (0.032)	-1.26/ (0.694)	-0.7965/ (0.847)	0.0084**/ (0.025)	0.86
Pooled	7	66.10624**/ (0.026)	-66.3574/ (0.107)	0.74215**/ (0.014)	0.16742**/ (0.001)	-1.68741/ (0.627)	0.71245/ (0.842)	0.00714**/ (0.031)	0.8917
		Y _{0t}	Y _{1t}	Y _{2t}	Y _{3t}	Hausman Test			
Pooled	8	-7.03E-08/ (0.861)	0.00141/ (0.674)	2.59E-07/ (0.812)	-4.53E-06/ (0.412)				
Random effects		-7.03E-08/ (0.861)	0.00141/ (0.680)	2.59E-07/ (0.815)	-4.53E-06/ (0.425)	0.96521/ (0.754)			
Robust		-7.03E-08/ (0.861)	0.00141/ (0.614)	2.59E-07/ (0.702)	-4.53E-06/ (0.104)				
Pooled	9	-0.001347/ (0.295)	0.003124/ (0.157)	1.23E-05/ (0.662)	-2.74E-05/ (0.315)				
Random effects		-0.001347/ (0.299)	0.003124/ (0.165)	1.23E-05/ (0.670)	-2.74E-05/ (0.329)	1.43147/ (0.624)			
Robust		-0.001347/ (0.072)	0.003124/ (0.029)	1.23E-05/ (0.618)	-2.74E-05/ (0.224)				

*** denote significant at 1%.

** indicates significant at 5%.

Parenthesis values denote p-values

For an explanation of variables, refer to Appendix (Table 1 – Table of Research Variables)

Table 4 shows the result of regression analysis of Equations 8 and 9 on panel data of the same equations. In their research work, Amir et al. (2013) have recognized an association between IOE and two properties of earnings quality, i.e., sustainability and predictability. It is further anticipated that the market will show strong reactions to IOE. To substantiate this, the following model has been given for FINT and IINT:

$$AR(SW)_{it} = Y_{0t} + Y_{1t}D_{it} + Y_{2t}FE_{it} + Y_{3t}D_{it} * FE_{it} + \varepsilon_{it}$$

For an explanation of variables, refer to Appendix (Table 1 – Table of Research Variables)

Each year, all the firms are further segregated in the form of quintiles based on B_{it} and then formed into a portfolio of similar size every year. These quintiles are based on similarities in the B/M ratio. The product value of unexpected earnings and dummy variable ($D_{it} * FE_{it}$) signifies the link between IOE and the reactions of the market towards unexpected earnings. Therefore, to calculate the forecasted earnings, the forecasted earnings model ($OI_1 = OI_0 + RNOA_0 * DNOA_0$) given by Penman and Zhang (2002) has been utilized, where,

$OPER_1$ = Operating income towards the year-end,

$OPER_0$ = Operating income at beginning of the year,

RNOA₀ = Return generated on Net Operating Assets, and
 NOA₀ = Net Operating Assets.

To ensure simplification, the above equations have been written separately for FINT and IINT and the same can be referred to below in Equation Number (8) and (9), respectively.

$$AR(SW)_{it} = \Upsilon_{0t} + \Upsilon_{1t}DF_{it} + \Upsilon_{2t}FE_{it} + \Upsilon_{3t}DF_{it} * FE_{it} + \epsilon_{it} \tag{8}$$

$$AR(SW)_{it} = \Upsilon_{0t} + \Upsilon_{1t}DI_{it} + \Upsilon_{2t}FE_{it} + \Upsilon_{3t}DI_{it} * FE_{it} + \epsilon_{it} \tag{9}$$

Based on Hausman Test results, we applied the panel model with random-effects. The problem of heteroscedasticity was found after testing the assumptions for post-estimation and the same was removed by way of robust regression analysis, which revealed the statistical insignificance of all coefficients. Hence, hypotheses ‘H31’ and ‘H32’ have been accepted owing to the paucity of substantiations in the Indian milieu. As a result, the primary null hypothesis ‘H3’ is also accepted. This depicts that concerning the Indian scenario, forecasted error, FINT, and IINT are weak indicators of 3 months excess buy and hold return of the stock. This is the result of the fact that sustainable earnings are a novel concept for the Indian financial sector. As a result, the lack of awareness and conceptual knowledge of investors, financial analysts, and other market intermediaries may be withholding this factor in the blurry world of investment decision making. As in the current scenario, they are not able to focus on operating and non-operating elements of earning separately for investment decision-making.

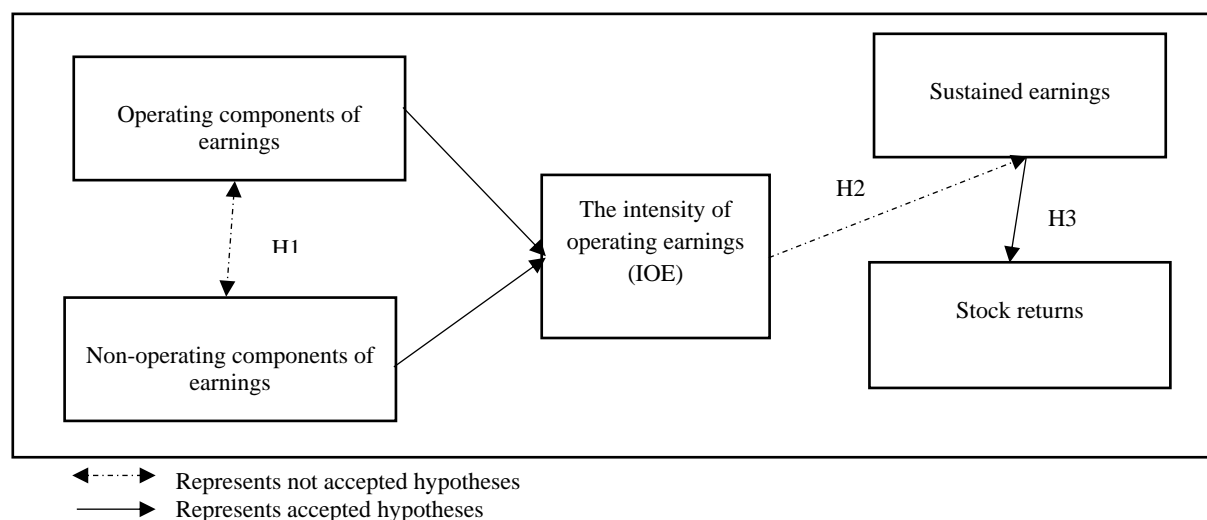


Figure 2. Final Model

5. Findings of the Study

In this research work, statistically sustainable earnings have been derived from sustained normal profit margins. The results of various tested hypotheses under the given study are listed in Table 5. For secondary objective 2, none of the related secondary null hypotheses were accepted, as their data revealed highly significant and positive coefficients. These results are in agreement with Amir et al. (2013) and Aggarwal et al. (2019). Hence, H₁, the primary null hypothesis, could not be accepted, as a significant difference was noted between operating and non-operating elements of earnings in the case of both approaches under study. These results agree with the works of Jian and Wong (2004), Monahan (2017), Lee (2019), and Chawla and Sharma (2020), but are in disagreement with the findings of Agnes et al. (1993). Further, the study statistically and significantly proves that Indian financial service sector firms have a higher proportion of operating earnings as compared to non-operating elements of earnings. These findings reflect that earnings sustainability in Indian financial service sector firms can be predicted by taking firm-related and industry centric approaches as a base.

Further, the secondary null hypotheses (H₂₁ and H₂₂) were analyzed for secondary objective 3. Both null hypotheses were rejected as the coefficients were found to be positive and highly significant. These results showed that a firm’s sustainable earnings are significantly depicted by IOE, and as IOE

rises, sustained earnings will also rise. These results agree with the results of Jones (1991), Finger (1994), Sloan (1996), Penman (2006), Dechow (2010), and Amir et al. (2013).

The study has further analyzed the secondary null hypotheses (H_{31} and H_{32}) related to the primary objective, and both these null hypotheses were accepted. This depicts that FINT and the forecasted error are poor indicators of 3 months excess buy and hold return of the stock in the context of India. Hence, hypothesis 'H₃' has been accepted. This might be attributable to the fact that sustained and sustainable earnings are novel concepts for the Indian financial sector and so the market players are not able to focus on operating and non-operating elements of earning separately for investment decision making. These results agree with the results of Penman and Zhang (2004).

Table 5. Results of Hypothesis Testing

Name	Hypothesis	Decision	Reason
H ₁	There is no meaningful difference between operating and non-operating elements of earnings.	Not accepted	Data analysis revealed that operating and non-operating elements of earnings are significantly different when analyzed through both vertical and horizontal approaches.
H ₁₁	The prior year's net income of the firm does not significantly determine the present year's net income of the firm.	Not accepted	Data analysis revealed that the present year's net income of a firm is significantly determined by the prior year's net income.
H ₁₂	Prior year FOPER does not significantly determine present year FOPER.	Not accepted	The reason is that the average coefficient of sustained earnings (α) for FOPER (equation 2) is positive and highly significant.
H ₁₃	Prior year FOPER does not significantly determine present year FOPER.	Not accepted	The reason is that the average coefficient of sustained earnings (α) for IOPER (equation 3) is positive and highly significant.
H ₁₄	Prior year IOPER does not significantly determine present year IOPER.	Not accepted	The reason is that the average coefficient of sustained earnings (α) for FNOOPER (equation 4) is positive and highly significant.
H ₁₅	Prior year INOPER does not significantly determine present year INOPER.	Not accepted	The average coefficient of sustained earnings (α) for INOPER (equation 5) is highly significant and positive.
H ₂	There is no meaningful association between the intensity of operating earnings and sustainable earnings.	Not accepted	Data analysis revealed that FINT and IINT significantly ascertain sustained earnings in the Indian financial service sector.
H ₂₁	FINT has no significant association with firms' sustainable earnings.	Not accepted	Data analysis revealed that FINT significantly ascertains sustained earnings in the Indian financial service sector.
H ₂₂	IINT has no significant association with industry sustainable earning.	Not accepted	Data analysis revealed that IINT significantly ascertains sustained earnings in the Indian financial service sector.
H ₃	There is no significant impact of sustainable earnings on stock returns.	Accepted	Data analysis revealed that forecasted error, FINT, and IINT gave statistically low values, which made them weak indicators of 3 months excess buy and hold return of the stock in the Indian financial service sector.
H ₃₁	FINT does not significantly influence 3-months excess buys and holds the return of the stock.	Accepted	Data analysis revealed the statistical insignificance of all coefficients in the Indian financial service sector.
H ₃₂	IINT does not significantly influence the 3-months excess to buy and hold return of the stock.	Accepted	Data analysis revealed the statistical insignificance of all coefficients in the Indian financial service sector.

6. Implications of the Study

This study has multiple stakeholders, including managers, stock analysts, assets managing companies, investors, researchers, and the government. The major theoretical implication of this study is that it's the first study exclusively based on the Indian financial service sector and it provides a new dimension to the existing literature on sustained earnings. This study has presented earnings management through operating and non-operating elements of the earnings model to exemplify a new dimension of capital structure theories. Another theoretical contribution is the separate focus on the firm and industry-based

Approach. It can be of enormous help to managers to conduct performance analysis of the firms and to ensure the proportion of operating and non-operating elements of earnings for decision making related to the future framework. It can be of help to managers for strategizing about productivity enhancement and operating elements of firms. This study will assist managers to understand the effect of ESG on the stock price. It can also help managers to analyze investor perception and behavior, as investor behavior is characteristically determined by earnings multiple and it is then multiplied by earning per share (EPS) or earnings before interest, taxes, depreciation, and amortization (EBITDA) to compute valuation impact.

Existing literature shows that earnings multiples act in response to various factors like growth, leverage, business model risk, and ESG performance. But as determining the impact of these factors on stock price and eventually on ESG performance is difficult, companies usually overlook investor perception. However, this gap in the investment market will be covered now through this study. This study may serve as a base to explore new research avenues focusing on the effect of institutional investors' participation on investment managers' behavior and their resultant effects on the market. Additionally, regarding sustained earnings management practices, rating agencies and public authorities should frame strategies regarding the opportunities to frame judicious norms to limit such behavior. Further, the relationship between sustained earnings and long-term performance can also be derived from this study after identifying the explanatory factors of the concerning behavior.

This study would be of substantial assistance to Assets Management Companies and Security Analysts in framing a sustainable portfolio. This study can also be of immense help to investors in selecting superior firms with higher sustainable earnings. It will also be beneficial for government while verifying the performance of PSUs and taking suitable actions if required. This study can also work as a case study of sustainability in the financial service sector of emerging nations for future researchers and can potentially propose and develop models focusing on earnings sustainability considering the posed challenges and problems in such nations.

7. Limitations and Scope for Further Study

The basis of this study was the sustained earnings of only financial service firms including banking, NBFCs, and Insurance firms. As we know that the functioning and recording of financial statements of banking as well as other forms of financial nature are entirely different from firms of non-financial nature, this study defines a further scope for conducting similar studies for non-financial firms so that sustainability elements of their earnings can also be captured. The study, therefore, recommends conducting further studies by adding an unbalanced panel data set that might give improvised outcomes in comparison. Future researchers can also base their studies on these results and can develop a model for sustainable earnings for other industries in the Indian stock markets.

Concluding Remarks

This study provides new theoretical insights regarding sustained earning of financial service industry. Although this study was conducted in India, its results can be used by researchers, managers, and policymakers throughout the world. Further research can be conducted on non-financial firms and unbalanced panel data set to capture sustainability elements of their earnings, which might give improvised outcomes in comparison.

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