

SUSTAINABLE FINANCE IN EMERGING MARKETS: RATIONAL FOR INDIAN STOCK MARKET AND DECISION MAKING FOR SUSTAINABLE FUTURE

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Abstract *This study is committed to address the global concern of sustainability by bringing in the discussion on sustainability of earnings as a new approach to measure earnings. The given research work attempts to analyse the deviations in the normal profit margin by examining operating and non-operating elements of earnings. Further, the operating and non-operating elements of earnings have been analysed to check if operating elements of earnings are superior to non-operating elements of earnings. The sustainability of earnings is also assessed by the way of Firm-Specific Approach (Time series) and Industry-Based Approach (Cross-sectional), which is called as Intensity of Operating Earnings. The analysis of data is done through advanced techniques of Dynamic Panel Data. Our findings show that the Operating Elements of earnings are higher than the non-operating elements of earnings in a significant way. Also, there is a positive association between intensity of operating earnings measures and sustainability of earnings. Therefore, this study provides evidences, which are substantial enough to project the earnings' sustainability in Indian stock market with respect to financial sector; which can be of immense use to Assets Management Companies, Security Analysts, Organisations and Investors.*

Keywords: Sustainability, Intensity of Operating-Earnings, Transitory Earnings, Dynamic Panel, Cross-Sectional

INTRODUCTION

Making investment in stock market is presumed to be a risky affair as stock markets are very volatile. Volatility not only makes the stock market risky but also gives opportunity to the investor to benefit from price fluctuations. Volatility in prices of stock is driven by number of factors prevailing in the market which generally fall into three broad categories – market sentiments (supply and demand at any point in time in the market), fundamental factors (based on a company's profitability and earnings) and technical factors (related to history of stock price in the market based on chart patterns, momentum and other factors taking behaviour of investor and traders into consideration). Transitory earning elements (tend to arise from manipulations in reporting of accounts, measurement problems in accounting and various other economic events of non-recurring nature) have the capacity to suppress the persistence and, therefore, predictability of earnings that has been reported. Such elements, as a result, bring in a significant amount of noise while executing the process of valuation of equity that results in the poor quality of earnings. Therefore, investors and number of financial analysts now-a-days pay much attention to the elements of

earnings which are sustainable because the value of equity is based on earnings that are expected in future rather than current earnings. Consequently, investors will be ready to shell out more money for sustainable earnings because they ensure persistence of earnings. This is why the undertaken research is focussed specifically on operating-elements of earnings, which are extracted by way of cross-sectional and time-series approaches and separated from non-operating elements of earnings Amir, Einhorn and Kama (2013).

The idea of sustainability has been derived from a normative concept, which occupies a perpetuity. This concept can be understood quantitatively by taking insights from its economic dimension and qualitatively through a development dimension Lu and Abeysekera (2013). Economic considerations are focused on anything measurable in money terms and also include economic growth linked to corporate activities.

The strong evidence of sustainability can be increasingly seen in the capital markets, which responsibly hold consequences for investment activities and thereby directly affect the missions of global stock exchanges. The traditional finance magnifies only the financial return and risk, whereas sustainable finance takes into account all kinds and

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combinations of financial, social and environmental returns and term them as ESG. Therefore, the terms ‘Sustainability’ and ‘ESG’ (Environmental, Social and Governance) are often used interchangeably OICU-IOSCO Report (2019). The same is evident in the research carried out by Das and Bhattacharjee (2020) while evaluating the Sustainability Performance of BHEL. Even in the absence of mandatory environmental reporting requirements in India, BHEL made the environmental disclosure purely on voluntary basis and ensured sustainability reporting and became one of the few companies to have met the Global Reporting Initiative (GRI) guidelines. Further, the derivation of Sustainable investing, that is still evolving, is a process that binds together all ESG factors and helps in right selection of stocks and active ownership practices. It integrates the belief that these factors can potentially improve the risk management in long-term and may increase the expected returns on investments. The same is very well explained by Mittal and Saurabh (2019) in their conclusive research, which summarized that how improving upon the corporate governance policies helps companies in magnifying their return of equity (ROE) and return on capital employed (RoCE). Similar study was carried out by Narwal and Jindal (2018), which concluded how corporate governance and working capital management proved to be helpful in improvement of corporate profitability.

Relation between financial sector and sustainability has been very dubious. Financial markets and institutions through their activities apply a strong impact on the society and, thereby, the economy at large (Helleiner 2011; Mezher, Jamali and Zreik 2002; Scholtens 2009, 2011). They act as the intermediaries who are participating in channelizing the capital to varied regional markets, sectors, industries, etc. It was also well researched that earnings are affected by various quantitative factors, for instance, Sharpe (1964), Lintner (1965), Moss in (1966) focused majorly on risk and return. On the other hand, Fama and French (1993) have focused on qualitative factors in their multifactor model by picking up size variable, market variable and value factor variable simultaneously. Mendenhall (2004), Schadewitz and Kanto (2002) also represented the effect of outbreak of any new information on the earnings whereas López, Garcia, and Rodriguez (2007) showed how corporate social responsibility influences the performance of stocks in the market with a future outlook. Existing literature and investor psychology substantiate that firms with sustained earnings promise to have better stability in stock returns and improved investor loyalty. Other similar studies have also been carried out to measure the effect of sustainability of earnings on share returns as any alterations in the earnings lead to the direct change in share prices in near future. The fundamental approach for valuing equity says that share price is the calculated present value of all firm’s cash flows estimated to be generated in future and these cash flows are nothing but the earnings of the firm or any inflows dependent upon

the earnings. Therefore, firms with sustained earnings give assurance for stable share returns. However, the literature explains number of instances with contradictory opinions on other varied determinants of share returns – e.g., Penman and Zhang (2004), Lev and Thiagarajan (1993), Campbell and Shiller (1998) determined a variety of fundamental variables at company level that are having an impact on share returns; in addition, Ohlson (2006) and Penman (1996) have distinctly focused on the accounting tools and related measures to explain share returns fluctuations. The last financial crisis led to number of consequences for the financial industry and strongly influenced the society as well as the entire economy. Therefore, this crisis becomes one of the important reasons why academic research should focus on the sustainable earnings in financial service sector.

This study has been set in the background of an emerging economy, i.e., India, because India looks like a small spot in the ocean of global stock market. But upon a closer inspection, it can be observed that this economy has similar attributes as would be expected from any promising market. India’s gross domestic product for 2018–19 (at constant prices) was 1,40,776 billion. Indian economy, the fastest-growing major economy, grew by 8.0 per cent in the first quarter of 2018–19. The structural reforms of the yester years seem to be now bearing the fruits. The year 2018–19 saw India’s quantum jump in the global pecking order. Also, in the World Bank’s Doing Business Report 2019, India has recorded a jump of 23 positions against its rank of 100 in 2017 is now placed at 77th rank amongst 190 countries assessed by the World Bank. India’s stock market capitalization as at end-March, 2019, stood at 1,51,087 billion. The recognized stock exchanges clocked a turnover of INR 87,246 billion during 2018–19. India accounted for 6.0 per cent of the total number of IPOs were made global during 2018 and 9.9 per cent of the total number of IPOs were made in the Asia-Pacific region Annual Report-SEBI (2019).

This research is based on the empirical tests conducted on the annual observations of a sample period ranges from year 2012 to 2019 and includes all available firms of NSE Financial Service Index with a complete range of share prices and income-statement data available on Prowess_{dx}. We start the analysis by exploring the persistence of operating as well as non-operating elements of earnings to assess the overall persistence of earnings. Using time-series and cross-sectional regressions, we find that the operating earnings’ persistence is significantly larger than the non-operating earnings’ persistence. We also find the monotonic increase in persistence of earnings with the intensity of operating earnings (IOE) during our research. The results signify that the IOE is a rational measure to evaluate earnings’ persistence, which is also an important characteristic of quality of earning. These results express that IOE is related to improved predictability of earnings.

This study extends its contribution to the available literature by assessing the quality of earnings through IOE which is a simple, yet powerful, tool to measure the quality of earnings calculated by taking deviations from normal profit margins. Number of earlier studies can be seen documenting the ideology of reversion of mean in firm's profitability (Freeman et al., 1982; Fairfield, Sweeney & Yohn, 1996; Fama & French, 2000). Nissim and Penman (2001) through their research contest that the firm's profitability and other indicative ratios have tendency to get back to their classic values over time, therefore, the concept of benchmarking ratios against their past values make sense and differentiate between what is normal and what is abnormal.

This measure originates from the observation that indicates proportionality of revenue and expenses to one another at a fundamental level but there are also likeable chances that they may get disproportionally affected by various transitory items, also called as economic shocks. Therefore, it can be said that transitory revenue or expenses withhold the capacity to modify the fundamental or basic behaviour being depicted by profit margins. Further it analyses Indian financial firms for earnings' sustainability by assessing whether they have sustained elements of earnings. This research work attempts to define a model for operating and non-operating elements of earnings. The operating and non-operating earnings are approximated on Firm-Specific Approach and Industry-Based Approach basis and their sustainability has also been checked. The operating and non-operating elements of earnings have been analysed to check if operating elements of earnings are superior to non-operating elements of earnings. Further in the research, the Intensity of Operating Earnings (IOE) has been assessed by taking up both the approaches and then their relationship with stock return is planned to be analysed in future scope. Underlined study will help the reader by drawing a special attention to the diverse means to catch sustainability of earnings and its effect and importance in explaining the stock returns. Considering the relevance of sustainability in financial sector, financial sector is the focused area for this research. Also, earnings' sustainability concept has never been researched for the returns of financial sector of Indian stock market.

The fundamental design of this study says that present and prior profit margins can be employed to build a meaningful measure of sustainable earnings, by splitting out the operating or sustainable elements from non-operating or transitory elements. For every firm i and year t , the net profit margin (NPM) is explained as Net Income ($NI_{i,t}$) divided by total sales ($Sales_{i,t}$), where Net Income is nothing but Profit after taxes. The two benchmarks that have been used to move apart the operating from the non-operating elements of income are: a firm-specific benchmark based on profit margins of prior years and an industry-based benchmark based on NSE NIFTY Financial Service Index. These benchmarks reveal the often-followed practice of

using time-series and cross-sectional analysis of financial data in research. The industry-based operating elements of earnings, $IOPER_{it}$, are measured in relation to industry profit margin and the affiliation of industry is derived from the sub categories of firms created under the financial service index, namely, Banks, NBFCs and Insurance. Initially, net profit margin of industry has been measured for each year using all related firms in the same industry and then, multiplying the net profit margin of industry by firm i 's sales each year.

Rest of the paper has been arranged as follows. Next section reviews the existing literature on various variables affecting sustainability, its relevance, its components, factor and how all these factors together affect the investment decision. Section 3 describes the research gap and objectives followed by research methodology in Section 4. The section at the end concludes the study through findings, discussion, conclusion and future scope of research.

LITERATURE REVIEW

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 derived from the principal activities of a business. They are calculated by deducting all the recurring expenses from the main activities and also the calculation does not consider the non-recurring income or expense that lies outside the purview of normal business. Operating earnings, therefore, help in eliminating the noise in the accounting statement and provide a cleaner look at the underlying business for all the interested parties or stakeholders. Understanding 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, Gu, and Jain (2005), earnings are observed to be of high quality and of sustainable nature when 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; 1985). Similarly, in the research work carried out by Agarwal, Aggarwal, and Gupta (2019), the evaluation of earning sustainability is connected to the average net profit margin sustainability of each firm or industry in previous four years.

Financial Intervention and Earning Quality

Financial intervention is defined as the confession or realization by a group of people that they have not been gaining success in all their attempts to stop destructive

behaviour and, therefore, they have taken up a decision as a group to stop making the problem worse. Hachigian and McGill (2012) in their paper have emphasized on how financial sector can channelize and address the long-term ESG degradation in the era of borderless financial markets. They explained it through the perspective of institutional investors and suggested the need to work beyond the existing governance frameworks, which are incongruence with the 'sustainability' problems facing institutional investors. Similarly, Wiek (2014) discussed the approach on bringing the concept of sustainability science and finance research at the common platform, and designed the effective finance interventions in a participatory way, in order to address the complex sustainability problems. Gandhi and Dalvadi (2017) also explained how companies can improve their bonding with the society by encouraging the practice of social performance reporting while drafting their annual reports. It was concluded that the financial sector has to pursue opportunities on sustainability more rigorously to develop a well-mixed value return, comprising of both financial as well as social returns, and new ways of financing. For this, they have to integrate the identified investment opportunities value with the operating business of financial sector to create a substantial impact.

This integration will ensure 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 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 the similar earnings are claimed to be repeatable over a series of future reporting periods and are, thus, termed as sustainable earnings. Nissim and Penman (2001) in their research highlighted the role of financial statement analysis in doing the equity valuation. The analysis was performed by working on current ratios that could predict future ratios and, thus, determine equity payoffs. Penman (2006) has further developed a sustainable earnings model, as P/E model, through cross-sectional approach that explained the structure of accounting system, which could jointly produce earnings and a variety of other accounting numbers' informing about the sustainability of earnings. Ohlson and Gao (2006), on the other hand, worked on implications of such models and concluded on the superiority of income-statement approach in comparison to balance sheet approach as it deals with measurement of earnings in accounting. Dechow et al. (2010) in their research have used number of measures such as timeliness, persistence, loss avoidance, smoothness, investor responsiveness, accruals and external indicators as indications or proxy of "earnings quality". Amir, Einhorn and Kama (2013) had a different approach to measure sustained earnings by discriminating the operating

and non-operating elements of earnings 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. Monahan (2017) worked in the same direction and analysed the role that historical accounting numbers play a pivotal role in the process of earnings' forecasting. The objectives were achieved through a detailed discussion of research design choices and trade-offs involved while making these choices.

RESEARCH GAP AND OBJECTIVES

Research Gap

Until now, all the studies talking about earnings sustainability and its effect on stock returns belong mostly to the United States. Existing literature demonstrated deficiency of studies related to sustainable earnings elements as well as for operating and non-operating elements of earnings. Also till date, no study has analysed the Indian financial firms for operating and non-operating elements of earnings and earnings sustainability elements. The undertaken study has also used advanced statistical technique such as dynamic panel models in order to sufficiently meet the requirements of defined objectives and to overcome the methodological gap thus created in the literature.

Objectives

Keeping into account the above gaps in the research arena, the below objectives have been designed for this study:

- To define a model for operating and non-operating elements of earnings.
- To analyse Intensity of operating earnings (IOE) as determinant of sustainable earning in financial service sector.
- To check if operating-elements of earnings is superior to non-operating elements of earnings.

RESEARCH METHODOLOGY

Data Set

Annual financial statements for the selected firms have been analysed for the purpose of calculating different variables from the period starting from April 2012 to March 2019, and the selected firms under study are all the firms forming part of NSE NIFTY Financial Services index. This index

has been designed to reveal the performance and thereby behaviour pattern of the Indian financial industry, which includes banks, housing finance, insurance companies and other financial services companies. However, for the purpose of this research the financial firms under given index have been broadly categorized under three sub-industries namely: Banks, Non-banking financial companies (NBFC) and Insurance companies. The NIFTY Financial Services index comprises of 20 stocks that are listed on the NSE. In this study, earnings have been referred as the after-tax net income of a company or simply the company's profits.

Statistical Techniques

Undertaken study takes up the Indian context, assessing the operating elements of earnings through vertical (time-series approach) and horizontal way (cross-sectional approach), analysing sustainable earnings and its determinants. In the undertaken study, the data has been analysed through Panel data Approach. Related basic assumptions like heteroscedasticity (using likelihood ratio), multicollinearity (using correlation matrix), normality of residuals (using Jarque-Bera test) and mean value of error terms (using t-statistics) have also been checked.

Hypothesis

This study defines the null hypotheses of primary nature related to two main objectives (Objective 2 and 3) of this paper. And also, secondary null hypotheses are formulated for them as stated below:

Primary:

H₁: Intensity of operating earnings has no significant association with earning sustainability.

H₂: There exists no significant difference between operating and non-operating elements of earnings.

Secondary:

H₁₁: FINT has no significant association with firms' earning sustainability.

H₁₂: IINT has no significant association with industry's earning sustainability.

H₂₁: Firm's prior year NI does not significantly determine firm's present year NI.

H₂₂: Prior year FOPER does not significantly determine present year FOPER.

H₂₃: Prior year FNOOPER does not significantly determine present year FNOOPER.

H₂₄: Prior year IOPER does not significantly determine present year IOPER.

H₂₅: Prior year INOPER does not significantly determine present year INOPER.

DATA ANALYSIS

Descriptive Statistics

The results for descriptive statistics are given in Table 1.

Table 1: Descriptive Statistics

Series	Mean	Std. Dev.	Maximum	Minimum	Median	Observation
NI	51307.09	22886.59	83575.80	4640.200	51404.40	72
FOPER	63387.69	13328.29	83144.58	42110.69	60519.22	72
FNOOPER	-12080.60	21344.74	3371.690	-54809.89	-800.4020	72
IOPER	40558.46	7122.673	48589.83	28138.43	42990.85	72
INOPER	10748.62	16909.90	36684.94	-23498.23	9479.619	72
Market Value	445.54575	172.6299	777.2500	229.2400	467.4750	72
Book to Market Ratio	1.258691	1.085710	2.797706	0.338486	0.498058	72
FINT	0.834	0.104	0.972	0.622	0.849	72
IINT	0.759	0.149	0.909	0.611	0.758	72

Results in Table 1 show that only FOPER, Book to Market Ratio (BM) and Market Value (MV) are skewed towards the right. 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 in value than the mean value of Firm operating

earnings (FOPER) 63387.69. During financial statement analysis, as one goes upwards in the income statement, IOE can be observed depicting an increasing pattern. Specifically, mean intensities of operating net income, that is, FINT and IINT with reference to firm and industry, are 0.83 and 0.75, respectively. This result indicates that non-operating items

are less likely to impact NI and net operating income. This is because of the reason that such items which are one-time in nature or special items are often shown below NI.

After evaluating the descriptive statistics, the correlation is analysed between all the variables by building correlation matrix as shown in Table 2.

Correlation

Table 2: Correlation Matrix

Correlation								
Probability	NI	FOPER	FNOPER	IOPER	INOPER	CV(NI)	BM	MV
NI	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(NI)	0.058057	0.065796	-0.032835	0.077038	-0.036800	1.		
	0.0159	0.0084	0.0102	0.0029	0.0041	-----		
BM	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	-----	
MV	-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

Table 2 presents Pearson correlation (pair-wise, below the diagonal). The correlations among NI and its firm and industry-related operating and non-operating elements are significantly positive; though, the correlation values amongst NI and the operating elements (FOPER or IOPER) are significantly larger (at the 0.01 level) as compared to correlation values among NI and the non-operating elements (FNOPER or INOPER). Also, the correlations between firm-specific and industry-based operating and non-operating elements are positive, as the correlation value between FOPER and IOPER is 0.79 and between FNOPER and INOPER is 0.56. The correlation matrix analysis proposes that firm-specific and industry-based profitability analyses are complementary to each other. Theoretically, correlations amid operating and non-operating elements of net income are negative as the Pearson correlation between FOPER and FNOPER is 0.41. All the correlation coefficients are less than 0.9, as per correlation matrix, multicollinearity does not exist in the data under study (Gujrati, Porter & Gunasekar 2012).

Objective 1: To Define a Model for Operating and Non-Operating Elements of Earnings

Pursuing the methodology given by Amir, Einhorn, and Kama (2013), the two approaches have been picked up and discussed for further modification in accordance with Indian framework and financial service index. The first is the time-series or vertical approach, taking firm-specific

average profit margin of preceding four years. The second is the cross-sectional or horizontal approach, which takes industry-specific average profit margin of current year. The presumption in that the previous is elementary as profit margin revert to their mean and in case of industry, average profit margin is the neutral measure to calculate fundamental profit margin (Fairfield, Ramnath & Yohn 2009). Using these two approaches for the purpose of calculating normal profit margins, the estimating modelling equations for operating and non-operating earnings are defined as follows:

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

Here, NPM_{it} stands for net profit margin and is computed as follows:

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

Non – Operating Earnings = Actual Earnings – Operating Earnings

Objective 2: To Analyse Intensity of Operating Earnings (IOE) as Determinant of Sustainable Earning in Financial Service Sector

According to the studies of Amir, Einhorn and Kama (2013) and Aggarwal, Aggarwal and Gupta (2019), IOE should be tested on

firm as industry level. 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 NI as indicator of firms' earnings. For calculating FINT and IINT, 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 computed on the basis of profit margin of firm-specific approach is shown below:

$$FINT_{it} = \frac{|FOPER_{it}|}{|FOPER_{it}| + |FNOPER_{it}|}$$

Here, FINT signifies firm-specific IOE.

Similarly, IOE computed on the basis of industry profit margins is shown below:

$$IINT_{it} = \frac{|IOPER_{it}|}{|IOPER_{it}| + |INOPER_{it}|}$$

Here, IINT signifies IOE based on industry.

In this research work Intensity of operating earnings (IOE) related to firm as well as industry has been tested against the benchmark given in the research works of Amir, Einhorn, and Kama (2013) and Aggarwal, Aggarwal and Gupta (2019). The FINT values for all the firms in NSE NIFTY financial service index range from 0.622 to 0.972 with the 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 MV of firms, it was revealed that firms with high MV have comparatively higher FINT values. This shows that higher operating earnings of firms with higher MV depict persistent earnings for those firms in future. From industry perspective, the IINT values of the three sub-industries namely Banks, Non-banking financial companies (NBFC) and Insurance companies are 0.611, 0.758 and 0.909, respectively. These values indicate that insurance segment of financial service sector has comparatively higher sustained earnings over the years followed by NBFC and Banks.

Considering the secondary hypothesis analysis results, both H_{11} and H_{12} have been significantly rejected, that is, ' H_{11} : FINT has no significant association with firms' earning sustainability' and ' H_{12} : IINT has no significant association with industry's earning sustainability' stand rejected as both FINT and IINT contribute significantly in determining the earnings sustainability in India. The results are coherent with Amir, Einhorn and Kama (2013).

Objective 3: To Check if Operating-Elements of Earnings is Superior to Non-Operating Elements of Earnings

After defining the equation for operating and non-operating elements of earnings and analysing IOE as determinant of

sustainable earning in financial service sector, the subsequent stage is to test whether these earnings will sustain or not. And if they sustain, which one is the superior elements of earnings among operating and non-operating elements. Following Amir, Einhorn and Kama (2013) and Aggarwal, Aggarwal and Gupta (2019), any divergence from NPM aids in pulling out sustainable earnings, also alongside, on the premise of available literature, the operating elements of earnings sustainability is expected to be substantial than the non-operating elements of earnings and the models that follow (from equation 1 to equation 5) were analysed to check earnings persistence:

Net Income:

$$NI_{it} = \alpha_{0i} + \alpha_{1i}NI_{i,t-1} + \alpha_{2i}CV(NI)_{it} + \alpha_{3i}BM_{it} + \alpha_{4i}MV_{it} + \varepsilon_{it} \quad (1)$$

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

Table 3: Equation 1 Analysis

Variable	Pooled
α	27.90917
	(0.000)
$NI_{i,t-1}$	0.83198***
	(0.000)
$CV(NI)$	-2.87263
	(0.682)
BM	-0.80250
	(0.231)
MV	0.19241***
	(0.000)
Adjusted R Square	0.981171

*** denote significant at 1%.

Parenthesis values denote p-values

Firm-Specific Benchmark:

The process as followed for equation 1 is repeated for operating elements of earnings for firm specific benchmarks (FOPER). Under this, the operating elements of earnings are the average Net Profit Margin in the prior four years multiplied by current year sales of a firm. The same is shown as

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

Hence, following equation is constructed for analysis:

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

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

Table 4: Equation 2 Analysis

Variable	Pooled
α	39.98015 (0.000)
NI _i , t-1	0.624057*** (0.000)
CV (NI)	-0.32985 (0.782)
BM	-2.19012 (0.361)
MV	0.21908 (0.000)
Adjusted R Square	0.973895

*** denote significant at 1%.

Parenthesis values denote p-values

Industry-Specific Benchmark:

The process as followed for equation 1 is repeated for operating elements of earnings for industry specific benchmarks (IOPER). Under this, with the help of industry profit margin the operating elements of earnings is computed. Firstly, NPM of industry for each year is calculated by taking into considerations all the constituent firms in that industry. Thereafter, firm i's operating earnings is calculated by multiplying the corresponding industry NPM with the firm i's sales, it is given as:

$$IOPER_{it} = *Sales$$

The following equation has been constructed for analysis:

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

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

Table 5: Equation 3 Analysis

Variable	Pooled
α	21.39801 (0.0278)
IOPER _{t-1}	0.98660 (0.000)

CV (NI)	-0.0372 (0.991)
BM	-1.84301*** (0.000)
MV	0.07190 (0.000)
Adjusted R Square	0.934404

*** denote significant at 1%.

Parenthesis values denote p-values

Firm-Specific Benchmark:

After measuring the operating elements of earnings, the non-operating elements of earnings (FNOOPER) is basically calculated by taking a difference between net income and operating elements of earnings for firm i's in period t. The equation follows as:

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

The following equation is constructed for analysis:

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

Table 6: Equation 4 Analysis

Variable	Pooled
α	-19.0701 (0.193)
FNOOPER _i , t-1	0.621346 (0.000)
CV (NI)	-1.06205 (0.7869)
BM	9.62221 (0.837)
MV	-0.06228 (0.000)
Adjusted R Square	0.4109

Parenthesis values denote p-values

Industry-Specific Benchmark:

After measuring the operating elements of earnings, the non-operating elements of earnings (INOOPER) are calculated by taking a difference between net income and industry operating earnings for firm i's in period t. The equation follows as:

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

The following equation is constructed for analysis:

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

Table 7: Equation 5 Analysis

Variable	Pooled
α	-19.541 (0.526)
INOPER _i , t-1	1.09557 (0.000)
CV (NI)	1.22337 (0.0423)
BM	6.85211 (0.654)
MV	-0.04512 (0.029)
Adjusted R Square	0.9073

Parenthesis values denote p-values

Tables 3-7 show the analysis of all the equations from (1) to (5) in an orderly way. The average coefficient value of earnings sustainability (α) for all equations of operating earnings is positive and statistically highly significant. This result is consensus with Amir, Einhorn, and Kama (2013) and Aggarwal, Aggarwal and Gupta (2019). This depicts that secondary null hypothesis H_{21} is rejected. Similarly, other secondary null hypotheses namely H_{22} , H_{23} , H_{24} , H_{25} have also been rejected due to same rationale. These findings are relevant for the Indian market in current scenario. As these results show the sustainability of earnings in Indian market especially with reference to financial service sector, firms can be predicted in both vertical and horizontal way. Detailed analysing of firm-specific operating and non-operating elements of earnings (through equations (2) and (4), respectively) depicted higher average persistence of α for the operating earnings as compared to non-operating earnings, that is, $39.98 > -19.07$. Similarly, the analysis of industry-based operating and non-operating elements of earnings (through equations (3) and (5) respectively) depicted higher average persistence of α for the operating earnings as compared to non-operating earnings, that is, $21.39 > -19.541$. The given results are also consistent with Amir, Einhorn and Kama (2013) and Aggarwal, Aggarwal and Gupta (2019). Through this analysis, it can be inferred that Indian firms have higher proportion of sustainable operating elements in their earnings. Also, operating earnings sustainability is larger than the non-operating earnings sustainability as the difference between firm-specific operating and non-operating elements ($39.98 - 19.07 = 20.91$) is much higher in value than the industry-based operating and non-operating elements difference ($21.39 - 19.54 = 1.85$). This gives an impression that firm-specific profit margins are more informative regarding future earnings as compared to industry-based profit margins. Hence, primary null hypothesis, H_2 stands rejected as there is a significant difference between operating

and non-operating elements of earnings in both time-series as well as cross-sectional approach and the results are once again in line with Amir, Einhorn, and Kama (2013). Also, with reference to control variables mentioned in equations (1) to (5), the Market Value variable (MV) which represents firm's size is significantly positive for equations (1), (2) and (3). In this study, book-to-market ratios coefficients are negative in all the above models except in equations (4) and (5). Such values indicate that larger the industry-specific earnings higher would be the average expected growth, whereas higher firm-specific earnings indicate its negative association with expected growth in earnings.

FINDINGS AND DISCUSSION

This paper attempts to capture sustainable earnings, their relevance and stance in current financial service industry from a novel perspective. Statistically, earnings sustainability is derived from the assessment of sustainability of normal profit margins and, for that, the study builds upon the two benchmarks to ascertain the sustainability of normal profit margins. Once the Profits Margins have been calculated, the study calculates firms' operating and non-operating elements of earnings for each benchmark along with IOE. The objectives were analysed following the Panel Data Methodology and the various assumptions like Normality, Heteroscedasticity, Autocorrelation, Multicollinearity and Mean- Value of Error Terms were also checked. Table 8 depicts the results of various hypotheses that have been tested in this study. And following findings, corresponding to each objective, have been reported:

- Using the firm-specific and industry-specific approaches, for the purpose of calculating normal profit margins, the estimating modelling equations for operating and non-operating earnings has been defined as:

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

- The results were calculated for Intensity of operating earnings (IOE) related to firm as well as industry. The FINT for all the firms in NSE NIFTY financial service index ranges from 0.622 to 0.972 with mean value of 0.851. On the other hand, IINT values of the three sub-industries namely Banks, Non-banking financial companies (NBFC) and Insurance companies were calculated to be 0.611, 0.758 and 0.909, respectively. Therefore, both H_{11} and H_{12} have been significantly rejected as both FINT and IINT contribute significantly in determining the earnings sustainability in India. These results were in line with Amir, Einhorn, and Kama (2013) and Aggarwal, Aggarwal and Gupta (2019). Hence, based on these results, the primary null hypothesis H_1 , related to objective 2, has been rejected

due to significant difference being observed between operating and non-operating elements of earnings in both the approaches.

- Further, it has been statistically and significantly proven that Indian financial service sector firms have higher proportion of operating-earnings than non-operating earnings elements. For this, the models from equation 1 to equation 5 have been analysed to check earnings persistence and their results have been reported from Tables 3 to 7. The findings reveal that the average coefficient value of earnings sustainability (α) for all equations of operating earnings is positive and statistically highly significant as compared to non-operating earnings, resulting in rejection of secondary null hypothesis from H_{21} to H_{25} . Hence, primary null hypothesis, H_2 stands rejected as there is a significant difference between operating and non-operating

elements of earnings in both time-series as well as cross-sectional approach.

Also, the control variable as denoted by Market Value variable (MV) represents firm's size is significantly positive for equations (1), (2) and (3) and book-to-market ratios coefficients are negative in all the above models except in equations (4) and (5). Such values indicate that larger the industry-specific earnings higher would be the average expected growth, whereas higher firm-specific earnings indicate its negative association with expected growth in earnings.

Also for both approaches, substantial and sustainable information are very well being depicted about future earnings by previous profit margins and net income. These findings reflect that earnings sustainability in Indian financial service sector firms can be predicted based on firm-specific as well as industry-based approaches.

Table 8: Results of Hypothesis Testing

Sr. No.	Name	Hypothesis	Decision	Reason
1.	H1	Intensity of operating earnings has no significant association with earning sustainability.	Rejected	As FINT and IINT determine the earnings sustainability in a significant way in Indian Financial service sector.
2.	H11	FINT has no significant association with firms' earning sustainability.	Rejected	As FINT determine the earnings sustainability in a significant way in Indian Financial service sector.
3.	H12	IINT has no significant association with industry's earning sustainability.	Rejected	As IINT determine the earnings sustainability in a significant way in Indian Financial service sector.
4.	H2	There exists no significant difference between operating and non-operating elements of earnings.		As significant difference exists between operating and non-operating elements of earnings in both firm specific and industry based approach.
5.	H21	Firm's prior year NI does not significantly determine firm's present year NI.	Rejected	As firm's prior year net income significantly determines and predict firm's present year net income.
6.	H22	Prior year FOPER does not significantly determine present year FOPER.	Rejected	As the average coefficient of earnings sustainability (α) for FOPER (equation 2) is positive and highly significant.
7.	H23	Prior year FNOOPER does not significantly determine present year FNOOPER.	Rejected	As average coefficient of sustainability of earnings (α) for FNOOPER (equation 4) is positive and favourably significant.
8.	H24	Prior year IOOPER does not significantly determine present year IOOPER.	Rejected	As average coefficient of earnings sustainability (α) for FNOOPER (equation 3) is positive and favourably significant.
9.	H25	Prior year INOPER does not significantly determine present year INOPER.	Rejected	As average coefficient of earnings sustainability (α) for IN-OPER (equation 5) is positive and favourably significant.

CONTRIBUTIONS, IMPLICATIONS, FUTURE SCOPE AND LIMITATIONS

Numerous studies are found to be conducted on the theme of sustainability but majority of them are connected with the sustainability focussing upon ESG framework, that is, environmental, social and governance factors. This paper enriches the existing literature by linking earnings to the sustainability with special reference to Indian financial service firms. Most of the research related to sustainability of earnings is concentrated around developed nations only and, therefore, there was a strong urge to conduct similar study

within the context of emerging nations like India and make similar evaluation through vertical and horizontal analysis. This study thereby extends its contribution to the field of earnings measurement by providing a novel dimension for earnings analysis of firms in emerging nations.

The study also has multi beneficiaries like managers, security analysts and assets management companies, investors, researchers and government. It can be of meaningful use to managers for doing performance analysis of the firm by deeply understanding the various components of earnings with special focus on operating and non-operating elements of earnings. The study of operating and non-operating

elements of earnings over a period helps in predicting sustainability and future prospects of a firm as well as industry and therefore, assist in important decision making. This analysis will be supportive to managers for strategizing about productivity enhancement and focusing upon firm's future earnings with special attention to operating-elements of earnings. This study can also be of great use to Share Equity Analysts and Funds Management Companies for framing a sustainable portfolio i.e. a portfolio focussed on generating sustainable earnings in the future for investors. As also quoted by Penman and Zhang (2004) investors are very keen in buying future earnings and therefore, look at current earnings which are potential enough to provide the same. Hence, this study can be of immense help to investors in selecting superior firms with higher earnings that promises sustainability. This piece of research can also greatly help Government for verifying the performance of Public Sector Units and to initiate suitable actions, if required. This study can also work as base study to carry out research in the dimension of sustainability in financial service sector with reference to emerging nations and help future researchers in developing the models for earnings sustainability considering all the prospects and challenges in these nations.

This study is based on earnings sustainability of only financial service firms (banking firms, NBFCs and Insurance firms) and as it is known that the functioning and accounting of banking and financial firms are different in number of ways from non-financial firms, so, similar study can be conducted for firms of non-financial nature so as to capture the similar elements of their sustainable earnings. On statistical terms, this study has applied balanced approach of panel data methodology and takes micro panel into consideration, which indicates that the count of firms is substantially large in number than the time period (Baltagi, 2015), there seems to be no problem while drafting the model of this paper. But, there is still a future scope to conduct further studies intending to add firms on unbalanced approach of panel data set which might promise even better results.

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APPENDIX

Table 1: Table of Research Variables

Sr. No.	Variable	Formula	Description
1.	Operating earnings	Normal Profit Margin-Current Sales	
2.	Normal profit margin (NPM)	$NPM_{it} = \frac{NPM_{it}}{Sales_{it}}$	NI _{it} is the Net income for firm i's in period t and sales are total sales for firm i's in period t.
3.	Current sales [Sales _{it}]	It is the net Sales of a firm	—
4.	Non-operating earnings	Actual Earnings – Operating Earnings	The part of earnings which is non-operating earnings.
5.	Firm's operating earnings [FOPER _{it}]	$\left[\frac{NPM_{i,t-1} + NPM_{i,t-2} + NPM_{i,t-3} + NPM_{i,t-4}}{4} \right] * Sales_{it}$	FOPER _{it} stands for operating elements of income for firm i's in period t. NPM _{it} stands for net profit margin.
6.	Firm's non-operating earnings [FNOPE _{it}]	NI _{it} – FOPER _{it}	It is the difference between net income and operating elements of earning for firm i's in period t.
7.	Industry's operating earnings [IOPE _{it}]	$\left[\frac{\sum_{k \in I(i)} NI_{kt}}{\sum_{k \in I(i)} Sales_{kt}} \right] * Sales$	IOPE _{it} is the industry operating earnings for firm i's in period t, NI _{it} is the Net income for firm i's in period t, and sales are total sales for firm i's in period t and lastly I(i) shows the set of firms that belong to the industry of firm i.

Sr. No.	Variable	Formula	Description
8.	Industry's non-operating earnings [INOPERit]	NIit – IOPERit	It is the difference between net income and operating elements of earning for firm i's in period t.
9.	Net income[NIit]	It is the Profit after tax of a firm.	
10.	Coefficient of variation of net income [CV(NI)it]	$\frac{Mean_{it}}{Standard\ Deviation_{it}}$	The above mean for firm i in period t is calculated as the average of previous four years net income for firm i in period t-1, t-2, t-3, and t-4. Similarly, standard deviation is calculated.
11.	Book-to-Market ratio [BMit]	It is calculated as the book value of equity at year end divided by the market value of common equity.	It is Book-to-Market ratio at year end for firm i in period t.
12.	Market value of common equity [MVit]	It is calculated as the market value of common equity at year-end.	It is the market value of common equity at year end for firm i in period t.
13.	Intensity of operating earnings [IOE]	$\frac{\text{absolute value of the operating components of earnings}}{\text{absolute value of both operating and non – operating components of earnings}}$	It is sustainability of earnings based on the deviation from normal profit margins.
14.	Firm-specific intensity of operating earnings [FINTit]	$\frac{ FOPERit }{ FOPERit + FNOPERit }$	IOE based on firm-specific profit margins.
15.	Industry-based intensity of operating earnings [IINTit]	$\frac{ IOPERit }{ IOPERit + INOPERit }$	Intensity of Operating Earnings based on Industry Profit Margins.