

Impact of Firms' Life Cycle and Advertising Intensity on Firm Performance



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Performance is the operational outcome of a company that all stakeholders and shareholders are particularly interested in. Financial performance can be influenced by the marketing mix, where advertising plays an important role. Further, firm life cycle stages have essential implications for understanding financial performance and investigating financial analysis and valuation implications. This study uses fixed effect panel data regression to examine the significant impact of corporate life cycle and advertising intensity on firms' performance of the Bombay Stock Exchange (BSE) 500 companies. This study infers that the combined effect of both firms' life cycle stages and advertising intensity has a positive impact on financial performance. In addition, the effect of advertising intensity on performance is higher in the growth and maturity than shake-out and decline stages. The results indicate that the role of advertising intensity across different life cycle stages is significant. This study contributes to the existing finance literature and provides insights that could be of use to investors, managers, and stakeholders.

Keywords: Firms' Life Cycle, Financial Performance, Advertising Intensity

1. Introduction

The firms are interested in their financial performance so as to measure the growth, potential, efficiency, investment opportunity, and to forecast the future (Brealey R S et al., 2018). The shareholder, portfolio manager, and stakeholder are required of the firm's financial performance for their better decisions making. The finance literature suggests factor like corporate financial decisions can influence financial performance, corporate governance factors, reporting, and disclosure and business and social activity (Nirajini A et al., 2013; Das P. K 2020; Fresard, L. 2010; Stulz, R. M. 1999; Vanderpal, G. 2015; Topal, Y., & Dogan, M. 2014; McWilliams, A., & Siegel, D. 2000). Moreover, the impact of firm performance from the perspective of firm life cycle stages have got scholarly attention in the past one decade. Firm life cycle theory has been adopted from biological sciences, and it goes through different stages in their life, like organic body, introduction, growth, maturity, and decline. Biological science and theory say that the decisions making and related activity vary along with human growth and development due to genetic, environmental, nutrition and experience (Balasundaram P. and Avulakunta I. D., 2022). Further, the firms' life cycle theory suggests that firms, like a living being, passes through different predictable pattern and development in different stages. The various challenges, predictable patterns, resources, strategies, structure, and function vary significantly across various life cycle stages of the firm (Miller and Friesen, 1980, 1984; Quinn & Cameron, 1983). The measurement scale of life cycle stages started with variables like, age, growth, size, and strategy (Lippitt & Schmidt, 1967; Schein, 1985; Smith, Mitchell, and Summer, 1985), which has limitations of measuring. From the limitations for measurement of the firm's life cycle stages, (Dickinson, 2011) documented and provided a robust accounting-based measure from the Cash flow statement. Firm's life cycle studies have had significant scholarly attention for over three decades and gained momentum in last decade (Habib A. & Hasan M.M., 2019).

Similarly, factor like investment in research and development, advertising intensity, corporate social responsibility, environmental performance, human capital development, and other marketing and strategical factor have significant relationship and impact on a firm's financial performance (Droucopoulos V. & Thomadakis S., 1993; Ho Y.K. et al., 2005; Bhattacharyya S.S. & Nemana P. 2021; Kailash I., 2021; McWilliams, A., & Siegel, D. 2000). In the same line, the firm's financial performance also influenced by their different financial decisions and business and social activity throughout the life cycle stages (Habib A., 2010; Chen S.K., Chang Y.L., Fu C.J. 2010; Rumman Z.A.A., Al Debi's M.M. 2020; Saidu S.; Kaur R. & Singh B., 2019; Shen Y. et al., 2021; Yoo J., Lee S., Park S., 2019; Ahmed K. & Jinan M., 2011). The strand literature has scant evidence about advertising intensity, FLCs and financial performance. Further, the literature also needs to explain the combined effect of advertising intensity and firms' life cycle stages on financial performance. Hence, the objective of this study is to answer these questions and explain the relationship. The study used BSE 500 non-financial companies, and data has been collected from secondary sources like Prowess IQ and Reserve Bank of India from the periods 2001-2021. A fixed effect panel regression model has been used for hypotheses testing. The results suggest that the combined effect of both firms' life cycle stages and advertising intensity has a positive impact on financial performance. In addition, the impact of advertising intensity on performance is higher in the growth and maturity than shake-out and decline stages. The results indicate that the role of advertising intensity across different life cycle stages is statistically significant. This study is not considered financial crises and the Covid pandemic as an economic shock. The results will be helpful to the Finance manager, portfolio manager, marketing

manager, shareholders, and stakeholders to get insightful information from this study which will help them make better decisions. The structure of this study is beginning with introduction followed by literature review and development of the hypotheses, methodology, result and interpretation, and the last is the conclusion.

2. Literature Review

The literature on the corporate life cycle is widely spread over various disciplines. The concept of this theory is adopted from biological sciences and provides different stages like introduction, growth, maturity, and decline, like the human body. Since the 1960s, Management researchers have been trying to implement this theory into businesses or corporate for better decisions making. Alex Chandler (1962); Cowen, S. S. et al. (1984) found that the theory is also applicable in management discipline also, and suggested that there is a viable distinguished between corporate life cycle stages and management style and entrepreneurial ability, which has a significant correlation with business growth and development. In line with this, the authors also suggested that the study of the theory has equally important for better decisions making, planning for better strategies, structure, and expansion. Then, the measurement of various stages of the corporate life cycle is a viable task for the authors. The development of the measurement scale of life cycle stages started (Lippitt & Schmidt, 1967); (Schein, 1985); (Smith, Mitchell, and Summer, 1985) (Dickinson, 2011). The significant variables taken for measuring the stages of the life cycle is age, size, capex, structure, growth rate, control system, leadership, etc., and these are less robust for research in accounting and finance. In 2011, the new accounting variable of measurement was used on the basis of cash flow pattern (Dickinson, 2011), which gives new research dimensions to accounting and finance research. Further, Habib A. and Hasan M.M. (2019) provide evidence that the study of the life cycle can explore new theories and practical contributions in the field of accounting and finance, tax, corporate governance, and dividend policy. However, they did not delineate research questions. The present study is more inclined toward accounting and finance to create more knowledge and contributes to the literature and is interested in financial performance particularly.

Financial performance is the major indicator in which stakeholders and shareholders are most interested. The firm also measures internal efficiency and operational efficiency for better analysis. The prominent measure in accounting and market, like Return on Asset (ROA), Return on Equity (ROE), Economic value added (EVA), Tobin's Q, Stock return, and earnings per share; however, present study focuses on ROA & ROE. Firm performance is measured from different aspects like corporate governance, expenditure, and corporate financial decision; however, from the perspective of firm life cycle stages, has gotten attention over the decades in literature (Habib A. & Hasan M.M., 2019). Efficient financial decisions and business activity lead to greater financial performance for the firms even in various life cycle stages. There are a number of studies that investigated the impact of financial decisions and business activity on financial performance by considering the corporate life cycle. Further, the corporate life cycle has a significant relationship and impact on financial performance. Firm performance has relatively high in the growth and maturity stage rather than the introduction and decline stage. Pecking order theory suggests that when firms enter into the market, the investment cost, establishment cost, higher debt cost, and optimization cost are higher, which, adjusted with sales revenue and bottom line get affected (Jovanovic, 1982; Spence 1977, 1979, 1981; Myers 1984, 1977; Barclay & Smith, 2005). The firms grow up by optimizing the operational efficiency & investment and reach the point where the firm's growth rate decreases and prices decline, the assets are liquidated for debt repayment, and the focus shift to the repayment of financing and renegotiation of debt (Wernerfelt, 1985). The strand of the literature suggests that the firm performance is higher in lower cash holdings (Atif M. et al., 2022). The value relevance is highly affected by the performance in the growth and maturity stage and lower in the introduction and decline stage (Habib A., 2010; Chen S.K., Chang Y.L., Fu C.J. 2010; Rumman Z.A.A., Al Debi's M.M. 2020). Zhou H. et al. (2016) evidenced that internal control has a significantly positive role on performance in maturity and shake out stage than other stages. The social network and agency theory suggests that corporate governance factors have a significant role and influence on firm performance. CEO characteristics have a significant impact on firm performance, where CEO education, Greater share ownership, foreign CEO, location, gender, and chairperson duality has a positive and significant impact on firm performance (Saidu S.; Kaur R. & Singh B., 2019; Shen Y. et al., 2021). Wahba H. and Elsayed K. (2014) documented that board size has a negative impact on firm performance in the introduction stages and a positive one in all other stages. The performance of both corporate social and financial has a positive relationship with growth and mature stage in large business groups (Park B. J., 2021). In line with, the R&D expenses have a positive impact on future performance since it increases production efficiency and reduces cost. The future performance, uncertainty, and sustainable growth are impacted by R&D expenditure according to the life cycle stages, negatively affected in the stagnant stage, and nonlinear between the two (Yoo J., Lee S., Park S., 2019; Ahmed K. & Jinan M., 2011). The financial performance literature also suggests that factor like advertising intensity has played a significant role as well like, as R&D expenditure. Moreover, the Attention, Interest, Desire, and Action (AIDA) model, and Elaboration likelihood model explain that product information & attention leads to increase in sales, which is reflects in bottom line of financial statement. So, advertising intensity has a significant impact on sales and financial performance. Advertising intensity shows a trace of a positive impact on performance for medium-sized establishments in consumer goods sectors (Droucopoulos V. & Thomadakis S., 1993; Ho Y.K. et al., 2005). Zainudin R. et al. (2021) documented that higher advertising intensity induces higher performance in the automotive manufacturing industry's ROA, ROE, and ROS. The competitive advantages and profitability can be achieved through investment in advertising; the authors (Bhattacharyya S.S. & Nemana P. 2021) investigated and found a significant positive relationship with performance in pre- and post-demonetization.

The strand of the literature suggests that there is a significant relationship between advertising intensity and firm performance. Since there is scant literature or less evidence about the investigation of the relationship or impact of advertising intensity on a

firm's financial performance in different life cycle stages of the firm, and also less evidence about the combined or interaction effect of both advertising intensity and corporate life cycle on financial performance. Hence, this study solely focuses on and investigates the impact of firm life cycle and advertising intensity on firm performance and also considers the macroeconomic factor while investigating this study. From the evidence of literature, the hypotheses can be developed by the following:

H1: There is a relationship and impact of Firms' life cycle on firm performance in macroeconomic conditions.

H2: There is a relationship and impact of Advertising intensity on firm performance in macroeconomic conditions.

H3: There is a Joint impact of Firms' life cycle and Advertising intensity on firm performance in macroeconomic condition

3. Research Methodology

To investigate and measure the relationship, this study uses the BSE 500 companies as sample firms for the period of 21 years from 2001-2021. The financial and insurance companies are excluded from the sample due to their different regulatory body, financial reporting standard, and Cashflow statement is different. Finally, 96 sample firm are selected and rest firms are excluded due to having data point zero throughout the periods. The data has been collected from Prowess IQ and the Reserve Bank of India. Economic shocks of 2008 and 2020 are not considered in the study, which can be one of the limitations. The

Fixed effect Panel regression model has been used for hypothesis testing for robustness. Panel data is the pooled of both time series and cross-sectional data structure, which helps to find the firm-specific result. Panel data sets for economic research have several major advantages over conventional cross-sectional or time-series data sets (Hsiao C. 2022). We conducted the Hausman test to verify whether the fixed effect or Random effect model is more robust. From the literature, we have obtained variables of different natures (Independent variables, Dependent variables, and Control Variables). The independent variable Firm life cycle stages (FLCS) can be measured through cash flow from operating, investing, and financing activities sign suggested by Dickinson (2011). Furthermore, the measurement sign is listed below the Table.

Table 1 Measurement of Life Cycle Stages

Cash flow type /	Cash flow from Operating activities	Cash Flow from Investing Activities	Cash Flow from Financing Activities
Introduction	Cash Flows (-)	Cash Flows (-)	Cash Flows (+)
Growth	Cash Flows (+)	Cash Flows (-)	Cash Flows (+)
Mature	Cash Flows (+)	Cash Flows (-)	Cash Flows (-)
Shake-Out	Cash Flows (+/-)	Cash Flows (+/-)	Cash Flows (+/-)
Decline	Cash Flows (-)	Cash Flows (+)	Cash Flows (+/-)

Source: Dickinson, 2011

Table 2 Descriptions of Variables

Variables	Symbol	Description and calculation
Return on Asset	ROA	Financial performance can be calculated by PAT/ Total Asset
Return on Equity	ROE	Financial performance can be calculated by PAT/ Total Equity
Advertising Intensity	ADI	ADI is calculated (Advertising expenses/ Sales), or (Advertising Expenses/ Total assets)
Firm life cycle stages	FLC	Stages of the life cycle can be calculated from the cash flow statement as per Dickinson's (2011) cash
Size	Size	Firm size is considered the natural logarithm of total assets
Asset Growth	AG	Asset growth is calculated (total assets t – total assets t-1)/ total assets t-1
Liquidity	LIQ	Cash/Total assets
Leverage	LEV	Total debt to total equity
Macro-economic	MAV	GDP growth rate, inflation rate,

Source: Author's Calculation

The following econometrics models are as follows

$$FP_{it} = \beta_0 + \beta_{1-4} \sum_{i=1}^4 FLCS_{it} + \beta_5 AG_{it} + \beta_6 ADIA_{it} + \beta_7 Size_{it} + \beta_8 LEV_{it} + \beta_9 GDP_{it} + \beta_{10} INF_{it} + \beta_{11} LIQ_{it} + \epsilon_{it} \quad (1)$$

$$FP_{it} = \beta_0 + \beta_1 ADIA_{it} + \beta_2 AG_{it} + \beta_3 Size_{it} + \beta_4 LEV_{it} + \beta_5 GDP_{it} + \beta_6 INF_{it} + \beta_7 LIQ_{it} + \epsilon_{it} \quad (2)$$

$$FP_{it} = \beta_0 + \beta_{1-4} \sum_{i=1}^4 FLCS_{it} * ADIA_{it} + \beta_5 AG_{it} + \beta_6 Size_{it} + \beta_7 LEV_{it} + \beta_8 GDP_{it} + \beta_9 INF_{it} + \beta_{10} LIQ_{it} + \epsilon_{it} \quad (3)$$

Where, β_0 is the intercept, β co-efficient, ϵ is the error term in the model.

4. Result and Discussion

Table 3 Summary statistics of Firm Life Cycle Stages

FLCS	Freq.	Percent	Cum.
Introduction	103	5.11	5.11
Growth	366	18.15	23.26
Maturity	1,240	61.51	84.77
Shake-out	253	12.55	97.32
Decline	54	2.68	100
Total	2,016	100	

Source: Author's Calculation

As the above table mentions that the maximum number of companies of data from 2001 - 2021 is 62% are in the mature stage, 18% of companies of data from 2001 – 2021 are in the growth stage, and 13% companies are in the shake-out stage, and 5% companies are in the introduction stage, and remaining companies which is lowest 3% are in the decline stage.

Table 4 Descriptive Statistics

Variables	Obs	Mean	Std. dev.	Min	Max
ROA	2,016	0.088	0.126	-2.798	1.449
ROE	2,016	0.197	5.519	-139.877	196.636
FLCS	2,016	2.895	0.780	1.000	5.000
ADIA	2,016	0.031	0.052	0.000	0.385
AG	2,016	0.147	0.255	-0.710	5.856
Size	2,016	7.492	1.444	3.000	12.019
LEV	2,016	2.619	41.108	-1397.222	1137.951
GDP	2,016	0.058	0.033	-0.066	0.085
INF	2,016	0.062	0.026	0.033	0.120
LIQ	2,016	0.057	0.087	-0.166	0.689

Source: Author's Calculation

Table 4 shows the descriptive statistics of the variables; financial performance, which stands at 8.8 and 19.7% average over the periods, and ROA is less volatile than ROE. The firms have 78% chance to move from one stage to another, and most of the firms are in the mature stage. Advertising expenses average 3.1% of total assets and diluted from one firm year to another is 5.2%. In other control variables, leverage has a high percent of volatility, and the mean stands at 41%.

Table 5 Correlation Matrix

	ROA	ROE	FLCS	ADIA	AG	Size	LEV	GDP	INF	LIQ
ROA	1									
ROE	0.0208	1								
FLCS	0.0849	0.0533	1							
ADIA	0.282	0.0102	0.1204	1						
AG	0.1341	0.0125	-0.2438	-0.0391	1					
Size	0.0051	0.0228	0.0905	-0.0993	-0.0256	1				
LEV	-0.0066	-0.992	-0.0554	0.0052	-0.0033	-0.0214	1			
GDP	0.0594	0.0018	-0.0138	-0.0021	0.0617	0.1389	0.0021	1		
INF	0.0546	0.0427	-0.0885	0.0279	0.0922	-0.0091	-0.0391	0.0285	1	
LIQ	0.2058	0.0045	0.1971	0.1619	0.0532	0.0109	-0.0011	0.0335	0.0826	1

Source: Author's Calculation

Table 5 shows that the relationship among variables, where the firm life cycle stages and financial performance have a positive relationship and stands at 0.08 and 0.05, respectively. The advertising intensity and return on assets also have a strong positive with 0.282 and with ROE of 0.010, which is relatively weaker. In line with all control variables having positive relationships except leverage, there is no high correlation among variables except ROE, for which we have excluded ROE in the regression to avoid multicollinearity. We also conduct VIF to detect the Multicollinearity problem. However, we found that all variables' VIF is less than five, which clearly indicates that there is no multicollinearity.

4.1 Regression Results

Table 6 Firms Life Cycle and Performance

	ROA	ROE
FLCS(Introduction)		
Growth	0.021(0.012) *	0.218(0.065) ***
Maturity	0.035(0.012) ***	0.210(0.062) ***
Shake-out	0.015(0.014)	0.178(0.072) **
Decline	-0.036(0.018) **	0.085(0.096)
AG	0.061(0.010) ***	0.176(0.050) ***
ADIA	0.592(0.077) ***	0.366(0.557)
Size	0.008(0.002) ***	-0.009(0.014)
LEV	0.000(0.000)	-0.134(0.000) ***
GDP	0.139(0.072) *	0.618(0.372) *
INF	0.146(0.088) *	0.584(0.453)
LIQ	0.161(0.034) ***	0.028(0.187)
_cons	-0.051(0.021) **	0.312(0.123) **
R-squared	0.326	0.373

Source: Author's Calculation,

(Note: *, **, *** at 10%, 5%, & 1% significance level, Coefficients are reported with standard error in parentheses)

Table 7 Advertising Intensity and firm Performance

	ROA	ROE
<i>ADIA</i>	0.597(0.085) ***	0.841(0.477) *
<i>AG</i>	0.055(0.009) ***	0.165(0.048) ***
<i>Size</i>	0.009(0.002) ***	-0.002(0.013)
<i>LEV</i>	0.000(0.000)	-0.134(0.000) ***
<i>GDP</i>	0.131(0.071) *	0.566(0.374)
<i>INF</i>	0.141(0.087) *	0.575(0.454)
<i>LIQ</i>	0.135(0.034) ***	0.012(0.181)
<i>_cons</i>	-0.034(0.020) *	0.440(0.113) ***
<i>R-squared</i>	0.239	0.390

Source: Author's calculation

(Note: *, **, *** at 10%, 5%, & 1% significance level, Coefficients are reported with standard error in parentheses)

Table 8 Firm Life Cycle & Advertising Intensity and Performance

	ROA	ROE
<i>FLCS*ADIA</i>		
<i>Growth</i>	0.759(0.524) *	0.150(0.271) ***
<i>Maturity</i>	0.853(0.509) *	0.149(0.264) ***
<i>Shake-out</i>	0.120(0.517) **	0.164(0.267) ***
<i>Decline</i>	0.130(0.823)	0.136(0.426) ***
<i>AG</i>	0.052(0.010) ***	0.164(0.050) ***
<i>Size</i>	0.012(0.003) ***	-0.009(0.014)
<i>LEV</i>	0.000(0.000)	-0.134(0.000) ***
<i>GDP</i>	0.114(0.071)	0.542(0.368)
<i>INF</i>	0.141(0.087)	0.490(0.450)
<i>LIQ</i>	0.121(0.036) ***	-0.023(0.187)
<i>_cons</i>	-0.050(0.025) **	0.570(0.129) ***
<i>R-squared</i>	0.234	0.394

Source: Author's calculation

(Note: *, **, *** at 10%, 5%, & 1% significance levels, respectively, Coefficients are reported with standard error in parentheses)

Regression results infers that the firm's life cycle and advertising intensity have a significant relationship and impact on the firm's financial performance or accounting-based performance, where the significance level is 1%, 5%, and 10%. We also found the performance is positively significant in growth and maturity; however, the negative impact is in the decline stage. Further, the advertising intensity also has a positive impact on ROA and ROE and is statistically significant at 1% & 10% levels, respectively. The findings of the combined effect of both firms' life cycle stages and advertising intensity also had a positive impact on financial performance. In addition, the impact of advertising intensity on performance is higher in the growth and maturity than shake-out and decline stages. The results clearly indicate that the role of advertising intensity across different life cycle stages is very significant.

5. Conclusion

This study concludes that the firms' life cycle stages play a significant role in advertising intensity for firm financial performance. For justifying financial performance, the advertising and firm life cycle stages have contributed in terms of strategy and economic benefits. The firm can make better decisions about advertising expenses of total assets when the firms go through the different life cycle stages like introduction, growth, maturity, shake-out, and decline. There is a two-way implication of this study in terms of theoretical and practical. This study is helpful to the finance managers, marketing managers, shareholders, and stakeholders and is more suitable for non-financial firms, specifically the manufacturing sector. Theoretically, this study also contributes to the existing finance & marketing literature and firms' life cycle theory.

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